

English



FUJITSU Software BS2000

# HSMS V11.0A

Volume 2: Statements

User Guide

Edition July 2017

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# 1 Preface

HSMS (**H**ierarchical **S**torage **M**anagement **S**ystem) is a BS2000 software product for data backup which supports data management on external storage devices in a BS2000 system.

In BS2000/OSD-BC V9.0 and higher the public storage space of a pubset can be expanded by storage space which a net server makes available remotely in the form of Net-Storage. Here HSMS also supports BS2000 files which are saved on a Net-Storage.

HSMS is operated via an easy-to-use user interface. HSMS statements are entered via SDF.

## 1.1 Objectives and target groups of this manual

The present manual is designed both for nonprivileged users of HSMS and for the HSMS administrator.

Even nonprivileged HSMS users should have a working knowledge of BS2000, i.e. be familiar with the most important commands and, in particular, with the BS2000 Data Management System (DMS). Where HSMS is used as a backup server for workstations and PCs, nonprivileged users also require a certain knowledge of the UNIX file system (UFS).

The HSMS administrator should additionally be familiar with the UNIX file system (UFS), system management and computer center organization.

## 1.2 Summary of contents

This manual describes all HSMS statements with their functions, syntax, and operands in alphabetical order. In the case of HSMS statements which are only intended for HSMS administrators the functional description and the header for the syntax format contain a corresponding note. In the case of HSMS statements which have a different functional scope for HSMS administrators and nonprivileged users, privileged operands/operand values are shown against a gray background and a corresponding note is contained in the operand description.

Each action statement description includes examples, which follow the operand description. These examples are intended to show what effect each action statement has when primarily default values are used.

In the case of the HSMS SHOW statements the screen masks for information output are shown after the operand descriptions and their layout is explained in a key.

The list of abbreviations and glossary define the most important terms used in this manual.

In the text, references to other manuals are made in abbreviated form and appear in quotation marks; the full titles of these publications can be found under "Related publications".

There is also an index at the back of the manual.

The following further documentation is available to help you learn to use the software product HSMS within the BS2000 operating system:

**HSMS V11.0A**  
**Hierarchical Storage Management System**  
**Volume 1: Functions, Management and Installation**  
User Guide

**Readme file**

The functional changes to the current product version and revisions to this manual are described in the product-specific Readme file.

Readme files are available to you online in addition to the product manuals under the various products at <http://manuals.ts.fujitsu.com>. You will also find the Readme files on the Softbook DVD.

*Information under BS2000*

When a Readme file exists for a product version, you will find the following file on the BS2000 system:

```
SYSRME.<product>.<version>.<lang>
```

This file contains brief information on the Readme file in English or German (<lang>=E/D). You can view this information on screen using the `/SHOW-FILE` command or an editor. The `/SHOW-INSTALLATION-PATH INSTALLATION-UNIT=<product>` command shows the user ID under which the product's files are stored.

*Additional product information*

Current information, version and hardware dependencies, and instructions for installing and using a product version are contained in the associated Release Notice. These Release Notices are available online at <http://manuals.ts.fujitsu.com>.

### 1.3 Changes since the last edition of the manual

This manual is published to accompany the release of HSMS V11.0A. The table below lists the changes within the HSMS statements. A list of amendments with regard to the function and a description of the restrictions compared with HSMS V10.0A is included in the introduction to the manual “HSMS Volume 1” [1].

Statement	Operand	Meaning
ARCHIVE-FILES	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
	SAVE-SAM-STRUCTURE=*NO/*YES	New operand: Save SAM structure of SAM node files.
ARCHIVE-NODE-FILES	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
BACKUP-FILES	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
	SAVE-SAM-STRUCTURE=*NO/*YES	New sub operand: Save SAM structure of SAM node files.
BACKUP-NODE-FILES	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.

(part 1 of 5)

Statement	Operand	Meaning
COPY-EXPORT-SAVE-FILE	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
	INPUT-SAVE-FILE=*BY-PUBLIC-DISK(...)	New sub operand: Save files to be copied are selected by the pubset on which they reside.
	TO-STORAGE=*PUBLIC-DISK(...)	New sub operand: Save files are exported to a pubset.
	TO-STORAGE=*NET-STORAGE(...)	New sub operand: Save files are exported to a Net-storage.
COPY-NODE-SAVE-FILE	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
COPY-SAVE-FILE	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
CREATE-SM-PUBSET-PARAMETERS	S1-VOLUME-SET-ID=*ALL-HSMS-CONTROLLED	New value: Any volume set of the SM pubset under HSMS control can serve as the S1 level.

(part 2 of 5)

Statement	Operand	Meaning
EXPORT-FILES	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
	TO-STORAGE=*PUBLIC-DISK(...)	New sub operand: Save files are exported to a pubset.
	TO-STORAGE=*NET-STORAGE(...)	New sub operand: Save files are exported to a Net-storage.
	SAVE-SAM-STRUCTURE=*NO/*YES	New operand: Save SAM structure of SAM node files.
IMPORT-FILES	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
	FILE-TYPE=*STD/ *BS2000/*NODE-FILE	New sub operand: Determines the type in which files will be restored to Net-Storage.
LIST-VOLUMES	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
MIGRATE-FILES	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
MODIFY-ARCHIVE	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
MODIFY-HSMS-PARAMETERS	OUTPUT=	New operand: Specifies the default report output destination

(part 3 of 5)

Statement	Operand	Meaning
MODIFY-SM-PUBSET-PARAMETERS	S1-VOLUME-SET-ID=*ALL-HSMS-CONTROLLED	New value: Any volume set of the SM pubset under HSMS control can serve as the S1 level.
MOVE-SAVE-FILES	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
RECALL-MIGRATED-FILES	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
REPAIR-CATALOG-BY-EXCHANGE	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
REPAIR-CATALOG-BY-RESTORE	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
REPLACE-SAVE-FILE-BY-EXCHANGE	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
REPLACE-SAVE-FILE-BY-RESTORE	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.

(part 4 of 5)

Statement	Operand	Meaning
RESTORE-FILES	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
	FILE-TYPE=*STD/ *BS2000/*NODE-FILE	New sub operands: Determine the type in which files will be restored to Net-Storage.
RESTORE-LIBRARY-ELEMENTS	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
RESTORE-NODE-FILES	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
SHOW-ARCHIVE	TYPE = *FULL-NOD-FILE	New value: Restricts selection to SAM-Node files saved by a full backup for which SAM structure wasn't saved.
UPDATE-EXPORT-SAVE-FILE	OUTPUT=*STD	New value (=default) : The output destination of the report is determined by the global HSMS parameter OUTPUT.
	TO-STORAGE=*PUBLIC-DISK(...)	New sub operand: Save files are exported to a pubset.
	TO-STORAGE=*NET-STORAGE(...)	New sub operand: Save files are exported to a Net-storage.
	SAVE-SAM-STRUCTURE=*NO/*YES	New operand: Save SAM structure of SAM node files.

(part 5 of 5)

## 1.4 Notational conventions

- The metasyntax of the HSMS statements is the same as the general SDF metasyntax (see the “SDF Dialog Interface” [3] and “Commands” [5] manuals).
- For statements which are also available to the nonprivileged user, privileged operands and operand values are highlighted with gray in the statement syntax.
- In the sample program runs, user input is shown in bold type.
- HSMS statements in the descriptive text which refer to the calling of certain functions cannot normally be entered in this form; rather they indicate the key components of the statement in question. as a rule, additional operands must be specified and the SDF data types are to be replaced by other entries.
- Document references in the text are given in abbreviated form between quotation marks. The full title to which the specified number refers is listed under that number in the related publications section and is accompanied by a brief description.
- References within this manual specify the page in question within the manual and, if appropriate, the name of the section or chapter. References to topics which are dealt with in other manuals specify only the abbreviated name of the manual. You can then consult the index of the specified manual to find the correct location in the text.



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## 2 HSMS statements

This chapter begins with an overview of HSMS statements sorted according to functions, notes on the formats, the syntax used, and the command return codes. It then provides detailed descriptions of all HSMS statements, which are arranged in alphabetical order.

HSMS distinguishes between nonprivileged users (STD-PROCESSING privilege), HSMS administrators (HSMS-ADMINISTRATION), system administrators (TSOS privilege) and subsystem administrators (SUBSYSTEM-MANAGEMENT privilege).

A number of HSMS statements cannot be used by nonprivileged users. The table on [page 23](#) shows which statements each category of user can issue to HSMS.

Certain operands resp. operand values of a number of HSMS statements cannot be used by some categories of users (see also [section "Statement formats and operand descriptions" on page 29](#)).

### 2.1 Overview of the HSMS statements

#### Selecting and outputting files from catalogs and archives

##### SHOW-ARCHIVE

Output the files, job variables, save files, save versions and volumes in HSMS or ARCHIVE directories

#### Action statements available to all users

##### ARCHIVE-FILES

Save files and job variables in a long-term archive

##### ARCHIVE-NODE-FILES

Save node files in a long-term archive

##### BACKUP-FILES

Save files and job variables in a backup archive

##### BACKUP-NODE-FILES

Save node files in a backup archive

**COPY-EXPORT-SAVE-FILE**

Copy a save file created by means of the action statement EXPORT-FILES or the EXPORT statement of software product ARCHIVE

**COPY-NODE-SAVE-FILE**

Copy a node save file and the save versions of an HSMS archive it contains

**COPY-SAVE-FILE**

Copy a save file and the save versions of an HSMS archive it contains

**EXPORT-FILES**

Export files, job variables and catalog entries

**IMPORT FILES**

Import files, job variables and catalog entries

**LIST-VOLUMES**

List the contents of volumes that were created with HSMS/ARCHIVE

**MIGRATE-FILES**

Move files to a default system migration archive

**MOVE-SAVE-FILES**

Move save files or node save files from a backup archive

**RECALL-MIGRATED-FILES**

Recall migrated files to processing level S0

**RESTORE-FILES**

Restore files and job variables from an HSMS archive

**RESTORE-LIBRARY-ELEMENTS**

Restore elements of a library file from an HSMS archive

**RESTORE-NODE-FILES**

Restore node files from an HSMS archive

**SELECT-FILE-NAMES**

Select the file names from pubset catalogs or archive directories for use in a subsequent action statement

**SELECT-JV-NAMES**

Select the job variable names from pubset catalogs or archive directories for use in a subsequent action statement

**SELECT-NODE-FILES**

Select the file names from archive directories for use in a subsequent action statement

**UPDATE-EXPORT-SAVE-FILE**

Update a save file created with the action statement EXPORT-FILES, using a selected online data set

**Statements for HSMS request management****DELETE-REQUESTS**

Delete completed or interrupted requests from the request file.

The HSMS administrator and users with TSOS privileges can also delete requests which have the status "STARTED".

**RESTART-REQUESTS**

Restart interrupted requests from the request file

**SHOW-REQUESTS**

Output the requests in the request file

**HSMS statements available to archive owners for archive management****CREATE-ARCHIVE**

Create an HSMS archive and define its attributes

**DELETE-ARCHIVE**

Delete an HSMS archive definition

**MODIFY-ARCHIVE**

Modify a directory, delete save files and add/remove volumes

**MODIFY-ARCHIVE-ATTRIBUTES**

Modify the attributes of an HSMS archive

**MOVE-SAVE-FILES**

Move save files or node save files from a backup archive

**SHOW-ARCHIVE**

Output the files, job variables, save files, save versions and volumes in HSMS archive directories or ARCHIVE directory files

**SHOW-ARCHIVE-ATTRIBUTES**

Output the attributes of an HSMS archive

**Privileged HSMS statements for the HSMS administrator**

- Statements for controlling HSMS operation

**CREATE-MANAGEMENT-CLASS**

Define a management class in an SM pubset that is under HSMS control

**CREATE-SM-PUBSET-PARAMETERS**

Place SM pubset under HSMS management and assign certain parameter values

**DELETE-MANAGEMENT-CLASS**

Delete a management class in an SM pubset that is under HSMS control

**MODIFY-HSMS-PARAMETERS**

Define and modify the global HSMS control parameters

**MODIFY-MANAGEMENT-CLASS**

Modify the attribute values contained in a management class

**MODIFY-NODE-PARAMETERS**

Place a node S0 under HSMS management and modify the pubset parameters

**MODIFY-PUBSET-PARAMETERS**

Place a SF pubset under HSMS management and modify the pubset parameters

**MODIFY-SM-PUBSET-PARAMETERS**

Modify the specific control parameters of an SM pubset

**MODIFY-TAPE-CONTROL**

Modify the tape control parameters, in particular for tape session control

**RECOVER-REQUESTS**

Recover requests after a host crash

**SHOW-HSMS-PARAMETERS**

Output the current or permanent HSMS control parameters

**SHOW-MANAGEMENT-CLASS**

Output the attribute values of a management class

**SHOW-NODE-PARAMETERS**

Output the parameters of the nodes under HSMS management

**SHOW-PUBSET-PARAMETERS**

Output the parameters of the pubsets under HSMS management

**SHOW-PUBSET-USAGE**

Output information on pubset utilization and occupancy

**SHOW-SM-PUBSET-PARAMETERS**

Output the permanent or current, specific control parameters of an SM pubset

**SHOW-TAPE-CONTROL**

Output the current or permanent parameter values for tape session control and the number of requests waiting to be processed

- HSMS statements for correcting errors in the migration area

**REPAIR-CATALOG-BY-EXCHANGE**

Correct inconsistencies in migrated files using EXCHANGE

**REPAIR-CATALOG-BY-RESTORE**

Correct inconsistencies in migrated files using RESTORE

**REPLACE-SAVE-FILE-BY-EXCHANGE**

Replace a save file in the migration archive using EXCHANGE

**REPLACE-SAVE-FILE-BY-RESTORE**

Replace a save file in the migration archive using RESTORE

**Privileged HSMS statements for the subsystem administrator****START-HSMS**

Load HSMS and define the global parameters for the HSMS session

**STOP-HSMS**

Terminate the HSMS session and unload HSMS

**SDF standard statements****END**

Terminate the HSMS run

**EXECUTE-SYSTEM-CMD**

Execute a system command during the HSMS run

**HELP-MSG-INFORMATION**

Display message texts

**HOLD-PROGRAM**

Stop the HSMS run

**MODIFY-SDF-OPTIONS**

Activate or deactivate the user syntax file and modify the SDF parameter settings

**REMARK**

Identify a text as a comment

**RESET-INPUT-DEFAULTS**

Delete task-specific default values

**RESTORE-SDF-INPUT**

Output operands and operand values of the last accepted statement

**SHOW-INPUT-DEFAULTS**

Output task-specific default values

**SHOW-INPUT-HISTORY**

Display the contents of the input buffer

**SHOW-SDF-OPTIONS**

Output the SDF parameter settings

**SHOW-STMT**

Output the syntax of a statement of the program currently loaded

**STEP**

Define a restart point in procedures (will be rejected in dialog jobs)

**WRITE-TEXT**

Write a text to SYSOUT or SYSLST

With the exception of END, the standard SDF statements are not described in the present manual. Users are referred to the "SDF Dialog Interface" [3].

### Which HSMS statements may be entered by whom?

The standard SDF statements are not listed here as they are available to all HSMS users.

HSMS statement (alias)	HSMS administrator privilege	Subsystem management privilege	Nonprivileged user
ARCHIVE-FILES (ARF)	X		E
ARCHIVE-NODE-FILES (ANF)	X		E
BACKUP-FILES (BCF)	X		E
BACKUP-NODE-FILES (BNF)	X		E
COPY-EXPORT-SAVE-FILE (CES)	X		E
COPY-NODE-SAVE-FILE (CNF)	X		E
COPY-SAVE-FILE (CSF)	X		E
CREATE-ARCHIVE (CRA)	X		E
CREATE-MANAGEMENT-CLASS (CMC)	X		
CREATE-SM-PUBSET-PARAMETERS (CSP)	X		
DELETE-ARCHIVE (DLA)	X		X
DELETE-MANAGEMENT-CLASS (DMC)	X		
DELETE-REQUESTS (DLR)	X		E
EXPORT-FILES (EXF)	X		E
IMPORT-FILES (IMF)	X		E
LIST-VOLUMES (LIV)	X		X

(part 1 of 3)

HSMS statement (alias)	HSMS administrator privilege	Subsystem management privilege	Nonprivileged user
MIGRATE-FILES (MGF)	X		E
MODIFY-ARCHIVE (MDA)	X		X
MODIFY-ARCHIVE-ATTRIBUTES (MAA)	X		E
MODIFY-HSMS-PARAMETERS (MHP)	X		
MODIFY-MANAGEMENT-CLASS (MMC)	X		
MODIFY-NODE-PARAMETERS (MNP)	X		
MODIFY-PUBSET-PARAMETERS (MPP)	X		
MODIFY-SM-PUBSET-PARAMETERS (MSP)	X		
MODIFY-TAPE-CONTROL (MTC)	X		
MOVE-SAVE-FILES (MSF)	X		X
RECALL-MIGRATED-FILES (RMF)	X		E
RECOVER-REQUESTS (RER)	X		
REPAIR-CATALOG-BY-EXCHANGE (RCE)	X		
REPAIR-CATALOG-BY-RESTORE (RCR)	X		
REPLACE-SAVE-FILE-BY-EXCHANGE (RFE)	X		
REPLACE-SAVE-FILE-BY-RESTORE (RFR)	X		
RESTART-REQUESTS (RSR)	X		E
RESTORE-FILES (RSF)	X		E

(part 2 of 3)

HSMS statement (alias)	HSMS administrator privilege	Subsystem management privilege	Nonprivileged user
RESTORE-LIBRARY-ELEMENTS (RLE)	X		E
RESTORE-NODE-FILES (RNF)	X		E
SELECT-FILE-NAMES (SFN)	X		E
SELECT-JV-NAMES (SJV)	X		E
SELECT-NODE-FILES (SNF)	X		E
SHOW-ARCHIVE (SHA)	X		E
SHOW-ARCHIVE-ATTRIBUTES (SAA)	X		E
SHOW-HSMS-PARAMETERS (SHP)	X		
SHOW-MANAGEMENT-CLASS (SMC)	X		X
SHOW-NODE-PARAMETERS (SNP)	X		
SHOW-PUBSET-PARAMETERS (SPP)	X		
SHOW-PUBSET-USAGE (SPU)	X		
SHOW-REQUESTS (SHR)	X		E
SHOW-SM-PUBSET-PARAMETERS (SSP)	X		
SHOW-TAPE-CONTROL (STC)	X		
START-HSMS (STA)		X	
STOP-HSMS (STO)		X	
UPDATE-EXPORT-SAVE-FILE (UES)	X		E

(part 3 of 3)

*Key:*

- X all the statement operands are available
- E some statement operands and operand values are not available

Strictly speaking, nonprivileged users have access to fewer operands than the HSMS administrator for virtually all statements. For example, they are generally restricted to objects under their own user ID.

### Hierarchy of operands in HSMS

Overview of the operands for which either global or archive-specific default values exist; the default values can, however, be modified for individual requests, HSMS sessions, node S0s or pubsets.

Operands which are not included in this table are only specified at one location and have no place in any hierarchy.

HSMS statement Operand	ANF ARF	BCF BNF	CNF CSF MSF	CRA	MDA	RLE	MAA	MHP	MNP	MPP MSP	MTC	RMF MGF	RCR RFR	RNF RSF	STA
BLOCKING-FACTOR		X	X	A			A								
COMMON-MEMORY-SIZE								H							S
DESTROY-BY-DELETE		B	B	A			A								
(S2-)DEVICE-TYPE		X	X	A			A	H							
EXPRESS-CONTROL								H			A				
FILE-EXPIRATION-DATE	X			A	X		A								
LOCATION		X	X	A	A										
MULTIPLEXING		X <sup>1)</sup>		A	A										
NUMBER-OF-SUBTASKS								H							S
OPERATIONAL-MODUS								H							S
OPERATOR-INTERACTION			X	A		X	A						X	X	
PARALLEL-RUNS		X	X	A		X	A						X	X	
PRIMARY-ALLOCATION		X	X	A			A								
READ-CONTROL								H			A				
RETENTION-PERIOD	X	X	X	A	X		A								

(part 1 of 2)

HSMS statement Operand	ANF ARF	BCF BNF	CNF CSF MSF	CRA	MDA	RLE	MAA	MHP	MNP	MPP MSP	MTC	RMF MGF	RCR RFR	RNF RSF	STA
SAVE-DATA		X		A	A										
SAVE-PLAM-INFO		X		A	A										
SECONDARY- ALLOCATION		X	X	A			A								
SHADOW-COPY	X	X		A	A										
SYSARCHIVE								H		P					
SYSBACKUP								H		P					
SYSMIGRATE								H		P					
SYSNODEARCHIVE									N						
SYSNODEBACKUP									N						
S1-PUBSET-ID								H		P					
UNLOAD-TAPE		X	X	A		X	A						X	X	
WRITE-CHECK		B	B	A			A								
WRITE-CHECK- POINTS		X	B	A		B	A						X	B	
WRITE-CONTROL								H			A				

(part 2 of 2)

*Key:*

- X the operand value is valid for the current request only.  
(if X<sup>1</sup> only for BNF)
- A default values for the operand from the archive definition.
- B the operand is not valid for HSMS statements referring to nodes.
- H global HSMS default value for the operand.
- N the operand value is valid for the specified node S0 only.
- P the operand value is valid for the specified pubset only.
- S the operand value is valid for the current HSMS session only.

## 2.2 Statement formats and operand descriptions

This section provides information on statement formats and operand descriptions.

### Statement formats

Statement formats are represented in the familiar SDF form. Numerous HSMS statements are available to both the HSMS administrator and – in restricted form – to nonprivileged users.

If a statement can also be used by nonprivileged users, privileged operands and operand values are highlighted in gray in the syntax format. Privileged operands and operand values are marked accordingly in the operand description.

With the exception of START-HSMS and STOP-HSMS, the HSMS administrator may always use the complete format. Operands reserved for the HSMS administrator cannot be made available to other users, not even by modifying their syntax file using SDF-A.

### Operand description

The operand description does not in all cases give a complete list and detailed explanation of each and every operand value. If the meaning of an operand value is already clear from its name and from the operand description, no further explanation is given. The default value is in most cases not listed and described separately.

*Example from the HSMS statement BACKUP-FILES:*

**UNLOAD-TAPE = \*STD / \*NO / \*YES**

specifies whether or not tapes are to be unloaded after processing.

The preset value from the archive definition applies unless otherwise specified.

The operand value \*UNCHANGED is never explained in an operand description.

\*UNCHANGED is used in MODIFY statements and has the following meaning:

The operand value used up to now is not changed. Since \*UNCHANGED is always the default value, MODIFY statements cause only those operands to be changed that are explicitly specified.

Please read the remarks concerning \*UNCHANGED at the beginning of the format descriptions of the HSMS statements MODIFY-HSMS-PARAMETERS and MODIFY-PUBSET-PARAMETERS.

*Example from the HSMS statement MODIFY-ARCHIVE-ATTRIBUTES:*

**UNLOAD-TAPE = \*UNCHANGED / \*NO / \*YES**

specifies whether or not tapes are to be unloaded after processing.

As the meaning of all the operand values is without further explanation, no further operand description is given.

*Example from the HSMS statement CREATE-ARCHIVE:*

**WRITE-CHECK = \*NO / \*YES / \*SAVE-FILES / \*RESTORED-FILES**

specifies whether a read-after-write check is to be performed after each write operation for error detection purposes. Note that read-after-write checking will result in longer execution times.

**WRITE-CHECK = \*SAVE-FILES**

restricts read-after-write checks to saved files.

**WRITE-CHECK = \*RESTORED-FILES**

restricts read-after-write checks to restored files.

Since the meaning of the operand values \*NO and \*YES is clear without further explanation, only the remaining values are explained.

Details of general SDF metasyntax and of how to enter commands or statements are provided in the “SDF Dialog Interface” [3] and “Commands” [5] manuals.

## 2.3 Description of the HSMS statements

This section lists all the HSMS statements in alphabetical order.

### ARCHIVE-FILES

#### Archive files and job variables

This statement archives files and job variables to a long-term archive. The files and job variables can be written to background level S2 or S1, to public discs or to Net-Storage volumes and can be deleted from processing level S0 after archival.

The following can be set for ARCHIVE-FILES requests using archive attributes:

- Saving of the metainformation of PLAM libraries
- Implicit deletion of obsolete save files or save versions
- Specification concerning tape usage (TAPE-CONTROL)

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

#### Format

ARCHIVE-FILES	Alias: <b>ARF</b>
<b>FILE-NAMES</b> = <b>*OWN</b> / <b>*ALL</b> / <b>*NONE</b> / <b>*SELECTED</b> / <b>*FROM-FILE(...)</b> / <b>*FROM-LIBRARY-ELEMENT(...)</b> / list-poss(20): <filename 1..80 without-vers with-wild> / <partial-filename 2..79 with-wild>	
<b>*FROM-FILE(...)</b>   <b>LIST-FILE-NAME</b> = <filename 1..54 without-gen-vers>	
<b>*FROM-LIBRARY-ELEMENT(...)</b>   <b>LIBRARY</b> = <filename 1..54 without-gen-vers>   <b>ELEMENT</b> = <composed-name 1..64 with-under>	
<b>,EXCEPT-FILE-NAMES</b> = <b>*NONE</b> / <b>*FROM-FILE(...)</b> / <b>*FROM-LIBRARY-ELEMENT(...)</b> / list-poss(20): <filename 1..80 without-vers with-wild> / <partial-filename 2..79 with-wild>	
<b>*FROM-FILE(...)</b>   <b>LIST-FILE-NAME</b> = <filename 1..54 without-gen-vers>	
<b>*FROM-LIBRARY-ELEMENT(...)</b>   <b>LIBRARY</b> = <filename 1..54 without-gen-vers>   <b>ELEMENT</b> = <composed-name 1..64 with-under>	

(part 1 of 3)

```

,ENVIRONMENT = *STD / *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
    *SYSTEM-MANAGED(...)
        | CATALOG-ID = <cat-id>
,SELECT-FILES = *ALL-FILES / *MIGRATED-FILES(...)
    *MIGRATED-FILES(...)
        | MIGRATED-BEFORE = <date with-compl> / *LATEST-DATE / <integer -99999..0 days>
,SAVE-DIRECTORY = *NO / *YES(...)
,JV-NAMES = *NONE / *OWN / *ALL / *SELECTED / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
    list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>
    *FROM-FILE(...)
        | LIST-FILE-NAME = <filename 1..54 without-gen-vers>
    *FROM-LIBRARY-ELEMENT(...)
        | LIBRARY = <filename 1..54 without-gen-vers>
        | ELEMENT = <composed-name 1..64 with-under>
,EXCEPT-JV-NAMES = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / list-poss(20):
    <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>
    *FROM-FILE(...)
        | LIST-FILE-NAME = <filename 1..54 without-gen-vers>
    *FROM-LIBRARY-ELEMENT(...)
        | LIBRARY = <filename 1..54 without-gen-vers>
        | ELEMENT = <composed-name 1..64 with-under>
,DELETE-FILES-AND-JV = *NO / *YES(...)
    *YES(...)
        | PROTECTION-RESPECTED = *ALL / *PASSWORDS / *NONE
,SAVE-SAM-STRUCTURE = *YES/*NO
,ARCHIVE-NAME = *SYSARCHIVE / <filename 1..22 without-cat-gen-vers>
,SAVE-FILE = *STD / *NEW(...) / *CONTINUE(...)
    *NEW(...)
        | RETENTION-PERIOD = *STD / <integer 0..16383 days>
    *CONTINUE(...)
        | SAVE-FILE-ID = *LATEST / <composed-name 15..15>
,SAVE-VERSION-NAME = *STD / <name 1..8>
,DESCRIPTOR = *NONE / <c-string 1..10>

```

(part 2 of 3)

```

,USER-INFORMATION = *NONE / <c-string 1..720>
,FILE-EXPIRATION-DATE = *STD / <date with-comp!> / <integer 0..99999 days>
,COMPRESS-FILES = *STD / *YES / *NO
,TO-STORAGE = *S2-STORAGE-LEVEL(...)/ *S1-STORAGE-LEVEL /
                *PUBLIC-DISK(...) / *NET-STORAGE(...)
*S2-STORAGE-LEVEL(...)
    |
    | VOLUMES = *FROM-POOL / *FROM-OPERATOR / list-poss(20): <vsn 1..6>
    | ,DEVICE-TYPE = *STD / <device>
    | ,LOCATION = *STD / *ANY / <alphanum-name 1..8>
*PUBLIC-DISK(...)
    |
    | PUBSET-ID = <cat-id>
*NET-STORAGE(...)
    |
    | VOLUMES = list-poss(16): <vsn 1..6>
,DIALOG-FILE-SELECT = *NO / *YES
,DIALOG-JV-SELECT = *NO / *YES
,OPERATION-CONTROL = *STD / *PARAMETERS(...)
*PARAMETERS(...)
    |
    | REQUEST-NAME = *STD / <name 1..8>
    | ,REQUEST-DESCRIPTOR = *NONE / <text 1..60>
    | ,EXPRESS-REQUEST = *NO / *YES
    | ,CONTROL-JV = *NONE / <filename 1..54 without-gen-vers>
    | ,WAIT-FOR-COMPLETION = *NO / *YES
    | ,SHADOW-COPY = *ALLOWED / *INHIBITED
    | ,PERFORMANCE-ANALYSIS = *NO / *YES(...)
    | *YES(...)
    |     |
    |     | SEPARATOR = ; / <c-string 1..1>
    | ,REPORT = *SUMMARY / *FULL / *NONE
    | ,OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...)/ <filename 1..54 without-gen-vers>
    | *LIBRARY-ELEMENT(...)
    |     |
    |     | LIBRARY = <filename 1..54 without-gen-vers>
    |     | ,ELEMENT = <composed-name 1..64 with-under>

```

(part 3 of 3)

**FILE-NAMES =**

Serves to specify the files to be archived. Specification of this operand is mandatory. The user can select individual files from the set of files specified here by means of the operands EXCEPT-FILE-NAMES and DIALOG-FILE-SELECT.

The files to be archived are not restricted to a specific environment.

If files from more than one pubset are specified and are to be saved to a default system archive, then the same default system archive must be assigned to all these pubsets. Otherwise, the HSMS statement will be rejected. To prevent this you should only specify files from one pubset for each archival request.

All nonprivileged users can also archive files belonging to other user IDs if the files are sharable or if these users are co-owners of the files.

When PLAM libraries are archived the archive attribute SAVE-PLAM-INFO (see the operand of the same name in the CREATE-ARCHIVE statement on [page 196](#)) controls whether the information about the element structure is also saved. Only if this information is also saved can individual library elements be restored from the long-term archive. Otherwise a PLAM library can only be restored as a complete library file. For collector requests the archive attribute SAVE-PLAM-INFO is evaluated for the first request.

**FILE-NAMES = \*OWN**

All files of the user's own ID residing on any imported pubset (except for shared SF pubsets for which the home computer is the slave) are to be archived.

**FILE-NAMES = \*ALL**

All files residing on any imported pubset (except for shared SF pubsets for which the home computer is the slave) are to be archived.

Specified by any other user, this has the same effect as \*OWN.

**FILE-NAMES = \*NONE**

No files are to be archived.

**FILE-NAMES = \*SELECTED**

The path names of the files to be archived are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-FILE-NAMES.

**FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be archived are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used.

The list file can be created, for instance, by means of the HSMS statement SELECT-FILE-NAMES or the DMS command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are to be archived are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be archived are specified directly. A list of up to 20 names may be specified.

The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the default catalog ID.

You can also use wildcard syntax to select the files.

In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

The following applies to file generations: when specifying fully qualified file names, the specification of a generation number (version) is permissible. Only the specified generations will be archived.

If the files of a shared pubset imported in slave mode are specified, no other pubset of a different master may be specified.

**EXCEPT-FILE-NAMES =**

Serves to specify files that are to be excluded from archival.

**EXCEPT-FILE-NAMES = \*NONE**

All files specified with the FILE-NAMES operand are to be archived.

**EXCEPT-FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be excluded from archival are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used.

The list file can be created, for instance, by means of the HSMS statement SELECT-FILE-NAMES or the DMS command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are not to be archived are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be excluded from archival are specified directly. A list of up to 20 names may be specified.

The first character of the file names must not be a hyphen. The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the default catalog ID.

You can also use wildcard syntax to select the files.

The following applies to file generations: when specifying fully qualified file names, the specification of a generation number (version) is permissible. Only the specified generations will be excluded from archival.

**ENVIRONMENT =**

HSMS environment in which the statement is to be processed.

**ENVIRONMENT = \*STD**

*For privileged users:* \*STD is set to the value \*SINGLE-FEATURE.

*For nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*SINGLE-FEATURE**

The statement is valid in the SF environment.

*Exception:* A long-term archive and its directory which have been defined in an SF environment can be used globally both for SF and SM pubsets.

In all statements which are issued for a long-term archive the same HSMS environment must be specified as in the definition of the archive.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The statement is valid in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset for which the statement is valid.

**SELECT-FILES =**

*This operand is only available to the HSMS administrator.*

Indicates whether all files specified in the FILE-NAMES operand are to be archived.

**SELECT-FILES = \*ALL-FILES**

All the files specified in the FILE-NAMES operand are archived.

**SELECT-FILES =\*MIGRATED-FILES(...)**

Only migrated files are archived.

**MIGRATED-BEFORE = <date with-comp> / \*LATEST-DATE /****<integer -99999..0 days>**

Only those files which were migrated prior to or on the date specified for S0 are archived.

**SAVE-DIRECTORY = \*NO / \*YES(...)**

Determines whether the archive directory used for this run is written to the backup volume as the last file in the run.

**JV-NAMES =**

You can specify the job variables that are to be archived.

All non-privileged users can also archive job variables which belong to other user IDs as long as they are the co-owner of these job variables.

**JV-NAMES = \*NONE**

No job variables are archived.

**JV-NAMES = \*OWN**

All job variables of your own user ID on all imported pubsets (except for shared SF pubsets for which the home computer is the slave) are archived.

**JV-NAMES = \*ALL**

All job variables of the specified environment of all imported pubsets (except for shared SF pubsets for which the home computer is the slave) are archived.

**JV-NAMES = \*SELECTED**

The path names of the job variables that are to be archived are taken from a list. This list is created in the same HSMS run using the HSMS statement SELECT-JV-NAMES.

**JV-NAMES = \*FROM-FILE(...)**

The path names of the job variables that are to be archived are taken from a file. The nonprivileged caller must be owner or co-owner of this file. This file must be a SAM file with variable record lengths which contains a single path name per record. Only upper-case characters may be used.

The job variables to be processed must be available in the environment specified.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the file.

**JV-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are to be archived are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**JV-NAMES = list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>**

The path name of the job variables that are to be archived are entered directly. You can enter a list containing a maximum of 20 names.

The files to be processed must be available in the specified environment. You can enter job variables using the wildcard syntax. When processing shared pubsets the resolution of the wildcard syntax using catalog IDs does not refer to SF pubsets for which the home computer is the slave.

If you specify job variables of an imported shared pubset that is in slave mode, you cannot specify a pubset belonging to a different master.

**EXCEPT-JV-NAMES =**

Specifies job variables that are not to be archived.

**EXCEPT-JV-NAMES = \*NONE**

All job variables that are specified in the JV-NAMES operand are archived.

**EXCEPT-JV-NAMES = \*FROM-FILE(...)**

The path names of the job variables that are not to be archived are taken from a file. The nonprivileged caller must be owner or co-owner of this file. This file must be a SAM file with variable record lengths which contains a single path name per record. Only upper-case characters may be used.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the file.

**EXCEPT-JV-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are not to be archived are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-JV-NAMES = list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>**

The job variables' pathnames, which are not to be archived, are to be entered directly. You can enter up to 20 names in one list.

You can also select the job variables using wildcard syntax. When processing shared pubsets the resolution of the wildcard syntax using catalog IDs does not refer to SF pubsets for which the home computer is the slave.

**DELETE-FILES-AND-JV = \*NO / \*YES(...)**

Defines whether the archived files and job variables are to be deleted from the processing level after archival.

In the case of automatic duplication to a shadow archive, the files and job variables are not deleted until the duplication is completed.

**DELETE-FILES-AND-JV = \*YES(...)**

The archived files and JV are to be deleted from S0. Files and job variables are excluded from deletion. Deletion can be restricted by specifying which file protection attributes are to be respected:

**PROTECTION-RESPECTED = \*ALL**

Deletion is to be restricted to files and job variables without password protection, with write access and whose retention period has expired.

**PROTECTION-RESPECTED = \*PASSWORDS**

Deletion is to be restricted to files and job variables without password protection.

**PROTECTION-RESPECTED = \*NONE**

*This operand value is only available to the HSMS administrator.*

All files and job variables are to be deleted, irrespective of their protection attributes.

**SAVE-SAM-STRUCTURE = \*YES/\*NO**

Determines whether the structure of SAM-Node files is to be saved.

SAM node files that have been saved without SAM structure can only be restored as a SAM node file again.

SAM node files that have been saved with SAM structure can be restored either as FILE-TYPE=\*BS2000 (on public space or Net-Storage) or FILE-TYPE=\*NODE-FILE.

**ARCHIVE-NAME = \*SYSARCHIVE / <filename 1..22 without-cat-gen-vers>**

Name of the archive in the central HSMS parameters to which the files are to be saved. The specified archive must already exist and be available for use as a long-term archive.

If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. This also applies to the HSMS administrator.

To enable the nonprivileged user to use another user's archive, either the archive must contain write access for foreign users (USER-ACCESS=\*ALL-USERS and ACCESS=\*WRITE) or he/she must be a co-owner of the directory of the archive. This does not apply to access by the HSMS administrator.

**ARCHIVE-NAME = \*SYSARCHIVE**

The files and job variables are to be saved to the default long-term system archive (SYSARCHIVE).

**SAVE-FILE =**

Defines the save file to which the archived files are to be written.

**SAVE-FILE = \*STD**

A standard save file is to be created or continued. The (physical) retention period valid for the save file is defined in the archive definition.

A standard save file is created only during archivals to S2 storage level. If the TO-STORAGE operand has another value than \*S2-STORAGE-LEVEL, a new save file will be created on the specified storage. If a standard save file is created in periods according to the archive attributes, in succeeding runs with TO-STORAGE=\*S2-STORAGE-LEVEL the existing standard save file will be continued.

**SAVE-FILE = \*NEW(...)**

The user's archived files and job variables are to be written to a new save file. A retention period for this save file can be defined here.

**RETENTION-PERIOD = \*STD / <integer 0..16383 days>**

(Physical) retention period in days. During this period, neither the save file nor the save volume may be modified or deleted. Unless otherwise specified, the preset value from the archive definition applies.

**SAVE-FILE = \*CONTINUE(...)**

The specified save file is to be continued. It must reside on storage level S2.

In the case of automatic duplication to a shadow archive, HSMS attempts to continue in the shadow archive the save file which has the same SFID as the original save file. If this save file does not exist, the save file will not be duplicated and any deletion of files and job variables that was requested (with DELETE-FILES\_AND-JV=\*YES) will not be carried out.

**SAVE-FILE-ID = \*LATEST**

The most recently created save file for this archive is to be continued.

**SAVE-FILE-ID = <composed-name 15..15>**

The specified save file is to be continued. The save file ID must be specified as follows: S.yymmdd.hhmmss

**SAVE-VERSION-NAME = \*STD / <name 1..8>**

Name of the save version generated by the archival request. This name can be used to refer to the save version for restore operations or in the HSMS statement SHOW-ARCHIVE. The name is extended internally by a prefix derived from the user ID (or, in the case of the HSMS administrator, by SYSHSMS). Any save version can be uniquely identified by its name and an internal time stamp.

Unless otherwise specified, the save version is given the name "ARCHIVAL".

**DESCRIPTOR = \*NONE / <c-string 1..10>**

Brief descriptive text of up to 10 characters which is output in the summary of save versions produced as a result of

SHOW-ARCHIVE SELECT=\*SAVE-VERSIONS,INFO=\*SUMMARY.

Unless otherwise specified, no description is written.

**USER-INFORMATION = \*NONE / <c-string 1..720>**

Comment of up to 720 characters with information about the save version, which is output as a result of SHOW-ARCHIVE SELECT=\*SAVE-VERSIONS,INFO=\*USER-INFORMATION. Unless otherwise specified, no comment is written.

**FILE-EXPIRATION-DATE = \*STD / <date with-compl> / <integer 0..99999 days>**

File expiration date for the archived files. The specified date must not lie outside the (physical) retention period for the save files or save volumes unless this is permitted by the archive definition.

Unless otherwise specified, the file expiration date coincides with the end of the (physical) retention period defined for the save file or save volume.

If the specified file expiration date is lower than the expiration date of a file or a job variable to be archived, a warning message will be issued.

**COMPRESS-FILES = \*STD / \*YES / \*NO**

Determines whether or not data is to be compressed before being written to the volume.

Unless otherwise specified, the default value in the archive definition is used.

**TO-STORAGE =**

Defines the storage level at which the files and job variables are to be archived. Pubsets, Net-Storage and S1 storage level are permitted in addition to S2 storage level. Only save files on S2 storage level can be continued. In this case the same device type as for their creation must be used.

**TO-STORAGE = \*S2-STORAGE-LEVEL(...)**

The files are to be archived to storage level S2 of the specified environment. The volumes to be used can be specified. If more than one volume is specified, all volumes must be of the same device type.

**VOLUMES = \*FROM-POOL**

The volumes are to be taken from the volume pool of the specified archive, i.e. the pool of the archive directory or the associated MAREN pool.

**VOLUMES = \*FROM-OPERATOR**

The volumes are to be allocated by the operator on request.

**VOLUMES = list-poss(20): <vsn 1..6>**

List of volume serial numbers, which will be requested in the specified order.

**DEVICE-TYPE = \*STD / <device>**

Device type of the requested volumes. The device type must belong to the class "TAPE". Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

Unless otherwise specified, the preset value from the archive definition applies if a new save file is created (S2-DEVICE-TYPE). If an existing save file is continued, the device type specified when the save file was created is used.

**LOCATION = \*STD / \*ANY / <alphanum-name 1..8>**

Location used for requesting volumes. This location must be known to MAREN. If the location manager is in use, the location should be properly defined in MARENLM. Otherwise MAREN ignores the specified value.

If MAREN is not in use, you must specify for LOCATION the value \*ANY, or \*STD if \*ANY is the default location of the archive.

**LOCATION = \*STD**

The default location of the archive is used.

**LOCATION = \*ANY**

No location is to be used.

**TO-STORAGE = \*S1-STORAGE-LEVEL**

This value applies in an SF pubset environment, as well as in an SM pubset environment. In an SF pubset environment, the files are stored on an S1 pubset. The same S1 pubset must be assigned to all pubsets from which files are stored.

In an SM pubset environment, the files are stored on the defined storage level S1 (S1 volume set). When an extended S1 level is defined for the SM pubset (S1-VOLUME-SET=\*ALL-HSMS-CONTROLLED), TO-STORAGE=\*S1-STORAGE-LEVEL is only accepted under the following circumstances:

- SAVE-FILE-PROCESSING=\*HSMS-V10-COMPATIBLE is set.
- BS2000 OSD/BC V11.0 or higher is used on the system. In the case of a shared pubset network, all pubset sharers of the SM pubset must satisfy this requirement.

When SAVE-FILE-PROCESSING=\*HSMS-V9-COMPATIBLE is set, saving to S1 level is possible only if a volume set is specified explicitly.

**TO-STORAGE = \*PUBLIC-DISK(...)**

*This operand value is only available to the HSMS administrator.*

This value is only valid in an SF pubset environment.

The files are archived to a pubset.

**PUBSET-ID = <cat-id>**

Catalog ID of the pubset.

**TO-STORAGE = \*NET-STORAGE(...)**

The files are archived to Net-Storage.

**VOLUMES = list-poss(16): <vsn 6..6>**

Specifies the Net-Storage volume to which the files are archived. The specified volume must be accessible.

More than one Net-Storage volume can also be specified in a list (e.g. when there is more than one save task).

**DIALOG-FILE-SELECT =**

Defines whether the user wishes to conduct a dialog in order to select individual files from the set of files selected for archival by means of FILE-NAMES.

The operand is evaluated in interactive mode only, for batch tasks it is ignored.

**DIALOG-FILE-SELECT = \*NO**

The specified set of files is not to be further reduced.

**DIALOG-FILE-SELECT = \*YES**

The specified set of files is to be displayed in a screen mask (see [“Dialog selection of files” on page 49](#)). The user can then mark individual files from the set on display, thus selecting them for or excluding them from archival.

Migrated files are included in the selection list displayed.

**DIALOG-JV-SELECT =**

Determines whether the set of job variables, which was selected by JV-NAMES to be archived should be restricted in the dialog. The operand is only evaluated in the dialog and is ignored in batch tasks.

**DIALOG-JV-SELECT = \*NO**

The selected set of job variables is not restricted.

**DIALOG-JV-SELECT = \*YES**

The selected set of job variables is shown on the screen (see [“Dialog selection of job variables” on page 50](#)). You can confirm or delete job variables by selecting them individually.

**OPERATION-CONTROL =**

Enables the user to define certain parameters which are relevant to the execution of the archival run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The parameters controlling the archival run can be modified as follows:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or, in the case of the HSMS administrator, by SYSHSMS) and a suffix in the form of a time stamp.

Unless otherwise specified, the request name is formed by the short code "ARF#" and the TSN of the calling user task yyyy as follows: ARF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE during a complex processing operation, for example the processing of shadow archives.

The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing). The maximum wait times for batch tasks and interactive tasks are different, and are determined by preset global HSMS parameters. Interactive tasks are permitted to carry out synchronous statement processing during tape sessions only.

**SHADOW-COPY =**

Specifies whether the save version is to be automatically duplicated to a shadow archive which may have been assigned.

**SHADOW-COPY = \*ALLOWED**

If the relevant long-term archive has been assigned a shadow archive, the save version is automatically duplicated to this shadow archive after the archival run. Whether a save file is updated in the shadow archive, a new one is created like in the main archive or a new one is always created is specified by the SHADOW-CONTROL archive attribute of the main archive.

**SHADOW-COPY = \*INHIBITED**

The save version is not automatically duplicated to a shadow archive which may have been assigned.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “;”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output for this archival request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the archival request, including any error messages, is to be output.

**REPORT = \*FULL**

A full report is to be output, including a list of all archived files.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report on this archival request is to be printed.

**OUTPUT = \*MAIL**

The report for this archival request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this archival request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this archival request is be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.





- The retention period is as specified in the archive definition, the file expiration date is identical with the volume expiration date.
- The request is processed asynchronously.
- Depending on the global HSMS parameter OUTPUT a summary report is printed or sent as an email attachment.

*An HSMS administrator archives the files of user ID UID before deleting it*

```
//ARCHIVE-FILES FILE-NAMES=:*:$uid., -
// SAVE-VERSION-NAME=arfuid, -
// DESCRIPTOR='severuid', -
// FILE-EXPIRATION-DATE=2025-12-31, -
// OPERATION-CONTROL=*PAR(REQUEST-NAME=uid, -
//   EXPRESS-REQUEST=*YES, -
//   REPORT=*FULL, -
//   OUTPUT=uid.filelist)
```

- All files of user ID UID residing on any imported pubset are archived to the default long-term system archive. As a prerequisite, the same long-term system archive must have been assigned to all pubsets on which files of this user reside. Pubsets for which the home computer is the slave are not archived.
- The files are saved to the standard save file of the archive, the save volumes are taken from the volume pool of the archive.
- The files are not deleted after archival.
- The request is given the name UID, the save version name is ARFUID.
- The retention period is as specified in the archive definition, the file expiration date is 31.12.2025.
- The request is processed asynchronously as an express request.
- A full report is written to the file UID.FILELIST.

## ARCHIVE-NODE-FILES

### Archive node files

This statement saves node files of a BS2000-UFS (POSIX) and if applicable mounted nodes S0 to a long-term archive. The node files are written to volumes of storage level S2. The files can optionally be deleted from processing level node S0 after archival. Information on tape usage (TAPE-CONTROL) and implicit deletion of obsolete backups can be set in the archive attribute.

#### Note

Some of the attributes of the processed files and directories will be modified by the ARCHIVE-NODE-FILES statement, as indicated in the table below:

Object	Attribute			
	Date of last access	Date of last modification	Date of last modification of the inode	Other attributes
Files	unmodified	unmodified	modified	unmodified
Directories	new	unmodified	unmodified	unmodified

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

#### Format

ARCHIVE-NODE-FILES	Alias: ANF
<p><b>PATH-NAMES</b> = *OWN / *ALL / *SELECTED / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / *PATH-NAME(...)</p> <p>*FROM-FILE(...)      <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p>*FROM-LIBRARY-ELEMENT(...)      <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;      <b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</p> <p>*PATH-NAME(...)      <b>PATH</b> = &lt;posix-pathname 1..1023 with-wild&gt;      <b>NODE-ID</b> = *BS2000-UFS / *ALL / &lt;posix-filename 1..48 with-wild&gt;</p>	

(part 1 of 3)

```

,EXCEPT-PATH-NAMES = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / *PATH-NAME(...)
  *FROM-FILE(...)
    | LIST-FILE-NAME = <filename 1..54 without-gen-vers>
  *FROM-LIBRARY-ELEMENT(...)
    | LIBRARY = <filename 1..54 without-gen-vers>
    | ELEMENT = <composed-name 1..64 with-under>
  *PATH-NAME(...)
    | PATH = <posix-pathname 1..1023 with-wild>
    | NODE-ID = *BS2000-UFS / *ALL / <posix-filename 1..48 with-wild>
,ENVIRONMENT = *NODE-STD / *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
  *SYSTEM-MANAGED(...)
    | CATALOG-ID = <cat-id>
,SELECTION-BOUNDARY = *ALL-FILE-SYSTEMS / *SPECIFIED-PATHS / *CURRENT-FILE-SYSTEM /
  *ALL-LOCAL-FILE-SYSTEMS
,DELETE-FILES = *NO / *YES(...)
  *YES(...)
    | PROTECTION-RESPECTED = *ALL / *NONE
,ARCHIVE-NAME = *SYSNODEARCHIVE / <filename 1..22 without-cat-gen-vers>
,SAVE-FILE = *STD / *NEW(...) / *CONTINUE(...)
  *NEW(...)
    | RETENTION-PERIOD = *STD / <integer 0..16383 days>
  *CONTINUE(...)
    | SAVE-FILE-ID = *LATEST / <composed-name 15..15>
,SAVE-VERSION-NAME = *STD / <name 1..8>
,DESCRIPTOR = *NONE / <c-string 1..10>
,USER-INFORMATION = *NONE / <c-string 1..720>
,FILE-EXPIRATION-DATE = *STD / <date with-compl> / <integer 0..99999 days>

```

(part 2 of 3)

```

,OPERATION-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    |
    | REQUEST-NAME = *STD / <name 1..8>
    |
    | ,REQUEST-DESCRIPTOR = *NONE / <text 1..60>
    |
    | ,EXPRESS-REQUEST = *NO / *YES
    |
    | ,CONTROL-JV= *NONE / <filename 1..54 without-gen-vers>
    |
    | ,WAIT-FOR-COMPLETION = *NO / *YES
    |
    | ,SHADOW-COPY = *ALLOWED / *INHIBITED
    |
    | ,PERFORMANCE-ANALYSIS = *NO / *YES(...)
    |
    | *YES(...)
    | |
    | | SEPARATOR = ; / <c-string 1..1>
    | |
    | | ,REPORT = *SUMMARY / *FULL / *NONE
    | |
    | | ,OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...)/ <filename 1..54 without-gen-vers>
    | |
    | | *LIBRARY-ELEMENT(...)
    | | |
    | | | LIBRARY = <filename 1..54 without-gen-vers>
    | | |
    | | | ,ELEMENT = <composed-name 1..64 with-under>

```

(part 3 of 3)

**PATH-NAMES =**

Serves to specify the path names of the node files of a BS2000-UFS (POSIX) or node S0 to be archived. Specification of this operand is mandatory.

If node files from more than one node S0 are specified and are to be saved to a default system archive, then the same default system archive must be assigned to all these node S0s. Otherwise, the HSMS statement will be rejected. To prevent this you should only specify files from one node S0 for each archival request.

The option of archiving the node files of remote node S0s is restricted to the HSMS administrator.

**PATH-NAMES = \*OWN**

\*OWN is equivalent to “ / ” (root), subject to the restriction that the user must be the owner of all the files.

*Meaning for the HSMS administrator:*

The system is to archive all node files and directories of user ID *root* which reside on the branch on the central BS2000-UFS that corresponds to the specified environment.

*Meaning for the nonprivileged user:*

The system is to archive all node files and file directories belonging to the user which reside on the branch on the central BS2000-UFS that corresponds to the specified environment.

**PATH-NAMES = \*ALL**

*Meaning for the HSMS administrator:*

All node files are to be archived that reside either locally on the central BS2000-UFS or on a connected node S0 and which are located in the specified environment. \*ALL is equivalent to “/”.

*Meaning for the nonprivileged user:*

All node files are to be archived that reside on the central BS2000-UFS and are located in the specified environment and to which the user has read access.

\*ALL is equivalent to “/” (root) subject to the restriction that the user must have read access to all the files.

**PATH-NAMES = \*SELECTED**

The path names of the node files to be archived are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-NODE-FILES.

The path names to be processed must be contained in the specified environment.

**PATH-NAMES = \*FROM-FILE(...)**

The path names of the node files to be archived are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

The path names to be processed must be contained in the specified environment.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**PATH-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the node files which are to be archived are taken from a PLAM library element (type S). The library element contains one path name per record.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**PATH-NAMES = \*PATH-NAME(...)**

The path name of the node file to be archived is specified directly.  
The path name may contain wildcards.

**PATH = <posix-pathname 1..1023 with-wild>**

Path name of the node file.

**NODE-ID =**

*This operand is only available to the HSMS administrator.*

Physical location of the node file to be archived.

**NODE-ID = \*BS2000-UFS**

The node file resides on the central BS2000-UFS on the branch which corresponds to the specified environment.

**NODE-ID = \*ALL**

The central BS2000-UFS and all decentral node S0s which are under HSMS control and reside in the specified environment are searched for the node file.

**NODE-ID = <posix-filename 1..48 with-wild>**

Name of the node S0 on which the node file resides. The node S0 which is defined with //MODIFY-NODE-PARAMETERS is mounted under the directory /HSMS/<node-id> in POSIX, and access takes place via NFS.

**EXCEPT-PATH-NAMES =**

Serves to specify node files that are to be excluded from archival.

**EXCEPT-PATH-NAMES = \*NONE**

All node files specified with the PATH-NAMES operand are to be archived.

**EXCEPT-PATH-NAMES = \*FROM-FILE(...)**

The path names of the node files which are to not be archived are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-PATH-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the node files which are to not be archived are taken from a PLAM library element (type S). The library element contains one path name per record.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-PATH-NAMES = \*PATH-NAME(...)**

The path name of the node file to be excluded from archival is specified directly.

The path name may contain wildcards.

The first character of the path name must not be a hyphen.

**PATH = <posix-pathname 1..1023 with-wild>**

Path name of the node file.

**NODE-ID =**

*This operand is only available to the HSMS administrator.*

Physical location of the node file to be excluded from archival.

**NODE-ID = \*BS2000-UFS**

The node file resides on the central BS2000-UFS.

**NODE-ID = \*ALL**

The central BS2000-UFS and all decentral node S0s which are under HSMS control and reside in the specified environment are searched for the node file.

**NODE-ID = <posix-filename 1..48 with-wild>**

*This operand value only exists for compatibility reasons.*

**ENVIRONMENT =**

HSMS environment in which the statement is to be processed.

**ENVIRONMENT = \*NODE-STD**

The environment is derived from either:

- the operand `PATH-NAMES=*PATH-NAME(NODE-ID)` or
- the list of node IDs which are referenced in the file using the operand `PATH-NAMES=*FROM-FILE(LIST-FILE-NAME)` or in the library element with the operand `PATH-NAMES=*FROM-LIBRARY-ELEMENT(LIBRARY,ELEMENT)`.

For a workstation, this is the environment in which the HSMS statement `MODIFY-NODE-PARAMETERS` is performed.

For a privileged user under BS2000-UFS it is the `SINGLE-FEATURE` environment; for a nonprivileged user `*NODE-STD` assumes the value of the environment in which the home directory of the user is defined.

If the affected node files are located in different environments the statement is rejected with message HSM0530.

**ENVIRONMENT = \*SINGLE-FEATURE**

This statement is valid in the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The statement is valid in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

The catalog ID of the SM pubset for which the statement is valid.

**SELECTION-BOUNDARY =**

Defines which part of the node file tree is used for file name expansion.

**SELECTION-BOUNDARY = \*ALL-FILE-SYSTEMS**

All node files and directories specified with the `PATH-NAMES` operand will be processed. Any node files and directories subordinated to a directory to be processed will be included in the selection.

Node files and directories will be selected from all levels of the file tree.

**SELECTION-BOUNDARY = \*SPECIFIED-PATHS**

All node files and directories specified with the `PATH-NAMES` operand will be processed. For directories, only their inode will be included. Any node files and directories subordinated to a directory to be processed will be ignored.

**SELECTION-BOUNDARY = \*CURRENT-FILE-SYSTEM**

All node files and directories specified with the PATH-NAMES operand will be processed. Any node files and directories subordinated to a directory to be processed will be included in the selection (for node files both the inode and the data will be included, for directories, only the inode).

The selection will be restricted to the current file system.

**SELECTION-BOUNDARY = \*ALL-LOCAL-FILE-SYSTEMS**

All node files and directories are processed which are specified in the PATH-NAMES operand.

When one of the objects to be processed is a directory, the node files and directories which are located on the subordinate levels of the file tree will also be included.

The selection is limited to the UFS file system.

**DELETE-FILES = \*NO / \*YES(...)**

Defines whether the archived node files are to be deleted from the processing level after archival.

**DELETE-FILES = \*YES(...)**

The archived node files are to be deleted from the node S0. The system administrator can restrict the deletion operation by specifying which file protection attributes of the node files are to be respected:

**PROTECTION-RESPECTED = \*ALL**

Deletion is restricted to node files which are not write-protected.

This value is automatically preset for nonprivileged users.

**PROTECTION-RESPECTED = \*NONE**

*This operand value is only available to the HSMS administrator.*

All node files which belong to the user or are not write-protected are to be deleted.

**ARCHIVE-NAME = \*SYSNODEARCHIVE / <filename 1..22 without-cat-gen-vers>**

Name of the archive to which the node files are to be saved. The specified archive must already exist and be available for use as a long-term archive for node files.

If the archive directory is password-protected, you must enter the password beforehand via the ADD-PASSWORD command. This also applies to HSMS administrators.

To enable the nonprivileged user to use another user's archive, either the archive must contain write access for all other users (USER-ACCESS=\*ALL-USERS and ACCESS=\*WRITE) or he/she must be a co-owner of the directory of the archive.

**ARCHIVE-NAME = \*SYSNODEARCHIVE**

The node files are to be saved to the default long-term system archive (SYSNODEARCHIVE).

**SAVE-FILE =**

Defines the save file to which the archived node files are to be written.

**SAVE-FILE = \*STD**

A standard save file is to be created or continued. The (physical) retention period valid for the save file is defined in the archive definition.

**SAVE-FILE = \*NEW(...)**

The user's archived node files are to be written to a new save file. A retention period for this save file can be defined here.

**RETENTION-PERIOD = \*STD / <integer 0..16383 days>**

(Physical) retention period in days. During this period, neither the save file nor the save volume may be modified or deleted. Unless otherwise specified, the preset value from the archive definition applies.

**SAVE-FILE = \*CONTINUE(...)**

The specified save file is to be continued. It must reside on storage level S2.

**SAVE-FILE-ID = \*LATEST**

The most recently created save file for this archive is to be continued.

**SAVE-FILE-ID = <composed-name 15..15>**

The specified save file is to be continued. The save file ID must be specified as follows:  
S.yymmdd.hhmmss

**SAVE-VERSION-NAME = \*STD / <name 1..8>**

Name of the save version generated by the archival request. This name can be used to refer to the save version for restore operations or in the HSMS statement SHOW-ARCHIVE. The name is extended internally by a prefix derived from the user ID (or, in the case of the HSMS administrator, by SYSHSMS). Any save version is uniquely identified by its name and an internal time stamp.

Unless otherwise specified, the save version is given the name "ARCHIVAL".

**DESCRIPTOR = \*NONE / <c-string 1..10>**

Brief descriptive text of up to 10 characters which is output in the summary of save versions produced as a result of

SHOW-ARCHIVE SELECT=\*SAVE-VERSIONS,INFO=\*SUMMARY.

Unless otherwise specified, no description is written.

**USER-INFORMATION = \*NONE / <c-string 1..720>**

Comment of up to 720 characters with information about the save version, which is output as a result of SHOW-ARCHIVE SELECT=\*SAVE-VERSIONS,INF=\*USER-INF.

Unless otherwise specified, no comment is written.

**FILE-EXPIRATION-DATE = \*STD / <date with-compl> / <integer 0..99999 days>**

File expiration date for the archived node files. The specified date must not lie outside the (physical) retention period for the save files or save volumes unless this is permitted by the archive definition.

Unless otherwise specified, the file expiration date coincides with the end of the (physical) retention period defined for the save file or save volume.

**OPERATION-CONTROL =**

Enables the user to define certain parameters which are relevant to the execution of the archival run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The operands controlling the archiving run can be modified as follows:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or, in the case of the HSMS administrator, by SYSHSMS) and a suffix in the form of a time stamp.

Unless otherwise specified, the request name is formed by the short code "ANF#" and the TSN of the calling user task yyyy as follows: ANF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE during a complex processing operation, such as the processing of shadow archives.

The nonprivileged caller must be owner or co-owner of this job variable.

The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing). The maximum wait times for batch tasks and interactive tasks are different, and are determined by preset global HSMS parameters.

Interactive tasks are permitted to carry out synchronous statement processing during tape sessions only.

**SHADOW-COPY =**

Specifies whether the save version is to be automatically duplicated to a shadow archive which may have been assigned.

**SHADOW-COPY = \*ALLOWED**

If the long-term archive in question has been assigned a shadow archive, the save version is automatically duplicated to this shadow archive after the archival run.

Whether a save file is updated in the shadow archive, a new one is created like in the main archive or a new one is always created is specified by the SHADOW-CONTROL archive attribute of the main archive.

**SHADOW-COPY = \*INHIBITED**

The save version is not automatically duplicated to a shadow archive which may have been assigned.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “ ; ”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output for this archival request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the archival request, including any error messages, is to be output.

**REPORT = \*FULL**

A full report is to be output, including a list of all archived files.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report on this archival request is to be printed.

**OUTPUT = \*MAIL**

The report for this archival request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this archival request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this archival request is to be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

In a SM pubset environment the environment catalog ID is added to the file names, if there is no environment catalog ID specified in the report file name.

**Example**

The HSMS administrator archives the file tree of a workstation.

*Perform preparatory activities:*

```

/START-HSMS
//CREATE-ARCHIVE - _____ (1)
//  ARCHIVE-NAME=ARCHIVAL, -
//  ALLOWED-USAGE=*NODEARCHIVAL, -
//  DIRECTORY-NAME=ARCHIVAL.DIR, -
//  RETENTION-PERIOD=30
//MODIFY-ARCHIVE - _____ (2)
//  ARCHIVE-NAME=ARCHIVAL, -
//  VOLUMES=*ADD(VOLUMES=(VOLUM1,VOLUM2,...))
//MODIFY-NODE-PARAMETERS - _____ (3)
//  NODE-ID=WORKSTA1, -
//  HSMS-CONTROL=*YES
//END

```

- (1) Sets up the ARCHIVAL archive for the long-term archiving of node files. By default, only the owner of the archive has access to it. The directory file is named ARCHIVAL.DIR. The archived node files cannot be deleted for 30 days.

*Note*

In order for the directory file to be usable also by non-privileged users, it must be shareable (USER-ACCESS=\*ALL-USERS).

- (2) Enters volumes in the pool of free volumes of the ARCHIVAL archive.
- (3) Brings the workstation WORKSTA1 under HSMS control.

*Start archiving:*

```

/START-HSMS
//ARCHIVE-NODE-FILES - _____ (4)
//  PATH-NAMES=*PATH-NAME(PATH=/DIR,NODE-ID=WORKSTA1), -
//  SELECTION-BOUNDARY=*ALL-FILE-SYSTEMS, -
//  ARCHIVE-NAME=ARCHIVAL, -
//  OPERATION-CONTROL=*PARAMETERS(REPORT=*FULL,OUTPUT=ARCHLIST)
//END

```

- (4) Archives the directory /DIR of the workstation WORKSTA1. Also archives all the node files and directories located on the subordinate levels of the directory /DIR (SELECTION-BOUNDARY=\*ALL-FILE-SYSTEMS). The files and directories are stored in the ARCHIVAL archive. Outputs a full report with a list of all archived node files. The report is written to the output file ARCHLIST.

## BACKUP-FILES

### Save files and job variables

This statement is used for saving files and job variables to a backup archive. The user can choose between full backup, incremental backup and partial backup. For migrated files it can be specified that only the catalog entries or the catalog entries and the data are to be saved.

The backup class may be used as a criterion for deciding whether or not a file is to be backed up. Furthermore, the user can specify the storage media from and to which the data is to be written and whether the data is to be erased after backup.

An HSMS administrator can assign the files or job variables a different user ID or catalog ID.

Archive attributes can be set for BACKUP-FILES requests which specify that obsolete backups are to be deleted implicitly.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

#### Format

<b>BACKUP-FILES</b>	Alias: <b>BCF</b>
<p><b>FILE-NAMES</b> = *OWN / *ALL / *NONE / *SELECTED / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / list-poss(20): &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;</p> <p>*FROM-FILE(...)                <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p>*FROM-LIBRARY-ELEMENT(...)                <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;                <b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</p> <p>,<b>EXCEPT-FILE-NAMES</b> = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / list-poss(20):                                      &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;</p> <p>*FROM-FILE(...)                <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p>*FROM-LIBRARY-ELEMENT(...)                <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;                <b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</p>	

(part 1 of 5)

```

,NEW-FILE-NAMES = *SAME / *BY-RULE(...)
  *BY-RULE(...)
    | NEW-CATALOG-ID = *SAME / <cat-id>
    | ,NEW-USER-ID = *SAME / <name 1..8>
,ENVIRONMENT = *STD / *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
  *SYSTEM-MANAGED(...)
    | CATALOG-ID = <cat-id>
,MANAGEMENT-CLASS = *NONE / *ANY / <alphanum-name 1..8>
,SELECT-FILES = *MODIFIED-FILES(...) / *ALL-FILES(...) / *BY-CATALOG-MODIFICATION(...)
  *MODIFIED-FILES(...)
    | PARTIAL-FILE-SAVE = *NO / *LARGE-FILES / *YES(...)
    | *YES(...)
    | | MINIMUM-SIZE = <integer 0..2147483647 2Kbyte>
  *ALL-FILES(...)
    | FROM = *S0 / *LATEST-BACKUPS-OR-S0 / *ONLY-LATEST-BACKUPS

  *BY-CATALOG-MODIFICATION(...)
    | CHANGED-AFTER = *LATEST-SAVE-VERSION-DATE / <date with-compl>(...) /
    | | <integer -99999..0>(...)
    | | <date with-compl>(...)
    | | | TIME = 00:00:00 / <time>
    | | <integer -99999..0>(...)
    | | | TIME = 00:00:00 / <time>
,SUPPORT = *ANY / *PUBLIC-DISK(...) / *PRIVATE-DISK(...) / *TAPE
  *PUBLIC-DISK(...)
    | STORAGE-TYPE = *ANY / *PUBLIC-SPACE / *NET-STORAGE(...)
    | *NET-STORAGE(...)
    | | VOLUMES = *ALL / list-poss(150): <vsn 1..6>
    | | ,FILE-TYPE = *ANY / *BS2000 / *NODE-FILE
  *PRIVATE-DISK(...)
    | VOLUMES = *ALL / list-poss(150): <vsn 1..6>
,MAXIMUM-BACKUP-CLASS = *STD / *A / *B / *C / *D / *E

```

(part 2 of 5)

```

,SAVE-OPTIONS = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    | SAVE-ACL = *YES / *NO
    | SAVE-ONLINE-FILES = *NO / *YES
    | SAVE-DIRECTORY = *NO / *YES
    | SAVE-DATA = *STD / *S0 / *S1-S0 / *S2-S1-S0
    | SAVE-PLAM-INFO = *STD / *NO / *YES
    | SAVE-NET-STOR-DATA = *YES / *NO
    | SAVE-SAM-STRUCTURE = *NO/*YES
,JV-NAMES = *NONE / *OWN / *ALL / *SELECTED / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
  list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>
  *FROM-FILE(...)
    | LIST-FILE-NAME = <filename 1..54 without-gen-vers>
  *FROM-LIBRARY-ELEMENT(...)
    | LIBRARY = <filename 1..54 without-gen-vers>
    | ELEMENT = <composed-name 1..64 with-under>
,EXCEPT-JV-NAMES = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / list-poss(20):
  <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>
  *FROM-FILE(...)
    | LIST-FILE-NAME = <filename 1..54 without-gen-vers>
  *FROM-LIBRARY-ELEMENT(...)
    | LIBRARY = <filename 1..54 without-gen-vers>
    | ELEMENT = <composed-name 1..64 with-under>
,NEW-JV-NAMES = *SAME / *BY-RULE(...)
  *BY-RULE(...)
    | NEW-CATALOG-ID = *SAME / <cat-id>
    | NEW-USER-ID = *SAME / <name 1..8>
,DELETE-FILES-AND-JV = *NO / *YES(...)
  *YES(...)
    | PROTECTION-RESPECTED = *ALL / *PASSWORDS / *NONE
,ARCHIVE-NAME = *SYSBACKUP / <filename 1..22 without-cat-gen-vers>

```

(part 3 of 5)

```

,SAVE-FILE = *NEW(...) / *CONTINUE(...) / *STD
  *NEW(...)
    | RETENTION-PERIOD = *STD / <integer 0..16383 days>
    | USER-ACCESS = *OWNER-ONLY / *ALL-USERS
  *CONTINUE(...)
    | SAVE-FILE-ID = *LATEST / <composed-name 15..15>
,SAVE-VERSION-NAME = *NONE / <name 1..8>
,COMPRESS-FILES = *STD / *YES / *NO
,TO-STORAGE = *S2-STORAGE-LEVEL(...) / *S1-STORAGE-LEVEL / *PRIVATE-DISK(...) /
  *PUBLIC-DISK(...) / *NET-STORAGE(...)
  *S2-STORAGE-LEVEL(...)
    | VOLUMES = *FROM-POOL / *FROM-OPERATOR / list-poss(20): <vsn 1..6>
    | DEVICE-TYPE = *STD / <device>
    | LOCATION = *STD / *ANY / <alphanum-name 1..8>
  *PRIVATE-DISK(...)
    | VOLUMES = list-poss(150): <vsn 1..6>
    | DEVICE-TYPE = STDDISK / <device>
  *PUBLIC-DISK(...)
    | PUBSET-ID = <cat-id>
  *NET-STORAGE(...)
    | VOLUMES = list-poss(16): <vsn 1..6>
,CONCURRENT-COPY = *NO / *YES(...)
  *YES(...)
    | WORK-FILE-NAME = *STD / *BY-ADDITIONAL-UNIT(...) / *BY-TARGET-CONTROLLER(...) /
      *FROM-SNAPSET(...) / <filename 1..54 without-gen-vers>
    | *BY-ADDITIONAL-UNIT(...)
      | DISCARD-COPY = *YES / *NO
    | *BY-TARGET-CONTROLLER(...)
      | SELECT = *BY-ADDITIONAL-UNIT
    | *FROM-SNAPSET(...)
      | PUBSET-ID = <cat-id>
      | SNAPSET = *LATEST / <name 1..1 with-low> / <integer -52..-1>

```

(part 4 of 5)

```

,OPERATION-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    REQUEST-NAME = *STD / <name 1..8>
    ,REQUEST-DESCRIPTOR = *NONE / <text 1..60>
    ,CONTROL-JV = *NONE / <filename 1..54 without-gen-vers>
    ,EXPRESS-REQUEST = *NO / *YES
    ,WAIT-FOR-COMPLETION = *NO / *YES
    ,PARALLEL-RUNS = *STD / <integer 1..16>
    ,WRITE-CHECKPOINTS = *STD / *YES / *NO
    ,SHADOW-COPY = *ALLOWED / *INHIBITED
    ,TAPE-CONTROL = *STD / *PARAMETERS(...)
      *PARAMETERS(...)
        BLOCKING-FACTOR = *STD / <integer 2..15 2Kbyte> / *MAX
        ,UNLOAD-TAPE = *STD / *YES / *NO
      ,DISK-CONTROL = *STD / *PARAMETERS(...)
        *PARAMETERS(...)
          PRIMARY-ALLOCATION = *STD / <integer 36..50331645 2Kbyte>
          ,SECONDARY-ALLOCATION = *STD / <integer 0..32767 2Kbyte>
          ,WRITE-CHECK = *STD / *YES / *NO
          ,DESTROY-BY-DELETE = *STD / *YES / *NO
        ,PERFORMANCE-ANALYSIS = *NO / *YES(...)
          *YES(...)
            SEPARATOR = ; / <c-string 1..1>
          ,REPORT = *SUMMARY / *SAVED-FILES / *FULL / *NONE
          ,OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...)/ <filename 1..54 without-gen-vers>
            *LIBRARY-ELEMENT(...)
              LIBRARY = <filename 1..54 without-gen-vers>
              ,ELEMENT = <composed-name 1..64 with-under>

```

(part 5 of 5)

**FILE-NAMES =**

Serves to specify the files to be backed up. Specification of this operand is mandatory. The user can further restrict the selection made here by means of the operands EXCEPT-FILE-NAMES, SUPPORT, SELECT-FILES and MAXIMUM-BACKUP-CLASS.

If files from more than one SF pubset are specified and are to be saved to a default system archive, then the same default system archive must be assigned to all these pubsets. Otherwise, the statement will be rejected. To prevent this you should only specify files from one pubset for each backup request.

All nonprivileged users can also archive files belonging to other user IDs if they are co-owners of these files. They can back up the files in one of their own archives or in an archive belonging to the file owner if they are also co-owners of the archive.

**FILE-NAMES = \*OWN**

All files of the user's own ID residing on any imported pubset (except for shared SF pubsets for which the home computer is the slave) in the specified environment are to be backed up.

**FILE-NAMES = \*ALL**

*Meaning for an HSMS administrator:*

In the specified environment, all files residing on any imported pubset (except for shared SF pubsets for which the home computer is the slave) are to be backed up.

*Meaning for all other users:*

\*ALL has the same effect as \*OWN.

**FILE-NAMES = \*NONE**

No files are to be backed up.

**FILE-NAMES = \*SELECTED**

The path names of the files to be backed up are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-FILE-NAMES.

The files to be processed must be available in the specified environment.

**FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be backed up are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used. The list file can be created, for instance, by means of the HSMS statement SELECT-FILE-NAMES or the DMS command SHOW-FILE-ATTRIBUTES.

The files to be processed must be available in the specified environment.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are to be backed up are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be backed up are specified directly. A list of up to 20 names may be specified.

The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the catalog ID which is taken either from the specified environment or from the default catalog ID of the user ID.

The files can alternatively be selected using wildcards. Note, however, that only the HSMS administrator may use wildcards for user ID specification because only the HSMS administrator is allowed to specify other user IDs. In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

The following applies to file generations: when specifying fully qualified file names, the specification of a generation number (version) is permissible. Only the specified generations will be backed up.

**EXCEPT-FILE-NAMES =**

Serves to specify files that are to be excluded from backup.

**EXCEPT-FILE-NAMES = \*NONE**

All files specified with the FILE-NAMES operand are to be backed up.

**EXCEPT-FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be excluded from backup are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. File names must be in uppercase characters only. The list file can be created, for instance, by means of the SELECT-FILE-NAMES statement or the DMS command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are not to be backed up are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be excluded from backup are specified directly. A list of up to 20 names may be specified.

The first character of the file names must not be a hyphen. The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the catalog ID, which is either taken from the specified environment or from the default catalog ID of the user ID.

You can also use wildcard syntax to select the files.

In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

The following applies to file generations: when specifying fully qualified file names, the specification of a generation number (version) is permissible. Only the specified generations will be excluded from backup.

**NEW-FILE-NAMES =**

*This operand is only available to the HSMS administrator.*

The HSMS administrator can back up files, simultaneously assigning them a new name. This facilitates subsequent relocation scenarios. The new file names have the following format:

:<cat-id>:\$<user-id>.old-filename-without-cat-user

**NEW-FILE-NAMES = \*SAME**

The files are backed up under their original file names.

**NEW-FILE-NAMES = \*BY-RULE(...)**

The files are assigned new names according to a specific rule. This operand is valid only if SELECT-FILES=\*ALL-FILES is specified.

**NEW-CATALOG-ID =**

Specifies whether the files are to be backed up under another catalog ID.

**NEW-CATALOG-ID = \*SAME**

The files are backed up under their current catalog ID.

**NEW-CATALOG-ID = <cat-id>**

The files are backed up under the specified catalog ID. The specified catalog ID must agree with the backup environment. The catalog ID must be specified without colons. The user ID must be entered in this catalog.

**NEW-USER-ID =**

Specifies whether the files may be backed up under another user ID.

**NEW-USER-ID = \*SAME**

The files are backed up under their current user ID.

**NEW-USER-ID = <name 1..8>**

The files are backed up under the specified user ID. The user ID must be specified without the leading dollar sign.

**ENVIRONMENT =**

Defines the HSMS environment in which the HSMS statement is to be processed.

**ENVIRONMENT = \*STD**

*Meaning for privileged users:* \*STD is set to the value \*SINGLE-FEATURE.

*Meaning for nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*SINGLE-FEATURE**

The HSMS statement is valid in the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The HSMS statement is valid in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset for which the HSMS statement is valid.

**MANAGEMENT-CLASS =**

*This operand is only available to the HSMS administrator.*

The objects to be processed are selected in accordance with the management class assigned to them.

**MANAGEMENT-CLASS = \*NONE**

The HSMS statement is processed with all specified objects to which no management class is assigned.

**MANAGEMENT-CLASS = \*ANY**

The HSMS statement is processed irrespective of whether the objects are assigned to a management class or not.

**MANAGEMENT-CLASS = <alphanum-name 1..8>**

The HSMS statement is processed with all the specified objects to which the specified management class is assigned.

**SELECT-FILES =**

Serves to define the scope of the backup. In addition to a full backup, an incremental backup or a partial backup, backup can also only be performed for files which were modified after a particular date.

**SELECT-FILES = \*MODIFIED-FILES(...)**

An incremental backup is to be carried out, i.e. files will be backed up only if their current version is not yet present in the specified archive.

**PARTIAL-FILE-SAVE =**

The incremental backup can be further restricted to a partial backup, which means that of the files specified here only those blocks are to be saved which have been modified since the last full backup.

Up to 255 partial backups are permitted between any two full backups.

A save file cannot be continued by a partial backup, if the save file contains more than one save version (SAVE-FILE-STRUCTURE=\*SEVERAL-SVID).

**PARTIAL-FILE-SAVE = \*NO**

No partial backup is to be performed.

**PARTIAL-FILE-SAVE = \*LARGE-FILES**

The files specified as LARGE in the catalog are to be partially saved. All other files are fully saved.

**PARTIAL-FILE-SAVE = \*YES (MINIMUM-SIZE=<integer 0..2147483647 2Kbyte>)**

The files which have at least the specified size are to be partially saved. All other files are fully saved.

**SELECT-FILES = \*ALL-FILES(...)**

A full backup is to be performed, i.e. all files are to be completely saved.

*The subordinate operand FROM is only available to the HSMS administrator.*

**FROM = \*S0**

All files on storage level S0 are to be backed up, i.e. the entire backup is performed online.

This is the preset value for nonprivileged users.

Specification of this operand value is mandatory if the HSMS administrator is renaming files/job variables (NEW-FILE-NAMES/NEW-JV-NAMES operand).

**FROM = \*LATEST-BACKUPS-OR-S0**

Modified files are to be backed up from storage level S0.

Files that have not been modified are to be backed up from their last full or incremental backup in the current archive.

**FROM = \*ONLY-LATEST-BACKUPS**

All files which refer to the latest save version are to be backed up from their last full or incremental backup in the current archive.

**SELECT-FILES = \*BY-CATALOG-MODIFICATION(...)**

An incremental backup is only performed on the basis of the catalog entries: only those files are backed up whose catalog entry was modified after a certain date.

As archive entries are not taken into account, this backup takes place independently of previous backups. Note that files that have been modified before the specified date and since then have not been backed up are not backed up.

Job variables, group entries of file generation groups and - as far as possible - open files are saved regardless of the modification date.

For save versions created with this setting, the backup scope is displayed in the output of the SHOW-ARCHIVE statement with "CAT-F". The save version contains only "fully saved" files and job variables; catalog entries for files that are not saved (save type CNS) are not included. Consequently the recovery of large data volumes should not only be restricted to one save version, but all save versions since the last full backup should be specified.

**CHANGED-AFTER =**

All files are taken into account which have been modified since the specified date. With explicit date specification the modification time can be defined more precisely by specifying the time.

**CHANGED-AFTER = \*LATEST-SAVE-VERSION-DATE**

Date and time of the last save are used, in other words all files are taken into account whose catalog entries have been modified since this save. This setting can be used if saves to this archive always incorporate the same file set and the last save was completed successfully.

**CHANGED-AFTER = <date with-compl>(…)**

Explicit specification of the modification date.

**TIME = 00:00:00 / <time>**

Time that determines the modification time specifically.

For files and private disks any explicit time specification is ignored and the default TIME=00:00:00 assumed.

**CHANGED-AFTER = <integer -99999..0 days>(…)**

Explicit specification of the modification date in days relative to the current date.

**TIME = 00:00:00 / <time>**

Time that determines the modification time specifically.

For files and private disks any explicit time specification is ignored and the default TIME=00:00:00 assumed.

**SUPPORT =**

The files to be saved are selected via the type of volume (public disk, private disk or tape) on which they reside.

**SUPPORT = \*ANY**

The type of volume on which the files reside is not a selection criterion.

**SUPPORT = \*PUBLIC-DISK(...)**

Restricts backup to files residing on the disks of a pubset or on the assigned Net-Storage.

**STORAGE-TYPE =**

Selects the storage type for public volumes.

**STORAGE-TYPE = \*ANY**

The files are saved irrespective of the storage type. They can reside on the disks of a pubset or on Net-Storage.

**STORAGE-TYPE = \*PUBLIC-SPACE**

Only files which reside on the disks of a pubset are saved. Files on Net-Storage are ignored.

**STORAGE-TYPE = \*NET-STORAGE(...)**

Only files which reside on Net-Storage volumes are saved.

**VOLUMES = \*ALL / list-poss(150): <vsn 1..6>**

Specifies the Net-Storage volume on which the files to be saved reside. If more than one Net-Storage is assigned to the pubset, the Net-Storage volumes from which files are to be saved can be specified in a list. \*ALL selects all Net-Storage volumes which are assigned to the specified pubsets.

**FILE-TYPE =**

Selects the file type of Net-Storage files that will be saved.

**FILE-TYPE = \*ANY**

The Net-Storage files are selected irrespective of the file type.

**FILE-TYPE = \*BS2000**

Only Net-Storage files of the type BS2000 are selected.

**FILE-TYPE = \*NODE-FILE**

Only Net-Storage files of the type node file are selected.

**SUPPORT = \*PRIVATE-DISK(...)**

Restricts backup to files which reside on private disks and which have been imported, i.e. recorded in the catalog of a pubset.

**VOLUMES = \*ALL**

All files located on private disks are saved.

**VOLUMES = list-poss(150): <vsn 1..6>**

Volume serial numbers of private disks. All files having at least one extent on the specified disks are backed up.

**SUPPORT = \*TAPE**

Only the catalog entries of tape files are backed up.

**MAXIMUM-BACKUP-CLASS = \*STD / \*A / \*B / \*C / \*D / \*E**

Only the files whose backup class is equal or inferior to the backup class specified here are to be backed up. \*E saves files of all backup classes.

*Meaning of \*STD:*

- If a new save file is created, the default value set for ARCHIVE is used (see the “ARCHIVE” manual [2], SAVE statement).
- If a save file is continued, it is continued with the same backup class with which it was created.  
Save files which can only contain one save version (SINGLE-SVID) can only be continued with the same backup class with which they were created.

**SAVE-OPTIONS =**

Save options can be defined during the course of this backup run.

**SAVE-OPTIONS = \*STD**

The default values specified for each operand described below apply to the following save options.

**SAVE-OPTIONS = \*PARAMETERS(...)**

The following save options can be modified:

**SAVE-DATA =**

Specifies whether just the catalog entry of migrated files or both the catalog entry and the data are to be saved.

**SAVE-DATA = \*STD**

The archive’s standard setting applies.

**SAVE-DATA = \*S0**

Data is to be saved only for files on S0. For migrated files, only the metadata is saved.

**SAVE-DATA = \*S1-S0**

Data is to be saved only for files on S0 and files migrated to S1.  
For files migrated to S2, only the metadata is saved.

**SAVE-DATA = \*S2-S1-S0**

Data is to be saved for all files, regardless of whether they have been migrated or not. Specification of this operand value is mandatory if the HSMS administrator is renaming files/job variables (NEW-FILE-NAMES/NEW-JV-NAMES operand).

**SAVE-ACL = \*YES / \*NO**

*This operand only exists for compatibility reasons and is not evaluated.*

**SAVE-ONLINE-FILES = \*NO / \*YES**

Determines whether or not appropriately marked database files are to be backed up even when open (online).

**SAVE-DIRECTORY = \*NO / \*YES**

Determines whether the archive directory used for this run is written to the backup volume as the last file in the run.

If the archive directory is included in the backup, its name remains unchanged even if files are renamed during backup (NEW-FILE-NAMES operand).

The VSN of the volume to which the archive directory was saved is listed in the report, also in a summary report (REPORT=\*SUMMARY).

**SAVE-PLAM-INFO = \*STD / \*NO / \*YES**

Determines whether information about the element structure should also be written to the save volume when PLAM library files are saved. Only with this additional information can elements of a library file be restored with the RESTORE-LIBRARY-ELEMENTS statement. If this information is not contained on the save volume, a library can only be restored as a complete library file.

The library files saved with the element structure are listed in the full report (REPORT=\*FULL) of the save type FULB or PARB (see also SHOW-ARCHIVE output in [section “SHOW-ARCHIVE Show archive directory” on page 527](#)).

*Note*

The element structure of migrated PLAM libraries cannot be saved.

**SAVE-PLAM-INFO = \*STD**

The default setting for the archive applies.

**SAVE-NET-STOR-DATA = \*YES / \*NO**

Determines whether Net-Storage files of BS2000 file type are to be saved in their entirety (data and catalog entries).

When \*NO is specified, only their catalog entries are saved. The save type in this case is CATL.

*Note*

Net-Storage files of the type node file are always saved in their entirety (data and catalog entries).

**SAVE-SAM-STRUCTURE = \*NO/\*YES**

Determines whether the structure of SAM-Node files is to be saved.

SAM node files that have been saved without SAM structure can only be restored as a SAM node file again.

SAM node files that have been saved with SAM structure can be restored either as FILE-TYPE=\*BS2000 (on public space or Net-Storage) or FILE-TYPE=\*NODE-FILE.

**JV-NAMES =**

Serves to specify the job variables to be backed up.

If job variables from more than one SF pubset are specified and are to be saved to a default system archive, the same default system archive must be assigned to all these pubsets. Otherwise, the statement will be rejected. To prevent this you should only specify job variables from one pubset for each backup request.

All nonprivileged users can also archive job variables belonging to other user IDs if they are co-owners of these job variables. They can back up the job variables in one of their own archives or in an archive belonging to owner of the job variables.

**JV-NAMES = \*NONE**

No job variables are to be backed up.

**JV-NAMES = \*OWN**

In the specified environment, all job variables of the user's own ID residing on any imported pubset (except for shared SF pubsets for which the home computer is the slave) are to be backed up.

**JV-NAMES = \*ALL**

All job variables residing on all imported pubsets (except for shared SF pubsets for which the home computer is the slave) in the specified environment are to be backed up.

**JV-NAMES = \*SELECTED**

The path names of the job variables to be backed up are taken from a list which is created in the same HSMS run with the HSMS statement SELECT-JV-NAMES.

**JV-NAMES = \*FROM-FILE(...)**

The path names of the job variables to be backed up are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used.

The job variables to be processed must be available in the specified environment.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**JV-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are to be backed up are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**JV-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables to be backed up are specified directly. A list of up to 20 names may be specified.

The job variables to be processed must be available in the specified environment.

The job variables can alternatively be selected using wildcards. In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

If job variables of a shared pubset imported in slave mode are specified, no other public volume set of a different master may be specified.

**EXCEPT-JV-NAMES =**

Serves to specify job variables that are to be excluded from backup.

**EXCEPT-JV-NAMES = \*NONE**

All job variables specified in the JV-NAMES operand are to be backed up.

**EXCEPT-JV-NAMES = \*FROM-FILE(...)**

The path names of the job variables to be excluded from backup are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-JV-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are not to be backed up are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-JV-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables to be excluded from backup are specified directly. A list of up to 20 names may be specified.

The first character of the job variable names must not be a hyphen.

The job variables can alternatively be selected using wildcards. In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

**NEW-JV-NAMES =**

*This operand is only available to the HSMS administrator.*

The HSMS administrator can back up job variables, simultaneously assigning them a new name. This facilitates subsequent reorganization. The new job variable names have the following format:

```
:<cat-id>:$<user-id>.old-jvname-without-cat-user
```

**NEW-JV-NAMES = \*SAME**

The job variables are backed up retaining their original names.

**NEW-JV-NAMES = \*BY-RULE(...)**

The job variables are backed up under new names. This operand is valid only if SELECT-FILES=\*ALL-FILES is specified.

**NEW-CATALOG-ID =**

The job variables may be backed up under another catalog ID.

**NEW-CATALOG-ID = \*SAME**

The job variables are backed up under their current catalog ID.

**NEW-CATALOG-ID = <cat-id>**

The job variables are backed up under the specified catalog ID. The specified catalog ID must agree with the backup environment. The catalog ID must be specified without colons.

The user ID must have an entry in this catalog.

**NEW-USER-ID =**

The job variables may be backed up under another user ID.

**NEW-USER-ID = \*SAME**

The job variables are backed up under their current user ID.

**NEW-USER-ID = <name 1..8>**

The job variables are backed up under the specified user ID. The user ID must be specified without the leading dollar sign.

**DELETE-FILES-AND-JV = \*NO / \*YES(...)**

Defines whether the backed up files and job variables are to be deleted from processing level S0 once they have been written to the archive.

In the case of automatic duplication to a shadow archive, the files are not deleted until the duplication is completed.

**DELETE-FILES-AND-JV = \*YES(...)**

The backed up files and job variables are to be deleted from S0.

*Exception*

Files and job variables of the SYSHSMS ID are excluded from deletion.

Deletion can be restricted by specifying which file and job variable protection attributes are to be respected:

**PROTECTION-RESPECTED = \*ALL**

Deletion is to be restricted to files and job variables without password protection, with write access and whose retention period has expired.

**PROTECTION-RESPECTED = \*PASSWORDS**

Deletion is to be restricted to files and job variables without password protection.

**PROTECTION-RESPECTED = \*NONE**

*This operand value is only available to the HSMS administrator.*

All files and job variables are to be deleted, irrespective of their protection attributes.

**ARCHIVE-NAME = \*SYSBACKUP / <filename 1..22 without-cat-gen-vers>**

Name of the archive to which the files and job variables are to be saved. The specified archive must already exist in the specified environment and be available for use as a backup archive.

If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. This also applies to HSMS administrators.

Specification of \*SYSBACKUP as the archive name is restricted to the HSMS administrator.

**SAVE-FILE =**

Defines the save file to which the backed up files are to be written.

**SAVE-FILE = \*NEW(...)**

The backed up files are to be written to a new save file.

Specification of this operand value is mandatory if the HSMS administrator is renaming files/job variables (NEW-FILE-NAMES/NEW-JV-NAMES operand).

The following attributes for this save file can be defined here:

**RETENTION-PERIOD = \*STD / <integer 0..16383 days>**

(Physical) retention period in days. During this period, neither the save file nor the save volume may be modified or deleted.

If the HSMS statement is used with a management class, \*STD means that the operand value is taken from the corresponding attribute of the management class.

If the HSMS statement is used without a management class, \*STD means that the value is taken from the archive definition.

**USER-ACCESS = \*OWNER-ONLY**

The save file is to be created as non-shareable. This implicitly protects the save file against access by other users who are working without HSMS.

**USER-ACCESS = \*ALL-USERS**

The save file is to be created as shareable, in other words other users can also access it.

If the corresponding archive directory is shareable and resides under TSOS, each user is simultaneously enabled to restore his or her files using ARCHIVE.

**SAVE-FILE = \*CONTINUE(...)**

If the archive definition permits no more than one save version per save file (see the HSMS statement CREATE-ARCHIVE, SAVE-FILE-STRUCTURE=\*SINGLE-SVID), the specified save file is to be extended by a disjunct set of files. Continuation of the save file of such backup archives implies extension of the save version it contains.

If such a save file is to be continued, the operands MAXIMUM-BACKUP-CLASS and SELECT-FILES must have the same values as when the save file was created.

Furthermore, the save file must be continued using the same storage level and the same device type.

If the archive definition permits more than one save version per save file (SAVE-FILE-STRUCTURE=\*SEVERAL-SVID), a new save version is added to the specified save file.

*Note*

Even if the archive definition permits several save versions for each save file, only save files on storage level S2 can contain more than one save version.

A save file created as \*SINGLE-SVID cannot be continued once the archive is changed from \*SINGLE-SVID to \*SEVERAL-SVID.

Save file continuation is prohibited if files are to be selected with SELECT-FILES=\*ALL-FILES(FROM=\*LATEST-BACKUPS-OR-S0).

If the last SFID/SVID is not consistent due to a DMS error the current save file cannot be continued. Therefore a new save file for this directory must be created.

It is important to bear in mind when saving to storage level S1, that save files can only be continued under the following conditions: SAVE-FILE-STRUCTURE of the archive is set to \*SINGLE-SVID. In addition ...:

The SAVE-FILE-PROCESSING and S1-VOLUME-SET settings under which the original backup was created must be identical to the current settings under which the save file is to be continued. In the case of SAVE-FILE-PROCESSING, the same value must be set, either \*HSMS-V10-COMPATIBLE or \*HSMS-V9-COMPATIBLE. A save file can only be continued if the value of the operand SAVE-SAM-STRUCTURE is the same as that of the save file to be continued.

**SAVE-FILE-ID = \*LATEST**

The most recently created save file for this archive is to be continued.

**SAVE-FILE-ID = <composed-name 15..15>**

The specified save file is to be continued. The save file ID must be specified as follows:  
S.yymmdd.hhmmss

If this specification is made for an archive with \*SEVERAL-SVID structure, only the last save file in the archive can be processed.

**SAVE-FILE = \*STD**

A standard save file is to be created or continued. The (physical) retention period valid for the save file is defined in the archive definition.

This operand value may be specified only for archives that permit more than one save version per save file (see the HSMS statement CREATE-ARCHIVE, SAVE-FILE-STRUCTURE=\*SEVERAL-SVID).

**SAVE-VERSION-NAME = \*NONE / <name 1..8>**

Name of the save version generated by the backup request. This name can be used to refer to the save version for restore operations or in the HSMS statement SHOW-ARCHIVE. The name is extended internally by a prefix derived from the user ID (or, in the case of the HSMS administrator, by SYSHSMS). Any save version is uniquely identified by its name and an internal time stamp.

If the archive definition permits no more than one save version per save file (SAVE-FILE-STRUCTURE=\*SINGLE-SVID), any save version name specified for save file continuation will be ignored. Unless otherwise specified, no save version name is assigned.

**COMPRESS-FILES = \*STD / \*YES / \*NO**

Determines whether or not data is compressed before being written to the volume. Unless otherwise specified, the default value in the archive definition is used. The operand is not evaluated when saving to magnetic tape cartridge as the data in this case might be compressed by the device.

**TO-STORAGE =**

Defines the storage level at which the files and job variables are to be backed up. Private disks and pubsets are permitted in addition to levels S1 and S2. Save files must be continued using the same storage level and the same device type as for their creation.

**TO-STORAGE = \*S2-STORAGE-LEVEL(...)**

The files are to be backed up to storage level S2 of the specified environment. The volumes to be used can be specified. If more than one volume is specified, all volumes must be of the same device type.

**VOLUMES = \*FROM-POOL**

The volumes are to be taken from the volume pool of the specified archive, i.e. the pool of the archive directory or the associated MAREN pool.

**VOLUMES = \*FROM-OPERATOR**

The volumes are to be allocated by the operator on request.

**VOLUMES = list-poss(20): <vsn 1..6>**

List of volume serial numbers, which will be requested in the specified order.

**DEVICE-TYPE = \*STD / <device>**

Device type of the requested volumes. The device type must belong to the class "TAPE". Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

Unless otherwise specified, the preset value from the archive definition applies if a new save file is created (S2-DEVICE-TYPE). If an existing save file is continued, the device type specified when the save file was created is used.

**LOCATION = \*STD / \*ANY / <alphanum-name 1..8>**

Location used for requesting volumes. This location must be known to MAREN. If the location manager is in use, the location should be properly defined in MARENLM. Otherwise MAREN ignores the specified value.

If MAREN is not in use, you must specify for LOCATION the value \*ANY, or \*STD if \*ANY is the default location of the archive.

**LOCATION = \*STD**

The default location of the archive is used.

**LOCATION = \*ANY**

No location is to be used.

**TO-STORAGE = \*S1-STORAGE-LEVEL**

This value applies in an SF pubset environment, as well as in an SM pubset environment. In an SF pubset environment, the files are stored on an S1 pubset. If the global HSMS parameter SAVE-FILE-PROCESSING is set to \*HSMS-V10-COMPATIBLE this may also be an S1-SM-pubset. All pubsets from which files are stored must have access to the same S1 pubset.

In an SM pubset environment, the files are stored on the S1 volume set. When an extended S1 level is defined for the SM pubset (S1-VOLUME-SET=\*ALL-HSMS-CONTROLLED), TO-STORAGE=\*S1-STORAGE-LEVEL is only accepted under the following circumstances:

- SAVE-FILE-PROCESSING=\*HSMS-V10-COMPATIBLE is set.
- BS2000 OSD/BC V11.0 or higher is used on the system. In the case of a shared pubset network, all pubset sharers of the SM pubset must satisfy this requirement.

When SAVE-FILE-PROCESSING=\*HSMS-V9-COMPATIBLE is set, saving to S1 level is possible only if a volume set is specified explicitly.

**TO-STORAGE = \*PRIVATE-DISK(...)**

This value is only valid in an SF pubset environment.

The files are to be backed up to private disk. The private disks to be used can be specified. If more than one private disk is specified, all of them must be of the same device type. At least one private disk must be specified for each parallel run, i.e. the number of specified archive numbers must be greater than or equal to the number of parallel runs.

**VOLUMES = list-poss(150): <vsn 1..6>**

List of volume serial numbers of the disks to which the files are to be backed up.

**DEVICE-TYPE = STDDISK / <device>**

Device type of the private disks. The default setting STDDISK specifies that the default device type is to be used. Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

**TO-STORAGE = \*PUBLIC-DISK(...)**

*This operand value is only available to the HSMS administrator.*

This value is only valid in an SF pubset environment.

The files are backed up to a pubset.

**PUBSET-ID = <cat-id>**

Catalog ID of the pubset.

**TO-STORAGE = \*NET-STORAGE(...)**

The files are backed up to Net-Storage.

**VOLUMES = list-poss(16): <vsn 1..6>**

Specifies the Net-Storage volume to which the files are backed up. The specified volume must be accessible.

More than one Net-Storage volume can also be specified in a list (e.g. when there is more than one save task).

**CONCURRENT-COPY =**

Specifies whether this function is to be activated, i.e. whether modifications can be made to files during the backup (following initialization of the Concurrent Copy session).

**CONCURRENT-COPY = \*NO**

The Concurrent Copy function is not to be activated.

**CONCURRENT-COPY = \*YES(...)**

The Concurrent Copy function is activated. Concurrent Copy requests are only accepted, however, if they can be processed without delay as a result of tape accesses:

- If no tape processing times are defined, there are no restrictions.
- If tape processing times are defined, Concurrent Copy requests are only accepted within the period in which tape accesses are possible.

All work files required for this function will be deleted prior to termination. If they cannot be deleted immediately for any reason (e.g. due to a system crash), they will be deleted automatically during IMPORT-PUBSET processing.

With shared pubsets, work files with the system ID of the host on which IMPORT-PUBSET is executed are deleted.

In shared pubset environment the backup job with CONCURRENT-COPY=\*YES is always handled either on the local system or on the master system. The backup server settings are ignored if applicable.

**WORK-FILE-NAME =**

The user can specify whether the Concurrent Copy function is to be used to back up constantly changing resources (e.g. applications), to back up a pubset copy created using SHC-OSD, or to back up a Snapset. In the former case, WORK-FILE-NAME specifies the name of the work file that is to be created. This work file is used during processing to save the original contents of any files modified while backup is being performed.

If the backup process is sent to the master of a shared pubset, the work file must be accessible from the master and the slave.

**WORK-FILE-NAME = \*STD**

The work file is assigned the following standard name:

S.DCH.<sysid>.<CC.session-id>.DATA

The work file is created on the user's default pubset (the default pubset is defined in the user catalog).

If the ENVIRONMENT operand is set to \*SYSTEM-MANAGED(...), the work file is not created on the SM pubset.

**WORK-FILE-NAME = <filename 1..54 without-gen-vers>**

The work file is assigned the specified name. It is not created until backup is initiated.

The work file should preferably be created on an accessible pubset with, for example, a very powerful cache system.

If an existing file is to be used as the work file, its original contents are overwritten by the Concurrent Copy processing.

When files of a shared pubset are backed up, the work file must be on a pubset that the master managing the request can access.

When files of an SM pubset are backed up, the work file should be created on the SM pubset itself. A volume set that possesses the correct attributes can be selected prior to the HSMS statement BACKUP-FILES using a CREATE-FILE command.

A further work file is created in addition to the work file containing the modified data. The additional one contains meta data and has an internally selected name. Both work files are deleted before the end of the save run. If the files cannot be deleted, e.g. because of a system failure, they will be deleted automatically later when importing.

**WORK-FILE-NAME = \*BY-ADDITIONAL-UNIT(...)**

*This operand value is only available to the HSMS administrator.*

This specification applies only for backing up a pubset copy which was created in a disk storage system using SHC-OSD. To perform the backup, mirroring of the pubset volumes is interrupted and the assigned units (additional mirror or clone units, depending on the mirroring function) are detached.

The complete SF or SM pubset is taken into account. After a pubset crash it is possible to reconstruct the complete SF or SM pubset from the mirrored data volumes of the original pubset and the backed up files.

In shared-pubset operation the pubset copy is always backed up locally as the catalog accesses take place locally on the mirror units, and moving them to the master side would not enhance the performance of the catalog accesses.

**DISCARD-COPY = \*YES / \*NO**

Specifies whether the pubset copy is to be discarded after the backup. If the pubset copy is discarded, its units are available for another backup: mirroring is continued with these units, or in the case of clone units the assignment to the original disks is retained.

**WORK-FILE-NAME = \*BY-TARGET-CONTROLLER(...)**

*This operand value is only available to the HSMS administrator.*

In the case of remote mirroring the target controller's mirror units are used for saving. You disconnect the mirror units from the original volumes on the target controller in the same manner as the source controller's mirror units (WORK-FILE-NAME=\*BY-ADDITIONAL-UNIT).

In a shared pubset environment the backup job with operand value \*BY-TARGET-CONTROLLER is always handled locally, i.e. it is not sent to the master or a backup server if applicable.

**SELECT = \*BY-ADDITIONAL-UNIT**

The target controller's mirror units are used as redundant volumes for the save.

**WORK-FILE-NAME = \*FROM-SNAPSET(...)**

Files and job variables are transferred to a backup archive from a disk copy of the pubset which was created as a Snapset. A Snapset is identified unambiguously by the pubset specification and a letter identifier/the historical sequence number. When a backup takes place from a Snapset a new save version is generated with the creation date of the Snapset as the save time of the files.

If a newer save version is contained in the save file to be updated, SAVE-FILE=\*NEW must be specified.

In a shared pubset environment the backup job with operand value \*FROM-SNAPSET is always handled on the master system regardless of the BACKUP-SERVER-USAGE parameter.

The following restrictions apply for a backup from a Snapset:

- Only the value \*S0 is permitted in the SAVE-DATA operand. \*STD is possible if S0 is preset in the archive attribute.
- Only the value \*PUBLIC-DISK(STORAGE-TYPE= \*ANY) or \*PUBLIC-DISK(STORAGE-TYPE=\*PUBLIC-SPACE) is permitted in the SUPPORT operand.
- Only the default value \*NO is permitted in the PARTIAL-FILES operand (no partial backup in the event of a transfer from Snapsets).
- Only the \*ALL-FILES=\*S0 suboperand (default value) is permitted for the operand value SELECT-FILES=\*ALL-FILES (full backup).
- The DELETE-FILES-AND-JV operand is only permitted with the default value \*NO (no transfer from the Snapset with deletion on the current pubset).

**PUBSET-ID = <cat-id>**

Catalog ID of the pubset.

**SNAPSET = \*LATEST / <name 1..1 with-low> / <integer -52..-1>**

The copy of the pubset is identified either by an associated letter (case-sensitive) or by the historical sequence number (here -1 corresponds to the latest Snapset). The latest Snapset is preset with \*LATEST (corresponds to -1).

**OPERATION-CONTROL =**

Enables the user to define certain parameters which are relevant to the execution of the backup run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The operands controlling the backup run can be modified as follows:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administrator) and a suffix in the form of a time stamp. Unless otherwise specified, the request name is formed by the short code "BCF#" and the TSN of the calling user task yyyy as follows: BCF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**CONTROL-JV = \*NONE / <filename 1..80 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE during a complex processing operation, for this version of HSMS this only applies to complex operations, for example the processing of shadow archives.

The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing). The maximum wait times for batch tasks and interactive tasks are different and are determined by preset global HSMS parameters.

Interactive tasks are permitted to carry out synchronous statement processing during tape sessions only.

**PARALLEL-RUNS = \*STD / <integer 1..16>**

This operand is only significant if you are working at storage level S2. It specifies the number of save tasks (ARCHIVE subtasks) running in parallel.

**PARALLEL-RUNS = \*STD**

The preset value from the archive definition applies if a new save file is created.

**PARALLEL-RUNS = <integer 1..16>**

Number of save tasks (ARCHIVE subtasks) running simultaneously.

There must be one tape device available for each task.

In the case of automatic duplication to a shadow archive, two tape devices must be available for each task.

**WRITE-CHECKPOINTS = \*STD / \*YES / \*NO**

Defines whether any checkpoints are to be written to the ARCHIVE checkpoint file during processing; these checkpoints permit a request to be restarted following an interruption (state INTERRUPTED).

Unless otherwise specified, the preset value from the archive definition applies.

**SHADOW-COPY =**

Specifies whether the save version is to be automatically duplicated to a shadow archive which may have been assigned.

**SHADOW-COPY = \*ALLOWED**

If the files and job variables on storage level S2 are backed up and the relevant backup archive has been assigned a shadow archive, the save version is automatically duplicated to this shadow archive after the backup run.

Whether a save file is updated in the shadow archive, a new one is created like in the main archive or a new one is always created is specified by the SHADOW-CONTROL archive attribute of the main archive.

**SHADOW-COPY = \*INHIBITED**

The save version is not automatically duplicated to a shadow archive which may have been assigned.

**TAPE-CONTROL =**

Defines the parameters which are relevant for backup to tape.

**TAPE-CONTROL = \*STD**

The preset values from the definition of the archive to be used for backup apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

The operands relevant for backup to tape can be modified as follows:

**BLOCKING-FACTOR = \*STD / <integer 2..15 2Kbyte> / \*MAX**

Blocking factor to be used for writing the save file to tape.

The default value \*STD selects the blocking factor from the archive definition.

If this also contains the default value, the default values of the ARCHIVE parameters apply (SYSPAR.ARCHIVE.vvv: BLOCK-SIZE-TAPE for tapes, BLOCK-SIZE-T-C for magnetic tape cartridges).

For performance reasons it is recommended to write blocks with maximum size to tape.

This will be achieved already by using the default values. In the case of magnetic tape cartridges this is a blocking factor of 128 (256k per block)

The values 2 to 15 should not be used anymore and are supported for compatibility reasons only.

\*MAX selects the maximum blocking factor possible in the current BS2000 version independent of the settings in the archive and the ARCHIVE parameters. Currently this is the value 128.

**UNLOAD-TAPE = \*STD / \*NO / \*YES**

Specifies whether or not tapes are to be unloaded after processing.

The preset value from the archive definition applies unless otherwise specified.

It is possible that HSMS will ignore the value of this operand in order to avoid irrational tape processing, for example to avoid unloading a tape several times while rewinding it.

**DISK-CONTROL =**

Defines the parameters which are relevant for backup to disk.

**DISK-CONTROL = \*STD**

The preset values from the definition of the archive to be used for backup apply.

**DISK-CONTROL = \*PARAMETERS(...)**

The operands relevant for backup to disk can be modified as follows:

**PRIMARY-ALLOCATION = \*STD / <integer 36..50331645 2Kbyte>**

Size in PAM pages of the primary allocation for save file creation on disk (see the description of the CREATE-FILE command in the "Commands" manual [5]).

Unless otherwise specified, the preset value from the archive definition applies.

**SECONDARY-ALLOCATION = \*STD / <integer 0..32767 2Kbyte>**

Size in PAM pages of the secondary allocation for save file extension on disk (see the description of the CREATE-FILE command in the "Commands" manual [5]).

Unless otherwise specified (\*STD), the preset value from the archive definition applies.

Values from 1 through 35 are not permitted.

**WRITE-CHECK = \*STD / \*NO / \*YES**

Specifies whether a read-after-write check is to be performed after each write operation for error detection purposes. Note that read-after-write checking will result in longer execution times.

Unless otherwise specified, the preset value from the archive definition applies.

**DESTROY-BY-DELETE = \*STD / \*NO / \*YES**

Specifies whether the storage space released by save file deletion is to be erased by overwriting it with binary zeros for data privacy reasons. Note that erasure by overwriting will result in longer execution times for save file deletion.

Unless otherwise specified, the preset value from the archive definition applies.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “ ; ”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output for this backup request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the backup request, including any error messages, is to be output.

**REPORT = \*SAVED-FILES**

A full report is to be output, including a list of the files actually saved, i.e. files of save type CNS are not output.

**REPORT = \*FULL**

A full report is to be output, including a list of all backed up files, i.e. including the files which were cataloged but not saved (save type CNS).

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report for this backup request is to be printed.

**OUTPUT = \*MAIL**

The report for this backup request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this backup request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this backup request is be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if it is not a SAM file, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

## Notes

- Specification of the value \*S1-STORAGE-LEVEL for the TO-STORAGE operand is permitted to the HSMS administrator and nonprivileged users. However, it is not possible to check whether storage is saturated or to restrict storage space for the S1 storage level. Uncontrolled creation of save files can saturate the disks assigned to the S1 storage level.

- A single backup run started with a BACKUP-FILES statement can process the following:

- files on a pubset which was declared as an S0 pubset for HSMS with the HSMS statement MODIFY-PUBSET-PARAMETERS
- files on a pubset which was not declared for HSMS

The files on the undeclared pubset are processed in exactly the same way as the files on the S0 pubset. This means that

- if a symbolic archive name is used, the archive assigned to the S0 pubset is used;
  - if a backup is being run at storage level S1, the S1 pubset assigned to the S0 pubset is used.
- If CONCURRENT-COPY=\*YES is specified, the following operands and operand values of the BACKUP-FILES statement are not supported:
    - FILE-NAMES=\*OWN
    - FILE-NAMES=\*ALL
    - SUPPORT=\*PUBLIC-DISK(STORAGE-TYPE=\*NET-STORAGE) / \*PRIVATE-DISK(...) / \*TAPE  
(Although the value \*ANY is accepted, it is implicitly changed to \*PUBLIC-DISK. Thus files from private disks are not taken into account. Files residing on Net-Storage are skipped without any warning messages.)
    - DELETE-FILES-AND-JV=\*YES
    - SELECT-FILES=\*ALL-FILES(FROM=\*LATEST-BACKUPS-OR-S0)

For compatibility reasons the value of the WRITE-CHECKPOINTS suboperand of the OPERATION-CONTROL operand is automatically set to \*NO.

HSMS supports checkpoints for CCOPY backups which use SHC-OSD mirroring functions. This means that subsequent restarts are possible. When a restart takes place, it is necessary to specify OPERATION-CONTROL=\*PAR(WRITE-CHECKPOINTS=\*YES). (A restart is also possible if WRITE-CHECKPOINTS=\*STD is set and WRITE-CHECKPOINTS has the value \*YES in the specified archive.)

**Example**

*The HSMS administrator saves data of user ID UID before inhibiting it*

```
//BACKUP-FILES FILE-NAMES=:*:$uid., JV-NAMES=:*:$uid.,- _____ (1)
// DELETE-FILES-AND-JV=*YES(PROTECTION-RESPECTED=*NONE), - _____ (2)
// SAVE-FILE=*NEW(RETENTION-PERIOD=365), - _____ (3)
// SAVE-VERSION-NAME=bcfuid, - _____ (4)
// TO-STORAGE=*S2-STOR(VOLUMES=(tape01,tape02,tape03), - _____ (5)
// DEVICE-TYPE='tape-c4'), - _____ (6)
// OPERATION-CONTROL=*PAR(REQUEST-NAME=uid, - _____ (7)
// EXPRESS-REQUEST=*YES, - _____ (8)
// REPORT=*FULL, OUTPUT=uid.filelist) _____ (8)
```

- (1) All files and job variables of user ID UID from all catalog IDs are saved to the default system backup archive. (As a prerequisite, the same system backup archive must have been assigned to all pubsets on which files of this user reside.)
- (2) All files and job variables that are to be backed up in full are deleted after backup, regardless of any passwords or protecting attributes.
- (3) The retention period of the save file is 1 year (365 days).
- (4) The save version is given the name BCFUID.
- (5) The files are saved to magnetic tape cartridges of the type TAPE-C4 at storage level S2 whose VSNs are TAPE01, TAPE02 and TAPE03.
- (6) The request is given the name UID.
- (7) The request is processed asynchronously as an express request.
- (8) A full report is written to the file UID.FILELIST.

## BACKUP-NODE-FILES

### Save node files of the BS2000-UFS

This statement is used for saving node files of a BS2000-UFS (POSIX) and if applicable mounted nodes S0 to a backup archive. You can choose between full backup and incremental backup. Furthermore, you can specify the storage media from and to which the data is to be written and whether the data is to be erased after backup.

In contrast to the BACKUP-FILES statement, the BACKUP-NODE-FILES statement does not offer the SAVE-DIRECTORY operand since the archive directory cannot be stored in the same save file as the node files. This is why users have to handle the backing up of the archive directory themselves, immediately following the backup of the node files, either by backing up the archive directory separately, or by initiating a BS2000 system backup.

Implicit deletion of obsolete backups can be set for BACKUP-NODE-FILES requests using archive attributes.

#### *Note*

Some of the attributes of the files and directories will be modified by the BACKUP-NODE-FILES statement, as indicated in the table below:

Object	Attribute			
	Date of last access	Date of last modification	Date of last modification of the inode	Other attributes
<b>Files</b>	unmodified	unmodified	modified	unmodified
<b>Directories</b>	new	unmodified	unmodified	unmodified

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

## Format

BACKUP-NODE-FILES	Alias: <b>BNF</b>
<p><b>PATH-NAMES</b> = *OWN / *ALL / *SELECTED / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / *PATH-NAME(...)</p> <p>*FROM-FILE(...)      <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p>*FROM-LIBRARY-ELEMENT(...)      <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;      <b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</p> <p>*PATH-NAME(...)      <b>PATH</b> = &lt;posix-pathname 1..1023 with-wild&gt;      <b>NODE-ID</b> = *BS2000-UFS / *ALL / &lt;posix-filename 1..48 with-wild&gt;</p> <p>,<b>EXCEPT-PATH-NAMES</b> = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / *PATH-NAME(...)</p> <p>*FROM-FILE(...)      <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p>*FROM-LIBRARY-ELEMENT(...)      <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;      <b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</p> <p>*PATH-NAME(...)      <b>PATH</b> = &lt;posix-pathname 1..1023 with-wild&gt;      <b>NODE-ID</b> = *BS2000-UFS / *ALL / &lt;posix-filename 1..48 with-wild&gt;</p> <p>,<b>ENVIRONMENT</b> = *NODE-STD / *SINGLE-FEATURE / *SYSTEM-MANAGED(...)</p> <p>*SYSTEM-MANAGED(...)      <b>CATALOG-ID</b> = &lt;cat-id&gt;</p> <p>,<b>SELECTION-BOUNDARY</b> = *ALL-FILE-SYSTEMS / *SPECIFIED-PATHS / *CURRENT-FILE-SYSTEM / *ALL-LOCAL-FILE-SYSTEMS</p>	

(part 1 of 3)

```

,SELECT-FILES = *MODIFIED-FILES / *ALL-FILES(...) / *BY-CATALOG-MODIFICATION(...)
    *ALL-FILES(...)
        | FROM = *S0 / *LATEST-BACKUPS-OR-S0 / *ONLY-LATEST-BACKUPS
    *BY-CATALOG-MODIFICATION(...)
        | CHANGED-AFTER = *LATEST-SAVE-VERSION-DATE / <date with-compl>(…) /
            | <integer -99999..0 days>(…)
            | <date with-compl>(…)
            | | TIME = 00:00:00 / <time>
            | <integer -99999..0 days>(…)
            | | TIME = 00:00:00 / <time>
,DELETE-FILES = *NO / *YES(...)
    *YES(...)
        | PROTECTION-RESPECTED = *ALL / *NONE
,ARCHIVE-NAME = *SYSNODEBACKUP / <filename 1..22 without-cat-gen-vers>
,SAVE-FILE = *NEW(...) / *CONTINUE / *STD
    *NEW(...)
        | RETENTION-PERIOD = *STD / <integer 0..16383 days>
,SAVE-VERSION-NAME = *NONE / <name 1..8>
,TO-STORAGE = *S2-STORAGE-LEVEL(...) / *PUBLIC-DISK(...)
    *S2-STORAGE-LEVEL(...)
        | VOLUMES = *FROM-POOL / *FROM-OPERATOR / list-poss(20): <vsn 1..6>
        | ,DEVICE-TYPE = *STD / <device>
        | ,LOCATION = *STD / *ANY / <alphanumeric-name 1..8>
    *PUBLIC-DISK(...)
        | PUBSET-ID = <cat-id>
,OPERATION-CONTROL = *STD / *PARAMETERS(...)
    *PARAMETERS(...)
        | REQUEST-NAME = *STD / <name 1..8>
        | ,REQUEST-DESCRIPTOR = *NONE / <text 1..60>
        | ,EXPRESS-REQUEST = *NO / *YES
        | ,CONTROL-JV = *NONE / <filename 1..54 without-gen-vers>

```

(part 2 of 3)

```

, WAIT-FOR-COMPLETION = *NO / *YES
, PARALLEL-RUNS = *STD / <integer 1..16> / *MULTIPLEXING(...)
    *MULTIPLEXING(...)
        | NUMBER-OF-DEVICES = 1 / <integer 1..16>
        | , MULTIPLEXING-FACTOR = *AUTOMATIC / <integer 2..4>
, PRE-POST-PROCESSING = *NO / *YES
, WRITE-CHECKPOINTS = *STD / *YES / *NO
, SHADOW-COPY = *ALLOWED / *INHIBITED
, TAPE-CONTROL = *STD / *PARAMETERS(...)
    *PARAMETERS(...)
        | BLOCKING-FACTOR = *STD / <integer 2..15 2Kbyte> / *MAX
        | , UNLOAD-TAPE = *STD / *YES / *NO
, PERFORMANCE-ANALYSIS = *NO / *YES(...)
    *YES(...)
        | SEPARATOR = ; / <c-string 1..1>
, REPORT = *SUMMARY / *SAVED-FILES / *FULL / *NONE
, OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...) / <filename 1..54 without-gen-vers>
    *LIBRARY-ELEMENT(...)
        | LIBRARY = <filename 1..54 without-gen-vers>
        | , ELEMENT = <composed-name 1..64 with-under>

```

(part 3 of 3)

**PATH-NAMES =**

Serves to specify the path names of the node files of a BS2000-UFS (POSIX) and node S0 to be backed up. Specification of this operand is mandatory.

If node files from more than one node S0 are specified and are to be saved to a default system archive, then the same default system archive must be assigned to all these node S0s. Otherwise, the HSMS statement will be rejected. To prevent this you should therefore only specify files from one node S0 for each backup request.

Only the HSMS administrator can back up node files belonging to other users.

Node files on remote node S0s can also only be backed up by the HSMS administrator

More information about path names can be found in the “HSMS Vol. 1” manual [1].

**PATH-NAMES = \*OWN**

\*OWN is equivalent to “/” (*root*), subject to the restriction that the user must be the owner of all the files.

*Meaning for the HSMS administrator:*

The system is to archive all node files and directories belonging to the user ID *root* which reside on that branch on the central BS2000-UFS which corresponds to the specified environment.

*Meaning for nonprivileged users:*

The system is to archive all node files belonging to the user's own ID which reside on that branch on the central BS2000-UFS which corresponds to the specified environment.

**PATH-NAMES = \*ALL**

*This operand value is only available to the HSMS administrator.*

All node files are to be backed up that reside either on the central BS2000-UFS or on a connected node S0 and which are located in the specified environment. \*ALL is equivalent to “/”.

**PATH-NAMES = \*SELECTED**

The path names of the node files to be backed up are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-NODE-FILES.

The path names to be processed must be in the specified environment.

**PATH-NAMES = \*FROM-FILE(...)**

The path names of the node files to be backed up are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

The path names to be processed must be in the specified environment.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**PATH-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the node files which are to be backed up are taken from a PLAM library element (type S). The library element contains one path name per record.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**PATH-NAMES = \*PATH-NAME(...)**

The path name of the node file to be backed up is specified directly.  
The node files can also be selected using wildcards.

The option of backing up the node files of other users or node files of remote node S0s is restricted to the HSMS administrator.

**PATH = <posix-pathname 1..1023 with-wild>**

Path name of the node file.

**NODE-ID =**

*This operand value is only available to the HSMS administrator.*

Physical location of the node file to be backed up.

**NODE-ID = \*BS2000-UFS**

The node file resides on the local BS2000-UFS.

**NODE-ID = \*ALL**

The local BS2000-UFS and all node S0s under HSMS management are searched for the node file.

**NODE-ID = <posix-filename 1..48 with-wild>**

*This operand value only exists for compatibility reasons.*

**EXCEPT-PATH-NAMES =**

Serves to specify node files that are to be excluded from backup.

**EXCEPT-PATH-NAMES = \*NONE**

All node files specified with the PATH-NAMES operand are to be backed up. This specification is required if the restriction file is to be evaluated on the workstation.

**EXCEPT-PATH-NAMES = \*FROM-FILE(...)**

The path names of the node files to be excluded from backup are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-PATH-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the node files which are not to be backed up are taken from a PLAM library element (type S). The library element contains one path name per record.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-PATH-NAMES = \*PATH-NAME(...)**

The path name of the node files to be excluded from backup is specified directly. The first character of the path name must not be a hyphen.

The node files can also be selected using wildcards.

**PATH = <posix-pathname 1..1023 with-wild>**

Path name of the node file.

**NODE-ID =**

*This operand value is only available to the HSMS administrator.*

Physical location of the node file to be excluded from backup.

**NODE-ID = \*BS2000-UFS**

The node file resides on the local BS2000-UFS.

**NODE-ID = \*ALL**

The system searches the local BS2000-UFS and all decentral node S0s under HSMS control and reside in the specified environment for the node file.

**NODE-ID = <posix-filename 1..48 with-wild>**

*This operand value only exists for compatibility reasons.*

**ENVIRONMENT =**

HSMS environment in which the statement is to be processed.

**ENVIRONMENT = \*NODE-STD**

The environment is derived from either:

- the operand `PATH-NAMES=*PATH-NAME(NODE-ID)` or
- the list of node IDs which are referenced in the file using the operand `PATH-NAMES=*FROM-FILE(LIST-FILE-NAME)` or in the library element with the operand `PATH-NAMES=*FROM-LIBRARY-ELEMENT(LIBRARY,ELEMENT)` .

For a workstation, this is the environment in which the HSMS statement `MODIFY-NODE-PARAMETERS` is performed.

For a privileged user under BS2000-UFS it is the `SINGLE-FEATURE` environment; for a nonprivileged user `*NODE-STD` assumes the value of the environment in which the home directory of the user is defined.

If the affected node files are located in different environments the statement is rejected with message HSM0530.

**ENVIRONMENT = \*SINGLE-FEATURE**

This statement is valid in the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

This statement is valid in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

The catalog ID of the SM pubset for which the statement is valid.

**SELECTION-BOUNDARY =**

Defines which part of the node file tree is used for file name expansion.

**SELECTION-BOUNDARY = \*ALL-FILE-SYSTEMS**

All node files and directories specified with the `PATH-NAMES` operand will be processed. Any node files and directories subordinated to a directory to be processed will be included in the selection.

Node files and directories will be selected from all levels of the file tree.

**SELECTION-BOUNDARY = \*SPECIFIED-PATHS**

All node files and directories specified with the `PATH-NAMES` operand will be processed. For directories, only their inodes will be included. Any node files and directories subordinated to a directory to be processed will be ignored.

**SELECTION-BOUNDARY = \*CURRENT-FILE-SYSTEM**

All node files and directories specified with the PATH-NAMES operand will be processed. Any node files and directories subordinated to a directory to be processed will be included in the selection (for node files both the inode and the data will be included, for directories only the inode).

The selection will be restricted to the current file system.

**SELECTION-BOUNDARY = \*ALL-LOCAL-FILE-SYSTEMS**

All node files and directories specified with the PATH-NAMES operand will be processed. If one of the objects to be processed is a directory, the node files and directories which reside on the subordinate levels of the file tree are also included.

The selection is restricted to the UFS file system.

**SELECT-FILES =**

Serves to define the scope of the backup. In addition to a full backup or an incremental backup, backup can only be performed for files which were modified after a particular date.

**SELECT-FILES = \*MODIFIED-FILES**

An incremental backup is to be carried out, i.e. node files will be backed up only if their current version is not yet present in the specified archive.

**SELECT-FILES = \*ALL-FILES(...)**

A full backup is to be performed, i.e. all node files are to be completely saved. Further specifications in the FROM operand can only be made by the HSMS administrator.

**FROM = \*S0**

All node files on storage level S0 are to be backed up, i.e. the entire backup is performed online.

This is the preset value for nonprivileged users.

**FROM = \*LATEST-BACKUPS-OR-S0**

Modified files are to be backed up from storage level S0.

Node files that have not been modified are to be backed up from their last full or incremental backup in the current archive.

**FROM = \*ONLY-LATEST-BACKUPS**

All files which refer to the last save version are to be backed up from their last full or incremental backup in the current archive.

**SELECT-FILES = \*BY-CATALOG-MODIFICATION(...)**

An incremental backup is only performed on the basis of the catalog entries: only those files are backed up whose catalog entry was modified after a certain date.

As archive entries are not taken into account, this backup takes place independently of previous backups. Note that files that had not been saved before the specified date are not backed up.

For save versions created with this setting, the backup scope is displayed in the output of the SHOW-ARCHIVE statement with "CAT-F". The save version contains only "fully saved" files and job variables; catalog entries for files that are not saved (save type CNS) are not included. Consequently the recovery of large data volumes should not be restricted to one save version, but all save versions since the last full backup should be specified.

**CHANGED-AFTER =**

All files are taken into account which have been modified since the specified date. With explicit date specification the modification time can be defined more precisely by specifying the time.

**CHANGED-AFTER = \*LATEST-SAVE-VERSION-DATE**

Date and time of the last save are used, in other words all files are taken into account whose catalog entries have been modified since this save. This setting can be used if saves to this archive always incorporate the same file set and the last save was completed successfully.

**CHANGED-AFTER = <date with-compl>(…)**

Explicit specification of the modification date.

**TIME = 00:00:00 / <time>**

Time that determines the modification time specifically.

**CHANGED-AFTER = <integer -99999..0 days>(…)**

Explicit specification of the modification date in days relative to the current date.

**TIME = 00:00:00 / <time>**

Time that determines the modification time specifically.

**DELETE-FILES = \*NO / \*YES(...)**

Defines whether the backed up node files are to be deleted from the processing level after backup.

**DELETE-FILES = \*YES(...)**

The archived node files – with the exception of the CNS files – are to be deleted from the node S0. The system administrator can restrict the deletion operation by specifying which file protection attributes of the node files are to be respected:

**PROTECTION-RESPECTED = \*ALL**

Deletion is restricted to node files which are not write-protected.

This operand value is set automatically if a nonprivileged user specifies DELETE-FILES=\*YES.

**PROTECTION-RESPECTED = \*NONE**

*This operand value is only available to the HSMS administrator.*

All node files are to be deleted, irrespective of their protection attributes.

**ARCHIVE-NAME = \*SYSNODEBACKUP / <filename 1..22 without-cat-gen-vers>**

Name of the archive to which the node files are to be saved. The specified archive must already exist and be available for use as a backup archive for node files.

If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. This also applies to HSMS administrators.

Specification of \*SYSNODEBACKUP is restricted to the HSMS administrator. Nonprivileged users can access only their own archives.

**SAVE-FILE =**

Defines the save file to which the backed up node files are to be written.

**SAVE-FILE = \*NEW(...)**

The backed up node files are to be written to a new save file. The following attributes for this save file can be defined here:

**RETENTION-PERIOD = \*STD / <integer 0..16383 days>**

(Physical) retention period in days. During this period, neither the save file nor the save volume may be modified or deleted.

Unless otherwise specified, the preset value from the archive definition applies.

**SAVE-FILE = \*CONTINUE**

The last save file created in the archive is to be continued with the current backup. It must be continued using the same storage level and the same device type.

A multiplexed save file cannot be continued with a normal (non-multiplexed) save version and vice versa since the formats of the save files are different.

**SAVE-FILE = \*STD**

A standard save file is to be created or continued. The (physical) retention period valid for the save file is defined in the archive definition.

**SAVE-VERSION-NAME = \*NONE / <name 1..8>**

Name of the save version generated by the backup request. This name can be used to refer to the save version for restore operations or in the HSMS statements RESTORE-NODE-FILES and SHOW-ARCHIVE. The name is extended internally by a prefix derived from the user ID (or, in the case of the HSMS administrator, by SYSHSMS). Any save version is uniquely identified by its name and an internal time stamp. Unless otherwise specified, no save version name is assigned.

**TO-STORAGE =**

Defines the storage level at which the node files are to be backed up. Save files must be continued using the same storage level and the same device type as for their creation.

**TO-STORAGE = \*S2-STORAGE-LEVEL(...)**

The node files are to be backed up to storage level S2. The volumes to be used can be specified. If more than one volume is specified, all volumes must be of the same device type.

**VOLUMES = \*FROM-POOL**

The volumes are to be taken from the volume pool of the specified archive, i.e. the pool of the archive directory or the associated MAREN pool.

**VOLUMES = \*FROM-OPERATOR**

The volumes are to be allocated by the operator on request.

**VOLUMES = list-poss(20): <vsn 1..6>**

List of volume serial numbers, which will be requested in the specified order.

**DEVICE-TYPE = \*STD / <device>**

Device type of the requested volumes. The device type must belong to the class "TAPE". Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

Unless otherwise specified, the preset value from the archive definition applies if a new save file is created. If an existing save file is continued, the device type specified when the save file was created is used.

**LOCATION = \*STD / \*ANY / <alphanum-name 1..8>**

Location used for requesting volumes. This location must be known to MAREN. If the location manager is in use, the location should be properly defined in MARENLM. Otherwise MAREN ignores the specified value.

If MAREN is not in use, you must specify for LOCATION the value \*ANY, or \*STD if \*ANY is the default location of the archive.

**LOCATION = \*STD**

The default location of the archive is used.

**LOCATION = \*ANY**

No location is to be used.

**TO-STORAGE = \*PUBLIC-DISK(...)**

*This operand value is only available to the HSMS administrator.*

The files are backed up to a pubset.

In an SM pubset environment, the catalog ID must be an SM pubset.

**PUBSET-ID = <cat-id>**

Catalog ID of the pubset.

**OPERATION-CONTROL =**

Enables the user to define certain parameters which are relevant to the execution of the backup run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The parameters controlling the backup run can be modified as follows:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or, in the case of the HSMS administrator, from SYSHSMS) and a suffix in the form of a time stamp.

Unless otherwise specified, the request name is formed by the short code "BNF#" and the TSN of the calling user task yyyy as follows: BNF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE during a complex processing operation, e.g. one involving shadow archives.

The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing). The maximum wait times for batch tasks and interactive tasks are different, and are determined by preset global HSMS parameters.

Interactive tasks are permitted to carry out synchronous statement processing during tape sessions only.

**PARALLEL-RUNS =**

Number of simultaneously active backup tasks (ARCHIVE subtasks) used for this backup run.

**PARALLEL-RUNS = \*STD**

The preset value from the archive definition applies by default if a new save file is created. If an existing save file is continued, the value specified when the save file was created is used.

**PARALLEL-RUNS = <integer 1..16>**

Number of simultaneously active backup tasks (ARCHIVE subtasks).

For backups, a tape device must be available for each task.

In the case of automatic duplication to a shadow archive, two tape devices must be available for each task.

No multiplexing is performed.

**PARALLEL-RUNS = \*MULTIPLEXING(...)**

*This operand value is only available to the HSMS administrator.*

This operand is only relevant for operations at the S2 storage level.

Multiplexing operation is enabled in order to achieve improved performance. In this case, multiple ARCHIVE subtasks share the same device.

**NUMBER-OF-DEVICES = 1 / <integer 1..16>**

Number of devices available for the backup run.

**MULTIPLEXING-FACTOR = \*AUTOMATIC / <integer 2..4>**

Specifies a multiplexing factor for each device, i.e. the number of archive subtasks that are generated for each device.

If \*AUTOMATIC is specified, ARCHIVE calculates the multiplexing factor itself, i.e. ARCHIVE distributes the specified paths to the devices (the result of this division is the multiplexing factor for each device).

For more information on parallel processing, refer to the “HSMS Vol. 1” manual [1].

**PRE-POST-PROCESSING =**

Indicates whether preprocessing or postprocessing is to be activated on a remote workstation.

**PRE-POST-PROCESSING = \*NO**

No preprocessing or postprocessing is to be activated on a remote workstation, even if this is actually defined on the workstation.

**PRE-POST-PROCESSING = \*YES**

Preprocessing or postprocessing is to be activated on a remote workstation if this is actually defined on the workstation.

**WRITE-CHECKPOINTS = \*STD / \*NO / \*YES**

Defines whether any checkpoints are to be written to the ARCHIVE checkpoint file during processing; these checkpoints permit a request to be restarted following an interruption (state INTERRUPTED).

Unless otherwise specified, the preset value from the archive definition applies.

The operand value \*YES causes checkpoints to be written at file tree levels only.

**SHADOW-COPY =**

Specifies whether the save version is to be automatically duplicated to a shadow archive which may have been assigned.

**SHADOW-COPY = \*ALLOWED**

If the long-term archive in question has been assigned a shadow archive, the save version is automatically duplicated to this shadow archive after the backup run. Whether a save file is updated in the shadow archive, a new one is created like in the main archive or a new one is always created is specified by the SHADOW-CONTROL archive attribute of the main archive.

**SHADOW-COPY = \*INHIBITED**

The save version is not automatically duplicated to a shadow archive which may have been assigned.

**TAPE-CONTROL =**

Defines the parameters which are relevant for backup to tape.

**TAPE-CONTROL = \*STD**

The preset values from the definition of the archive to be used for backup apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

The operands relevant for backup to tape can be modified as follows:

**BLOCKING-FACTOR = \*STD / *<integer 2..15 2Kbyte>* / **\*MAX****

Blocking factor to be used for writing the save file to tape, specified as the number of 2-Kbyte blocks (PAM pages) written to tape in a single input/output operation. As the higher blocking factor means that the occupancy level of the volume and the tape processing performance improve, values below 15 should not be selected. The default value **\*STD** selects the blocking factor from the archive definition. If this also contains the default value, the default values of the ARCHIVE parameters apply (BLOCK-SIZE-TAPE for tapes, BLOCK-SIZE-T-C for magnetic tape cartridges).

**\*MAX** selects the maximum blocking factor possible in the current BS2000 version. Currently this is the value 128.

**UNLOAD-TAPE = \*STD / **\*NO** / **\*YES****

Specifies whether or not tapes are to be unloaded after processing. The preset value from the archive definition applies unless otherwise specified.

It is possible that HSMS will ignore the value of this operand in order to avoid irrational tape processing, for example to avoid unloading a tape several times while rewinding it.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is " ; ". This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output for this backup request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the backup request, including any error messages, is to be output.

**REPORT = \*SAVED-FILES**

A full report is to be output, including a list of the node files actually saved, i.e. node files of save type CNS are not output.

**REPORT = \*FULL**

A full report is to be output, including a list of all backed up node files, i.e. including the node files which were cataloged but not saved (save type CNS).

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report on this backup request is to be printed.

**OUTPUT = \*MAIL**

The report for this backup request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this backup request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this backup request is be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

In a SM pubset environment the environment catalog ID is added to the file names if there is no environment catalog ID specified in the report file name.

**Example 1**

The HSMS administrator performs a central full backup of the local BS2000-UFS.

*Perform preparatory activities:*

```

/START-HSMS
//MODIFY-NODE-PARAMETERS - _____ (1)
//  NODE-ID=*BS2000-UFS, -
//  HSMS-CONTROL=*YES(SYSNODEBACKUP=*STD)
//CREATE-ARCHIVE - _____ (2)
//  ARCHIVE-NAME=CENTRAL, -
//  ALLOWED-USAGE=*NODEBACKUP, -
//  USER-ACCESS=*ALL-USERS, -
//  DIRECTORY-NAME=NODEBACKUP.CENTRAL.DIR, -
//  RETENTION-PERIOD=150, -
//  S2-DEVICE-TYPE='TAPE-C1', -
//  OPERATION-CONTROL=*PARAMETERS(PARALLEL-RUNS=2)
//MODIFY-ARCHIVE - _____ (3)
//  ARCHIVE-NAME=CENTRAL, -
//  VOLUMES=*ADD(VOLUMES=(VOLUM1,VOLUM2,...))
//MODIFY-HSMS-PARAMETERS - _____ (4)
//  VALID-PERIOD=*PERMANENT, -
//  DEFAULT-HSMS-STORAGE=*PARAMETERS(SYSNODEBACKUP=CENTRAL)
//END

```

- (1) The local BS2000-UFS is placed under HSMS management. The default system archive SYSNODEBACKUP is assigned to this local UFS.
- (2) The archive CENTRAL is set up as a public archive for backing up node files with read privilege.  
The node files which are backed up cannot be deleted for 150 days.  
Magnetic tape cartridges are specified as the target volumes in order to use a robotic archive connected to the system.  
Two backup tasks are to execute simultaneously.

*Note*

In order for nonprivileged users to use the directory file, it must be shareable (USER-ACCESS=\*ALL-USERS).

- (3) Magnetic tape cartridges are added to the pool of free volumes of the CENTRAL archive.
- (4) The CENTRAL archive is defined as the global default system archive for backing up node files of a BS2000-UFS (POSIX) or if applicable remote nodes S0.

*Create a list of the path names which are to be backed up:*

```
Contents of SAM file "PATH.LIST": _____ (5)
<bs2000-ufs path-name1>
<bs2000-ufs path-name2>
<bs2000-ufs ...>
```

- (5) Since only a single path name can be specified in the BACKUP-NODE-FILES statement, the HSMS administrator creates the SAM file PATH.LIST, which contains the path names of the node files to be backed up.

*Start full backup:*

```
/START-HSMS
//BACKUP-NODE-FILES - _____ (6)
//  PATH-NAMES=*FROM-FILE(LIST-FILE-NAME=PATH.LIST), -
//  ARCHIVE-NAME=*SYSNODEBACKUP, -
//  SELECT-FILES=*ALL-FILES(FROM=*LATEST-BACKUPS-OR-S0), - _____ (7)
//  OPERATION-CONTROL=*PARAMETERS(REPORT=*FULL,OUTPUT=FULL.BACKUP)
//END
```

- (6) The path names of the node files which are to be backed up are read from the PATH.LIST file. A full backup is made to the default system archive \*SYSNODEBACKUP.
- (7) For performance reasons, the operand LATEST-BACKUPS-OR-S0 is specified for the backup. Node files which have been modified since the last backup are backed up from the node S0; unmodified node files are copied from their last backup in the same archive.  
The operand LATEST-BACKUPS-OR-S0 must not be specified for the very first full backup since it is first necessary to create the backup environment.

**Example 2**

The HSMS administrator performs a central incremental backup of the local BS2000-UFS.

*Perform preparatory activities:*

The preparations are the same as those in Example 1.

*Start incremental backup:*

```

/START-HSMS
//BACKUP-NODE-FILES - _____ (1)
//  PATH-NAMES=*FROM-FILE(LIST-FILE-NAME=PATH.LIST), -
//  SELECT-FILES=*MODIFIED-FILES, -
//  ARCHIVE-NAME=*SYSNODEBACKUP, -
//  SAVE-FILE=*NEW(RETENTION-PERIOD=14), - _____ (2)
//  OPERATION-CONTROL=*PARAMETERS(REPORT=*FULL,OUTPUT=INCREMENTAL.BACKUP)
//END

```

- (1) The path names of the node files which are to be backed up are read from the PATH.LIST file. All the node files which have been modified since the last backup are backed up to the default system archive \*SYSNODEBACKUP.
- (2) A new save file is created; this file is protected against overwriting for 14 days. A retention period of 14 days is adequate if a full backup is made every week.

## COPY-EXPORT-SAVE-FILE

### Copy save file

This statement is used to copy save files created with the HSMS statement EXPORT-FILES or the EXPORT statement of the software product ARCHIVE.

In addition a special function is offered which converts export backups without directory to backups with directory and Several-SVID format for an HSMS long-term archive in the case of a switchover from ARCHIVE to HSMS operation.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

### Format

COPY-EXPORT-SAVE-FILE	Alias: <b>CES</b>
<pre> <b>INPUT-SAVE-FILE</b> = <b>*BY-VOLUME</b>(...)/ <b>*FROM-DIRECTORY</b>(...)/ <b>*BY-VOLUME-CATALOG</b>(...)/                     <b>*BY-PUBLIC-DISK</b>(...)  <b>*BY-VOLUME</b>(...)     <b>SAVE-FILE-ID</b> = <b>*NOT-SPECIFIED</b> / &lt;composed-name 15..15&gt;     <b>,VOLUMES</b> = list-poss(100): &lt;vsn 1..6&gt; / list-poss(16): <b>*GROUPED-BY-RUN</b>(...)       <b>*GROUPED-BY-RUN</b>(...)         <b>VOLUMES</b> = list-poss(100): &lt;vsn 1..6&gt;         <b>,DEVICE-TYPE</b> = <b>*STD</b> / &lt;device&gt;     <b>*FROM-DIRECTORY</b>(...)       <b>DIRECTORY-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;       <b>,SAVE-FILE-ID</b> = <b>*LATEST</b> / &lt;composed-name 15..15&gt;       <b>,DEVICE-TYPE</b> = <b>*STD</b> / &lt;device&gt;     <b>*BY-VOLUME-CATALOG</b>(...)       <b>SAVE-FILE-ID</b> = &lt;composed-name 15..15&gt;     <b>*BY-PUBLIC-DISK</b>(...)       <b>SAVE-FILE-ID</b> = &lt;composed-name 15..15&gt;       <b>,PUBSET-ID</b> = &lt;cat-id 1..4&gt; <b>,PASSWORDS</b> = <b>*NONE</b> / <b>*SECRET-PROMPT</b> / list-poss(63): &lt;c-string 1..4&gt; / &lt;x-string 1..8&gt; /               &lt;integer -2147483648..2147483647&gt; </pre>	

(part 1 of 4)

```

,SELECT-FILES = *ALL / *NONE / *SELECTED / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
                list-poss(20): <filename 1..80 without-vers with-wild> / <partial-filename 2..79 with-wild>

    *FROM-FILE(...)
        | LIST-FILE-NAME = <filename 1..54 without-gen-vers>

    *FROM-LIBRARY-ELEMENT(...)
        | LIBRARY = <filename 1..54 without-gen-vers>
        | ELEMENT = <composed-name 1..64 with-under>

,EXCEPT-FILES = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
                list-poss(20): <filename 1..80 without-vers with-wild> / <partial-filename 2..79 with-wild>

    *FROM-FILE(...)
        | LIST-FILE-NAME = <filename 1..54 without-gen-vers>

    *FROM-LIBRARY-ELEMENT(...)
        | LIBRARY = <filename 1..54 without-gen-vers>
        | ELEMENT = <composed-name 1..64 with-under>

,SELECT-JV = *NONE / *ALL / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
            list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>

    *FROM-FILE(...)
        | LIST-FILE-NAME = <filename 1..54 without-gen-vers>

    *FROM-LIBRARY-ELEMENT(...)
        | LIBRARY = <filename 1..54 without-gen-vers>
        | ELEMENT = <composed-name 1..64 with-under>

,EXCEPT-JV = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
            list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>

    *FROM-FILE(...)
        | LIST-FILE-NAME = <filename 1..54 without-gen-vers>

    *FROM-LIBRARY-ELEMENT(...)
        | LIBRARY = <filename 1..54 without-gen-vers>
        | ELEMENT = <composed-name 1..64 with-under>

,OUTPUT-DIRECTORY = *NONE / <filename 1..54 without-gen-vers>

```

(part 2 of 4)

```

,OUTPUT-SAVE-FILE = *NEW(...) / *CONTINUE(...)

  *NEW(...)
  |
  |   RETENTION-PERIOD = 0 / <integer 0..16383 days>
  |   ,USER-ACCESS = *ALL-USERS / *OWNER-ONLY
  |   ,SAVE-FILE-PASSWORD = *NONE / *SECRET-PROMPT / <c-string 1..4> / <x-string 1..8> /
  |                       <integer -2147483648..2147483647>
  |
  |   *CONTINUE(...)
  |   |
  |   |   SAVE-FILE-ID = *NOT-SPECIFIED / *LATEST / <composed-name 15..15>
  |   |   ,VOLUMES = *NOT-SPECIFIED / list-poss(16): <vsn 1..6>
  |
  |   ,COMPRESS-FILES = *NO / *YES
  |   ,SAVE-DIRECTORY = *NO / *YES
  |   ,TO-STORAGE = *TAPE(...) / *PUBLIC-DISK(...) / *NET-STORAGE(...)
  |
  |   *TAPE(...)
  |   |
  |   |   VOLUMES = *FROM-POOL / *FROM-OPERATOR / list-poss(100): <vsn 1..6>
  |   |   ,DEVICE-TYPE = *STD / <device>
  |   |   ,LOCATION = *ANY / <alphanum-name 1..8>
  |
  |   *PUBLIC-DISK(...)
  |   |
  |   |   PUBSET-ID = <cat-id>
  |
  |   *NET-STORAGE(...)
  |   |
  |   |   VOLUMES = list-poss(16): <vsn 1..6>
  |
  |   ,OPERATION-CONTROL = *STD / *PARAMETERS(...)
  |
  |   *PARAMETERS(...)
  |   |
  |   |   REQUEST-NAME = *STD / <name 1..8>
  |   |   ,REQUEST-DESCRIPTOR = *NONE / <text 1..60>
  |   |   ,EXPRESS-REQUEST = *NO / *YES
  |   |   ,CONTROL-JV = *NONE / <filename 1..54 without-gen-vers>
  |   |   ,WAIT-FOR-COMPLETION = *NO / *YES
  |   |   ,CATALOG-ID-MODE = *YES / *NO
  |   |   ,PARALLEL-RUNS = 1 / <integer 1..16>
  |   |   ,WRITE-CHECKPOINTS = *YES / *NO
  |   |   ,OPERATOR-INTERACTION = *NOT-ALLOWED / *ALLOWED

```

(part 3 of 4)

```

,TAPE-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    |   BLOCKING-FACTOR = *STD / <integer 2..15 2Kbyte> / *MAX
    |   ,UNLOAD-TAPE = *NO / *YES
,PERFORMANCE-ANALYSIS = *NO / *YES(...)
  *YES(...)
    |   SEPARATOR = ; / <c-string 1..1>
,REPORT = *SUMMARY / *FULL / *NONE
,OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...)/ <filename 1..54 without-gen-vers>
  *LIBRARY-ELEMENT(...)
    |   LIBRARY = <filename 1..54 without-gen-vers>
    |   ,ELEMENT = <composed-name 1..64 with-under>

```

(part 4 of 4)

**INPUT-SAVE-FILE =**

Defines the save file from which the files to be imported are to be retrieved.

**INPUT-SAVE-FILE = \*BY-VOLUME(...)**

The save file from which the files are to be imported is defined by the volume on which they reside.

**SAVE-FILE-ID = \*NOT-SPECIFIED**

The save files on the specified volumes are selected irrespective of their save file ID.

**SAVE-FILE-ID = <composed-name 15..15>**

The files are imported only from the specified save file. The save file ID must be specified as follows: S.yymmdd.hhmmss

**VOLUMES = list-poss(100): <vsn 1..6>**

Volume serial number of the volumes containing the save files with the files to be imported.

**VOLUMES = \*list-poss(16): GROUPE-BY-RUN(...)**

Only for exporting in more than one parallel run:

A separate \*GROUPE-BY-RUN specification must be made for each parallel run.

Up to 16 entries can be made.

**VOLUMES = list-poss(100): <vsn 1..6>**

Volume serial number of the volumes in the individual parallel runs.

**DEVICE-TYPE = \*STD / <device>**

Device type of the backup volumes. Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

The default value is the value defined with the S2-DEVICE-TYPE operand of the MODIFY-HSMS-PARAMETERS statement.

**INPUT-SAVE-FILE = \*FROM-DIRECTORY(...)**

The save file from which the files are to be imported is selected from a directory. The nonprivileged caller must be owner or co-owner of this directory.

**DIRECTORY-NAME = <filename 1..54 without-gen-vers>**

Directory written to the volume during the export run and previously imported in a separate run.

**SAVE-FILE-ID = \*LATEST**

The data is imported from the last save file in the specified directory.

**SAVE-FILE-ID = <composed-name 15..15>**

The data is imported from the specified save file. The save file ID must be specified as follows: S.yymmdd.hhmmss

**DEVICE-TYPE = \*STD / <device>**

Device type of the volume on which the save version resides. This need be specified only if the save version was created in an ARCHIVE version < V2.6B. In higher ARCHIVE versions, the device type used for backup is indicated in the directory. Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

The default value is the value defined with the S2-DEVICE-TYPE operand of the MODIFY-HSMS-PARAMETERS statement.

**INPUT-SAVE-FILE = \*BY-VOLUME-CATALOG(...)**

*MAREN V12.0 is required to use this operand.*

The input save file is specified with its exact name, and the associated volumes are determined by MAREN. This makes sense for export save files with no directory.

**SAVE-FILE-ID = <composed-name 15..15>**

Exact name of the input save file in the format: S.yymmdd.hhmmss

**INPUT-SAVE-FILE = \*BY-PUBLIC-DISK(...)**

The save file is selected by the pubset on which it resides.

**SAVE-FILE-ID = <composed-name 15..15>**

The files are imported only from the specified save file. The save file ID must be specified as follows: S.yymmdd.hhmmss

**PUBSET-ID = <cat-id 1..4>**

Specifies the catalog ID of the pubset where the save file is located. If the save file is located on Net-Storage this is the pubset to which the Net-Storage volume is assigned.

**PASSWORDS = \*NONE / \*SECRET-PROMPT / list-poss(63): <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>**

If a password was specified for the save file during an export run (SAVE-FILE-PASSWORD or SVPASS in ARCHIVE), that password must be specified here.

The password must also be specified here if a save file which is password-protected is to be continued.

The PASSWORDS operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in an interactive dialog.
- In unguided dialog and foreground procedures, the entry \*SECRET or ^ permits concealed input of the password.

**SELECT-FILES =**

Serves to specify the files to be copied from the save file.

The file selection made here applies to all save versions of the save file that are to be copied. For nonprivileged callers, all files (also of foreign IDs) are also copied.

The selection can be restricted by means of the EXCEPT-FILES operand.

**SELECT-FILES = \*ALL**

All files are to be copied from the save file.

**SELECT-FILES = \*NONE**

No files are to be copied from the save file.

**SELECT-FILES = \*SELECTED**

The path names of the files to be copied are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-FILE-NAMES.

**SELECT-FILES = \*FROM-FILE(...)**

The path names of the files to be copied are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. The list file can be created, for instance, by means of the HSMS statement SELECT-FILE-NAMES or the BS2000 command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**SELECT-FILES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are to be copied are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**SELECT-FILES = list-poss(20): <filename 1..80 without-vers-with-wild> /  
<partial-filename 2..79 with-wild>**

The path names of the files to be copied are specified directly. A list of up to 20 names may be specified.

The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the default catalog ID of the user ID.

The files can alternatively be selected using wildcards. Note, however, that only the HSMS administrator may use wildcards for user ID specification. The wildcards are replaced in accordance with the file names listed in the archive directory.

**EXCEPT-FILES =**

Serves to specify files that are to be excluded from copying. The selection specified here applies to all save versions of the save file that are to be copied.

**EXCEPT-FILES = \*NONE**

No files are to be excluded from copying.

**EXCEPT-FILES = \*FROM-FILE(...)**

The path names of the files to be excluded from copying are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. The list file can be created, for instance, by means of the BS2000 command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-FILES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are not to be copied are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-FILES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be excluded from backup are specified directly. A list of up to 20 names may be specified.

The first character of the file names must not be a hyphen. The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the default catalog ID.

The files can alternatively be selected using wildcards. Note, however, that only the HSMS administrator may use wildcards for user ID specification because only he/she is allowed to specify other user IDs. Wildcards are replaced using the file names contained in the archive directory.

**SELECT-JV =**

Serves to specify the job variables to be copied from the save file. The selection made here applies to all save versions of the save file that are to be copied. With nonprivileged callers, too, all job variables (also from foreign IDs) are copied.

**SELECT-JV = \*NONE**

No job variables are to be copied from the save file.

**SELECT-JV = \*ALL**

All job variables are to be copied from the save file.

**SELECT-JV = \*FROM-FILE(...)**

The path names of the files to be copied are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**SELECT-JV = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are to be copied are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**SELECT-JV = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables to be copied are specified directly. A list of up to 20 names may be specified.

The job variables can alternatively be selected using wildcards.

**EXCEPT-JV =**

Serves to specify job variables that are to be excluded from copying. The selection specified here applies to all save versions of the save file that are to be copied.

This operand is meaningful only for copying from a backup archive. Other types of archive do not contain job variables.

**EXCEPT-JV = \*NONE**

All job variables specified in the SELECT-JV operand are to be copied.

**EXCEPT-JV = \*FROM-FILE(...)**

The path names of the job variables to be excluded from copying are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-JV = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are not to be copied are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-JV = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables to be excluded from copying are specified directly. A list of up to 20 names may be specified. The first character of the job variable names must not be a hyphen.

The job variables can alternatively be selected using wildcards.

**OUTPUT-DIRECTORY =**

*This operand is only available to the HSMS administrator.*

Specifies whether an output directory is to be used when the save files are copied. Specifying an output directory enables the HSMS administrator to copy export backups without directory to backups with directory and Several-SVID format for a long-term archive in one step. This function facilitates the switchover from ARCHIVE to HSMS operation.

**OUTPUT-DIRECTORY = \*NONE**

No output directory is specified. Processing is performed without the special copy function being used.

**OUTPUT-DIRECTORY = <filename 1..54 without-gen-vers>**

The directory of a long-term archive to which the files and job variables exported to the volume are to be saved is specified. The associated long-term archive must be defined in the SF environment.

To specify an output directory the save file from which the files to be imported are to be fetched must be specified via the volume (see the INPUT-SAVE-FILE=\*BY-VOLUME(...) operand).

When a save file is updated with OUTPUT-SAVE-FILE=\*CONTINUE either the last (\*LATEST specification) save file or one specially specified can be updated in the specified directory of the long-term archive. When updating takes place SAVE-FILE-ID=\*NOT-SPECIFIED is treated like \*LATEST. Volumes specified under \*CONTINUE are ignored.

The output directory must always work with CATALOG-ID-MODE=\*YES. Specification of CATALOG-ID-MODE=\*NO is therefore rejected. If the input save file does not contain a catalog ID (from an export run with CATID-MODE=\*NO), the copy operation is rejected with

ARC0254. In this case the destination ID can be predefined by a special REP, and the copy operation can be executed without being rejected (more detailed information can be obtained from the field engineer responsible).

As this special copy function converts export tapes without directory to save files of a long-term archive with Several-SVID format files and job variables cannot be selected here using path names. Only the following specifications are permitted: SELECT-FILE=\*ALL/\*NONE, SELECT-JV=\*NONE/\*ALL, EXCEPT-FILE=\*NONE and EXCEPT-JV=\*NONE.

### **OUTPUT-SAVE-FILE =**

Defines the save file to which the exported files are to be written.

### **OUTPUT-SAVE-FILE = \*NEW(...)**

The exported files are to be written to a new save file. The following attributes for this save file can be defined here:

#### **RETENTION-PERIOD = 0 / <integer 0..16383 days>**

Physical retention period in days. During this period, neither the save file nor the save volume may be modified or deleted.

#### **USER-ACCESS = \*ALL-USERS**

The save file is created as a shareable file. The data can be imported under a different user ID.

#### **USER-ACCESS = \*OWNER-ONLY**

The save file is created as a non-shareable file. The data can be imported only under the same user ID.

#### **SAVE-FILE-PASSWORD = \*NONE / \*SECRET-PROMPT / list-poss(1000): <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>**

The save file to be created can be assigned a password which must be entered when the file is continued or imported.

The SAVE-FILE-PASSWORD operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in an interactive dialog.
- In unguided dialog and foreground procedures, the entry \*SECRET or ^ permits concealed input of the password.

**OUTPUT-SAVE-FILE = \*CONTINUE(...)**

The save file, which can subsequently be defined in greater detail, is continued.

**SAVE-FILE-ID = \*NOT-SPECIFIED**

The save file to be continued is not defined by the SFID but rather by the volume on which it resides.

**SAVE-FILE-ID = \*LATEST**

Only if a directory is used:  
the most recently created save file is continued.

**SAVE-FILE-ID = <composed-name 15.15>**

The specified save file is continued. The save file ID must be specified as follows:  
S.yymmdd.hhmmss

**VOLUMES = \*NOT-SPECIFIED**

Only if a directory is used:  
the volume is taken from the directory.

**VOLUMES = list-poss(16): <vsn 1..6>**

The most recently written volume is specified.  
When creating the save file, a separate volume can be specified for each parallel run.

**COMPRESS-FILES = \*NO / \*YES**

Determines whether or not data is compressed before being written to the output volume.

**SAVE-DIRECTORY = \*NO / \*YES**

*Only relevant for INPUT-SAVE-FILE=\*FROM-DIRECTORY.*

Determines whether the directory specified with DIRECTORY-NAME is to be written to the output volume as the last file.

**TO-STORAGE =**

Specifies the destination to which the files are to be copied.

**TO-STORAGE = \*TAPE(...)**

The files are to be copied to tape.

The volumes can be defined in greater detail; if several volumes are specified, they all must be of the same device type.

**VOLUMES = \*FROM-POOL**

Only if a directory is used:

the volumes are taken from the volume pool of the specified archive or the associated MAREN pool.

**VOLUMES = \*FROM-OPERATOR**

The volumes are to be allocated by the operator on request.

**VOLUMES = list-poss(100): <vsn 1..6>**

List of volume serial numbers, which will be requested in the specified order.

**DEVICE-TYPE = \*STD / <device>**

Device type of the requested volumes. The device type must belong to the class "TAPE". Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

The default value is the value defined with the S2-DEVICE-TYPE operand of the MODIFY-HSMS-PARAMETERS statement if OUTPUT-SAVE-FILE=NEW(...) or the device type of the device previously used if OUTPUT-SAVE-FILE=CONTINUE(...).

**LOCATION = \*ANY / <alphanum-name 1..8>**

Location used for requesting volumes. This location must be known to MAREN. If the location manager is in use, the location should be properly defined in MARENLM. Otherwise MAREN ignores the specified value.

If MAREN is not in use, you must specify the value \*ANY for LOCATION.

**LOCATION = \*ANY**

No location is to be used.

**TO-STORAGE = \*PUBLIC-DISK(...)**

*This operand value is only available to the HSMS administrator.*

The save file is to be copied to a pubset.

**PUBSET-ID = <cat-id>**

Catalog ID of the pubset.

**TO-STORAGE = \*NET-STORAGE(...)**

The save file is to be copied to a Net-Storage.

**VOLUMES = list-poss(16): <vsn 1..6>**

Specifies the Net-Storage volume to which the files are to be copied. The volume specified must be accessible.

More than one Net-Storage volume can also be specified in a list (e.g. when there is more than one save task).

**OPERATION-CONTROL =**

Enables you to define certain parameters which are relevant to the execution of the backup run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The following parameters which control the backup run can be modified:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administrator) and a suffix in the form of a time stamp. Unless otherwise specified, the request name is formed of the short code "EXF#" and the TSN of the calling user task yyyy as follows: EXF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE.

The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing). The maximum wait times for batch tasks and interactive tasks are different and are determined by preset global HSMS parameters.

Interactive tasks are permitted to carry out synchronous HSMS statement processing during tape sessions only.

**CATALOG-ID-MODE = \*YES / \*NO**

Determines whether the data is written to the save file with or without a catalog ID (corresponds to CATID operand in ARCHIVE).

**PARALLEL-RUNS = 1 / <integer 1..16>**

Number of save tasks (ARCHIVE subtasks) running in parallel.

There must be two tape devices available for each task.

Unless otherwise specified, only one save task is running.

For further information on parallel processing see the "HSMS Vol. 1" manual [1].

**WRITE-CHECKPOINTS = \*YES / \*NO**

Defines whether any checkpoints are to be written to the ARCHIVE checkpoint file during processing; these checkpoints permit a request to be restarted following an interruption (state INTERRUPTED).

Unless otherwise specified, the preset value from the archive definition applies.

**OPERATOR-INTERACTION = \*NOT-ALLOWED / \*ALLOWED**

Determines whether messages requiring an operator response are to be output at the console (\*ALLOWED) or not (\*NOT-ALLOWED). If \*NOT-ALLOWED applies, HSMS performs default handling (see the description of the PARAM statement in the "ARCHIVE" manual [2]).

**TAPE-CONTROL =**

Defines the parameters which are relevant for export to tape.

**TAPE-CONTROL = \*STD**

The default values described for the operand apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

You can modify the following operands relevant for export to tape:

**BLOCKING-FACTOR = \*STD / <integer 2..15 2Kbyte> / \*MAX**

Blocking factor to be used for writing the save file to tape, specified as the number of 2-Kbyte blocks (PAM pages) written to tape in a single input/output operation. As the higher blocking factor means that the occupancy level of the volume and the tape processing performance improve, values below 15 should not be selected.

When the default value \*STD is selected, the default values of the ARCHIVE parameters apply (BLOCK-SIZE-TAPE for tapes, BLOCK-SIZE-T-C for magnetic tape cartridges).

\*MAX selects the maximum blocking factor possible in the current BS2000 version. Currently this is the value 128.

**UNLOAD-TAPE = \*NO / \*YES**

Specifies whether or not tapes are to be unloaded after processing.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “ ; ”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output for this export request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the export request, including any error messages, is to be output.

**REPORT = \*FULL**

A full report is to be output, including a list of all exported files.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report for this copy request is to be printed.

**OUTPUT = \*MAIL**

The report for this copy request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this copy request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this export request is to be prepared for printing and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

## COPY-NODE-SAVE-FILE

### Copy node save file

This statement is used for copying a node save file and the save versions of a BS2000-UFS or node S0 save run from a HSMS archive, either within the same archive or to another HSMS archive. Copying of node save files is restricted to the archive owner and the HSMS administrator.

The user can select individual node files and save versions for copying and exclude save versions whose expiration date has been reached.

The new save file created by copying and the save versions managed in it receive a new time stamp. Exception: when a save version is copied from one backup archive to another, the copy receives the same time stamp as the original.

When copying save versions, the original save date is recorded in the archive directory. It can be interrogated by means of SHOW-ARCHIVE..., SELECT=\*SAVE-VERSIONS, INFORMATION=\*USER-INFORMATION.

When copying without file selection (SELECT-PATHS=\*ALL) in the same archive or to the shadow archive **all** files are copied, regardless of the ID and privilege of the caller.

Implicit deletion of obsolete backups can be set in the archive attribute.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

## Format

COPY-NODE-SAVE-FILE	Alias: CNF
<pre> <b>SAVE-FILE-ID</b> = <u>*LATEST</u> / &lt;composed-name 15..15&gt; , <b>SELECT-SAVE-VERSIONS</b> = <u>*ALL</u> / <u>*BY-ATTRIBUTES</u>(...)   <u>*BY-ATTRIBUTES</u>(...)       <b>SAVE-VERSION-NAME</b> = <u>*ANY</u> / &lt;name 1..8&gt;       , <b>EXPIRATION-AFTER</b> = <u>*EARLIEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..99999 days&gt;       , <b>SAVE-VERSION-DATE</b> = <u>*INTERVAL</u>(...) / <u>*LATEST-DATE</u> / &lt;date with-compl&gt;(…)         <u>*INTERVAL</u>(…)             <b>CREATED-BEFORE</b> = <u>*LATEST-DATE</u> / &lt;date with-compl&gt;(…) /               &lt;integer -99999..0 days&gt;(…)               &lt;date with-compl&gt;(…)                   <b>TIME</b> = <u>23:59:59</u> / &lt;time&gt;               &lt;integer -99999..0 days&gt;(…)                   <b>TIME</b> = <u>23:59:59</u> / &lt;time&gt;             , <b>CREATED-AFTER</b> = <u>*EARLIEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;             &lt;date with-compl&gt;(…)                 <b>TIME</b> = <u>23:59:59</u> / &lt;time&gt;             , <b>ORIGINAL-DATE</b> = <u>*INTERVAL</u>(…) / &lt;date with-compl&gt;(…)               <u>*INTERVAL</u>(…)                   <b>BEFORE</b> = <u>*LATEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;                   , <b>AFTER</b> = <u>*EARLIEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;                   &lt;date with-compl&gt;(…)                       <b>TIME</b> = <u>23:59:59</u> / &lt;time&gt;           </pre>	

(part 1 of 3)

```

,SELECT-PATHS = *ALL / *SELECTED / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
                *PATH-NAME(...)

*FROM-FILE(...)
|   LIST-FILE-NAME = <filename 1..54 without-gen-vers>

*FROM-LIBRARY-ELEMENT(...)
|   LIBRARY = <filename 1..54 without-gen-vers>
|   ,ELEMENT = <composed-name 1..64 with-under>

*PATH-NAME(...)
|   PATH = <posix-pathname 1..1023 with-wild>
|   ,NODE-ID = *BS2000-UFS / *ALL / <posix-filename 1..48 with-wild>

,EXCEPT-PATHS = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / *PATH-NAME(...)

*FROM-FILE(...)
|   LIST-FILE-NAME = <filename 1..54 without-gen-vers>

*FROM-LIBRARY-ELEMENT(...)
|   LIBRARY = <filename 1..54 without-gen-vers>
|   ,ELEMENT = <composed-name 1..64 with-under>

*PATH-NAME(...)
|   PATH = <posix-pathname 1..1023 with-wild>
|   ,NODE-ID = *BS2000-UFS / *ALL / <posix-filename 1..48 with-wild>

,SELECTION-BOUNDARY = *ALL-FILE-SYSTEMS / *SPECIFIED-PATHS

,NEW-PATH-NAMES = *SAME / *BY-RULE(...)

*BY-RULE(...)
|   NEW-NODE-ID = *SAME / *BS2000-UFS / <posix-filename 1..48 without-wild>

,ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>(…)

<filename 1..22 without-cat-gen-vers>(…)
|   ENVIRONMENT = *NODE-STD / *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
|   *SYSTEM-MANAGED(...)
|   |   CATALOG-ID = <cat-id>

,TO-ARCHIVE-NAME = *SAME / <filename 1..22 without-cat-gen-vers>(…)

<filename 1..22 without-cat-gen-vers>(…)
|   ENVIRONMENT = *SAME / *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
|   *SYSTEM-MANAGED(...)
|   |   CATALOG-ID = <cat-id>

```

(part 2 of 3)

```

,SAVE-FILE = *NEW(...) / *CONTINUE(...)
  *NEW(...)
  |   RETENTION-PERIOD = *STD / <integer 0..16383 days> / *FROM-ORIGINAL-SAVE-FILE
  *CONTINUE(...)
  |   SAVE-FILE-ID = *LATEST / <composed-name 15..15>
,TO-STORAGE = *S2-STORAGE-LEVEL(...)
  *S2-STORAGE-LEVEL(...)
  |   VOLUMES = *FROM-POOL / *FROM-OPERATOR / list-poss(10); <vsfn 1..6>
  |   ,DEVICE-TYPE = *STD / <device>
  |   ,LOCATION = *STD / *ANY / <alphanumeric-name 1..8>
,OPERATION-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
  |   REQUEST-NAME = *STD / <name 1..8>
  |   ,REQUEST-DESCRIPTOR = *NONE / <text 1..60>
  |   ,EXPRESS-REQUEST = *NO / *YES
  |   ,CONTROL-JV = *NONE / <filename 1..54 without-gen-vers>
  |   ,WAIT-FOR-COMPLETION = *NO / *YES
  |   ,PARALLEL-RUNS = *MAXIMUM / <integer 1..16>
  |   ,OPERATOR-INTERACTION = *STD / *NOT-ALLOWED / *ALLOWED
  |   ,TAPE-CONTROL = *STD / *PARAMETERS(...)
  |   *PARAMETERS(...)
  |   |   BLOCKING-FACTOR = *STD / <integer 2..15 2Kbyte> / *MAX
  |   |   ,UNLOAD-TAPE = *STD / *YES / *NO
  |   ,PERFORMANCE-ANALYSIS = *NO / *YES(...)
  |   *YES(...)
  |   |   SEPARATOR = ; / <c-string 1..1>
  |   ,REPORT = *SUMMARY / *FULL / *NONE
  |   ,OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...) / <filename 1..54 without-gen-vers>
  |   *LIBRARY-ELEMENT(...)
  |   |   LIBRARY = <filename 1..54 without-gen-vers>
  |   |   ,ELEMENT = <composed-name 1..64 with-under>

```

(part 3 of 3)

**SAVE-FILE-ID =**

Save file which is to be copied.

When copying within the same backup archive, only the latest save file can be copied (SAVE-FILE-ID=\*LATEST). This serves to ensure that the sequence of the save versions reflects the chronological order of the save runs.

When copying from one backup archive to another, the SFID of the save file copy must be higher than the highest SVID of the target archive.

**SAVE-FILE-ID = \*LATEST**

The most recently created save file of the archive is to be copied.

**SAVE-FILE-ID = <composed-name 15..15>**

The specified save file is to be copied. The save file ID must be specified in the following format: S.yymmdd.hhmmss

**SELECT-SAVE-VERSIONS =**

Serves to select individual save versions from the save file.

If copying takes place within the same backup archive, you can only copy the last save version (SELECT-SAVE-VERSIONS=\*BY-ATTRIBUTES(SAVE-VERSION-DATE=\*LATEST-DATE)). This ensures that the sequence of the save versions corresponds to the save sequence.

**SELECT-SAVE-VERSIONS = \*ALL**

All save versions are to be copied.

**SELECT-SAVE-VERSIONS = \*BY-ATTRIBUTES(...)**

Specification of criteria for selecting save versions:

**SAVE-VERSION-NAME =**

Specifies the names of save versions which can be copied.

**SAVE-VERSION-NAME = \*ANY**

There are no restrictions on the save versions which can be selected.

**SAVE-VERSION-NAME = <name 1..8>**

Specifies the name of the save version to be copied.

Nonprivileged users can only select save versions they have created themselves. The save version name specified here is supplemented with the LOGON user ID to define the permitted save versions, or with SYSHSMS to specify HSMS administrator requests.

**EXPIRATION-AFTER = \*EARLIEST-DATE / <date with compl> /  
<integer -99999..99999 days>**

Only save versions whose retention period expires after the date specified are selected. \*EARLIEST-DATE means that the expiration date is not used to select save versions.

This operand is meaningful only when copying a save file from a long-term archive that permits a number of save versions ("user requests") with different logical expiration dates per save file.

**SAVE-VERSION-DATE =**

Restricts the creation date of the save versions which may be copied.

**SAVE-VERSION-DATE = \*INTERVAL(...)**

The save versions which may be copied can be selected by defining the period within which they have to have been created.

The default setting is that all save versions may be copied.

**CREATED-BEFORE = \*LATEST-DATE / <date with compl> /  
<integer -99999..0 days>(…)**

Only save versions created on or prior to the date specified are selected. An additional time field allows you to make a more precise selection.

**TIME = 23:59:59 / <time>**

Time specification in the form hh:mm:ss

**CREATED-AFTER = \*EARLIEST-DATE / <date with compl> /  
<integer -99999..0 days>**

Only save versions created on or after the date specified are selected.

This operand permits successive duplication of a save file which is continued for a number of days. Each day, only the new save versions are duplicated.

**SAVE-VERSION-DATE = \*LATEST-DATE**

Only the latest save version in the archive (with the specified save version name) is copied.

**SAVE-VERSION-DATE = <date with-compl>(…)**

The save version from the specified date and time (with the specified save version name) is copied.

A two-digit year number yy is changed to 20yy if yy ≤ 59. It is changed to 19yy if yy > 59.

**TIME = 23:59:59 / <time>**

Time specification in the form hh:mm:ss

**ORIGINAL-DATE =**

This operand only applies to save versions from a migration archive or long-term archive. It specifies the save version to be copied by indicating the date of the original migration or archival. Details of the original date are maintained in the copy. With the original save the original date is the same as the date of the save version.

**ORIGINAL-DATE = \*INTERVAL(...)**

The save versions which may be copied can be selected by defining a period in which their original dates must lie.

The default setting is that all save versions may be copied.

**BEFORE = \*LATEST-DATE / <date with compl> / <integer -99999..0 days>**

Only save versions whose original date coincides with or precedes the date specified are selected.

**AFTER = \*EARLIEST-DATE / <date with compl> / <integer -99999..0 days>**

Only save versions whose original date coincides with or succeeds the date specified are selected.

**ORIGINAL-DATE = <date with-compl>(…)**

The save version whose original date matches the date and time specified is copied. A two-digit year number yy is changed to 20yy if yy ≤ 59. It is changed to 19yy if yy > 59.

**TIME = 23:59:59 / <time>**

Time specification in the form hh:mm:ss

**SELECT-PATHS =**

Serves to specify the node files to be copied from the save file. The file selection made here applies to all save versions of the save file that are to be copied.

**SELECT-PATHS = \*ALL**

All node files are to be copied.

**SELECT-PATHS = \*SELECTED**

The path names of the node files to be copied are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-NODE-FILES.

**SELECT-FILES = \*FROM-FILE(...)**

The path names of the node files to be copied are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**SELECT-PATHS = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the node files which are to be copied are taken from a PLAM library element (type S). The library element contains one path name per record.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**SELECT-PATHS = \*PATH-NAME(...)**

The path name of the node file to be copied is specified directly.

**PATH = <posix-pathname 1..1023 with-wild>**

Path name of the node file.

**NODE-ID =**

*This operand is only available to the HSMS administrator.*

Physical location of the node file to be copied.

**NODE-ID = \*BS2000-UFS**

The node file resides on the local BS2000-UFS.

**NODE-ID = \*ALL**

The local BS2000-UFS and all existing node S0s are searched for the node file.

**NODE-ID = <posix-filename 1..48 with-wild>**

Name of the node S0 on which the node file resides. The node S0 which is defined with //MODIFY-NODE-PARAMETERS is mounted under the directory /HSMS/<node-id> in POSIX, and access takes place via NFS.

**EXCEPT-PATHS =**

Serves to specify node files that are to be excluded from copying. The selection specified here applies to all save versions of the save file that are to be copied.

**EXCEPT-PATHS = \*NONE**

No node files are to be excluded from copying.

**EXCEPT-PATHS = \*FROM-FILE(...)**

The path names of the node files to be excluded from copying are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-PATHS = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are not to be copied are taken from a PLAM library element (type S). The library element contains one path name per record.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-PATHS = \*PATH-NAME(...)**

The path name of the node file to be excluded from copying is specified directly.

**PATH = <posix-pathname 1..1023 with-wild>**

Path name of the node file.

**NODE-ID =**

*This operand is only available to the HSMS administrator.*

Physical location of the node file to be excluded from copying.

**NODE-ID = \*BS2000-UFS**

The node file resides on the local BS2000-UFS.

**NODE-ID = \*ALL**

The local BS2000-UFS and all existing node S0s are searched for the node file.

**NODE-ID = <posix-filename 1..48 with-wild>**

Name of the node S0 on which the node file resides. The node S0 which is defined with //MODIFY-NODE-PARAMETERS is mounted under the directory /HSMS/<node-id> in POSIX, and access takes place via NFS.

**SELECTION-BOUNDARY =**

Defines which part of the node file tree is used for file name expansion.

**SELECTION-BOUNDARY = \*ALL-FILE-SYSTEMS**

All node files and directories specified with the PATH-NAMES operand will be processed. Any node files and directories subordinated to a directory to be processed will be included in the selection.

Node files and directories will be selected from all levels of the file tree.

**SELECTION-BOUNDARY = \*SPECIFIED-PATHS**

All node files and directories specified with the PATH-NAMES operand will be processed. For directories, only their inodes will be included. Any node files and directories subordinated to a directory to be processed will be ignored.

**NEW-PATH-NAMES =**

*This operand is only available to the HSMS administrator.*

The HSMS administrator can copy the node files under another node S0. When renaming in node backup archives you must bear in mind that when renaming incremental backups it is also necessary to rename the underlying full backups to ensure that the incremental backup procedure functions correctly when implementing a restore.

**NEW-PATH-NAMES = \*SAME**

The node files are copied using the original node S0.

**NEW-PATH-NAMES = \*BY-RULE(...)**

Node files are renamed using a standard rule.

**NEW-NODE-ID = \*SAME / \*BS2000-UFS / <posix-filename 1..48 without-wild>**

You can copy the node files under another node S0.

Unless otherwise specified node files are copied to their original node S0. The explicit specification of a new node S0 is only possible if the original node S0 was specified in the SELECT-PATHS operand (specification not equal to \*ALL or \*PATH-NAME(...,NODE-ID=\*ALL).

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>(…)**

Name of the archive from which the save file is to be copied. The specified archive must already exist. In the event of a nonprivileged call, the caller must be an owner or, via the directory, co-owner of the archive, or the archive must provide access for all users (USER-ACCESS=\*ALL-USERS, ACCESS=\*READ).

If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. This also applies to HSMS administrators.

**ENVIRONMENT =**

HSMS environment in which the original archive is defined.

**ENVIRONMENT = \*NODE-STD**

The environment is derived from either:

- the operand SELECT-PATHS=\*PATH-NAME(NODE-ID) or
- the list of node IDs which are referenced in the file in the operand SELECT-PATHS=\*FROM-FILE(LIST-FILE-NAME) or in the library element of the operand PATH-NAMES=\*FROM-LIBRARY-ELEMENT(LIBRARY, ELEMENT).

For a workstation, this is the environment in which the HSMS statement MODIFY-NODE-PARAMETERS is performed.

For a privileged user under BS2000-UFS, it is the SINGLE-FEATURE environment; for a nonprivileged user \*NODE-STD assumes the value of the environment in which the home directory of the user is defined.

If the affected node files are located in different environments the statement is rejected with message HSM0530.

**ENVIRONMENT = \*SINGLE-FEATURE**

This archive is valid in the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(…)**

This statement is valid in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

The catalog ID of the SM pubset for which the statement is valid.

**TO-ARCHIVE-NAME =**

Determines the archive to which the save file is to be copied.

**TO-ARCHIVE-NAME = \*SAME**

The save file is copied to the archive specified in the ARCHIVE-NAME operand.

**TO-ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>(…)**

The save file is copied to the archive specified. The specified archive must already exist. In the event of a nonprivileged call, the caller must be an owner, via the directory, co-owner of the archive, or the archive must provide access for all users (USER-ACCESS=\*ALL-USERS, ACCESS=\*READ).

**ENVIRONMENT =**

HSMS environment in which the destination archive is defined.

**ENVIRONMENT = \*SAME**

The archive is defined in the same environment as the original archive.

**ENVIRONMENT = \*SINGLE-FEATURE**

The archive is defined in the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(…)**

The archive is defined in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset environment.

**SAVE-FILE =**

Defines the save file to which the save file copy is to be written.

**SAVE-FILE = \*NEW(…)**

The copy of the save file is to be written to a new save file. The following attributes of this save file can be defined here:

**RETENTION-PERIOD = \*STD / <integer 0..16383 days> /****\*FROM-ORIGINAL-SAVE-FILE**

(Physical) retention period in days. During this period, neither the save file nor the save volume may be modified or deleted.

Unless otherwise specified, the preset value from the archive definition applies.

**RETENTION-PERIOD = \*FROM-ORIGINAL-SAVE-FILE**

The new save file is assigned the retention period of the original save file.

**SAVE-FILE = \*CONTINUE(…)**

The specified save file is to be continued.

If copying is performed within the same archive, input and output save file must not be identical.

**SAVE-FILE-ID = \*LATEST**

The most recently created save file for this archive is to be continued.

**SAVE-FILE-ID = <composed-name 15..15>**

The specified save file is to be continued. The save file ID must be specified in the following format: S.yymmdd.hhmmss

**TO-STORAGE =**

Defines the storage level to which the save file is to be copied.

Save files from long-term and migration archives must be copied to S2. Save files from backup archives may be copied to S2, S1 and to private disk.

**TO-STORAGE = \*S2-STORAGE-LEVEL(...)**

The save file is to be copied to storage level S2. The volumes to be used can be specified. If more than one volume is specified, all volumes must be of the same device type.

**VOLUMES = \*FROM-POOL**

The volumes are to be taken from the volume pool of the specified archive, i.e. the pool of the directory or the associated MAREN pool.

**VOLUMES = \*FROM-OPERATOR**

The volumes are to be allocated by the operator on request.

**VOLUMES = list-poss(10): <vsn 1..6>**

List of volume serial numbers, which will be requested in the specified order.

**DEVICE-TYPE = \*STD / <device>**

Device type of the requested volumes. The device type must belong to the class "TAPE". Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

Unless otherwise specified, the preset value from the archive definition applies (S2-DEVICE-TYPE operand).

**LOCATION = \*STD / \*ANY / <alphanum-name 1..8>**

Location used for requesting volumes. This location must be known to MAREN. If the location manager is in use, the location should be properly defined in MARENLM. Otherwise MAREN ignores the specified value.

If MAREN is not in use, you must specify for LOCATION the value \*ANY, or \*STD if \*ANY is the default location of the archive.

**LOCATION = \*STD**

The default location of the archive is used.

**LOCATION = \*ANY**

No location is to be used.

**OPERATION-CONTROL =**

Enables the user to define certain parameters which are relevant for the execution of the copy run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The operands controlling the copy run can be modified as follows:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administrator) and a suffix in the form of a time stamp. Unless otherwise specified, the request name is formed by the short code "CNF#" and the TSN of the calling user task yyyy as follows: CNF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE.

The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing).

The maximum wait times for batch tasks and interactive tasks are different and are determined by preset global HSMS parameters.

Interactive tasks are permitted to carry out synchronous statement processing during tape sessions only.

**PARALLEL-RUNS = \*MAXIMUM / <integer 1..16>**

This operand is only significant if you are working at storage level S2. It specifies the number of save tasks (ARCHIVE subtasks) running in parallel.

There must be two tape devices available for each task.

The default value (\*MAXIMUM) implies that the value specified when creating the save file to be copied applies.

For further information on parallel processing, see the “HSMS Vol. 1” manual [1].

**OPERATOR-INTERACTION = \*STD / \*NOT-ALLOWED / \*ALLOWED**

Determines whether messages requiring an operator response are to be output at the console (\*ALLOWED) or not (\*NOT-ALLOWED). If \*NOT-ALLOWED applies, HSMS performs default handling (see the description of the PARAM statement in the “ARCHIVE” manual [2]).

Unless otherwise specified, the default value from the archive definition applies.

**TAPE-CONTROL =**

Defines the parameters which are relevant for copying to tape.

**TAPE-CONTROL = \*STD**

The preset values from the definition of the archive within which copying is to take place apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

The following operands for copying to tape can be modified:

**BLOCKING-FACTOR = \*STD / <integer 2..15 2Kbyte> / \*MAX**

Blocking factor to be used for writing the save file to tape, specified as the number of 2-Kbyte blocks (PAM pages) written to tape in a single input/ output operation. As the higher blocking factor means that the occupancy level of the volume and the tape processing performance improve, values below 15 should not be selected. The default value \*STD selects the blocking factor from the archive definition. If this also contains the default value, the default values of the ARCHIVE parameters apply (BLOCK-SIZE-TAPE for tapes, BLOCK-SIZE-T-C for magnetic tape cartridges).

\*MAX selects the maximum blocking factor possible in the current BS2000 version. Currently this is the value 128.

**UNLOAD-TAPE = \*STD / \*YES / \*NO**

Specifies whether or not tapes are to be unloaded after processing. This applies to both input and output tapes. The default value is taken from the archive definition of the target archive.

It is possible that HSMS will ignore the value of this operand in order to avoid irrational tape processing, for example to avoid unloading a tape several times while rewinding it.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “ ; ”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output for this copy request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the copy request, including any error messages, is to be output.

**REPORT = \*FULL**

A full report is to be output, including a list of all files cataloged but not saved because they have not been modified since the last save run. When copying without file specification in the same archive or to the shadow archive, the specification is converted to REPORT=\*SUMMARY.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report for this copy request is to be printed.

**OUTPUT = \*MAIL**

The report for this copy request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this copy request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this copy request is to be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- If not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

In an SM pubset environment the environment catalog ID is added to the file names if there is no catalog ID specified in the report file name.

## Example

*The HSMS administrator copies the last save version of a node backup archive containing node files to storage level S2.*

```
//COPY-NODE-SAVE-FILE ARCHIVE-NAME=NODE.BACKUP, -  
//      SELECT-SAVE-VERSIONS=*BY-ATTRIBUTES(SAVE-VERSION-DATE=*DATE)
```

- If copying takes place within a backup archive, only the last save version can be copied.
- All node files in the latest save file of the archive NODE.BACKUP are copied to a new save file on storage level S2. Backup takes place to volumes from the archive's volume pool.
- Depending on the global HSMS parameter OUTPUT a comprehensive report is printed or sent as an email attachment.

## COPY-SAVE-FILE

### Copy save file

This statement is used for copying a save file and the save versions of a predefined HSMS archive either within the same archive or to another archive. The user can select individual files and save versions for copying and exclude save versions whose expiration date has been reached.

The new save file created by copying and the save versions managed in it receive a new time stamp, except in the following cases:

The time stamp remains unchanged if

- copying is performed from an original archive to an assigned shadow archive or vice versa.
- copying is performed from any type of archive to a backup archive (except when copying takes place within a backup archive).

When copying into a migration archive, only a single save version is created in the destination save file, even if the original save file contains multiple save versions. As a result, the size of the directory file which is assigned to the migration archive is reduced, as is the subsequent processing time.

When copying within a migration archive, the copy becomes the current carrier of the migrated data (implicit EXCHANGE function). When copying from one migration archive to another, or from a long-term archive to a migration archive, no implicit EXCHANGE takes place.

When copying incremental backups within a backup archive, the CNS entries are also copied to the new save file. The result is that a RESTORE-FILES statement with SAVE-VERSIONS=\*LATEST ... produces the same result on the destination archive as on the original archive.

When copying a save version, the time the original save version was created is recorded in its entry in the archive directory. It can be interrogated by means of //SHOW-ARCHIVE..., SELECT=\*SAVE-VERSIONS, INFORMATION=\*USER-INFORMATION.

When copying without file selection and renaming in the same archive or to the shadow archive **all** files are copied, regardless of the ID and privilege of the caller. Otherwise a nonprivileged caller can only copy their own files or files of a foreign ID if co-ownership exists.

If the backup archive to which the save file to be copied belongs permits more than one save version per save file (SAVE-FILE-STRUCTURE=\*SEVERAL-SVID), the save file copy can be created within the same backup archive. Here only the last save version of the original save file can be copied. This save version must be specified completely in the SAVE-VERSION-DATE with date and time and it must be stored in a new save file.

If copying is from a backup or long-term archive to the assigned shadow archive or from a shadow archive to the associated backup or long-term archive, two cases can be distinguished:

- The SFID of the copied save file is not present in the target archive.  
In this case a new save file is created in the target archive with the same SFID as that of the copied save file in order to accommodate the duplicated save versions. All duplicated save versions have the same SVID in the target archive as in the original archive.
- An existing save file is to be continued in the target archive; this is only permitted for save files which can contain several save versions (SAVE-FILE-STRUCTURE=\*SEVERAL-SVID).  
In this case, the SFID of the output save file must be the same as the SFID of the input save file. In addition, all duplicated save versions must be more recent than all the save versions already contained in the output save file.

The COPY-SAVE-FILE requests are entered in the request file of the destination environment. To output the COPY-SAVE-FILE requests, users assigned to another environment must explicitly specify this environment when they issue a SHOW-REQUEST statement.

Implicit deletion of obsolete backups can be set in the archive attribute.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

## Format

COPY-SAVE-FILE	Alias: CSF
<pre> <b>SAVE-FILE-ID</b> = <u>*LATEST</u> / &lt;composed-name 15..15&gt; <b>,SELECT-SAVE-VERSIONS</b> = <u>*ALL</u> / <u>*BY-ATTRIBUTES</u>(...)   <b>*BY-ATTRIBUTES</b>(...)             <b>SAVE-VERSION-NAME</b> = <u>*ANY</u> / &lt;name 1..8&gt;       <b>,EXPIRATION-AFTER</b> = <u>*EARLIEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..99999 days&gt;       <b>,SAVE-VERSION-DATE</b> = <u>*INTERVAL</u>(...) / <u>*LATEST-DATE</u> / &lt;date with-compl&gt;(…)         <b>*INTERVAL</b>(…)                         <b>CREATED-BEFORE</b> = <u>*LATEST-DATE</u> / &lt;date with-compl&gt;(…) /               &lt;integer -99999..0 days&gt;(…)               &lt;date with-compl&gt;(…)                 <b>TIME</b> = <u>23:59:59</u> / &lt;time&gt;               &lt;integer -99999..0 days&gt;(…)                 <b>TIME</b> = <u>23:59:59</u> / &lt;time&gt;             <b>,CREATED-AFTER</b> = <u>*EARLIEST-DATE</u> / &lt;date with-compl&gt; /               &lt;integer -99999..0 days&gt;           &lt;date with-compl&gt;(…)             <b>TIME</b> = <u>23:59:59</u> / &lt;time&gt;       <b>,ORIGINAL-DATE</b> = <u>*INTERVAL</u>(…) / &lt;date with-compl&gt;(…)         <b>*INTERVAL</b>(…)                         <b>BEFORE</b> = <u>*LATEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;             <b>,AFTER</b> = <u>*EARLIEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;           &lt;date with-compl&gt;(…)             <b>TIME</b> = <u>23:59:59</u> / &lt;time&gt;     <b>,SELECT-FILES</b> = <u>*ALL</u> / <u>*NONE</u> / <u>*SELECTED</u> / <u>*FROM-FILE</u>(…) / <u>*FROM-LIBRARY-ELEMENT</u>(…) /       list-poss(20): &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;     <b>*FROM-FILE</b>(…)                 <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;     <b>*FROM-LIBRARY-ELEMENT</b>(…)                 <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;         <b>,ELEMENT</b> = &lt;composed-name 1..64 with-under&gt; </pre>	

(part 1 of 4)

```

,EXCEPT-FILES = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
                    list-poss(20): <filename 1..80 without-vers with-wild> / <partial-filename 2..79 with-wild>

*FROM-FILE(...)
  |
  | LIST-FILE-NAME = <filename 1..54 without-gen-vers>
*FROM-LIBRARY-ELEMENT(...)
  |
  | LIBRARY = <filename 1..54 without-gen-vers>
  | ,ELEMENT = <composed-name 1..64 with-under>
,NEW-FILE-NAMES = *BY-RULE(...) / *SAME

*BY-RULE(...)
  |
  | NEW-CATALOG-ID = *STD / <cat-id>
  | ,NEW-USER-ID = *SAME / <name 1..8>
  | ,PREFIX = *NONE / <filename 1..8 without-cat-user-gen-vers>
  | ,SUFFIX = *NONE / <composed-name 1..8>
,MIGRATION-STATE = *ANY / *MIGRATED-FILE
,SELECT-JV = *ALL / *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
                    list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>

*FROM-FILE(...)
  |
  | LIST-FILE-NAME = <filename 1..54 without-gen-vers>
*FROM-LIBRARY-ELEMENT(...)
  |
  | LIBRARY = <filename 1..54 without-gen-vers>
  | ,ELEMENT = <composed-name 1..64 with-under>
,EXCEPT-JV = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
                    list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>

*FROM-FILE(...)
  |
  | LIST-FILE-NAME = <filename 1..54 without-gen-vers>
*FROM-LIBRARY-ELEMENT(...)
  |
  | LIBRARY = <filename 1..54 without-gen-vers>
  | ,ELEMENT = <composed-name 1..64 with-under>
,NEW-JV-NAMES = *BY-RULE(...) / *SAME

*BY-RULE(...)
  |
  | NEW-CATALOG-ID = *STD / <cat-id>
  | ,NEW-USER-ID = *SAME / <name 1..8>
  | ,PREFIX = *NONE / <filename 1..8 without-cat-user-gen-vers>
  | ,SUFFIX = *NONE / <composed-name 1..8>

```

(part 2 of 4)

```

,ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>(…)
  <filename 1..22 without-cat-gen-vers>(…)
    ENVIRONMENT = *STD / *SINGLE-FEATURE / *SYSTEM-MANAGED(…)
      *SYSTEM-MANAGED(…)
        CATALOG-ID = <cat-id>
,TO-ARCHIVE-NAME = *SAME / <filename 1..22 without-cat-gen-vers> (…
  <filename 1..22 without-cat-gen-vers>(…
    ENVIRONMENT = *SAME / *STD / *SINGLE-FEATURE / *SYSTEM-MANAGED(…)
      *SYSTEM-MANAGED(…)
        CATALOG-ID = <cat-id>
,SAVE-DIRECTORY = *NO / *YES
,DEVICE-TYPE = *STD / <c-string 1..8>
,SAVE-FILE = *NEW(…) / *CONTINUE(…)
  *NEW(…)
    RETENTION-PERIOD = *STD / <integer 0..16383 days> / *FROM-ORIGINAL-SAVE-FILE
    ,USER-ACCESS = *OWNER-ONLY / *ALL-USERS
  *CONTINUE(…)
    SAVE-FILE-ID = *LATEST / <composed-name 15..15>
,TO-STORAGE = *S2-STORAGE-LEVEL(…) / *S1-STORAGE-LEVEL / *PRIVATE-DISK(…) /
  *PUBLIC-DISK(…) / *NET-STORAGE(…)
  *S2-STORAGE-LEVEL(…)
    VOLUMES = *FROM-POOL / *FROM-OPERATOR / list-poss(10): <vsn 1..6>
    ,DEVICE-TYPE = *STD / <device>
    ,LOCATION = *STD / *ANY / <alphanum-name 1..8>
  *PRIVATE-DISK(…)
    VOLUMES = list-poss(150): <vsn 1..6>
    ,DEVICE-TYPE = STDDISK / <device>
  *PUBLIC-DISK(…)
    PUBSET-ID = <cat-id>
  *NET-STORAGE(…)
    VOLUMES = list-poss(16): <vsn 1..6>

```

(part 3 of 4)

```

,OPERATION-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    |
    | REQUEST-NAME = *STD / <name 1..8>
    |
    | REQUEST-DESCRIPTOR = *NONE / <text 1..60>
    |
    | EXPRESS-REQUEST = *NO / *YES
    |
    | CONTROL-JV= *NONE / <filename 1..54 without-gen-vers>
    |
    | WAIT-FOR-COMPLETION = *NO / *YES
    |
    | PARALLEL-RUNS = *MAXIMUM / <integer 1..16>
    |
    | WRITE-CHECKPOINTS = *STD / *YES / *NO
    |
    | OPERATOR-INTERACTION = *STD / *NOT-ALLOWED / *ALLOWED
    |
    | TAPE-CONTROL = *STD / *PARAMETERS(...)
    |   *PARAMETERS(...)
    |     |
    |     | BLOCKING-FACTOR = *STD / <integer 2..15 2Kbyte> / *MAX
    |     |
    |     | UNLOAD-TAPE = *STD / *YES / *NO
    |     |
    |     | DISK-CONTROL = *STD / *PARAMETERS(...)
    |     |   *PARAMETERS(...)
    |     |     |
    |     |     | PRIMARY-ALLOCATION = *STD / <integer 36..50331645 2Kbyte>
    |     |     |
    |     |     | SECONDARY-ALLOCATION = *STD / <integer 0..32767 2Kbyte>
    |     |     |
    |     |     | WRITE-CHECK = *STD / *YES / *NO
    |     |     |
    |     |     | DESTROY-BY-DELETE = *STD / *YES / *NO
    |     |
    |     | PERFORMANCE-ANALYSIS = *NO / *YES(...)
    |     |
    |     | *YES(...)
    |     |   |
    |     |   | SEPARATOR = ; / <c-string 1..1>
    |     |
    |     | REPORT = *SUMMARY / *FULL / *NONE
    |     |
    |     | OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...) / <filename 1..54 without-gen-vers>
    |     |   *LIBRARY-ELEMENT(...)
    |     |     |
    |     |     | LIBRARY = <filename 1..54 without-gen-vers>
    |     |     |
    |     |     | ELEMENT = <composed-name 1..64 with-under>
  
```

(part 4 of 4)

**SAVE-FILE-ID =**

Save file which is to be copied.

Only the latest save file in a backup archive can be copied within that archive (SAVE-FILE-ID=\*LATEST). This serves to ensure that the sequence of the save versions reflects the chronological order of the save runs.

When copying from any type of archive to a backup archive, the SFID of the save file copy must be higher than the highest SVID of the target archive (in order to keep the backup consistent).

When copying between a backup archive and the assigned shadow archive, the SFID of the copied save file does not need to be the latest SFID of one of the two archives. The copying is rejected if the target archive already contains a save file with the same SFID, unless the output save file is to be continued.

**SAVE-FILE-ID = \*LATEST**

The most recently created save file of the archive is to be copied.

**SAVE-FILE-ID = <composed-name 15..15>**

The specified save file is to be copied. The save file ID must be specified in the following format: S.yymmdd.hhmmss

**SELECT-SAVE-VERSIONS =**

Serves to select individual save versions from the save file.

**SELECT-SAVE-VERSIONS = \*ALL**

All save versions are to be copied.

**SELECT-SAVE-VERSIONS = \*BY-ATTRIBUTES(...)**

Specification of criteria for selecting save versions:

**SAVE-VERSION-NAME =**

Specifies the names of the save versions to be copied.

**SAVE-VERSION-NAME = \*ANY**

There are no restrictions on the save versions which can be selected.

**SAVE-VERSION-NAME = <name 1..8>**

Specifies the name of the save version to be copied.

Users can only select save versions they have created themselves. The save version name specified here is supplemented with the LOGON user ID to define the permitted save versions, or with SYSHSMS to specify HSMS administrator requests.

**EXPIRATION-AFTER = \*EARLIEST-DATE / <date with compl> /  
<integer -99999..99999 days>**

Only save versions whose retention period expires after the date specified are selected. \*EARLIEST-DATE means that the expiration date is not used to select save versions.

This operand should only be used when copying a long-term archive's save file which might possibly contain a number of save versions ("user requests") with different logical expiration dates.

**SAVE-VERSION-DATE =**

Restricts the creation date of the save versions which may be copied.

**SAVE-VERSION-DATE = \*INTERVAL(...)**

The save versions which may be copied can be selected by defining the period within which they have to have been created.

Unless otherwise specified, all save versions may be copied.

**CREATED-BEFORE = \*LATEST-DATE / <date with-compl>(…) /  
<integer -99999..0 days>(…)**

Only save versions created on or prior to the date specified are selected. An additional time field allows you to specify a more precise selection.

**CREATED-BEFORE = <date with-compl>(…)**

Date as absolute specification.

**TIME = 23:59:59 / <time>**

Time specification in the form hh:mm:ss

**CREATED-BEFORE = <integer -99999..0 days>(…)**

Date as relative specification with regard to the current date.

**TIME = 23:59:59 / <time>**

Time specification in the form hh:mm:ss

**CREATED-AFTER = \*EARLIEST-DATE / <date with compl> /  
<integer -99999..0 days>**

Only save versions created on or after the date specified are selected.

This operand permits successive duplication of a save file which is continued for a number of days. Each day, only the new save versions are duplicated.

**SAVE-VERSION-DATE = \*LATEST-DATE**

Only the latest save version in the archive (with the specified save version name) is copied.

**SAVE-VERSION-DATE = <date with-compl>(…)**

The save version from the specified date and time (with the specified save version name) is copied.

A two-digit year number yy is changed to 20yy if yy ≤ 59. It is changed to 19yy if yy > 59.

**TIME = 23:59:59 / <time>**

Time specification in the form hh:mm:ss

**ORIGINAL-DATE =**

This operand only applies to save versions from a migration archive or long-term archive being copied into a long-term archive. It specifies the save version to be copied by indicating the date of the original migration or archival. Details of the original date are maintained in the copy. In the original backup the original date is the same as the date of the save version.

**ORIGINAL-DATE = \*INTERVAL(…)**

The save versions which may be copied can be selected by defining a period in which their original dates must lie.

Unless otherwise specified, all save versions may be copied.

**BEFORE = \*LATEST-DATE / <date with compl> / <integer -99999..0 days>**

Only save versions whose original date coincides with or precedes the date specified are selected.

**AFTER = \*EARLIEST-DATE / <date with compl> / <integer -99999..0 days>**

Only save versions whose original date coincides with or succeeds the date specified are selected.

**ORIGINAL-DATE = <date with-compl>(…)**

The save version whose original date matches the date and time specified is copied.

A two-digit year number yy is changed to 20yy if yy ≤ 59. It is changed to 19yy if yy > 59.

**TIME = 23:59:59 / <time>**

Time specification in the form hh:mm:ss

**SELECT-FILES =**

Serves to specify the files to be copied from the save file. The file selection made here applies to all save versions of the save file that are to be copied.

The selection can be further restricted by means of the EXCEPT-FILES operand. In BS2000 migration archives, the selection can be further restricted by means of the MIGRATION-STATE operand.

When copying without file selection and renaming in the same archive or to the shadow archive all files (also from foreign IDs) are copied, also for nonprivileged callers. Otherwise nonprivileged callers can only copy their own files or - from explicitly specified foreign IDs - files of which they are co-owners.

**SELECT-FILES = \*ALL**

All files are to be copied.

**SELECT-FILES = \*NONE**

No files are copied.

**SELECT-FILES = \*SELECTED**

The path names of the files to be copied are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-FILE-NAMES.

**SELECT-FILES = \*FROM-FILE(...)**

The path names of the files to be copied are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Either BS2000 files or node files may be specified in any one list file, but not both types.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**SELECT-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are to be copied are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**SELECT-FILES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

This option is restricted to BS2000 files.

The path names of the files to be copied are specified directly. A list of up to 20 names may be specified.

The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the catalog ID which is either taken from the specified environment or from the default catalog ID of the user ID.

The files can alternatively be selected using wildcards. Note, however, that only the HSMS administrator may use wildcards for user ID specification. The wildcards are replaced in accordance with the file names listed in the archive directory.

**EXCEPT-FILES =**

Serves to specify files that are to be excluded from copying. The selection specified here applies to all save versions of the save file that are to be copied. In migration archives, the selection can be further restricted by means of the MIGRATION-STATE operand.

If a shadow archive is used for an input or output, you cannot change the contents of the save version. In this case you can only specify the operand value \*NONE for EXCEPT-FILES.

**EXCEPT-FILES = \*NONE**

No files are to be excluded from copying.

**EXCEPT-FILES = \*FROM-FILE(...)**

The path names of the files to be excluded from copying are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. The list file can be created, for instance, by means of the BS2000 command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are not to be copied are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-FILES = list-poss(20): <filename 1..80 without-vers-with-wild> /  
<partial-filename 2..79 with-wild>**

This option is restricted to BS2000 files.

The path names of the files to be excluded from copying are specified directly. A list of up to 20 names may be specified.

The first character of the file names must not be a hyphen. The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the catalog ID which is either taken from the specified environment or from the default catalog ID of the user ID.

The files can alternatively be selected using wildcards. Note, however, that only the HSMS administrator may use wildcards for user ID specification because only the HSMS administrator is allowed to specify other user IDs. Wildcards are replaced using the file names contained in the archive directory.

**NEW-FILE-NAMES =**

The files can be renamed while the save files are being copied. The user must ensure that the new path name complies with the BS2000 conventions. It must not be longer than 54 characters in total, i.e. the file name without user and catalog ID should only be 38 characters (because of the extension of the catalog ID). The new file name is made up as follows:

:<cat-id>:\$<user-id>.old-filename-without-cat-user.<suffix>

When renaming in backup archives, you must ensure that renaming of incremental backups also necessitates the renaming of the underlying full backups so that the incremental backup procedure functions correctly for restore. A renamed full backup can be produced with //BACKUP-FILES. ...,NEW-FILE-NAMES=...,FROM=\*LATEST-BACKUPS-OR-S0.

If a shadow archive is used for an input or output, you cannot change the contents of the save version. In this case you can only specify the operand value \*SAME.

**NEW-FILE-NAMES = \*BY-RULE(...)**

The files are to be copied in accordance with a uniform rule.

**NEW-CATALOG-ID = \*STD / <cat-id>**

Copies the files to another catalog ID. The catalog ID must be specified without colons. The user ID must be entered in this catalog.

To keep the contents of the backup and migration archive consistent, the new catalog ID must agree with the destination environment. Depending on the original and destination environment, \*STD is set to a value which takes the above rule into account. For more detailed information, please refer to the end of the operand description of this statement.

**NEW-USER-ID = \*SAME / <name 1..8>**

*This operand is only available to the HSMS administrator.*

Copies the files to another user ID. The user ID must be specified without a leading \$ character.

The files are copied under the original user ID by default.

**PREFIX = \*NONE / <filename 1..8 without-cat-user-gen-vers>**

A prefix of up to 8 characters can be added to the file name. It is automatically separated from the file name by a period (partial qualification). Only characters that are also allowed in a file name are permitted.

Unless otherwise specified, files are not given a prefix.

**SUFFIX = \*NONE / <composed-name 1..8>**

A suffix of up to 8 characters can be added to the file name. It is automatically separated from the file name by a period (partial qualification). Only characters that are also allowed in a file name are permitted.

Unless otherwise specified, files are not given a suffix.

**NEW-FILE-NAMES = \*SAME**

The files are copied without being renamed.

**MIGRATION-STATE = \*ANY / \*MIGRATED-FILE**

Only those files which are still present in the "migrated" state on S0 are copied, i.e. files which are still valid.

The entry is used to reorganized migration archives.

Unless otherwise specified, all files are copied, regardless of whether they are valid migrated files.

The entry \*ANY is ignored if a save file is being copied within the same migration archive.

**SELECT-JV =**

Serves to specify the job variables to be copied from the save file. The selection made here applies to all save versions of the save file that are to be copied.

When copying without JV selection and renaming in the same archive or to the shadow archive all job variables (also from foreign IDs) are copied, also for nonprivileged callers. Otherwise nonprivileged callers can only copy their own job variables or - from explicitly specified foreign IDs - job variables of which they are co-owners.

**SELECT-JV = \*ALL**

All job variables are to be copied.

**SELECT-JV = \*NONE**

No job variables are to be copied.

**SELECT-JV = \*FROM-FILE(...)**

The path names of the job variables to be copied are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the file.

**SELECT-JV = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are to be copied are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**SELECT-JV = list-poss(20): <filename 1..80 without-vers-with-wild> /  
<partial-filename 2..79 with-wild>**

The path names of the job variables to be copied are specified directly. A list of up to 20 names may be specified.

The job variables can alternatively be selected using wildcards.

**NEW-JV-NAMES =**

The job variables can be renamed while the save files are being copied.

The user must ensure that the new path name complies with the BS2000 conventions. It must not be longer than 54 characters in total, i.e. the job variable name without user ID and catalog ID should only be 38 characters (because of the extension of the catalog ID). The new job variable name is formed as follows:

```
:<cat-id>:$<user-id>.<prefix>.old-jvname-without-cat-user.<suffix>
```

If a shadow archive is used for an input or output, you cannot change the contents of the save version. In this case you can only specify the operand value \*SAME.

**NEW-JV-NAMES = \*SAME**

The job variables are copied without being renamed.

**NEW-JV-NAMES = \*BY-RULE(...)**

The job variables are to be copied in accordance with a uniform rule.

**NEW-CATALOG-ID = \*STD / <cat-id**

Copies the job variables to another catalog ID. The catalog ID must be specified without colons. The user ID must be entered in this catalog.

To keep the contents of the backup and migration archive consistent, the new catalog ID must agree with the destination environment. Depending on the original and destination environment, \*STD is set to a value which takes the above rule into account. For more detailed information, please refer to the end of the operand description of this statement.

**NEW-USER-ID = \*SAME / <name 1..8>**

*This operand is only available to the HSMS administrator.*

Copies the job variables to another user ID. The user ID must be specified without a leading \$ character.

The job variables are copied under the original user ID by default.

**PREFIX = \*NONE / <filename 1..8 without-cat-user-gen-vers>**

A prefix of up to 8 characters can be added to the job variable name. It is automatically separated from the job variable name by a period (partial qualification). Only characters that are also allowed in a job variable name are permitted.

Unless otherwise specified, job variables are not given a prefix.

**SUFFIX = \*NONE / <composed-name 1..8>**

A suffix of up to 8 characters can be added to the job variable name. It is automatically separated from the job variable name by a period (partial qualification). Only characters that are also allowed in a job variable name are permitted.

Unless otherwise specified, job variables are not given a suffix.

**EXCEPT-JV =**

Serves to specify job variables that are to be excluded from copying. The selection of the job variables that are to be excluded applies to all save versions of the save file.

If a shadow archive is used for an input or output, you cannot change the contents of the save version. In this case you can only specify the operand value \*NONE for EXCEPT-JV.

**EXCEPT-JV = \*NONE**

No job variable is to be excluded from copying.

**EXCEPT-JV = \*FROM-FILE(...)**

The path names of the job variables to be excluded from copying are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-JV = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are not to be copied are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-JV = list-poss(20): <filename 1..80 without-vers-with-wild> /  
<partial-filename 2..79 with-wild>**

The path names of the job variables to be excluded from copying are specified directly. A list of up to 20 names may be specified. The names must not begin with a hyphen.

The job variables can alternatively be selected by using wildcard syntax.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

Name of the archive from which the save file is to be copied.

The specified archive must already exist. In the event of a nonprivileged call, the caller must be an owner or, via the directory, co-owner of the archive, or the archive must provide access for all users (USER-ACCESS=\*ALL-USERS, ACCESS=\*READ).

If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. This also applies to HSMS administrators.

**ENVIRONMENT =**

Determines the HSMS environment in which the original archive is defined.

**ENVIRONMENT = \*STD**

*Meaning for privileged users:*

\*STD is set to the value \*SINGLE-FEATURE.

*Meaning for nonprivileged users:*

\*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*SINGLE-FEATURE**

The archive is defined in the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The archive is defined in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset environment

**TO-ARCHIVE-NAME =**

Name of the archive to which the save file is to be copied. Copy operations can only be carried out

- from one backup archive that permits only one save version per save file (\*SINGLE-SVID) to another (also \*SINGLE-SVID)
- from one backup archive that permits more than one save version per save file (\*SEVERAL-SVID) to another (also \*SEVERAL-SVID)
- from one long-term archive to another
- from one migration archive to another
- from a migration archive to a long-term archive
- from a long-term archive to a migration archive
- from a backup archive that permits more than one save version per save file (\*SEVERAL-SVID) to a long-term archive
- from a backup archive that permits more than one save version per save file (\*SEVERAL-SVID) to a migration archive
- from a long-term archive to a backup archive that permits more than one save version per save file (\*SEVERAL-SVID)
- from a migration archive to a backup archive that permits more than one save version per save file (\*SEVERAL-SVID)
- from a backup or long-term archive to the assigned shadow archive
- from a shadow archive to the associated backup or long-term archive

**TO-ARCHIVE-NAME = \*SAME**

The copy operation is carried out within the archive specified in the ARCHIVE-NAME operand.

If the copy operation is performed within a migration archive, the identifying information in the catalog entry is updated for migrated files. This is a prerequisite if a subsequent recall is to succeed in extracting the data from the copy.

**TO-ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

The file is copied to the specified archive. In the event of a nonprivileged call, the caller must be an owner or, via the directory, co-owner of the archive, or the archive must provide access for all users (USER-ACCESS=\*ALL-USERS, ACCESS=\*WRITE).

**ENVIRONMENT =**

Determines the HSMS environment in which the target archive is defined.

**ENVIRONMENT = \*SAME**

The archive is defined in the same environment as the original archive.

**ENVIRONMENT = \*STD**

*Meaning for privileged users:* \*STD is set to the value \*SINGLE-FEATURE.

*Meaning for nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*SINGLE-FEATURE**

The archive is defined in the SF pubset environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The archive is defined in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset environment

**SAVE-DIRECTORY = \*NO / \*YES**

Determines whether the directory file of the output archive used for this run is also to be written to the output volume as the last file of the run.

If the copied files are renamed during the run (specification in NEW-FILE-NAMES operand), the name of the directory file is not changed.

**DEVICE-TYPE = \*STD / <c-string 1..8>**

Device type of the volume on which the save file to be copied is resident. This operand need not be specified unless the save file was created in an ARCHIVE version < V2.6B. In later ARCHIVE versions, the device type used for saving is recorded in the directory and any differing specification is ignored.

*Note*

When tape volumes are copied "offline" from an old device type to a new one with the same VSN without adjusting the directory, an optional REP can be used to ensure that the device type specified explicitly has priority over the device type specified in the directory file and consequently that a device type which differs from the directory file is accepted.

**SAVE-FILE =**

Defines the save file to which the save file copy is to be written.

**SAVE-FILE = \*NEW(...)**

The save file copy is to be written to a new save file. The following attributes of this save file can be defined here:

**RETENTION-PERIOD = \*STD / <integer 0..16383 days> /****\*FROM-ORIGINAL-SAVE-FILE**

(Physical) retention period in days. During this period, neither the save file nor the save volume may be modified or deleted.

Unless otherwise specified, the preset value from the archive definition applies.

**RETENTION-PERIOD = \*FROM-ORIGINAL-SAVE-FILE**

The new save file is assigned the expiration date of the original save file.

**USER-ACCESS = \*OWNER-ONLY**

Access to the save file is to be restricted to the archive owner. This implicitly protects the save file against access by other users working without HSMS.

**USER-ACCESS = \*ALL-USERS**

Access to the save file is to be granted to other users as well. If the corresponding directory is shareable and resides under TSOS, each user is simultaneously enabled to restore his or her files using ARCHIVE.

**SAVE-FILE = \*CONTINUE(...)**

The specified save file is to be continued.

With migration and long-term archives, continuation of a save file is permissible only for save files residing on storage level S2.

With backup archives that permit no more than one save version per save file (SAVE-FILE-STRUCTURE=\*SINGLE-SVID), continuation of a save file is prohibited.

If copying is performed within the same archive, the input and output save files must not be identical.

If copying is performed within the same backup archive, continuation of the save file is prohibited.

If copying is performed between a backup or long-term archive and the assigned shadow archive (or vice versa), you can only continue a save file if

- the archives can contain several save versions per save file (SAVE-FILE-STRUCTURE=\*SEVERAL-SVID).
- the SFID of the output save file is the same as the SFID of the input save file.
- all SVIDs to be duplicated are later than all SVIDs already contained in the output save file.

**SAVE-FILE-ID = \*LATEST**

The most recently created save file for this archive is to be continued.

**SAVE-FILE-ID = <composed-name 15..15>**

The specified save file is to be continued. The save file ID must be specified in the following format: S.yymmdd.hhmmss

**TO-STORAGE =**

Defines the storage level to which the save file is to be copied. The target location depends on the original archive type.

**TO-STORAGE = \*S2-STORAGE-LEVEL(...)**

The save file is to be copied to storage level S2. The volumes to be used can be specified. If more than one volume is specified, all volumes must be of the same device type.

**VOLUMES = \*FROM-POOL**

The volumes are to be taken from the volume pool of the specified archive, i.e. the pool of the directory or the associated MAREN pool.

**VOLUMES = \*FROM-OPERATOR**

The volumes are to be allocated by the operator on request.

**VOLUMES = list-poss(10): <vsn 1..6>**

List of volume serial numbers, which will be requested in the specified order.

**DEVICE-TYPE = \*STD / <device>**

Device type of the requested volumes. The device type must belong to the class "TAPE". Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

Unless otherwise specified, the preset value from the archive definition applies (S2-DEVICE-TYPE operand).

**LOCATION = \*STD / \*ANY / <alphanum-name 1..8>**

Location used for requesting volumes. This location must be known to MAREN. If the location manager is in use, the location should be properly defined in MARENLM. Otherwise MAREN ignores the specified value.

If MAREN is not in use, you must specify for LOCATION the value \*ANY, or \*STD if \*ANY is the default location of the archive.

**LOCATION = \*STD**

The default location of the archive is used.

**LOCATION = \*ANY**

No location is to be used.

**TO-STORAGE = \*S1-STORAGE-LEVEL**

*Only for backup archives and long-term archives:*

The save file is to be copied to the global S1 pubset or special S1 volume set, which must have been defined earlier.

The save file is to be copied according to the following rule:

- if the target archive is defined in SF-environment, the save file is copied to the global S1 pubset which must have been defined earlier,
- if the target archive is defined in SM-environment, the save file is copied to special S1 volume set or to any HSMS-CONTROLLED volume sets depending on the definition in SM-PUBSETS-PARAMETERS of the SM-pubset.

See also operand TO-ARCHIVE-NAME.

**TO-STORAGE = \*PRIVATE-DISK(...)**

*Only for backup archives:*

The save file is to be copied to private disk. The private disks to be used can be specified. If more than one private disk is specified, all of them must be of the same device type.

**VOLUMES = list-poss(150): <vsn 1..6>**

List of volume serial numbers of the disks which will be used in this order for copying the save file.

**DEVICE-TYPE = STDDISK / <device>**

Device type of the private disks. The default setting STDDISK selects the default device type. Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

**TO-STORAGE = \*PUBLIC-DISK(...)**

*This operand value is only available to the HSMS administrator and only for backup archives and long-term archives and only in an SF pubset environment.*

The save file is to be copied to a pubset.

**PUBSET-ID = <cat-id>**

Catalog ID of the pubset.

**TO-STORAGE = \*NET-STORAGE(...)**

*Only for backup archives and long-term archives:*

The save file is to be copied to a Net-Storage.

**VOLUMES = list-poss(16): <vsn 1..6>**

Specifies the Net-Storage volume to which the files are to be copied. The volume specified must be accessible.

More than one Net-Storage volume can also be specified in a list (e.g. when there is more than one save task).

**OPERATION-CONTROL =**

Defines parameters for the execution of the copy run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The operands controlling the copy run can be modified as follows:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request.

The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administrator) and a suffix in the form of a time stamp.

Unless otherwise specified, the request name is formed by the short code "CSF#" and the TSN of the calling user task yyyy as follows: CSF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE.

The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing).

The maximum wait times for batch tasks and interactive tasks are different and are determined by preset global HSMS parameters.

Interactive tasks are permitted to carry out synchronous statement processing during tape sessions only.

**PARALLEL-RUNS = \*MAXIMUM / <integer 1..16>**

This operand is only significant if you are working at storage level S2. It specifies the number of save tasks (ARCHIVE subtasks) running in parallel.

There must be two tape devices available for each task.

The default value (\*MAXIMUM) implies that the value specified when creating the save file to be copied applies.

For further information on parallel processing, see the “HSMS Vol. 1” manual [1].

**WRITE-CHECKPOINTS = \*STD / \*YES / \*NO**

Defines whether any checkpoints are to be written to the ARCHIVE checkpoint file during processing; these checkpoints permit a request to be restarted following an interrupt (INTERRUPTED state).

Unless otherwise specified, the preset value from the archive definition applies.

**OPERATOR-INTERACTION = \*STD / \*NOT-ALLOWED / \*ALLOWED**

Determines whether messages requiring an operator response are to be output at the console (\*ALLOWED) or not (\*NOT-ALLOWED). If \*NOT-ALLOWED applies, HSMS performs default handling (see the description of the PARAM statement in the “ARCHIVE” manual [2]).

Unless otherwise specified, the default value from the archive definition applies.

**TAPE-CONTROL = \*STD / \*PARAMETERS(...)**

Defines the parameters which are relevant for copying to tape.

**TAPE-CONTROL = \*STD**

The preset values from the definition of the archive within which copying is to take place apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

The operands relevant for copying to tape can be modified as follows:

**BLOCKING-FACTOR = \*STD / <integer 2..15 2Kbyte> / \*MAX**

Blocking factor to be used for writing the save file to tape, specified as the number of 2-Kbyte blocks (PAM pages) written to tape in a single input/ output operation. As the higher blocking factor means that the occupancy level of the volume and the tape processing performance improve, values below 15 should not be selected.

The default value \*STD selects the blocking factor from the archive definition. If this also contains the default value, the default values of the ARCHIVE parameters apply (BLOCK-SIZE-TAPE for tapes, BLOCK-SIZE-T-C for magnetic tape cartridges).

\*MAX selects the maximum blocking factor possible in the current BS2000 version. Currently this is the value 128.

**UNLOAD-TAPE = \*STD / \*YES / \*NO**

Specifies whether or not tapes are to be unloaded after processing. This applies to both input and output tapes. The default value is taken from the archive definition of the target archive.

It is possible that HSMS ignores the value of this operand in order to avoid irrational tape processing, for example to avoid unloading a tape several times when rewinding it.

**DISK-CONTROL =**

Defines the parameters which are relevant for copying to disk.

**DISK-CONTROL = \*STD**

The preset values from the definition of the archive within which copying is to take place apply.

**DISK-CONTROL = \*PARAMETERS(...)**

The operands relevant for copying to disk can be modified as follows:

**PRIMARY-ALLOCATION = \*STD / <integer 36..50331645 2Kbyte>**

Size in PAM pages of the primary allocation for save file creation on disk (see the description of the CREATE-FILE command in the manual "Commands" [5]).

Unless otherwise specified, the preset value from the archive definition applies.

**SECONDARY-ALLOCATION = \*STD / <integer 0..32767 2Kbyte>**

Size in PAM pages of the secondary allocation for save file extension on disk (see the description of the CREATE-FILE command in the manual "Commands" [5]).

Unless otherwise specified (\*STD), the preset value from the archive definition applies.

Values from 1 through 35 are not permitted.

**WRITE-CHECK = \*STD / \*YES / \*NO**

Specifies whether a read-after-write check is to be performed after each write operation for error detection purposes. Note that read-after-write checking will result in longer execution times.

Unless otherwise specified, the preset value from the archive definition applies.

**DESTROY-BY-DELETE = \*STD / \*YES / \*NO**

Specifies whether the storage space released by save file deletion is to be erased by overwriting it with binary zero for data privacy reasons. Note that erasure by overwriting will result in longer execution times for save file deletion.

Unless otherwise specified, the preset value from the archive definition applies.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “ ; ”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output for this copy request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the copy request, including any error messages, is to be output.

**REPORT = \*FULL**

A full report is to be output, including a list of all files cataloged but not saved because they have not been modified since the last save run. When copying without file specification in the same archive or to the shadow archive, the specification is converted to REPORT=\*SUMMARY.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report for this copy request is to be printed.

**OUTPUT = \*MAIL**

The report for this copy request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this copy request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this copy request is to be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

**Notes**

- For backup and migration archives, the following rules must be observed:
  - The NEW-CATALOG-ID suboperand must agree with the destination environment to which the save files are copied. This means that the specification NEW-CATALOG-ID=\*STD has the following meaning depending on the source and destination environment:

	<b>SF</b>	<b>SM<sub>y</sub></b>
<b>SF</b>	*STD means: *SAME	*STD means: NEW-CATALOG-ID = y
<b>SM<sub>x</sub></b>	The statement is rejected because no SF pubset may be selected. The catalog ID of an SF pubset must be explicitly specified.	*STD means: NEW-CATALOG-ID = y

SF: single-feature environment

SM<sub>x</sub>: SM pubset with catalog ID x

SM<sub>y</sub>: SM pubset with catalog ID y

- The ARCHIVE-NAME operand must designate an archive that is defined in the same environment as the selected files/job variable, i.e.
  - if the catalog ID which was taken from the SELECT-FILES/SELECT-JV operand, is the ID of an SM pubset, the source archive must be defined in that SM pubset; otherwise the HSMS statement is rejected.
  - if the catalog IDs which were taken from the SELECT-FILES/SELECT-JV operand, are the IDs of SF pubsets, the source archive must be defined in the SF pubset environment; otherwise the HSMS statement is rejected. This catalog ID can be specified explicitly in the SELECT-FILES/SELECT-JV operand or taken from the default values of the user ID. If the HSMS administrator specifies \*ALL in these operands, the specification is changed to \*ALL-SF-PUBSET and the archive must be defined in the SF pubset environment.
- For long-term archives, the specification NEW-CATALOG-ID=\*STD equates to \*SAME.
- It is always the request and ARCHIVE checkpoint file of the destination environment that is accessed because
  - only in that environment are the default values for the selection of the output volume valid.
  - this enables write access only to files of the destination environment (the directory, checkpoint and request files are not updated in the source environment).

## Example

*The HSMS administrator copies a save file to S2; the TSN is 5678*

```
//COPY-SAVE-FILE ARCHIVE-NAME=sys.arc.backup, -  
// OPERATION-CONTROL=*PAR(EXPRESS-REQUEST=*YES)
```

- All files and job variables of the last save file from the specified backup archive are copied to a new save file on S2 (e.g. in a save run to an S1 pubset not performed during the tape session).
- The file is saved to volumes from the volume pool of the archive and to the standard save file of the archive. The save file is given a new time stamp.
- The request receives the name CSF#5678.
- The request is processed synchronously as an express request.
- Depending on the global HSMS parameter OUTPUT a summary report is printed or sent as an email attachment.

## CREATE-ARCHIVE

### Create archive

This statement is used for creating an HSMS archive and defining its attributes. CREATE-ARCHIVE defines the archive type and optionally the protection attributes, if any. In addition, default values can be defined for the processing of requests referring to this archive and for writing to storage levels S1 and S2.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

### Format

CREATE-ARCHIVE	Alias: CRA
<b>ARCHIVE-NAME</b> = <filename 1..22 without-cat-gen-vers> <b>ENVIRONMENT</b> = <b>*STD</b> / <b>*NODE-STD</b> / <b>*SINGLE-FEATURE</b> / <b>*SYSTEM-MANAGED(...)</b> <b>*SYSTEM-MANAGED(...)</b>   <b>CATALOG-ID</b> = <cat-id> <b>OWNER-FIELD</b> = <b>*NONE</b> / <c-string 1..54> <b>ALLOWED-USAGE</b> = <b>*BACKUP(...)</b> / <b>*ARCHIVAL</b> / <b>*NODEBACKUP</b> / <b>*NODEARCHIVAL</b> / <b>*MIGRATION</b> / <b>*SHADOW(...)</b> <b>*BACKUP(...)</b>   <b>SAVE-FILE-STRUCTURE</b> = <b>*SEVERAL-SVID</b> / <b>*SINGLE-SVID</b> <b>*SHADOW(...)</b>   <b>ORIGINAL-ARCHIVE</b> = <filename 1..22 without-cat-gen-vers> <b>USER-ACCESS</b> = <b>*OWNER-ONLY</b> / <b>*ALL-USERS(...)</b> <b>*ALL-USERS(...)</b>   <b>ACCESS</b> = <b>*READ</b> / <b>*WRITE</b> <b>ACCESS-FROM-NODE</b> = <b>*STD</b> / <b>*NONE</b> / <b>*PARAMETERS(...)</b> <b>*PARAMETERS(...)</b>   <b>NORMAL-USER</b> = <b>*NONE</b> / <b>*READ</b> / <b>*WRITE</b> / <b>*SAME</b>   <b>ADMINISTRATOR</b> = <b>*NONE</b> / <b>*READ</b> / <b>*WRITE</b> / <b>*SAME</b>	

(part 1 of 3)

```

, DIRECTORY-NAME = <filename 1..54 without-gen-vers>(…)
    <filename 1..54 without-gen-vers>(…)
        |
        | NEW-DIRECTORY = *YES / *NO(…)
        |   |
        |   | *NO(…)
        |   | |
        |   | | RECONSTRUCT-ARCHIVE = *NO / *YES
, RETENTION-PERIOD = *FROM-ORIGINAL-SAVE-FILE / <integer 0..16383 days>
, FILE-EXPIRATION-DATE = *RESTRICTED / *UNRESTRICTED(…)
    *UNRESTRICTED(…)
        |
        | SAVE-FILE-RETPD-UPD = *NO / *YES
, COMPRESS-FILES = *NO / *YES / *S1-ONLY
, S2-DEVICE-TYPE = *STD / <c-string 1..8>
, LOCATION = *ANY / <alphanum-name 1..8>
, BACKUP-SERVER-USAGE = *NO / *STD
, MONITORING = *NO / *STD
, SAVE-OPTIONS = *STD / *PARAMETERS(…)
    *PARAMETERS(…)
        |
        | SAVE-DATA = *S0 / *S1-S0 / *S2-S1-S0
        |
        | , SAVE-PLAM-INFO = *NO / *YES
, OPERATION-CONTROL = *STD / *PARAMETERS(…)
    *PARAMETERS(…)
        |
        | PARALLEL-RUNS = 1 / <integer 1..16> / *MULTIPLEXING(…)
        |
        | *MULTIPLEXING(…)
        |   |
        |   | NUMBER-OF-DEVICES = 1 / <integer 1..16>
        |   |
        |   | , MULTIPLEXING-FACTOR = *AUTOMATIC / <integer 2..14>
        |
        | , WRITE-CHECKPOINTS = *YES / *NO
        |
        | , OPERATOR-INTERACTION = *NOT-ALLOWED / *ALLOWED
        |
        | , AUTOMATIC-DELETION = *NO / *OBSOLETE-SAVE-FILES / *OBSOLETE-SAVE-VERSIONS

```

(part 2 of 3)

```

,TAPE-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    |
    |   NEW-STD-SAVE-FILE = *AT-EACH-REQUEST / *EACH-TAPE-SESSION / *IN-PERIODS(...) /
    |   |
    |   |   *PUBLIC-DISK(...)
    |
    |   *IN-PERIODS(...)
    |   |
    |   |   CONTINUATION-PERIOD = <integer 1..32767 days>
    |
    |   *PUBLIC-DISK(...)
    |   |
    |   |   PUBSET-ID = <cat-id>
    |
    |   ,BLOCKING-FACTOR = *STD / <integer 2..15 2Kbyte> / *MAX
    |
    |   ,UNLOAD-TAPE = *NO / *YES
    |
,DISK-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    |
    |   PRIMARY-ALLOCATION = *STD / <integer 36..50331645 2Kbyte>
    |
    |   ,SECONDARY-ALLOCATION = *STD / <integer 0..32767 2Kbyte>
    |
    |   ,WRITE-CHECK = *NO / *YES / *SAVE-FILES / *RESTORED-FILES
    |
    |   ,DESTROY-BY-DELETE = *STD / *NO / *YES
    |
,REQUEST-PRIORITIES = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    |
    |   READ = *STD / <integer 1..255>
    |
    |   ,WRITE = *STD / <integer 1..255>

```

(part 3 of 3)

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

Name of the archive to be created in the specified environment.

The same format is used as for file names without a catalog ID. Note, however, that the name without the owner ID must not exceed a length of 12 characters.

The default owner ID is either identical with the user ID of the archive owner creating the archive or, for the HSMS administrator, SYSHSMS. The option of specifying an owner ID other than one's own is restricted to the HSMS administrator.

**ENVIRONMENT =**

Defines the HSMS environment in which the archive is to be defined. This HSMS environment must be used in all HSMS statements for this archive. (Two archives in different environments can have the same name.)

**ENVIRONMENT = \*STD**

The archive is to be defined in the default environment for DMS archives:

- For privileged users: \*STD is set to the value \*SINGLE-FEATURE.
- For nonprivileged users: \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*NODE-STD**

The archive is to be defined in the default environment for node files:

- For privileged users: \*NODE-STD is set to the value \*SINGLE-FEATURE.
- For nonprivileged users: \*NODE-STD is set to the value of the environment in which the home directory of the user is defined.

**ENVIRONMENT = \*SINGLE-FEATURE**

The archive is defined in the SF pubset environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The archive is defined in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**OWNER-FIELD = \*NONE / <c-string 1..54>**

Field to which the user may write a remark concerning the archive to be created. The remark is output in response to the HSMS statement SHOW-ARCHIVE-ATTRIBUTES INFORMATION=\*ALL.

Unless otherwise specified, no remark is written.

**ALLOWED-USAGE =**

Defines the archive type, i.e. the basic HSMS function for which the archive is to be used.

**ALLOWED-USAGE = \*BACKUP(...)**

The archive is to be used exclusively as a backup archive for BS2000 files.

Use as an archive of any other type is prohibited.

**SAVE-FILE-STRUCTURE = \*SEVERAL-SVID**

Each save file of this archive at storage level S0 may contain more than one save version and can therefore be updated with a further backup.

**SAVE-FILE-STRUCTURE = \*SINGLE-SVID**

Each save file of this archive may contain no more than one save version and can therefore be updated with a new save version.

**ALLOWED-USAGE = \*ARCHIVAL**

The archive is to be used exclusively as a long-term archive for BS2000 files.

Use as an archive of any other type is prohibited.

**ALLOWED-USAGE = \*NODEBACKUP**

The archive is to be used exclusively as a backup archive for node files of a BS2000-UFS (POSIX) or node S0.

Use as an archive of any other type is prohibited.

**ALLOWED-USAGE = \*NODEARCHIVAL**

The archive is to be used exclusively as a long-term archive for node files of a BS2000-UFS (POSIX) or node S0.

Use as an archive of any other type is prohibited.

**ALLOWED-USAGE = \*MIGRATION**

*This operand value is only available to the HSMS administrator.*

The archive is to be used exclusively as a migration archive for BS2000 files.

Use as an archive of any other type is prohibited.

**ALLOWED-USAGE = \*SHADOW(...)**

*This operand value is only available to the HSMS administrator.*

The archive is to be used exclusively as a shadow archive for a backup or long-term archive.

**ORIGINAL-ARCHIVE = <filename 1..22 without-cat-gen-vers>**

Name of the archive to be linked with this shadow archive. The archive must be an existing backup or long-term archive. It must not be already linked with a shadow archive and must belong to the owner of the shadow archive to be created.

**USER-ACCESS =**

Regulates access to the archive.

For a shadow archive this operand only regulates direct access to the shadow archive. The permission for automatic duplication to a shadow archive depends entirely on the access permission to the associated backup or long-term archive.

In addition, co-owners can use (not manage) the archive at the archive directory like the archive owner.

**USER-ACCESS = \*OWNER-ONLY**

Access is to be restricted to the archive owner. Other users who have co-ownership of the archive or of the directory also have access.

**USER-ACCESS = \*ALL-USERS(...)**

Access is to be granted to other users as well. The access mode can be specified more precisely.

**ACCESS = \*READ**

Other users are to be granted read access to the archive. In other words: the archive is assigned the protection attribute "read access".

**ACCESS = \*WRITE**

Other users are to be granted read and write access to the archive. In other words: the archive is assigned the protection attribute “write access”.

**ACCESS-FROM-NODE =**

*This operand is only available to the HSMS administrator and is supported for compatibility reasons only.*

Controls archive access for remote node calls.

This operand is only of relevance for node archives which are assigned to a remote node as a system archive for archival or backup (see the HSMS statement MODIFY-NODE-PARAMETERS on [page 337](#)).

**ACCESS-FROM-NODE = \*STD**

Same meaning as NORMAL-USER=\*SAME and ADMINISTRATOR=\*WRITE. This default value guarantees compatibility with earlier HSMS versions (HSMS versions < 4.0A).

**ACCESS-FROM-NODE = \*NONE**

Remote access is not possible. Neither remote users nor administrators of remote nodes are permitted to back up their files in archive or to restore or list them.

**ACCESS-FROM-NODE = \*PARAMETERS(...)**

Access is permitted as defined in the following operands:

**NORMAL-USER = \*NONE / \*READ / \*WRITE / \*SAME**

Defines archive access for remote node users.

\*SAME means that normal BS2000 user access is permitted (see also the USER-ACCESS operand and associated ACCESS suboperand in this statement).

**ADMINISTRATOR = \*NONE / \*READ / \*WRITE / \*SAME**

Defines additional access permissions for administrators of remote nodes.

\*SAME means that normal BS2000 user access is permitted (see also the USER-ACCESS operand and associated ACCESS suboperand in this statement).

A node administrator possesses at least the same access permissions as a nonprivileged user (ACCESS operand). Consequently, this operand cannot be used to restrict or cancel a node administrator’s access permissions.

The definition of “administrator” depends on the operating system running at the node.

**DIRECTORY-NAME = <filename 1..54 without-gen-vers>(…)**

Path name of the archive directory. If no user ID is specified, the name is extended by the user ID of the caller. The option of specifying a user ID other than one's own is restricted to the HSMS administrator.

If the archive is to be defined in an SM pubset environment

- and no catalog ID is specified, the path name is extended by the catalog ID of the corresponding SM pubset.
- the name of the archive directory must similarly be located on the SM pubset.

If the archive is to be defined in an SF pubset environment

- and no catalog ID is specified, the path name is extended by the default catalog ID of the user (the default catalog ID is defined in the user catalog).
- the archive directory must be located on an SF pubset for the nonprivileged user.

**NEW-DIRECTORY = \*YES**

HSMS is to create a new archive directory.

If an archive is created in an SM pubset environment, the directory file is created on the SM pubset.

**NEW-DIRECTORY = \*NO(…)**

An existing directory (e.g. an ARCHIVE directory file) is to be placed under HSMS management.

An ARCHIVE directory file cannot be placed under HSMS management unless it supports catalog IDs (see the note at the end of the operand description of this statement).

It is not possible to use an archive directory for BS2000 files and job variables instead of an archive directory for node files, and vice versa.

If an existing archive directory is used for an archive that was declared on an SM pubset, HSMS checks whether

- the archive directory refers only to files and job variables located on this pubset.
- backup was made to any disks that do not belong to this pubset.

This check is pointless for node archives.

If the archive directory was previously used by another archive, that archive must first be deleted.

**RECONSTRUCT-ARCHIVE = \*NO**

The attributes for the archive to be created are taken from the CREATE-ARCHIVE statement.

**RECONSTRUCT-ARCHIVE = \*YES**

Restore of an archive together with its attributes is performed from a directory that has already been used. For this purpose as of HSMS V8.0 the archive attributes for //CREATE-ARCHIVE or //MODIFY-ARCHIVE-ATTRIBUTES are also saved in the directory.

Only the archive name and the HSMS environment are transferred from the specifications in the CREATE-ARCHIVE statement. The other specifications are ignored and instead the attributes from the directory are used. If the directory can be restored from backup tapes in the event of a disk failure the associated archive can now also be restored from this.

When the archive attributes are restored from a directory that was used in a shadow archive the ALLOWED-USAGE attribute from an earlier main archive is used (i.e. not \*SHADOW).

**RETENTION-PERIOD = \*FROM-ORIGINAL-SAVE-FILE / <integer 0..16383 days>**

(Physical) retention period in days which applies to the save files of the archive unless otherwise specified.

The expiration date derived from the specified retention period is recorded both on the volume and in the archive directory. The expiration date for standard save files (NEW-STD-SAVE-FILE) is calculated as follows:

**expiration date = creation date + retention period [+ continuation period]**

Once the expiration date has been reached, the save file and the save volumes are assigned the state "OBSOLETE".

**RETENTION-PERIOD = \*FROM-ORIGINAL-SAVE-FILE**

A save file which is copied into a shadow archive or another archive is assigned the retention period of the original save file. This setting is used both for automatic duplication during a backup or archival request and for explicit duplication with the HSMS statement COPY-SAVE-FILE.

**FILE-EXPIRATION-DATE =**

*This operand is only available to the HSMS administrator.*

For long-term archives only:

Defines whether or not the file expiration date which the user can specify in an archival request for the files to be archived must lie within the (physical) retention period defined for the save file or save volume.

For shadow archives which are connected to a long-term archive the specified value is ignored and FILE-EXPIRATION-DATE=\*UNRESTRICTED is always assumed.

**FILE-EXPIRATION-DATE = \*RESTRICTED**

The file expiration date of the files to be archived must lie within the retention period defined for the save file or save volume.

**FILE-EXPIRATION-DATE = \*UNRESTRICTED(...)**

No restriction on the file expiration date is defined. In this case, it is the archive owner's responsibility to take appropriate administrative measures to protect the volumes against overwriting once the physical retention period has expired.

**SAVE-FILE-RETPD-UPD = \*NO / \*YES**

Specifies whether the expiration date of the save file is to be changed automatically.

For shadow archives which are connected to a long-term archive the specified value is ignored and SAVE-FILE-RETPD-UPDATE=\*YES is always assumed.

**SAVE-FILE-RETPD-UPD = \*NO**

The expiration date of the save file is not to be changed automatically.

**SAVE-FILE-RETPD-UPD = \*YES**

If a new save file or a save file to be continued contains a save version whose expiration date is later than that of the associated save file, the save file is automatically given the same expiration date as the save version.

If the expiration date of a save version becomes later than that of the associated save file, the retention period of the save file is automatically increased.

**COMPRESS-FILES = \*NO / \*YES / \*S1-ONLY**

Determines whether or not data is compressed before being written to the output volume.

This operand is ignored for backups to S2 and the compression in the MTC drive is always used.

This operand is ignored for shadow archives. Instead, the value defined for the original archive is used.

This operand is ignored for node archives. The value \*NO is used by default.

**COMPRESS-FILES = \*S1-ONLY**

The data is compressed by the software only when written to storage level S1.

**S2-DEVICE-TYPE = \*STD / <c-string 1..8>**

Default device type to be used for saving to this archive at storage level S2. The tape device type must belong to the class "TAPE".

Unless otherwise specified, the value is taken from the HSMS control file.

**LOCATION = \*ANY / <alphanum-name 1..8>**

Default location used for selecting the volumes for saving to this archive at storage level S2. The specified location must be known to MAREN. If the location manager is in use, the location should be properly defined in MARENLM. Otherwise MAREN ignores the specified value.

If MAREN is not used, you must specify the value \*ANY for LOCATION.

**LOCATION = \*ANY**

No location is used to select the volumes.

**BACKUP-SERVER-USAGE =**

Specifies whether the backup server can be used to process requests.

**BACKUP-SERVER-USAGE = \*NO**

No backup server will be used.

**BACKUP-SERVER-USAGE = \*STD**

The system (local or backup server) that will process the request is selected according to the specification in the BACKUP-SERVER operand of the MODIFY-HSMS-PARAMETERS statement.

**MONITORING =**

Controls the monitoring in an SE Server environment. If monitoring is enabled, HSMS reports every creation, deletion or update of a request to the Management Unit.

**MONITORING = \*NO**

No requests concerning the archive will be monitored unless MONITORING=\*ALL is set with the MODIFY-HSMS-PARAMETERS statement or unless the user is SYSHSMS and MONITORING=\*SYSHSMS-ONLY is set with MODIFY-HSMS-PARAMETERS.

**MONITORING = \*STD**

The requests concerning the archive will be monitored according to the MONITORING operand of the MODIFY-HSMS-PARAMETERS statement.

**SAVE-OPTIONS =**

*Only for long-term and backup archives.*

This operand defines the possible save options.

**SAVE-OPTIONS = \*STD**

Specifies that the standard save options are to be used.

**SAVE-OPTIONS = \*PARAMETERS(...)**

The following non-standard save options can be selected:

**SAVE-DATA =**

Specifies whether just the catalog entries of migrated BS2000 files or the catalog entries and the data are to be saved.

This operand is ignored for shadow archives. Instead, the value defined for the original archive is used.

**SAVE-DATA = \*S0**

Only the files on S0 are to be saved with their data. For migrated BS2000 files, only the metadata is to be saved.

**SAVE-DATA = \*S1-S0**

Only the files on S0 and BS2000 files migrated to S1 are to be saved with their data. For BS2000 files migrated to S2, only the metadata is to be saved.

**SAVE-DATA = \*S2-S1-S0**

All BS2000 files are saved with their data, regardless of whether or not they have been migrated.

**SAVE-PLAM-INFO = \*NO / \*YES**

*This operand is only valid for long-term and backup archives of BS2000 files (see the ALLOWED-USAGE=\*ARCHIVAL/\*BACKUP operand).*

Determines whether information on the element structure should also be written to the save volume when PLAM library files are saved. Only with this additional information can individual elements of a library file be restored with the RESTORE-LIBRARY-ELEMENTS statement. If this information is not on the save volume, a library can only be restored as a complete library file.

**OPERATION-CONTROL =**

A number of parameters which are relevant to HSMS operation can be defined and preset by the archive definition.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The parameters controlling HSMS operation can be modified as follows:

**PARALLEL-RUNS =**

Number of simultaneously active backup tasks (ARCHIVE subtasks) used for this backup run.

**PARALLEL-RUNS = 1 / <integer 1..16>**

Number of simultaneously active backup tasks (ARCHIVE subtasks).

When performing backups, a tape device must be available for each task.

In the case of duplication automatic duplication to a shadow archive, two tape devices must be available for each task.

No multiplexing is performed.

**PARALLEL-RUNS = \*MULTIPLEXING(...)**

*This operand value is only available to the HSMS administrator.*

This specification is only relevant for operations at the S2 storage level.

Multiplexing operation is enabled in order to achieve improved performance. In this case, multiple ARCHIVE subtasks share the same device.

**NUMBER-OF-DEVICES = 1 / <integer 1..16>**

Number of devices available for the backup run.

**MULTIPLEXING-FACTOR = \*AUTOMATIC / <integer 2..4>**

Specifies a multiplexing factor for each device, i.e. the number of archive subtasks that are generated for each device.

If \*AUTOMATIC is specified, ARCHIVE calculates the multiplexing factor itself, i.e. ARCHIVE distributes the specified paths to the drives (the result of this division is the multiplexing factor for each drive).

For more information on parallel processing, refer to the "HSMS Vol. 1" manual.

**WRITE-CHECKPOINTS = \*YES / \*NO**

Defines whether any checkpoints are to be written to the ARCHIVE checkpoint file during processing; these checkpoints permit a request to be restarted following an interrupt (state INTERRUPTED).

When archiving nodes, specification of \*YES causes checkpoints to be written at file tree levels only.

**OPERATOR-INTERACTION = \*NOT-ALLOWED / \*ALLOWED**

Determines whether messages requiring an operator response are to be output at the console (\*ALLOWED) or not (\*NOT-ALLOWED). If \*NOT-ALLOWED applies, HSMS performs default handling (see the description of the PARAM statement in the "ARCHIVE" manual [2]).

**AUTOMATIC-DELETION = \*NO / \*OBSOLETE-SAVE-FILES / \*OBSOLETE-SAVE-VERSIONS**

*Only for long-term and backup archives.*

When backing up or copying determines whether save files or save versions are to be released automatically after their retention period has expired. The release of the volume is also connected with the automatic release. A prerequisite here is that a retention period is assigned.

**AUTOMATIC-DELETION = \*NO**

Save files or save versions can only be deleted explicitly (see MODIFY-ARCHIVE).

**AUTOMATIC-DELETION = \*OBSOLETE-SAVE-FILES**

Obsolete save files are deleted and the associated volumes are released implicitly before a backup of a copy operation is executed by the archive owner. The standard save file is not deleted implicitly. The volumes released when deletion takes place can be used again immediately for backup.

**AUTOMATIC-DELETION = \*OBSOLETE-SAVE-VERSIONS**

In the event of backups or copy operations by the archive owner obsolete save versions are deleted beforehand and the volumes which are then no longer needed are released. In the event of backups or copy operations with update the latest save version of the save file to be updated is always retained.

**TAPE-CONTROL =**

The parameters which are relevant for writing to tape can be defined and preset by the archive definition.

**TAPE-CONTROL = \*STD**

The default values of the operands described below apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

The operands relevant for writing to tape can be modified as follows:

**NEW-STD-SAVE-FILE =**

Defines when a new standard save file is to be started for the archive.

This operand is irrelevant for backup archives that permit no more than one save version per save file (SAVE-FILE-STRUCTURE=\*SINGLE-SVID).

*Requests for migration* to S2 always write to the standard save file.

*Archival requests* write to the standard save file only if no other save file is specified.

*Backup requests* do not write to the standard save file unless it is explicitly specified.

The standard save file is defined by the operands NEW-STD-SAVE-FILE, S2-DEVICE-TYPE and RETENTION-PERIOD.

This operand is ignored for shadow archives. Instead, the value defined for the original archive is used.

**NEW-STD-SAVE-FILE = \*AT-EACH-REQUEST**

A new standard save file is to be started with each new save version.

This means that each save version is written to a separate save file.

**NEW-STD-SAVE-FILE = \*EACH-TAPE-SESSION**

A new standard save file is to be started at the beginning of each tape session. It is updated (“continued”) until the end of the tape session.

This means that, during a tape session, all save versions are written to the same save file unless otherwise specified.

**NEW-STD-SAVE-FILE = \*IN-PERIODS(...)**

The standard save file is changed at the beginning of each continuation period. It is updated (“continued”) until the end of the continuation period.

All save versions are written to this save file during this period unless otherwise specified.

**CONTINUATION-PERIOD = <integer 1..32767 days>**

Continuation period in days.

**NEW-STD-SAVE-FILE = \*PUBLIC-DISK(...)**

*This operand value is only possible for backup node archives and is only available to the HSMS administrator.*

A //BACKUP-NODE-FILE with SAVE-FILE=\*STD specified is modified using the archive attributes to SAVE-FILE=\*NEW and TO-STORAGE=\*PUBLIC-DISK with the pubset specification corresponding to the archive attribute. In this way requests for disk backups on disk can be issued by specifying the standard save file.

**PUBSET-ID = <cat-id>**

Catalog ID of the pubset.

**BLOCKING-FACTOR = \*STD / <integer 2..15 2Kbyte> / \*MAX**

Blocking factor to be used for writing the save file to tape.

The default value \*STD selects the blocking factor from the archive definition.

If this also contains the default value, the default values of the ARCHIVE parameters apply (SYSPAR.ARCHIVE.vvv: BLOCK-SIZE-TAPE for tapes, BLOCK-SIZE-T-C for magnetic tape cartridges).

For performance reasons it is recommended to write blocks with maximum size to tape.

This will be achieved already by using the default values. In the case of magnetic tape cartridges this is a blocking factor of 128 (256k per block)

The values 2 to 15 should not be used anymore and are supported for compatibility reasons only.

\*MAX selects the maximum blocking factor possible in the current BS2000 version independent of the settings in the archive and the ARCHIVE parameters. Currently this is the value 128.

**UNLOAD-TAPE = \*NO / \*YES**

Specifies whether or not tapes are to be unloaded after processing.

It is possible that HSMS will ignore the value of this operand in order to avoid irrational tape processing, for example to avoid unloading the tape several times while rewinding the tape.

**DISK-CONTROL =**

The parameters which are relevant for writing to disk can be defined and preset by the archive definition.

This operand is meaningful for backup and migration archives for BS2000 files only, since backups of node files, the archival function, and duplication to shadow archives are only possible on storage level S2.

**DISK-CONTROL = \*STD**

The default values of the operands described below apply.

**DISK-CONTROL = \*PARAMETERS(...)**

The operands relevant for writing to disk can be modified as follows:

**PRIMARY-ALLOCATION = \*STD / <integer 36..50331645 2Kbyte>**

Size in PAM pages of the primary allocation for save file creation on disk (see the description of the CREATE-FILE command in the “Commands” manual [5]). Unless otherwise specified, the ARCHIVE default value applies. Values from 1 through 35 are not permitted.

**SECONDARY-ALLOCATION = \*STD / <integer 0..32767 2Kbyte>**

Size in PAM pages of the secondary allocation for save file creation on disk (see the description of the CREATE-FILE command in the “Commands” manual [5]). Unless otherwise specified (\*STD), the ARCHIVE default value applies.

**WRITE-CHECK = \*NO / \*YES / \*SAVE-FILES / \*RESTORED-FILES**

Specifies whether a read-after-write check is to be performed after each write operation for error detection purposes. Note that read-after-write checking will result in longer execution times.

**WRITE-CHECK = \*SAVE-FILES**

Restricts read-after-write checks to saved files.

**WRITE-CHECK = \*RESTORED-FILES**

Restricts read-after-write checks to restored files.

**DESTROY-BY-DELETE = \*STD / \*NO / \*YES**

Specifies whether the storage space released by save file deletion is to be erased by overwriting it with binary zeros for data privacy reasons. Note that erasure by overwriting will result in longer execution times for save file deletion.

In an SM pubset environment, \*STD means that when deleting, the value is taken from the definition of the SM pubset.

In an SF pubset environment, \*STD has the same meaning as \*NO.

**REQUEST-PRIORITIES = \*STD / \*PARAMETERS(...)**

*This operand is only available to the HSMS administrator.*

Determines the processing priority of read and write requests which are issued for the specified archive.

**REQUEST-PRIORITIES = \*STD**

The default values of the operands described below are used.

**REQUEST-PRIORITIES = \*PARAMETERS(...)**

Determines the processing priority of requests which are issued for the specified archive.

**READ =**

Determines the processing priority of read requests.

**READ = \*STD**

The default value for read requests in this archive type is used.

**READ = <integer 1..255>**

A different priority is assigned, with 1 having the highest priority.

**WRITE =**

Determines the processing priority of write requests.

**WRITE = \*STD**

The default value for write requests in this archive type is used.

**WRITE = <integer 1..255>**

A different priority is assigned, with 1 having the highest priority.

**Notes**

1. If ARCHIVE directory files are still to be used after switching from ARCHIVE to HSMS operation note the section "Special aspects when switching from ARCHIVE to HSMS operation" in the HSMS Volume 1 manual.
2. Transfer of ARCHIVE directory files
  - An ARCHIVE directory file cannot be retained in HSMS unless it supports catalog IDs, i.e. was created with PARAM CATID=\*YES or converted to a directory file that supports catalog IDs by means of the DIRCONV routine that is included in the ARCHIVE scope of supply.
  - The following restrictions apply to ARCHIVE directory files which are retained in HSMS and assigned to a migration or long-term archive.  
Once HSMS has performed the first write operation:
    - the directory files can no longer be processed by ARCHIVE versions < V2.6B.
    - the directory files can still be processed by ARCHIVE versions ≥ V2.6B, but only with the ARCHIVE statements IMPORT, DIMPORT, EXPORT and DEXPORT.  
Within HSMS they are available for archival or migration only.
3. For system archives, the directory file should be created on the control volume set of the SM pubset. This means that if a volume set of the SM pubset fails, it is still possible to restore files. If the directory file is located on the failed volume set, however, no files can be restored.

**CREATE-MANAGEMENT-CLASS****Define management class**

This statement is for the use of the HSMS administrator only. It defines a management class in an SM pubset that is under HSMS control.



**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

Defines the HSMS environment in which the management class is defined. Only the system-managed environment is permissible.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset on which the management class is defined. It must be specified explicitly. The SM pubset must be imported locally.

**MANAGEMENT-CLASS = <alphanum-name 1..8>**

The name of the management class is specified explicitly.

**MIGRATION-ATTRIBUTES = \*PARAMETERS(...)**

Defines the attributes of a management class for migration.

**\*FROM-S0 = \*PARAMETERS(...)**

Defines the attributes of a management class for migration from the S0 level.

**UNUSED-DAYS = <integer 0..9999 days>**

Minimum number of days that a file must remain unused before it can be migrated to a background level.

**MINIMUM-SIZE = \*NONE / <integer 1..2147483647 2Kbyte>**

Minimum size in PAM pages that an object must have to be eligible for migration to a background level. Only files of at least the specified size are migrated. The default setting is that files are migrated irrespective of their size.

**MAXIMUM-SIZE = \*NONE / <integer 1..2147483647 2Kbyte>**

Maximum size in PAM pages that a file must have to be eligible for migration to a background level. Only files of at most the specified size are migrated. The default setting is that files are migrated irrespective of their size.

**MINIMUM-EXTENTS = 1 / <integer 1..99999>**

Minimum number of extents a file must have to be eligible for migration to a background level.

**TO-STORAGE = \*S2-STORAGE-LEVEL / \*S1-STORAGE-LEVEL**

Background level to which the files are to be migrated from the S0 level.

**\*FROM-S1 = \*PARAMETERS(...)**

Defines the attributes of a management class for migration from the S1 level.

**MINIMUM-DAYS-ON-S1 = 0 / <integer 0..9999 days>**

Minimum number of days a save file must be on S1 before it can be migrated to a background level.

**MAXIMUM-DAYS-ON-S1 = 9999 / <integer 1..9999 days>**

Maximum number of days a save file is allowed to be on S1 before it can be migrated to a background level.

**MINIMUM-SIZE = \*NONE / <integer 1..2147483647 2Kbyte>**

Minimum number of PAM pages a save file must have to be eligible for migration to a background level. Only save files of at least the specified size are migrated. The default setting is that save files are migrated irrespective of their size.

**TO-STORAGE = \*S2-STORAGE-LEVEL / \*S1-STORAGE-LEVEL**

Background level to which the save files are to be migrated from the S1 level.

**BACKUP-ATTRIBUTES = \*PARAMETERS(...)**

Defines the attributes of a management class for the backup.

**RETENTION-PERIOD = <integer 0..16383 days>**

(Physical) retention period in days. During this time neither the save file nor the save volume may be modified or deleted.

**PROTECTION = \*NONE / \*BY-GUARDS(...)**

Protection attributes for management class access.

Unless otherwise specified, no protection attributes are defined.

**GUARD-NAME = <filename 1..24 without-gen-vers>**

Name of the guard profile that protects accesses to the management class. The guard profile must have been created with the software product GUARDS (see the "SECOS" manual [7]).

The same environment must be used for the management class as for the guard profile.

*Note*

If a management class is protected by a guard profile that is not available, access to the management class is rejected.

**USER-INFORMATION =**

User information about the management class.

**USER-INFORMATION = \*NONE**

The user information is reset.

**USER-INFORMATION = <c-string 1..80 with-lower-case>**

The user information is set to the specified value.

## **CREATE-SM-PUBSET-PARAMETERS**

### **Convert SM pubset**

This statement is for use by HSMS administrators only. It places an SM pubset under HSMS control.

The statement checks the status of an SM pubset and activates the attribute “under HSMS control” for that SM pubset. This action is irreversible.

The statement creates the control and request files of the SM pubsets and opens the generic catalog facility of the SM pubset.

The HSMS administrator can specify all the parameters of the SM pubset. The system archives for the SM pubset can also be defined. It should be borne in mind that only a subset of the archive parameters can be specified for creating the backup and migration archives.

Existing archive directories can be assigned to the system archives. A long-term archive that is defined in the global HSMS parameters, can be assigned to the SM pubset; but it is not created automatically (same procedure as for SF pubsets).

#### *Note*

If there is no control file on the control volume set of the SM pubset when the pubset is converted, a control file is created. If a control file does exist, it is overwritten.

## Format (only for HSMS administrators)

CREATE-SM-PUBSET-PARAMETERS	Alias: CSP
<pre> <b>SM-PUBSET-ID</b> = &lt;cat-id&gt; , <b>GLOBAL-PARAMETERS</b> = <u>*STD</u> / *PARAMETERS(...)   *PARAMETERS(...)       <b>DESTROY-BY-DELETE</b> = <u>*NO</u> / *YES , <b>S1-DEFINITION</b> = <u>*STD</u> / *PARAMETERS(...)   *PARAMETERS(...)       <b>S1-VOLUME-SET</b> = <u>*UNDEFINED</u> / &lt;cat-id&gt; /*ALL-HSMS-CONTROLLED , <b>S2-DEVICE-TYPE</b> = <u>*STD</u> / *UNDEFINED / &lt;device&gt; , <b>SYSBACKUP</b> = <u>*UNDEFINED</u> / *PARAMETERS(...)   *PARAMETERS(...)       <b>ARCHIVE-NAME</b> = <u>*DEFAULT-NAME</u> / &lt;filename 1..22 without-cat-gen-vers&gt;       <b>DIRECTORY-NAME</b> = <u>*DEFAULT-NAME</u> / &lt;filename 1..54 without-gen-vers&gt;(…)       &lt;filename 1..54 without-gen-vers&gt;(…)           <b>NEW-DIRECTORY</b> = <u>*YES</u> / *NO , <b>SYSARCHIVE</b> = <u>*STD</u> / *UNDEFINED / *PARAMETERS(...)   *PARAMETERS(...)       <b>ENVIRONMENT</b> = <u>*SINGLE-FEATURE</u> / *SYSTEM-MANAGED       <b>ARCHIVE-NAME</b> = <u>*DEFAULT-NAME</u> / &lt;filename 1..22 without-cat-gen-vers&gt;       <b>DIRECTORY-NAME</b> = <u>*DEFAULT-NAME</u> / &lt;filename 1..54 without-gen-vers&gt;(…)       &lt;filename 1..54 without-gen-vers&gt;(…)           <b>NEW-DIRECTORY</b> = <u>*YES</u> / *NO , <b>SYSMIGRATE</b> = <u>*UNDEFINED</u> / *PARAMETERS(...)   *PARAMETERS(...)       <b>ARCHIVE-NAME</b> = <u>*DEFAULT-NAME</u> / &lt;filename 1..22 without-cat-gen-vers&gt;       <b>DIRECTORY-NAME</b> = <u>*DEFAULT-NAME</u> / &lt;filename 1..54 without-gen-vers&gt;(…)       &lt;filename 1..54 without-gen-vers&gt;(…)           <b>NEW-DIRECTORY</b> = <u>*YES</u> / *NO </pre>	

(part 1 of 2)

```

,SYSDNODEBACKUP = *UNDEFINED / *PARAMETERS(...)
  *PARAMETERS(...)
    |
    | ARCHIVE-NAME = *DEFAULT-NAME / <filename 1..22 without-cat-gen-vers>
    |
    | DIRECTORY-NAME = *DEFAULT-NAME / <filename 1..54 without-gen-vers>(…)
    |   <filename 1..54 without-gen-vers>(…)
    |   |
    |   | NEW-DIRECTORY = *YES / *NO
    |
,SYSDNODEARCHIVE = *UNDEFINED / *PARAMETERS(...)
  *PARAMETERS(...)
    |
    | ARCHIVE-NAME = *DEFAULT-NAME / <filename 1..22 without-cat-gen-vers>
    |
    | DIRECTORY-NAME = *DEFAULT-NAME / <filename 1..54 without-gen-vers>(…)
    |   <filename 1..54 without-gen-vers>(…)
    |   |
    |   | NEW-DIRECTORY = *YES / *NO
    |
, MIGRATION-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    |
    | MIGRATION = *ALLOWED / *S2-ONLY / *INHIBITED
    |
    | BACKUP-MANDATORY = *YES / *NO
    |
    | EXCEPT-FILE = *NONE / <filename 1..54 without-cat-gen-vers>
    |
    | FILE-INHIBIT = *STD / *RESPECTED / *IGNORED

```

(part 2 of 2)

**SM-PUBSET-ID = <cat-id>**

The catalog ID of the pubset to be converted must be specified explicitly.  
 The specified SM pubset must be imported locally before the conversion and the SYSHSMS user ID created on the pubset.

**GLOBAL-PARAMETERS =**

Defines the parameters for an SM pubset under HSMS control.

**GLOBAL-PARAMETERS = \*STD**

All default values are used.

**GLOBAL-PARAMETERS = \*PARAMETERS(...)**

The parameters for an SM pubset are defined.

**DESTROY-BY-DELETE =**

Determines whether, during deletion, the save file of the released storage space is to be overwritten with binary zeros for data protection reasons.

**DESTROY-BY-DELETE = \*NO**

When the save file is deleted, the released storage space is not overwritten with binary zeros.

**DESTROY-BY-DELETE = \*YES**

When the save file is deleted, the released storage space is overwritten with binary zeros for data protection reasons. Subsequent deletion of the save file therefore involves a longer run time.

**S1-DEFINITION =**

Defines the S1 level of the SM pubset.

**S1-DEFINITION = \*STD**

All the default values are used.

**S1-DEFINITION = \*PARAMETERS(...)**

The S1 level of the SM pubset is specified.

**S1-VOLUME-SET = \*UNDEFINED**

No S1 level is defined for the SM pubset.

**S1-VOLUME-SET = <cat-id>**

The catalog ID of the volume set that is to serve as the S1 level is specified explicitly. This S1 volume set must be selected from the volume set of the SM pubset reserved by HSMS. If an incorrect S1 volume set is specified, the statement is rejected.

**S1-VOLUME-SET = \*ALL-HSMS-CONTROLLED**

The volume set for S1 level is not defined explicitly. Each volume set of the SM pubset which is under HSMS control can be used as S1 level. Several of these volume sets can be used if not enough space is available on a volume set during a save run.

This setting makes sense only if BS2000 OSD/BC V11.0 or higher is used on all systems of the shared pubset network and if SAVE-FILE-PROCESSING=\*HSMS-V10-COMPATIBLE is set.

This statement is rejected in the following cases:

- If no volume set under HSMS control exists, the specification of \*ALL-HSMS-CONTROLLED is rejected with the message HSM050A.
- On a BS2000 system with BS2000 OSD/BC earlier than V11.0, the specification of \*ALL-HSMS-CONTROLLED is rejected with the message HSM021D.



The error message indicates that the setting does not make sense in the existing shared pubset network. However, it does not prevent the statement from being accepted on another system in the network if a BS2000 version V11.0 or higher exists.

### **S2-DEVICE-TYPE = \*STD / \*UNDEFINED / <device>**

Default device type with which the objects of the SM pubsets are to be saved to the S2 level. The device type must belong to the class "TAPE". Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

### **S2-DEVICE-TYPE = \*STD**

The value \*STD is stored in the specific parameters of the SM pubset. In this case, the value is taken from the HSMS-specific parameters of the SF pubset environment.

### **SYSDBACKUP =**

Defines the default backup archive for the SM pubset. The default backup archive is created with the following attributes:

USER-ACCESS=\*ALL-USERS(Access=\*READ),RETENTION-PERIOD=32,  
SAVE-FILE-STRUCTURE=\*SEVERAL-SVID.

If these presettings are unsuitable for your purposes, you can:

- change them with the MODIFY-ARCHIVE-ATTRIBUTES statement or
- later create an archive using the CREATE-ARCHIVE statement and assign it the system backup archive of the SM pubset with MODIFY-SM-PUBSET-PARAMETERS.

If an error occurs during creation of the archive, a warning is output although the processing is continued.

### **SYSDBACKUP = \*UNDEFINED**

No default backup archive is defined for the SM pubset.

**SYSBACKUP = \*PARAMETERS(...)**

Defines the parameters for the default backup archive. The default backup archive is created with the attribute USER-ACCESS=\*ALL-USERS(ACCESS=\*READ) during conversion of the SM pubset.

**ARCHIVE-NAME =**

Defines the name of the archive.

**ARCHIVE-NAME = \*DEFAULT-NAME**

The backup archive is created with the default attribute values. It is given the default name :cat-id:HSMS.STD.BA.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

The default archive is given an explicit name which is local for the SM pubset.

**DIRECTORY-NAME =**

The name of the archive directory is defined for the specified archive.

**DIRECTORY-NAME = \*DEFAULT-NAME**

A default archive directory is assigned with the name :cat-id:HSMS.DIR.BA.

**DIRECTORY-NAME = <filename 1..54 without-gen-vers>(...)**

The archive directory is given an explicit name. The specified file may be cataloged, but must be empty. The catalog ID of the archive directory name must be the SM pubset ID.

**NEW-DIRECTORY = \*YES**

The specified archive directory is created for the definition of the archive.

**NEW-DIRECTORY = \*NO**

An existing archive directory is used for the definition of the archive.

**SYSARCHIVE =**

Defines the default long-term archive for the SM pubset.

If the long-term archive is defined in the SF pubset environment, it must already exist.

For an SM pubset environment the default long-term archive is created with the following attributes:

USER-ACCESS=\*ALL-USERS(Access=\*READ),RETENTION-PERIOD=32,  
SAVE-FILE-STRUCTURE=\*SEVERAL-SVID.

If these presettings are unsuitable for your purposes, you can:

- change them with the MODIFY-ARCHIVE-ATTRIBUTES statement or
- later create an archive using the CREATE-ARCHIVE statement and assign it to the system long-term archive of the SM pubset with MODIFY-SM-PUBSET-PARAMETERS.

If an error occurs during creation of the archive, a warning is output although the processing is continued.

**SYSARCHIVE = \*STD**

Points to the system archive that is defined in the global HSMS parameters.

**SYSARCHIVE = \*UNDEFINED**

No default long-term archive is defined for the SM pubset.

**SYSARCHIVE = \*PARAMETERS(...)**

Defines the parameters for the default long-term archive. This long-term archive can be a global SF archive or a local SM archive.

**ENVIRONMENT =**

Defines the environment type.

**ENVIRONMENT = \*SINGLE-FEATURE**

The default long-term archive must already exist in the SF pubset environment.

**ENVIRONMENT = \*SYSTEM-MANAGED**

The long-term archive is created during conversion of the SM pubset.

**ARCHIVE-NAME =**

Defines the name of the archive.

**ARCHIVE-NAME = \*DEFAULT-NAME**

The long-term archive is given the default name :environment cat-id:HSMS.STD.AR.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

The default archive is given an explicit name.

**DIRECTORY-NAME =**

Defines the name of the archive directory. This operand is pointless:

- in an SF pubset environment, because the archive must already exist.
- in an SM pubset environment, if the specified archive already exists.

**DIRECTORY-NAME = \*DEFAULT-NAME**

With an SM pubset a default archive directory called :environment cat-id:HSMS.DIR.AR is assigned.

With an SF pubset this value represents the archive directory that is already assigned to the archive.

**DIRECTORY-NAME = <filename 1..54 without-gen-vers>(…)**

With an SF pubset this value is ignored.

With an SM pubset the archive directory assigned to the archive is given an explicit name. The specified file may be cataloged, but must be empty. The catalog ID of the archive directory name must be the SM pubset ID.

**NEW-DIRECTORY = \*YES**

The specified archive directory is created for the definition of the archive.

**NEW-DIRECTORY = \*NO**

An existing archive directory is used for the definition of the archive.

**SYSMIGRATE =**

The default migration archive is defined for the SM pubset.

**SYSMIGRATE = \*UNDEFINED**

No default migration archive is defined for the SM pubset.

**SYSMIGRATE = \*PARAMETERS(…)**

Defines the parameters for the default migration archive which is created with the following attributes:

USER-ACCESS=\*ALL-USERS(Access=\*READ),RETENTION-PERIOD=32,  
SAVE-FILE-STRUCTURE=\*SEVERAL-SVID.

If these presettings are unsuitable for your purposes, you can:

- change them with the MODIFY-ARCHIVE-ATTRIBUTES statement or
- later create an archive using the CREATE-ARCHIVE statement and assign it the system backup archive of the SM pubset with MODIFY-SM-PUBSET-PARAMETERS.

If an error occurs during creation of the archive, a warning is output although the processing is continued.

**ARCHIVE-NAME =**

Defines the archive name.

**ARCHIVE-NAME = \*DEFAULT-NAME**

A migration archive is created with the default attribute values. It is given the default name :cat-id:HSMS.STD.MI.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

The default archive is given an explicit name which is local for the SM pubset.

**DIRECTORY-NAME =**

The name of the archive directory is defined for the specified archive.

**DIRECTORY-NAME = \*DEFAULT-NAME**

A default archive directory is assigned with the name :cat-id:HSMS.DIR.MI.

**DIRECTORY-NAME = <filename 1..54 without-gen-vers>(…)**

The archive directory is given an explicit name. The specified file may be cataloged, but must be empty. The catalog ID of the archive directory name must be the SM pubset ID.

**NEW-DIRECTORY = \*YES**

The specified archive directory is created for the definition of the archive.

**NEW-DIRECTORY = \*NO**

An existing archive directory is used for the definition of the archive.

**SYSNODEBACKUP =**

Defines the default archive for node backup of a BS2000-UFS (POSIX) or node S0 for the SM pubset. It is created with the following attributes:

USER-ACCESS=\*ALL-USERS(Access=\*READ),RETENTION-PERIOD=32,  
SAVE-FILE-STRUCTURE=\*SEVERAL-SVID.

If these presettings are unsuitable for your purposes, you can:

- change them using the MODIFY-ARCHIVE-ATTRIBUTES statement or
- later create an archive using the CREATE-ARCHIVE statement and assign this archive to the system archive for node backup of SM pubsets using the MODIFY-SM-PUBSET-PARAMETERS.

If an error occurs during creation of the archive, a warning is output but the processing is continued.

**SYSNODEBACKUP = \*UNDEFINED**

No default archive for node backup of a BS2000-UFS (POSIX) or node S0 is defined for the SM pubset.

**SYSNODEBACKUP = \*PARAMETERS(...)**

Defines the parameters for the default archive for node backup of a BS2000-UFS (POSIX) or node S0. It is created with the attributes USER-ACCESS=\*ALL-USERS(Access=\*READ) during conversion of the SM pubset.

**ARCHIVE-NAME =**

Defines the name of the archive.

**ARCHIVE-NAME = \*DEFAULT-NAME**

The node backup archive is created with the default attribute values. It is given the default name :cat-id:HSMS.STD.NB.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

The default archive is given an explicit name which is local for the SM pubset.

**DIRECTORY-NAME =**

The name of the archive directory is defined for the specified archive.

**DIRECTORY-NAME = \*DEFAULT-NAME**

A default archive directory with the name :cat-id:HSMS.DIR.NB is assigned.

**DIRECTORY-NAME = <filename 1..54 without-gen-vers>(...)**

The archive directory is given an explicit name. The specified file may be cataloged, but must be empty. The catalog ID of the archive directory name must be the SM pubset ID.

**NEW-DIRECTORY = \*YES**

The specified archive directory is created for the definition of the archive.

**NEW-DIRECTORY = \*NO**

An existing archive directory is used to define the archive.

**SYSNODEARCHIVE =**

Defines the default long-term archive for node archival of a BS2000-UFS (POSIX) or node S0 for the SM pubset. It is created with the following attributes:  
USER-ACCESS=\*ALL-USERS(Access=\*READ),RETENTION-PERIOD=32,  
SAVE-FILE-STRUCTURE=\*SEVERAL-SVID.

If these presettings are unsuitable for your purposes, you can:

- change them using the MODIFY-ARCHIVE-ATTRIBUTES statement or
- later create an archive using the CREATE-ARCHIVE statement and assign it the system long-term archive for nodes of the SM pubset using MODIFY-SM-PUBSET-PARAMETERS.

If an error occurs during creation of the archive, a warning will be output, but processing is continued.

**SYSNODEARCHIVE = \*UNDEFINED**

No default long-term archive for node archival of a BS2000-UFS (POSIX) or node S0 is defined for the SM pubset.

**SYSNODEARCHIVE = \*PARAMETERS(...)**

Defines the parameters for the default long-term archive for node archival of a BS2000-UFS (POSIX) or node S0. It is created during the conversion of the SM pubset with the following attributes: USER-ACCESS=\*ALL-USERS(Access=\*READ).

**ARCHIVE-NAME =**

Defines the name of the archive.

**ARCHIVE-NAME = \*DEFAULT-NAME**

The long-term archive for nodes is created with the default attribute values. It is given the default name :cat-id:HSMS.STD.NA.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

The default archive is given an explicit name which is local for the SM pubset.

**DIRECTORY-NAME =**

The name of the archive directory is defined for the specified archive.

**DIRECTORY-NAME = \*DEFAULT-NAME**

A default archive directory is assigned with the name :cat-id:HSMS.DIR.NA.

**DIRECTORY-NAME = <filename 1..54 without-gen-vers>(...)**

The archive directory is given an explicit name. The specified archive directory may be cataloged, but must be empty. The catalog ID of the archive directory must be the SM pubset ID.

**NEW-DIRECTORY = \*YES**

The specified archive directory is created to define the archive.

**NEW-DIRECTORY = \*NO**

An existing archive directory is used for to define the archive.

**MIGRATION-CONTROL =**

The parameters are defined for the migration control.

**MIGRATION-CONTROL = \*STD**

All the default values are used.

**MIGRATION-CONTROL = \*PARAMETERS(...)****MIGRATION =**

Defines whether and to which extent nonprivileged users may migrate files from this pubset.

**MIGRATION = \*ALLOWED**

Nonprivileged users can migrate files from this pubset without restrictions.

**MIGRATION = \*S2-ONLY**

Nonprivileged users may migrate files from S0 to S2 only.

**MIGRATION = \*INHIBITED**

Only the HSMS administrator may migrate files from this pubset. Migration is not permitted for any other user.

**BACKUP-MANDATORY = \*YES / \*NO**

\*YES prohibits the migration of files, which have not yet been saved (apart from those in backup class E). \*NO allows it.

**EXCEPT-FILE = \*NONE / <filename 1..54 without-cat-gen-vers>**

An except file can be specified which contains in records the names of files to be excluded from the migration. The except file may also contain partially qualified file names and names with wildcards. The file names must be written in uppercase. The except file must be a SAM file with variable-length records which contains a path name in each record. It can be created, for example, using the HSMS statement SELECT-FILE-NAMES or the BS2000 command SHOW-FILE-ATTRIBUTES. The except file must be on the SM pubset.

**FILE-INHIBIT =**

Defines whether the migration inhibits that have been set by the user are respected. The user can declare migration inhibits with BS2000 commands CREATE-FILE and MODIFY-FILE-ATTRIBUTES.

**FILE-INHIBIT = \*STD**

The value \*STD is stored in the specific parameters of the SM pubset. In this case, the value is taken from the HSMS-specific parameters of the SF environment.

**FILE-INHIBIT = \*RESPECTED**

Migration inhibits set by the user are respected. The files concerned are not migrated.

**FILE-INHIBIT = \*IGNORED**

Migration inhibits set by the user are ignored. The files concerned are migrated.

## DELETE-ARCHIVE

### Delete archive definition

This statement is used for deleting an archive definition from the HSMS control file. Only the archive definition is deleted; the archive directory and the save files managed in the archive are retained.

Only the HSMS administrator and the archive owner are authorized to delete a record.

If an archive linked with the shadow archive is deleted, the shadow archive is also deleted.

If the statement is issued for a shadow archive, the following functions are available (SHADOW-FUNCTION operand):

- Default: The shadow archive is deleted and the connection between the shadow archive and the associated backup or long-term archive is cancelled.
- The shadow archive is deleted and the archive directory of the shadow archive replaces the archive directory of the associated backup or long-term archive.
- Only the connection to the associated backup or long-term archive is cancelled and the shadow archive becomes an independent archive.

This statement has the same format for nonprivileged users and HSMS administrators.

### Format

<b>DELETE-ARCHIVE</b>	Alias: <b>DLA</b>
<p><b>ARCHIVE-NAME</b> = &lt;filename 1..22 without-cat-gen-vers&gt;</p> <p><b>,ENVIRONMENT</b> = <b>*STD</b> / <b>*NODE-STD</b> / <b>*SINGLE-FEATURE</b> / <b>*SYSTEM-MANAGED(...)</b>  <b>*SYSTEM-MANAGED(...)</b>    <b>CATALOG-ID</b> = &lt;cat-id&gt;</p> <p><b>,SHADOW-FUNCTION</b> = <b>*DELETE</b> / <b>*REPLACE-ORIGINAL</b> / <b>*SEPARATE-SHADOW</b></p>	

### **ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

Name of the archive to be deleted. The archive is only deleted if all the requests in the request file in the same environment have been completed.

### *Note*

If references still exist to a deleted archive for migrated files or in SM pubset parameters (SYSARCHIVE, SYSBACKUP, SYSMIGRATE, etc.), inconsistencies may occur. It is therefore essential to remove such references.

**ENVIRONMENT =**

Determines the HSMS environment in which the specified archive is located.

**ENVIRONMENT = \*STD**

The archive is located in the default environment for the DMS archive:

- *For privileged users:* \*STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*NODE-STD**

The archive is located in the default archive for node archives:

- *For privileged users:* \*NODE-STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*NODE-STD is set to the value of the environment in which the home directory of the user is defined.

**ENVIRONMENT = \*SINGLE-FEATURE**

The archive is located in the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The archive is located in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset for which the HSMS statement is valid.

**SHADOW-FUNCTION =**

For shadow archives, provides further functions in addition to deleting.

**SHADOW-FUNCTION = \*DELETE**

The shadow archive is deleted and the connection between the shadow archive and the associated backup or long-term archive is cancelled.

**SHADOW-FUNCTION = \*REPLACE-ORIGINAL**

The shadow archive is deleted and the archive directory of the shadow directory replaces the archive directory of the associated backup or long-term archive.

**SHADOW-FUNCTION = \*SEPARATE-SHADOW**

Only the connection to the associated backup or long-term archive is cancelled and the shadow archive becomes an independent archive.

## DELETE-MANAGEMENT-CLASS

### Delete management class

This statement is for the use of the HSMS administrator only. It deletes a management class that was defined for an SM pubset under HSMS control.

#### Format (only for HSMS administrators)

<b>DELETE-MANAGEMENT-CLASS</b>	Alias: <b>DMC</b>
<pre> <b>ENVIRONMENT</b> = *<b>SYSTEM-MANAGED</b>(...)   *<b>SYSTEM-MANAGED</b>(...)       <b>CATALOG-ID</b> = &lt;cat-id&gt;   ,<b>MANAGEMENT-CLASS</b> = *<b>ALL</b> / &lt;alphanum-name 1..8&gt; </pre>	

#### **ENVIRONMENT =**

Determines the HSMS environment in which the management class is located.

#### **ENVIRONMENT = \*SYSTEM-MANAGED(...)**

A management class can only be located in a system-managed environment.

#### **CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset in which the management class is defined. This SM pubset must be imported locally.

#### **MANAGEMENT-CLASS =**

The management classes to be deleted can be specified.

#### **MANAGEMENT-CLASS = \*ALL**

All management classes of the specified environment are deleted.

#### **MANAGEMENT-CLASS = <alphanum-name 1..8>**

Explicit name of the management class to be deleted in the specified environment.

## DELETE-REQUESTS

### Delete requests

This statement deletes terminated or interrupted requests from the request file of an SF or SM pubset environment. All users can also delete requests which have the status "STARTED". Requests can also be deleted from the display of the SHOW-REQUESTS statement.

The following applies to an SF pubset environment:

You can only delete requests from the computer on which they originated. Requests in a master's request file which were created through the processing of a slave request on the master and have the status INTERRUPTED can only be deleted from the slave. This involves deleting the corresponding request in the slave's request file.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

### Format

DELETE-REQUESTS	Alias: DLR
<pre> <b>REQUEST-NAME</b> = <b>*ANY</b> / &lt;name 1..8&gt; <b>,ENVIRONMENT</b> = <b>*STD</b> / <b>*NODE-STD</b> / <b>*SINGLE-FEATURE</b> / <b>*SYSTEM-MANAGED(...)</b>   <b>*SYSTEM-MANAGED(...)</b>       <b>CATALOG-ID</b> = &lt;cat-id&gt; <b>,REQUEST-DATE</b> = <b>*LATEST</b> / <b>*INTERVAL(...)</b> / &lt;date 8..10 with-compl&gt;(...)   <b>*INTERVAL(...)</b>       <b>CREATED-BEFORE</b> = <b>*LATEST-DATE</b> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;       <b>CREATED-AFTER</b> = <b>*EARLIEST-DATE</b> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;   &lt;date with-compl&gt;(...)       <b>TIME</b> = &lt;time&gt; <b>,REQUEST-ORIGIN</b> = <b>*BS2000(...)</b> / <b>*NODE-CL(...)</b>   <b>*BS2000(...)</b>       <b>USER-ID</b> = <b>*OWN</b> / <b>*ALL</b> / &lt;name 1..8&gt;   <b>*NODE-CL(...)</b>       <b>NODE-ID</b> = <b>*ALL</b> / &lt;posix-filename 1..48 without-wild&gt; <b>,REQUEST-STATE</b> = <b>*COMPLETED</b> / <b>*INTERRUPTED</b> / <b>*ACCEPTED</b> / <b>*CANCELLED</b> / <b>*STARTED</b> / <b>*ANY</b> <b>,ARCHIVE-NAME</b> = <b>*ALL</b> / &lt;filename 1..22 without-cat-gen-vers&gt; </pre>	

**REQUEST-NAME =**

You can select the requests that are to be deleted via their request names.

The default name specified via the action statement or assigned by HSMS is extended internally by a prefix formed by the user ID and a suffix in the form of a time stamp. Since the name by itself need not be unique, the request name can be used to refer to more than one request at a time.

**REQUEST-NAME = \*ANY**

The requests to be deleted are to be selected irrespective of their names.

**REQUEST-NAME = <name 1..8>**

Restricts deletion to requests with the specified name.

**ENVIRONMENT =**

Determines the HSMS environment where the request file to be processed is located.

**ENVIRONMENT = \*STD**

The HSMS statement affects the default environment for DMS requests:

- *For privileged users:* \*STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*NODE-STD**

The archive is located in the default environment for node requests:

- *For privileged users:* \*NODE-STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*NODE-STD is set to the value of the environment in which the home directory of the user is defined.

**ENVIRONMENT = \*SINGLE-FEATURE**

The HSMS statement only affects the request file of the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The HSMS statement only affects the request file of the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**REQUEST-DATE =**

Serves to select the requests to be deleted using the creation date as the selection criterion.

The date is output by SHOW-REQUESTS.

**REQUEST-DATE = \*LATEST**

Restricts deletion to the most recently created requests.

**REQUEST-DATE = \*INTERVAL(...)**

Serves to select the requests to be deleted using a time interval as the selection criterion. The interval includes all requests created between CREATED-AFTER and CREATED-BEFORE.

Unless otherwise specified, all requests starting with the one created first (\*EARLIEST-DATE) up to the one created last (\*LATEST-DATE) are selected.

**CREATED-BEFORE = \*LATEST-DATE**

The requests are to be deleted irrespective of whether they were created before a specific date.

**CREATED-BEFORE = <date with-compl> / <integer -99999..0 days>**

Restricts deletion to requests created on or before the specified date.

**CREATED-AFTER = \*EARLIEST-DATE**

The requests are to be deleted irrespective of whether they were created after a specific date.

**CREATED-AFTER = <date with-compl> / <integer -99999..0 days>**

Restricts deletion to requests created on or after the specified date.

**REQUEST-DATE = <date with-compl> (...)**

The requests to be deleted are selected using the date and time of their creation as the selection criterion.

**TIME = <time>**

Time specification in the form hh:mm:ss

**REQUEST-ORIGIN =**

*This operand is only available to the HSMS administrator.*

The requests are selected on the basis of their origin: this is the central BS2000 host (DMS and node requests).

**REQUEST-ORIGIN = \*BS2000(...)**

The requests were issued by a BS2000 user at a BS2000 host.

**USER-ID =**

You can select the requests for deletion via the user ID under which they were created.

**USER-ID = \*OWN**

Only those requests that are running under your own user ID are deleted (SYSHSMS for HSMS administrators).

**USER-ID = \*ALL**

The requests of all users are deleted.

**USER-ID = <name 1..8>**

Only the requests of the specified user ID are deleted.

**REQUEST-ORIGIN = \*NODE-CL(...)**

*This operand only exists for compatibility reasons.*

**REQUEST-STATE =**

Serves to select the requests to be deleted using their current processing state as the selection criterion.

**REQUEST-STATE = \*COMPLETED**

Only completed requests are to be deleted from the request file. This permits completed requests to be deleted from the request file before the end of the HSMS session.

**REQUEST-STATE = \*INTERRUPTED**

Only requests whose processed was interrupted are to be deleted from the request file.

**REQUEST-STATE = \*ACCEPTED**

Only accepted requests are deleted from the request file.

**REQUEST-STATE = \*CANCELLED**

Only cancelled requests are deleted from the request file.

**REQUEST-STATE = \*STARTED**

Only started requests are aborted and deleted from the request file.

Started requests are not deleted immediately. Before a started request is deleted, a deletion message is sent to the HSMS server task that is processing the request. The HSMS server task checks the deletion message and aborts once it has been read. However, since the deletion message does not have any priority, it cannot be read if the HSMS server task, for example, is locked in a security queue. As a result, the started request is not deleted immediately but only after a few minutes.

The following restrictions apply:

- Activities which have already been performed for a started request which is due to be deleted are not reset. As a result, HSMS structures which have already been modified retain their modified status.
- The deletion of requests with the status “STARTED COLLECTED” is not supported.
- It is not possible to delete requests while the copy on the master is in the status “STARTED”.

It is not possible to restart the request following deletion since it has been removed from the request file.

**REQUEST-STATE = \*ANY**

Completed, interrupted, cancelled and accepted requests are deleted from the request file.

**ARCHIVE-NAME =**

*Only for archive owners:*

The requests to be deleted can be selected via the archive for which they were created.

**ARCHIVE-NAME = \*ALL**

The requests to be deleted are selected in the specified environment irrespective of the archive.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

Only requests referring to the archive in the specified environment are deleted.

**END**  
**Terminate HSMS run**

This standard SDF statement is used for terminating the HSMS run.

This statement has the same format for nonprivileged users and HSMS administrators.

**Format**

<b>END</b>

This statement has no operands.

## EXPORT-FILES

### Export files and job variables

This statement is used for exporting files and job variables to magnetic tape cartridge, to public disc or Net-Storage. These files can then be imported to the other BS2000 system or the other user ID using IMPORT-FILES. For files on private volumes there is the option of saving the catalog entries only. A directory of the export run can be created and written to the backup volume.

EXPORT-FILES requests are entered in the HSMS global request file.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

### Format

EXPORT-FILES	Alias: <b>EXF</b>
<p><b>FILE-NAMES</b> = *OWN / *ALL / *NONE / *SELECTED / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / list-poss(20): &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;</p> <p>*FROM-FILE(...)</p> <ul style="list-style-type: none"> <li>  <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</li> </ul> <p>*FROM-LIBRARY-ELEMENT(...)</p> <ul style="list-style-type: none"> <li>  <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;</li> <li>  <b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</li> </ul> <p>,<b>EXCEPT-FILE-NAMES</b> = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / list-poss(20): &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;</p> <p>*FROM-FILE(...)</p> <ul style="list-style-type: none"> <li>  <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</li> </ul> <p>*FROM-LIBRARY-ELEMENT(...)</p> <ul style="list-style-type: none"> <li>  <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;</li> <li>  <b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</li> </ul>	

(part 1 of 4)

```

,NEW-FILE-NAMES = *SAME / *BY-RULE(...)
  *BY-RULE(...)
    | NEW-CATALOG-ID = *SAME / <cat-id>
    | ,NEW-USER-ID = *SAME / <name 1..8>
    | ,PREFIX = *NONE / <name 1..8>
    | ,SUFFIX = *NONE / <composed-name 1..8>
,SUPPORT = *ANY / *PUBLIC-DISK(...) / *PRIVATE-DISK(...) / *TAPE
  *PUBLIC-DISK(...)
    | STORAGE-TYPE = *ANY / *PUBLIC-SPACE / *NET-STORAGE(...)
    | *NET-STORAGE(...)
    | | VOLUMES = *ALL / list-poss(150): <vsn 1..6>
    | | ,FILE-TYPE = *ANY / *BS2000 / *NODE-FILE
  *PRIVATE-DISK(...)
    | VOLUMES = *ALL / list-poss(150): <vsn 1..6>
    | ,CATALOG-ENTRIES-ONLY = *NO / *YES
,JV-NAMES = *NONE / *OWN / *ALL / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / list-poss(20):
  <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>
  *FROM-FILE(...)
    | LIST-FILE-NAME = <filename 1..54 without-gen-vers>
  *FROM-LIBRARY-ELEMENT(...)
    | LIBRARY = <filename 1..54 without-gen-vers>
    | ,ELEMENT = <composed-name 1..64 with-under>
,EXCEPT-JV-NAMES = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / list-poss(20):
  <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>
  *FROM-FILE(...)
    | LIST-FILE-NAME = <filename 1..54 without-gen-vers>
  *FROM-LIBRARY-ELEMENT(...)
    | LIBRARY = <filename 1..54 without-gen-vers>
    | ,ELEMENT = <composed-name 1..64 with-under>
,NEW-JV-NAMES = *SAME / *BY-RULE(...)
  *BY-RULE(...)
    | NEW-CATALOG-ID = *SAME / <cat-id>
    | ,NEW-USER-ID = *SAME / <name 1..8>
    | ,PREFIX = *NONE / <name 1..8>
    | ,SUFFIX = *NONE / <composed-name 1..8>

```

(part 2 of 4)

```

,EXPORTED-ENVIRONMENT = *KEEP / *PARAMETERS(...)
  *PARAMETERS(...)
    |
    | FILE-ATTRIBUTES = *KEEP / *RESET-TO-STD
    | ,CAT-AND-USER-ID = *KEEP / *IGNORE
    | ,CATALOG-FORMAT = *KEEP / *BEFORE-OSD-V1
,DELETE-FILES-AND-JV = *NO / *YES(...)
  *YES(...)
    |
    | PROTECTION-RESPECTED = *ALL / *PASSWORDS / *NONE
,SAVE-SAM-STRUCTURE = *YES/*NO
,PASSWORDS = *NONE / *SECRET-PROMPT / list-poss(63): <c-string 1..4> / <x-string 1..8> /
  <integer -2147483648..2147483647>
,DIRECTORY-NAME = *NONE / <filename 1..54 without-gen-vers>(…)
  <filename 1..54 without-gen-vers>(…)
    |
    | NEW-DIRECTORY = *NO / *YES
    | ,SAVE-DIRECTORY = *NO / *YES
,SAVE-FILE = *NEW(...) / *CONTINUE(...)
  *NEW(...)
    |
    | RETENTION-PERIOD = 0 / <integer 0..16383 days>
    | ,USER-ACCESS = *ALL-USERS / *OWNER-ONLY
    | ,SAVE-FILE-PASSWORD = *NONE / *SECRET-PROMPT / <c-string 1..4> / <x-string 1..8> /
    |   <integer -2147483648..2147483647>
  *CONTINUE(...)
    |
    | SAVE-FILE-ID = *NOT-SPECIFIED / *LATEST / <composed-name 15..15>
    | ,VOLUMES = *NOT-SPECIFIED / list-poss(16): <vsn 1..6>
,COMPRESS-FILES = *NO / *YES
,TO-STORAGE = *TAPE(...) / *PUBLIC-DISK(...) / *NET-STORAGE(...)
  *TAPE(...)
    |
    | VOLUMES = *FROM-POOL / *FROM-OPERATOR / list-poss(100): <vsn 1..6>
    | ,DEVICE-TYPE = *STD / <device>
    | ,LOCATION = *ANY / <alphanum-name 1..8>
  *PUBLIC-DISK(...)
    |
    | PUBSET-ID = <cat-id>
  *NET-STORAGE(...)
    |
    | VOLUMES = list-poss(16): <vsn 1..6>

```

```

,OPERATION-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    |
    | REQUEST-NAME = *STD / <name 1..8>
    | ,REQUEST-DESCRIPTOR = *NONE / <text 1..60>
    | ,EXPRESS-REQUEST = *NO / *YES
    | ,CONTROL-JV= *NONE / <filename 1..54 without-gen-vers>
    | ,WAIT-FOR-COMPLETION = *NO / *YES
    | ,CATALOG-ID-MODE = *YES / *NO
    | ,PARALLEL-RUNS = 1 / <integer 1..16>
    | ,WRITE-CHECKPOINTS = *YES / *NO
    | ,TAPE-CONTROL = *STD / *PARAMETERS(...)
    |   *PARAMETERS(...)
    |     |
    |     | BLOCKING-FACTOR = *STD / <integer 2..15 2Kbyte> / *MAX
    |     | ,UNLOAD-TAPE = *NO / *YES
    |     | ,PERFORMANCE-ANALYSIS = *NO / *YES(...)
    |     | *YES(...)
    |     | | SEPARATOR = ; / <c-string 1..1>
    |     | ,REPORT = *SUMMARY / *FULL / *NONE
    |     | ,OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...) / <filename 1..54 without-gen-vers>
    |     | *LIBRARY-ELEMENT(...)
    |     | | LIBRARY = <filename 1..54 without-gen-vers>
    |     | | ,ELEMENT = <composed-name 1..64 with-under>

```

(part 4 of 4)

**FILE-NAMES =**

Serves to specify the files to be exported. The specification is mandatory  
The selection can be restricted via the operands EXCEPT-FILE-NAMES and SUPPORT.

Nonprivileged users may export other users' files. This requires specifying the user ID explicitly and that FILE-ATTRIBUTES=\*RESET-TO-STD applies. The foreign files are also exported if they are readable for the caller, either through shareability or co-ownership.

**FILE-NAMES = \*OWN**

All files of the user's own ID residing on any imported pubset (except for shared SF pubsets for which the home computer is the slave) are exported.

**FILE-NAMES = \*ALL**

All files residing on all imported pubsets (except for shared SF pubsets for which the home computer is the slave) are exported.

**FILE-NAMES = \*NONE**

No files are exported.

**FILE-NAMES = \*SELECTED**

The path names of the files to be exported are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-FILE-NAMES.

**FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be exported are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used. The list file can be created, for instance, by means of the HSMS statement SELECT-FILE-NAMES or the BS2000 command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are to be exported are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be exported are specified directly. A list of up to 20 names may be specified.

The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the default catalog ID of the user ID.

The files can alternatively be selected using wildcards. Note, however, that only the HSMS administrator may use wildcards for user ID specification. In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

*The following applies to file generations:*

When specifying fully qualified file names, the specification of a generation number (version) is permissible. Only the specified generations will be exported.

**EXCEPT-FILE-NAMES =**

Serves to specify files that are to be excluded from export.

**EXCEPT-FILE-NAMES = \*NONE**

All files specified with the FILE-NAMES operand are to be exported.

**EXCEPT-FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be excluded from export are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used. The list file can be created, for instance, by means of the BS2000 command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are not to be exported are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be excluded from export are specified directly. A list of up to 20 names may be specified.

The first character of the file names must not be a hyphen. The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the default catalog ID.

The files can alternatively be selected using wildcards. Note, however, that only the HSMS administrator may use wildcards for user ID specification because only the HSMS administrator is allowed to specify other user IDs. In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

*The following applies to file generations:*

When specifying fully qualified file names, the specification of a generation number (version) is permissible. Only the specified generations will be excluded from export.

**NEW-FILE-NAMES =**

Allows files to be exported under a new name. Files can only be renamed during export without a directory file.

The user must ensure that the new path name conforms to the BS2000 conventions governing names. The total length must not exceed 54 characters; i.e. the file name without user ID and catalog ID should not exceed 38 characters (to allow for its extension by the catalog ID). The new file name is formed as follows:

:<cat-id>:\$<user-id>.old-filename-without-cat-user.<suffix>

All users are allowed to specify a user ID other than their own.

**NEW-FILE-NAMES = \*SAME**

The files are to be exported under their original names.

**NEW-FILE-NAMES = \*BY-RULE(...)**

The files are to be renamed using a common rule.

**NEW-CATALOG-ID = \*SAME / <cat-id>**

The files may be exported under a different catalog ID. The catalog ID must be specified without colons. The user ID must have a JOIN entry for this catalog.

Unless otherwise specified, the files are exported under their original catalog ID.

**NEW-USER-ID = \*SAME / <name 1..8>**

The files may be exported under a different user ID. The user ID must be specified without a leading “ \$ ” character.

Unless otherwise specified, the files are exported under their original user ID.

**PREFIX = \*NONE / <name 1..8>**

A prefix of up to 8 characters may be added to the file name, automatically separated from the file name by a period (partial qualification).

The prefix must not contain any characters that are prohibited for file names.

Unless otherwise specified, no prefix is added to the file names.

**SUFFIX = \*NONE / <composed-name 1..8>**

A suffix of up to 8 characters may be added to the file name, automatically separated from the file name by a period (partial qualification).

The suffix must not contain any characters that are prohibited for file names.

Unless otherwise specified, no suffix is added to the file names.

**SUPPORT =**

The files to be exported can be selected according to the type of volume (public disk, private disk or tape) on which they reside.

**SUPPORT = \*ANY**

The type of volume on which the files reside is not a selection criterion.

**SUPPORT = \*PUBLIC-DISK(...)**

Restricts export to files residing on the disks of a pubset or on the assigned Net-Storage.

**STORAGE-TYPE =**

Selects the storage type for public volumes.

**STORAGE-TYPE = \*ANY**

The files are exported irrespective of the storage type. They can reside on the disks of a pubset or on a Net-Storage.

**STORAGE-TYPE = \*PUBLIC-SPACE**

Only files which reside on the disks of a pubset are exported. Files on a Net-Storage are ignored.

**STORAGE-TYPE = \*NET-STORAGE(...)**

Only files which reside on a Net-Storage are exported.

**VOLUMES = \*ALL / list-poss(150): <vsn 1..6>**

Specifies the Net-Storage volume on which the files to be exported reside. If more than one Net-Storage is assigned to the pubset, the Net-Storage volumes from which files are to be exported can be specified in a list. \*ALL selects all Net-Storage volumes which are assigned to the specified pubsets.

**FILE-TYPE =**

Selects the file type of Net-Storage files that will be exported.

**FILE-TYPE = \*ANY**

The Net-Storage files are selected irrespective of the file type.

**FILE-TYPE = \*BS2000**

Only Net-Storage files of the type BS2000 are selected.

**FILE-TYPE = \*NODE-FILE**

Only Net-Storage files of the type node file are selected.

**SUPPORT = \*PRIVATE-DISK(...)**

Restricts export to files which reside on private disks and which have been imported, i.e. recorded in the catalog of a pubset.

**VOLUMES = \*ALL**

Files on all (imported) private disks are exported.

**VOLUMES = list-poss(150): <vsn 1..6>**

Volume serial numbers of private disks. All files having at least one extent on the specified disks are exported.

**CATALOG-ENTRIES-ONLY = \*NO / \*YES**

Determines whether or not only the catalog entries of the specified files on private disk are exported.

**SUPPORT = \*TAPE**

Only the catalog entries of tape files are exported.

**JV-NAMES =**

Serves to specify the job variables to be exported.

The nonprivileged user can also export other users' job variables by explicitly specifying the user ID. A prerequisite here is that FILE-ATTRIBUTES=\*RESET-TO-STD is used. The foreign job variables are also exported if they are readable for the caller, either through shareability or co-ownership.

**JV-NAMES = \*NONE**

No job variables are exported.

**JV-NAMES = \*OWN**

All job variables of the user's own ID residing on any imported pubset (except for shared SF pubsets for which the home computer is the slave) are exported.

**JV-NAMES = \*ALL**

All job variables residing on all imported pubsets (except for shared SF pubsets for which the home computer is the slave) are exported.

**JV-NAMES = \*FROM-FILE(...)**

The path names of the job variables to be exported are taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**JV-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are to be exported are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**JV-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> /  
<partial-filename 2..79 with-wild>**

The path names of the job variables to be exported are specified directly. A list of up to 20 names may be specified.

The job variables can alternatively be selected using wildcards. In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

**EXCEPT-JV-NAMES =**

Serves to specify job variables that are to be excluded from export.

**EXCEPT-JV-NAMES = \*NONE**

All job variables specified with the JV-NAMES operand are to be exported.

**EXCEPT-JV-NAMES = \*FROM-FILE(...)**

The path names of the job variables to be excluded from export are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-JV-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are not to be exported are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-JV-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables to be excluded from export are specified directly. A list of up to 20 names may be specified. The first character of the job variable names must not be a hyphen.

The job variables can alternatively be selected using wildcards. In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

**NEW-JV-NAMES =**

This operand allows job variables to be exported under new names. Job variables can only be renamed during export without a directory file.

The user must ensure that the new path name conforms to the BS2000 naming conventions. The total length must not exceed 54 characters; this implies that the job variable name without user ID and catalog ID should not exceed 38 characters (to allow for the catalog ID extension). The new job variable name is formed as follows:

:<cat-id>:\$<user-id>.old-jvname-without-cat-user.<suffix>

**NEW-JV-NAMES = \*SAME**

The job variables are exported under their original names.

**NEW-JV-NAMES = \*BY-RULE(...)**

The job variables are to be renamed using a common rule.

**NEW-CATALOG-ID = \*SAME / <cat-id>**

The job variables may be exported under a different catalog ID. The catalog ID must be specified without colons. The user ID must have a JOIN entry for this catalog. Unless otherwise specified, the job variables are exported under their original catalog ID.

**NEW-USER-ID = \*SAME / <name 1..8>**

The job variables may be exported under a different user ID. The user ID must be specified without a leading “ \$ ” character. Unless otherwise specified, the job variables are exported under their original user ID.

**PREFIX = \*NONE / <name 1..8>**

A prefix of up to 8 characters may be added to the job variable name, automatically separated from the job variable name by a period (partial qualification). The prefix must not contain any characters that are prohibited for job variable names. Unless otherwise specified, no prefix is added to the job variable names.

**SUFFIX = \*NONE / <composed-name 1..8>**

A suffix of up to 8 characters may be added to the job variable name, automatically separated from the job variable name by a period (partial qualification). The suffix must not contain any characters that are prohibited for job variable names. Unless otherwise specified, no suffix is added to the job variable names.

**EXPORTED-ENVIRONMENT =**

Specifies the file / job variable attributes to be retained in the save file.

**EXPORTED-ENVIRONMENT = \*KEEP**

All attributes are retained.

**EXPORTED-ENVIRONMENT = \*PARAMETERS(...)**

Detailed specification of the attributes to be modified.

**FILE-ATTRIBUTES = \*KEEP / \*RESET-TO-STD**

Specifies whether the password and access protection attributes are to be retained or set to the default value.

**CAT-AND-USER-ID = \*KEEP / \*IGNORE**

Specifies whether or not the catalog ID and user ID are to be retained.

If the catalog ID and user ID are not transcribed to the save file, the files or job variables can be imported without knowledge of the exporting catalog/user ID.

If files were exported with the specification CAT-AND-USER-ID=\*IGNORE, the catalog and user ID cannot be renamed when imported (HSMS statement IMPORT-FILES).

**CATALOG-FORMAT = \*KEEP / \*BEFORE-OSD-V1**

Specifies whether the catalog format is to be retained or converted to the format of the BS2000 versions preceding BS2000/OSD-BC V1.0.

**DELETE-FILES-AND-JV = \*NO / \*YES(...)**

Defines whether the exported files and job variables are to be deleted after being written to the export volumes.

**DELETE-FILES-AND-JV = \*YES(...)**

The exported files and job variables are deleted.

*Exception*

Files and job variables of the SYSHSMS ID are excluded from deletion.

Deletion can be restricted by specifying which file and job variable protection attributes are to be respected:

**PROTECTION-RESPECTED = \*ALL**

Deletion is to be restricted to files and job variables without password protection, with write access and whose retention period has expired.

**PROTECTION-RESPECTED = \*PASSWORDS**

Deletion is to be restricted to files and job variables without password protection.

**PROTECTION-RESPECTED = \*NONE**

*This operand value is only available to the HSMS administrator.*

All files and job variables are to be deleted, irrespective of their protection attributes.

**SAVE-SAM-STRUCTURE = \*YES/\*NO**

Determines whether the structure of SAM-Node files is to be saved.

SAM node files that have been saved without SAM structure can only be restored as a SAM node file again.

SAM node files that have been saved with SAM structure can be restored either as FILE-TYPE=\*BS2000 (on public space or Net-Storage) or FILE-TYPE=\*NODE-FILE.

**PASSWORDS = \*NONE / \*SECRET-PROMPT / list-poss(63): <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>**

If the files or job variables to be exported are protected by a password, the passwords must be specified here.

The PASSWORDS operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in an interactive dialog.
- In unguided dialog and foreground procedures, the entry \*SECRET or ^ permits concealed input of the password.

**DIRECTORY-NAME =**

Determines whether a directory is used for the export run.

**DIRECTORY-NAME = \*NONE**

A directory is not used for the export run.

**DIRECTORY-NAME = <filename 1..54 without-gen-vers>(…)**

The specified directory is used for the export run. The nonprivileged caller must be owner or co-owner of this directory.

If the name of an SM directory is specified, the request is rejected.

**NEW-DIRECTORY = \*NO / \*YES**

Determines whether or not the specified directory is created.

**SAVE-DIRECTORY = \*NO / \*YES**

Determines whether or not the directory is written to the export volume as the last file in the export run.

**SAVE-FILE =**

Defines the save file to which the exported files are to be written.

**SAVE-FILE = \*NEW(…)**

The exported files are to be written to a new save file. The following attributes for this save file can be defined here:

**RETENTION-PERIOD = 0 / <integer 0..16383 days>**

Physical retention period in days. During this period, neither the save file nor the save volume may be modified or deleted.

**USER-ACCESS = \*ALL-USERS**

The save file is created as a shareable file. The data can be imported under a different user ID.

**USER-ACCESS = \*OWNER-ONLY**

The save file is created as a non-shareable file. The data can be imported only under the same user ID.

**SAVE-FILE-PASSWORD = \*NONE / \*SECRET-PROMPT / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>**

The save file to be created can be assigned a password which must be entered when the file is continued or imported.

The SAVE-FILE-PASSWORD operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in an interactive dialog.
- In unguided dialog and foreground procedures, the entry \*SECRET or ^ permits concealed input of the password.

**SAVE-FILE = \*CONTINUE(...)**

The save file, which can subsequently be defined in greater detail, is continued.

Continuation is subject to the same restrictions as the CONTINUE operand of the EXPORT statement in the software product ARCHIVE (see the EXPORT statement in the "ARCHIVE" manual [2]). A save file can not be continued if the operand of the save option SAVE-SAM-STRUCTURE was modified compared to the previous run that is to be continued.

**SAVE-FILE-ID = \*NOT-SPECIFIED**

The save file to be continued is not defined by the SFID but rather by the volume on which it resides.

**SAVE-FILE-ID = \*LATEST**

Only if a directory is used:  
the most recently created save file is continued.

**SAVE-FILE-ID = <composed-name 15..15>**

The specified save file is continued. The save file ID must be specified in the following format: S.yymmdd.hhmmss

**VOLUMES = \*NOT-SPECIFIED**

*Only if a directory is used:*  
the volume is taken from the directory.

**VOLUMES = list-poss(16): <vsn 1..6>**

The most recently written volume is specified.  
When creating the save file, a separate volume can be specified for each parallel run.

**COMPRESS-FILES = \*NO / \*YES**

Determines whether or not data is compressed before being written to the output volume.

**TO-STORAGE =**

Specifies the destination to which the files are to be exported.

**TO-STORAGE = \*TAPE(...)**

The files are exported to tape. The volumes can be defined in greater detail; if two or more volumes are specified, they all must be of the same device type.

**VOLUMES = \*FROM-POOL**

Only if a directory is used:

the volumes are taken from the volume pool of the specified archive or the associated MAREN pool.

**VOLUMES = \*FROM-OPERATOR**

The volumes are to be allocated by the operator on request.

**VOLUMES = list-poss(100): <vsn 1..6>**

List of volume serial numbers, which will be requested in the specified order.

**DEVICE-TYPE = \*STD / <device>**

Device type of the requested volumes. The device type must belong to the class "TAPE". Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

The default is the value set by the S2-DEVICE-TYPE operand of the HSMS statement MODIFY-HSMS-PARAMETERS.

**LOCATION = \*ANY / <alphanum-name 1..8>**

Location used for requesting volumes. This location must be known to MAREN. If the location manager is in use, the location should be properly defined in MARENLM.

Otherwise MAREN ignores the specified value.

If MAREN is not in use, you must specify the value \*ANY for LOCATION.

**LOCATION = \*ANY**

No location is used.

**TO-STORAGE = \*PUBLIC-DISK(...)**

*This operand value is only available to the HSMS administrator.*

The save file is to be exported to a pubset.

**PUBSET-ID = <cat-id>**

Catalog ID of the pubset.

**TO-STORAGE = \*NET-STORAGE(...)**

The save file is to be exported to a Net-Storage.

**VOLUMES = list-poss(16): <vsn 1..6>**

Specifies the Net-Storage volume to which the files are to be copied. The volume specified must be accessible.

More than one Net-Storage volume can also be specified in a list (e.g. when there is more than one save task).

**OPERATION-CONTROL =**

Allows you to define parameters for the execution of the export run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The following operands which control the export run can be modified:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administrator) and a suffix in the form of a time stamp. Unless otherwise specified, the request name is formed by the short code "EXF#" and the TSN of the calling user task yyyy as follows: EXF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE.

The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the statement has been checked (asynchronous processing).

The maximum wait times for batch tasks and interactive tasks are different and are determined by preset global HSMS parameters.

Interactive tasks are permitted to carry out synchronous statement processing during tape sessions only.

**CATALOG-ID-MODE = \*YES / \*NO**

Determines whether the data is written to the save file with or without a catalog ID (corresponds to the CATID operand in ARCHIVE).

**PARALLEL-RUNS = 1 / <integer 1..16>**

Number of simultaneously active backup tasks (ARCHIVE subtasks).

For backups, a tape device must be available for each task.

Unless otherwise specified, only one save task is running.

For further information on parallel processing see the "HSMS Vol. 1" manual [1].

**WRITE-CHECKPOINTS = \*YES / \*NO**

Defines whether any checkpoints are to be written to the ARCHIVE checkpoint file during processing; these checkpoints permit a request to be restarted following an interruption (state INTERRUPTED).

**TAPE-CONTROL =**

Defines the parameters which are relevant for export to tape.

**TAPE-CONTROL = \*STD**

The default values of the operands described below apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

The operands relevant for export to tape can be modified as follows:

**BLOCKING-FACTOR = \*STD / <integer 2..15 2Kbyte> / \*MAX**

Blocking factor to be used for writing the save file to tape, specified as the number of 2-Kbyte blocks (PAM pages) written to tape in a single input/output operation. As the higher blocking factor means that the occupancy level of the volume and the tape processing performance improve, values below 15 should not be selected.

When the default value \*STD is selected, the default values of the ARCHIVE parameters apply (BLOCK-SIZE-TAPE for tapes, BLOCK-SIZE-T-C for magnetic tape cartridges).

\*MAX selects the maximum blocking factor possible in the current BS2000 version. Currently this is the value 128.

**UNLOAD-TAPE = \*NO / \*YES**

Specifies whether or not tapes are to be unloaded after processing.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “ ; ”. This corresponds to the EXCEL default setting.

**REPORT =**

Determines whether a report is to be output for this export request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the export request, including any error messages, is to be output.

**REPORT = \*FULL**

A full report is to be output, including a list of all exported files.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report for this export request is to be printed.

**OUTPUT = \*MAIL**

The report for this export request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this export request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this export request is to be prepared for printing and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

**Example**

*A nonprivileged user exports files using mainly default values, but specifies the volume; his TSN is 1234*

```
//EXPORT-FILES FILE-NAMES=*OWN, -  
// TO-STOR=*TAPE(VOLUMES=tape01,DEVICE-TYPE='TAPEU4')
```

- All files under his user ID are exported from all imported pubsets; job variables are not exported.
- The data is written to tape, using the MTC with VSN 'TAPE01'.
- The files are not deleted after export.
- The request is given the name EXF#1234.
- The retention period is 0 days.
- The request is processed asynchronously.
- Depending on the global HSMS parameter OUTPUT a summary report is printed or sent as an email attachment.

## IMPORT-FILES

### Import files and job variables

This statement is the counterpart of EXPORT-FILES. It is used for importing files and job variables from an EXPORT backup to a BS2000 system.

Files and job variables can on the one hand be transferred from exported backup volumes and renamed using the SINGLE-SVID structure. On the other hand, files and job variables can be transferred from exported backup volumes and renamed using the SEVERAL-SVID structure if the SVIDs are known and are specified as values under the SAVE-FILE-ID suboperand.

A directory created during the export run can be used but must be imported in a separate import run.

A directory which was saved to the save file with SAVE-DIRECTORY=\*YES (with BACKUP-, ARCHIVE- or EXPORT-FILES) can be restored from the relevant volume or pubset with IMPORT-FILES with FILE-NAMES=\*DIRECTORY.

IMPORT-FILES requests are entered in the HSMS global request file. In order to be able to output IMPORT-FILES jobs, users with an SM pubset as their default pubset must specify SHOW-REQUESTS ENVIRONMENT=\*SINGLE-FEATURE.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

## Format

IMPORT-FILES	Alias: <b>IMF</b>
<pre> <b>FILE-NAMES</b> = *OWN / *ALL / *NONE / *DIRECTORY / *SELECTED /                *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /                list-poss(20): &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;  *FROM-FILE(...)     <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt; *FROM-LIBRARY-ELEMENT(...)     <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;     <b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt; <b>,EXCEPT-FILE-NAMES</b> = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /                list-poss(20): &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;  *FROM-FILE(...)     <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt; *FROM-LIBRARY-ELEMENT(...)     <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;     <b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt; <b>,NEW-FILE-NAMES</b> = *SAME / *BY-RULE(...) *BY-RULE(...)     <b>NEW-CATALOG-ID</b> = *SAME / &lt;cat-id&gt;     <b>,NEW-USER-ID</b> = *SAME / &lt;name 1..8&gt;     <b>,PREFIX</b> = *NONE / &lt;name 1..8&gt;     <b>,SUFFIX</b> = *NONE / &lt;composed-name 1..8&gt; <b>,ORIGINAL-SUPPORT</b> = *ANY / *PUBLIC-DISK(...) / *PRIVATE-DISK(...) *PUBLIC-DISK(...)     <b>STORAGE-TYPE</b> = *ANY / *PUBLIC-SPACE / *NET-STORAGE(...)     *NET-STORAGE(...)       <b>VOLUMES</b> = *ALL / list-poss(150): &lt;vsn 1..6&gt;       <b>,FILE-TYPE</b> = *ANY / *BS2000 / *NODE-FILE *PRIVATE-DISK(...)     <b>VOLUMES</b> = list-poss(150): &lt;vsn 1..6&gt; </pre>	

(part 1 of 4)

```

,NEW-SUPPORT = PUBLIC-DISK(...) / PRIVATE-DISK(...)

*PUBLIC-DISK(...)
|
|  STORAGE-TYPE = STD / *PUBLIC-SPACE / *NET-STORAGE(...)
|  *NET-STORAGE(...)
|  |
|  |  VOLUME = <vsn 1..6>
|  |  ,FILE-TYPE = STD / *BS2000 / *NODE-FILE
|
|
*PRIVATE-DISK(...)
|
|  VOLUMES = list-poss(150): <vsn 1..6>
|  ,DEVICE-TYPE = STDDISK / <device>
|
,JV-NAMES = NONE / *OWN / *ALL / *SELECTED / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>

*FROM-FILE(...)
|
|  LIST-FILE-NAME = <filename 1..54 without-gen-vers>
|
*FROM-LIBRARY-ELEMENT(...)
|
|  LIBRARY = <filename 1..54 without-gen-vers>
|  ,ELEMENT = <composed-name 1..64 with-under>
|
,EXCEPT-JV-NAMES = NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>

*FROM-FILE(...)
|
|  LIST-FILE-NAME = <filename 1..54 without-gen-vers>
|
*FROM-LIBRARY-ELEMENT(...)
|
|  LIBRARY = <filename 1..54 without-gen-vers>
|  ,ELEMENT = <composed-name 1..64 with-under>
|
,NEW-JV-NAMES = SAME / *BY-RULE(...)

*BY-RULE(...)
|
|  NEW-CATALOG-ID = SAME / <cat-id>
|  ,NEW-USER-ID = SAME / <name 1..8>
|  ,PREFIX = NONE / <name 1..8>
|  ,SUFFIX = NONE / <composed-name 1..8>
|
,PASSWORDS = NONE / *SECRET-PROMPT / list-poss(63): <c-string 1..4> / <x-string 1..8> /
<integer -2147483648..2147483647>

,RELEASE-UNUSED-SPACE = YES / *NO

,FILE-CONVERSION = STD / *NO / *CONV-FORMAT

```

(part 2 of 4)

```

,REPLACE-FILES-AND-JV = *NO / *YES(...)
  *YES(...)
    |
    | PROTECTION-RESPECTED = *ALL / *PASSWORDS / *NONE
    |
    | ,REORGANIZE-SPACE = *YES / *NO
,SAVE-FILE = *BY-VOLUME(...) / *FROM-DIRECTORY(...) / *BY-VOLUME-CATALOG(...) /
  *BY-PUBLIC-DISK(...)
  *BY-VOLUME(...)
    |
    | SAVE-FILE-ID = *NOT-SPECIFIED / <composed-name 15..15>
    |
    | ,VOLUMES = list-poss(100): <vsn 1..6> / list-poss(16): *GROUPED-BY-RUN(...)
    |   *GROUPED-BY-RUN(...)
    |     |
    |     | VOLUMES = list-poss(100): <vsn 1..6>
    |     |
    |     | ,DEVICE-TYPE = *STD / <device>
    |     |
    |     | *FROM-DIRECTORY(...)
    |     |   |
    |     |   | DIRECTORY-NAME = <filename 1..54 without-gen-vers>
    |     |   |
    |     |   | ,SAVE-FILE-ID = *LATEST / <composed-name 15..15>
    |     |   |
    |     |   | ,DEVICE-TYPE = *STD / <device>
    |     |   |
    |     |   | *BY-VOLUME-CATALOG(...)
    |     |   |   |
    |     |   |   | SAVE-FILE-ID = <composed-name 15..15>
    |     |   |   |
    |     |   |   | *BY-PUBLIC-DISK(...)
    |     |   |   |   |
    |     |   |   |   | SAVE-FILE-ID = <composed-name 15..15>
    |     |   |   |   |
    |     |   |   |   | ,PUBSET-ID = <cat-id 1..4>
    |     |   |   |   |
    |     |   |   |   | ,DATE-AND-PROTECTION = *STD-ATTRIBUTES / *ORIGINAL-ATTRIBUTES

```

(part 3 of 4)

```

,OPERATION-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    REQUEST-NAME = *STD / <name 1..8>
    ,REQUEST-DESCRIPTOR = *NONE / <text 1..60>
    ,EXPRESS-REQUEST = *NO / *YES
    ,CONTROL-JV = *NONE / <filename 1..54 without-gen-vers>
    ,WAIT-FOR-COMPLETION = *NO / *YES
    ,CATALOG-ID-MODE = *YES / *NO
    ,PARALLEL-RUNS = 1 / <integer 1..16>
    ,WRITE-CHECKPOINTS = *YES / *NO
    ,OPERATOR-INTERACTION = *NOT-ALLOWED / *ALLOWED
    ,TAPE-CONTROL = *STD / *PARAMETERS(...)
      *PARAMETERS(...)
        ,UNLOAD-TAPE = *NO / *YES
      ,PERFORMANCE-ANALYSIS = *NO / *YES(...)
      *YES(...)
        SEPARATOR = ; / <c-string 1..1>
      ,REPORT = *SUMMARY / *IMPORTED-FILES / *FULL / *NONE
      ,OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...) / <filename 1..54 without-gen-vers>
      *LIBRARY-ELEMENT(...)
        LIBRARY = <filename 1..54 without-gen-vers>
        ,ELEMENT = <composed-name 1..64 with-under>

```

(part 4 of 4)

**FILE-NAMES =**

Specifies the files to be imported. Specification of this operand is mandatory. The user can further restrict the selection made here by means of the operands EXCEPT-FILE-NAMES and ORIGINAL-SUPPORT (restricted to the HSMS administrator).

A file cannot be imported unless the pubset to which it is to be imported is available and the user ID involved has a JOIN entry for this pubset. Otherwise, the user ID must be renamed via NEW-FILE-NAMES (see [page 257](#)).



You can change this behavior as follows using an optional REP:

When a user ID is missing on the available pubset, it is automatically entered in the pubset's user catalog, and the files can thus be created. A message indicates that a new user ID has been created.

**FILE-NAMES = \*OWN**

All files under the user's own ID in the save file are imported.

**FILE-NAMES = \*ALL**

All files in the save file are imported.

For nonprivileged users \*ALL has the same effect as \*OWN.

**FILE-NAMES = \*DIRECTORY**

The directory that was saved on the specified volume with SAVE-DIRECTORY=\*YES is restored under the same name. In the event of multiple backups the last directory saved is imported.

**FILE-NAMES = \*NONE**

No files are imported.

**FILE-NAMES = \*SELECTED**

The path names of the files to be imported are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-FILE-NAMES.

**FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be imported are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used. The list file can be created, for instance, by means of the HSMS statement SELECT-FILE-NAMES or the BS2000 command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are to be imported are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be imported are specified directly. A list of up to 20 names may be specified.

The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the default catalog ID of the user ID.

The files can alternatively be selected using wildcards. Note, however, that only the HSMS administrator may use wildcards for user ID specification. The wildcards are replaced in accordance with the file names listed in the save file.

The following applies to file generations: when specifying fully qualified file names, the specification of a generation number (version) is permissible. Only the specified generations will be imported.

**EXCEPT-FILE-NAMES =**

Serves to specify files that are to be excluded from import.

**EXCEPT-FILE-NAMES = \*NONE**

All files specified with the FILE-NAMES operand are to be imported.

**EXCEPT-FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be excluded from import are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. Only upper-case characters may be used. This list file must be a SAM file with variable-length records containing one path name per record. The list file can be created, for instance, by means of the BS2000 command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are not to be imported are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be excluded from import are specified directly. A list of up to 20 names may be specified.

The first character of the file names must not be a hyphen. The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the default catalog ID.

The files can alternatively be selected using wildcards. Note, however, that only the HSMS administrator may use wildcards for user ID specification because only the HSMS administrator is allowed to specify other user IDs. Wildcards are replaced using the file names contained in the directory file.

The following applies to file generations: when specifying fully qualified file names, the specification of a generation number (version) is permissible. Only the specified generations will be excluded from import.

**NEW-FILE-NAMES =**

The files can be renamed before being imported. The user must ensure that the new path name conforms to the BS2000 conventions governing names. The total length must not exceed 54 characters; this implies that the file name without user ID and catalog ID should not exceed 38 characters (to allow for its extension by the catalog ID). The new file name is formed as follows:

:<cat-id>:\$<user-id>.<prefix>.old-filename-without-cat-user.<suffix>

**NEW-FILE-NAMES = \*SAME**

The files are to be restored under their original names.

**NEW-FILE-NAMES = \*BY-RULE(...)**

The files are to be renamed using a common rule.

**NEW-CATALOG-ID = \*SAME / <cat-id>**

The files may be imported under a different catalog ID. The catalog ID must be specified without a colon. The user ID must have a JOIN entry for this catalog.

Unless otherwise specified, the files are imported under their original catalog ID.

**NEW-USER-ID = \*SAME / <name 1..8>**

The files may be imported under a different user ID. The user ID must be specified without a leading “ \$ ” character.

Unless otherwise specified, the files are imported under their original user ID.

Nonprivileged users have only one opportunity to rename the user ID: only the user's own ID can be specified for the imported files. The user's own LOGON ID must be specified in the NEW-USER-ID operand.

**PREFIX = \*NONE / <name 1..8>**

A prefix of up to 8 characters may be added to the file name and is automatically separated from the file name by a period (partial qualification). The prefix must not contain any letters that are prohibited for file names.

Unless otherwise specified, no prefix is added to the file names.

**SUFFIX = \*NONE / <composed-name 1..8>**

A suffix of up to 8 characters may be added to the file name and is automatically separated from the file name by a period (partial qualification). The suffix must not contain any letters that are prohibited for file names.

Unless otherwise specified, no suffix is added to the file names.

**ORIGINAL-SUPPORT =**

The files to be imported can be selected according to the type of volume (public disk, private disk or tape) on which they resided before they were exported.

**ORIGINAL-SUPPORT = \*ANY**

The type of volume from which the files originate is not a selection criterion.

**ORIGINAL-SUPPORT = \*PUBLIC-DISK(...)**

Only files originating from from the disks of a pubset or of an assigned Net-Storage volume are imported.

**STORAGE-TYPE =**

Selects the storage type for the public volume from which the files originate.

**STORAGE-TYPE = \*ANY**

The files are imported irrespective of the storage type. They can come from the disks of a pubset or a Net-Storage volume.

**STORAGE-TYPE = \*PUBLIC-SPACE**

Only files which come from the disks of a pubset are imported. Files from a Net-Storage volume are ignored.

**STORAGE-TYPE = \*NET-STORAGE(...)**

Only files which come from a Net-Storage are imported.

**VOLUME = \*ALL / list-poss(150): <vsn 1..6>**

Specifies the VSN of one or more Net-Storage volumes from which the files are imported. \*ALL selects all Net-Storage volumes.

**FILE-TYPE =**

Selects the file type of Net-Storage files that will be imported.

**FILE-TYPE = \*ANY**

The Net-Storage files are selected irrespective of the file type.

**FILE-TYPE = \*BS2000**

Only Net-Storage files of the type BS2000 are selected.

**FILE-TYPE = \*NODE-FILE**

Only Net-Storage files of the type node file are selected.

**ORIGINAL-SUPPORT = \*PRIVATE-DISK(...)**

Only files originating from private disks can be imported.

**VOLUMES = list-poss(150): <vsn 1..6>**

Volume serial numbers of the private disks.

**NEW-SUPPORT =**

Defines the volumes to which the files to be imported are to be written.

**NEW-SUPPORT = \*PUBLIC-DISK(...)**

The files are written to the disks of the pubset concerned or to assigned Net-Storage volumes.

**STORAGE-TYPE =**

Selects the storage type for public volumes.

**STORAGE-TYPE = \*STD**

The files originally stored on public disk are restored to the original storage medium, files originally stored on private disk are restored on public volumes.

**STORAGE-TYPE = \*PUBLIC-SPACE**

The files are only written to disks of the pubset concerned.

**STORAGE-TYPE = \*NET-STORAGE(...)**

The files are only written to the Net-Storage which is assigned to the pubset concerned.

**VOLUME = <vsn 1..6>**

Specifies the VSN of the Net-Storage volume to which the files are written.

**FILE-TYPE =**

Specifies the type in which files will be restored to Net-Storage.

**FILE-TYPE = \*STD**

The files are restored with their original type.

**FILE-TYPE = \*BS2000**

The files are restored with the type BS2000.

**FILE-TYPE = \*NODE-FILE**

The files are restored with the type node file.

**NEW-SUPPORT = \*PRIVATE-DISK(...)**

The files are to be written to private disks. All disks must be of the same device type.

**VOLUMES = list-poss(150): <vsn 1..6>**

Volume serial numbers of the private disks.

**DEVICE-TYPE = STDDISK / <device>**

Device type of the private disks. The default setting STDDISK selects the default device type. Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

**JV-NAMES =**

Specifies the job variables to be imported.

A job variable cannot be imported unless the pubset to which it is to be imported is available and the user ID involved has a JOIN entry for this pubset. If this is not the case, the user ID must be renamed (see the NEW-JV-NAMES operand).

The nonprivileged caller can restore job variables on foreign IDs provided write access rights and co-ownership are given.

**JV-NAMES = \*NONE**

No job variables are to be imported.

**JV-NAMES = \*OWN**

All job variables of the user's own ID in the save file to be imported.

**JV-NAMES = \*ALL**

All job variables in the save file are to be imported.

However, unless imported by the HSMS administrator, job variables under other user IDs must be renamed to the user's own ID (see the NEW-JV-NAMES operand).

**JV-NAMES = \*SELECTED**

The path names of the job variables to be imported are taken from a list that is created in the same HSMS run with the HSMS statement SELECT-JV-NAMES.

**JV-NAMES = \*FROM-FILE(...)**

The path names of the job variables to be restored are taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**JV-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are to be imported are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**JV-NAMES = list-poss(20): <filename 1..80 without-gen-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables to be imported are specified directly. A list of up to 20 names may be specified.

The job variables can alternatively be selected using wildcards. Note, however, that only the HSMS administrator may use wildcards for user ID specification. The wildcards are replaced in accordance with the job variable names listed in the save file.

**EXCEPT-JV-NAMES =**

Serves to specify job variables that are to be excluded from import.

**EXCEPT-JV-NAMES = \*NONE**

All job variable specified in the JV-NAMES operand are imported.

**EXCEPT-JV-NAMES = \*FROM-FILE(...)**

The path names of the job variables to be excluded from import are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-JV-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are not to be imported are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-JV-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables to be excluded from import are specified directly. A list of up to 20 names may be specified. The first character of the job variable names must not be a hyphen.

The job variables can alternatively be selected using wildcards. Wildcards are replaced using the job variable names contained in the save file.

**NEW-JV-NAMES = \*SAME / \*BY-RULE(...)**

If the NEW-USER-ID operand and the LOGON use ID are the same, all users can specify a user ID which differs from that of the save run.

The job variables can be renamed with NEW-JV-NAMES=\*BY-RULE(...) before being imported. The suboperands and options available are the same as for files (see NEW-FILE-NAMES=\*BY-RULE(...) on [page 257](#)).

**PASSWORDS = \*NONE / \*SECRET-PROMPT / list-poss(63): <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>**

If files or job variables to be imported are protected by a read password, or if the save file was assigned a password, the passwords must be specified here. The HSMS administrator does not need to specify a password.

If a directory file is used and it is protected by passwords, all users must specify the read password and the write password.

The PASSWORDS operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in an interactive dialog.
- In unguided dialog and foreground procedures, the entry \*SECRET or ^ permits concealed input of the password.

**RELEASE-UNUSED-SPACE = \*YES / \*NO**

Determines whether or not unused storage space (difference between the last-page pointer and the file size) is to be released after files are imported.

**FILE-CONVERSION =**

Determines whether files whose PAM key format is different from that of the output volume are to be converted when imported. This operand is ignored for job variables.

If \*STD or \*CONV-FORMAT is specified, the PAMINT routine in \$TSOS.SYSLNK.PAMINT must be used.

If a converted file to be imported already exists, it is always reorganized and RELEASE-UNUSED-SPACE is ignored.

**FILE-CONVERSION = \*STD**

During an import run to an NK disk, files with a PAM key are converted by PAMINT according to the following rules:

- K-ISAM files to NK-ISAM files  
(BLOCK-CONTROL-INFO=\*WITHIN-DATA-BLOCK)
- K-SAM files to NK-SAM files  
(BLOCK-CONTROL-INFO=\*WITHIN-DATA-BLOCK)
- K-UPAM files to NK-UPAM files  
(BLOCK-CONTROL-INFO=\*NO)

PAM files whose structure is known (load modules, libraries) are converted accordingly; if the structure of PAM files is unknown, the PAM key information is lost. A message is displayed if the PAM key contained information.

**FILE-CONVERSION = \*NO**

Files with a PAM key are not converted when imported to an NK disk, which means they are not imported.

**FILE-CONVERSION = \*CONV-FORMAT**

During an import run to an NK disk, files with a PAM key are converted by PAMINT to "CONV format". The imported file contains all PAM keys at the end of the file in separate blocks.

**REPLACE-FILES-AND-JV = \*NO / \*YES(...)**

Determines whether already existing files and job variables are to be overwritten when the file is imported.

**REPLACE-FILES-AND-JV = \*YES(...)**

Existing files and job variables are to be overwritten. In addition, the user can specify if and to what extent the file protection attributes, if any, are to be respected:

**PROTECTION-RESPECTED = \*ALL**

Restricts overwriting to files and job variables that are not protected by a password, that permit write access, and whose retention period has expired.

**PROTECTION-RESPECTED = \*PASSWORDS**

Restricts overwriting to files and job variables that are not protected by a password.

**PROTECTION-RESPECTED = \*NONE**

*This operand value is only available to the HSMS administrator.*

All files and job variables are to be overwritten, irrespective of their protection attributes.

**REORGANIZE-SPACE = \*YES / \*NO**

Determines whether the existing files are to be erased before the import operation or whether the file is to continue to occupy the same extents on the disk. The operand is evaluated with existing files only.

**SAVE-FILE =**

Defines the save file from which the files to be imported are to be retrieved.

Although the operand is called "SAVE-FILE", when working in a SEVERAL-SVID environment "SAVE-FILE" actually refers to a save *version*.

**SAVE-FILE = \*BY-VOLUME(...)**

The save file or save version from which the files are to be imported is defined by the volume on which they reside.

**SAVE-FILE-ID = \*NOT-SPECIFIED**

The save files on the specified volumes are selected irrespective of their save file ID.

**SAVE-FILE-ID = <composed-name 15..15>**

The files are imported either from the specified save file using the SINGLE-SVID structure or from the specified save version in a SEVERAL-SVID environment.

The save file ID must be specified in the following format: S.yyymmdd.hhmmss

**VOLUMES = list-poss(100): <vsn 1..6>**

Volume serial number of the volumes containing the save files with the files to be imported.

If a directory is to be imported with FILE-NAME=\*DIRECTORY, the VSN of the volume on which the directory was saved must be specified (this is noted as the save tape in the report on the save or archive run).

**VOLUMES = list-poss(16): \*GROUPED-BY-RUN(...)**

Only for importing in more than one parallel run:

a separate \*GROUPED-BY-RUN specification must be made for each parallel run.

Up to 16 entries can be made.

**VOLUMES = list-poss(100): <vsn 1..6>**

Volume serial number of the volumes in the individual parallel runs.

**DEVICE-TYPE = \*STD / <device>**

Device type of the backup volumes. Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

The default value is the value defined with the S2-DEVICE-TYPE operand of the MODIFY-HSMS-PARAMETERS statement.

**SAVE-FILE = \*FROM-DIRECTORY(...)**

The save file from which the files are to be imported is selected from a directory.

**DIRECTORY-NAME = <filename 1..54 without-gen-vers>**

Directory written to the volume during the export run and previously imported in a separate run. The nonprivileged caller must be owner or co-owner of this directory.

**SAVE-FILE-ID = \*LATEST**

The data is imported from the last save file in the specified directory.

**SAVE-FILE-ID = <composed-name 15..15>**

The data is either imported from the specified save file with SINGLE-SVID structure or from the specified save version in a SEVERAL-SVID environment. The save file ID must be specified in the following format: S.yyymmdd.hhmmss

**DEVICE-TYPE = \*STD / <device>**

Device type of the volume on which the save version resides. This must be specified only if the save version was created in an ARCHIVE version < V2.6B. In higher ARCHIVE versions, the device type used for backup is indicated in the directory. Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

The default value is the value defined with the S2-DEVICE-TYPE operand of the MODIFY-HSMS-PARAMETERS statement.

**SAVE-FILE = \*BY-VOLUME-CATALOG(...)**

*MAREN as of V12.0 is required to use this operand.*

The associated volumes for a save file which is named exactly are ascertained by MAREN.

**SAVE-FILE-ID = <composed-name 15..15>**

The files are only imported from the save file specified. The save file ID must be specified as follows: S.yymmdd.hhmmss

**SAVE-FILE = \*BY-PUBLIC-DISK(...)**

Restores the files/job variables from a save file. The save file is defined by the pubset on which it resides.

**SAVE-FILE-ID = <composed-name 15..15>**

The files/job variables are imported from the specified save file. The save file ID must be specified in the following format: S.yymmdd.hhmmss

**PUBSET-ID = <cat-id 1..4>**

Specifies the catid of the pubset where the save file is located.

**DATE-AND-PROTECTION = \*STD-ATTRIBUTES / \*ORIGINAL-ATTRIBUTES**

Specifies how the date and protection attributes of files and JVs are set.

**DATE-AND-PROTECTION = \*STD-ATTRIBUTES**

The following default values are set for date and protection attributes:

Date/Protection attribute	Existing file/JV is overwritten	
	Yes	No
Password protection	As for saved file/JV	As for saved file/JV
USER-ACCESS	As for original on disk	*OWNER-ONLY
ACCESS	As for original on disk	*WRITE
BASIC-ACL, GUARDS	As for original on disk	*NONE
CREATION-DATE, EXPIRATION-DATE, LAST-ACCESS-DATE	Current date	Current date

**DATE-AND-PROTECTION = \*ORIGINAL-ATTRIBUTES**

The date and protection attributes and taken from the saved catalog entries.

**OPERATION-CONTROL =**

Enables the user to define a number of parameters which are relevant for the execution of the import run.

**OPERATION-CONTROL = \*STD**

The default values described for the operand apply to the following parameters.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The following parameters controlling the import run can be modified:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administration) and a suffix in the form of a time stamp. Unless otherwise specified, the request name is formed by the short code "IMF#" and the TSN of the calling user task yyyy as follows: IMF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE.

The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing). The maximum wait times for batch tasks and interactive tasks are different and are determined by global HSMS parameters.

Interactive tasks are permitted to carry out synchronous HSMS statement processing during tape sessions only.

**CATALOG-ID-MODE = \*YES / \*NO**

Determines whether or not the data in the save file has a catalog ID (corresponds to the CATID operand in ARCHIVE). Operand specification is the same as in the export run.

**PARALLEL-RUNS = 1 / <integer 1..16>**

Number of simultaneously active backup tasks (ARCHIVE subtasks).

For backups, a tape device must be available for each task.

Unless otherwise specified, only one save task is running.

For further information on parallel processing see the “HSMS Vol. 1” manual [1].

**WRITE-CHECKPOINTS = \*YES / \*NO**

Defines whether any checkpoints are to be written to the ARCHIVE checkpoint file during processing; these checkpoints permit a request to be restarted following an interrupt (INTERRUPTED state).

**OPERATOR-INTERACTION = \*NOT-ALLOWED / \*ALLOWED**

Determines whether messages requiring an operator response are to be output at the console (\*ALLOWED) or not (\*NOT-ALLOWED). If \*NOT-ALLOWED applies, HSMS performs default handling (see the description of the PARAM statement in the “ARCHIVE” manual [2]).

**TAPE-CONTROL =**

Defines the parameters which are relevant for reading files from tape.

**TAPE-CONTROL = \*STD**

The default values of the operands described below apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

You can modify the following operand for reading tapes:

**UNLOAD-TAPE = \*NO / \*YES**

Specifies whether or not tapes are to be unloaded after processing.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “;”. This corresponds to the EXCEL default setting.

**REPORT =**

Defines whether a report is to be output for this import request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the import request, including any error messages, is to be output.

**REPORT = \*IMPORTED-FILES**

A full report is to be output, including a list of all files actually restored.

**REPORT = \*FULL**

A full report is to be output, including a list of all files which should have been imported but were not due to an error.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report for this import request is to be printed.

**OUTPUT = \*MAIL**

The report for this import request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this import request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this import request is to be prepared for printing and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

**Example**

*A nonprivileged user imports files using mainly default values and determines the save file by way of the volume; his TSN is 2345*

```
//IMPORT-FILES FILE-NAMES=*OWN, -  
// SAVE-FILE=*BY-VOLUME(VOLUMES=tape01,DEVICE-TYPE='TAPE-U4')
```

- All files under his user ID and located on the tape are imported. The files are not renamed.
- The files are written to public volumes.
- The data is imported from the save file residing on the magnetic tape cartridge with VSN 'TAPE01' .
- The request is given the name IMF#2345.
- The request is processed asynchronously.
- Depending on the global HSMS parameter OUTPUT a summary report is printed or sent as an email attachment.

## LIST-VOLUMES

### List volumes

This statement is used to list in a report the contents of volumes which were previously created with HSMS.

If node files are saved or archived on the volumes, the directory of a node archive can be updated or restored with the aid of the listed information.

All users – whether privileged or not – can only list the contents of volumes of which they are the owners.

Nonprivileged users receive only information about data of which they are the owners or co-owners.

The statement has the same format for HSMS administrators and nonprivileged users.

### Format

LIST-VOLUMES	Alias: LIV
<pre> <b>INPUT-VOLUME</b> = list-poss(100): &lt;vsn 1..6&gt; <b>,DEVICE-TYPE</b> = <u>*STD</u> / &lt;device&gt; <b>,OUTPUT-DIRECTORY</b> = <u>*NONE</u> / &lt;filename 1..54 without-gen-vers&gt; <b>,OPERATION-CONTROL</b> = <u>*STD</u> / <b>*PARAMETERS(...)</b>   <b>*PARAMETERS(...)</b>             <b>OUTPUT</b> = <u>*STD</u> / <b>*PRINTER</b> / <b>*NONE</b> / <b>*MAIL</b> / <b>*LIBRARY-ELEMENT(...)</b> /         &lt;filename 1..54 without-gen-vers&gt;       <b>*LIBRARY-ELEMENT(...)</b>                     <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;           <b>,ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;                     <b>,TAPE-CONTROL</b> = <u>*STD</u> / <b>*PARAMETERS(...)</b>           <b>*PARAMETERS(...)</b>                             <b>,UNLOAD-TAPE</b> = <u>*STD</u> / <b>*YES</b> / <b>*NO</b>           </pre>	

### **INPUT-VOLUME = list-poss(100): <vsn 1..6>**

List of volumes to be read. All volumes must have the same device type, although they do not have to belong to the same save file. You do not need to specify the volumes in the order in which they were written.

**DEVICE-TYPE = \*STD / <device>**

Device type of the input volumes; it must be from the "TAPE" class. Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

\*STD corresponds to the value which is set in the global HSMS parameters for S2-DEVICE-TYPE (see MODIFY-HSMS-PARAMETERS).

**OUTPUT-DIRECTORY = \*NONE / <filename 1..54 without-gen-vers>**

*For volumes that contain saved or archived node files only:*

Name of the directory file to be updated or restored. If the directory file does not exist, it will be created.

If you specify the name of a repository, only the volumes produced by the HSMS statement BACKUP-NODE-FILES or ARCHIVE-NODE-FILES will be considered for updating the repository.

No check is made as to whether the volumes used for the restore belong to the specified directory file.

If the software product MAREN is in use, MAREN checks whether or not a volume only belongs to one directory file: The volume must be reserved for the caller of the LIST-VOLUMES statement; it must not be assigned to a directory file in the MAREN catalog. (If the volume is assigned to a directory file in the MAREN catalog, the corresponding archive must not contain the archive in its pool.)

**OPERATION-CONTROL =**

Allows you to define parameters for the execution of this run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

You can modify the following operands that control the run:

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report is to be printed.

**OUTPUT = \*NONE**

No report is output.

**OUTPUT = \*MAIL**

The report is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this run is to be prepared for printing and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

**TAPE-CONTROL =**

The parameters relevant for saving to tape can be defined as follows.

**TAPE-CONTROL = \*STD**

The relevant preset values which have been made for tape processing apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

The following operand relevant for saving to tape can be modified:

**UNLOAD-TAPE = \*STD / \*YES / \*NO**

Specifies whether or not tapes are to be unloaded after processing.

The preset value which has been made for tape processing applies by default.

## MIGRATE-FILES

### Migrate files

This statement is used for migrating files to a default system migration archive. The archive can be located in an SF or an SM pubset environment.

The HSMS administrator can also use the statement for reorganizing migration archives on storage level S1 or S2.

A migration archive cannot and need not be specified for migration from S0 (see the note at the end of the operand description for this statement).

The user can select the files to be migrated using the file size and the time that has passed since they were last accessed as selection criteria.

Files which are stored on pubsets which are imported from different computers should not be migrated if the other remote host is unable to access tape devices of the S2 processing level.

Files which reside on Net-Storage and file generation groups cannot be migrated.

The files can be migrated from S0 to either of the storage levels S1 or S2. The HSMS administrator can prohibit all migration by other users or restrict migration to S2.

The option of migrating files from S1 to S2 is restricted to the HSMS administrator.

When a file which has not been modified since the last migration is to be migrated from S0, the old backup on S1 or S2 - if it still exists - is used again for the new migration. This quick and economical form of migration is referred to as "quick migration" or "remigration".

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

## Format

MIGRATE-FILES	Alias: MGF
<b>ENVIRONMENT</b> = <b>*STD</b> / <b>*SINGLE-FEATURE</b> / <b>*SYSTEM-MANAGED(...)</b> *SYSTEM-MANAGED(...)   <b>CATALOG-ID</b> = <cat-id>	
<b>,MANAGEMENT-CLASS</b> = <b>*NONE</b> / <b>*ANY</b> / <alphanum-name 1..8>	
<b>,FROM-STORAGE</b> = <b>*S0-STORAGE-LEVEL(...)</b> / <b>*S1-STORAGE-LEVEL(...)</b> / <b>*S2-STORAGE-LEVEL(...)</b> <b>*S0-STORAGE-LEVEL(...)</b>   <b>FILE-NAMES</b> = <b>*OWN</b> / <b>*ALL</b> / <b>*SELECTED</b> / <b>*FROM-FILE(...)</b> / <b>*FROM-LIBRARY-ELEMENT(...)</b> / list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>   <b>*FROM-FILE(...)</b>   <b>LIST-FILE-NAME</b> = <filename 1..54 without-gen-vers>   <b>*FROM-LIBRARY-ELEMENT(...)</b>   <b>LIBRARY</b> = <filename 1..54 without-gen-vers>   <b>,ELEMENT</b> = <composed-name 1..64 with-under>	
<b>,EXCEPT-FILE-NAMES</b> = <b>*NONE</b> / <b>*FROM-FILE(...)</b> / <b>*FROM-LIBRARY-ELEMENT(...)</b> / list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>   <b>*FROM-FILE(...)</b>   <b>LIST-FILE-NAME</b> = <filename 1..54 without-gen-vers>   <b>*FROM-LIBRARY-ELEMENT(...)</b>   <b>LIBRARY</b> = <filename 1..54 without-gen-vers>   <b>,ELEMENT</b> = <composed-name 1..64 with-under>	
<b>,UNUSED-DAYS</b> = <b>*STD</b> / <integer 0..9999 days>	
<b>,MINIMUM-SIZE</b> = <b>*STD</b> / <b>*NONE</b> / <integer 1..2147483647 2Kbyte>	
<b>,MAXIMUM-SIZE</b> = <b>*STD</b> / <b>*NONE</b> / <integer 1..2147483647 2Kbyte>	
<b>,RELEASE-PAGES</b> = <b>*MAXIMUM</b> / <integer 1..2147483647 2Kbyte>	
<b>,FILE-INHIBIT</b> = <b>*STD</b> / <b>*RESPECTED</b> / <b>*IGNORED</b>	
<b>,MINIMUM-EXTENTS</b> = <b>*STD</b> / <integer 0..99999>	
<b>,VOLUME-SET-ID</b> = <b>*ANY</b> / <cat-id>	
<b>,VOLUME-SET-ATTRIBUTE</b> = <b>*ANY</b> / <b>*NOT-ON-BEST</b>	
<b>,MIGRATION-INFO</b> = <b>*ANY</b> / <b>*REMIGRATION</b>	
<b>,COMPRESS-FILES</b> = <b>*STD</b> / <b>*YES</b> / <b>*NO</b>	
<b>,TO-STORAGE</b> = <b>*STD</b> / <b>*S2-STORAGE-LEVEL</b> / <b>*S1-STORAGE-LEVEL</b>	
<b>,DIALOG-FILE-SELECT</b> = <b>*NO</b> / <b>*YES</b>	

(part 1 of 3)

```

*S1-STORAGE-LEVEL(...)
  S1-PUBSET-ID = <cat-id> / *FROM-SYSTEM-MANAGED
  ,MINIMUM-DAYS-ON-S1 = *STD / <integer 0..9999 days>
  ,MAXIMUM-DAYS-ON-S1 = *STD / <integer 0..9999 days>
  ,MINIMUM-SIZE = *STD / *NONE / <integer 1..2147483647 2Kbyte>
  ,UNUSED-SPACE = *ANY / <integer 1..100>
  ,RELEASE-PAGES = *MAXIMUM / <integer 1..2147483647 2Kbyte>
  ,TO-STORAGE = *STD / *S2-STORAGE-LEVEL / *S1-STORAGE-LEVEL
  ,ARCHIVE-NAME = *SYSMIGRATE / <filename 1..22 without-cat-gen-vers>

*S2-STORAGE-LEVEL(...)
  SAVE-FILE-ID = *ALL / *BY-ATTRIBUTES(...) / <composed-name 15..15>
  *BY-ATTRIBUTES(...)
    CREATED-BEFORE = *LATEST-DATE / <date with-compl>(…) /
      <integer -99999..0 days>(…)
      <date with-compl>(…)
        TIME = 23:59:59 / <time>
      <integer -99999..0 days>(…)
        TIME = 23:59:59 / <time>
  ,UNUSED-SPACE = *ANY / <integer 1..100>
  ,ARCHIVE-NAME = *SYSMIGRATE / <filename 1..22 without-cat-gen-vers>

,OPERATION-CONTROL = *STD / *PARAMETERS(...)

*PARAMETERS(...)
  REQUEST-NAME = *STD / <name 1..8>
  ,REQUEST-DESCRIPTOR = *NONE / <text 1..60>
  ,EXPRESS-REQUEST = *NO / *YES
  ,CONTROL-JV = *NONE / <filename 1..54 without-gen-vers>
  ,WAIT-FOR-COMPLETION = *NO / *YES
  ,PERFORMANCE-ANALYSIS = *NO / *YES(...)
    *YES(...)
      SEPARATOR = ; / <c-string 1..1>
  ,REPORT = *SUMMARY / *FULL / *NONE

```

(part 2 of 3)

```

,OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...) / <filename 1..54 without-gen-vers>
      *LIBRARY-ELEMENT(...)
      |
      | LIBRARY = <filename 1..54 without-gen-vers>
      |
      | ,ELEMENT = <composed-name 1..64 with-under>

```

(part 3 of 3)

**ENVIRONMENT =**

Determines the HSMS environment to which the statement applies.

**ENVIRONMENT = \*STD**

*Meaning for privileged users:* \*STD is set to the value \*SINGLE-FEATURE.

*Meaning for nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*SINGLE-FEATURE**

The HSMS statement only relates to the SF environment. The request is stored in the central request file.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The HSMS statement only relates to the specified SM pubset environment. The request is stored in the request file of the SM pubset.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**MANAGEMENT-CLASS =**

*This operand is only available to the HSMS administrator.*

The objects to be processed are selected according to their assigned management class. Please note the following:

- With FROM-STORAGE=\*S2-STORAGE-LEVEL the MANAGEMENT-CLASS operand is ignored (corresponds to \*ANY).
- With FROM-STORAGE=\*S0-STORAGE-LEVEL the objects assigned to a management class are the files of an SM pubset.
- With FROM-STORAGE=\*S1-STORAGE-LEVEL the objects assigned to a management class are the save files on S1 generated with it.

**MANAGEMENT-CLASS = \*ANY**

The HSMS statement is processed irrespective of whether the objects are assigned to a management class or not.

**MANAGEMENT-CLASS = \*NONE**

The HSMS statement is processed with all the specified objects to which no management class is assigned.

**MANAGEMENT-CLASS = <alphanum-name 1..8>**

The HSMS statement is processed with all the specified objects to which the specified management class is assigned.

**FROM-STORAGE =**

Serves to specify the storage level from which the files are to be migrated. Nonprivileged users can migrate from S0 only.

**FROM-STORAGE = \*S0-STORAGE-LEVEL(...)**

The files are to be migrated from storage level S0. The files must be specified in more detail.

**FILE-NAMES =**

Serves to specify the files to be migrated. Specification of this operand is mandatory. The user can further restrict the selection made here by means of the operands EXCEPT-FILE-NAMES, UNUSED-DAYS, MINIMUM-SIZE, MAXIMUM-SIZE, RELEASE-PAGES and DIALOG-FILE-SELECT.

The specified files must be cataloged on an S0 pubset that has been assigned a migration archive.

If files from more than one pubset are to be migrated, then the same default system migration archive must be assigned to all pubsets. Otherwise, the HSMS statement will be rejected. To prevent this you should only specify files from *one* pubset for each migration request. In addition, migration must be permitted for each of the pubsets affected by the migration request. The HSMS statement will be rejected if this condition is not fulfilled. (This does not apply to the HSMS administrator.)

All nonprivileged users can migrate files belonging to other user IDs if they are co-owners of these files.

Files on Net-Storage and file generation groups cannot be migrated.

Further information on files exempted from migration can be found in the "HSMS Vol. 1" manual [1].

**FILE-NAMES = \*OWN**

All files of the user's own ID residing on any imported pubset (except for shared SF pubsets for which the home computer is the slave) are to be migrated.

**FILE-NAMES = \*ALL**

All files residing on all imported pubsets (except for shared SF pubsets for which the home computer is the slave) are to be migrated.

**FILE-NAMES = \*SELECTED**

The path names of the files to be migrated are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-FILE-NAMES.

**FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be migrated are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. The list file can be created, for instance, by means of the HSMS statement SELECT-FILE-NAMES or the BS2000 command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are to be migrated are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**FILE-NAMES = list-poss(20): <filename 1..80 without-gen-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be migrated are specified directly. A list of up to 20 names may be specified.

The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and with the catalog ID which is either taken from the specified environment or from the default catalog ID of the user ID.

You can also use wildcard syntax to select the files.

When migrating large numbers of files, the recurring output of warnings is not always desired. Such output is therefore suppressed if a *privileged user* employs wildcards in the user/catalog ID.

The output of warnings is not suppressed, however, if:

- wildcards are given in file names
- the catalog ID is omitted.

Warnings are never suppressed for *nonprivileged users*.

In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

**EXCEPT-FILE-NAMES =**

Serves to specify files that are to be excluded from migration.

**EXCEPT-FILE-NAMES = \*NONE**

All files specified with the FILE-NAMES operand are to be migrated.

**EXCEPT-FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be excluded from migration are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. The list file can be created, for instance, by means of the BS2000 command SHOW-FILE-ATTRIBUTES.

File names must be in uppercase characters only.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files to be excluded from migration are taken from a PLAM library element (type S). The library element contains one path name per record. Only uppercase letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be excluded from migration are specified directly. A list of up to 20 names may be specified.

The first character of the file names must not be a hyphen. The file names may be specified as fully or partially qualified names, with or without a catalog or user ID. If required, the file name is extended by the user ID of the request and with the catalog ID which is either taken from the specified environment or from the default catalog ID of the user ID.

You can also use wildcard syntax to select the files.

**UNUSED-DAYS =**

The files to be migrated can be selected using as the selection criterion the time that has elapsed since they were last accessed.

**UNUSED-DAYS = \*STD**

*Meaning for HSMS administrators:*

If the statement is used with a management class, \*STD means that the operand value is taken from the corresponding attribute of the management class.

*Meaning for HSMS administrators and nonprivileged users:*

If no management class is used, the value \*STD is replaced by 0.

**UNUSED-DAYS = 0**

*Meaning for nonprivileged users:*

The files are migrated irrespective of the number of days elapsed since they were last accessed.

**UNUSED-DAYS = <integer 0..9999 days>**

Only files that have not been accessed at least for the specified number of days are migrated.

**MINIMUM-SIZE =**

Serves to select the files to be migrated using a minimum file size, specified in PAM pages, as the selection criterion.

**MINIMUM-SIZE = \*STD**

*Meaning for HSMS administrators:*

If the statement is used with a management class, \*STD means that the operand value is taken from the corresponding attribute of the management class.

*Meaning for HSMS administrators and nonprivileged users:*

If no management class is used, the value \*STD is replaced by 0.

**MINIMUM-SIZE = \*NONE**

*Meaning for nonprivileged users:*

The files are migrated irrespective of the minimum file size.

**MINIMUM-SIZE = <integer 1..2147483647 2Kbyte>**

Only files of the minimum specified size are migrated.

**MAXIMUM-SIZE =**

The files to be migrated can be selected using a maximum file size, specified in PAM pages, as the selection criterion.

**MAXIMUM-SIZE = \*STD**

*Meaning for HSMS administrators:*

If the statement is used with a management class, \*STD means that the operand value is taken from the corresponding attribute of the management class.

*Meaning for HSMS administrators and nonprivileged users:*

If no management class is used, the value \*STD is replaced by 0.

**MAXIMUM-SIZE = \*NONE**

*Meaning for nonprivileged users:*

The files are migrated irrespective of the maximum file size.

**MAXIMUM-SIZE = <integer 1..2147483647 2Kbyte>**

Only files of the maximum specified size are migrated.

**RELEASE-PAGES = \*MAXIMUM**

The number of files selected for migration by FILE-NAMES and other operands is unrestricted.

**RELEASE-PAGES = <integer 1..2147483647 2Kbyte>**

Files are only migrated until such time as the specified number of 2 KB blocks has been released as a result of this migration. After this, files are migrated in ascending order according to the LAST ACCESS DATE, or in other words, beginning with the files that have not been accessed for the longest length of time.

**FILE-INHIBIT =**

*This operand is only available to the HSMS administrator.*

Defines whether the migration inhibits that are set by the user are to be respected. The user can declare migration inhibits with the BS2000 commands CREATE-FILE and MODIFY-FILE-ATTRIBUTES.

**FILE-INHIBIT = \*STD**

The value is taken from the parameters of the environment to which the statement applies (from the FILE-INHIBIT parameter der HSMS parameters in the SF environment and the associated SM parameters in the SM environment).

**FILE-INHIBIT = \*RESPECTED**

The migration inhibits set by the user are respected. The relevant files are not migrated.

**FILE-INHIBIT = \*IGNORED**

The migration inhibits set by the user are ignored. The relevant files are migrated.

**MINIMUM-EXTENTS = \*STD / <integer 0..99999>**

*This operand is only available to the HSMS administrator.*

Specifies the minimum number of extents which a file must have in order to be migrated. If the statement is used with a management class, \*STD means that the operand value is taken from the corresponding attribute of the management class.

If no management class is used, the value \*STD is replaced by 0.

**VOLUME-SET-ID = \*ANY / <cat-id>**

When working in an SM subset environment, a user who has file allocation permission (see user attributes) can specify the catalog ID of a volume set. All the files of this volume sets are migrated.

**VOLUME-SET-ATTRIBUTE = \*ANY / \*NOT-ON-BEST**

When working in an SM subset environment, only files that are not located on the volume set that best matches their attributes can be selected.

**MIGRATION-INFO = \*ANY / \*REMIGRATION**

Determines whether the set of files is to be restricted to files for which quick migration is possible (migration does not require storage on S1 or S2).

**MIGRATION-INFO = \*ANY**

The set of files is not restricted. Files are as far as possible migrated using quick migration, otherwise normal migration takes place with the files being stored on S1 or S2 again.

**MIGRATION-INFO = \*REMIGRATION**

Only those files which have not been modified since their last recall are migrated, i.e. the backup from the last migration can be used. This migration takes place as a quick migration without tape processing. It is executed immediately and not included in a collector request.

**COMPRESS-FILES = \*STD / \*YES / \*NO**

Determines whether the data is to be compressed before being written to the output volume.

Unless otherwise specified, the default values in the archive definition apply.

**TO-STORAGE = \*STD**

*Meaning for HSMS administrators:*

If the statement is used with a management class, \*STD means that the operand value is taken from the corresponding attribute of the management class.

*Meaning for HSMS administrators and nonprivileged users:*

If no management class is used, the value \*STD is replaced by \*S2-STORAGE-LEVEL.

**TO-STORAGE = \*S2-STORAGE-LEVEL**

The files are to be migrated to storage level S2.

**TO-STORAGE = \*S1-STORAGE-LEVEL**

The files are to be migrated to storage level S1. An S1 pubset must be assigned beforehand (see the FILE-NAMES operand).

When migrating to storage level S1, at least 10% of the storage space of the S1 pubset must be free. This means for S1-SM-pubsets 10% of the total storage space of all its volume sets (excluding control volume set and HSMS-CONTROLLED volume sets) and, if in the SM environment all HSMS-CONTROLLED volume sets are going to be used as S1 level, 10% of the total storage space of all these volume sets.

**DIALOG-FILE-SELECT =**

Defines whether the user wishes to conduct a dialog in order to select individual files from the set of files selected for migration by means of FILE-NAMES and other operands. Only files which can be migrated from S0 will be available for selection during the dialog.

The operand is evaluated only in interactive mode; for batch tasks it is ignored.

**DIALOG-FILE-SELECT = \*NO**

The specified set of files is not to be further reduced.

**DIALOG-FILE-SELECT = \*YES**

The specified set of files is to be displayed in a screen mask. The user can then mark individual files from the set on display, thus selecting them for or excluding them from migration.

Only files that can be migrated from S0 are output for dialog file selection.

Details on the content of the screen mask are provided in the section [“Dialog selection when migrating from processing level S0” on page 292.](#)

**FROM-STORAGE = \*S1-STORAGE-LEVEL(...)**

*This operand is only available to the HSMS administrator.*

The files are to be migrated from storage level S1 to S1 or S2. This is done by copying the save files containing only valid files. The original save files are automatically deleted irrespective of their retention period.

**S1-PUBSET-ID = <cat-id>**

ID of the S1 pubset from which the files are to be migrated. A catalog ID may only be specified in an SF pubset environment.

**S1-PUBSET-ID = \*FROM-SYSTEM-MANAGED**

This specification is only possible in a SM pubset environment.

The appropriate value is taken from the SM pubset parameters. This can be the catalog ID of a single S1 volume set or S1 defined by all HSMS-CONTROLLED volume sets.

**MINIMUM-DAYS-ON-S1 =**

Serves to select the save files using the minimum number of days they have been residing on S1 as the selection criterion.

**MINIMUM-DAYS-ON-S1 = \*STD**

If the statement is used with a management class, \*STD means that the operand value is taken from the corresponding attribute of the management class. If no management class is used, the value \*STD is replaced by 0.

**MINIMUM-DAYS-ON-S1 = <integer 0..9999 days>**

The save files that have resided on S1 for at least the specified number of days are selected. The upper limit is determined by the specification in the MAXIMUM-DAYS-ON-S1 operand.

**MAXIMUM-DAYS-ON-S1 =**

The save files can be selected according to the maximum number of days they have been on S1.

**MAXIMUM-DAYS-ON-S1 = \*STD**

If the statement is used with a management class, \*STD means that the operand value is taken from the corresponding attribute of the management class. If no management class is used, the value \*STD is replaced by 9999.

**MAXIMUM-DAYS-ON-S1 = <integer 0..9999 days>**

The save files that have resided on S1 for at least the specified number of days are selected. The lower limit is determined by the specification in the MINIMUM-DAYS-ON-S1 operand.

**MINIMUM-SIZE = \*STD / \*NONE / <integer 1..2147483647 2Kbyte>**

The save files can be selected according to their minimum PAM page size.

If the statement is used with a management class, \*STD means that the operand value is taken from the corresponding attribute of the management class. If no management class is used, the value \*STD is replaced by \*NONE.

**UNUSED-SPACE = \*ANY / <integer 1..100>**

The save files can be selected according to the percentage of invalid files they contain. Unless otherwise specified, the save files are selected irrespective of the percentage of invalid files.

**RELEASE-PAGES = \*MAXIMUM**

All save files on S1 are migrated (reorganized).

**RELEASE-PAGES = <integer 1..2147483647 2Kbyte>**

The save files on S1 are migrated until the specified number of 2 KB blocks have been released as a result of this migration.

The save files are migrated in descending order according to the length of time they have been on S1, starting with the save files which have been on S1 the longest.

**TO-STORAGE = \*STD**

If the statement is used with a management class, \*STD means that the operand value is taken from the corresponding attribute of the management class. If no management class is used, the value \*STD is replaced by \*S2-STORAGE-LEVEL.

**TO-STORAGE = \*S2-STORAGE-LEVEL**

The files are migrated to storage level S2.

**TO-STORAGE = \*S1-STORAGE-LEVEL**

The files are migrated to storage level S1.

**ARCHIVE-NAME = \*SYSMIGRATE / <filename 1..22 without-cat-gen-vers>**

Name of the archive within which the save files are to be moved. Explicit specification of an archive is required only if there is no default system archive unequivocally assigned to the S1 pubset.

The specified archive must already exist and be available for use as a migration archive.

If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry.

**ARCHIVE-NAME = \*SYSMIGRATE**

The save files are to be moved within the default system migration archive (SYSMIGRATE).

**FROM-STORAGE = \*S2-STORAGE-LEVEL(...)**

*This specification is only available to the HSMS administrator:*

The files are to be migrated from storage level S2 to S2 and are reorganized at the same time. This is done by copying the save files containing only the files which are still migrated. The original save files are automatically deleted irrespective of their retention period. For all specifications it must be borne in mind that the current default save file will certainly not be reorganized.

**SAVE-FILE-ID =**

Determines the save files that are to be copied (reorganized).

**SAVE-FILE-ID = \*ALL**

All save files of storage level S2 are copied (reorganized).

**SAVE-FILE-ID = \*BY-ATTRIBUTES(...)**

Only those save files of storage level S2 are copied (reorganized) which were created within a certain period. If nothing further is specified, all save versions are selected.

**CREATED-BEFORE = \*LATEST-DATE / <date with-compl>(…) / <integer -99999..0 days>(…)**

Only those save versions are transferred which were created on or before the specified date.

The default is \*LATEST-DATE, in other words the time period with no upper limit. If a date is specified explicitly (absolutely or relatively), an additional time specification can define the period limit more precisely.

**CREATED-BEFORE = <date with-compl>(…)**

Date as absolute specification.

**TIME = 23:59:59 / <time>**

Time in the format hh:mm:ss.

**CREATED-BEFORE = <integer -99999..0 days>(…)**

Date as relative specification in days to the current date.

**TIME = 23:59:59 / <time>**

Time in the format hh:mm:ss.

**SAVE-FILE-ID = <composed-name 15..15>**

The specified save file is copied (reorganized).

You must specify the save file ID as follows: S.yymmdd.hhmmss

**UNUSED-SPACE = \*ANY / <integer 1..100>**

The save files can be selected according to the percentage of invalid files they contain. Unless otherwise specified, the save files are selected irrespective of the percentage of invalid files.

**ARCHIVE-NAME = \*SYSMIGRATE / <filename 1.22 without-cat-gen-vers>**

Name of the archive within which the save files are to be moved.

Explicit specification of an archive is required only if there is no default system archive unequivocally assigned to an SF pubset.

The specified archive must already exist and be available for use as a migration archive.

If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry.

**ARCHIVE-NAME = \*SYSMIGRATE**

The save files are to be moved within the default system migration archive (SYSMIGRATE).

**OPERATION-CONTROL =**

Enables the user to define a number of parameters which are relevant for the execution of the migration run.

**OPERATION-CONTROL = \*STD**

The default (“standard”) values of the parameters described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The parameters controlling the migration run can be modified as follows:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administrator) and a suffix in the form of a time stamp. Unless otherwise specified, the request name is formed by the short code “MGF#” and the TSN of the calling user task yyyy as follows: MGF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail. This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE. The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the “HSMS Vol. 1” manual [1] in the section “Job variable for request monitoring”.

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing). The maximum wait times for batch tasks and interactive tasks are different and are determined by preset global HSMS parameters. Interactive tasks are permitted to carry out synchronous HSMS statement processing during tape sessions only.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “ ; ”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output for this migration request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the migration request, including any error messages, is to be output.

**REPORT = \*FULL**

A full report is to be output, including a list of all migrated files.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report for this migration request is to be printed.

**OUTPUT = \*MAIL**

The report for this migration request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this migration request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this migration request is to be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

*Note on migration and the Concurrent Copy function*

An attempt made during a Concurrent Copy session to migrate a file that is currently being modified may fail since an action which is uncompleted at migration time may be rejected.

*Notes on the migration archive*

- A migration archive cannot be specified for migration from S0, since migration is possible only to a default archive assigned by the HSMS administrator.
- If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. This also applies to HSMS administrators.
- If migration is requested by a nonprivileged user, the migration archive must permit write access (USER-ACCESS=\*ALL-USERS and ACCESS=\*WRITE).

*Note on logging in the case of migration from S1 or S2 (reorganization)*

When migration takes place from S1 or S2 (reorganization), multiple copy and delete requests are executed internally. Here logging is performed as specified in the REPORT operand. Only delete requests also create a full log (\*FULL) when REPORT=\*SUMMARY is specified to ensure that in all cases the report contains the volumes which have become free.

*Notes on migration from S0 to the extended S1 level*

In the case of migration from S0 to S1, HSMS checks whether the saturation level permitted for the S1 level has been reached.

In an SM environment, when an extended storage level S1 is defined using S1-VOLUME-SET=\*ALL-HSMS-CONTROLLED, the check takes place for all the volume sets of the SM pubset which are under HSMS control. If the saturation level has been reached, the statement is rejected with one of the following messages:

- HSM050B if the S1 level was defined by a single volume set or
- HSM050C if the S1 level was defined by all HSMS-CONTROLLED volume sets.

In an SF environment, when S1 level is defined by S1-SM-pubset, the check takes place for all the volume sets of the S1-SM-pubset which are not under HSMS control and excluding the control volume set.

*Notes on migration from the extended S1 level to S1 or S2*

When an extended storage level S1 is defined using S1-VOLUME-SET=\*ALL-HSMS-CONTROLLED, files can be migrated from the S1 level to S1 only under the following circumstances:

1. SAVE-FILE-PROCESSING=\*HSMS-V10-COMPATIBLE is set.
2. BS2000 OSD/BC V11.0 or higher is used on the system. In the case of a shared pubset network, all pubset sharers of the SM pubset must satisfy this requirement.



## Examples

*A nonprivileged user migrates files of a project which is currently not being worked on using default values; the TSN is 3456*

```
//MIGRATE-FILES FILE-NAMES=proj.
```

- All files of the user's own ID which have the default catalog ID and whose names start with PROJ. are migrated to the default system archive.
- The files are migrated to a standard save file of the archive stored on S2 volumes from the volume pool of the archive; this implies that the retention period is as defined in the archive definition.
- The request is given the name MGF#3456.
- The request is processed asynchronously.
- Depending on the global HSMS parameter OUTPUT a summary report is printed or sent as an email attachment.

*The HSMS administrator migrates inactive files of pubset A to S1*

```
//MIGRATE-FILES FROM-STOR=*S0-STOR(FILE-NAMES=:A:, -  
//  UNUSED-DAYS=31,MINIMUM-SIZE=300,TO-STOR=*S1-STOR), -  
//  OPERATION-CONTROL=*PAR(REQUEST-NAME=migpuba, -  
//  EXPRESS-REQUEST=*YES)
```

- All files of pubset A which have not been accessed for 31 days and whose size is at least 300 pages are migrated to the default system archive at storage level S1. (As a prerequisite, pubset A must have been assigned a system migration archive.)
- The request is given the name MIGPUBA.
- The request is processed asynchronously as an express request.
- Depending on the global HSMS parameter OUTPUT a summary report is printed or sent as an email attachment.

## MODIFY-ARCHIVE

### Modify archive directory

This statement is used for modifying an archive directory. The following modifications are possible:

- modifying supplementary information in a save version
- deleting save files and
- managing a volume pool

Only the HSMS administrator and the archive owner are authorized to make modifications in the archive directory.

This statement has the same format for nonprivileged users and HSMS administrators.

#### Format

MODIFY-ARCHIVE	Alias: <b>MDA</b>
<pre> <b>ARCHIVE-NAME</b> = &lt;filename 1..22 without-cat-gen-vers&gt; , <b>ENVIRONMENT</b> = <u>*STD</u> / <u>*NODE-STD</u> / <u>*SINGLE-FEATURE</u> / <u>*SYSTEM-MANAGED(...)</u>   *SYSTEM-MANAGED(...)       <b>CATALOG-ID</b> = &lt;cat-id&gt; , <b>SAVE-VERSIONS</b> = <u>*UNCHANGED</u> / <u>*MODIFY-USER-RECORD(...)</u>   *MODIFY-USER-RECORD(...)       <b>SAVE-VERSION-NAME</b> = <u>*ANY</u> / &lt;name 1..8&gt;       <b>SAVE-VERSION-DATE</b> = <u>*LATEST</u> / <u>*INTERVAL(...)</u> / &lt;date with-compl&gt;(...)       *INTERVAL(...)           <b>CREATED-BEFORE</b> = <u>*LATEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;           <b>CREATED-AFTER</b> = <u>*EARLIEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;         &lt;date with-compl&gt;(...)             <b>TIME</b> = <u>23:59:59</u> / &lt;time&gt;       <b>NEW-SV-NAME</b> = <u>*UNCHANGED</u> / &lt;name 1..8&gt;       <b>DESCRIPTOR</b> = <u>*UNCHANGED</u> / &lt;c-string 1..10&gt;       <b>USER-INFORMATION</b> = <u>*UNCHANGED</u> / &lt;c-string 1..720&gt;       <b>FILE-EXPIRATION-DATE</b> = <u>*UNCHANGED</u> / &lt;date with-compl&gt; / &lt;integer 0..99999 days&gt; </pre>	

(part 1 of 2)

```

,SAVE-FILES = *UNCHANGED / *DELETE(...) / *RETENTION-PERIOD(...)
  *DELETE(...)
    |
    | SAVE-FILE-ID = *BY-ATTRIBUTES(...) / list-poss(10): <composed-name 15..15>
    |
    | *BY-ATTRIBUTES(...)
    |   |
    |   | SAVE-FILE-STATE = *ANY / *OBSOLETE
    |   |
    |   | ,CREATED-BEFORE = *LATEST-DATE / <date with-compl> / <integer -99999..0 days>
    |   |
    |   | ,FORCED-DELETE = *NO / *YES
    |
  *RETENTION-PERIOD(...)
    |
    | SAVE-FILE-ID = *BY-ATTRIBUTES(...) / list-poss(10): <composed-name 15..15>
    |
    | *BY-ATTRIBUTES(...)
    |   |
    |   | SAVE-FILE-STATE = *ANY / *OBSOLETE
    |   |
    |   | ,CREATED-BEFORE = *LATEST-DATE / <date with-compl> / <integer -99999..0 days>
    |   |
    |   | ,RETPD-EXTENSION = <-16383..16383 days>
    |
, VOLUMES = *UNCHANGED / *ADD(...) / *REMOVE(...)
  *ADD(...)
    |
    | VOLUMES = list-poss(600): <vsfn 1..6>
    |
    | ,DEVICE-TYPE = *STD / <device>
  *REMOVE(...)
    |
    | VOLUMES = *AVAILABLE / list-poss(600): <vsfn 1..6>
, DIRECTORY-LOCK = *UNCHANGED / *TEST / *REMOVE(...)
  *REMOVE(...)
    |
    | HOST-NAME = <alphanum-name 1..8>
    |
    | ,TSN = <alphanum-name 1..4>
, REPORT = *SUMMARY / *FULL / *NONE
, OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...) / <filename 1..54 without-gen-vers>
  *LIBRARY-ELEMENT(...)
    |
    | LIBRARY = <filename 1..54 without-gen-vers>
    |
    | ,ELEMENT = <composed-name 1..64 with-under>

```

(part 2 of 2)

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

Name of the archive whose directory is to be modified.

The specified archive must already exist.

Only the HSMS administrator and the archive owner are authorized to make modifications in the archive directory.

If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. When using another user's archive, the HSMS administrator does not require write privileges.

**ENVIRONMENT =**

Determines the HSMS environment in which the specified archive is located.

**ENVIRONMENT = \*STD**

The archive is in the default environment for DMS archives:

- *For privileged users:* \*STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*NODE-STD**

The archive is located in the default environment for node archives:

- *For privileged users:* \*NODE-STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*NODE-STD is set to the value of the environment in which the home directory of the user is defined.

**ENVIRONMENT = \*SINGLE-FEATURE**

The archive is in the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The archive is in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**SAVE-VERSIONS = \*UNCHANGED / \*MODIFY-USER-RECORD(...)**

Entries for save versions in the archive can be modified.

Only the archive owners, HSMS administrator and the owner of the save version may modify entries for save versions in the archive.

**SAVE-VERSIONS = \*MODIFY-USER-RECORD(...)**

The entries for save versions in the archive are modified.

**SAVE-VERSION-NAME = \*ANY / <name 1..8>**

The save version to be modified can be selected via the name assigned to it at creation. The option of selecting save versions that were created by other users is restricted to the HSMS administrator.

Unless otherwise specified, the save versions are selected irrespective of their names.

**SAVE-VERSION-DATE =**

The save version to be modified can be selected via its creation date.

If a save version was selected via its name, only those save versions having this name are selected via the creation date.

**SAVE-VERSION-DATE = \*LATEST**

Only the most recently created save version in the archive is to be modified.

**SAVE-VERSION-DATE = \*INTERVAL(...)**

You can restrict the save versions to be modified by defining the period within which they have to have been created.

**CREATED-BEFORE = \*LATEST-DATE / <date with-compl> / <integer -99999..0 days>**

Only save versions created on or before the date specified are modified.

**CREATED-AFTER = \*EARLIEST-DATE / <date with-compl> / <integer -99999..0 days>**

Only save versions created on or after the date specified are modified.

**SAVE-VERSION-DATE = <date with-compl>(...)**

The last save version created on or before the specified date is to be modified.

**TIME = \*23:59:59 / <time>**

The last save version created at or before the specified date and time is modified.

**NEW-SV-NAME = \*UNCHANGED / <name 1..8>**

The name of the save version can be modified.

**DESCRIPTOR = \*UNCHANGED / <c-string 1..10>**

The descriptor can be modified.

**USER-INFORMATION = \*UNCHANGED / <c-string 1..720>**

Comments on the save version can be modified.

**FILE-EXPIRATION-DATE = \*UNCHANGED / <date with-compl> /  
<integer 0..99999 days>**

The expiration date for the archived files can be modified. The specified date can lie beyond the physical retention period of the save files or backup volume only if permitted by the archive definition.

**SAVE-FILES = \*UNCHANGED / \*DELETE(...) / \*RETENTION-PERIOD(...)**

The entries for archive save files can be modified.

Only the archive owner and the HSMS administrator are authorized to delete save files from the archive or to extend the retention period.

**SAVE-FILES = \*DELETE(...)**

The specified save files are to be deleted explicitly from the archive. The entries for the save files are deleted from the directory and the save files erased from disk. Tapes containing deleted save files are released.

Unless otherwise specified, only the obsolete save files are deleted, i.e. those whose retention period has expired and which do not contain any save versions whose file expiration date has not yet been reached.

Using SHOW-ARCHIVE, the archive owner can request output of the save versions whose file expiration date has not yet been reached.

*Note*

In addition to the explicit deletion of save files with release of the volumes, save files and save versions – controlled by the archive attribute AUTOMATIC-DELETION=\*OBSOLETE-SAVE-FILES – can also be deleted implicitly: Whenever a backup or copy operation to the archive is initiated by the archive owner obsolete save files in the archive are deleted. The automatic release means that a closed loop is also created for the volumes used. Further information is provided under the AUTOMATIC-DELETION operand of the CREATE-ARCHIVE and MODIFY-ARCHIVE-ATTRIBUTES statements.

**SAVE-FILE-ID = \*BY-ATTRIBUTES(...)**

Serves to select the save files to be deleted using their file attributes as the selection criterion.

Deletion is additionally subject to the specification for the FORCED-DELETE operand.

**SAVE-FILE-STATE = \*ANY**

The save files are to be deleted irrespective of their state.

**SAVE-FILE-STATE = \*OBSOLETE**

Restricts deletion to save files whose retention period has expired and whose save versions have all reached their expiration date.

**CREATED-BEFORE = \*LATEST-DATE**

The save files are to be deleted irrespective of whether they were created before a specific date.

**CREATED-BEFORE = <date with-compl> / <integer -99999..0 days>**

Selects the files to be deleted according to the specified date: Only save files created on or before the specified date are to be deleted.

**SAVE-FILE-ID = list-poss(10): <composed-name 15..15>**

Serves to select the save files to be deleted using the save file ID as the selection criterion. The save file ID is specified in the format S.yymmdd.hhmmss

**FORCED-DELETE =**

Determines whether non-obsolete save files whose retention period has not yet expired or which contain save versions whose file expiration date has not yet been reached can nevertheless also be deleted forcibly.

**FORCED-DELETE = \*NO**

The save files are not to be deleted forcibly. Only save files in the state OBSOLETE will be deleted.

Save files which contain data from currently migrated files will not be deleted from a migration archive.

**FORCED-DELETE = \*YES**

The save files are to be deleted forcibly. Volumes containing the save file which are part of the archive-specific volume pool are retained in the directory and are assigned the state FORCED-DELETE.

Volumes with the attribute OWNER=\*OPERATOR are removed from the directory together with the save file.

**SAVE-FILES = \*RETENTION-PERIOD(...)**

Serves to extend the retention period for the specified save files.

**SAVE-FILE-ID = \*BY-ATTRIBUTES(...)**

Serves to select the save files using their file attributes as the selection criterion.

**SAVE-FILE-STATE = \*ANY**

The save files are selected irrespective of their state.

**SAVE-FILE-STATE = \*OBSOLETE**

Restricts selection to save files whose retention period has expired.

**CREATED-BEFORE = \*LATEST-DATE**

The save files are selected irrespective of whether they were created before a specific date.

**CREATED-BEFORE = <date with-comp!> / <integer -99999..0 days>**

Selects the save files to be deleted according to the specified date: only save files created on or before the specified date are selected.

**SAVE-FILE-ID = list-poss(10): <composed-name 15..15>**

Serves to select the save files using the save file ID as the selection criterion. The save file ID is specified in the format S.yymmdd.hmmss

**RETPD-EXTENSION = <-16383..16383 days>**

Number of days by which the current retention period of the selected save files is to be extended or – when a negative value is specified – reduced. The maximum reduction here is up to the current date.

*Note for backup archives*

By extending or reducing the retention period for a save file it can later occur that the references between the incremental backups in a save file and the full backups in another save file are lost.

**VOLUMES = \*UNCHANGED / \*ADD(...) / \*REMOVE(...)**

*This operand may only be used by archive owners and HSMS administrators.*

Serves to modify the archive-specific volume pool.

**VOLUMES = \*ADD(...)**

Volumes are added to the free volume pool of the archive.

*Note*

If you are using MAREN you can ignore pool management by HSMS and utilize the more flexible management by MAREN. For further information, see the "HSMS Vol. 1" manual [1], section "Volume pool management".

**VOLUMES = list-poss(600): <vsn 1..6>**

The specified VSNs are to be added.

**DEVICE-TYPE = \*STD / <device>**

Device type of the volumes, must belong to the "TAPE" class. Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

Unless otherwise specified, the preset value from the archive definition applies.

**VOLUMES = \*REMOVE(...)**

Serves to remove volumes from the archive-specific free volume pool.

**VOLUMES =**

The specified volumes are to be removed from the pool.

**VOLUMES = \*AVAILABLE**

All free volumes are to be removed from the pool.

**VOLUMES = list-poss(600): <vsn 1..6>**

The specified volumes are to be removed provided they have the status AVAILABLE.

**DIRECTORY-LOCK = \*UNCHANGED / \*TEST / \*REMOVE(...)**

*This operand may only be used by archive owners and HSMS administrators.*

Either displays the logical lock in the case of node directories or removes the logical lock.

**DIRECTORY-LOCK = \*TEST**

Outputs the current lock information.

**DIRECTORY-LOCK = \*REMOVE(...)**

Removes a known lock.

**HOST-NAME = <alphanum-name 1..8>**

BCAM name of the host thought to have set the lock.

The directory lock is only removed if the name is entered correctly.

This operand is intended to ensure that the function is not used unintentionally.

**TSN = <alphanum-name 1..4>**

TSN name of the task thought to have set the lock.

This operand is intended to ensure that the function is not used unintentionally.

**REPORT =**

Serves to define whether a report is to be output and to determine the scope of this report.

The report is output to SYSLST.

**REPORT = \*SUMMARY**

A summary of the results, including any error messages, is to be output.

**REPORT = \*FULL**

A report, including a list of all actions performed, is to be printed.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report for all the actions performed is printed out.

**OUTPUT = \*MAIL**

The report is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for all the actions performed is edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

## MODIFY-ARCHIVE-ATTRIBUTES

### Modify archive attributes

This statement is used for modifying the attributes of an HSMS archive. The archive type cannot be modified. An archive directory cannot be used for a different basic HSMS function unless the original archive definition is deleted and the directory is assigned to a new archive.

Only HSMS administrators or the archive owner may modify attributes of an archive.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

#### Format

MODIFY-ARCHIVE-ATTRIBUTES	Alias: <b>MAA</b>
<b>ARCHIVE-NAME</b> = <filename 1..22 without-cat-gen-vers> <b>ENVIRONMENT</b> = <b>*STD</b> / <b>*NODE-STD</b> / <b>*SINGLE-FEATURE</b> / <b>*SYSTEM-MANAGED(...)</b> <b>*SYSTEM-MANAGED(...)</b>   <b>CATALOG-ID</b> = <cat-id> <b>OWNER-FIELD</b> = <b>*UNCHANGED</b> / <b>*NONE</b> / <c-string 1..54> <b>USER-ACCESS</b> = <b>*UNCHANGED</b> / <b>*OWNER-ONLY</b> / <b>*ALL-USERS(...)</b> <b>*ALL-USERS(...)</b>   <b>ACCESS</b> = <b>*READ</b> / <b>*WRITE</b> <b>ACCESS-FROM-NODE</b> = <b>*UNCHANGED</b> / <b>*NONE</b> / <b>*PARAMETERS(...)</b> <b>*PARAMETERS(...)</b>   <b>NORMAL-USER</b> = <b>*UNCHANGED</b> / <b>*NONE</b> / <b>*READ</b> / <b>*WRITE</b> / <b>*SAME</b>   <b>ADMINISTRATOR</b> = <b>*UNCHANGED</b> / <b>*NONE</b> / <b>*READ</b> / <b>*WRITE</b> / <b>*SAME</b> <b>DIRECTORY-CATID</b> = <b>*UNCHANGED</b> / <cat-id> <b>RETENTION-PERIOD</b> = <b>*UNCHANGED</b> / <b>*FROM-ORIGINAL-SAVE-FILE</b> / <integer 0..16383 days> <b>SAVE-FILE-STRUCTURE</b> = <b>*UNCHANGED</b> / <b>*SEVERAL-SVID</b> <b>FILE-EXPIRATION-DATE</b> = <b>*UNCHANGED</b> / <b>*RESTRICTED</b> / <b>*UNRESTRICTED(...)</b> <b>*UNRESTRICTED(...)</b>   <b>SAVE-FILE-RETPD-UPD</b> = <b>*UNCHANGED</b> / <b>*NO</b> / <b>*YES</b> <b>COMPRESS-FILES</b> = <b>*UNCHANGED</b> / <b>*NO</b> / <b>*YES</b> / <b>*S1-ONLY</b> <b>S2-DEVICE-TYPE</b> = <b>*UNCHANGED</b> / <b>*STD</b> / <device> <b>LOCATION</b> = <b>*UNCHANGED</b> / <b>*ANY</b> / <alphanum-name 1..8>	

(part 1 of 3)

```

,BACKUP-SERVER-USAGE = *UNCHANGED / *NO / *STD
,MONITORING = *UNCHANGED / *NO / *STD
,SAVE-OPTIONS = *UNCHANGED / *PARAMETERS(...)
  *PARAMETERS(...)
    |   ,SAVE-DATA = *UNCHANGED / *S0 / *S1-S0 / *S2-S1-S0
    |   ,SAVE-PLAM-INFO = *UNCHANGED / *NO / *YES
,OPERATION-CONTROL = *UNCHANGED / *PARAMETERS(...)
  *PARAMETERS(...)
    |   ,PARALLEL-RUNS = *UNCHANGED / <integer 1..16> / *MULTIPLEXING(...)
    |   *MULTIPLEXING(...)
    |     |   ,NUMBER-OF-DEVICES = *UNCHANGED / <integer 1..16>
    |     |   ,MULTIPLEXING-FACTOR = *UNCHANGED / *AUTOMATIC / <integer 2..14>
    |   ,WRITE-CHECKPOINTS = *UNCHANGED / *YES / *NO
    |   ,OPERATOR-INTERACTION = *UNCHANGED / *NOT-ALLOWED / *ALLOWED
    |   ,AUTOMATIC-DELETION = *UNCHANGED / *NO / *OBSOLETE-SAVE-FILES /
    |     |   *OBSOLETE-SAVE-VERSIONS
,SHADOW-CONTROL = *UNCHANGED / *PARAMETERS(...)
  *PARAMETERS(...)
    |   ,SHADOW-COPY = *UNCHANGED / *ALLOWED / *ALLOWED-AND-NEW-SFID / *INHIBITED
,TAPE-CONTROL = *UNCHANGED / *PARAMETERS(...)
  *PARAMETERS(...)
    |   ,NEW-STD-SAVE-FILE = *UNCHANGED / *EACH-TAPE-SESSION / *AT-EACH-REQUEST /
    |     |   *IN-PERIODS(...) / *PUBLIC-DISK(...)
    |     |   *IN-PERIODS(...)
    |     |     |   ,CONTINUATION-PERIOD = <integer 1..32767 days>
    |     |     |   *PUBLIC-DISK(...)
    |     |     |     |   ,PUBSET-ID = <cat-id>
    |     |   ,BLOCKING-FACTOR = *UNCHANGED / *STD / <integer 15..15 2Kbyte> / *MAX
    |     |   ,UNLOAD-TAPE = *UNCHANGED / *YES / *NO
,DISK-CONTROL = *UNCHANGED / *PARAMETERS(...)
  *PARAMETERS(...)
    |   ,PRIMARY-ALLOCATION = *UNCHANGED / *STD / <integer 36..50331645 2Kbyte>
    |   ,SECONDARY-ALLOCATION = *UNCHANGED / *STD / <integer 0..32767 2Kbyte>
    |   ,WRITE-CHECK = *UNCHANGED / *NO / *YES / *SAVE-FILES / *RESTORED-FILES
    |   ,DESTROY-BY-DELETE = *UNCHANGED / *STD / *YES / *NO

```

(part 2 of 3)

```

,REQUEST-PRIORITIES = *UNCHANGED / *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    |   READ = *UNCHANGED / *STD / <integer 1..255>
    |   ,WRITE = *UNCHANGED / *STD / <integer 1..255>

```

(part 3 of 3)

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

Name of the archive whose attributes are to be modified.

Only the HSMS administrator or the archive owner may modify attributes of an archive. The option of specifying an owner ID other than one's own is restricted to the HSMS administrator.

**ENVIRONMENT =**

Determines the HSMS environment in which the specified archive is located.

**ENVIRONMENT = \*STD**

The archive is in the default environment for DMS archives:

- *For privileged users:* \*STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*NODE-STD**

The archive is located in the default environment for node archives:

- *For privileged users:* \*NODE-STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*NODE-STD is set to the value for the environment in which the home directory of the user is defined.

**ENVIRONMENT = \*SINGLE-FEATURE**

The archive is in the SF pubset environment

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The archive is in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**OWNER-FIELD = \*UNCHANGED / \*NONE / <c-string 1..54>**

Field to which the user may write a remark concerning the archive. The remark is output by SHOW-ARCHIVE-ATTRIBUTES INFORMATION=\*FULL.

**OWNER-FIELD = \*NONE**

Serves to delete a remark previously written to this field.

**USER-ACCESS = \*UNCHANGED / \*OWNER-ONLY / \*ALL-USERS(...)**

Regulates access to the archive.

For a shadow archive this operand only regulates direct access to the shadow archive. The permission for automatic duplication to a shadow archive depends entirely on the access permission to the associated backup or long-term archive.

**USER-ACCESS = \*OWNER-ONLY**

Access is to be restricted to the archive owner and the HSMS administrator.

Access by other users is only possible if they are co-owners of the assigned directory.

**USER-ACCESS = \*ALL-USERS(...)**

Access is also permitted to other users provided they are in the same environment as the archive:

**ACCESS = \*READ**

Other users are to be granted read access to the archive. In other words: the archive is assigned the attribute "read access". Write authorization for other users becomes possible through co-ownership of the assigned directory.

**ACCESS = \*WRITE**

Other users are to be granted read and write access to the archive. In other words: the archive is assigned the attribute "write access".

**ACCESS-FROM-NODE = \*UNCHANGED / \*NONE / \*PARAMETERS(...)**

*This operand is only available to the HSMS administrator and is supported for compatibility reasons only.*

Controls archive access for remote node calls.

This operand is only of relevance for node archives which are assigned to a remote node as a system archive for archival or backup (see the HSMS statement MODIFY-NODE-PARAMETERS on [page 337](#)).

**ACCESS-FROM-NODE = \*NONE**

Remote access is not possible. Neither remote users nor administrators of remote nodes are permitted to back up their files in archive or to restore or list them.

**ACCESS-FROM-NODE = \*PARAMETERS(...)**

Access is permitted as defined in the following operands:

**NORMAL-USER = \*UNCHANGED / \*NONE / \*READ / \*WRITE / \*SAME**

Defines archive access for remote node users.

\*SAME means that normal BS2000 user access is permitted (see also the USER-ACCESS operand and associated ACCESS suboperand in this statement).

**ADMINISTRATOR = \*UNCHANGED / \*NONE / \*READ / \*WRITE / \*SAME**

Defines additional access permissions for administrators of remote nodes.

\*SAME means that normal BS2000 user access is permitted (see also the USER-ACCESS operand and associated ACCESS suboperand in this statement).

A node administrator possesses at least the same access permissions as a nonprivileged user (ACCESS operand). Consequently, this operand cannot be used to restrict or cancel a node administrator's access permissions.

The definition of "administrator" depends on the operating system running at the node.

**DIRECTORY-CATID = \*UNCHANGED / <cat-id>**

Specifies the catalog ID of the pubset on which the archive directory is stored. The name of the archive directory must always be retained (e.g. after the pubset is renamed).

The catalog ID of the archive directory is required, for example, when the pubset was renamed using PVSREN. If MAREN is used, in this case the system administrator must change the catalog ID of the archive directory in the relevant volume entries of the MAREN catalog.

**RETENTION-PERIOD = \*UNCHANGED / \*FROM-ORIGINAL-SAVE-FILE / <integer 0..16383 days>**

(Physical) retention period in days which applies to the save files of the archive unless otherwise specified. The expiration date derived from the specified retention period is recorded both on the volume and in the directory. The expiration date for standard save files (NEW-STD-SAVE-FILE) is calculated as follows:

**expiration date = creation date + retention period [+ continuation period]**

Once the expiration date has been reached, the save file and the save volume(s) are assigned the state OBSOLETE.

**RETENTION-PERIOD = \*FROM-ORIGINAL-SAVE-FILE**

A save file which is copied to a shadow archive or another archive is assigned the retention period of the original save file. This setting is used in the COPY statement both for automatic duplication during a backup or archival request and for explicit duplication without specification of a retention period. If in the case of direct backup no retention period is specified, the value 0 is derived from this archive attribute.

**SAVE-FILE-STRUCTURE = \*UNCHANGED / \*SEVERAL-SVID**

*For backup archives only:*

The archive owner and the HSMS administrator can redefine a backup archive that permits no more than one save version per save file (\*SINGLE-SVID) as a backup archive that permits more than one save version per save file (\*SEVERAL-SVID).

**FILE-EXPIRATION-DATE = \*UNCHANGED / \*RESTRICTED / \*UNRESTRICTED**

*This operand is only available to the HSMS administrator.*

*Only for long-term archives:*

defines whether or not the file expiration date which the user can specify in an archival request for the files to be archived has to lie within the (physical) retention period defined for the save file.

This operand is ignored for shadow archives. The value is always \*UNRESTRICTED.

**FILE-EXPIRATION-DATE = \*RESTRICTED**

The file expiration date of the files to be archived must lie within the retention period defined for the save file.

**FILE-EXPIRATION-DATE = \*UNRESTRICTED(...)**

No restriction on the file expiration date is defined.

In this case, it is the archive owner's responsibility to take appropriate administrative measures to protect the volumes against overwriting once the physical retention period has expired.

**SAVE-FILE-RETPD-UPD =**

Specifies whether the expiration date of the save file is to be changed automatically.

For shadow archives this operand is ignored and the value SAVE-FILE-RETPD-UPD=\*YES is always assumed.

**SAVE-FILE-RETPD-UPD = \*UNCHANGED**

The expiration date of the save file remains unchanged.

**SAVE-FILE-RETPD-UPD = \*NO**

The expiration date of the save file is not changed automatically.

**SAVE-FILE-RETPD-UPD = \*YES**

If a new save file or a save file to be continued contains a save version whose expiration date is later than that of the save file, the save file is automatically given the same expiration date as the save version.

If the expiration date of a save version becomes later than that of the associated save file, the retention period of the save file is automatically increased.

**COMPRESS-FILES = \*UNCHANGED / \*NO / \*YES / \*S1-ONLY**

Determines whether or not the data is compressed before being written to the output volume.

For shadow archives this operand is ignored and the value specified for the original archive is used.

For node archives this operand is also ignored and the value is automatically set to \*NO.

**COMPRESS-FILES = \*S1-ONLY**

The data is compressed only when written to storage level S1. However, it is not decompressed when the save file is copied from S1 to S2.

**S2-DEVICE-TYPE = \*UNCHANGED / \*STD / <device>**

Default device type to be used for saving to this archive at storage level S2. The tape device type must belong to the "TAPE" class. Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

The operand value \*STD means that the value is taken from the HSMS control file.

**LOCATION = \*UNCHANGED / \*ANY / <alphanum-name 1..8>**

Default location used for selecting the volumes for saving to this archive on storage level S2. The specified location must be known to MAREN. If the location manager is in use, the location should be properly defined in MARENLM. Otherwise MAREN ignores the specified value.

If MAREN is not in use, you must specify the value \*ANY for LOCATION.

**LOCATION = \*ANY**

No location is used for selecting the volumes.

**BACKUP-SERVER-USAGE = \*UNCHANGED / \*NO / \*STD**

Specifies whether the backup server can be used to process requests.

**BACKUP-SERVER-USAGE = \*NO**

No backup server will be used.

**BACKUP-SERVER-USAGE = \*STD**

The system (local or backup server) which will process the request is selected according to the specification in the BACKUP-SERVER operand of the MODIFY-HSMS-PARAMETERS statement.

**MONITORING = \*UNCHANGED / \*NO / \*STD**

Controls the monitoring in an SE Server environment. If monitoring is enabled, HSMS reports every creation, deletion or update of a request to the Management Unit.

**MONITORING = \*NO**

No requests concerning the archive will be monitored unless MONITORING=\*ALL is set with the MODIFY-HSMS-PARAMETERS statement or unless the user is SYSHSMS and MONITORING=\*SYSHSMS-ONLY is set with MODIFY-HSMS-PARAMETERS.

**MONITORING = \*STD**

The requests concerning the archive will be monitored according to the MONITORING operand of the MODIFY-HSMS-PARAMETERS statement.

**SAVE-OPTIONS =**

Only for backup archives.

This operand defines save options.

**SAVE-OPTIONS = \*UNCHANGED**

Specifies that the standard save options are to be used.

**SAVE-OPTIONS = \*PARAMETERS(...)**

The following non-standard save options can be selected:

**SAVE-DATA =**

Specifies whether just the catalog entries of migrated files or both the catalog entries and the data are to be saved.

For shadow archives this operand is ignored and the value that was specified for the original archive is used.

**SAVE-DATA = \*UNCHANGED**

The last value selected remains valid.

**SAVE-DATA = \*S0**

Only the files on S0 are to be saved with their data. For migrated files, only the metadata is to be saved.

**SAVE-DATA = \*S1-S0**

Only the files on S0 and files migrated to S1 are to be saved with their data. For files migrated to S2, only the metadata is to be saved.

**SAVE-DATA = \*S2-S1-S0**

All files are saved with their data, regardless of whether they have been migrated or not.

**SAVE-PLAM-INFO = \*UNCHANGED / \*NO / \*YES**

When saving PLAM libraries, this setting determines whether information about the element structure should also be written to the save volume. Only with this additional information can individual elements of a library be restored with the RESTORE-LIBRARY-ELEMENTS statement. If this information is not on the save volume, a library can only be restored as a complete library file.

This operand is only valid if the archive was created as a long-term or backup archive for BS2000 files (//CREATE-ARCHIVE with ALLOWED-USAGE=\*ARCHIVAL or \*BACKUP).

**OPERATION-CONTROL = \*UNCHANGED / \*PARAMETERS(...)**

A number of parameters which are relevant for HSMS operation can be defined and preset by the archive definition.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The operands controlling HSMS operation can be modified as follows:

**PARALLEL-RUNS =**

Number of simultaneously active backup tasks (ARCHIVE subtasks) used for this backup run.

**PARALLEL-RUNS = <integer 1..16>**

Number of simultaneously active backup tasks (ARCHIVE subtasks).

A tape device must be available for each task.

In the case of duplication or automatic duplication to a shadow archive, two tape devices must be available for each task.

No multiplexing is performed.

**PARALLEL-RUNS = \*MULTIPLEXING(...)**

*This operand is only available to the HSMS administrator.*

This specification is only relevant for operations at the S2 storage level.

Multiplexing operation is enabled in order to achieve improved performance. In this case, multiple ARCHIVE subtasks share the same device.

**NUMBER-OF-DEVICES = \*UNCHANGED**

The number of devices available for the backup run remains unchanged.

**NUMBER-OF-DEVICES = <integer 1..16>**

Number of devices available for the backup run.

**MULTIPLEXING-FACTOR = \*UNCHANGED / \*AUTOMATIC / <integer 2..4>**

Specifies a multiplexing factor for each device, i.e. the number of ARCHIVE subtasks that are generated for each device.

If \*AUTOMATIC is specified, ARCHIVE calculates the multiplexing factor itself, i.e. ARCHIVE distributes the specified paths to the drives (the result of this division is the multiplexing factor for each drive).

For more information on parallel processing, refer to the "HSMS Vol. 1" manual.

**WRITE-CHECKPOINTS = \*UNCHANGED / \*YES / \*NO**

Defines whether any checkpoints are to be written to the ARCHIVE checkpoint file during processing; these checkpoints permit a request to be restarted following an interruption (INTERRUPTED state).

When archiving nodes, specification of \*YES causes checkpoints to be written at file tree levels only

**OPERATOR-INTERACTION = \*UNCHANGED / \*NOT-ALLOWED / \*ALLOWED**

Determines whether messages requiring an operator response are to be output to the console (\*ALLOWED) or not (\*NOT-ALLOWED). If \*NOT-ALLOWED applies, HSMS performs default handling (see the description of the PARAM statement in the "ARCHIVE" manual [2]).

**AUTOMATIC-DELETION = \*UNCHANGED / \*NO / \*OBSOLETE-SAVE-FILES / \*OBSOLETE-SAVE-VERSIONS**

*Only for long-term and backup archives.*

When backing up or copying determines whether obsolete save files or save versions are to be released automatically after their retention period has expired. The release of the volume is also connected with the automatic release. A prerequisite here is that a retention period is assigned.

**AUTOMATIC-DELETION = \*NO**

Save files or save versions can only be deleted explicitly (see MODIFY-ARCHIVE).

**AUTOMATIC-DELETION = \*OBSOLETE-SAVE-FILES**

Obsolete save files are deleted and the associated volumes are released implicitly before a backup or a copy operation is executed by the archive owner. The standard save file is not deleted implicitly.

**AUTOMATIC-DELETION = \*OBSOLETE-SAVE-VERSIONS**

In the event of backups or copy operations by the archive owner obsolete save versions are deleted beforehand and the volumes of the associated save file are released. In the event of backups or copy operations with update the latest save version of the save file to be updated is always retained.

In the case of backup archives save versions are normally only obsolete in conjunction with the associated save file.

**SHADOW-CONTROL = \*UNCHANGED / \*PARAMETERS(...)**

This operand only applies to archives that are linked with a shadow archive.

**SHADOW-CONTROL = \*PARAMETERS(...)**

The parameters for the assigned shadow archive can be modified as follows:

**SHADOW-COPY = \*UNCHANGED / \*ALLOWED / \*ALLOWED-AND-NEW-SFID / \*INHIBITED**

The owner of an archive can control the automatic duplication of save files to the assigned shadow archive.

**SHADOW-COPY = \*ALLOWED**

Each backup or archival to an archive initiates automatic duplication to the assigned shadow archive, unless SHADOW-COPY=\*INHIBITED was specified in the save/backup statement (\*SHADOW-COPY operand in the HSMS statements ARCHIVE-FILES, ARCHIVE-NODE-FILES, BACKUP-FILES and BACKUP-NODE-FILES).

When an archive is created, the value of SHADOW-COPY is set to \*ALLOWED by default.

**SHADOW-COPY = \*ALLOWED-AND-NEW-SFID**

If SHADOW-COPY=\*INHIBIT was not specified in the save/backup statement each backup to a backup or backup node archive starts automatic duplication to the associated shadow archive, a new save file always being generated in the shadow archive, i.e. also when updating takes place in the main archive. In the context of a disaster protection strategy this permits the volumes generated to be stored externally immediately after the backup.

This setting becomes effective when SHADOW-COPY=\*ALLOWED is specified in the save/backup statements ARCHIVE-FILES, ARCHIVE-NODE-FILES, BACKUP-FILES, BACKUP-NODE-FILES and MOVE-SAVE-FILES.

**SHADOW-COPY = \*INHIBITED**

There is no automatic duplication to the assigned shadow archive.

**TAPE-CONTROL = \*UNCHANGED / \*PARAMETERS(...)**

The parameters which are relevant for writing to tape can be defined and preset by the archive definition.

**TAPE-CONTROL = \*PARAMETERS(...)**

The operands relevant for writing to tape can be modified as follows:

**NEW-STD-SAVE-FILE = UNCHANGED / \*EACH-TAPE-SESSION / \*AT-EACH-REQUEST / \*IN-PERIODS(...) / \*PUBLIC-DISK(...)**

Defines when a new standard save file is to be started for the archive.

This operand is irrelevant for backup archives that permit no more than one save version per save file (SAVE-FILE-STRUCTURE=\*SINGLE-SVID).

*Requests for migration* to S2 always write to the standard save file.

*Archival requests* write to the standard save file provided no other save file is specified.

*Backup requests* do not write to the standard save file unless it is explicitly specified.

The standard save file is defined by the operands NEW-STD-SAVE-FILE, S2-DEVICE-TYPE and RETENTION-PERIOD.

For shadow archives this operand is ignored and the value that was defined for the original archive is used instead.

**NEW-STD-SAVE-FILE = \*EACH-TAPE-SESSION**

A new standard save file is to be started at the beginning of each tape session. It is updated ("continued") until the end of the tape session.

This means that, during a tape session, all save versions are written to the same save file unless otherwise specified.

**NEW-STD-SAVE-FILE = \*AT-EACH-REQUEST**

A new standard save file is to be started with each new save version. This means that each save version is written to a separate save file.

**NEW-STD-SAVE-FILE = \*IN-PERIODS(...)**

The standard save file is changed at the beginning of each continuation period. It is continued until the end of the continuation period. All save versions are written to this save file during this period unless otherwise specified.

**CONTINUATION-PERIOD = <integer 1..32767 days>**

Continuation period in days.

**NEW-STD-SAVE-FILE = \*PUBLIC-DISK(...)**

*This operand value is only possible for backup node archives and is only available to the HSMS administrator.*

A //BACKUP-NODE-FILE with SAVE-FILE=\*STD specified is modified using the archive attribute to SAVE-FILE=\*NEW and TO-STORAGE=\*PUBLIC-DISK with the pubset specification corresponding to the archive attribute. In this way requests for disk backups can be issued.

**PUBSET-ID = <cat-id>**

Catalog ID of the pubset.

**BLOCKING-FACTOR = \*UNCHANGED / \*STD / <integer 15..15 2Kbyte> / \*MAX**

Blocking factor to be used for writing the save file to tape, specified as the number of 2-Kbyte blocks (PAM pages) written to tape in a single input/output operation. As the higher blocking factor means that the occupancy level of the volume and the tape processing performance improve, values below 15 should not be selected. When the default value \*STD is selected, the default values of the ARCHIVE parameters apply (BLOCK-SIZE-TAPE for tapes, BLOCK-SIZE-T-C for magnetic tape cartridges).

\*MAX selects the maximum blocking factor possible in the current BS2000 version. Currently this is the value 128.

**UNLOAD-TAPE = \*UNCHANGED / \*YES / \*NO**

Specifies whether or not tapes are to be unloaded after processing.

It is possible that HSMS will ignore the value of this operand in order to avoid irrational processing of tapes, for example to avoid unloading a tape several times while rewinding it.

**DISK-CONTROL = \*UNCHANGED / \*PARAMETERS(...)**

The parameters which are relevant for writing to disk can be defined and preset by the archive definition.

This operand is only useful for backup and migration archives, since both archival and duplication to shadow archives are possible on storage level S2 only.

**DISK-CONTROL = \*PARAMETERS(...)**

The operands relevant for writing to disk can be modified as follows:

**PRIMARY-ALLOCATION = \*UNCHANGED / \*STD / <integer 36..50331645 2Kbyte>**

Size in PAM pages of the primary allocation for save file creation on disk (see the description of the CREATE-FILE command in the “Commands” manual [5]). The operand value \*STD means that the ARCHIVE default value applies.

**SECONDARY-ALLOCATION = \*UNCHANGED / \*STD / <integer 0..32767 2Kbyte>**

Size in PAM pages of the secondary allocation for save file extension on disk (see the description of the CREATE-FILE command in the “Commands” manual [5]).

The operand value \*STD means that the ARCHIVE default value applies. Values from 1 through 35 are not permitted.

**WRITE-CHECK = \*UNCHANGED / \*NO / \*YES / \*SAVE-FILES / \*RESTORED-FILES**

Specifies whether a read-after-write check is to be performed after each write operation for error detection purposes. Note that read-after-write checking will result in longer execution times.

**WRITE-CHECK = \*SAVE-FILES**

Restricts read-after-write checks to saved files.

**WRITE-CHECK = \*RESTORED-FILES**

Restricts read-after-write checks to restored files.

**DESTROY-BY-DELETE = \*UNCHANGED / \*STD / \*YES / \*NO**

Specifies whether the storage space released by save file deletion is to be erased by overwriting it with binary zeros for data privacy reasons. Note that erasure by overwriting will result in longer execution times for save file deletion.

If no specification is made, the presetting is taken from the archive definition.

In an SM pubset environment, \*STD means that for the deletion the value is taken from the definition of the SM pubset.

In an SF pubset environment, \*STD has the same meaning as \*NO.

**REQUEST-PRIORITIES = \*UNCHANGED / \*STD / \*PARAMETERS(...)**

*This operand is only available to the HSMS administrator.*

Determines the processing priority of read and write requests which are issued for the specified archive.

**REQUEST-PRIORITIES = \*UNCHANGED**

The processing priority is not changed.

**REQUEST-PRIORITIES = \*STD**

The default values for read and write requests in this archive type are used.

**REQUEST-PRIORITIES = \*PARAMETERS(...)**

Determines the processing priority of requests which are issued for the specified archive.

**READ =**

Determines the processing priority of read requests.

**READ = \*UNCHANGED**

The processing priority for read requests is not changed.

**READ = \*STD**

The default value for read requests in this archive type is used.

**READ = <integer 1..255>**

A different priority is assigned, with 1 having the highest priority.

**WRITE =**

Determines the processing priority of write requests.

**WRITE= \*UNCHANGED**

The processing priority for write requests is not changed.

**WRITE = \*STD**

The default value for write requests in this archive type is used.

**WRITE = <integer 1..255>**

A different priority is assigned, with 1 having the highest priority.

## MODIFY-HSMS-PARAMETERS

### Modify HSMS control parameters

This statement is for the HSMS administrator only and is used for defining and redefining (modifying) the global HSMS control parameters. The validity of the modified parameters may be limited to the current HSMS session or they can be permanently stored in the HSMS control file. Part of the HSMS parameter is globally valid, another only for the SF environment. The corresponding parameters for each SM environment are managed as SM subset parameters.

Since the statement can be used both for HSMS installation and for redefining the HSMS operating parameters, the operand value `*UNCHANGED` has two different meanings:

- For HSMS *installation*, `*UNCHANGED` means that the values permanently assigned by HSMS apply (see [table "Presettings prescribed by HSMS" on page 332](#)).
- When *redefining* parameter values, `*UNCHANGED` means that the values defined via a previous `MODIFY-HSMS-PARAMETERS` statement are not changed. These can be interrogated by means of the HSMS statement `SHOW-HSMS-PARAMETERS`.

#### Format (only for HSMS administrators)

MODIFY-HSMS-PARAMETERS	Alias: <b>MHP</b>
<pre> <b>VALID-PERIOD</b> = <u>*SESSION</u> / <u>*PERMANENT</u> , <b>HSMS-ACCOUNT</b> = <u>*UNCHANGED</u> / <u>*NONE</u> / &lt;alphanum-name 1..8&gt; , <b>OPERATION-CONTROL</b> = <u>*UNCHANGED</u> / <u>*PARAMETERS(...)</u>   *PARAMETERS(...)       <b>OPERATIONAL-MODUS</b> = <u>*UNCHANGED</u> / <u>*DEFINE-SHOW</u> / <u>*OPERATION</u> / <u>*SIMULATION</u>       , <b>NUMBER-OF-SUBTASKS</b> = <u>*UNCHANGED</u> / &lt;integer 0..99&gt;       , <b>COMMON-MEMORY-SIZE</b> = <u>*UNCHANGED</u> / <u>*SYSTEM-MANAGED(...)</u> / &lt;integer 1..99 Mbyte&gt;         *SYSTEM-MANAGED(...)             <b>NUMBER-OF-SM-PUBSETS</b> = <u>*STD</u> / &lt;integer 0..99&gt;           </pre>	

(part 1 of 3)

```

,HSMS-SV-PORT-NUMBER = *UNCHANGED / <integer 1..65535>
,FILE-SIZES = *UNCHANGED / *PARAMETERS(...)
  *PARAMETERS(...)
    PRIM-ALLOC-DEFAULT = *UNCHANGED / <integer 24..32767 2Kbyte>
    ,SEC-ALLOC-DEFAULT = *UNCHANGED / <integer 24..32767 2Kbyte>
    ,PRIM-ALLOC-RESULT = *UNCHANGED / <integer 24..32767 2Kbyte>
    ,SEC-ALLOC-RESULT = *UNCHANGED / <integer 24..32767 2Kbyte>
  ,OUTPUT = *UNCHANGED / *PRINTER / *MAIL
,DEFAULT-TAPE-CONTROL = *UNCHANGED / *PARAMETERS(...)
  *PARAMETERS(...)
    READ-CONTROL = *UNCHANGED / *PROCESS-REQUESTS / *HOLD-REQUESTS /
      *BY-TAPE-SESSIONS(...)
    *BY-TAPE-SESSIONS(...)
      START-TIME = *IMMEDIATELY / <time>
      ,PERIOD = <integer 0..1440 minutes> / *END-OF-DAY
    ,WRITE-CONTROL = *UNCHANGED / *PROCESS-REQUESTS / *HOLD-REQUESTS /
      *BY-TAPE-SESSIONS(...)
    *BY-TAPE-SESSIONS(...)
      START-TIME = *IMMEDIATELY / <time>
      ,PERIOD = <integer 0..1440 minutes > / *END-OF-DAY
    ,EXPRESS-CONTROL = *UNCHANGED / *PROCESS-REQUESTS / *HOLD-REQUESTS /
      *BY-TAPE-SESSIONS(...)
    *BY-TAPE-SESSIONS(...)
      START-TIME = *IMMEDIATELY / <time>
      ,PERIOD = <integer 0..1440 minutes > / *END-OF-DAY
,DEFAULT-HSMS-STORAGE = *UNCHANGED / *PARAMETERS(...)
  *PARAMETERS(...)
    S1-PUBSET-ID = *UNCHANGED / *UNDEFINED / <cat-id>
    ,SYSBACKUP = *UNCHANGED / *UNDEFINED / <filename 1..22 without-cat-gen-vers>
    ,SYSARCHIVE = *UNCHANGED / *UNDEFINED / <filename 1..22 without-cat-gen-vers>
    ,SYSMIGRATE = *UNCHANGED / *UNDEFINED / <filename 1..22 without-cat-gen-vers>
    ,SYSNODEBACKUP = *UNCHANGED / *UNDEFINED / <filename 1..22 without-cat-gen-vers>
    ,SYSNODEARCHIVE = *UNCHANGED / *UNDEFINED / <filename 1..22 without-cat-gen-vers>
    ,S2-DE VICE-TYPE = *UNCHANGED / <device>
    ,BACKUP-SERVER = *UNCHANGED / *NONE / *LOCALHOST / <alphanum-name 1..8>

```

```

,MIGRATION-CONTROL = *UNCHANGED / *PARAMETERS(...)
*PARAMETERS(...)
    EXCEPT-FILE = *UNCHANGED / *NONE / <filename 1..54 without-gen-vers>
    ,FILE-INHIBIT = *UNCHANGED / *RESPECTED / *IGNORED
    ,RECALL-FROM-S2 = *UNCHANGED / *BATCH-ONLY / *ALLOWED / *NOT-ALLOWED
    ,CANCEL-AT-RECALL = *UNCHANGED / *ALLOWED(...) / *NOT-ALLOWED
        *ALLOWED(...)
            MAXIMUM-WAIT-TIME = *UNCHANGED / <integer 10..3600 seconds>
    ,BACKUP-MANDATORY = *UNCHANGED / *YES / *NO
,REQUEST-WAIT-LIMITS = *UNCHANGED / *PARAMETERS(...)
*PARAMETERS(...)
    BATCH-REQUEST-TIME = *UNCHANGED / <integer 0..99999 seconds>
    ,DIALOG-REQUEST-TIME = *UNCHANGED / <integer 0..99999 seconds>
    ,BATCH-EXEC-TIME = *UNCHANGED / <integer 0..99999 seconds>
    ,DIALOG-EXEC-TIME = *UNCHANGED / <integer 0..99999 seconds>
,REQUEST-PRIORITIES = *UNCHANGED / *PARAMETERS(...)
*PARAMETERS(...)
    IMPORT = *UNCHANGED / <integer 1..255>
    ,EXPORT = *UNCHANGED / <integer 1..255>
    ,IMPLICIT-RECALL = *UNCHANGED / <integer 1..255>
    ,BACKUP-READ = *UNCHANGED / <integer 1..255>
    ,BACKUP-WRITE = *UNCHANGED / <integer 1..255>
    ,ARCHIVAL-READ = *UNCHANGED / <integer 1..255>
    ,ARCHIVAL-WRITE = *UNCHANGED / <integer 1..255>
    ,MIGRATION-READ = *UNCHANGED / <integer 1..255>
    ,MIGRATION-WRITE = *UNCHANGED / <integer 1..255>
    ,NODEBACKUP-READ = *UNCHANGED / <integer 1..255>
    ,NODEBACKUP-WRITE = *UNCHANGED / <integer 1..255>
    ,NODEARCHIVAL-READ = *UNCHANGED / <integer 1..255>
    ,NODEARCHIVAL-WRITE = *UNCHANGED / <integer 1..255>
    ,SHADOW-READ = *UNCHANGED / <integer 1..255>
    ,SHADOW-WRITE = *UNCHANGED / <integer 1..255>
,SAVE-FILE-PROCESSING = *UNCHANGED / *HSMS-V9-COMPATIBLE / *HSMS-V10-COMPATIBLE
,MONITORING = *UNCHANGED / *BY-ARCHIVE-ATTRIBUTE / *SYSHSMS-ONLY / *NONE / *ALL

```

**VALID-PERIOD =**

Defines how long the control parameters modified by this HSMS statement are to remain valid.

**VALID-PERIOD = \*SESSION**

The modified parameter values are to be valid for the current session only, starting with statement entry. The value of COMMON-MEMORY-SIZE cannot be changed during the current HSMS session.

**VALID-PERIOD = \*PERMANENT**

The modified parameter values are to be valid for the current and any subsequent HSMS sessions. They are permanently stored in the HSMS parameter file.

**HSMS-ACCOUNT = \*UNCHANGED / \*NONE / <alphanum-name 1..8>**

Account number on which accounting for resource utilization by the HSMS server and HSMS communication tasks is based.

\*NONE is the HSMS default value and determines that no account number is assigned. Accounts for resource utilization by the HSMS server tasks are in this case based on the first account number of user ID TSOS.

**OPERATION-CONTROL = \*UNCHANGED / \*PARAMETERS(...)**

Serves to define the parameters for HSMS startup.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The operands for HSMS startup can be modified as follows:

**OPERATIONAL-MODUS = \*UNCHANGED / \*DEFINE-SHOW / \*OPERATION / \*SIMULATION**

Defines the HSMS operating mode.

**OPERATIONAL-MODUS = \*DEFINE-SHOW**

Implies that only those statements are permitted which modify or output HSMS parameters.

**OPERATIONAL-MODUS = \*OPERATION**

Implies that the full functional scope of HSMS is available.

**OPERATIONAL-MODUS = \*SIMULATION**

All HSMS statements are permitted. However action statements – with the exception of the HSMS statement MODIFY-ARCHIVE – are only simulated.

Action statements from active nodes are rejected by HSMS in simulation mode.

**NUMBER-OF-SUBTASKS = \*UNCHANGED / <integer 0..99>**

Number of HSMS server tasks. It is advisable to define at least one task per default system archive.

**COMMON-MEMORY-SIZE =**

The HSMS common memory pool cannot be extended for the current session; any modification does not apply until after the next time HSMS is loaded. While HSMS is loaded the value in the HSMS control file is checked. If an internal calculation performed by HSMS indicates that the size specified in the HSMS control file is too small, the common memory pool is allocated using the calculated size.

**COMMON-MEMORY-SIZE = \*UNCHANGED**

The minimum size of the HSMS common memory pool remains unchanged.

**COMMON-MEMORY-SIZE = \*SYSTEM-MANAGED(...)**

The common memory pool is calculated by HSMS.

**NUMBER-OF-SM-PUBSETS =**

The minimum size of the common memory pool is calculated by HSMS – based on the number of SM pubsets.

**NUMBER-OF-SM-PUBSETS = \*STD**

HSMS calculates the minimum size based on the memory required to manage the central HSMS parameters and all the SM pubset defined for the host.

**NUMBER-OF-SM-PUBSETS = <integer 0..99>**

HSMS calculates the minimum size based on the memory required to manage the central HSMS parameters and the specified number of SM pubsets.

**COMMON-MEMORY-SIZE = <integer 1..99 Mbyte>**

Minimum size of the HSMS common memory pool in 1Mbyte-segments.

**HSMS-SV-PORT-NUMBER = \*UNCHANGED / <integer 1..65535>**

*This operand only exists for compatibility reasons:*

The port number which HSMS-SV uses can be modified. This port number must have the same value as the port number which is defined on UNIX-based systems in the configuration file of HSMS-CL.

**FILE-SIZES = \*UNCHANGED / \*PARAMETERS(...)**

The size that is used for internal HSMS files can be modified.

**PRIM-ALLOC-DEFAULT = \*UNCHANGED / <integer 24..32767 2Kbyte>**

Defines the value for the default primary allocation for internal HSMS files.

**SEC-ALLOC-DEFAULT = \*UNCHANGED / <integer 24..32767 2Kbyte>**

Defines the value for the default secondary allocation for internal HSMS files.

**PRIM-ALLOC-RESULT = \*UNCHANGED / <integer 24..32767 2Kbyte>**

Defines the value for the default primary allocation for the HSMS result files.

**SEC-ALLOC-RESULT = \*UNCHANGED / <integer 24..32767 2Kbyte>**

Defines the value for the default x yallocation for the HSMS result files.

**OUTPUT = \*UNCHANGED / \*PRINTER / \*MAIL**

Defines the default destination of report output.

**OUTPUT = \*PRINTER**

A report is to be printed out.

**OUTPUT = \*MAIL**

A report is sent as an email attachment to the address which is entered in a caller's user entry. If it is not possible to send the report by email, it is printed out.

**DEFAULT-TAPE-CONTROL = \*UNCHANGED / \*PARAMETERS(...)**

Serves to define the parameters for tape processing control. The tape sessions defined here apply to all HSMS archives unless different tape sessions are defined for individual archives by means of MODIFY-TAPE-CONTROL.

**DEFAULT-TAPE-CONTROL = \*PARAMETERS(...)**

The tape processing control operands can be modified as follows:

**READ-CONTROL = \*UNCHANGED / \*PROCESS-REQUESTS / \*HOLD-REQUESTS / \*BY-TAPE-SESSIONS(...)**

Defines the tape sessions for read access, i.e. for all requests created by

- //RESTORE-FILES
- //IMPORT-FILES
- //RECALL-MIGRATED-FILES FROM-STORAGE=\*ANY/\*S2-STORAGE-LEVEL
- the BS2000 command SECURE-RESOURCE-ALLOCATION.

**READ-CONTROL = \*PROCESS-REQUESTS**

Tape access is to be permitted at any time. In the event of a switch to a different tape control mode, all pending requests are first completed.

**READ-CONTROL = \*HOLD-REQUESTS**

Tape access is to be temporarily prohibited (delayed). The requests are entered in the HSMS request file.

**READ-CONTROL = \*BY-TAPE-SESSIONS(...)**

Tape access is to be permitted at defined intervals, i.e. during the so-called tape sessions. During a tape session, all relevant requests currently waiting in the request file are processed.

**START-TIME =**

Defines the beginning of a tape session.

**START-TIME = \*IMMEDIATELY**

Tape access is to be permissible immediately after statement entry or start of the HSMS session.

**START-TIME = <time>**

Time of day at which a tape session is to begin. The time specified is valid for the current day and the following days.

**PERIOD = <integer 0..1440 minutes> / \*END-OF-DAY**

Period of time in minutes to be allowed between the beginning of two consecutive tape sessions. The period specified is always relative to the specified start time. PERIOD=0 or PERIOD=\*END-OF-DAY permit tape access from the beginning of the tape session until the end of the day, all requests received before midnight will be processed.

**WRITE-CONTROL = \*UNCHANGED / \*PROCESS-REQUESTS / \*HOLD-REQUESTS / \*BY-TAPE-SESSIONS(...)**

Defines the tape sessions for write access, i.e. any access involved in backing up, archiving, migrating or copying save files. For a description of the operand values see above under READ-CONTROL.

**EXPRESS-CONTROL = \*UNCHANGED / \*PROCESS-REQUESTS / \*HOLD-REQUESTS / \*BY-TAPE-SESSIONS(...)**

Defines the tape sessions for express requests (both read and write access). For a description of the operand values see above under READ-CONTROL.

**DEFAULT-HSMS-STORAGE = \*UNCHANGED / \*PARAMETERS(...)**

Serves to define the default S1 pubset and the default system archives.

**DEFAULT-HSMS-STORAGE = \*PARAMETERS(...)**

The values for the default S1 pubset and the default system archives in the SF environment can be modified as follows:

**S1-PUBSET-ID = \*UNCHANGED / \*UNDEFINED / <cat-id>**

ID of the pubset which is to be used as the default S1 pubset.

The pubset identified by the specified ID must already have been defined as an S1 pubset by means of MODIFY-PUBSET-PARAMETERS.

**S1-PUBSET-ID = \*UNDEFINED**

No default S1 pubset is defined.

**SYSBACKUP = \*UNCHANGED / \*UNDEFINED / <filename 1..22 without-cat-gen-vers>**

Name of the default system backup archive for BS2000 files.

The HSMS administrator must previously have created the specified archive as the public backup archive by means of the HSMS statement CREATE-ARCHIVE.

**SYSBACKUP = \*UNDEFINED**

No default system backup archive for BS2000 files is defined.

**SYSARCHIVE = \*UNCHANGED / \*UNDEFINED /**

**<filename 1..22 without-cat-gen-vers>**

Name of the default long-term system archive for BS2000 files.

The HSMS administrator must previously have created the specified archive as the public long-term archive by means of the HSMS statement CREATE-ARCHIVE.

**SYSARCHIVE = \*UNDEFINED**

No default long-term system archive for BS2000 files is defined.

**SYSMIGRATE = \*UNCHANGED / \*UNDEFINED /**

**<filename 1..22 without-cat-gen-vers>**

Name of the default system migration archive for BS2000 files.

The HSMS administrator must previously have created the specified archive as the public migration archive by means of the HSMS statement CREATE-ARCHIVE.

If SYSMIGRATE is reassigned, HSMS does not check whether there are still any migrated files in the system catalog whose data is managed in the previously assigned migration archive. Should this be the case, such files can no longer be recalled unless the migration archive assignment valid at the time of their migration is restored.

**SYSMIGRATE = \*UNDEFINED**

No default system migration archive for BS2000 files is defined.

**SYSNODEBACKUP = \*UNCHANGED / \*UNDEFINED /**

**<filename 1..22 without-cat-gen-vers>**

Name of the default system backup archive for node files of a BS2000-UFS (POSIX) or node S0.

The HSMS administrator must previously have created the specified archive as the public archive for node file backup by means of the HSMS statement CREATE-ARCHIVE.

**SYSNODEBACKUP = \*UNDEFINED**

No default system backup archive for node files is defined of a BS2000-UFS (POSIX) or node S0.

**SYSNODEARCHIVE = \*UNCHANGED / \*UNDEFINED /**

**<filename 1..22 without-cat-gen-vers>**

Name of the default long-term system archive for node files of a BS2000-UFS (POSIX) or node S0.

The HSMS administrator must previously have created the specified archive as the public archive for the archival of node files by means of the HSMS statement CREATE-ARCHIVE.

**SYSNODEARCHIVE = \*UNDEFINED**

No default long-term system archive for node files of a BS2000-UFS (POSIX) or node S0 is defined.

**S2-DEVICE-TYPE = \*UNCHANGED / <device>**

Default device type to be used for saving to S2. The tape device type must belong to the "TAPE" class. Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

**BACKUP-SERVER = \*UNCHANGED / \*NONE / \*LOCALHOST / <alphanum-name 1..8>**

Specifies the backup server. For details see the section "Backup server" in the "HSMS – Functions, Management and Installation" manual [1].

**BACKUP-SERVER = \*NONE**

Default value. No backup server is specified for this productive system. The request will be processed by the local system if it is the master. If the local system is a slave system concerning the pubset to be backed up the request generally is sent to the master. For exceptions and further details see the section "Working with shared pubsets" in the "HSMS – Functions, Management and Installation" manual [1].

**BACKUP-SERVER = \*LOCALHOST**

This specification is mandatory on a system to be used as backup server. The request started on this system will be processed locally.

**BACKUP-SERVER = <alphanum-name 1..8>**

The system with the specified host name will be used as backup server.

**MIGRATION-CONTROL = \*UNCHANGED / \*PARAMETERS(...)**

Serves to define the parameters for migration control in the SF environment.

**MIGRATION-CONTROL = \*PARAMETERS(...)**

The migration control parameters can be modified as follows:

**EXCEPT-FILE = \*UNCHANGED / \*NONE / <filename 1..54 without-gen-vers>**

Serves to define an except file which contains the names of the files to be excluded from migration, one name per record. The except file may contain partially qualified file names or names with wildcards. The file names must be written in uppercase characters.

The except file must be a SAM file with variable-length records containing one path name per record. The file can be created, for instance, by means of the HSMS statement SELECT-FILE-NAMES or the BS2000 command SHOW-FILE-ATTRIBUTES.

**FILE-INHIBIT = \*UNCHANGED / \*RESPECTED / \*IGNORED**

Determines whether the HSMS administrator is to respect user-defined file migration inhibits.

Users can define file migration inhibits by means of the BS2000 commands CREATE-FILE and MODIFY-FILE-ATTRIBUTES.

**FILE-INHIBIT = \*RESPECTED**

The HSMS administrator is to respect user-defined file migration inhibits. Inhibited files will not be migrated.

**FILE-INHIBIT = \*IGNORED**

The HSMS administrator does not have to respect user-defined file migration inhibits. Inhibited files can be migrated nonetheless.

**RECALL-FROM-S2 = \*UNCHANGED / \*BATCH-ONLY / \*ALLOWED / NOT-ALLOWED**

Determines whether the BS2000 Data Management System (DMS) is to be permitted to implicitly recall migrated files from storage level S2 in the case of OPEN (does not regulate recall with /SECURE-RESOURCE-ALLOCATION). Recall from S1 is always permitted.

**RECALL-FROM-S2 = \*BATCH-ONLY**

Implicit recall from S2 is to be permissible for batch tasks only.

**RECALL-FROM-S2 = \*ALLOWED**

Implicit recall from S2 is to be permissible for batch and interactive tasks.

**RECALL-FROM-S2 = \*NOT-ALLOWED**

Implicit recall from S2 is not to be permissible.

**CANCEL-AT-RECALL = \*UNCHANGED / \*ALLOWED(...) / \*NOT-ALLOWED**

Serves to activate/deactivate interrupt mode for implicit recall of migrated files.

**CANCEL-AT-RECALL = \*ALLOWED(...)**

Activates the interrupt mode. This causes HSMS to ask the user for confirmation before starting implicit recall for a migrated file in the case of OPEN. The user can confirm or cancel the recall operation. Confirmation of the recall operation or no user response within a predefined wait time causes HSMS to start the request. Cancelling the recall operation causes access to the file to be aborted.

**MAXIMUM-WAIT-TIME = \*UNCHANGED / <integer 10..3600 seconds>**

Specification of the period of time (in seconds) HSMS is to wait for the user's response.

**CANCEL-AT-RECALL = \*NOT-ALLOWED**

Deactivates the interrupt mode. This causes HSMS to start implicit recall of the migrated file immediately after outputting a message.

**BACKUP-MANDATORY = \*UNCHANGED / \*YES / \*NO**

\*YES prohibits the migration of files, which have not yet been saved (apart from files in backup class E). \*NO allows it.

**REQUESTS-WAIT-LIMITS = \*UNCHANGED / \*PARAMETERS(...)**

Serves to define the maximum wait times for the processing of HSMS requests.

**REQUEST-WAIT-LIMITS = \*PARAMETERS(...)**

The wait time values can be modified as follows. The values are always specified in seconds.

**BATCH-REQUEST-TIME = \*UNCHANGED / <integer 0..99999 seconds>**

Maximum wait time for a request to be accepted by HSMS when *batch* tasks are used. The HSMS statement is rejected after expiration of the wait time. An operand value of 99999 indicates that no time limit is specified.

**DIALOG-REQUEST-TIME = \*UNCHANGED / <integer 0..99999 seconds>**

Maximum wait time for a request to be accepted by HSMS when *interactive* tasks are used. The HSMS statement is rejected after expiration of the wait time.

**BATCH-EXEC-TIME = \*UNCHANGED / <integer 0..99999 seconds>**

Maximum wait time for the termination of a request by HSMS for *batch* tasks. After the sum of the wait times from BATCH-REQUEST-TIME and BATCH-EXEC-TIME has elapsed the request is processed asynchronously. An operand value of 99999 results in no time limit being set.

**DIALOG-EXEC-TIME = \*UNCHANGED / <integer 0..99999 seconds>**

Maximum wait time for the termination of a request by HSMS for *interactive* tasks. After the sum of the wait times from DIALOG-REQUEST-TIME and DIALOG-EXEC-TIME has elapsed the request is processed asynchronously. This value should be greater than 200 seconds.

**REQUEST-PRIORITIES = \*UNCHANGED / \*PARAMETERS(...)**

Determines the default processing priority for each archive type. 1 has the highest priority and 255 the lowest.

**REQUEST-PRIORITIES = \*PARAMETERS(...)**

The default processing priority can be preset for the following requests/archive types:

**IMPORT = \*UNCHANGED / <integer 1..255>**

Default processing priority for import requests.

**EXPORT = \*UNCHANGED / <integer 1..255>**

Default processing priority for export requests.

**IMPLICIT-RECALL = \*UNCHANGED / <integer 1..255>**

Default processing priority for implicit recall requests.

**BACKUP-READ = \*UNCHANGED / <integer 1..255>**

Default processing priority for read requests for a backup archive.

**BACKUP-WRITE = \*UNCHANGED / <integer 1..255>**

Default processing priority for write requests for a backup archive.

**ARCHIVAL-READ = \*UNCHANGED / <integer 1..255>**

Default processing priority for read requests for a long-term archive.

**ARCHIVAL-WRITE = \*UNCHANGED / <integer 1..255>**

Default processing priority for write requests for a long-term archive.

**MIGRATION-READ = \*UNCHANGED / <integer 1..255>**

Default processing priority for read requests for a migration archive (HSMS statement RECALL-MIGRATED-FILES).

**MIGRATION-WRITE = \*UNCHANGED / <integer 1..255>**

Default processing priority for write requests for a migration archive.

**NODEBACKUP-READ = \*UNCHANGED / <integer 1..255>**

Default processing priority for read requests for a node backup archive.

**NODEBACKUP-WRITE = \*UNCHANGED / <integer 1..255>**

Default processing priority for write requests for a node backup archive.

**NODEARCHIVAL-READ = \*UNCHANGED / <integer 1..255>**

Default processing priority for read requests for a node long-term archive.

**NODEARCHIVAL-WRITE = \*UNCHANGED / <integer 1..255>**

Default processing priority for write requests for a node long-term archive.

**SHADOW-READ = \*UNCHANGED / <integer 1..255>**

Default processing priority for read requests for a shadow archive (RESTORE-FILES from a shadow archive).

**SHADOW-WRITE = \*UNCHANGED / <integer 1..255>**

Default processing priority for write requests for a shadow archive (COPY-SAVE-FILE to a shadow archive).

**SAVE-FILE-PROCESSING = \*UNCHANGED / \*HSMS-V9-COMPATIBLE / \*HSMS-V10-COMPATIBLE**

Controls the processing of save files on storage level S1, public disk and Net-Storage.

**SAVE-FILE-PROCESSING = \*HSMS-V9-COMPATIBLE**

Save files on storage level S1, public disk and Net-Storage are created in the same way as in HSMS V9.0B and are completely supported by HSMS V9.0B. The functionality of HSMS introduced since V10.0A is not completely available.

**SAVE-FILE-PROCESSING = \*HSMS-V10-COMPATIBLE**

The functionality of HSMS V10.0A is completely available. Save files on public disk and Net-Storage created in this mode are not supported by lower versions.

**MONITORING = \*UNCHANGED / \*BY-ARCHIVE-ATTRIBUTE / \*SYSHSMS-ONLY / \*NONE / \*ALL**

Controls the monitoring in an SE Server environment. If monitoring is enabled, HSMS reports every creation, deletion or update of a request to the Management Unit.

**MONITORING = \*BY-ARCHIVE-ATTRIBUTE**

If monitoring is performed, all requests concerning archives with the attribute MONITORING=\*STD are monitored.

**MONITORING = \*SYSHSMS-ONLY**

If monitoring is performed, only the following requests are monitored:

- All requests concerning archives of the owner SYSHSMS.
- Requests that do not concern archives (EXPORT-/IMPORT-FILES), if the HSMS-run is started under a user ID with the HSMS-ADMINISTRATOR privilege.

User archives (with an owner other than SYSHSMS) are not monitored regardless of the definition of the corresponding archive attribute.

**MONITORING = \*NONE**

No request will be monitored regardless of the definition of the corresponding archive attribute or privilege of the user.

**MONITORING = \*ALL**

All requests are monitored regardless of the definition of the corresponding archive attribute.

**Presettings prescribed by HSMS**

For an installation of HSMS without a control file the following presettings which are prescribed by are assumed. For an installation with a control file the values in the control file are used.

<b>Operand value</b>	<b>Presettings prescribed by HSMS</b>
OPERATIONAL-MODUS	*DEFINE-SHOW
HSMS-ACCOUNT	*NONE
NUMBER-OF-SUBTASKS	0
COMMON-MEMORY-SIZE	1 <i>Mbyte</i>
READ-CONTROL	*PROCESS-REQUESTS
WRITE-CONTROL	*PROCESS-REQUESTS
EXPRESS-CONTROL	*PROCESS-REQUESTS
S1-PUBSET-ID	*UNDEFINED
SYSBACKUP	*UNDEFINED
SYSARCHIVE	*UNDEFINED
SYSMIGRATE	*UNDEFINED
SYSNODEBACKUP	*UNDEFINED
SYSNODEARCHIVE	*UNDEFINED
S2-DEVICE-TYPE	c'TAPE-C4'
EXCEPT-FILE	*NONE
FILE-INHIBIT	*RESPECTED
RECALL-FROM-S2	*BATCH-ONLY
CANCEL-AT-RECALL	*NOT-ALLOWED
BATCH-REQUEST-TIME	3600 <i>seconds</i>
DIALOG-REQUEST-TIME	1800 <i>seconds</i>
BATCH-EXEC-TIME	3600 <i>seconds</i>
DIALOG-EXEC-TIME	1800 <i>seconds</i>
MAXIMUM-WAIT-TIME	30 <i>seconds</i>
BACKUP-MANDATORY	*YES
REQUEST-PRIORITIES	For import, export and implicit recall request as well as for all archive types: 128
SAVE-FILE-PROCESSING	*HSMS-V9-COMPATIBLE
BACKUP-SERVER	*NONE
MONITORING	*NONE
OUTPUT	*PRINTER

## MODIFY-MANAGEMENT-CLASS

### Modify management class

This statement is for the HSMS administrator only and is used to modify a management class in an SM pubset that is under HSMS control.

#### Note

If a management class is protected by a guard profile which is not available, access to the management class is rejected.

#### Format (only for HSMS administrators)

MODIFY-MANAGEMENT-CLASS	Alias: <b>MMC</b>
<pre> <b>ENVIRONMENT</b> = *<b>SYSTEM-MANAGED</b>(...)   *<b>SYSTEM-MANAGED</b>(...)         <b>CATALOG-ID</b> = &lt;cat-id&gt; <b>,MANAGEMENT-CLASS</b> = &lt;alphanum-name 1..8&gt; <b>,MIGRATION-ATTRIBUTES</b> = *<u>UNCHANGED</u> / *<b>PARAMETERS</b>(...)   *<b>PARAMETERS</b>(...)         <b>FROM-S0</b> = *<u>UNCHANGED</u> / *<b>PARAMETERS</b>(...)       *<b>PARAMETERS</b>(...)             <b>UNUSED-DAYS</b> = *<u>UNCHANGED</u> / &lt;integer 0..9999 days&gt;               <b>,MINIMUM-SIZE</b> = *<u>UNCHANGED</u> / *<b>NONE</b> / &lt;integer 1..2147483647 2Kbyte&gt;                 <b>,MAXIMUM-SIZE</b> = *<u>UNCHANGED</u> / *<b>NONE</b> / &lt;integer 1..2147483647 2Kbyte&gt;                   <b>,MINIMUM-EXTENTS</b> = *<u>UNCHANGED</u> / &lt;integer 1..99999&gt;                     <b>,TO-STORAGE</b> = *<u>UNCHANGED</u> / *<b>S2-STORAGE-LEVEL</b> / *<b>S1-STORAGE-LEVEL</b>               <b>,FROM-S1</b> = *<u>UNCHANGED</u> / *<b>PARAMETERS</b>(...)             *<b>PARAMETERS</b>(...)                   <b>MINIMUM-DAYS-ON-S1</b> = *<u>UNCHANGED</u> / &lt;integer 0..9999 days&gt;                     <b>,MAXIMUM-DAYS-ON-S1</b> = *<u>UNCHANGED</u> / &lt;integer 1..9999 days&gt;                       <b>,MINIMUM-SIZE</b> = *<u>UNCHANGED</u> / *<b>NONE</b> / &lt;integer 1..2147483647 2Kbyte&gt;                         <b>,TO-STORAGE</b> = *<u>UNCHANGED</u> / *<b>S2-STORAGE-LEVEL</b> / *<b>S1-STORAGE-LEVEL</b> </pre>	

(part 1 of 2)

```

,BACKUP-ATTRIBUTES = *UNCHANGED / *PARAMETERS(...)
    *PARAMETERS(...)
        | RETENTION-PERIOD = *UNCHANGED / <integer 0..16383 days>
,PROTECTION = *UNCHANGED / *NONE / *BY-GUARDS(...)
    *BY-GUARDS(...)
        | GUARD-NAME = <filename 1..24 without-gen-vers>
,USER-INFORMATION = *UNCHANGED / *NONE / <c-string 1..80 with-lower-case>

```

(part 2 of 2)

**ENVIRONMENT** = \*SYSTEM-MANAGED(...)

The management class can only be located in a system-managed environment.

**CATALOG-ID** = <cat-id>

The catalog ID of the SM pubset on which the management class is defined must be specified explicitly. The SM pubset must be imported locally.

**MANAGEMENT-CLASS** = <alphanum-name 1..8>

The name of the management class must be specified explicitly.

**MIGRATION-ATTRIBUTES** = \*UNCHANGED / \*PARAMETERS(...)

The attributes of the management class can be modified for the migration.

**MIGRATION-ATTRIBUTES** = \*PARAMETERS(...)

The attributes of the management class are to be defined for the migration.

**FROM-S0** = \*UNCHANGED / \*PARAMETERS(...)

The attributes of the management class can be modified for the migration from the S0 level.

**FROM-S0** = \*PARAMETERS(...)

The attributes of the management class are to be defined for the migration from the S0 level.

**UNUSED-DAYS** = \*UNCHANGED / <integer 0..9999 days>

Minimum number of days a file must remain unused to be eligible for migration to a background level.

**MINIMUM-SIZE** = \*UNCHANGED / \*NONE / <integer 1..2147483647 2Kbyte>

Minimum number of PAM pages a file must have to be eligible for migration to a background level.

**MAXIMUM-SIZE** = \*UNCHANGED / \*NONE / <integer 1..2147483647 2Kbyte>

Maximum number of PAM pages a file must have to be eligible for migration to a background level.

**MINIMUM-EXTENTS = \*UNCHANGED / 1 / <integer 1..99999>**

Minimum number of extents a file must have to be eligible for migration to a background level.

**TO-STORAGE = \*UNCHANGED / \*S2-STORAGE-LEVEL / \*S1-STORAGE-LEVEL**

Background level to which the files are to be migrated.

**FROM-S1 = \*UNCHANGED / \*PARAMETERS(...)**

The attributes of the management class can be modified for the migration from the S1 level.

**FROM-S1 = \*PARAMETERS(...)**

The attribute of the management class are to be defined for the migration from the S1 level.

**MINIMUM-DAYS-ON-S1 = \*UNCHANGED / 0 / <integer 0..9999 days>**

Minimum number of days a save file must be on S1 before it can be migrated to a background level.

**MAXIMUM-DAYS-ON-S1 = \*UNCHANGED / 9999 / <integer 1..9999 days>**

Maximum number of days a save file may reside on S1 to be eligible for migration to a background level.

**MINIMUM-SIZE = \*UNCHANGED / \*NONE / <integer 1..2147483647 2Kbyte>**

Minimum number of PAM pages a save file must have to be eligible for migration to a background level.

**TO-STORAGE = \*UNCHANGED / \*S2-STORAGE-LEVEL / \*S1-STORAGE-LEVEL**

Background level to which the save files are migrated.

**BACKUP-ATTRIBUTES = \*UNCHANGED / \*PARAMETERS(...)**

The attributes of the management class can be modified for the backup.

**BACKUP-ATTRIBUTES = \*PARAMETERS(...)**

The attributes of the management class are to be defined for the backup

**RETENTION-PERIOD = \*UNCHANGED / <integer 0..16383 days>**

(Physical) retention period in days during which the save file and save volumes must not be modified or deleted.

**PROTECTION = \*UNCHANGED / \*NONE / \*BY-GUARDS(...)**

The protection attributes for access to the management class can be modified.

**PROTECTION = \*BY-GUARDS(...)**

The protection attributes for access to the management class are to be defined.

**GUARD-NAME = <filename 1..24 without-gen-vers>**

Name of the guard profile that protects accesses to the management class. The name is searched for in the same environment as the management class.

The guard profile must be created using the software product GUARDS (see the "SECOS" manual [7]).

**USER-INFORMATION =**

User information about the management class.

**USER-INFORMATION = \*UNCHANGED**

The user information remains unchanged.

**USER-INFORMATION = \*NONE**

The user information is to be reset.

**USER-INFORMATION = <c-string 1..80 with-lower-case>**

The user information is to be set to the specified value.

## MODIFY-NODE-PARAMETERS

### Modify parameters of node S0

This statement is for the HSMS administrator only and is used for placing a node S0 under HSMS management or for redefining the parameters of a node S0.

An entry in the HSMS control file must be made for each node S0 to be processed by HSMS. HSMS cannot process any node S0 not entered in its control file.

The first MODIFY-NODE-PARAMETERS statement for a node causes the node to be placed under HSMS management (with default values).

A MODIFY-NODE-PARAMETERS statement with HSMS-CONTROL=\*NO removes the entry for the specified node from the HSMS control file.

The operand value \*UNCHANGED of the MODIFY-NODE-PARAMETERS statement has two different meanings, depending on the two different functions of the statement:

- **Placing a node S0 under HSMS management**  
In this case, \*UNCHANGED means that the default values apply; these are listed for the MODIFY-SM-PUBSET-PARAMETERS statement under “[Presettings](#)” on [page 350](#).
- **Redefining the parameter values for a node S0**  
In this case, \*UNCHANGED means that the parameter values defined via a previous MODIFY-NODE-PARAMETERS statement are retained. These can be queried by means of the HSMS statement SHOW-NODE-PARAMETERS.

#### Format (only for HSMS administrators)

<b>MODIFY-NODE-PARAMETERS</b>	Alias: <b>MNP</b>
<pre> <b>NODE-ID</b> = *BS2000-UFS / &lt;posix-filename 1..48 without-wild&gt; ,<b>ENVIRONMENT</b> = *<u>NODE-STD</u> / *SINGLE-FEATURE / *SYSTEM-MANAGED(...)   *SYSTEM-MANAGED(...)       <b>CATALOG-ID</b> = &lt;cat-id&gt; ,<b>HSMS-CONTROL</b> = *<u>YES(...)</u> / *NO   *<u>YES(...)</u>       <b>SYSDOEARCHIVE</b> = *<u>UNCHANGED</u> / *STD / &lt;filename 1..22 without-cat-gen-vers&gt;       <b>SYSDOBACKUP</b> = *<u>UNCHANGED</u> / *STD / &lt;filename 1..22 without-cat-gen-vers&gt; </pre>	

**NODE-ID = \*BS2000-UFS**

ID of the local BS2000-UFS.

**NODE-ID = <posix-filename 1..48 without-wild>**

Name of the node S0 on which the node file resides. The node S0 which is defined with //MODIFY-NODE-PARAMETERS is mounted under the directory /HSMS/<node-id> in POSIX, and access takes place via NFS.

**ENVIRONMENT =**

HSMS environment in which the user wishes to work with the associated standard system archives SYSNODEARCHIVE and SYSNODEBACKUP.

**ENVIRONMENT = \*NODE-STD**

\*NODE-STD is set to the value \*SINGLE-FEATURE.

**ENVIRONMENT = \*SINGLE-FEATURE**

The HSMS statement is valid in the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The HSMS statement is valid in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset for which the HSMS statement is valid.

**HSMS-CONTROL = \*YES(...)**

The specified node S0 is to be placed under HSMS management. If the specified node S0 already is under HSMS management, this operand value permits the parameters for the node S0 to be modified.

**SYSNODEARCHIVE = \*UNCHANGED / \*STD / <filename 1..22 without-cat-gen-vers>**

Name of the default long-term system archive for node files.

The HSMS administrator must previously have created the specified archive as the public long-term archive for node files by means of the HSMS statement CREATE-ARCHIVE.

**SYSNODEARCHIVE = \*STD**

Global default long-term system archive for node files (according to HSMS parameters for the SF environment and according to SM pubset parameters for each SM environments).

**SYSDOUBLEBACKUP = \*UNCHANGED / \*STD /**  
**<filename 1..22 without-cat-gen-vers>**

Name of the default system backup archive for node files.

The HSMS administrator must previously have created the specified archive as the public backup archive for node files by means of the HSMS statement CREATE-ARCHIVE.

**SYSDOUBLEBACKUP = \*STD**

Global default system backup archive for node files (according to HSMS parameters for the SF environment and according to SM pubset parameters for each SM environments).

**HSMS-CONTROL = \*NO**

The specified node S0 is to be deleted from the HSMS parameters for the given environment.

### Notes

- Several MODIFY-NODE-PARAMETERS statements are required for BS2000-UFS. One MODIFY-NODE-PARAMETERS statement is required for each environment covered by BS2000-UFS:
  - The SF environment is always affected, because the BS2000-UFS contains the root file system which generally resides in the SF environment.
  - Furthermore those SM environments are affected which correspond to the SM-PUB/X branches.
- A remote workstation is always defined in its own environment and therefore only requires one MODIFY-NODE-PARAMETERS statement.

If a workstation is to be relocated to another environment, it must first be removed from the old environment using MODIFY-NODE-PARAMETERS HSMS-CONTROL=\*NO. It must then be made known to the new environment using a second MODIFY-NODE-PARAMETERS statement.
- When inputting the node ID, you must pay careful attention to the use of uppercase and lowercase characters. The node ID must be written in exactly the same way as the directory /HSMS/<node-s0> in POSIX under which the remote file system is mounted.

## MODIFY-PUBSET-PARAMETERS

### Modify SF pubset parameters

This statement is for the HSMS administrator only. The statement relates only to SF pubsets. It is used for placing a SF pubset under HSMS management and redefining the SF pubset parameters. As of HSMS V10.0A it is also possible to specify SM pubsets in the statement for further use as S1 storage level of SF pubsets (so called S1-SM-pubset).

An entry in the HSMS control file is made only for those SF pubsets whose parameter values differ from the default values of the HSMS parameters. The modified values apply as of statement entry (equivalent to VALID-PERIOD=\*PERMANENT).

An entry can be deleted from the HSMS control file by resetting all pubset parameters to their default values (this takes effect as of the next HSMS session).

Since this HSMS statement can be used both to place pubsets under HSMS management and to modify the parameter values for pubsets already under HSMS management, the operand value \*UNCHANGED has two different meanings:

- For placing pubsets under HSMS management, \*UNCHANGED means that the default values apply; these are listed in the table [“Default values” on page 343](#).
- When redefining parameter values, \*UNCHANGED means that the values defined via a previous MODIFY-PUBSET-PARAMETERS statement are not changed. These can be interrogated by means of the HSMS statement SHOW-PUBSET-PARAMETERS.

#### Format (only for HSMS administrators)

<b>MODIFY-PUBSET-PARAMETERS</b>	Alias: <b>MPP</b>
<pre> <b>PUBSET-ID</b> = &lt;cat-id&gt; ,<b>STORAGE-LEVEL</b> = <u>*UNCHANGED</u> / *UNDEFINED / *S0(...) / *S1   *S0(...)             <b>S1-PUBSET-ID</b> = <u>*UNCHANGED</u> / *STD / &lt;cat-id&gt;             ,<b>SYSMIGRATE</b> = <u>*UNCHANGED</u> / *STD / &lt;filename 1..22 without-cat-gen-vers&gt;             ,<b>MIGRATION</b> = <u>*UNCHANGED</u> / *ALLOWED / *S2-ONLY / *INHIBITED       ,<b>SYSARCHIVE</b> = <u>*UNCHANGED</u> / *STD / &lt;filename 1..22 without-cat-gen-vers&gt; ,<b>SYSBACKUP</b> = <u>*UNCHANGED</u> / *STD / &lt;filename 1..22 without-cat-gen-vers&gt; </pre>	

**PUBSET-ID = <cat-id>**

ID of the SF or SM pubset whose parameters are to be redefined. The SF pubset must already have been defined in or imported to the HSMS control file. If an SM pubset is used it must already have been put under HSMS control (by CREATE-SM-PUBSET-PARAMETERS statement) and have its local HSMS control file. An SM pubset may only be used, if the global HSMS parameter SAVE-FILE-PROCESSING is set to \*HSMS-V10-COMPATIBLE.

The user ID SYSHSMS must be created on a pubset before it is assigned for the first time.

**STORAGE-LEVEL = \*UNCHANGED / \*UNDEFINED / \*S0(...) / \*S1**

Storage level to which the pubset is to be assigned. If a pubset is reset from \*S0 to \*UNDEFINED, all values set for the substructure of STORAGE-LEVEL=\*S0 are simultaneously reset to their default values. The default values are listed at the end of the operand description for this statement.

**STORAGE-LEVEL = \*UNDEFINED**

The pubset is not to be assigned to any storage level. This pubset cannot be used for migration. It is possible, however, to assign archives of this pubset for backup and archival.

With this value you can remove dismounted pubsets from the global HSMS control file.

**STORAGE-LEVEL = \*S0(...)**

The pubset is to be assigned to storage level S0. This pubset must not be an SM pubset. Additional parameters can be set for this pubset:

**S1-PUBSET-ID = \*UNCHANGED / \*STD / <cat-id>**

Serves to define the default S1 pubset to be assigned to this pubset. The pubset with the specified pubset ID must be defined as an S1 pubset beforehand. It can be an SF or an SM pubset.

**S1-PUBSET-ID = \*STD**

The global S1 pubset as defined in the HSMS parameters is to be assigned.

**SYSMIGRATE = \*UNCHANGED / \*STD / <filename 1..22 without-cat-gen-vers>**

Name of the default system migration archive.

The HSMS administrator must previously have created the specified archive as the public migration archive by means of the HSMS statement CREATE-ARCHIVE.

**SYSMIGRATE = \*STD**

Assigns the default system migration archive as defined in the HSMS parameters as the default archive for this pubset.

**MIGRATION = \*UNCHANGED / \*ALLOWED / \*S2-ONLY /\*INHIBITED**

Determines whether nonprivileged users are to be permitted to migrate files from this pubset and how many files they are allowed to migrate.

**MIGRATION = \*ALLOWED**

Nonprivileged users can migrate files from this pubset without restriction.

**MIGRATION = \*S2-ONLY**

Nonprivileged users are allowed to migrate files only from S0 to S2.

**MIGRATION = \*INHIBITED**

Only the HSMS administrator is allowed to migrate files from this pubset. For all other users migration is prohibited.

**STORAGE-LEVEL = \*S1**

The pubset is to be assigned to storage level S1.

**SYSARCHIVE = \*UNCHANGED / \*STD /<filename 1..22 without-cat-gen-vers>**

Name of the default long-term system archive.

The HSMS administrator must previously have created the specified archive as the public long-term archive by means of the HSMS statement CREATE-ARCHIVE.

**SYSARCHIVE = \*STD**

Assigns the default long-term system archive as defined in the HSMS parameters as the default archive for this pubset.

**SYSBACKUP = \*UNCHANGED / \*STD /<filename 1..22 without-cat-gen-vers>**

Name of the default system backup archive.

The HSMS administrator must previously have created the specified archive as the public backup archive by means of the HSMS statement CREATE-ARCHIVE.

**SYSBACKUP = \*STD**

Assigns the default system backup archive as defined in the HSMS control file as the default archive for this pubset.

**Default values**

The following default operand values apply for the first MODIFY-PUBSET-PARAMETERS statement:

<b>Operand value</b>	<b>Default value</b>
STORAGE-LEVEL	*UNDEFINED
SYSARCHIVE	global definition from the HSMS parameters
SYSBACKUP if S0:	global definition from the HSMS parameters
S1-PUBSET-ID	global definition from the HSMS parameters
SYSMIGRATE	global definition from the HSMS parameters
MIGRATION	*ALLOWED

These default values ensure that backup and archival to the appropriate system archive remain possible for all pubsets available, even if they are not under HSMS management. In contrast to this, a pubset which is to be used for migration must be explicitly defined for this purpose.

## MODIFY-SM-PUBSET-PARAMETERS

### Modify parameters of SM pubset

This statement is for the HSMS administrator only and is used to modify the parameters of an SM pubset that is under HSMS control. If no SM pubset parameters which were set earlier exist when an HSMS session for the SM pubset is started the preset values specified by HSMS apply (see [“Presettings” on page 350](#)).

#### Format (only for HSMS administrators)

MODIFY-SM-PUBSET-PARAMETERS	Alias: MSP
<pre> SM-PUBSET-ID = &lt;cat-id&gt; ,GLOBAL-PARAMETERS = *<u>UNCHANGED</u> / *PARAMETERS(...)   *PARAMETERS(...)         DESTROY-BY-DELETE = *<u>UNCHANGED</u> / *NO / *YES ,S1-DEFINITION = *<u>UNCHANGED</u> / *PARAMETERS(...)   *PARAMETERS(...)         S1-VOLUME-SET = *<u>UNCHANGED</u> / *UNDEFINED / &lt;cat-id&gt; /*ALL-HSMS-CONTROLLED ,S2-DEVICE-TYPE = *<u>UNCHANGED</u> / *STD / *UNDEFINED / &lt;device&gt; ,SYSBACKUP = *<u>UNCHANGED</u> / *UNDEFINED / &lt;filename 1..22 without-cat-gen-vers&gt; ,SYSARCHIVE = *<u>UNCHANGED</u> / *STD / *UNDEFINED / *PARAMETERS(...)   *PARAMETERS(...)         ENVIRONMENT = *<u>SINGLE-FEATURE</u> / *SYSTEM-MANAGED         ,ARCHIVE-NAME = *<u>DEFAULT-NAME</u> / &lt;filename 1..22 without-cat-gen-vers&gt; ,SYSMIGRATE = *<u>UNCHANGED</u> / *UNDEFINED / &lt;filename 1..22 without-cat-gen-vers&gt; ,SYSNODEBACKUP = *<u>UNCHANGED</u> / *UNDEFINED / &lt;filename 1..22 without-cat-gen-vers&gt; ,SYSNODEARCHIVE = *<u>UNCHANGED</u> / *UNDEFINED / &lt;filename 1..22 without-cat-gen-vers&gt; ,MIGRATION-CONTROL = *<u>UNCHANGED</u> / *PARAMETERS(...)   *PARAMETERS(...)         MIGRATION = *<u>UNCHANGED</u> / *ALLOWED / *S2-ONLY / *INHIBITED         ,BACKUP-MANDATORY = *<u>UNCHANGED</u> / *YES / *NO         ,EXCEPT-FILE = *<u>UNCHANGED</u> / *NONE / &lt;filename 1..54 without-cat-gen-vers&gt;         ,FILE-INHIBIT = *<u>UNCHANGED</u> / *STD / *RESPECTED / *IGNORED </pre>	

**SM-PUBSET-ID = <cat-id>**

The catalog ID of the pubset for which the parameters are to be modified is specified explicitly.

The specified SM pubset must first be imported locally.

**GLOBAL-PARAMETERS = \*UNCHANGED / \*PARAMETERS(...)**

Defines the parameters for an SM pubset under HSMS control.

**GLOBAL-PARAMETERS = \*PARAMETERS(...)****DESTROY-BY-DELETE = \*UNCHANGED / \*NO / \*YES**

Defines the default value for the DESTROY-BY-DELETE parameter in the archive definition.

**DESTROY-BY-DELETE = \*YES**

When the save file is deleted, the released storage space is overwritten with binary zeros for data protection reasons. If overwrite is declared, later deletion of the save file involves a longer run time.

**S1-DEFINITION = \*UNCHANGED / \*PARAMETERS(...)**

Defines the S1 level of the SM pubset.

**S1-DEFINITION = \*PARAMETERS(...)****S1-VOLUME-SET = \*UNCHANGED / \*UNDEFINED / <cat-id>**

Defines the S1 level of the SM pubset.

**S1-VOLUME-SET = \*UNDEFINED**

No S1 level is defined for the SM pubset.

**S1-VOLUME-SET = <cat-id>**

The catalog ID of the volume set that is to serve as the S1 level is specified explicitly. This volume set must be selected from the volume sets of the SM pubset reserved by HSMS.



If S1-VOLUME-SET=\*ALL-HSMS-CONTROLLED is currently set, the change to an explicitly specified volume set is possible only if there are no save files at S1 level.

**S1-VOLUME-SET = \*ALL-HSMS-CONTROLLED**

The volume set for S1 level is not defined explicitly. Each volume set of the SM pubset which is under HSMS control can be used as S1 level. Several of these volume sets can be used if not enough space is available on a volume set during a save run.

This setting makes sense only if BS2000 OSD/BC V11.0 or higher is used on all systems of the shared pubset network and if SAVE-FILE-PROCESSING=\*HSMS-V10-COMPATIBLE is set.

This statement is rejected in the following cases:

- If no volume set under HSMS control exists, the specification of \*ALL-HSMS-CONTROLLED is rejected with the message HSM050A.
- On a BS2000 system with BS2000 OSD/BC earlier than V11.0, the specification of \*ALL-HSMS-CONTROLLED is rejected with the message HSM021D.



The error message indicates that the setting does not make sense in the existing shared pubset network. However, it does not prevent the statement from being accepted on another system in the network if a BS2000 version V11.0 or higher exists.

**S2-DEVICE-TYPE = \*UNCHANGED / \*STD / \*UNDEFINED / <device>**

Default device type with which the objects of the SM pubset are to be saved to the S2 level. The device type must be of the "TAPE" class. Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

**S2-DEVICE-TYPE = \*STD**

The value \*STD is stored in the specific parameters of the SM pubset. When this option is used, the current value is taken from the host's HSMS parameters.

**SYSBACKUP =**

Definition of the default backup archive for the SM pubset.

**SYSBACKUP = \*UNCHANGED**

The default backup archive is not changed.

**SYSBACKUP = \*UNDEFINED**

No default backup archive is defined for the SM pubset.

**SYSBACKUP = <filename 1..22 without-cat-gen-vers>**

The default backup archive is specified explicitly. This name is local for the SM pubset. The specified archive must already exist.

**SYSARCHIVE =**

Definition of the default long-term archive for the SM pubset.

**SYSARCHIVE = \*UNCHANGED**

The default long-term archive is not changed.

**SYSARCHIVE = \*STD**

Reference is made to the system archive that is defined in the global HSMS parameters and which is then usable for both the SF environment and this SM environment.

**SYSARCHIVE = \*UNDEFINED**

No default long-term archive is defined for the SM pubset.

**SYSARCHIVE = \*PARAMETERS(...)**

Defines the parameters for the default long-term archive. This long-term archive can be a global SF archive or a local SM archive.

**ENVIRONMENT =**

Defines the environment type.

**ENVIRONMENT = \*SINGLE-FEATURE**

The default long-term archive must already exist in the SF pubset environment.

**ENVIRONMENT = \*SYSTEM-MANAGED**

The default long-term archive must already exist in the SM pubset environment.

**ARCHIVE-NAME =**

Name of the default long-term archive.

**ARCHIVE-NAME = \*DEFAULT-NAME**

The long-term archive with the default name :environment cat-id:HSMS.STD.AR is used.

**ARCHIVE-NAME = \*UNCHANGED**

The default long-term archive is not changed.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

The default long-term archive is specified explicitly.

**SYSMIGRATE =**

Definition of the default migration archive for the SM pubset.

**SYSMIGRATE = \*UNCHANGED**

The default migration archive is not changed.

**SYSMIGRATE = \*UNDEFINED**

No default migration archive is defined for the SM pubset.

**SYSMIGRATE = <filename 1..22 without-cat-gen-vers>**

The default migration archive is specified explicitly. The archive must already exist and must be local for the SM pubset.

**SYSNODEBACKUP =**

Definition of the default backup archive for node files of a BS2000-UFS (POSIX) or node S0 for the current SM pubset.

**SYSNODEBACKUP = \*UNCHANGED**

The default backup archive for node files of a BS2000-UFS (POSIX) or node S0 is not changed.

**SYSNODEBACKUP = \*UNDEFINED**

No default backup archive for node files of a BS2000-UFS (POSIX) or node S0 is defined on the current SM pubset.

**SYSNODEBACKUP = <filename 1..22 without-cat-gen-vers>**

The default backup archive for node files of a BS2000-UFS (POSIX) or node S0 is specified explicitly and is local for the SM pubset. The specified archive must already exist and be set up with the following attributes: USER-ACCESS=\*ALL-USERS(Access=\*READ).

**SYSNODEARCHIVE =**

Definition of the default long-term for all node files of a BS2000-UFS (POSIX) or node S0 for the current SM pubset.

**SYSNODEARCHIVE = \*UNCHANGED**

The default long-term archive for node files of a BS2000-UFS (POSIX) or node S0 is not changed.

**SYSNODEARCHIVE = \*UNDEFINED**

There is no default long-term archive for node files of a BS2000-UFS (POSIX) or node S0 specified on the current SM pubset.

**SYSNODEARCHIVE = <filename 1..22 without-cat-gen-vers>**

The default long-term archive for node files of a BS2000-UFS (POSIX) or node S0 is specified explicitly. The specified archive must already exist with the following attributes: USER-ACCESS=\*ALL-USERS(Access=\*READ).

**MIGRATION-CONTROL = \*UNCHANGED / \*PARAMETERS(...)**

Defines the parameters for the migration control.

**MIGRATION-CONTROL = \*PARAMETERS(...)****MIGRATION = \*UNCHANGED / \*ALLOWED / \*INHIBITED**

Defines whether nonprivileged users are allowed to migrate files from this pubset and how many files they are allowed to migrate.

**MIGRATION = \*ALLOWED**

Nonprivileged users can migrate files from this pubset without restrictions.

**MIGRATION = \*S2-ONLY**

Nonprivileged users are only allowed to migrate files from S0 to S2.

**MIGRATION = \*INHIBITED**

Only the HSMS administrator is allowed to migrate objects from this pubset. Migration is not allowed for any other user.

**BACKUP-MANDATORY = \*UNCHANGED / \*YES / \*NO**

\*YES prohibits the migration of files, which have not yet been saved (apart from files in backup class E). \*NO allows it.

**EXCEPT-FILE = \*UNCHANGED / \*NONE / <filename 1..54 without-cat-gen-vers>**

An except file can be specified which contains in records the names of files to be excluded from the migration. The except file may also contain partially qualified file names and names with wildcards. The file names must be written in uppercase letters. The except file must be a SAM file of variable-length records with one path name per record. It can be created, for example, with the HSMS statement SELECT-FILE-NAMES or with the BS2000 command SHOW-FILE-ATTRIBUTES. The except file must be on the SM pubset.

**FILE-INHIBIT = \*UNCHANGED / \*STD / \*RESPECTED / \*IGNORED**

Defines whether the migration inhibits that are set by the user are to be respected. The user can declare migration inhibits with BS2000 commands CREATE-FILE and MODIFY-FILE-ATTRIBUTES.

**FILE-INHIBIT = \*STD**

The value \*STD is stored in the specific parameters of the SM pubset. When this option is used, the current value is taken from the HSMS parameters of the SF environment.

**FILE-INHIBIT = \*RESPECTED**

Migration inhibits set by the user are to be respected. The files concerned are not migrated.

**FILE-INHIBIT = \*IGNORED**

Migration inhibits set by the user are ignored. The files concerned are migrated.

### Presettings

If at the start of an HSMS session for an imported pubset no previously set SM pubset parameters exist, the presettings defined by HSMS apply, which are shown in the table below. Otherwise, the values that are stored in the control file are used.

<b>Operand value</b>	<b>Presettings prescribed by HSMS</b>
DESTROY-BY-DELETE	*NO
S1-DEFINITION	*UNDEFINED
S2-DEVICE-TYPE	c'TAPE-C4'
SYSBACKUP	*UNDEFINED
SYSARCHIVE	*UNDEFINED
SYSMIGRATE	*UNDEFINED
SYSNODEBACKUP	*UNDEFINED
SYSNODEARCHIVE	*UNDEFINED
MIGRATION	*S2-ONLY
BACKUP-MANDATORY	*NO
EXCEPT-FILE	*NONE
FILE-INHIBIT	*RESPECTED

## MODIFY-TAPE-CONTROL

### Modify tape processing parameters

This statement is for the HSMS administrator only and is used for modifying the archive-specific tape processing parameters, in particular those for tape session control.

#### Format (only for HSMS administrators)

MODIFY-TAPE-CONTROL	Alias: MTC
<pre> <b>ENVIRONMENT</b> = *<u>SINGLE-FEATURE</u> / *SYSTEM-MANAGED(...)     *SYSTEM-MANAGED(...)           <b>CATALOG-ID</b> = &lt;cat-id&gt; , <b>ARCHIVE-NAME</b> = *ALL / &lt;filename 1..22 without-cat-gen-vers&gt; , <b>READ-CONTROL</b> = *<u>UNCHANGED</u> / *STD / *PROCESS-REQUESTS / *HOLD-REQUESTS /     *BY-TAPE-SESSIONS(...)     *BY-TAPE-SESSIONS(...)           <b>START-TIME</b> = *<u>IMMEDIATELY</u> / &lt;time&gt;           , <b>PERIOD</b> = &lt;integer 0..1440 minutes&gt; / *END-OF-DAY , <b>WRITE-CONTROL</b> = *<u>UNCHANGED</u> / *STD / *PROCESS-REQUESTS / *HOLD-REQUESTS /     *BY-TAPE-SESSIONS(...)     *BY-TAPE-SESSIONS(...)           <b>START-TIME</b> = *<u>IMMEDIATELY</u> / &lt;time&gt;           , <b>PERIOD</b> = &lt;integer 0..1440 minutes&gt; / *END-OF-DAY           , <b>MINIMUM-PAGES</b> = *<u>NONE</u> / &lt;integer 0..2147483647 2Kbyte&gt; , <b>EXPRESS-CONTROL</b> = *<u>UNCHANGED</u> / *STD / *PROCESS-REQUESTS / *HOLD-REQUESTS /     *BY-TAPE-SESSIONS(...)     *BY-TAPE-SESSIONS(...)           <b>START-TIME</b> = *<u>IMMEDIATELY</u> / &lt;time&gt;           , <b>PERIOD</b> = &lt;integer 0..1440 minutes&gt; / *END-OF-DAY </pre>	

**ENVIRONMENT =**

Defines the HSMS environment where the specified archive is located.

**ENVIRONMENT = \*SINGLE-FEATURE**

The specified archive is defined in the central HSMS parameters.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The specified archive is defined in an SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**ARCHIVE-NAME = \*ALL**

The tape processing parameters are to be modified for all HSMS archives in the specified environment.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

Name of the archive whose tape processing parameters are to be modified.

**READ-CONTROL = \*UNCHANGED / \*STD / \*PROCESS-REQUESTS / \*HOLD-REQUESTS / \*BY-TAPE-SESSIONS(...)**

Defines the tape sessions for read access, i.e. for all requests created by

- //RESTORE-FILES,
- //RECALL-MIGRATED-FILES FROM-STORAGE=\*ANY/\*S2-STORAGE-LEVEL,
- the BS2000 command SECURE-RESOURCE-ALLOCATION.

**READ-CONTROL = \*STD**

The preset values from the HSMS control file are to apply to this archive.

**READ-CONTROL = \*PROCESS-REQUESTS**

Tape access is to be permitted at any time. In the event of a switch to a different tape control mode, all pending requests are first completed.

**READ-CONTROL = \*HOLD-REQUESTS**

Tape access is to be temporarily prohibited (delayed). The requests are entered in the HSMS request file of the archive environment.

**READ-CONTROL = \*BY-TAPE-SESSIONS(...)**

Tape access is to be permitted at defined intervals, i.e. during the so-called tape sessions. During a tape session, all relevant requests currently waiting in the request file of the archive environment are processed.

**START-TIME =**

Defines the beginning of a tape session.

**START-TIME = \*IMMEDIATELY**

Tape access is to be permissible immediately after statement entry or the start of the HSMS or SM pubset session.

**START-TIME = <time>**

Time of day at which a tape session is to begin. The time specified is valid for the current day and the following days.

**PERIOD = <integer 0..1440 minutes> / \*END-OF-DAY**

Period of time in minutes to be allowed between the beginning of two consecutive tape sessions. The period specified is always relative to the specified start time. PERIOD=0 or PERIOD=\*END-OF-DAY permit tape access from the beginning of the tape session until the end of the day, all requests received before midnight will be processed.

**WRITE-CONTROL = \*UNCHANGED / \*STD / \*PROCESS-REQUESTS / \*HOLD-REQUESTS / \*BY-TAPE-SESSIONS(...)**

Defines the tape sessions for write access, i.e. any access involved in backing up, archiving, migrating or copying save files. For a description of the operands, see the operand READ-CONTROL, with the exception of the following:

**WRITE-CONTROL = \*BY-TAPE-SESSIONS(...)****START-TIME =**

Defines the beginning of a tape session.

**START-TIME = \*IMMEDIATELY**

Tape access is to be permissible immediately after statement entry or the start of the HSMS session.

**START-TIME = <time>**

Time of day at which a tape session is to begin. The time specified is valid for the current day and the following days.

**PERIOD = <integer 0..1440 minutes> / \*END-OF-DAY**

Period of time in minutes to be allowed between the beginning of two consecutive tape sessions. The period specified is always relative to the specified start time. PERIOD=0 or PERIOD=\*END-OF-DAY permit tape access from the beginning of the tape session until the end of the day, all requests received before midnight will be processed.

**MINIMUM-PAGES = \*NONE / <integer 1..2147483647 2Kbyte>**

This operand is restricted to archives for BS2000 files.

Minimum number of 2-Kbyte blocks (PAM pages) to be written per tape session. This delays tape processing until the total volume of all write requests has reached the specified number of pages. If the minimum number of pages is not reached by the end of the HSMS session, the requests are not executed, being instead held over for the next HSMS session.

Only write requests from S0 to S1 not generated by the HSMS administrator are counted as pages to be written. This means that the following are not counted:

- all write requests from the HSMS administrator
- requests to copy save files
- requests for migration from S1 to S2.

The default value (\*NONE) starts tape processing irrespective of the number of 2-Kbyte blocks (PAM pages) to be written.

**EXPRESS-CONTROL = \*UNCHANGED / \*STD / \*PROCESS-REQUESTS / \*HOLD-REQUESTS / \*BY-TAPE-SESSIONS(...)**

Defines the tape sessions for express requests (both read and write access). For a description of the operands see above under READ-CONTROL.

## MOVE-SAVE-FILES

### Move save or node save files

This statement moves one or more save or node save files of a BS2000-UFS (POSIX) or node S0 which were created on disk with BACKUP-FILES or BACKUP-NODE-FILES (storage level S1 or SF pubset or private disk ) to tape (storage level S2). The save or node save files are moved from disk to tape within a backup or node backup archive.

The functionality of the MOVE-SAVE-FILES statement combines that of several statements:

- copying of several save or node save files from disk to tape (COPY-SAVE-FILE or COPY-NODE-SAVE-FILE)
- subsequent deletion of the original save or node save files on disk
- in addition, as required, implicit copying of the save files to a shadow archive as this is not supported for the original save to disk

The MOVE-SAVE-FILES statement (in contrast to manual copying) allows several save or node save files to be selected and moved. The sequence of the save versions (SVID) is retained.

After a save file or node save file has been moved, the same status is achieved as for an original backup directly to tape.

A save file or node save file is always copied in its entirety (a reduction as with explicit copying is not possible). It thus also contains all Cataloged-Not-Saved (CNS) entries of the original save file. A restore from the backup archive provides the same result after the move as before.

With the move option, the following procedure applies for backup:

- The files and job variables or node files are initially saved to disk (one or more backups).
- These backups can be moved to tape at a later date. Possible criteria for the move time are, for example, the availability of MTC devices or the reaching of a particular disk utilization.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

## Format

MOVE-SAVE-FILES	Alias: MSF
<p><b>ARCHIVE-NAME</b> = &lt;filename 1..22 without-cat-gen-vers&gt;</p> <p><b>,ENVIRONMENT</b> = <b>*STD</b> / <b>*NODE-STD</b> / <b>*SINGLE-FEATURE</b> / <b>*SYSTEM-MANAGED(...)</b></p> <p><b>*SYSTEM-MANAGED(...)</b></p> <p>        <b>CATALOG-ID</b> = &lt;cat-id&gt;</p> <p><b>,FROM-STORAGE</b> = <b>*DISK(...)</b></p> <p><b>*DISK(...)</b></p> <p>        <b>,MINIMUM-DAYS-ON-DISK</b> = <b>*STD</b> / &lt;integer 0..9999 days&gt;</p> <p>        <b>,RELEASE-PAGES</b> = <b>*MAXIMUM</b> / &lt;integer 1..2147483647 2Kbyte&gt; / <b>*MINIMUM</b></p> <p><b>,SAVE-DIRECTORY</b> = <b>*NO</b> / <b>*YES</b></p> <p><b>,SAVE-FILE</b> = <b>*NEW(...)</b> / <b>*CONTINUE(...)</b></p> <p><b>*NEW(...)</b></p> <p>        <b>RETENTION-PERIOD</b> = <b>*STD</b> / &lt;integer 0..16383 days&gt;</p> <p>        <b>,USER-ACCESS</b> = <b>*OWNER-ONLY</b> / <b>*ALL-USERS</b></p> <p><b>*CONTINUE(...)</b></p> <p>        <b>SAVE-FILE-ID</b> = <b>*LATEST</b></p> <p><b>,TO-STORAGE</b> = <b>*S2-STORAGE-LEVEL(...)</b></p> <p><b>*S2-STORAGE-LEVEL(...)</b></p> <p>        <b>VOLUMES</b> = <b>*FROM-POOL</b> / <b>*FROM-OPERATOR</b> / list-poss(10); &lt;vsn 1..6&gt;</p> <p>        <b>,DEVICE-TYPE</b> = <b>*STD</b> / &lt;device&gt;</p> <p>        <b>,LOCATION</b> = <b>*STD</b> / <b>*ANY</b> / &lt;alphanum-name 1..8&gt;</p> <p><b>,OPERATION-CONTROL</b> = <b>*STD</b> / <b>*PARAMETERS(...)</b></p> <p><b>*PARAMETERS(...)</b></p> <p>        <b>REQUEST-NAME</b> = <b>*STD</b> / &lt;name 1..8&gt;</p> <p>        <b>,REQUEST-DESCRIPTOR</b> = <b>*NONE</b> / &lt;text 1..60&gt;</p> <p>        <b>,EXPRESS-REQUEST</b> = <b>*NO</b> / <b>*YES</b></p> <p>        <b>,CONTROL-JV</b> = <b>*NONE</b> / &lt;filename 1..54 without-gen-vers&gt;</p> <p>        <b>,SHADOW-COPY</b> = <b>*ALLOWED</b> / <b>*INHIBITED</b></p> <p>        <b>,WAIT-FOR-COMPLETION</b> = <b>*NO</b> / <b>*YES</b></p>	

(part 1 of 2)

```

,TAPE-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    | BLOCKING-FACTOR = *STD / <integer 15..15 2Kbyte> / *MAX
    | ,UNLOAD-TAPE = *STD / *YES / *NO
,PERFORMANCE-ANALYSIS = *NO / *YES(...)
  *YES(...)
    | SEPARATOR = ; / <c-string 1..1>
,REPORT = *SUMMARY / *NONE
,OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...)/ <filename 1..54 without-gen-vers>
  *LIBRARY-ELEMENT(...)
    | LIBRARY = <filename 1..54 without-gen-vers>
    | ,ELEMENT = <composed-name 1..64 with-under>

```

(part 2 of 2)

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

Name of the archive in which the save or node save files are to be moved (the input archive corresponds to the output archive).

The archive must already exist and be defined as backup archive for the data backup or for the backup of node files.

If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. This also applies to HSMS administrators.

**ENVIRONMENT =**

Determines the HSMS environment in which the target archive is defined.

**ENVIRONMENT = \*STD**

*Only possible for a backup archive for data backup (ALLOWED-USAGE=\*BACKUP).*

*Meaning for privileged users: \*STD is set to the value \*SINGLE-FEATURE.*

*Meaning for nonprivileged users: \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).*

**ENVIRONMENT = \*NODE-STD**

*Only possible for a backup archive for backup of node files of a BS2000-UFS (POSIX) or node S0 (ALLOWED-USAGE=\*NODEBACKUP).*

For a workstation it is the environment in which the HSMS statement MODIFY-NODE-PARAMETERS was executed.

In BS2000-UFS it is the SINGLE-FEATURE environment for a privileged user; for a nonprivileged user \*NODE-STD assumes the value of the environment in which the user's home directory is defined.

**ENVIRONMENT = \*SINGLE-FEATURE**

The HSMS statement is valid in the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The HSMS statement is valid in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset for which the HSMS statement is valid.

**FROM-STORAGE = \*DISK(...)**

All save or node save files which were created on disk (storage level S1 or SF pubset or private disk) and satisfy the selection criteria specified below as regards retention period on disk and the storage space released (logical AND) are moved to storage level S2. Files which meet both criteria are selected according to ascending retention period on disk, in other words the move starts with the oldest save or node save file and ends with the youngest one.

**MINIMUM-DAYS-ON-DISK = \*STD / <integer 0..9999 days>**

The selection criterion is the retention period of the save or node save file on disk. All save or node save files which have been residing on disk for at least the specified number of days or longer are moved.

The default \*STD corresponds to a retention period of 0 days, in other words the selection is independent of the retention period on disk.

**RELEASE-PAGES = \*MAXIMUM / <integer 1..2147483647 2Kbyte> / \*MINIMUM**

The selection criterion is the size of the storage space which is released by the move. Only as many save or node save files are moved from disk to S2 as are required to release the specified number of 2-Kbyte blocks by the move.

The default is \*MAXIMUM, in other words all save and node save files are moved to S2. \*MINIMUM (corresponds to RELEASE-PAGES=1) moves only the oldest save or node save file.

**SAVE-DIRECTORY = \*NO / \*YES**

*This specification is ignored for node save files.*

Determines whether the directory file of the output archive used for this run is also to be written to the output volume as the last file of the run.

In the case of backup archives with SINGLE-SVID structure, moving generates a corresponding number of new save files. The directory file is only written to the output volume for the last save file generated (in other words the last save file moved).

**SAVE-FILE =**

Defines the save file on the output volume in which the save files to be moved are to be stored.

**SAVE-FILE = \*NEW(...)**

The save files are stored in a save file which must be created on the output volume. In the case of backup archives with SINGLE-SVID structure, a new save file is created for each save file moved.

You can define the following attributes for the new save file:

**RETENTION-PERIOD =**

(Physical) retention period in days. During this period, neither the save file nor the save volume may be modified or deleted.

**RETENTION-PERIOD = \*STD**

Unless otherwise specified, the preset value from the archive definition applies.

**RETENTION-PERIOD = <integer 0..16383 days>**

Explicit specification of the retention period in days.

**USER-ACCESS =**

*This specification is ignored for node save files of a BS2000-UFS (POSIX) or node S0.*

Defines whether the save file can also be accessed by user IDs other than that of the owner or of the co-owner.

**USER-ACCESS = \*OWNER-ONLY / \*ALL-USERS**

Access to the save file is to be restricted to the archive owner. This implicitly protects the save file against access by other users working without HSMS.

**USER-ACCESS = \*ALL-USERS**

Access to the save file is to be granted to other users as well. If the corresponding directory is shareable and resides under TSOS, each user is simultaneously enabled to restore his or her files using ARCHIVE.

**SAVE-FILE = \*CONTINUE(...)**

*This specification is not permitted for backup archives with SINGLE-SVID structure.*

A save file is to be continued.

The save file cannot be continued if a backup to tape was performed after backup on disk.

If the archive attribute SHADOW-COPY=\*ALLOWED is set for the main archive HSMS attempts to extend the save file in the shadow archive which has the same SFID as the original save file in the event of automatic duplication to a shadow archive. If this save file does not exist the save file is not duplicated.

If the archive attribute SHADOW-COPY=\*ALLOWED-AND-NEW-SFID is set for the main archive HSMS creates a new save file in the event of duplication to a shadow archive.

**SAVE-FILE-ID = \*LATEST**

The last save file of the archive which was created for S2 is continued.

**TO-STORAGE = \*S2-STORAGE-LEVEL(...)**

The save or node save files are to be copied to storage level S2. The volumes to be used can be specified. If more than one volume is specified, all volumes must be of the same device type.

**VOLUMES = \*FROM-POOL**

The volumes are to be taken from the volume pool of the specified archive, i.e. the pool of the directory or the associated MAREN pool.

**VOLUMES = \*FROM-OPERATOR**

The volumes are to be allocated by the operator on request.

**VOLUMES = list-poss(10): <vsn 1..6>**

List of volume serial numbers, which will be requested in the specified order.

**DEVICE-TYPE = \*STD / <device>**

Device type of the requested volumes. The device type must belong to the class "TAPE". Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

Unless otherwise specified, the preset value from the archive definition applies (S2-DEVICE-TYPE operand).

**LOCATION = \*STD / \*ANY / <alphanum-name 1..8>**

Location used for requesting volumes. This location must be known to MAREN. If the location manager is in use, the location should be properly defined in MARENLM. Otherwise MAREN ignores the specified value.

If MAREN is not in use, you must specify for LOCATION the value \*ANY, or \*STD if \*ANY is the default location of the archive.

**LOCATION = \*STD**

The default location of the archive is used.

**LOCATION = \*ANY**

No location is to be used.

**OPERATION-CONTROL =**

Defines parameters for moving the save or node save files.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

You can modify the following operands for controlling the moving of save and node save files:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administrator) and a suffix in the form of a time stamp. Unless otherwise specified, the request name is formed by the short code "MSF#" and the TSN of the calling user task yyyy as follows: MSF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE during a complex processing operation, for example the processing of shadow archives.

The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**SHADOW-COPY =**

Specifies whether the save version is to be automatically duplicated to a shadow archive which may have been assigned.

**SHADOW-COPY = \*ALLOWED**

If the files and job variables on storage level S2 are backed up and the relevant backup archive has been assigned a shadow archive, the save version is automatically duplicated to this shadow archive after the backup run.

**SHADOW-COPY = \*INHIBITED**

The save version is not automatically duplicated to a shadow archive which may have been assigned.

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing).

The maximum wait times for batch tasks and interactive tasks are different, and are determined by preset global HSMS parameters.

Interactive tasks are permitted to carry out synchronous statement processing during tape sessions only.

**TAPE-CONTROL = \*STD / \*PARAMETERS(...)**

Defines the parameters which are relevant for backup to tape.

**TAPE-CONTROL = \*STD**

The preset values from the definition of the archive from which the elements are to be restored apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

The operands relevant for backup to tape can be modified as follows:

**BLOCKING-FACTOR = \*STD / <integer 15..15 2Kbyte> / \*MAX**

Blocking factor to be used for writing the save file to tape, specified as the number of 2-Kbyte blocks (PAM pages) written to tape in a single input/output operation. As the higher blocking factor means that the occupancy level of the volume and the tape processing performance improve, values below 15 should not be selected. The default value \*STD selects the blocking factor from the archive definition. If this also contains the default value, the default values of the ARCHIVE parameters apply (BLOCK-SIZE-TAPE for tapes, BLOCK-SIZE-T-C for magnetic tape cartridges).

\*MAX selects the maximum blocking factor possible in the current BS2000 version. Currently this is the value 128.

**UNLOAD-TAPE = \*STD / \*YES / \*NO**

Specifies whether or not tapes are to be unloaded after processing. This applies both for input and output tapes.

The preset value from the archive definition applies unless otherwise specified.

It is possible that HSMS will ignore the value of this operand in order to avoid irrational tape processing, for example to avoid unloading a tape several times while rewinding it.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “;”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report for the move request is to be output for this archival request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the move request, including any error messages, is to be output.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report on this move request is to be printed.

**OUTPUT = \*MAIL**

The report for this move request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this move request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this move request is to be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

## RECALL-MIGRATED-FILES

### Recall migrated files

This statement is used for recalling migrated files to processing level S0. The files that are located in an SM pubset environment are recalled to the volume set that best matches their file attributes.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

#### Format

RECALL-MIGRATED-FILES	Alias: <b>RMF</b>
<b>FILE-NAMES</b> = *OWN / *ALL / *SELECTED / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>	
*FROM-FILE(...)	
<b>LIST-FILE-NAME</b> = <filename 1..54 without-gen-vers>	
*FROM-LIBRARY-ELEMENT(...)	
<b>LIBRARY</b> = <filename 1..54 without-gen-vers>	
<b>ELEMENT</b> = <composed-name 1..64 with-under>	
<b>,EXCEPT-FILE-NAMES</b> = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>	
*FROM-FILE(...)	
<b>LIST-FILE-NAME</b> = <filename 1..54 without-gen-vers>	
*FROM-LIBRARY-ELEMENT(...)	
<b>LIBRARY</b> = <filename 1..54 without-gen-vers>	
<b>ELEMENT</b> = <composed-name 1..64 with-under>	
<b>,ENVIRONMENT</b> = *STD / *SINGLE-FEATURE / *SYSTEM-MANAGED(...)	
*SYSTEM-MANAGED(...)	
<b>CATALOG-ID</b> = <cat-id>	
<b>,NEW-DATA-SUPPORT</b> = *BEST-VOLUME-SET / *SAME / <cat-id>	
<b>,FROM-STORAGE</b> = *ANY / *S1-STORAGE-LEVEL / *S2-STORAGE-LEVEL	
<b>,DIALOG-FILE-SELECT</b> = *NO / *YES	

(part 1 of 2)

```

,OPERATION-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    |
    | REQUEST-NAME = *STD / <name 1..8>
    | ,REQUEST-DESCRIPTOR = *NONE / <text 1..60>
    | ,EXPRESS-REQUEST = *NO / *YES
    | ,CONTROL-JV= *NONE / <filename 1..54 without-gen-vers>
    | ,WAIT-FOR-COMPLETION = *NO / *YES
    | ,PERFORMANCE-ANALYSIS = *NO / *YES(...)
    |   *YES(...)
    |     | SEPARATOR = ; / <c-string 1..1>
    |   ,REPORT = *SUMMARY / *FULL / *NONE
    |   ,OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...) / <filename 1..54 without-gen-vers>
    |     *LIBRARY-ELEMENT(...)
    |       | LIBRARY = <filename 1..54 without-gen-vers>
    |       | ,ELEMENT = <composed-name 1..64 with-under>

```

(part 2 of 2)

**FILE-NAMES =**

Serves to specify the files to be recalled. Specification of this operand is mandatory. The user can further restrict the selection made here by means of the operands EXCEPT-FILE-NAMES, FROM-STORAGE and DIALOG-FILE-SELECT.

The number of files recalled is limited by the amount of space available on S0 for the user ID involved.

The migration archive must be assigned to the S0 pubset affected by the specified files. If the files were migrated to S1, the S1 pubset must be imported.

If files from more than one pubset are specified, the same default system archive must be assigned to all these pubsets. Otherwise the HSMS statement will be rejected. To prevent this you should only specify files from *one* pubset for each recall request.

All nonprivileged users can also recall files belonging to other user IDs if they are co-owners of these files or they have read authorization.

**FILE-NAMES = \*OWN**

All files of the user's own ID residing on all imported pubsets of the specified environment (except for shared SF pubsets for which the home computer is the slave) are to be recalled.

**FILE-NAMES = \*ALL**

All files residing on all imported pubsets of the specified environment (except for shared SF pubsets for which the home computer is the slave) are to be recalled.

**FILE-NAMES = \*SELECTED**

The path names of the files to be recalled are to be taken from a list compiled within the same HSMS run by means of the HSMS statement SELECT-FILE-NAMES.

The selected path names must be available in the specified environment.

**FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be recalled are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. The list file can be created, for instance, by means of the HSMS statement SELECT-FILE-NAMES or the BS2000 command SHOW-FILE-ATTRIBUTES.

The selected path names must be available in the specified environment.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are to be recalled are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**FILE-NAMES = list-poss(20): <filename 1..80 without-gen-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be recalled are specified directly. A list of up to 20 names may be specified.

The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the catalog ID which is either taken from the specified environment or from the default catalog ID of the user ID.

You can also use wildcard syntax to select the files.

If you wish to recall files of a foreign user ID, you must specify the complete user ID.

In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

The selected path names must be available in the specified environment.

**EXCEPT-FILE-NAMES =**

Serves to specify files that are to be excluded from recall.

**EXCEPT-FILE-NAMES = \*NONE**

All files specified with the FILE-NAMES operand are to be recalled.

**EXCEPT-FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be excluded from recall are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. The list file can be created, for instance, by means of the BS2000 command SHOW-FILE-ATTRIBUTES. File names must be in uppercase characters only.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are not to be recalled are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be excluded from recall are specified directly. A list of up to 20 names may be specified.

The first character of the file names must not be a hyphen. The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the catalog ID which is either taken from the specified environment or from the default catalog ID of the user ID.

You can also use wildcard syntax to select the files.

In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

**ENVIRONMENT =**

Defines the HSMS environment to which this HSMS statement applies.

**ENVIRONMENT = \*STD**

*Meaning for privileged users:* \*STD is set to the value \*SINGLE-FEATURE.

*Meaning for nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*SINGLE-FEATURE**

The HSMS statement relates only to the SF pubset environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The HSMS statement relates only to the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**NEW-DATA-SUPPORT =**

Displays the support on an SM pubset on which the recalled data is to be stored.

**NEW-DATA-SUPPORT = \*BEST-VOLUME-SET**

The data is recalled to the volume set of the SM pubset that best matches the file attributes. The specification of the best volume set does not take S1 volume sets into account.

**NEW-DATA-SUPPORT = \*SAME**

The data is recalled to the volume set on which it resided before being migrated. Only users with a specification privilege for a certain volume set are allowed to do this.

**NEW-DATA-SUPPORT = <cat-id>**

The data is recalled to the specified volume set of the SM pubset. This value is only allowed for users who have the privilege to carry out physical allocation. An S1 volume set can be stated.

**FROM-STORAGE =**

*This operand is only available to the HSMS administrator.*

Defines the storage level from which the files are to be recalled.

**FROM-STORAGE = \*ANY**

The files are to be recalled from the last save version in which they are contained, irrespective of the storage level (S1 or S2) on which it resides.

**FROM-STORAGE = \*S1-STORAGE-LEVEL**

The files are to be recalled from S1 only. Any specified file that has been migrated to S2 is not recalled.

**FROM-STORAGE = \*S2-STORAGE-LEVEL**

The files are to be recalled from S2.

**DIALOG-FILE-SELECT =**

Defines whether the user wishes to conduct a dialog in order to select individual files from the set of files selected for recall by means of FILE-NAMES and other operands.

This operand is evaluated in interactive mode only, for batch tasks it is ignored.

**DIALOG-FILE-SELECT = \*NO**

The specified set of files is not to be further reduced.

**DIALOG-FILE-SELECT = \*YES**

The specified set of files is to be output in a screen mask. The user can then mark individual files from the set on display, thereby selecting them for or excluding them from recall.

Only files migrated from S0 are included in the selection list displayed.

Details on the content of the screen mask are provided in the section [“Dialog selection when recalling migrated files” on page 374](#).

**OPERATION-CONTROL =**

Enables the user to define certain parameters which are relevant for the execution of the recall run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The operands controlling the recall run can be modified as follows:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administrator) and a suffix in the form of a time stamp. Unless otherwise specified, the request name is formed by the short code "RMF#" and the TSN of the calling user task yyyy as follows: RMF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail. This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE. The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing). The maximum wait times for batch tasks and interactive tasks are different and are determined by preset global HSMS parameters. Interactive tasks are permitted to carry out synchronous HSMS statement processing during tape sessions only.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “ ; ”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output for this recall request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the recall request, including any error messages, is to be output.

**REPORT = \*FULL**

A full report is to be output, including a list of all files recalled.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report for this recall request is to be printed.

**OUTPUT = \*MAIL**

The report for this recall request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this recall request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this recall request is to be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

**Note on the migration archive**

- A migration archive need not be specified, since migration is possible only to a default system archive assigned by the HSMS administrator.
- If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. This also applies to HSMS administrators.
- If recall is requested by a nonprivileged user, the migration archive must permit read access for all users.



**Example**

*Using default values, a nonprivileged user recalls migrated files of a project that had been processed only intermittently; the TSN is 3456.*

```
/RECALL-MIGRATED-FILES FILE-NAMES=proj.
```

- All files of the user's own ID which have the default catalog ID and whose names start with PROJ. are recalled from the default system migration archive.
- The files are recalled from the most recent save file that contains the files.
- The request is given the name RMF#3456.
- The request is processed asynchronously.
- Depending on the global HSMS parameter OUTPUT a summary report is printed or sent as an email attachment.

## RECOVER-REQUESTS

### Recover requests

This statement is for the HSMS administrator only. It is used to recover requests in an SM pubset after a host has crashed.

In the case of shared SM pubsets, this statement may only be issued on the master sharer.

DMS requests can be recovered independently of the node requests. This option is offered because, unlike node requests, DMS requests can be recovered very quickly after a crash. It takes longer to recover node requests because this is a more complex procedure.

The RECOVER-REQUESTS statement normalizes the status of all the requests of an SM pubset which is inhibited by the specified host. The result depends on the following factors:

- type of request level (primary copy or master copy)
- is this a Concurrent Copy session (CCOPY) or not?
- status of the request

Inhibited requests			Recovery activities
Request level	CCOPY	Status	
Primary copy	no	ACCEPTED	Rename inhibit and local reactivation
Primary copy	no	STARTED	Undo inhibit and new status INTERRUPTED
Primary copy	no	STARTED SENT	Undo inhibit and new status INTERRUPTED
Primary copy	yes	ACCEPTED	Undo inhibit and new status CANCELLED
Primary copy	yes	STARTED	Undo inhibit and new status COMPLETED WITH ERRORS
Primary copy	yes	STARTED SENT	Undo inhibit and new status COMPLETED WITH ERRORS
Master copy	no	ACCEPTED	Undo inhibit and new status INTERRUPTED
Master copy	no	STARTED	Undo inhibit and new status INTERRUPTED
Master copy	yes	ACCEPTED	Undo inhibit and new status CANCELLED
Master copy	yes	STARTED	Undo inhibit and new status COMPLETED WITH ERRORS

**Format (only for HSMS administrators)**

<b>RECOVER-REQUESTS</b>	Alias: <b>RER</b>
<pre> <b>ENVIRONMENT</b> = *<b>SYSTEM-MANAGED</b>(...)   *<b>SYSTEM-MANAGED</b>(...)         <b>CATALOG-ID</b> = &lt;cat-id&gt;   ,<b>HOST-NAME</b> = &lt;alphanum-name 1..8&gt;   ,<b>FORCE</b> = *<b>NO</b> / *<b>YES</b>   ,<b>REQUEST-DATA-ORIGIN</b> = *<b>PUBSET</b> / *<b>NODE</b> </pre>	

**ENVIRONMENT =**

Defines the HSMS environment where the request file to be processed is located.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The HSMS statement relates only to the request file of the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**HOST-NAME = <alphanum-name 1..8>**

BCAM name of the host that is to be recovered.

**FORCE =**

Prior to the recovery, a number of checks can be made to establish the status of the host to be recovered.

**FORCE = \*NO**

No checks are made.

In the case of an exclusively imported SM pubset, the current host is not included in the recovery.

For a shared SM pubset, the host to be recovered must not be an active sharer of the SM pubset.

**FORCE = \*YES**

The status of the host to be recovered is not checked.

This option is not recommended.

**REQUEST-DATA-ORIGIN =**

You can specify the origin of the data which is to be processed by those requests for which the statement is valid.

This operand is used to quickly recover DMS requests after importing an SM pubset. You can also delay recovering node requests until all the corresponding POSIX/HSMS actions have been carried out successfully (see the “HSMS Vol. 1” manual [1], section “HIPLEX support for node files”).

**REQUEST-DATA-ORIGIN = \*PUBSET**

Data to be processed by the affected requests originates from a pubset. The data therefore consists of DMS files.

**REQUEST-DATA-ORIGIN = \*NODE**

Data to be processed by the affected requests originates from HSMS managed nodes. The data therefore consists of node files.

## REPAIR-CATALOG-BY-EXCHANGE

### Correct inconsistencies in migrated files (exchange)

This statement is used by HSMS administrators only. It serves to correct inconsistencies in the catalog entries of migrated files. This HSMS statement checks the validity of the reference to the save file in the catalog entry of each migrated file. If a reference in a catalog entry is found to be invalid, HSMS replaces it with a new reference to a valid save file.

The following files on the specified S0 pubset are selected for processing:

- files for which the catalog entry contains no localization information
- files whose localization information references a save file which no longer exists

The save file that is referenced is taken either from the SF or the SM pubset environment – depending on the specified pubset catalog to be repaired.

For each selected file, a reference to the last save file is entered in the catalog entry. This save file contains the file with the same name (CFID). If there is no longer a save file of this kind, the system outputs a message for the corresponding file. Optionally these files can be deleted when processing has been completed (ERASE-INVALID-CE operand).

#### Format (only for HSMS administrators)

REPAIR-CATALOG-BY-EXCHANGE	Alias: RCE
<pre> <b>S0-PUBSET-ID</b> = &lt;cat-id&gt; <b>,OPERATION-CONTROL</b> = <b>*STD</b> / <b>*PARAMETERS(...)</b>   <b>*PARAMETERS(...)</b>             <b>PERFORMANCE-ANALYSIS</b> = <b>*NO</b> / <b>*YES(...)</b>         <b>*YES(...)</b>             <b>SEPARATOR</b> = ; / &lt;c-string 1..1&gt;         <b>,REPORT</b> = <b>*SUMMARY</b> / <b>*FULL</b> / <b>*NONE</b>         <b>,OUTPUT</b> = <b>*STD</b> / <b>*PRINTER</b> / <b>*MAIL</b> / <b>*LIBRARY-ELEMENT(...)</b> / &lt;filename 1..54 without-gen-vers&gt;           <b>*LIBRARY-ELEMENT(...)</b>               <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;               <b>,ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;         <b>,ERASE-INVALID-CE</b> = <b>*NO</b> / <b>*YES</b> </pre>	

**S0-PUBSET-ID = <cat-id>**

Specifies the S0 pubset to which the statement refers.

**OPERATION-CONTROL =**

Enables the user to define certain parameters which are relevant to the execution of the repair run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The operands controlling the repair run can be modified as follows:

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is " ; ". This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output for this repair request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the repair run, including any error messages, is to be output.

**REPORT = \*FULL**

A full report is to be output, including a list of all repaired files.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report on this repair request is to be printed.

**OUTPUT = \*MAIL**

The report for this repair request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this repair request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this repair run is to be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

**ERASE-INVALID-CE =**

Specifies whether the files with identifying information which is still invalid should be deleted when they have been processed.

**ERASE-INVALID-CE = \*NO**

No files are deleted.

**ERASE-INVALID-CE = \*YES**

The files with identifying information which is still invalid are deleted.

## **REPAIR-CATALOG-BY-RESTORE**

### **Correct inconsistencies in migrated files (restore)**

This statement is used by HSMS administrators only. It serves to correct inconsistencies in the catalog entries of migrated files. It checks the validity of the reference to the save file in the catalog entry of each migrated file. If the reference is invalid, HSMS restores the save file's data from a backup archive, which contains the file with the same internal name (CFID).

The following files on the specified S0 pubset are selected for processing:

- files for which the catalog entry contains no localization information
- files whose localization information references a save file which no longer exists

The files selected are restored from the specified backup archive to the level indicated in the TO-STORAGE operand.

If any of the migrated files in question has been partially saved in the backup archive, it is impossible to restore it to a migration level. The file is restored to S0 instead.

Requests for REPAIR-CATALOG-BY-RESTORE that were issued on an SF pubset are entered in the HSMS global request file.

Requests issued on an SM pubset are entered in the request file of the SM pubset. To output the requests, the user must specify the correct environment in the ENVIRONMENT operand of the SHOW-REQUESTS statement.

**Format (only for HSMS administrators)**

REPAIR-CATALOG-BY-RESTORE	Alias: RCR
<pre> <b>S0-PUBSET-ID</b> = &lt;cat-id&gt; , <b>TO-STORAGE</b> = <b>*SAME</b> / <b>*S0-STORAGE-LEVEL</b> / <b>*S1-STORAGE-LEVEL</b> / <b>*S2-STORAGE-LEVEL</b> , <b>ARCHIVE-NAME</b> = <b>*SYSBACKUP</b> / &lt;filename 1..22 without-cat-gen-vers&gt; , <b>COMPRESS-FILES</b> = <b>*STD</b> / <b>*NO</b> / <b>*YES</b> , <b>OPERATION-CONTROL</b> = <b>*STD</b> / <b>*PARAMETERS(...)</b>   *<b>PARAMETERS(...)</b>       <b>REQUEST-NAME</b> = <b>*STD</b> / &lt;name 1..8&gt;       , <b>REQUEST-DESCRIPTOR</b> = <b>*NONE</b> / &lt;text 1..60&gt;       , <b>EXPRESS-REQUEST</b> = <b>*NO</b> / <b>*YES</b>       , <b>CONTROL-JV</b> = <b>*NONE</b> / &lt;filename 1..54 without-gen-vers&gt;       , <b>WAIT-FOR-COMPLETION</b> = <b>*NO</b> / <b>*YES</b>       , <b>PARALLEL-RUNS</b> = <b>*STD</b> / &lt;integer 1..16&gt;       , <b>WRITE-CHECKPOINTS</b> = <b>*STD</b> / <b>*YES</b> / <b>*NO</b>       , <b>OPERATOR-INTERACTION</b> = <b>*STD</b> / <b>*NOT-ALLOWED</b> / <b>*ALLOWED</b>       , <b>TAPE-CONTROL</b> = <b>*STD</b> / <b>*PARAMETERS(...)</b>         *<b>PARAMETERS(...)</b>             , <b>UNLOAD-TAPE</b> = <b>*STD</b> / <b>*YES</b> / <b>*NO</b>             , <b>PERFORMANCE-ANALYSIS</b> = <b>*NO</b> / <b>*YES(...)</b>             *<b>YES(...)</b>                 <b>SEPARATOR</b> = <b>;</b> / &lt;c-string 1..1&gt;             , <b>REPORT</b> = <b>*SUMMARY</b> / <b>*RESTORED-FILES</b> / <b>*FULL</b> / <b>*NONE</b>             , <b>OUTPUT</b> = <b>*STD</b> / <b>*PRINTER</b> / <b>*MAIL</b> / <b>*LIBRARY-ELEMENT(...)</b> / &lt;filename 1..54 without-gen-vers&gt;               *<b>LIBRARY-ELEMENT(...)</b>                   <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;                   , <b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt; </pre>	

**S0-PUBSET-ID = <cat-id>**

Names the S0 pubset to which the HSMS statement refers.

**TO-STORAGE =**

Defines the location to which the files are to be restored.

**TO-STORAGE = \*SAME**

The data is restored to the level indicated in the catalog entry.

**TO-STORAGE = \*S0-STORAGE-LEVEL**

The data is restored to the level S0.

**TO-STORAGE = \*S1-STORAGE-LEVEL**

The data is restored to the level S1.

**TO-STORAGE = \*S2-STORAGE-LEVEL**

The data is restored to the level S2.

**ARCHIVE-NAME =**

Names the backup archive from which the data is to be restored.

If the S0 pubset ID is an SF pubset, the archive is taken from the SF pubset environment.

If the S0 pubset ID is an SM pubset, the archive is taken from the SM pubset environment.

**ARCHIVE-NAME = \*SYSBACKUP**

The files are restored from the system backup archive which is defined in the environment of the S0 pubset ID.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

The files are restored from the specified backup archive which is defined in the environment of the S0 pubset ID.

**COMPRESS-FILES =**

Only when restoring to a migration level.

Specifies whether the data is to be compressed when restored.

**COMPRESS-FILES = \*STD**

The default setting is derived from the archive definition of the migration archive which belongs to the specified S0 pubset.

**COMPRESS-FILES = \*NO**

The data is restored in uncompressed form.

**COMPRESS-FILES = \*YES**

The data is restored in compressed form.

**OPERATION-CONTROL =**

Enables the user to define a number of parameters which are relevant for the execution of the restore run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The operands controlling the restore run can be modified as follows:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administrator) and a suffix in the form of a time stamp. Unless otherwise specified, the request name is formed by the short code "RCR#" and the TSN of the calling user task yyyy as follows: RCR#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE.

The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing).

The maximum wait times for batch tasks and interactive tasks are different and are determined by preset global HSMS parameters.

Interactive tasks are permitted to carry out synchronous HSMS statement processing during tape sessions only.

**PARALLEL-RUNS = \*STD / <integer 1..16>**

This operand is only significant if you are working at storage level S2. It specifies the number of save tasks (ARCHIVE subtasks) running in parallel.

For duplication there must be two tape devices available for each task.

Unless otherwise specified, the preset value from the archive definition applies.

For further information on parallel processing, see the “HSMS Vol. 1” manual [1].

**WRITE-CHECKPOINTS = \*STD / \*YES / \*NO**

Defines whether any checkpoints are to be written to the ARCHIVE checkpoint file during processing; these checkpoints permit a request to be restarted following an interrupt (INTERRUPTED state).

Unless otherwise specified, the preset value from the archive definition applies.

**OPERATOR-INTERACTION = \*STD / \*NOT-ALLOWED / \*ALLOWED**

Determines whether messages requiring an operator response are to output at the console (\*ALLOWED) or not (\*NOT-ALLOWED). If \*NOT-ALLOWED applies, HSMS performs default handling (see the description of the PARAM statement in the “ARCHIVE” manual [2]).

Unless otherwise specified, the default value from the archive definition applies.

**TAPE-CONTROL =**

Defines parameters which are relevant for restoring files from tape.

**TAPE-CONTROL = \*STD**

The preset values from the definition of the archive from which the files are to be restored apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

The operands relevant to restoring from tape can be modified as follows:

**UNLOAD-TAPE = \*STD / \*YES / \*NO**

Specifies whether or not tapes are to be unloaded after processing.

Unless otherwise specified, the preset value from the archive definition applies.

It is possible that HSMS ignores the value of this operand to avoid irrational processing of tapes, for example to avoid unloading the tape several times while rewinding it.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “ ; ”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output for this repair request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the repair request, including any error messages, is to be output.

**REPORT = \*RESTORED-FILES**

A full report is to be output, including a list of all files actually restored.

**REPORT = \*FULL**

A full report is to be output, including a list of all files which should have been restored but were not due to an error.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report for this repair request is to be printed.

**OUTPUT = \*MAIL**

The report for this repair request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this repair request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this repair request is to be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

## REPLACE-SAVE-FILE-BY-EXCHANGE

### Replace save file by another in the event of migrated files

This statement is used by HSMS administrators only. It sets the reference in migrated files to a valid save file in the migration archive.

Files are selected whose data is located in the specified save file and migration archive.

The catalog entries of the selected files are updated, i.e. set to the latest version of a different save file which also contains the data. If no such file exists, the system displays a message to this effect.

#### Format (only for HSMS administrators)

REPLACE-SAVE-FILE-BY-EXCHANGE	Alias: RFE
<pre> <b>ENVIRONMENT</b> = *<u>SINGLE-FEATURE</u> / *SYSTEM-MANAGED(...)   *SYSTEM-MANAGED(...)       <b>CATALOG-ID</b> = &lt;cat-id&gt;   ,<b>SAVE-FILE-ID</b> = &lt;composed-name 15..15&gt;   ,<b>ARCHIVE-NAME</b> = &lt;filename 1..22 without-cat-gen-vers&gt;   ,<b>OPERATION-CONTROL</b> = *<u>STD</u> / *PARAMETERS(...)     *PARAMETERS(...)         <b>PERFORMANCE-ANALYSIS</b> = *<u>NO</u> / *YES(...)         *YES(...)             <b>SEPARATOR</b> = ; / &lt;c-string 1..1&gt;         ,<b>REPORT</b> = *<u>SUMMARY</u> / *FULL / *NONE         ,<b>OUTPUT</b> = *<u>STD</u> / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...) / &lt;filename 1..54 without-gen-vers&gt;           *LIBRARY-ELEMENT(...)               <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;             ,<b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;           </pre>	

**ENVIRONMENT =**

Defines the HSMS environment where the specified archive is located.

**ENVIRONMENT = \*SINGLE-FEATURE**

The archive entered is defined in the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The specified archive is defined in an SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**SAVE-FILE-ID = <composed-name 15...15>**

Name of the save file identified by the references in the catalog entries of migrated files that are to be replaced by references to a different save file.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

Specifies the migration archive which is to be used for the substitution.

**OPERATION-CONTROL =**

Enables the user to define certain parameters which are relevant to the execution of the archival run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The operands controlling the archival run can be modified as follows:

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “ ; ”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the result, including any error messages, is to be output.

**REPORT = \*FULL**

A full report is to be output, including a list of all archived files.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report is to be printed.

**OUTPUT = \*MAIL**

The report is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report is to be edited and written to the specified file. If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

## REPLACE-SAVE-FILE-BY-RESTORE

### Replace save file in the event of migrated files (restore)

This statement is used by HSMS administrators only. It replaces a save file of migrated files by restoring the data from a backup archive.

The currently migrated files are selected from the save files specified. The files selected are restored from the backup archive to the level on which the save file to be replaced resides. The new save file information is updated in the references in the files' catalog entries.

If any of the affected files has only been partially saved in the backup archive, it is impossible to restore it to a migration level. The file is restored to S0 instead.

#### Format (only for HSMS administrators)

REPLACE-SAVE-FILE-BY-RESTORE	Alias: <b>RFR</b>
<pre> <b>ENVIRONMENT</b> = <u>*SINGLE-FEATURE</u> / *SYSTEM-MANAGED(...)   *SYSTEM-MANAGED(...)         <b>CATALOG-ID</b> = &lt;cat-id&gt; , <b>SAVE-FILE-ID</b> = &lt;composed-name 15..15&gt; , <b>MIGRATE-ARCHIVE-NAME</b> = &lt;filename 1..22 without-cat-gen-vers&gt; , <b>BACKUP-ARCHIVE-NAME</b> = &lt;filename 1..22 without-cat-gen-vers&gt; , <b>COMPRESS-FILES</b> = *<u>STD</u> / *NO / *YES , <b>OPERATION-CONTROL</b> = *<u>STD</u> / *PARAMETERS(...)   *PARAMETERS(...)         <b>REQUEST-NAME</b> = *<u>STD</u> / &lt;name 1..8&gt;         , <b>REQUEST-DESCRIPTOR</b> = *<u>NONE</u> / &lt;text 1..60&gt;         , <b>EXPRESS-REQUEST</b> = *<u>NO</u> / *YES         , <b>CONTROL-JV</b> = *<u>NONE</u> / &lt;filename 1..54 without-gen-vers&gt;         , <b>WAIT-FOR-COMPLETION</b> = *<u>NO</u> / *YES         , <b>PARALLEL-RUNS</b> = *<u>STD</u> / &lt;integer 1..16&gt; </pre>	

(part 1 of 2)

```

,WRITE-CHECKPOINTS = *STD / *YES / *NO
,OPERATOR-INTERACTION = *STD / *NOT-ALLOWED / *ALLOWED
,TAPE-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    | ,UNLOAD-TAPE = *STD / *YES / *NO
,PERFORMANCE-ANALYSIS = *NO / *YES(...)
  *YES(...)
    | SEPARATOR = ; / <c-string 1..1>
,REPORT = *SUMMARY / *RESTORED-FILES / *FULL / *NONE
,OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...) / <filename 1..54 without-gen-vers>
  *LIBRARY-ELEMENT(...)
    | LIBRARY = <filename 1..54 without-gen-vers>
    | ELEMENT = <composed-name 1..64 with-under>

```

(part 2 of 2)

**ENVIRONMENT =**

Defines the HSMS environment where the specified migration and backup archives are located.

**ENVIRONMENT = \*SINGLE-FEATURE**

The archive entered is defined in the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The specified archives are defined in an SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**SAVE-FILE-ID = <composed-name 15...15>**

Names the save file which is to be replaced by the restore operation.

**MIGRATE-ARCHIVE-NAME = <filename 1.22 without-cat-gen-vers>**

Specifies the migration archive to be used in replacement.

**BACKUP-ARCHIVE-NAME = <filename 1.22 without-cat-gen-vers>**

Specifies the backup archive to be used for replacement.

**COMPRESS-FILES =**

Indicates whether the data are to be compressed during the restore process.

**COMPRESS-FILES = \*STD**

The default setting is derived from the archive definition of the migration archive.

**COMPRESS-FILES = \*NO**

The data is restored in uncompressed form.

**COMPRESS-FILES = \*YES**

The data is restored in compressed form.

**OPERATION-CONTROL =**

Enables the user to define a number of parameters which are relevant for the execution of the restore run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The operands controlling the restore run can be modified as follows:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administrator) and a suffix in the form of a time stamp. Unless otherwise specified, the request name is formed from the short code "RFR#" and the TSN of the calling user request yyyy as follows: RFR#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail. This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing). The maximum wait times for batch tasks and interactive tasks are different and are determined by preset global HSMS parameters. Interactive tasks are permitted to carry out synchronous HSMS statement processing during tape sessions only.

**PARALLEL-RUNS = \*STD / <integer 1..16>**

This operand is only significant if you are working at storage level S2. It specifies the number of save tasks (ARCHIVE subtasks) running in parallel.

For duplication there must be two tape devices available for each task. Unless otherwise specified, the preset value from the archive definition applies.

For further information on parallel processing see the "HSMS Vol. 1" manual [1].

**WRITE-CHECKPOINTS = \*STD / \*YES / \*NO**

Defines whether any checkpoints are to be written to the ARCHIVE checkpoint file during processing; these checkpoints permit a request to be restarted following an interrupt (INTERRUPTED state).

Unless otherwise specified, the preset value from the archive definition applies.

**OPERATOR-INTERACTION = \*STD / \*NOT-ALLOWED / \*ALLOWED**

Determines whether messages requiring an operator response are to be output at the console (\*ALLOWED) or not (\*NOT-ALLOWED). If \*NOT-ALLOWED applies, HSMS performs default handling (see the description of the PARAM statement in the "ARCHIVE" manual [2]).

Unless otherwise specified, the default value from the archive definition applies.

**TAPE-CONTROL =**

Defines the parameters which are relevant for restoring files from tape.

**TAPE-CONTROL = \*STD**

The preset values from the definition of the archive from which the files are to be restored apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

The operands relevant to restoring from tape can be modified as follows:

**UNLOAD-TAPE = \*STD / \*YES / \*NO**

Specifies whether or not tapes are to be unloaded after processing.

The preset value from the archive definition applies unless otherwise specified.

It is possible that HSMS will ignore the value of this operand to avoid irrational processing of tapes, for example, to avoid unloading a tape several times while rewinding it.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields.

The default value is “ ; ”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the result, including any error messages, is to be output.

**REPORT = \*RESTORED-FILES**

A full report is to be output, including a list of all files actually restored.

**REPORT = \*FULL**

A full report is to be output, including a list of all files which should have been restored but were not due to an error.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report is to be printed.

**OUTPUT = \*MAIL**

The report is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report is to be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

## RESTART-REQUESTS

### Restart requests

This statement is used for restarting interrupted requests from the request file located in an SF or SM pubset environment.

- Requests which were interrupted before an ARCHIVE run was created to process them can be restarted.
- Requests for which an ARCHIVE run had already been started but not completed (INTERRUPTED state) cannot be restarted unless
  - the request was started with the option WRITE-CHECKPOINTS=\*YES,
  - and the ARCHIVE checkpoint file is available and contains the relevant ARCHIVE run.

The requests cannot be restarted unless the current operating mode is the same as at the time they were accepted by HSMS (OPERATION mode or SIMULATION mode).

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

#### *Note*

The RESTART-REQUESTS statement creates a new request for monitoring the migration or recall.

**Format**

<b>RESTART-REQUESTS</b>	Alias: <b>RSR</b>
<p><b>REQUEST-NAME</b> = <u>*ANY</u> / &lt;name 1..8&gt;</p> <p><b>ENVIRONMENT</b> = <u>*STD</u> / <u>*NODE-STD</u> / <u>*SINGLE-FEATURE</u> / <u>*SYSTEM-MANAGED</u>(...)</p> <p style="padding-left: 20px;"><b>*SYSTEM-MANAGED</b>(...)</p> <p style="padding-left: 40px;">  <b>CATALOG-ID</b> = &lt;cat-id&gt;</p> <p><b>REQUEST-DATE</b> = <u>*LATEST</u> / <u>*INTERVAL</u>(...) / &lt;date with-compl&gt;(…)</p> <p style="padding-left: 20px;"><b>*INTERVAL</b>(...)</p> <p style="padding-left: 40px;">  <b>CREATED-BEFORE</b> = <u>*LATEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;</p> <p style="padding-left: 40px;">  <b>CREATED-AFTER</b> = <u>*EARLIEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;</p> <p style="padding-left: 20px;">&lt;date with-compl&gt;(…)</p> <p style="padding-left: 40px;">  <b>TIME</b> = &lt;time&gt;</p> <p><b>USER-ID</b> = <u>*OWN</u> / <u>*ALL</u> / &lt;name 1..8&gt;</p> <p><b>ARCHIVE-NAME</b> = <u>*ALL</u> / &lt;filename 1..22 without-cat-gen-vers&gt;</p> <p><b>WAIT-FOR-COMPLETION</b> = <u>*NO</u> / <u>*YES</u> / <u>*FROM-RESTARTED-REQUEST</u></p>	

**REQUEST-NAME =**

Serves to select the requests to be restarted using the request name as the selection criterion. The name specified via the action statement or the default name assigned by HSMS is extended internally by a prefix formed by the user ID and a suffix in the form of a time stamp. Since the name by itself need not be unique, the request name can be used to refer to more than one request at a time.

**REQUEST-NAME = \*ANY**

The requests to be restarted are to be selected irrespective of their names.

**REQUEST-NAME = <name 1..8>**

Restricts restart to requests with the specified name.

**ENVIRONMENT =**

Defines the HSMS environment where the specified archive is located.

**ENVIRONMENT = \*STD**

The HSMS statement relates to the default environment for DMS requests:

- *For privileged users:* \*STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*NODE-STD**

The HSMS statement relates to the default environment for node requests:

- *For privileged users:* \*NODE-STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*NODE-STD is set to the value of the environment in which the home directory of the user is defined.

**ENVIRONMENT = \*SINGLE-FEATURE**

The HSMS statement relates to the SF environment only. Only requests which are located in the request file of the SF pubset environment are processed.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The HSMS statement relates only to the specified SM pubset environment. Only requests that are located in the request file of the SM pubset environment are processed.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**REQUEST-DATE =**

Serves to select the requests to be restarted using the creation date as the selection criterion. The date is output using the SHOW-REQUESTS statement of HSMS.

**REQUEST-DATE = \*LATEST**

Restricts restart to the most recently generated requests.

**REQUEST-DATE = \*INTERVAL(...)**

The requests to be restarted are to be selected using a time interval as the selection criterion. The interval includes all requests created between CREATED-AFTER and CREATED-BEFORE.

Unless otherwise specified, all requests starting with the one created first (\*EARLIEST-DATE) up to the one created last (\*LATEST-DATE) are selected.

**CREATED-BEFORE = \*LATEST-DATE**

The requests are to be restarted irrespective of whether they were created before a specific date.

**CREATED-BEFORE = <date with-compl>**

Restricts restart to requests created on or before the specified date.

**CREATED-BEFORE = <integer -99999..0 days>**

Restricts restart to requests created on or before the specified relative date.

**CREATED-AFTER = \*EARLIEST-DATE**

The requests are to be restarted irrespective of whether they were created after a specific date.

**CREATED-AFTER = <date with-compl>**

Restricts restart to requests created on or after the specified date.

**CREATED-AFTER = <integer -99999..0 days>**

Restricts restart to requests created on or after the specified relative date.

**REQUEST-DATE = <date with-compl>(…)**

The requests to be restarted are selected using the date and time of their creation as the selection criterion.

**TIME = <time>**

Time specification in the format hh:mm:ss

**USER-ID =**

*This operand is only available to the HSMS administrator.*

Serves to select the requests to be restarted using the user ID under which they were created as the selection criterion.

**USER-ID = \*OWN**

Restricts restart to requests created under the user's own ID (or, in the case of the HSMS administrator, under SYSHSMS).

**USER-ID = \*ALL**

Requests from all users are to be restarted.

**USER-ID = <name 1..8>**

Only requests of the specified user ID are to be restarted.

**ARCHIVE-NAME =**

*Only for archive owners:*

the requests to be started can be selected in the specified environment via the archive for which they were created.

**ARCHIVE-NAME = \*ALL**

The requests to be started are selected irrespective of the archive.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

Only requests referring to the archive in the specified environment are started.

**WAIT-FOR-COMPLETION = \*NO / \*YES / \*FROM-RESTARTED-REQUEST**

Specifies whether or not the user should wait for the completion of his request, or whether the setting used when the request was last started should be used again.

## **RESTORE-FILES**

### **Restore files and job variables**

This statement is used for restoring BS2000 files and job variables from a backup or long-term archive to the processing level. The files and job variables can be renamed, reorganized and written to different volumes during the restore. It is possible to specify individual save files and save versions from which the files and job variables are to be restored.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

## Format

RESTORE-FILES	Alias: RSF
<p><b>FILE-NAMES</b> = <b>*OWN</b> / <b>*ALL</b> / <b>*NONE</b> / <b>*SELECTED</b> / <b>*FROM-FILE(...)</b> / <b>*FROM-LIBRARY-ELEMENT(...)</b> / list-poss(20): &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;</p>	
<p><b>*FROM-FILE(...)</b></p> <ul style="list-style-type: none"> <li>  <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</li> </ul>	
<p><b>*FROM-LIBRARY-ELEMENT(...)</b></p> <ul style="list-style-type: none"> <li>  <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;</li> <li>  <b>,ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</li> </ul>	
<p><b>,EXCEPT-FILE-NAMES</b> = <b>*NONE</b> / <b>*FROM-FILE(...)</b> / <b>*FROM-LIBRARY-ELEMENT(...)</b> / list-poss(20): list-poss(20): &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;</p>	
<p><b>*FROM-FILE(...)</b></p> <ul style="list-style-type: none"> <li>  <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</li> </ul>	
<p><b>*FROM-LIBRARY-ELEMENT(...)</b></p> <ul style="list-style-type: none"> <li>  <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;</li> <li>  <b>,ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</li> </ul>	
<p><b>,NEW-FILE-NAMES</b> = <b>*SAME</b> / <b>*BY-RULE(...)</b></p>	
<p><b>*BY-RULE(...)</b></p> <ul style="list-style-type: none"> <li>  <b>NEW-CATALOG-ID</b> = <b>*SAME</b> / &lt;cat-id&gt;</li> <li>  <b>,NEW-USER-ID</b> = <b>*SAME</b> / &lt;name 1..8&gt;</li> <li>  <b>,PREFIX</b> = <b>*NONE</b> / &lt;filename 1..8 without-cat-user-gen-vers&gt;</li> <li>  <b>,SUFFIX</b> = <b>*NONE</b> / &lt;composed-name 1..8&gt;</li> </ul>	
<p><b>,ENVIRONMENT</b> = <b>*STD</b> / <b>*SINGLE-FEATURE</b> / <b>*SYSTEM-MANAGED(...)</b></p>	
<p><b>*SYSTEM-MANAGED(...)</b></p> <ul style="list-style-type: none"> <li>  <b>CATALOG-ID</b> = &lt;cat-id&gt;</li> </ul>	
<p><b>,ORIGINAL-SUPPORT</b> = <b>*ANY</b> / <b>*PUBLIC-DISK(...)</b> / <b>*PRIVATE-DISK(...)</b></p>	
<p><b>*PUBLIC-DISK(...)</b></p> <ul style="list-style-type: none"> <li>  <b>STORAGE-TYPE</b> = <b>*ANY</b> / <b>*PUBLIC-SPACE</b> / <b>*NET-STORAGE(...)</b></li> <li>  <b>*NET-STORAGE(...)</b> <ul style="list-style-type: none"> <li>  <b>VOLUME</b> = <b>*ALL</b> / list-poss(150): &lt;vsn 1..6&gt;</li> <li>  <b>,FILE-TYPE</b> = <b>*ANY</b> / <b>*BS2000</b> / <b>*NODE-FILE</b></li> </ul> </li> </ul>	
<p><b>*PRIVATE-DISK(...)</b></p> <ul style="list-style-type: none"> <li>  <b>VOLUMES</b> = list-poss(150): &lt;vsn 1..6&gt;</li> </ul>	

(part 1 of 5)

```

,NEW-SUPPORT = *STD / *PUBLIC-DISK(...) / *PRIVATE-DISK(...) / *SYSTEM-MANAGED-PUBSET(...)
  *PUBLIC-DISK(...)
    | STORAGE-TYPE = *STD / *PUBLIC-SPACE / *NET-STORAGE(...)
    | *NET-STORAGE(...)
    | | VOLUME = <vsn 1..6>
    | | ,FILE-TYPE = *STD / *BS2000 / *NODE-FILE
  *PRIVATE-DISK(...)
    | VOLUMES = list-poss(150): <vsn 1..6>
    | ,DEVICE-TYPE = STDDISK / <device>
  *SYSTEM-MANAGED-PUBSET(...)
    | STORAGE-CLASS = *ORIGINAL / *STD / *NONE(...)
    | *NONE(...)
    | | VOLUME-SET-ID = *BEST-VOLUME-SET / *ORIGINAL / <cat-id>
    | ,STORAGE-TYPE = *STD / *PUBLIC-SPACE / *NET-STORAGE(...)
    | *NET-STORAGE(...)
    | | VOLUME = <vsn 1..6>
    | | ,FILE-TYPE = *STD / *BS2000 / *NODE-FILE
,MIGRATED-FILES = *DATA-AND-CATALOG / *CATALOG-ONLY
,NET-STORAGE-FILES = *DATA-AND-CATALOG / *CATALOG-ONLY
,JV-NAMES = *NONE / *OWN / *ALL / *SELECTED / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
  list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>
  *FROM-FILE(...)
    | LIST-FILE-NAME = <filename 1..54 without-gen-vers>
  *FROM-LIBRARY-ELEMENT(...)
    | LIBRARY = <filename 1..54 without-gen-vers>
    | ,ELEMENT = <composed-name 1..64 with-under>
,EXCEPT-JV-NAMES = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
  list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>
  *FROM-FILE(...)
    | LIST-FILE-NAME = <filename 1..54 without-gen-vers>
  *FROM-LIBRARY-ELEMENT(...)
    | LIBRARY = <filename 1..54 without-gen-vers>
    | ,ELEMENT = <composed-name 1..64 with-under>

```

(part 2 of 5)

```

,NEW-JV-NAMES = *SAME / *BY-RULE(...)
  *BY-RULE(...)
    | NEW-CATALOG-ID = *SAME / <cat-id>
    | ,NEW-USER-ID = *SAME / <name 1..8>
    | ,PREFIX = *NONE / <name 1..8>
    | ,SUFFIX = *NONE / <composed-name 1..8>
,RELEASE-UNUSED-SPACE = *NO / *YES
,FILE-CONVERSION = *STD / *NO / *CONV-FORMAT
,DATE-AND-PROTECTION = *STD-ATTRIBUTES / *ORIGINAL-ATTRIBUTES
,REPLACE-FILES-AND-JV = *NO / *YES(...)
  *YES(...)
    | PROTECTION-RESPECTED = *ALL / *PASSWORDS / *NONE
    | ,REORGANIZE-SPACE = *YES / *NO
    | ,PASSWORDS = *NONE / *SECRET-PROMPT / list-poss(63): <c-string 1..4> / <x-string 1..8> /
      <integer -2147483648..2147483647>
,ARCHIVE-NAME = *SYSBACKUP / *SYSARCHIVE / *SYSMIGRATE /
  <filename 1..22 without-cat-gen-vers>

```

(part 3 of 5)

```

,SELECT-SAVE-VERSIONS = *ALL / *LATEST(...) / *BY-ATTRIBUTES(...)

*LATEST(...)
|   DAY-INTERVAL = *NO / *YES
|   ,CREATED-AFTER = *EARLIEST-DATE / <date with-compl> / <integer -99999..0 days>

*BY-ATTRIBUTES(...)
|   SAVE-VERSION-NAME = *ANY / <name 1..8>
|   ,SAVE-VERSION-DATE = *LATEST / <date with-compl>(…) / *INTERVAL(...) /
|       *BY-ORIGINAL-DATE(...)
|       <date with-compl>(…)
|       |   TIME = 23:59:59 / <time>
|       *INTERVAL(...)
|       |   CREATED-BEFORE = *LATEST-DATE / <date with-compl>(…) /
|           <integer -99999..0 days>(…)
|           <date with-compl>(…)
|           |   TIME = 23:59:59 / <time>
|           <integer -99999..0 days>(…)
|           |   TIME = 23:59:59 / <time>
|       ,CREATED-AFTER = *EARLIEST-DATE / <date with-compl> /
|           <integer -99999..0 days>

*BY-ORIGINAL-DATE(...)
|   CREATED-BEFORE = *LATEST-DATE / <date with-compl>(…) /
|       <integer -99999..0 days>(…)
|       <date with-compl>(…)
|       |   TIME = 23:59:59 / <time>
|       <integer -99999..0 days>(…)
|       |   TIME = 23:59:59 / <time>
|       ,CREATED-AFTER = *EARLIEST-DATE / *SAME-AS-BEFORE / <date with-compl> /
|           <integer -99999..0 days>

```

(part 4 of 5)

```

,DEVICE-TYPE = *STD / <device>
,DIALOG-FILE-SELECT = *NO / *YES(...)
  *YES(...)
    | SHOW-FILE-VERSIONS = *LATEST / *DIFFERENT / *ALL
,DIALOG-JV-SELECT = *NO / *YES(...)
  *YES(...)
    | SHOW-JV-VERSIONS = *LATEST / *ALL
,OPERATION-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    | REQUEST-NAME = *STD / <name 1..8>
    | REQUEST-DESCRIPTOR = *NONE / <text 1..60>
    | EXPRESS-REQUEST = *NO / *YES
    | CONTROL-JV= *NONE / <filename 1..54 without-gen-vers>
    | WAIT-FOR-COMPLETION = *NO / *YES
    | PARALLEL-RUNS = *STD / <integer 1..16>
    | WRITE-CHECKPOINTS = *STD / *YES / *NO
    | OPERATOR-INTERACTION = *STD / *NOT-ALLOWED / *ALLOWED
    | TAPE-CONTROL = *STD / *PARAMETERS(...)
      *PARAMETERS(...)
        | UNLOAD-TAPE = *STD / *YES / *NO
    | PERFORMANCE-ANALYSIS = *NO / *YES(...)
      *YES(...)
        | SEPARATOR = ; / <c-string 1..1>
    | REPORT = *SUMMARY / *RESTORED-FILES / *FULL / *NONE
    | OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...) / <filename 1..54 without-gen-vers>
      *LIBRARY-ELEMENT(...)
        | LIBRARY = <filename 1..54 without-gen-vers>
        | ELEMENT = <composed-name 1..64 with-under>

```

(part 5 of 5)

**FILE-NAMES =**

Specify the files to be restored. Specification of this operand is mandatory. The user can select individual files from the set of files specified here by means of the operands EXCEPT-FILE-NAMES, DIALOG-FILE-SELECT and ORIGINAL-SUPPORT (the latter is restricted to the HSMS administrator).

A file cannot be restored unless the pubset to which it is to be restored is available and the user ID involved has a JOIN entry for this pubset.



You can change this behavior as follows using an optional REP:

When a user ID is missing on the available pubset, it is automatically entered in the pubset's user catalog, and the files can thus be created. A message indicates that a new user ID has been created.

If files from more than one pubset are specified and are to be restored from a default system archive, then the same default system archive must be assigned to all these pubsets. Otherwise, the HSMS statement will be rejected. To prevent this you should only specify files from one pubset for each restore request.

All nonprivileged users can also restore files belonging to other user IDs if they are co-owners of these files.

**FILE-NAMES = \*OWN**

All files are restored that are listed in the archive directory and belong to the user's own ID.

**FILE-NAMES = \*ALL**

All files are restored that are listed in the archive directory.

**FILE-NAMES = \*NONE**

No files are restored.

**FILE-NAMES = \*SELECTED**

The path names of the files to be restored are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-FILE-NAMES.

**FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be restored are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used. The list file can be created, for instance, by means of the HSMS statement SELECT-FILE-NAMES or the BS2000 command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are to be restored are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be restored are specified directly. A list of up to 20 names may be specified.

The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the catalog ID which is either taken from the specified environment or the default catalog ID of the user ID.

The files can alternatively be selected using wildcards. The wildcards are replaced in accordance with the file names listed in the archive directory.

Restore runs are executed more quickly if you use fully qualified file names.

The following applies to file generations: when specifying fully qualified file names, the specification of a generation number (version) is permissible. Only the specified generations will be restored.

**EXCEPT-FILE-NAMES =**

Serves to specify files that are to be excluded from restoration.

**EXCEPT-FILE-NAMES = \*NONE**

All files specified with the FILE-NAMES operand are to be restored.

**EXCEPT-FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be excluded from restoration are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. Only upper-case characters may be used. This list file must be a SAM file with variable-length records containing one path name per record. The list file can be created, for instance, by means of the BS2000 command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are not to be restored are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-FILE-NAMES = list-poss(20); <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be excluded from restoration are specified directly. A list of up to 20 names may be specified.

The first character of the file names must not be a hyphen. The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the catalog ID which is either taken from the specified environment or the default catalog ID of the user ID.

The files can also be selected using wildcards. The wildcards are replaced in accordance with the file names listed in the archive directory.

The following applies to file generations: when specifying fully qualified file names, the specification of a generation number (version) is permissible. Only the specified generations will be excluded from backup.

**NEW-FILE-NAMES =**

The files can be renamed before being restored. The user must ensure that the new path name conforms to the BS2000 conventions governing names. The total length must not exceed 54 characters; this implies that the file name without user ID and catalog ID should not exceed 38 characters (to allow for its extension by the catalog ID). The new file name is formed as follows:

:cat-id:\$user-id.<prefix>.old-filename-without-cat-user.<suffix>

**NEW-FILE-NAMES = \*SAME**

The files are to be restored under their original names.

**NEW-FILE-NAMES = \*BY-RULE(...)**

The files are to be renamed using a common rule.

If the value \*CATALOG-ONLY is specified in the MIGRATED-FILES operand, only the suboperands NEW-CATALOG-ID and NEW-USER-ID may be specified; the suboperands PREFIX and SUFFIX are in this case not allowed.

**NEW-CATALOG-ID = \*SAME / <cat-id>**

The files may be restored under a different catalog ID, which is specified without a colon. The user ID must have a JOIN entry for this catalog.

Unless otherwise specified, the files are restored under their original catalog ID.

**NEW-USER-ID = \*SAME / <name 1..8>**

The files may be restored under a different user ID, which is specified without a leading “\$” character.

Unless otherwise specified, the files are restored under their original user ID.

**PREFIX = \*NONE / <filename 1..8 without-cat-user-gen-vers>**

A prefix of up to 8 characters may be added to the file name, automatically separated from the file name by a period (partial qualification).

The prefix must not contain any letters that are prohibited for file names.

Unless otherwise specified, no prefix is added to the file names.

**SUFFIX = \*NONE / <composed-name 1..8>**

A suffix of up to 8 characters may be added to the file name, automatically separated from the file name by a period (partial qualification).

The suffix must not contain any letters that are prohibited for file names.

Unless otherwise specified, no suffix is added to the file names.

**ENVIRONMENT =**

Defines the HSMS environment in which this HSMS statement is valid.

**ENVIRONMENT = \*STD**

*Meaning for privileged users:* \*STD is set to the value \*SINGLE-FEATURE.

*Meaning for nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*SINGLE-FEATURE**

The HSMS statement relates to an SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The HSMS statement relates to the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**ORIGINAL-SUPPORT =**

*This operand is only available to the HSMS administrator.*

This operand is only valid in an SF pubset environment.

Serves to select the files to be restored using as the selection criterion the volume on which they were resident before being saved.

**ORIGINAL-SUPPORT = \*ANY**

The files are to be restored irrespective of the volume from which they originate.

**ORIGINAL-SUPPORT = \*PUBLIC-DISK(...)**

Restricts restoration to files originating from public volumes (pubset and possibly assigned Net-Storage).

**STORAGE-TYPE =**

Selects the storage type for public volumes.

**STORAGE-TYPE = \*ANY**

The files on public volumes are restored irrespective of the storage type. They can come from the disks of a pubset or of a Net-Storage.

**STORAGE-TYPE = \*PUBLIC-SPACE**

Only files which come from the disks of a pubset are restored. Files from a Net-Storage are ignored.

**STORAGE-TYPE = \*NET-STORAGE(...)**

Only files which come from a Net-Storage are restored.

**VOLUMES = \*ALL / list-poss(150): <vsn 1..6>**

Specifies the VSN of one or more Net-Storage volumes from which the files to be restored come. \*ALL selects all Net-Storage volumes.

**FILE-TYPE =**

Selects the file type of Net-Storage files that will be restored.

**FILE-TYPE = \*ANY**

The Net-Storage files are selected irrespective of the file type.

**FILE-TYPE = \*BS2000**

Only Net-Storage files of the type BS2000 are selected.

**FILE-TYPE = \*NODE-FILE**

Only Net-Storage files of the type node file are selected.

**ORIGINAL-SUPPORT = \*PRIVATE-DISK(...)**

Restricts restoration to files originating from private disks.

**VOLUMES = list-poss(150): <vsn 1..6>**

Volume serial numbers of the private disks.

**NEW-SUPPORT =**

Serves to define the volumes to which the files are to be restored.

**NEW-SUPPORT = \*STD**

The files from backup archives are restored to the volumes from which they originate. Files from other archive types are written to public volumes.

**NEW-SUPPORT = \*PUBLIC-DISK(...)**

The files are to be restored to public volumes (pubset or assigned Net-Storage).

**STORAGE-TYPE =**

Selects the storage type for public volumes.

**STORAGE-TYPE = \*STD**

The files originally stored on public disk are restored to the original storage medium, files originally stored on private disk are restored on public volumes.

**STORAGE-TYPE = \*PUBLIC-SPACE**

The files are only written back to disks of the pubset concerned.

**STORAGE-TYPE = \*NET-STORAGE(...)**

The files are only written back to the Net-Storage which is assigned to the pubset concerned.

**VOLUME = <vsn 1..6>**

Specifies the VSN of the Net-Storage volume to which the files are written back.

**FILE-TYPE =**

Specifies the type in which files will be restored to Net-Storage.

**FILE-TYPE = \*STD**

The files are restored with their original type.

**FILE-TYPE = \*BS2000**

The files are restored with the type BS2000.

**FILE-TYPE = \*NODE-FILE**

The files are restored with the type node file.

**NEW-SUPPORT = \*PRIVATE-DISK(...)**

The files are to be restored to private disks. All disks must be of the same device type.

**VOLUMES = list-poss(150): <vsn 1..6>**

Volume serial numbers of the private disks.

**DEVICE-TYPE = STDDISK / <device>**

Device type of the private disks. The default setting STDDISK selects the default device type. Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

**NEW-SUPPORT = \*SYSTEM-MANAGED-PUBSET(...)**

The files are written back to an SM pubset (pubset or assigned Net-Storage).

**STORAGE-CLASS =**

Determines the storage class with which the files are written back.

**STORAGE-CLASS = \*ORIGINAL**

Files backed up from SM pubsets are written back with their original storage class.  
Files backed up from SF pubsets are written back without a storage class.

**STORAGE-CLASS = \*STD**

The files are written back with the storage class that is the default for users (with the same rules that the DMS uses for /CREATE-FILE STORAGE-CLASS=\*STD).

**STORAGE-CLASS = \*NONE(...)**

The files are written back without a storage class.

**VOLUME-SET-ID =**

In an SM pubset environment, the volume set can be specified to which the files are to be written back.

**VOLUME-SET-ID = \*BEST-VOLUME-SET**

The files to be restored are written back to the volume set that best matches their file attributes. The specification of the best volume set does not take S1 volume sets into account.

**VOLUME-SET-ID = \*ORIGINAL**

This value is only allowed for users who have the privilege to carry out physical allocation and if the files are written back to the same SM pubset.

The files are written back to the same volume set from which they originated.

**VOLUME-SET-ID = <cat-id>**

When working in an SM pubset environment, a user who has file allocation permission (see user attributes) can specify the catalog ID of a volume set in an SM pubset. The files on this volume set are selected for restoration.

**STORAGE-TYPE =**

Selects the storage type for shared volumes.

**STORAGE-TYPE = \*STD**

The files are restored on public volumes.

**STORAGE-TYPE = \*PUBLIC-SPACE**

The files are only written back to disks of the pubset concerned.

**STORAGE-TYPE = \*NET-STORAGE(...)**

The files are only written back to the Net-Storage which is assigned to the pubset concerned.

**VOLUME = <vsn 1..6>**

Specifies the VSN of the Net-Storage volume to which the files are written back.

**FILE-TYPE =**

Specifies the type in which files will be restored to Net-Storage.

**FILE-TYPE = \*STD**

The files are restored with their original type.

**FILE-TYPE = \*BS2000**

The files are restored with the type BS2000.

**FILE-TYPE = \*NODE-FILE**

The files are restored with the type node file.

**MIGRATED-FILES =**

*This operand is only available to the HSMS administrator.*

Specifies the RESTORE procedure for migrated files. Migrated files are files that are saved as "migrated" in the backup archive.

Only the HSMS administrator has a choice of operand settings. Nonprivileged users may only specify \*DATA-AND-CATALOG.

**MIGRATED-FILES = \*DATA-AND-CATALOG**

The migrated files are restored to S0 together with their data. If the backup archive only contains the catalog entry for migrated files, then only the catalog entry is restored. The data is then brought to S0 from the migration archive by performing a RECALL. If the migration archive does not contain the relevant data, the catalog entry is deleted. The system then reports the file as being unable to be restored.

**MIGRATED-FILES = \*CATALOG-ONLY**

Only the catalog entries are restored for all migrated files. The catalog entries are modified so that they reference the latest appropriate data in the migration archive. If the migration archive does not contain any appropriate data for a file, the system indicates an error. The file's catalog entry is not deleted.

**NET-STORAGE-FILES = \*DATA-AND-CATALOG / \*CATALOG-ONLY**

Specifies whether only the catalog entry or also the data should be restored for files on Net-Storage. The default is \*DATA-AND-CATALOG, i.e. the data and catalog entry are restored.

This operand makes only sense in connection with Net-Storage files of the type BS2000. Net-Storage files of the type node file are always restored with data.

**JV-NAMES =**

Serves to specify the job variables to be restored. A job variable cannot be restored unless the pubset to which it is to be restored is available and the user ID involved has a JOIN entry on this pubset.

If job variables from more than one pubset are specified and are to be restored from a default system archive, then the same default system archive must be assigned to all these pubsets. Otherwise, the statement will be rejected. To prevent this you should only specify job variables from one pubset for each request.

All nonprivileged users can also restore job variables belonging to other user IDs if they are co-owners of these job variables.

**JV-NAMES = \*NONE**

No job variables are to be restored.

**JV-NAMES = \*OWN**

All job variables of the user's own ID residing on any imported pubset are to be restored. The selection is made from the directory.

**JV-NAMES = \*SELECTED**

The path names of the job variables to be restored are taken from a list which is created in the same HSMS run with the HSMS statement SELECT-JV-NAMES.

**JV-NAMES = \*ALL**

All job variables residing on any imported pubset are to be restored. The selection is made from the directory.

**JV-NAMES = \*FROM-FILE(...)**

The path names of the job files to be restored are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**JV-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are to be restored are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**JV-NAMES = list-poss(20): <filename 1..80 without-gen-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables to be restored are specified directly. A list of up to 20 names may be specified.

The job variables can alternatively be selected using wildcards. The wildcards are replaced in accordance with the job variable names listed in the archive directory.

**EXCEPT-JV-NAMES =**

Serves to specify job variables that are to be excluded from restoration.

**EXCEPT-JV-NAMES = \*NONE**

All job variables specified in the JV-NAMES operand are restored.

**EXCEPT-JV-NAMES = \*FROM-FILE(...)**

The path names of the job variables to be excluded from restoration are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-JV-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are not to be restored are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-JV-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables to be excluded from restoration are specified directly. A list of up to 20 names may be specified. The first character of the job variable names must not be a hyphen.

The job variables can alternatively be selected using wildcards. The wildcards are replaced in accordance with the job variable names listed in the archive directory.

**NEW-JV-NAMES = \*SAME / \*BY-RULE(...)**

The job variables can be renamed before being restored.

The job variables can be renamed using NEW-JV-NAMES=\*BY-RULE(...) before they are imported. The suboperands and options available are the same as for files (see NEW-FILE-NAMES=\*BY-RULE(...), [page 411](#)).

**RELEASE-UNUSED-SPACE = \*NO / \*YES**

Determines whether or not unused storage space (difference between the last-page pointer and the file size) is to be released after file restoration.

**FILE-CONVERSION =**

Determines whether files whose PAM key format is different from that of the output volume are to be converted when restored. This operand is ignored for job variables.

If \*STD or \*CONV-FORMAT is specified, the PAMINT routine in \$TSOS.SYSLNK.PAMINT must be used.

Only \*CONV-FORMAT may be specified for partially saved files.

If a converted file to be restored already exists, it is always reorganized and RELEASE-UNUSED-SPACE is ignored.

**FILE-CONVERSION = \*STD**

During a restore run to an NK disk, files with a PAM key are converted by PAMINT according to the following rules:

- K-ISAM files to NK-ISAM files  
(BLOCK-CONTROL-INFO=\*WITHIN-DATA-BLOCK)
- K-SAM-files to NK-SAM files  
(BLOCK-CONTROL-INFO=\*WITHIN-DATA-BLOCK)
- K-UPAM files to NK-UPAM files  
(BLOCK-CONTROL-INFO=\*NO)  
PAM files whose structure is known (load modules, libraries) are converted accordingly; if the structure of PAM files is unknown and conversion is possible, the PAM key information is lost. A message is displayed if the PAM key contained information.

**FILE-CONVERSION = \*NO**

Files with a PAM key are not converted during a restore run to an NK disk, which means they are not restored.

**FILE-CONVERSION = \*CONV-FORMAT**

During a restore run to an NK disk, files with a PAM key are converted by PAMINT to “CONV format”. The restored file contains all PAM keys at the end of the file in separate blocks.

**DATE-AND-PROTECTION =**

This operand is only evaluated when restoring from long-term archives. In the event of restoration from backup archives the date and protection attributes are always transferred from the backed-up settings.

Specifies how the date and protection attributes are to be set for files and job variables which have been protected with GUARDS or BASIC-ACL during backup and which are to be assigned new catalog and user IDs.

**DATE-AND-PROTECTION = \*STD-ATTRIBUTES**

The date and protection attributes are set to the defaults. These are as follows:

Date or protection attributes	Overwrite file on hard disk	
	YES	NO
Password attributes setting	same as for save file	same as for save file
USER-ACCESS setting	same as for hard disk	*OWNER-ONLY
ACCESS setting	same as for hard disk	*WRITE
BASIC-ACL, GUARDS settings	same as for hard disk	*OFF
Setting for creation date, expiration date and date of last access	current date	current date

**DATE-AND-PROTECTION = \*ORIGINAL-ATTRIBUTES**

The data and protection attributes are adopted from the backed up settings.

**REPLACE-FILES-AND-JV = \*NO / \*YES(...)**

Determines whether already existing files and job variables are to be overwritten during file restoration. With REPLACE=\*NO the names of the files and job variables which are not overwritten are only listed in the full report (REPORT=\*FULL).

**REPLACE-FILES-AND-JV = \*YES(...)**

Existing files and job variables are to be overwritten. In addition, the user can specify if and to what extent the file protection attributes, if any, are to be respected:

**PROTECTION-RESPECTED = \*ALL**

Restricts overwriting to files and job variables that are not protected by a password, that permit write access, and whose retention period has expired.

**PROTECTION-RESPECTED = \*PASSWORDS**

Restricts overwriting to files and job variables that are not protected by a password.

**PROTECTION-RESPECTED = \*NONE**

*This operand is only available to the HSMS administrator.*

All files and job variables are to be overwritten, irrespective of their protection attributes.

**REORGANIZE-SPACE = \*YES / \*NO**

Determines whether the existing files are to be erased before the restore operation, which implies file reorganization, or whether the file is to continue to occupy the same extents on the disk. The operand is evaluated with existing files only.

**PASSWORDS = \*NONE / \*SECRET-PROMPT / list-poss(63): <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>**

If files or job variables to be restored are protected by a password or if the save file has a password, the passwords must be specified here. HSMS administrators do not need to specify a password.

If a directory file is used which is protected by passwords, all users must specify the read and write password.

The PASSWORDS operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in an interactive dialog.
- In unguided dialog and foreground procedures, the entry \*SECRET or ^ permits concealed input of the password.

**ARCHIVE-NAME =**

Defines the name of the archive in the specified environment from which the files and job variables are to be restored. If a shadow archive is to be used for the restore, the archive name must be specified explicitly.

Name of the archive from which the files and job variables are to be restored. If a default system archive is specified, it must already exist and, for restoration to more than one pubset, be unequivocally assigned to these pubsets.

If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. This also applies to HSMS administrators.

So that the nonprivileged user can use the archive of another user, read access must exist for that archive (USER-ACCESS=\*ALL-USERS and ACCESS=\*READ) or you must have co-ownership of the archive directory.

**ARCHIVE-NAME = \*SYSBACKUP**

The files are to be restored from the assigned default system backup archive in the specified environment.

**ARCHIVE-NAME = \*SYSARCHIVE**

The files are to be restored from the assigned default long-term system archive.

**ARCHIVE-NAME = \*SYSMIGRATE**

The files are to be restored from the specified environment and the assigned default system migration archive.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

The files are to be restored from the specified environment and specified archive.

**SELECT-SAVE-VERSIONS =**

Serves to define the save versions to be used for restoration.

Usually, the most recent version of each of the files specified via FILE-NAMES is selected from all the save versions specified for restoration, unless the user explicitly selects individual versions by means of DIALOG-FILE-SELECT.

**SELECT-SAVE-VERSIONS = \*ALL**

All save versions are to be selected for the restore operation. The specified files and job variables are in each case restored from the most recent save version in which they are contained.

Explicit specification of FILE-NAMES=\*ALL(\*OWN) in conjunction with the default value SELECT-SAVE-VERSIONS=\*ALL causes the most recent versions of all files (of the calling user) that were ever saved in the specified archive to be restored.

\*ALL should therefore be specified after careful consideration only (e.g. in combination with the explicit specification of file names) so as to avoid accessing an unnecessarily large number of save versions and volumes.

**SELECT-SAVE-VERSIONS = \*LATEST(...)**

Only the most recently created save version is to be used for the restore operation.

When restoring from a backup archive, this means that of all the files specified only those will be restored which were actually saved or registered as “cataloged-not-saved” (CNS) during the last backup run.

**DAY-INTERVAL = \*NO**

Only the latest save version created is considered for the restore.

**DAY-INTERVAL = \*YES**

This operand is only available for backed up files.

If more than one save version was created on the same day, you can extend the term “latest save version” to a number of save versions which were created on the same day by specifying DAY-INTERVAL=\*YES.

In this case the last save version to be created plus all save versions that were created on the same day as this one are considered for the restore. This is not possible, however, if the save version was created with the HSMS statement ARCHIVE-FILES.

**CREATED-AFTER = \*EARLIEST-DATE**

Files which were marked as “cataloged-not-saved” (CNS) during the last backup are restored from the most recently created save version - irrespective of its creation date.

**CREATED-AFTER = <date with-compl>**

Files which were marked as “cataloged-not-saved” (CNS) during the last backup are only restored if they were saved in a save version that was created on or after the specified date.

**CREATED-AFTER = <integer -99999..0 days>**

Serves to restrict the selection to save versions which were created on or after the specified relative date.

**SELECT-SAVE-VERSIONS = \*BY-ATTRIBUTES(...)**

Serves to select the save version to be used for restoration using its attributes as the selection criterion.

**SAVE-VERSION-NAME = \*ANY / <name 1..8>**

Selects the save version to be used for restoration via the name assigned to it at creation.

The option of selecting save versions that were created by other users is restricted to the HSMS administrator.

Unless otherwise specified, the save versions are selected for restoration irrespective of their names.

**SAVE-VERSION-DATE =**

Selects the save version to be used for restoration via its creation date. In combination with explicit specification of a save version name this operand restricts the selection of save versions to those with both the specified name and the creation date.

**SAVE-VERSION-DATE = \*LATEST**

Only the most recently created save version in the archive is to be used for the restore operation. In conjunction with SAVE-VERSION-NAME=\*ANY, this specification is equivalent to SELECT-SAVE-VERSIONS=\*LATEST.

**SAVE-VERSION-DATE = <date with-compl>(...)**

Selects the last save version created on or before the specified date for restoration.

**TIME = 23:59:59 / <time>**

Selects the last save version created at or before the specified date and time for restoration.

**SAVE-VERSION-DATE = \*INTERVAL(...)**

Serves to select the save versions using a time interval as the selection criterion. The interval includes all save versions created between CREATED-AFTER and CREATED-BEFORE.

Unless otherwise specified, all save versions, starting with the one created first (\*EARLIEST-DATE) up to the one created last (\*LATEST-DATE), are selected. In conjunction with SAVE-VERSION-NAME=\*ANY, this specification is equivalent to SELECT-SAVE-VERSIONS=\*ALL and, like SELECT-SAVE-VERSIONS=\*ALL, should be used only after careful consideration.

**CREATED-BEFORE = \*LATEST-DATE**

The save versions are to be selected irrespective of whether they were created before a specific date. A more exact specification is possible using the time field.

**CREATED-BEFORE = <date with-compl>(…) / <integer -99999..0 days>(…)**

Restricts selection to save versions created on or before the specified date. The date is specified either in absolute terms or relative to the current date. A more exact specification is possible using the time field.

**TIME = 23:59:59 / <time>**

The time in the format hh:mm:ss.

**CREATED-AFTER = \*EARLIEST-DATE**

The save versions are to be selected irrespective of whether they were created after a specific date.

**CREATED-AFTER = <date with-compl>**

Restricts selection to save versions created on or after the specified date.

**CREATED-AFTER = <integer -99999..0 days>**

Restricts selection to save versions created on or after the specified relative date.

**SAVE-VERSION-DATE = \*BY-ORIGINAL-DATE(...)**

*Only for save versions of a migration or long-term archive.*

You can select a save version of a migration or long-term archive via its creation date (see “Copying save files” in the manual “HSMS Volume 1” [1]). The save version with the highest original creation date in the specified time period is determined. If multiple save versions have the same creation date the save version created last is selected.

**CREATED-BEFORE = \*LATEST-DATE**

The original creation date of the backup versions considered for selection has no upper limit.

**CREATED-BEFORE = <date with-compl>(…) / <integer -99999..0 days> (…)**

The original creation date of the backup versions considered for selection has an upper limit which is defined by the date specified. The date is specified either in absolute terms or relative to the current date. An additional time specification defines the selection more precisely:

**TIME = 23:59:59 / <time>**

Time in the format hh:mm:ss.

**CREATED-AFTER = \*EARLIEST-DATE**

The original creation date of the backup versions considered for selection has no lower limit.

**CREATED-AFTER = <date with-compl> / <integer -99999..0 days>**

The original creation date of the backup versions considered for selection has a lower limit which is defined by the current date specified in absolute or relative terms.

**CREATED-AFTER = \*SAME-AS-BEFORE**

Only the backup version whose original creation date matches the date specified in the CREATED-BEFORE operand is selected.

**DEVICE-TYPE = \*STD / <device>**

Device type of the volume containing the save version. This operand need not be specified unless the save version was created in an ARCHIVE version < V2.6B. In later ARCHIVE versions, the device type used for saving is taken from the directory file and any differing specification is ignored.

Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

Unless otherwise specified, the preset value from the archive definition applies.

*Note*

When tape volumes are copied “offline” from an old device type to a new one with the same VSN without adjusting the directory, an optional REP can be used to ensure that the device type specified explicitly has priority over the device type specified in the directory file and consequently that a device type which differs from the directory file is accepted.

**DIALOG-FILE-SELECT =**

Defines whether the user wishes to conduct a dialog in order to select individual files from the set of files selected for restoration by means of FILE-NAMES and other operands.

This option enables the user to check whether the specified save versions do in fact contain the specified files, thereby enabling him to forestall errors before the request is processed asynchronously.

The operand is evaluated in interactive mode only, for batch tasks it is ignored.

**DIALOG-FILE-SELECT = \*NO**

The specified set of files is not to be further reduced.

**DIALOG-FILE-SELECT = \*YES(...)**

The specified set of files is to be output in a screen mask. The user can then mark individual files from the set displayed, thereby selecting them for or excluding them from restoration.

Details on the content of the screen mask are provided in the section [“Dialog selection when restoring files” on page 430](#).

**SHOW-FILE-VERSIONS =**

Determines the number of save versions of a file to be displayed on the screen.

**SHOW-FILE-VERSIONS = \*LATEST**

Only the most recent save version of each of the specified files is to be displayed on the screen.

**SHOW-FILE-VERSIONS = \*DIFFERENT**

Only those save versions of a file are to be displayed which were produced after the file had in fact been modified (compared to the previous save run), i.e. which have a different version number or CFID (coded file ID).

**SHOW-FILE-VERSIONS = \*ALL**

All save versions of a file are to be displayed.

**DIALOG-JV-SELECT =**

Determines whether the set of job variables selected for restoration by JV-NAMES and other operands, is to be further restricted in the dialog.

This means that the user can check whether the job variables he specified really are listed in the save versions he specified, before the request is processed asynchronously and possible errors occur.

The operand is only evaluated in the dialog. For batch requests, it is ignored.

**DIALOG-JV-SELECT = \*NO**

The selected set of job variables is not restricted.

**DIALOG-JV-SELECT = \*YES(...)**

The selected set of job variables is output in a screen mask. The user can then mark individual job variables from the set displayed, thereby selecting them for or excluding them from selection.

Details on the content of the screen mask are provided in the section [“Dialog selection when restoring job variables” on page 431](#).

**SHOW-JV-VERSIONS =**

Defines how much of various save versions of a job variable are to be output to the screen.

**SHOW-JV-VERSIONS = \*LATEST**

The job variables are output only from the latest save versions that they contain.

**SHOW-JV-VERSIONS = \*ALL**

All save versions of a job variable are output.

**OPERATION-CONTROL =**

Enables the user to define a number of parameters which are relevant for the execution of the restore run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The operands controlling the restore run can be modified as follows:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administrator) and a suffix in the form of a time stamp. Unless otherwise specified, the request name is formed by the short code "RSF#" and the TSN of the calling user task yyyy as follows: RSF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE.

The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing). The maximum wait times for batch tasks and interactive tasks are different and are determined by preset global HSMS parameters.

Interactive tasks are permitted to carry out synchronous HSMS statement processing during tape sessions only.

**PARALLEL-RUNS = \*STD / <integer 1..16>**

This operand is only significant if you are working at storage level S2. It specifies the number of save tasks (ARCHIVE subtasks) running in parallel.

There must be two tape devices available for each task.

Unless otherwise specified, the preset value from the archive definition applies.

For further information on parallel processing, see the “HSMS Vol. 1” manual [1].

**WRITE-CHECKPOINTS = \*STD / \*YES / \*NO**

*This operand is only available to the HSMS administrator.*

Defines whether any checkpoints are to be written to the ARCHIVE checkpoint file during processing; these checkpoints permit a request to be restarted following an interrupt (INTERRUPTED state).

Unless otherwise specified, the preset value from the archive definition applies.

**OPERATOR-INTERACTION = \*STD / \*NOT-ALLOWED / \*ALLOWED**

*This operand is only available to the HSMS administrator.*

Determines whether messages requiring an operator response are to be output at the console (\*ALLOWED) or not (\*NOT-ALLOWED). If \*NOT-ALLOWED applies, HSMS performs default handling (see the description of the PARAM statement in the “ARCHIVE” manual [2]).

Unless otherwise specified, the default value from the archive definition applies.

**TAPE-CONTROL =**

*This operand is only available to the HSMS administrator.*

Defines the parameters which are relevant for restoring files from tape.

**TAPE-CONTROL = \*STD**

The preset values from the definition of the archive from which the files are to be restored apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

The operands relevant to restoring from tape can be modified as follows:

**UNLOAD-TAPE = \*STD / \*YES / \*NO**

Specifies whether or not tapes are to be unloaded after processing.

The preset value from the archive definition applies by default.

It is possible that HSMS will ignore the value of this operand to avoid irrational processing of tapes, for example, to avoid unloading a tape several times while rewinding it.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields.

The default value is “ ; ”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output for this restore request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the restore request, including any error messages, is to be output.

**REPORT = \*RESTORED-FILES**

A report is to be output, including a list of all files actually restored.

**REPORT = \*FULL**

A report is to be output, including a list of all files which should have been restored but were not due to certain reasons.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report for this restore request is to be printed.

**OUTPUT = \*MAIL**

The report for this restore request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this restore request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this restore request is to be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.





## Examples

*A nonprivileged user restores an inadvertently deleted file using HSMS default values; the TSN is 2345*

```
//RESTORE-FILES FILE-NAMES=file.1
```

- The file FILE.1 under the user's ID and the default catalog ID is restored from the default system backup archive (\*SYSBACKUP).
- The file FILE.1 is restored to the volume (public volume or private disk) from which it was backed up, retaining its original name.
- All save versions are searched for the file, but the file is restored only from the most recent save version in which it is contained. In other words: the current state of the file is restored.
- The request is given the name RSF#2345.
- The request is processed asynchronously.
- Depending on the global HSMS parameter OUTPUT a summary report is printed or sent as an email attachment.

*The HSMS administrator restores a previously edited archived file from the long-term system archive, using a prefix for another user ID; his TSN is 1EWW*

```
//RESTORE-FILES FILE-NAMES=$test1.file.2, -  
// NEW-FILE-NAMES=*BY-RULE(NEW-USER-ID=test2,PREFIX=arch), -  
// ARCHIVE-NAME=*SYSARCHIVE
```

- The file \$TEST1.FILE.2 is restored from the default long-term system archive.
- The file is renamed as \$TEST2.ARCH.FILE.2 and restored under the default catalog ID for TEST2.
- The request is given the name RSF#1EWW.
- The request is processed asynchronously.
- Depending on the global HSMS parameter OUTPUT a summary report is printed or sent as an email attachment.

## **RESTORE-LIBRARY-ELEMENTS**

### **Restore elements from library file**

This statement restores PLAM elements from an HSMS archive. Element-by-element restoration of PLAM elements requires that when the library file was saved the element structure should also have been saved (with specification `SAVE-PLAM-INFO=*YES`). This is possible for backups and long-term backups.

The element names of a library stored with element structure are only maintained in the save file, not in the archive's save directory.

When no element is specified (or `ELEMENTS=*LIST-ALL-TO-REPORT` is specified explicitly) the statement lists all elements of the save versions selected with their name, version and type for the specified library in the report.

All elements that are to be restored must be specified explicitly with name, version and type. The elements can be renamed. By default the restored elements are written back to the original library. The elements can also be restored to another library. In any case the library must be present and obey the normal DMS rules for access and co-ownership.

You can specify individual save versions from which the elements are to be restored. All elements specified are restored from the same status of the saved library which is specified in this way. If certain elements were not contained in this save status of the library, you must retry with different save versions.

The restart function is not supported for `RESTORE-LIBRARY-ELEMENTS` requests.

This statement has a different format for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

## Format

RESTORE-LIBRARY-ELEMENTS	Alias: RLE
<pre> <b>ENVIRONMENT</b> = <b>*STD</b> / <b>*SINGLE-FEATURE</b> / <b>*SYSTEM-MANAGED</b>(...)   <b>*SYSTEM-MANAGED</b>(...)       <b>CATALOG-ID</b> = &lt;cat-id&gt;   ,<b>LIBRARY</b> = &lt;filename 1..54 without-vers without-wild&gt;   ,<b>TARGET-LIBRARY</b> = <b>*SAME</b> / &lt;filename 1..54 without-vers without-wild&gt;   ,<b>ELEMENTS</b> = <b>*LIST-ALL-TO-REPORT</b> / list-poss(50): <b>*ELEMENT</b>(...)     <b>*ELEMENT</b>(...)         <b>ELEMENT</b> = &lt;composed-name 1..64 with-underscore with-wild(132)&gt;           <b>VERSION</b> = <b>*HIGHEST-EXISTING</b> / <b>*ALL</b> / <b>*UPPER-LIMIT</b> /           &lt;composed-name 1..24 with-underscore with-wild(52)&gt;         ,<b>TYPE</b> = &lt;alphanum-name 1..8 with-wild(20)&gt;       ,<b>NEW-ELEMENT-NAMES</b> = <b>*SAME</b> / <b>*BY-RULE</b>(...)         <b>*BY-RULE</b>(...)             <b>PREFIX</b> = <b>*NONE</b> / &lt;filename 1..8 without-cat-user-gen-vers&gt;           ,<b>SUFFIX</b> = <b>*NONE</b> / &lt;composed-name 1..8&gt;         ,<b>REPLACE-ELEMENTS</b> = <b>*NO</b> / <b>*YES</b>         ,<b>ARCHIVE-NAME</b> = <b>*SYSBACKUP</b> / &lt;filename 1..22 without-cat-gen-vers&gt;         ,<b>SELECT-SAVE-VERSIONS</b> = <b>*ALL</b> / <b>*LATEST</b>(...) / <b>*BY-ATTRIBUTES</b>(...)           <b>*LATEST</b>(...)               <b>DAY-INTERVAL</b> = <b>*NO</b> / <b>*YES</b>             ,<b>CREATED-AFTER</b> = <b>*EARLIEST-DATE</b> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt; </pre>	

(part 1 of 2)

**\*BY-ATTRIBUTES(...)**

**SAVE-VERSION-NAME** = **\*ANY** / <name 1..8>

**,SAVE-VERSION-DATE** = **\*LATEST** / **\*INTERVAL(...)** / <date with-compl>(…)

**\*INTERVAL(...)**

**CREATED-BEFORE** = **\*LATEST-DATE** / <date with-compl>(…) /  
<integer -99999..0 days>(…)

<date with-compl>(…)

| **TIME** = **23:59:59** / <time>

<integer -99999..0 days>(…)

| **TIME** = **23:59:59** / <time>

**,CREATED-AFTER** = **\*EARLIEST-DATE** / <date with-compl> /  
<integer -99999..0 days>

<date with-compl>(…)

| **TIME** = **23:59:59** / <time>

**,OPERATION-CONTROL** = **\*STD** / **\*PARAMETERS(...)**

**\*PARAMETERS(...)**

**REQUEST-NAME** = **\*STD** / <name 1..8>

**,REQUEST-DESCRIPTOR** = **\*NONE** / <text 1..60>

**,EXPRESS-REQUEST** = **\*NO** / **\*YES**

**,CONTROL-JV** = **\*NONE** / <filename 1..54 without-gen-vers>

**,WAIT-FOR-COMPLETION** = **\*NO** / **\*YES**

**,OPERATOR-INTERACTION** = **\*STD** / **\*NOT-ALLOWED** / **\*ALLOWED**

**,TAPE-CONTROL** = **\*STD** / **\*PARAMETERS(...)**

**\*PARAMETERS(...)**

| **UNLOAD-TAPE** = **\*STD** / **\*YES** / **\*NO**

**,PERFORMANCE-ANALYSIS** = **\*NO** / **\*YES(...)**

**\*YES(...)**

| **SEPARATOR** = **;** / <c-string 1..1>

**,REPORT** = **\*SUMMARY** / **\*LIBRARY-ONLY** / **\*RESTORED-ELEMENTS** / **\*FULL** / **\*NONE**

**,OUTPUT** = **\*STD** / **\*PRINTER** / **\*MAIL** / **\*LIBRARY-ELEMENT(...)** / <filename 1..54 without-gen-vers>

**\*LIBRARY-ELEMENT(...)**

| **LIBRARY** = <filename 1..54 without-gen-vers>

| **,ELEMENT** = <composed-name 1..64 with-under> >

(part 2 of 2)

**ENVIRONMENT =**

Defines the HSMS environment in which this HSMS statement is valid.

**ENVIRONMENT = \*STD**

*Meaning for privileged users:* \*STD is set to the value \*SINGLE-FEATURE.

*Meaning for nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*SINGLE-FEATURE**

The HSMS statement relates to an SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The HSMS statement relates to the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**LIBRARY = <filename 1..54 without-vers without-wild>**

Name of the library containing the elements. The nonprivileged user must be owner or co-owner of this library.

**TARGET-LIBRARY =**

Specifies which library the elements should be restored in.

**TARGET-LIBRARY = \*SAME**

The elements will be restored in the original library.

**TARGET-LIBRARY = <filename 1..54 without-vers without-wild>**

The elements will be restored in a target library, with the name specified. The nonprivileged caller must be owner or co-owner of this library.

**ELEMENTS =**

Outputs for the specified library either only a list of the elements which are contained in the specified save versions or restores the elements specified explicitly here.

**ELEMENTS = \*LIST-ALL-TO-REPORT**

For the specified library all elements of the selected save versions are output in the report with element name, version and type. Output always takes place with the setting REPORT=\*FULL. Other specifications in the REPORT operand are ignored. The save files are read to obtain the element information from the save information (i.e. with tape processing here, too).

**ELEMENTS = list-poss(50): \*ELEMENT(...)**

Determines the elements which are to be restored in the target library. An element is uniquely determined by element name, version and type (see the following operands). If several elements are to be restored, you can either use wildcards in the name parts or specify a maximum of 50 elements in a list. In the list all elements must be fully specified, in other words no wildcards may be used in the name parts.

**ELEMENT = <composed-name 1..64 with-underscore with-wild(132)>**

Name of the element or elements.

**VERSION = \*HIGHEST-EXISTING / \*ALL / \*UPPER-LIMIT /****<composed-name 1..24 with-underscore with wild(52)>**

Version of the element or elements

**TYPE = <alphanum-name 1..8 with-wild(20)>**

Type of the element or elements

**NEW-ELEMENT-NAMES =**

You can rename the library elements before restoring them to the library. The total length must not exceed 64 characters. The new element name is formed as follows:  
<prefix>.old-element-name.<suffix>

**NEW-ELEMENT-NAMES = \*SAME**

The elements are restored under their original names.

**NEW-ELEMENT-NAMES = \*BY-RULE(...)**

The elements are renamed on the basis of a uniform rule.

**PREFIX = \*NONE / <filename 1..8 without-cat-user-gen-vers>**

You can add a prefix of at most 8 characters to the element name. The prefix is automatically separated from the file name by a period. You can only use characters that may also be used in element names.

**SUFFIX = \*NONE / <composed-name 1..8>**

You can append a suffix of at most 8 characters to the element name. The suffix is automatically separated from the file name by a period. You can only use characters that may also be used in element names.

**REPLACE-ELEMENTS =**

Defines whether existing elements are overwritten on restore.

**REPLACE-ELEMENTS = \*NO**

Existing elements are not overwritten on restore.

**REPLACE-ELEMENTS = \*YES**

Existing elements are overwritten on restore.

**ARCHIVE-NAME =**

Defines the name of the archive in the specified environment from which the library elements are to be restored.

If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. This also applies to HSMS administrators.

To use an archive belonging to another nonprivileged user, you must have read permission for the archive in question (USER-ACCESS=\*ALL-USERS and ACCESS=\*READ) or co-ownership of the archive directory.

**ARCHIVE-NAME = \*SYSBACKUP**

The elements are to be restored from the assigned default system backup archive in the specified environment.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

The elements are to be restored from the specified environment and specified archive.

**SELECT-SAVE-VERSIONS =**

Serves to define the save versions to be used for restoration.

In each case, the last version of the library specified with LIBRARY-NAME is restored from the specified save version

**SELECT-SAVE-VERSIONS = \*ALL**

All save versions are used for the restore operation. The specified library is always retrieved from the last save version in which it is present.

**SELECT-SAVE-VERSIONS = \*LATEST(...)**

Only the last save version to be created is used for the restore operation.

**DAY-INTERVAL = \*NO**

Only the latest save version created is considered for the restore.

**DAY-INTERVAL = \*YES**

If more than one save version was created on the same day, you can extend the term “latest save version” to a number of save versions which were created on the same day by specifying DAY-INTERVAL=\*YES.

In this case the last save version to be created plus all save versions that were created on the same day as this one are considered for the restore.

**CREATED-AFTER = \*EARLIEST-DATE**

In the case of libraries which were marked as “cataloged-not-saved” (CNS) during the last backup, the elements are restored from the most recently created save version – irrespective of its creation date.

**CREATED-AFTER = <date with-compl>**

In the case of libraries which were marked as “cataloged-not-saved” (CNS) during the last backup, the elements are only restored if they were saved in a save version that was created on or after the specified date.

**CREATED-AFTER = <integer -99999..0 days>**

Serves to restrict the selection to save versions which were created on or after the specified relative date.

**SELECT-SAVE-VERSIONS = \*BY-ATTRIBUTES(...)**

Serves to select the save version to be used for restoration using its attributes as the selection criterion.

**SAVE-VERSION-NAME = \*ANY / <name 1..8>**

Selects the save version to be used for restoration via the name assigned to it at creation.

The option of selecting save versions that were created by other users is restricted to the HSMS administrator.

Unless otherwise specified, the save versions are selected for restoration irrespective of their names.

**SAVE-VERSION-DATE =**

Selects the save version to be used for restoration via its creation date.

If you have specified a save version via its name then only save versions with this name are selected if you specify the creation date.

**SAVE-VERSION-DATE = \*LATEST**

Only the most recently created save version in the archive is to be used for the restore operation. In conjunction with SAVE-VERSION-NAME=\*ANY, this specification is equivalent to SELECT-SAVE-VERSIONS=\*LATEST.

**SAVE-VERSION-DATE = \*INTERVAL(...)**

Serves to select the save versions using a time interval as the selection criterion. The interval includes all save versions created between CREATED-AFTER and CREATED-BEFORE.

Unless otherwise specified, all save versions, starting with the one created first (\*EARLIEST-DATE) up to the one created last (\*LATEST-DATE), are selected. In conjunction with SAVE-VERSION-NAME=\*ANY, this specification is equivalent to SELECT-SAVE-VERSIONS=\*ALL and, like SELECT-SAVE-VERSIONS=\*ALL, should be used only after careful consideration.

**CREATED-BEFORE = \*LATEST-DATE**

The save versions are to be selected irrespective of whether they were created before a specific date. An additional time field allows you to make more accurate specifications.

**CREATED-BEFORE = <date with-compl>(…)**

Restricts selection to save versions created on or before the specified date.

**TIME = 23:59:59 / <time>**

Time, in the form of hh:mm:ss

**CREATED-BEFORE = <integer -99999..0 days>(…)**

Restricts selection to save versions created on or before the specified relative date.

**TIME = 23:59:59 / <time>**

Time, in the form of hh:mm:ss

**CREATED-AFTER = \*EARLIEST-DATE**

The save versions are to be selected irrespective of whether they were created after a specific date.

**CREATED-AFTER = <date with-compl>**

Restricts selection to save versions created on or after the specified date.

**CREATED-AFTER = <integer -99999..0 days>**

Restricts selection to save versions created on or after the specified relative date.

**SAVE-VERSION-DATE = <date with-compl>**

Selects the last save version created on or before the specified date for restoration.

**TIME = 23:59:59 / <time>**

Selects the last save version created at or before the specified date and time for restoration.

**OPERATION-CONTROL =**

Enables the user to define a number of parameters which are relevant for the execution of the restore run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The operands controlling the restore run can be modified as follows:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administrator) and a suffix in the form of a time stamp. Unless otherwise specified, the request name is formed by the short code "RSF#" and the TSN of the calling user task yyyy as follows: RSF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE.

The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing). The maximum wait times for batch tasks and interactive tasks are different and are determined by preset global HSMS parameters.

Interactive tasks are permitted to carry out synchronous HSMS statement processing during tape sessions only.

**OPERATOR-INTERACTION = \*STD / \*NOT-ALLOWED / \*ALLOWED**

*This operand is only available to the HSMS administrator.*

Determines whether messages requiring an operator response are to be output at the console (\*ALLOWED) or not (\*NOT-ALLOWED). If \*NOT-ALLOWED applies, HSMS performs default handling (see the description of the PARAM statement in the "ARCHIVE" manual [2]).

Unless otherwise specified, the default value from the archive definition applies.

**TAPE-CONTROL =**

*This operand is only available to the HSMS administrator.*

You can define parameters which are relevant for restoring elements from tape.

**TAPE-CONTROL = \*STD**

The preset values from the definition of the archive from which the elements are to be restored apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

The operands relevant to reading from tape can be modified as follows:

**UNLOAD-TAPE = \*STD / \*YES / \*NO**

Specifies whether or not tapes are to be unloaded after processing.

The preset value from the archive definition applies by default.

It is possible that HSMS will ignore the value of this operand to avoid irrational processing of tapes, for example, to avoid unloading a tape several times while rewinding it.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “ ; ”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output for this restore request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the restore request, including any error messages, is to be output.

*Note*

Output always takes place with the setting REPORT=\*FULL for ELEMENTS=\*LIST-ALL-TO-REPORT. Any other specifications are ignored.

**REPORT = \*LIBRARY-ONLY**

A summary of the result is to be output, including all the information about the library and any error messages.

**REPORT = \*RESTORED-ELEMENTS**

A full report is to be output, including, in addition to the library information, a list of all elements actually restored.

**REPORT = \*FULL**

A full report is to be output, including the library information, a list of the elements actually restored and a list of the elements which, for particular reasons, were not restored.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report for this restore request is to be printed.

**OUTPUT = \*MAIL**

The report for this restore request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this restore request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this restore request is to be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

## **RESTORE-NODE-FILES**

### **Restore node files**

This statement is used for restoring node files from a node backup or long-term archive to the processing level. The node files that have been saved from a BS2000-UFS (POSIX) or node S0 can be renamed, reorganized and written to different node S0s during the restore. It is possible to specify individual save files and save versions from which the node files are to be restored.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

## Format

RESTORE-NODE-FILES	Alias: RNF
<b>PATH-NAMES</b> = <b>*OWN</b> / <b>*ALL</b> / <b>*SELECTED</b> / <b>*FROM-FILE(...)</b> / <b>*FROM-LIBRARY-ELEMENT(...)</b> / <b>*PATH-NAME(...)</b>	
<b>*FROM-FILE(...)</b>   <b>LIST-FILE-NAME</b> = <filename 1..54 without-gen-vers>	
<b>*FROM-LIBRARY-ELEMENT(...)</b>   <b>LIBRARY</b> = <filename 1..54 without-gen-vers>   <b>ELEMENT</b> = <composed-name 1..64 with-under>	
<b>*PATH-NAME(...)</b>   <b>PATH</b> = <posix-pathname 1..1023 with-wild>   <b>NODE-ID</b> = <b>*BS2000-UFS</b> / <b>*ALL</b> / <posix-filename 1..48 with-wild>	
<b>,EXCEPT-PATH-NAMES</b> = <b>*NONE</b> / <b>*FROM-FILE(...)</b> / <b>*FROM-LIBRARY-ELEMENT(...)</b> / <b>*PATH-NAME(...)</b>	
<b>*FROM-FILE(...)</b>   <b>LIST-FILE-NAME</b> = <filename 1..54 without-gen-vers>	
<b>*FROM-LIBRARY-ELEMENT(...)</b>   <b>LIBRARY</b> = <filename 1..54 without-gen-vers>   <b>ELEMENT</b> = <composed-name 1..64 with-under>	
<b>*PATH-NAME(...)</b>   <b>PATH</b> = <posix-pathname 1..1023 with-wild>   <b>NODE-ID</b> = <b>*BS2000-UFS</b> / <b>*ALL</b> / <posix-filename 1..48 with-wild>	
<b>,ENVIRONMENT</b> = <b>*NODE-STD</b> / <b>*SINGLE-FEATURE</b> / <b>*SYSTEM-MANAGED(...)</b>	
<b>*SYSTEM-MANAGED(...)</b>   <b>CATALOG-ID</b> = <cat-id>	
<b>,SELECTION-BOUNDARY</b> = <b>*SPECIFIED-PATHS</b> / <b>*ALL-FILE-SYSTEMS</b>	
<b>,NEW-PATH-NAMES</b> = <b>*SAME</b> / <b>*BY-RULE(...)</b>	
<b>*BY-RULE(...)</b>   <b>NEW-NODE-ID</b> = <b>*SAME</b> / <b>*BS2000-UFS</b> / <posix-filename 1..48 without-wild>   <b>CHANGE-PATH</b> = <b>*SAME</b> / <b>*PARAMETERS(...)</b>   <b>*PARAMETERS(...)</b>             <b>OLD-PATH</b> = <b>*NONE</b> / <posix-pathname 1..1022 without-wild>             <b>NEW-PATH</b> = <b>*NONE</b> / <posix-pathname 1..1022 without-wild>   <b>PREFIX</b> = <b>*NONE</b> / <posix-filename 1..254 without-wild>   <b>SUFFIX</b> = <b>*NONE</b> / <posix-filename 1..254 without-wild>	

(part 1 of 3)

```

,REPLACE-FILES = *NO / *YES(...)
  *YES(...)
    | PROTECTION-RESPECTED = *ALL / *NONE
,ARCHIVE-NAME = *SYSNODEBACKUP / *SYSNODEARCHIVE /
  <filename 1..22 without-cat-gen-vers>
,SELECT-SAVE-VERSIONS = *ALL / *LATEST(...) / *BY-ATTRIBUTES(...)
  *LATEST(...)
    | DAY-INTERVAL = *NO / *YES
    | CREATED-AFTER = *EARLIEST-DATE / <date with-compl> / <integer -99999..0 days>
  *BY-ATTRIBUTES(...)
    | SAVE-VERSION-NAME = *ANY / <name 1..8>
    | SAVE-VERSION-DATE = *LATEST / <date with-compl>(…) / *INTERVAL(…) /
      *BY-ORIGINAL-DATE(…)
      <date with-compl>(…)
        | TIME = 23:59:59 / <time>
      *INTERVAL(…)
        | CREATED-BEFORE = *LATEST-DATE / <date with-compl>(…) /
          <integer -99999..0 days>(…)
          <date with-compl>(…)
            | TIME = 23:59:59 / <time>
          <integer -99999..0 days>(…)
            | TIME = 23:59:59 / <time>
          CREATED-AFTER = *EARLIEST-DATE / <date with-compl> /
            <integer -99999..0 days>
        *BY-ORIGINAL-DATE(…)
          | CREATED-BEFORE = *LATEST-DATE / <date with-compl>(…) /
            <integer -99999..0 days>(…)
            <date with-compl>(…)
              | TIME = 23:59:59 / <time>
            <integer -99999..0 days>(…)
              | TIME = 23:59:59 / <time>
          CREATED-AFTER = *EARLIEST-DATE / *SAME-AS-BEFORE / <date with-compl> /
            <integer -99999..0 days>

```

(part 2 of 3)

```

,OPERATION-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    |
    | REQUEST-NAME = *STD / <name 1..8>
    | ,REQUEST-DESCRIPTOR = *NONE / <text 1..60>
    | ,EXPRESS-REQUEST = *NO / *YES
    | ,CONTROL-JV= *NONE / <filename 1..54 without-gen-vers>
    | ,WAIT-FOR-COMPLETION = *NO / *YES
    | ,PARALLEL-RUNS = *STD / <integer 1..16>
    | ,PRE-POST-PROCESSING = *NO / *YES
    | ,TAPE-CONTROL = *STD / *PARAMETERS(...)
    |   *PARAMETERS(...)
    |     | UNLOAD-TAPE = *STD / *YES / *NO
    |     | ,PERFORMANCE-ANALYSIS = *NO / *YES(...)
    |     | *YES(...)
    |     |   | SEPARATOR = ; / <c-string 1..1>
    |     | ,REPORT = *SUMMARY / *RESTORED-FILES / *FULL / *NONE
    |     | ,OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...) / <filename 1..54 without-gen-vers>
    |     |   *LIBRARY-ELEMENT(...)
    |     |     | LIBRARY = <filename 1..54 without-gen-vers>
    |     |     | ,ELEMENT = <composed-name 1..64 with-under>

```

(part 3 of 3)

**PATH-NAMES =**

Serves to specify the path names of the node files to be restored to the BS2000-UFS or node S0. Specification of this operand is mandatory.

The node S0 to which a node file is to be restored must be available for the restoration to be successful.

If node files from more than one node S0 are specified and are to be restored from a default system archive, then the same default system archive must be assigned to all these node S0s. Otherwise, the HSMS statement will be rejected. To prevent this you should only specify files from one node S0 for each restore request.

The option of restoring the node files of other users or node files of remote node S0s is restricted to the HSMS administrator.

More information about path names can be found in the “HSMS Vol. 1” manual [1].

**PATH-NAMES = \*OWN**

\*OWN is equivalent to “ / ” (root), subject to the restriction that the user must be the owner of all the node files.

*Meaning for the HSMS administrator:*

The system restores all node files and directories belonging to the user ID root which reside on the central BS2000-UFS.

*Meaning for nonprivileged users:*

The system restores all node files and directories belonging to the user which reside on the central BS2000-UFS.

The selection is made from the directory.

**PATH-NAMES = \*ALL**

*Meaning for the HSMS administrator:*

The system is to restore all node files that reside at save time on the central BS2000-UFS and on a remote node S0 which is currently under HSMS control in the specified environment.

The selection is made from the directory file for node files.

*Meaning for the nonprivileged user:*

The system is to restore all node files that reside on the central BS2000-UFS in the specified environment and which meet the following conditions:

- If the node files are to be restored from a long-term archive, the nonprivileged user must have read access to the files.
- If the node files are to be restored from a backup archive, the nonprivileged user must be the owner of the files.

Node files belonging other users are restored from a long-term archive only if they no longer exist at the destination. This selection is made from the directory file for node files in the specified environment.

\*ALL is equivalent to “ / ” (root), subject to the restrictions listed above.

**PATH-NAMES = \*SELECTED**

The path names of the node files to be restored are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-NODE-FILES.

**PATH-NAMES = \*FROM-FILE(...)**

The path names of the node files to be restored are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**PATH-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the node files which are to be restored are taken from a PLAM library element (type S). The library element contains one path name per record.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**PATH-NAMES = \*PATH-NAME(...)**

The path name of the file to be restored is specified directly.

The path name may contain wildcards. Wildcards are replaced in accordance with the file names listed in the directory file.

Restore runs are executed more quickly if you use fully qualified file names.

**PATH = <posix-pathname 1..1023 with-wild>**

Path name of the node file.

**NODE-ID =**

*This operand is only available to the HSMS administrator.*

Original location of the node file to be restored.

**NODE-ID = \*BS2000-UFS**

The node file resided on the local BS2000-UFS.

**NODE-ID = \*ALL**

The node file is sought on the central BS2000-UFSs and on all decentralized node S0s under HSMS control.

**NODE-ID = <posix-filename 1..48 with-wild>**

Name of the node S0 on which the node file resides.

**EXCEPT-PATH-NAMES =**

Serves to specify node files that are to be excluded from restore.

**EXCEPT-PATH-NAMES = \*NONE**

All node files specified with the PATH-NAMES operand are to be restored.

**EXCEPT-PATH-NAMES = \*FROM-FILE(...)**

The path names of the node files to be excluded from restoration are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-PATH-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the node files which are not to be restored are taken from a PLAM library element (type S). The library element contains one path name per record.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-PATH-NAMES = \*PATH-NAME(...)**

The path name of the node file to be excluded from restoration is specified directly. The first character of the path name must not be a hyphen.

The path name may contain wildcards. Wildcards are replaced in accordance with the file names listed in the directory file.

**PATH = <posix-pathname 1..1023 with-wild>**

Path name of the node file.

**NODE-ID =**

*This operand is only available to the HSMS administrator.*

Original location of the node file to be excluded from restoration.

**NODE-ID = \*BS2000-UFS**

The node file resided on the local BS2000-UFS.

**NODE-ID = \*ALL**

The node file is sought on the central BS2000-UFSs and on all decentralized node S0s under HSMS control.

**NODE-ID = <posix-filename 1..48 with-wild>**

Name of the node S0 which is to be excluded.

**ENVIRONMENT =**

HSMS environment in which the statement is valid.

**ENVIRONMENT = \*NODE-STD**

The environment is derived from either:

- the operand `PATH-NAMES=*PATH-NAME(NODE-ID)` or
- the list of node IDs which is referenced in the file using the operand `PATH-NAMES=*FROM-FILE(LIST-FILE-NAME)`.

For a workstation, this is the environment in which the HSMS statement `MODIFY-NODE-PARAMETERS` is performed.

For a privileged user under BS2000-UFS, it is a `SINGLE-FEATURE` environment; for a nonprivileged user `*NODE-STD` takes the value of the environment in which the home directory of the user is defined.

If the affected node files are located in different environments, the statement is rejected with message HSM0530.

**ENVIRONMENT = \*SINGLE-FEATURE**

The statement is valid in the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The statement is valid in the SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset for which the statement is valid.

**SELECTION-BOUNDARY =**

Defines which part of the node file tree is used for file name expansion.

**SELECTION-BOUNDARY = \*SPECIFIED-PATHS**

All node files and directories specified with the `PATH-NAMES` operand will be processed. For directories, only their inodes will be included. Any node files and directories subordinated to a directory to be processed will be ignored.

**SELECTION-BOUNDARY = \*ALL-FILE-SYSTEMS**

All node files and directories specified with the `PATH-NAMES` operand will be processed. Any node files and directories subordinated to a directory to be processed will be included in the selection. Node files and directories will be selected from all levels of the file tree.

**NEW-PATH-NAMES =**

The node files can be renamed before being restored. The new path names must satisfy the following requirements:

- The new path name conforms to the UNIX conventions governing names.
- The user entering the restore request has access to this path.
- The total length of the path does not exceed 1024 characters.

**NEW-PATH-NAMES = \*SAME**

The node files are to be restored under their original names.

**NEW-PATH-NAMES = \*BY-RULE(...)**

The node files are to be renamed using a common rule.

**NEW-NODE-ID = \*SAME / \*BS2000-UFS / <posix-filename 1..48 without-wild>**

*This operand is only available to the HSMS administrator.*

The node files may be restored under a different node S0, which is specified without a colon.

Unless otherwise specified, the node files are restored under their original node S0. The explicit specification of a new node S0 is only possible if the original node S0 is specified in the PATH-NAMES operand (specification different to \*ALL or \*PATH-NAME(...,NODE-ID=\*ALL).

**CHANGE-PATH =**

The node files may be restored under a different path name.

**CHANGE-PATH = \*SAME**

The node files are to be restored under their original path name.

**CHANGE-PATH = \*PARAMETERS(...)**

The restored node files are mounted on the file system under a different path name.

**OLD-PATH = \*NONE / <posix-pathname 1..1022 without-wild>**

Absolute path name to be replaced during the restore.

Specification of \*NONE causes the new path name to be prefixed to all node file names found in the archive directory.

**NEW-PATH = \*SAME / <posix-pathname 1..1022 without-wild>**

Absolute path name to replace the old path name during the restore.

Specification of \*SAME causes the old path name of the file to be retained.

The specified path name, if any, must exist in the file system and must be available to the user issuing the restore request.

The path names specified for OLD-PATH or NEW-PATH may or may not end with a slash (/). Both path names must match in this respect, i.e. both end with a slash, or both end without a slash.

**PREFIX = \*NONE / <posix-filename 1..254 without-wild>**

The specified prefix is added to the names of the restored node files.

**SUFFIX = \*NONE / <posix-filename 1..254 without-wild>**

The specified suffix is added to the names of the restored node files.

**REPLACE-FILES = \*NO / \*YES(...)**

Determines whether existing node files are to be overwritten during the restore.

**REPLACE-FILES = \*YES(...)**

Existing node files are to be overwritten. In addition, the user can specify if and to what extent the file protection attributes of node files, if any, are to be respected:

**PROTECTION-RESPECTED = \*ALL**

Restricts overwriting to node files that permit write access.

This operand value is set automatically for nonprivileged users if node files are to be overwritten at the destination.

**PROTECTION-RESPECTED = \*NONE**

*This operand value is only available to the HSMS administrator.*

All node files are to be overwritten, irrespective of their protection attributes.

**ARCHIVE-NAME =**

Name of the archive from which the node files are to be restored.

If a default system archive is specified, it must already exist. For restoration to more than one node S0, the default system archive must be unequivocally assigned to all these node S0s.

If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. This also applies to HSMS administrators.

So that the nonprivileged user can use the archive of another user, read access must exist for that archive (USER-ACCESS=\*ALL-USERS and ACCESS=\*READ) or you must have co-ownership of the directory of the archive.

**ARCHIVE-NAME = \*SYSNODEBACKUP**

The node files are to be restored from the default system backup archive assigned to the environment.

**ARCHIVE-NAME = \*SYSNODEARCHIVE**

The node files are to be restored from the default long-term system archive assigned to the environment.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

The node files are to be restored from the specified archive.

**SELECT-SAVE-VERSIONS =**

Serves to define the save versions to be used for restoration.

The most recent version of each of the node files specified via PATH-NAMES is selected from all the save versions specified for restoration.

**SELECT-SAVE-VERSIONS = \*ALL**

All save versions are to be selected for the restore operation. The specified node files are in each case restored from the most recent save version in which they are contained.

Explicit specification of PATH-NAMES=\*ALL(\*OWN) in conjunction with the default value SELECT-SAVE-VERSIONS=\*ALL causes the most recent versions of all node files that were ever saved in the specified archive to be restored.

\*ALL should therefore be specified after careful consideration only (e.g. in combination with the explicit specification of file names) so as to avoid accessing an unnecessarily large number of save versions and volumes.

**SELECT-SAVE-VERSIONS = \*LATEST(...)**

Only the most recently created save version is to be used for the restore operation.

When restoring from a NODEBACKUP archive, this means that of all the node files specified only those will be restored which were actually saved or registered as “cataloged-not-saved” (CNS) during the last backup run.

**DAY-INTERVAL = \*NO**

Only the latest save version created is considered for the restore.

**DAY-INTERVAL = \*YES**

This operand is only available for backed up files.

If more than one save version was created on the same day, you can extend the term “latest save version” to a number of save versions which were created on the same day by specifying DAY-INTERVAL=\*YES.

In this case the last save version to be created plus all save versions that were created on the same day as this one are considered for the restore. This is not possible, however, if the save version was created with the HSMS statement ARCHIVE-NODE-FILES.

**CREATED-AFTER = \*EARLIEST-DATE**

Files which were marked as “cataloged-not-saved” (CNS) during the last node backup are restored from the most recently created save version - irrespective of its creation date.

**CREATED-AFTER = <date with-compl>**

Files which were marked as “cataloged-not-saved” (CNS) during the last backup are only restored if they were saved in a save version that was created on or after the specified date.

**CREATED-AFTER = <integer -99999..0 days>**

Serves to restrict the selection to save versions which were created on or after the specified relative date.

**SELECT-SAVE-VERSIONS = \*BY-ATTRIBUTES(...)**

Serves to select the save version to be used for restoration using its attributes as the selection criterion.

**SAVE-VERSION-NAME = \*ANY / <name 1..8>**

Selects the save version to be used for restoration via the name assigned to it at creation.

The option of selecting save versions that were created by other users is restricted to the HSMS administrator.

Unless otherwise specified, the save versions are selected for restoration irrespective of their names.

**SAVE-VERSION-DATE =**

Selects the save version to be used for restoration via its creation date. In combination with explicit specification of a save version name this operand restricts the selection of save versions to those with both the specified name and the creation date.

**SAVE-VERSION-DATE = \*LATEST**

Only the most recently created save version in the archive is to be used for the restore operation. In conjunction with SAVE-VERSION-NAME=\*ANY, this specification is equivalent to SELECT-SAVE-VERSIONS=\*LATEST.

**SAVE-VERSION-DATE = <date with-compl>(…)**

Selects the last save version created on or before the specified date for restoration.

**TIME = 23:59:59 / <time>**

Selects the last save version created at or before the specified date and time for restoration.

**SAVE-VERSION-DATE = \*INTERVAL(…)**

Serves to select the save versions using a time interval as the selection criterion. The interval includes all save versions created between CREATED-AFTER and CREATED-BEFORE.

Unless otherwise specified, all save versions, starting with the one created first (\*EARLIEST-DATE) up to the one created last (\*LATEST-DATE), are selected. In conjunction with SAVE-VERSION-NAME=\*ANY, this specification is equivalent to SELECT-SAVE-VERSIONS=\*ALL and, like SELECT-SAVE-VERSIONS=\*ALL, should be used only after careful consideration.

**CREATED-BEFORE = \*LATEST-DATE / <date with-compl>(…) / <integer -99999..0 days>(…)**

The save versions are to be selected irrespective of whether they were created before a specific date.

**CREATED-BEFORE = <date with-compl>(…) / <integer -99999..0 days>(…)**

Restricts selection to save versions created on or before the specified date. The date is specified either in absolute terms or relative to the current date. An additional time specification defines the selection more precisely:

**TIME = 23:59:59 / <time>**

Time, in the form hh:mm:ss.

**CREATED-AFTER = \*EARLIEST-DATE**

The save versions are to be selected irrespective of whether they were created after a specific date.

**CREATED-AFTER = <date with-compl>**

Restricts selection to save versions created on or after the specified date.

**CREATED-AFTER = <integer -99999..0 days>**

Restricts selection to save versions created on or after the specified relative date.

**SAVE-VERSION-DATE = \*BY-ORIGINAL-DATE(...)**

*Only for the save versions of a migration or long-term archive.*

You can select the save versions of a migration or long-term archive via their creation date (see “Copying save files” in the manual “HSMS Volume 1” [1]). The backup version with the highest original creation date in the specified time period is determined. If multiple save versions have the same creation date the save version created last is selected.

**CREATED-BEFORE = \*LATEST-DATE**

The original creation date of the backup versions considered for selection has no upper limit.

**CREATED-BEFORE = <date with-compl>(…) / <integer -99999..0 days> (...)**

The original creation date of the backup versions considered for selection has an upper limit which is defined by the date specified. The date is specified either in absolute terms or relative to the current date. An additional time specification defines the selection more precisely:

**TIME = 23:59:59 / <time>**

Time in the format hh:mm:ss.

**CREATED-AFTER = \*EARLIEST-DATE**

The original creation date of the backup versions considered for selection has no lower limit.

**CREATED-AFTER = <date with-compl> / <integer -99999..0 days>**

The original creation date of the backup versions considered for selection has a lower limit which is defined by the current date specified in absolute or relative terms.

**CREATED-AFTER = \*SAME-AS-BEFORE**

Only the backup version whose original creation date matches the date specified in the CREATED-BEFORE operand is selected.

**OPERATION-CONTROL =**

Allows you to define parameters which are relevant for the execution of the restore run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The operands controlling the restore run can be modified as follows:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the HSMS request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request.

The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administrator) and a suffix in the form of a time stamp.

Unless otherwise specified, the request name is formed by the short code "RNF#" and the TSN of the calling user task yyyy as follows: RNF#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE.

The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing).

The maximum wait times for batch tasks and interactive tasks are different and are determined by preset global HSMS parameters.

Interactive tasks are permitted to carry out synchronous HSMS statement processing during tape sessions only.

**PARALLEL-RUNS = \*STD / <integer 1..16>**

This operand is only significant if you are working at storage level S2. It specifies the number of save tasks (ARCHIVE subtasks) running in parallel.

There must be one tape device available for each task.

Unless otherwise specified, the preset value from the archive definition applies.

For further information on parallel processing, see the “HSMS Vol. 1” manual [1].

**PRE-POST-PROCESSING =**

Indicates whether preprocessing or postprocessing is to be activated on a remote workstation.

**PRE-POST-PROCESSING = \*NO**

No preprocessing or postprocessing is to be activated on a remote workstation, even if this is actually defined on the workstation.

**PRE-POST-PROCESSING = \*YES**

Preprocessing or postprocessing is to be activated on a remote workstation if this is actually defined on the workstation.

**TAPE-CONTROL =**

*This operand is only available to the HSMS administrator.*

Defines the parameters which are relevant for restoring files from tape.

**TAPE-CONTROL = \*STD**

The preset values from the definition of the archive from which the files are to be restored apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

The operands relevant to restoring from tape can be modified as follows:

**UNLOAD-TAPE = \*STD / \*YES / \*NO**

Specifies whether or not tapes are to be unloaded after processing.

The preset value from the archive definition applies unless otherwise specified.

It is possible that HSMS ignores the value of this operand to avoid irrational processing of tapes, for example, to avoid unloading a tape several times while rewinding it.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “ ; ”. This corresponds to the EXCEL default setting.

**REPORT =**

Serves to define whether a report is to be output for this restore request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the restore request, including any error messages, is to be output.

**REPORT = \*RESTORED-FILES**

A full report is to be output, including a list of all node files actually restored.

**REPORT = \*FULL**

A full report is to be output, including a list of all node files which should have been restored but were not due to an error.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report for this restore request is to be printed.

**OUTPUT = \*MAIL**

The report for this restore request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this restore request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this restore request is to be edited and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

**Notes**

- The following applies when restoring from a save file created by means of the HSMS statement BACKUP-NODE-FILES with the operand SELECT-FILES=\*ALL-FILES(FROM=\*LATEST-BACKUPS-OR-S0):
  - An interruption of the restore run (request state INTERRUPTED) may result in some nodes (directories) having attributes that differ from the ones they had at backup time. The nodes have the status "in processing", their owner is user ID root (user number=0). As a remedy, the restore run has to be restarted; as an alternative, a RESTART-REQUESTS statements can be performed.
  - If only part of a previously saved file tree is restored and the parent directory of this part no longer exists on the processing level at restore time, HSMS has to replace the parent directory. Its attributes are modified and user ID root becomes its owner.

- Some of the attributes of the files and directories will be modified by the RESTORE-NODE-FILES statement, as indicated in the tables below:
  - Attributes after restoring a save version created by means of the HSMS statement BACKUP-NODE-FILES:

Attribute Object	Date of last access	Date of last modification	Date of last modification of the inode	Other attributes
<b>Files</b>	as saved	as saved	new	as saved
<b>Directories</b>	new	new	new	as saved

- Attributes after restoring a save version created by means of the HSMS statement ARCHIVE-NODE-FILES:

Attribute Object	Date of last access	Date of last modification	Date of last modification of the inode	Other attributes
<b>Files</b>	new	new	new	as saved
<b>Directories</b>	new	new	new	as saved

- The REPLACE-FILES operand is only evaluated in the case of files. Directories are always overwritten irrespective of the value of the REPLACE-FILES operand.

**Example**

The HSMS administrator restores selected file trees in the local BS2000-UFS. The file trees were backed up centrally in the example of the section dealing with the BACKUP-NODE-FILES statement.

```

/START-HSMS
//SELECT-NODE-FILES - _____ (1)
//  PATH-NAMES=*PATH-NAME(PATH=*,NODE-ID=*BS2000-UFS), -
//  OUTPUT=PATHNAMES.LIST
//END
/START-EDT _____ (2)
@READ 'PATHNAMES.LIST'
    Delete all path names that are not to be restored
@WRITE 'PATHNAMES.LIST'
@HALT

/START-HSMS
//RESTORE-NODE-FILES - _____ (3)
//  PATH-NAMES=*FROM-FILE(LIST-FILE-NAME=PATHNAMES.LIST), -
//  SELECTION-BOUNDARY=*SPECIFIED-PATHS, -
//  REPLACE-FILES=*YES(PROTECTION-RESPECTED=*NONE), -
//  OPERATION-CONTROL=*PARAMETERS(WAIT-FOR-COMPLETION=*YES)
//END

```

- (1) First, all the files of the local BS2000-UFS are selected to obtain a complete list of file names. The list of file names is output to the file PATHNAMES.LIST.
- (2) An editor such as EDT is then called to delete the path names which should not be restored from the file PATHNAMES.LIST.
- (3) All the path names still present in the file PATHNAMES.LIST are restored. Any existing files with the same path names are overwritten during the restore.

**SELECT-FILE-NAMES****Select file names**

This statement is used for selecting file names from pubset catalogs or archive directories according to criteria that are meaningful within HSMS.

This HSMS statement causes a list of file names to be compiled and optionally written to a file that can subsequently be referred to in an action statement. The criteria used for selection are not documented.

This statement has the same format for nonprivileged users and HSMS administrators.

## Format

SELECT-FILE-NAMES	Alias: SFN
<p><b>FILE-NAMES</b> = <b>*OWN</b> / <b>*ALL</b> / <b>*SELECTED</b> / <b>*FROM-FILE(...)</b> / <b>*FROM-LIBRARY-ELEMENT(...)</b> /  list-poss(20): &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;</p> <p><b>*FROM-FILE(...)</b>    <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p><b>*FROM-LIBRARY-ELEMENT(...)</b>    <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;    <b>,ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</p> <p><b>,EXCEPT-FILE-NAMES</b> = <b>*NONE</b> / <b>*FROM-FILE(...)</b> / <b>*FROM-LIBRARY-ELEMENT(...)</b> /  list-poss(20): &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;</p> <p><b>*FROM-FILE(...)</b>    <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p><b>*FROM-LIBRARY-ELEMENT(...)</b>    <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;    <b>,ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</p> <p><b>,SELECT-FROM</b> = <b>*CATALOG(...)</b> / <b>*ARCHIVE(...)</b></p> <p><b>*CATALOG(...)</b>    <b>SUPPORT</b> = <b>*ANY</b> / <b>*PUBLIC-DISK(...)</b> / <b>*PRIVATE-DISK(...)</b> / <b>*SYSTEM-MANAGED-PUBSET(...)</b>    <b>*PUBLIC-DISK(...)</b>      <b>STORAGE-TYPE</b> = <b>*ANY</b> / <b>*PUBLIC-SPACE</b> / <b>*NET-STORAGE(...)</b>      <b>*NET-STORAGE(...)</b>        <b>VOLUMES</b> = list-poss(150): &lt;vsfn 1..6&gt;        <b>,FILE-TYPE</b> = <b>*ANY</b> / <b>*BS2000</b> / <b>*NODE-FILE</b>    <b>*PRIVATE-DISK(...)</b>      <b>VOLUMES</b> = list-poss(150): &lt;vsfn 1..6&gt;    <b>*SYSTEM-MANAGED-PUBSET(...)</b>      <b>ALLOCATION-QUALITY</b> = <b>*ANY</b> / list-poss(3): <b>*PHYSICALLY-ALLOCATED</b> /      <b>*BEST-VOLUME-SET</b> / <b>*NOT-BEST-VOLUME-SET</b>      <b>,VOLUME-SET-ID</b> = <b>*ANY</b> / &lt;cat-id&gt;    <b>,STORAGE-LEVEL</b> = <b>*ANY</b> / list-poss(2): <b>*S0</b> / <b>*S1</b> / <b>*S2</b>    <b>,UNUSED-DAYS</b> = <b>0</b> / &lt;integer 0..9999 days&gt;    <b>,MINIMUM-SIZE</b> = <b>*NONE</b> / &lt;integer 1..2147483647 2Kbyte&gt;    <b>,MAXIMUM-SIZE</b> = <b>*NONE</b> / &lt;integer 1..2147483647 2Kbyte&gt;    <b>,BACKUP-CLASS</b> = <b>*ANY</b> / list-poss(4): <b>*A</b> / <b>*B</b> / <b>*C</b> / <b>*D</b> / <b>*E</b></p>	

(part 1 of 2)

```

*ARCHIVE(...)
  ARCHIVE-NAME = *SYSBACKUP / *SYSARCHIVE / *SYSMIGRATE /
                *BY-DIRECTORY-NAME(...) / <filename 1..22 without-cat-gen-vers>

  *BY-DIRECTORY-NAME(...)
    DIRECTORY-NAME = <filename 1..54 without-gen-vers>

  ,ENVIRONMENT = *STD / *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
  *SYSTEM-MANAGED(...)
    CATALOG-ID = <cat-id>

  ,SAVE-VERSION-NAME = *ANY / <name 1..8>
  ,SAVE-VERSION-DATE = *INTERVAL(...) / *LATEST / <date with-compl>(…)

  *INTERVAL(...)
    CREATED-BEFORE = *LATEST-DATE / <date with-compl> / <integer -99999..0 days>
    ,CREATED-AFTER = *EARLIEST-DATE / <date with-compl> / <integer -99999..0 days>

  <date with-compl>(…)
    TIME = 23:59:59 / <time>

  ,EXPIRATION-DATE = *ANY / *INTERVAL(...)
  *INTERVAL(...)
    EXPIRATION-BEFORE = *LATEST-DATE / <date with-compl> /
                       <integer -99999..99999 days>
    ,EXPIRATION-AFTER = *EARLIEST-DATE / <date with-compl> /
                       <integer -99999..99999 days>

  ,FILE-SAVE-STATE = *ANY / *SAVED(...) / *CATALOGED-NOT-SAVED(...)
  *SAVED(...)
    TYPE = *ANY / *FULL-FILE / *PARTIAL-FILE / *MIGRATED-FILE /
          *FGG-INDEX / *CATALOG-ENTRY

  *CATALOGED-NOT-SAVED(...)
    TYPE = *ANY / *OPEN-ERROR

  ,DIALOG-FILE-SELECT = *NO / *YES
  ,OUTPUT = *SELECT-LIST / <filename 1..54 without-gen-vers>

```

(part 2 of 2)

**FILE-NAMES =**

Serves to specify the files to be selected. Specification of this operand is mandatory. The SELECT-FROM operand serves to define whether the files are to be selected from a pubset catalog or an archive directory. The user can further restrict the selection made here by means of other operands, e.g. by EXCEPT-FILE-NAMES.

If files on several different pubsets are specified when selected from an archive, the same system archive must be assigned to all pubsets.

All nonprivileged users can also select files belonging to other user IDs if they are co-owners of these files.

**FILE-NAMES = \*OWN**

All files of the user's own ID residing on any imported pubset (except for shared SF pubsets for which the home computer is the slave) are to be selected.

**FILE-NAMES = \*ALL**

All files residing on all imported pubsets (except for shared SF pubsets for which the home computer is the slave) are to be selected.

*Meaning for nonprivileged users:*

- If SELECT-FROM=\*ARCHIVE(...) is specified, all the files of which the user is the owner or co-owner are selected.
- If SELECT-FROM=\*CATALOG(...) is specified, all the files of which the user is the owner or co-owner or which are shareable are selected.

**FILE-NAMES = \*SELECTED**

The path names of the files to be selected are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-FILE-NAMES.

**FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be selected are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. Only upper-case characters may be used. This list file must be a SAM file with variable-length records containing one path name per record. The list file can be created, for instance, by means of the HSMS statement SELECT-FILE-NAMES or the BS2000 command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are to be selected are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> /  
<partial-filename 2..79 with-wild>**

The path names of the files to be selected are specified directly. A list of up to 20 names may be specified.

The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the default catalog ID of the user ID.

You can also use wildcard syntax to select the files. Depending on the specification in the SELECT-FROM operand, the wildcards are replaced according to the file names listed in the catalog or the archive directory.

In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

The following applies to BS2000 file generations: when specifying fully qualified file names, the specification of a generation number (version) is permissible.

**EXCEPT-FILE-NAMES =**

Serves to specify files that are to be excluded from selection.

**EXCEPT-FILE-NAMES = \*NONE**

All files specified with the FILE-NAMES operand are to be selected.

**EXCEPT-FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be excluded from selection are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only upper-case characters may be used. The list file can be created, for instance, by means of the BS2000 command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-FILE-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files which are not to be selected are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be excluded from selection are specified directly. A list of up to 20 names may be specified. Only path names of BS2000 files are permitted.

The first character of the file names must not be a hyphen.

The BS2000 file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the default catalog ID.

You can also use wildcard syntax to select the BS2000 files. Depending on the specification in the SELECT-FROM operand, the wildcards are replaced according to the file names listed in the catalog or the archive directory. The resolution of the wildcard syntax for catalog IDs does not apply for shared pubsets.

The following applies to BS2000 file generations: when specifying fully qualified file names, the specification of a generation number (version) is permissible.

**SELECT-FROM =**

Defines whether the files are to be selected from pubset catalogs or archive directories.

**SELECT-FROM = \*CATALOG(...)**

The files are to be selected from the catalog IDs specified via FILE-NAMES. The selection can be further reduced by the following:

**SUPPORT =**

Serves to select the files, using the type of volume on which they reside as the selection criterion.

**SUPPORT = \*ANY**

The type of volume on which the files reside is not a selection criterion.

**SUPPORT = \*PUBLIC-DISK(...)**

Restricts selection to files residing on the disks of a pubset or on the assigned Net-Storage.

**STORAGE-TYPE =**

Selects the storage type for public volumes.

**STORAGE-TYPE = \*ANY**

The files are selected irrespective of the storage type. They can reside on the disks of a pubset or on a Net-Storage.

**STORAGE-TYPE = \*PUBLIC-SPACE**

Only files which reside on the disks of a pubset are selected. Files on a Net-Storage are ignored.

**STORAGE-TYPE = \*NET-STORAGE(...)**

Only files which reside on a Net-Storage are selected.

**VOLUMES = list-poss(150): <vsn 1..6>**

Specifies the Net-Storage volume on which the selected files reside. If more than one Net-Storage is assigned to the pubset, the Net-Storage volumes from which files are to be selected can be specified in a list.

**FILE-TYPE =**

Specifies the file type of Net-Storage files that will be selected.

**FILE-TYPE = \*ANY**

The Net-Storage files are selected irrespective of the file type.

**FILE-TYPE = \*BS2000**

Only Net-Storage files of the type BS2000 are selected.

**FILE-TYPE = \*NODE-FILE**

Only Net-Storage files of the type node file are selected.

**SUPPORT = \*PRIVATE-DISK(...)**

Restricts selection to files which reside on private disk and have been imported, i.e. recorded in the catalog of a pubset.

**VOLUMES = list-poss(150): <vsn 1..6>**

VSNs of the private disks. Only files of which at least one extent resides on the specified disks are to be selected.

**SUPPORT = \*SYSTEM-MANAGED-PUBSET(...)**

The selection is restricted to the file attributes in an SM pubset.

**ALLOCATION-QUALITY =**

In an SM pubset, only the file names to which the specified attributes of the file allocation relate are selected.

**ALLOCATION-QUALITY = \*ANY**

The attributes of the file allocation are not considered.  
Only this value is allowed for an SF pubset.

**ALLOCATION-QUALITY = \*PHYSICALLY-ALLOCATED**

Specifies the files that are physically allocated to a volume set.

This value is only permissible for users who have file allocation permission (see user attributes).

**ALLOCATION-QUALITY = \*BEST-VOLUME-SET**

Specifies the files that are on the volume that best matches their file attributes.

This value is only permissible for users who have file allocation permission (see user attributes). The specification of the best volume sets does not take S1 volume sets into account.

**ALLOCATION-QUALITY = \*NOT-BEST-VOLUME-SET**

Specifies the files which are not on the volume set that best matches their file attributes.

This value is only permissible for users who have file allocation permission (see user attributes).

**VOLUME-SET-ID = \*ANY / <cat-id>**

When working in an SM pubset under HSMS control, a user who has file allocation permission (see user attributes) may specify the catalog ID of a volume set. All files of that volume set are selected.

**STORAGE-LEVEL =**

Serves to select the files using the storage level on which they reside as the selection criterion.

**STORAGE-LEVEL = \*ANY**

The files are to be selected irrespective of the storage level on which they reside.

**STORAGE-LEVEL = \*S0**

Restricts selection to files residing on S0, i.e. files that have not been migrated.

**STORAGE-LEVEL = \*S1**

Restricts selection to files that have been migrated to S1.

**STORAGE-LEVEL = \*S2**

Restricts selection to files that have been migrated to S2.

**UNUSED-DAYS = 0 / <integer 0..9999 days>**

Restricts selection to files not accessed for the number of days specified.

Unless otherwise specified, the files are selected irrespective of the number of days that have passed since they were last accessed.

**MINIMUM-SIZE = \*NONE / <integer 1..2147483647 2Kbyte>**

Restricts selection to files occupying at least the specified minimum number of PAM pages.

Unless otherwise specified, the files are selected irrespective of the minimum file size.

**MAXIMUM-SIZE = \*NONE / <integer 1..2147483647 2Kbyte>**

Restricts selection to files whose size does not exceed the specified maximum number of PAM pages.

Unless otherwise specified, the files are selected irrespective of the maximum file size.

**BACKUP-CLASS = \*ANY / list-poss(4): \*A / \*B / \*C / \*D / \*E**

Serves to select the files using their backup class as the selection criterion.

Unless otherwise specified, the files are selected irrespective of their backup class.

**SELECT-FROM = \*ARCHIVE(...)**

The files are to be selected from an archive or archive directory.

**ARCHIVE-NAME =**

Name of the archive from whose directory the files are to be selected. If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. This also applies to HSMS administrators.

To enable a nonprivileged user to use another user's archive, the archive must contain read access (USER-ACCESS=\*ALL-USERS and ACCESS=\*READ) or co-ownership of the archive directory.

**ARCHIVE-NAME = \*SYSBACKUP**

The files are to be selected from the assigned default system backup archive in the specified environment.

**ARCHIVE-NAME = \*SYSARCHIVE**

The files are to be selected from the assigned default long-term system archive in the specified environment.

**ARCHIVE-NAME = \*SYSMIGRATE**

The files are to be selected from the assigned default system migration archive in the specified environment.

**ARCHIVE-NAME = \*BY-DIRECTORY-NAME(...)**

The files are selected in the specified environment from a directory which does not have to belong to an HSMS archive (e.g. a directory for data transfer or an ARCHIVE directory). The nonprivileged caller must be owner or co-owner of this directory.

In such instances, the directory can have been created without a catalog ID.

**DIRECTORY-NAME = <filename 1..54 without-gen-vers>**

Path name of the directory file.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

The files are to be selected in the specified environment from the specified private archive.

**ENVIRONMENT =**

Defines the HSMS environment where the specified archive is located.

**ENVIRONMENT = \*STD**

*Meaning for privileged users:*

\*STD is set to the value \*SINGLE-FEATURE.

*Meaning for nonprivileged users:*

\*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*SINGLE-FEATURE**

The HSMS statement relates only to the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The HSMS statement relates only to the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**SAVE-VERSION-NAME = \*ANY / <name 1..8>**

The save versions to be used for file selection can be selected using the names assigned to them at creation time as the selection criterion.

Unless otherwise specified, the save versions are selected irrespective of their names.

**SAVE-VERSION-DATE =**

The save versions to be used for file selection can be selected using their creation date as the selection criterion.

In combination with explicit specification of a save version name this operand restricts the selection of save versions to those with both the specified name and creation date.

**SAVE-VERSION-DATE = \*INTERVAL(...)**

Serves to select the save versions using a time interval as the selection criterion. The interval includes all save versions created between CREATED-AFTER and CREATED-BEFORE.

Unless otherwise specified, all save versions, starting with the one created first (\*EARLIEST-DATE) up to the one created last (\*LATEST-DATE), are selected.

**CREATED-BEFORE = \*LATEST-DATE**

The save versions are to be selected irrespective of whether they were created before a specific date.

**CREATED-BEFORE = <date with-compl>**

Restricts selection to save versions created on or before the specified date.

**CREATED-BEFORE = <integer -99999..0 days>**

Restricts selection to save versions created on or before the specified relative date.

**CREATED-AFTER = \*EARLIEST-DATE**

The save versions are to be selected irrespective of whether they were created after a specific date.

**CREATED-AFTER = <date with-compl>**

Restricts selection to save versions created on or after the specified date.

**CREATED-AFTER = <integer -99999..0 days>**

Restricts selection to save versions created on or after the specified relative date.

**SAVE-VERSION-DATE = \*LATEST**

Only the most recently created save version in the archive is to be included in the selection.

**SAVE-VERSION-DATE = <date with-compl>(...)**

The last save version generated on or before the specified date is used for the selection.

**TIME = 23:59:59 / <time>**

The last save version created on or before the specified date and at or before the specified time is to be used for the selection.

**EXPIRATION-DATE =**

The save versions to be used for file selection can be selected using their expiration date as the selection criterion.

In combination with explicit specification of a save version name this operand restricts the selection of save versions to those with both the specified name and the expiration date.

With long-term archives, the expiration date of a save version is derived from the file expiration date, with all other archives it is derived from the physical retention period valid for the corresponding save file.

**EXPIRATION-DATE = \*ANY**

The save versions are to be used for file selection irrespective of their expiration date.

**EXPIRATION-DATE = \*INTERVAL(...)**

The save versions to be used for file selection can be selected on the basis of a time interval within which their retention period will expire.

**EXPIRATION-BEFORE = \*LATEST-DATE / <date with-comp!> / <integer -99999..99999 days>**

Restricts selection to save versions whose retention period expires before the specified date.

**EXPIRATION-AFTER = \*EARLIEST-DATE / <date with-comp!> / <integer -99999..99999 days>**

Restricts selection to save versions whose retention period expires after the specified date.

**FILE-SAVE-STATE =**

Serves to select the files according to their save type, i.e. depending on whether and how they were saved.

**FILE-SAVE-STATE = \*ANY**

The files are to be selected irrespective of whether and how they were saved.

**FILE-SAVE-STATE = \*SAVED(...)**

Restricts selection to saved files.

**TYPE =**

Serves to select the files using their save type as the selection criterion.

**TYPE = \*ANY**

The files are to be selected irrespective of their save type.

**TYPE = \*FULL-FILE**

Restricts selection to files saved by a full backup (save type FULL).

**TYPE = \*PARTIAL-FILE**

Restricts selection to files saved by a partial backup (save type PART).

**TYPE = \*MIGRATED-FILE**

Restricts selection to files which have been migrated and whose catalog entry has been saved (save type MIGF).

**TYPE = \*FGG-INDEX**

Restricts selection to files containing the index of a file generation group (save type FGGI).

**TYPE = \*CATALOG-ENTRY**

Restricts selection to files for which only the catalog entry was saved (from tape or disk); save type CATL.

**FILE-SAVE-STATE = \*CATALOGED-NOT-SAVED(...)**

Restricts selection to files which were not migrated but which are indicated in the archive directory (save type CNS). These can be files which were not saved during an incremental backup because they were not modified or files which could not be saved due to an error.

**TYPE =**

The files can be selected according to the reason why they were not saved.

**TYPE = \*ANY**

The files are selected irrespective of the reason why they were not saved.

**TYPE = \*OPEN-ERROR**

Restricts selection to files which could not be saved because an error occurred when the file was opened.

**DIALOG-FILE-SELECT =**

Defines whether the user wishes to conduct a dialog in order to select individual files from the set of files selected for restoration by means of FILE-NAMES and other operands. The operand is evaluated in interactive mode only, for batch tasks it is ignored.

**DIALOG-FILE-SELECT = \*NO**

The specified set of files is not to be further reduced.

**DIALOG-FILE-SELECT = \*YES**

The specified set of files is to be output in a screen mask. You can then mark individual files from the set displayed, thereby selecting them for or excluding them from selection.

If the files are selected from the *catalog*, the file size, storage level, backup class and number of days since they were last accessed are displayed in the screen mask. Details on the content of the screen mask are provided in the section [“Dialog selection when selecting files via catalog IDs” on page 479](#).

If the files are selected from an *archive*, the number of true save version (#VERS) of the file (excluding CNS) is displayed along with the date of the last true backup LAST-SAVE). Details on the content of the screen mask are provided in the section [“Dialog selection when selecting files from an archive” on page 480](#).

**OUTPUT =**

Specifies where the created list of file names is to be output.

**OUTPUT = \*SELECT-LIST**

The created list of file names is written to a temporary file. It can be accessed with FILE-NAMES=\*SELECTED in a subsequent HSMS statement.

The file is automatically deleted at the end of the task.

**OUTPUT = <filename 1..54 without-gen-vers>**

The created list of file names is written to the specified file. It is structured as a SAM file with variable-length records. A SAM file which has already been cataloged may be expanded in order to merge several file name lists.

If the specified file is not a SAM file, the HSMS statement will be rejected.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.





## SELECT-JV-NAMES

### Select job variable names

This statement is used to select job variable names from a catalog, archives or directories according to criteria that are meaningful to HSMS.

This HSMS statement causes a list of job variable names to be drawn up and, if required, written to a file which can be used in a subsequent action statement. No information is retained about the criteria by which the selection was made.

The statement has the same format for nonprivileged users and HSMS administrators.

### Format

SELECT-JV-NAMES	Alias: SJN
<p><b>JV-NAMES</b> = *OWN / *ALL / *SELECTED / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / list-poss(20): &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;</p> <p>*FROM-FILE(...)     <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p>*FROM-LIBRARY-ELEMENT(...)     <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;     <b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</p> <p>,<b>EXCEPT-JV-NAMES</b> = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / list-poss(20): list-poss(20): &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;</p> <p>*FROM-FILE(...)     <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p>*FROM-LIBRARY-ELEMENT(...)     <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;     <b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</p>	

(part 1 of 2)

```

,SELECT-FROM = *ARCHIVE(...) / *CATALOG
  *ARCHIVE(...)
    | ARCHIVE-NAME = *SYSBACKUP / *SYSARCHIVE / *BY-DIRECTORY-NAME(...) /
    | <filename 1..22 without-cat-gen-vers>
    | *BY-DIRECTORY-NAME(...)
    | | DIRECTORY-NAME = <filename 1..54 without-gen-vers>
    | ,ENVIRONMENT = *STD / *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
    | *SYSTEM-MANAGED(...)
    | | CATALOG-ID = <cat-id>
    | ,SAVE-VERSION-NAME = *ANY / <name 1..8>
    | ,SAVE-VERSION-DATE = *INTERVAL(...) / *LATEST / <date with-compl>(…)
    | *INTERVAL(…)
    | | CREATED-BEFORE = *LATEST-DATE / <date with-compl> / <integer -99999..0 days>
    | | ,CREATED-AFTER = *EARLIEST-DATE / <date with-compl> / <integer -99999..0 days>
    | <date with-compl>(…)
    | | TIME = 23:59:59 / <time>
    | ,EXPIRATION-DATE = *ANY / *INTERVAL(…)
    | *INTERVAL(…)
    | | EXPIRATION-BEFORE = *LATEST-DATE / <date with-compl> /
    | | <integer -99999..99999 days>
    | | ,EXPIRATION-AFTER = *EARLIEST-DATE / <date with-compl> /
    | | <integer -99999..99999 days>
    | ,DIALOG-JV-SELECT = *NO / *YES
    | ,OUTPUT = *SELECT-LIST / <filename 1..54 without-gen-vers>

```

(part 2 of 2)

**JV-NAMES =**

The job variables to be selected must be specified. Specification is mandatory.

The SELECT-FROM operand defines that the job variables are to be selected from an archive directory. The selection can be further restricted by other operands, e.g. DIALOG-JV-SELECT.

If several pubsets are specified for the selection from a system archive, the same system archive must be assigned to all the pubsets.

All nonprivileged users can also select job variables belonging to other user IDs if they are co-owners of these job variables.

**JV-NAMES = \*OWN**

All job variables of the user's own ID on all imported pubsets (except for shared SF pubsets for which the home computer is the slave) are selected.

**JV-NAMES = \*ALL**

All job variables on all imported pubsets (except for shared SF pubsets for which the home computer is the slave) are selected.

*Meaning for nonprivileged users:*

- If SELECT-FROM=\*ARCHIVE(...) is specified, all the job variables of which the user is the owner or co-owner are selected.
- If SELECT-FROM=\*CATALOG(...) is specified, all the job variables of which the user is the owner or co-owner or which are shareable are selected.

**JV-NAMES = \*SELECTED**

The path names of the job variables to be selected are taken from a list which was generated in the same HSMS run with the HSMS statement SELECT-JV-NAMES.

**JV-NAMES = \*FROM-FILE(...)**

The path names of the job variables to be selected are taken from a file. The nonprivileged caller must be owner or co-owner of this file. Only upper-case characters may be used. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**JV-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are to be selected are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**JV-NAMES = list-poss(20): <filename 1..80 without-vers with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables to be selected is input directly. A list of up to 20 names can be specified.

The job variable names can be specified as fully or partially qualified names, with or without catalog or user ID. If required, the job variable name is extended by the user ID of the request and the default catalog ID of the user ID.

You can also use wildcard syntax to select the job variables. Depending on the specification in the SELECT-FROM operand, the wildcards are replaced according to the job variable names listed in the catalog or the archive directory.

For shared pubsets, wildcard replacement in catalog IDs does not refer to SF pubsets for which the home computer is the slave.

**EXCEPT-JV-NAMES =**

Job variables can be specified which are not to be selected.

**EXCEPT-JV-NAMES = \*NONE**

All job variables are selected which are specified in the JV-NAMES operand.

**EXCEPT-JV-NAMES = \*FROM-FILE(...)**

The path names of the job variables that are not to be selected are taken from a file. The nonprivileged caller must be owner or co-owner of this file. This file must be a SAM file with variable record lengths which contains a single path name per record. Only upper-case characters may be used.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-JV-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables which are not to be selected are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-JV-NAMES = list-poss(20): <filename 1..80 without-vers with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables not to be selected are input directly. A list of up to 20 names can be specified.

The job variable names can be specified as fully or partially qualified names, with or without catalog or user ID. If required, the job variable name is extended with the user ID of the request and the default catalog ID.

You can also use wildcard syntax to select the job variables. Depending on the specification in the SELECT-FROM operand, the wildcards are replaced according to the job variable names listed in the catalog or the archive directory.

The resolution of the wildcard syntax for catalog IDs does not refer to shared pubsets for which the home computer is a slave.

**SELECT-FROM =**

Determines whether the job variables are selected from pubset catalogs or archive directories.

**SELECT-FROM = \*CATALOG**

The job variables are selected from the pubset catalog.

**SELECT-FROM = \*ARCHIVE(...)**

The job variables are selected from an archive. The selection can be restricted further.

**ARCHIVE-NAME =**

Name of the archive from whose archive directory the job variables are to be selected. If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. This also applies to HSMS administrators.

To enable a nonprivileged user to use another user's archive, the archive must contain read access (USER-ACCESS=\*ALL-USERS and ACCESS=\*READ), or co-ownership of the archive directory.

**ARCHIVE-NAME = \*SYSBACKUP**

The job variables are to be selected from the assigned default system backup archive in the specified environment.

**ARCHIVE-NAME = \*SYSARCHIVE**

The job variables are to be selected from the assigned long-term system archive for archiving in the specified environment.

**ARCHIVE-NAME = \*BY-DIRECTORY-NAME(...)**

The job variables are to be selected from a directory in the specified environment which does not have to belong to an HSMS archive, e.g. a directory for data transfer or an ARCHIVE directory file.

In cases like this, the directory can also have been created without a catalog ID.

**DIRECTORY-NAME = <filename 1..54 without-gen-vers>**

Path name of the directory file.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

The job variables are to be selected from the specified archive in the specified environment.

**ENVIRONMENT =**

Defines the HSMS environment where the specified archive is located.

**ENVIRONMENT = \*STD**

*Meaning for privileged users:* \*STD is set to the value \*SINGLE-FEATURE.

*Meaning for nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*SINGLE-FEATURE**

The HSMS statement relates only to the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The HSMS statement relates only to the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**SAVE-VERSION-NAME = \*ANY / <name 1..8>**

The save versions to be used for selection can be selected using the names assigned to them at creation time as the selection criteria.

Unless otherwise specified, the save versions are selected irrespective of their names.

**SAVE-VERSION-DATE =**

The save versions to be used for file selection can be selected using their creation date as the selection criteria.

In combination with explicit specification of a save version name, this operand restricts the selection of save versions to those with both the specified name and creation date.

**SAVE-VERSION-DATE = \*INTERVAL(...)**

The save versions are to be selected using a time interval as the selection criterion. The interval includes all save versions created between CREATED-AFTER and CREATED-BEFORE.

Unless otherwise stated, all save versions starting from the one created first (\*EARLIEST-DATE) up to the one created last (\*LATEST-DATE) are selected.

**CREATED-BEFORE = \*LATEST-DATE**

The save versions are to be selected irrespective of whether they were created before a specific date.

**CREATED-BEFORE = <date with-compl>**

The selection is restricted to save versions created on or before the specified date.

**CREATED-BEFORE = <integer -99999..0 days>**

The selection is restricted to save versions created on or before the specified relative date.

**CREATED-AFTER = \*EARLIEST-DATE**

The save versions are selected irrespective of whether they were created after a specific date.

**CREATED-AFTER = <date with-compl>**

The save versions are to be selected irrespective of whether they were created after a specific date.

**CREATED-AFTER = <integer -99999..0 days>**

The selection is restricted to save versions created on or after the specified relative date.

**SAVE-VERSION-DATE = \*LATEST**

Only the most recently created save version in the archive is to be used for selection.

**SAVE-VERSION-DATE = <date with-compl>(...)**

The last save version that was created on or before the specified date is to be used for the selection.

**TIME = 23:59:59 / <time>**

The last save version created on or before the specified date and at or before the specified time is to be used for selection.

**EXPIRATION-DATE =**

The save versions to be used for the job variable selection can be selected using their expiration date as the selection criterion.

In combination with explicit specification of a save name, this operand restricts the selection of save versions to those with both the specified name and the expiration date. For long-term archives, the expiration date of a save version is derived from the file expiration date and for backup archives it is derived from the physical retention period valid for the corresponding save file.

**EXPIRATION-DATE = \*ANY**

The save versions are to be used for the job variable selection irrespective of their expiration date.

**EXPIRATION-DATE = \*INTERVAL(...)**

The save versions to be used for the job variable selection can be selected on the basis of a time interval within which their retention period will expire.

**EXPIRATION-BEFORE = \*LATEST-DATE / <date with-compl> / <integer -99999..99999 days>**

This restricts selection to save versions whose retention period expires before the specified date.

**EXPIRATION-AFTER = \*EARLIEST-DATE / <date with-compl> / <integer -99999..99999 days>**

This restricts selection to save versions whose retention period expires after the specified date.

**DIALOG-JV-SELECT =**

Determines whether the job variable set selected by JV-NAMES and other operands is to be further restricted in the dialog.

The operand is only evaluated in the dialog. It is ignored for batch requests.

**DIALOG-JV-SELECT = \*NO**

The selected job variable set is not restricted.

**DIALOG-JV-SELECT = \*YES**

The selected job variable set is output in a screen mask. You can then mark individual files from the set displayed, thereby selecting them for or excluding them from selection.

For job variables selected from the *catalog*, the path name and size in bytes are shown in the screen mask. Details on the content of the screen mask are provided in the section [“Dialog selection when selecting job variables via catalog IDs” on page 490](#).

For job variables which are selected from an *archive*, the number of true save version (#VERS) of the job variables is displayed along with the date of the last true backup (LAST-SAVE) along with the path name. Details on the content of the screen mask are provided in the section [“Dialog selection when selecting job variables from an archive” on page 491](#).

**OUTPUT =**

Specifies where the created list is to be output.

**OUTPUT = \*SELECT-LIST**

HSMS writes the created list of job variable names to a temporary file. It can be accessed in a subsequent HSMS statement with JV-NAMES=\*SELECTED.

The file is automatically deleted at the end of the task.

**OUTPUT = <filename 1..54 without-gen-vers>**

The created list of job variable names is written to the specified file. It is structured as a SAM file with variable-length records. A SAM file which has already been cataloged may be expanded in order to merge several file name lists.

If the specified file is not a SAM file, the HSMS statement is rejected.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

**Dialog selection when selecting job variables via catalog IDs**

//SELECT-JV-NAMES . . . ,SELECT-FROM=\*CATALOG, . . . ,DIALOG-JV-SELECT=\*YES, . . .

```

SELECT-JV-NAME (FROM CATALOG)                                #JVS          = @@@@@@@@@@
SUPPORT              = @@@@@@@@@@
-----
M  JV-NAME                                                    #BYTES
-  @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ @@@@@@
-  @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ @@@@@@
-  @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ @@@@@@
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-  @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ @@@@@@
-  @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ @@@@@@
-----
NEXT-PAGE :              (+, -, ++, --, E, 'STRING')  MARK :      (A: ALL, N: NONE)
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
    
```

*Key*

Column Values	Meaning
M	Mark column (mark character = job variable is selected, blank = job variable is not selected)
JV-NAME	Path name of the job variable that can be selected
#BYTES	Size of the job variable in bytes

The procedure for selecting job variables is described in the “HSMS Vol. 1” manual [1].



## SELECT-NODE-FILES

### Select node files

This statement is used for selecting file names from node archives according to criteria that are meaningful within HSMS. It refers only to backups or archivals of a BS2000-UFS (POSIX) or node S0.

This HSMS statement causes a list of file names to be compiled and optionally written to a file that can subsequently be referred to in an action statement. The criteria used for selection are not documented.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

### Format

SELECT-NODE-FILES	Alias: <b>SNF</b>
<b>PATH-NAMES</b> = *OWN / *ALL / *SELECTED / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / *PATH-NAME(...)	
*FROM-FILE(...) <ul style="list-style-type: none"> <li>  <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</li> </ul>	
*FROM-LIBRARY-ELEMENT(...) <ul style="list-style-type: none"> <li>  <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;</li> <li>  <b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</li> </ul>	
*PATH-NAME(...) <ul style="list-style-type: none"> <li>  <b>PATH</b> = &lt;posix-pathname 1..1023 with-wild&gt;</li> <li>  <b>NODE-ID</b> = *BS2000-UFS / *ALL / &lt;posix-filename 1..48 with-wild&gt;</li> </ul>	
<b>EXCEPT-PATH-NAMES</b> = *NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) / *PATH-NAME(...)	
*FROM-FILE(...) <ul style="list-style-type: none"> <li>  <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</li> </ul>	
*FROM-LIBRARY-ELEMENT(...) <ul style="list-style-type: none"> <li>  <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;</li> <li>  <b>ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</li> </ul>	
*PATH-NAME(...) <ul style="list-style-type: none"> <li>  <b>PATH</b> = &lt;posix-pathname 1..1023 with-wild&gt;</li> <li>  <b>NODE-ID</b> = *BS2000-UFS / *ALL / &lt;posix-filename 1..48 with-wild&gt;</li> </ul>	

(part 1 of 2)

```

,SELECT-FROM = *ARCHIVE(...)
  *ARCHIVE(...)
    ENVIRONMENT = *NODE-STD / *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
      *SYSTEM-MANAGED(...)
        | CATALOG-ID = <cat-id>
      ,ARCHIVE-NAME = *SYSNODEBACKUP / *SYSNODEARCHIVE /
        <filename 1..22 without-cat-gen-vers>
      ,SAVE-VERSION-NAME = *ANY / <name 1..8>
      ,SAVE-VERSION-DATE = *INTERVAL(...) / *LATEST / <date with-compl>(…)
        *INTERVAL(…)
          | CREATED-BEFORE = *LATEST-DATE / <date with-compl> / <integer -99999..0 days>
          | ,CREATED-AFTER = *EARLIEST-DATE / <date with-compl> / <integer -99999..0 days>
        <date with-compl>(…)
          | TIME = 23:59:59 / <time>
      ,EXPIRATION-DATE = *ANY / *INTERVAL(…)
        *INTERVAL(…)
          | EXPIRATION-BEFORE = *LATEST-DATE / <date with-compl>/
            <integer -99999..99999 days>
          | ,EXPIRATION-AFTER = *EARLIEST-DATE / <date with-compl> /
            <integer -99999..99999 days>
      ,FILE-SAVE-STATE = *ANY / *SAVED(…) / *CATALOGED-NOT-SAVED
        *SAVED(…)
          | TYPE = *ANY / *MODIFIED-DURING-SAVE
      ,SELECTION-BOUNDARY = *ALL-FILE-SYSTEMS / *SPECIFIED-PATHS
    ,OUTPUT = *SELECT-LIST / <filename 1..54 without-gen-vers>

```

(part 2 of 2)

**PATH-NAMES =**

Serves to specify the path names of the node files of a BS2000-UFS (POSIX) or node S0 to be selected. Specification of this operand is mandatory.

The user can further restrict the selection made here by means of other operands, e.g. by EXCEPT-PATH-NAMES.

If node files from several different node S0s are specified when selecting from a system archive, the same system archive must be assigned to all these node S0s.

The option of selecting the node files of other users or node files of remote node S0s is restricted to the HSMS administrator.

More information about path names can be found in the “HSMS Vol. 1” manual [1].

**PATH-NAMES = \*OWN**

\*OWN is equivalent to “/” (*root*), subject to the restriction that the user must be the owner of all the node files.

*Meaning for the HSMS administrator:*

The system is to select all node files and directories belonging to the user ID *root* and which reside on the central BS2000-UFS nodes in the specified environment.

*Meaning for nonprivileged users:*

The system is to select all node files and directories belonging to the user and which reside on the central BS2000-UFS in the specified environment.

**PATH-NAMES = \*ALL**

*Meaning for the HSMS administrator:*

The system is to select all node files that reside on the local BS2000-UFS and on a connected node S0 under HSMS control in the specified environment. The selection is made from the directory file for node files. \*ALL is equivalent to “/”.

*Meaning for the nonprivileged user:*

All node files that reside on the local BS2000-UFS in the specified environment and which meet the following conditions are to be selected:

- If the node files are to be selected from a long-term archive, the nonprivileged user must have had read access to the files at save time.
- If the node files are to be selected from a backup archive, the nonprivileged user must be the owner of the files.

The selection is made from the directory file for node files.

**PATH-NAMES = \*SELECTED**

The path names of the node files to be selected are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-NODE-FILES.

**PATH-NAMES = \*FROM-FILE(...)**

The path names of the node files to be selected are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. Only path names of node files are permitted in this list.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

BS2000 path name of the list file.

**PATH-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the node files which are to be selected are taken from a PLAM library element (type S). The library element contains one path name per record.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**PATH-NAMES = \*PATH-NAME(...)**

The path name of the file to be selected is specified directly.

**PATH = <posix-pathname 1..1023 with-wild>**

Path name of the node file.

**NODE-ID =**

*This operand is only available to the HSMS administrator.*

Physical location of the node file to be selected.

**NODE-ID = \*BS2000-UFS**

The node file resides on the local BS2000-UFS in the branch which corresponds with the specified environment.

**NODE-ID = \*ALL**

The local BS2000-UFS and all existing node S0s are searched for the node file.

**NODE-ID = <posix-filename 1..48 with-wild>**

Name of the node S0 on which the node file resides. The node S0 which is defined with //MODIFY-NODE-PARAMETERS is mounted under the directory /HSMS/<node-id> in POSIX, and access takes place via NFS.

**EXCEPT-PATH-NAMES =**

Serves to specify node files that are to be excluded from selection.

**EXCEPT-PATH-NAMES = \*NONE**

All node files specified with the PATH-NAMES operand are to be selected.

**EXCEPT-PATH-NAMES = \*FROM-FILE(...)**

The path names of the node files to be excluded from selection are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

BS2000 path name of the list file.

**EXCEPT-PATH-NAMES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the node files which are not to be selected are taken from a PLAM library element (type S). The library element contains one path name per record.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element of the highest existing version is used.

**EXCEPT-PATH-NAMES = \*PATH-NAME(...)**

The path name of the node file to be excluded from selection is specified directly. The first character of the path names must not be a hyphen.

The path names may contain wildcards. Note, however, that only the HSMS administrator may use wildcards for node ID specification. Depending on the values specified for SELECT-FROM, the wildcards are replaced according to the file names in the node list or the directory file.

**PATH = <posix-pathname 1..1023 with-wild>**

Path name of the node file.

**NODE-ID =**

*This operand is only available to the HSMS administrator.*

Physical location of the node file to be excluded from selection.

**NODE-ID = \*BS2000-UFS**

The node file resides on the local BS2000-UFS in the branch which corresponds with the specified environment.

**NODE-ID = \*ALL**

The node files on the local BS2000-UFS and on all existing node S0s are excluded.

**NODE-ID = <posix-filename 1..48 with-wild>**

Name of the node S0 which is to be excluded.

**SELECT-FROM =**

Defines that the node files are to be selected from an archive.

**SELECT-FROM = \*ARCHIVE(...)**

The node files are to be selected from an archive.

**ENVIRONMENT =**

HSMS environment in which the archive is defined.

**ENVIRONMENT = \*NODE-STD**

The environment is derived from either:

- The PATH-NAMES=\*PATH-NAME(NODE-ID) operand or
- The list of node IDs which is referenced in the file using the PATH-NAMES=\*FROM-FILE(LIST-FILE-NAME) operand.

For a workstation, this is the environment in which the HSMS statement MODIFY-NODE-PARAMETERS is performed.

For a privileged user under BS2000-UFS, it is a SINGLE-FEATURE environment; for a nonprivileged user \*NODE-STD takes the value of the environment in which the home directory of the user is defined.

If the affected node files are located in different environments the statement is rejected with the message HSM0530.

**ENVIRONMENT = \*SINGLE-FEATURE**

The archive is defined in the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The archive is defined in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset environment.

**ARCHIVE-NAME =**

Name of the archive used for selection.

If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry. This also applies to HSMS administrators.

To enable nonprivileged users to use another user's archive, the archive must contain read access (USER-ACCESS=\*ALL-USERS and ACCESS=\*READ), or co-ownership of the archive directory.

**ARCHIVE-NAME = \*SYSNODEBACKUP**

The node files are to be selected from the assigned default system backup archive.

**ARCHIVE-NAME = \*SYSNODEARCHIVE**

The node files are to be selected from the assigned default long-term system archive.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

The node files are to be selected from the specified private archive.

**SAVE-VERSION-NAME = \*ANY / <name 1..8>**

The save versions to be used for file selection can be selected using the names assigned to them at creation time as the selection criterion.

Unless otherwise specified, the save versions are selected irrespective of their names.

**SAVE-VERSION-DATE =**

The save versions to be used for file selection can be selected using their creation date as the selection criterion.

In combination with explicit specification of a save version name this operand restricts the selection of save versions to those with both the specified name and creation date.

**SAVE-VERSION-DATE = \*INTERVAL(...)**

Serves to select the save versions using a time interval as the selection criterion.

The interval includes all save versions created between CREATED-AFTER and CREATED-BEFORE.

Unless otherwise specified, all save versions, starting with the one created first (\*EARLIEST-DATE) up to the one created last (\*LATEST-DATE), are selected.

**CREATED-BEFORE = \*LATEST-DATE**

The save versions are to be selected irrespective of whether they were created before a specific date.

**CREATED-BEFORE = <date with-compl>**

Restricts selection to save versions created on or before the specified date.

**CREATED-BEFORE = <integer -99999..0 days>**

Restricts selection to save versions created on or before the specified relative date.

**CREATED-AFTER = \*EARLIEST-DATE**

The save versions are to be selected irrespective of whether they were created after a specific date.

**CREATED-AFTER = <date with-compl>**

Restricts selection to save versions created on or after the specified date.

**CREATED-AFTER = <integer -99999..0 days>**

Restricts selection to save versions created on or after the specified relative date.

**SAVE-VERSION-DATE = \*LATEST**

Only the most recently created save version in the archive is to be used for selection.

**SAVE-VERSION-DATE = <date with-comp1>(…)**

The last save version created on or before the specified date is to be used for selection.

**TIME = 23:59:59 / <time>**

The last save version created at or before the specified date and time is to be used for selection.

**EXPIRATION-DATE =**

The save versions to be used for file selection can be selected using their expiration date as the selection criterion.

In combination with explicit specification of a save version name this operand restricts the selection of save versions to those with both the specified name and the expiration date.

With long-term archives, the expiration date of a save version is derived from the file expiration date, with backup archives it is derived from the physical retention period valid for the corresponding save file.

**EXPIRATION-DATE = \*ANY**

The save versions are to be used for file selection irrespective of their expiration date.

**EXPIRATION-DATE = \*INTERVAL(…)**

The save versions to be used for file selection can be selected on the basis of a time interval within which their retention period will expire.

**EXPIRATION-BEFORE = \*LATEST-DATE / <date with-comp1> / <integer -99999..99999 days>**

Restricts selection to save versions whose retention period expires before the specified date.

**EXPIRATION-AFTER = \*EARLIEST-DATE / <date with-comp1> / <integer -99999..99999 days>**

Restricts selection to save versions whose retention period expires after the specified date.

**FILE-SAVE-STATE =**

Serves to select the node files according to their save type, i.e. depending on whether and how they were saved.

**FILE-SAVE-STATE = \*ANY**

The node files are to be selected irrespective of whether and how they were saved.

**FILE-SAVE-STATE = \*SAVED(...)**

Restricts selection to saved node files.

**TYPE =**

Serves to select the node files using their save type as the selection criterion.

**TYPE = \*ANY**

The node files are to be selected irrespective of their save type.

**TYPE = \*MODIFIED-DURING-SAVE**

Restricts selection to node files which were opened while being saved.

**FILE-SAVE-STATE = \*CATALOGED-NOT-SAVED**

Restricts selection to node files which were not saved but which are indicated in the archive directory (save type CNS). These can be

- node files which were not saved during an incremental backup because they were not modified
- or node files which could not be saved due to an error.

**SELECTION-BOUNDARY =**

Defines which part of the node file tree is used for file name expansion.

**SELECTION-BOUNDARY = \*ALL-FILE-SYSTEMS**

All node files and directories specified with the PATH-NAMES operand will be processed.

Any node files and directories subordinated to a directory to be processed will be included in the selection.

Node files and directories will be selected from all levels of the file tree.

**SELECTION-BOUNDARY = \*SPECIFIED-PATHS**

All node files and directories specified with the PATH-NAMES operand will be processed.

For directories, only their inodes will be included. Any node files and directories subordinated to a directory to be processed will be ignored.

**OUTPUT =**

Specifies where the created list of file names is to be output.

**OUTPUT = \*SELECT-LIST**

The created list of file names is written to a temporary file. It can be accessed with PATH-NAMES=\*SELECTED in a subsequent HSMS statement.

The file is automatically deleted at the end of the task.

**OUTPUT = <filename 1..54 without-gen-vers>**

The created list of file names is written to the specified file. It is structured as a SAM file with variable-length records. A SAM file which has already been cataloged may be expanded in order to merge several file name lists.

If the specified file is not a SAM file, the HSMS statement will be rejected.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.

**Example**

*The HSMS administrator selects all the node files located in the default system archive.*

```
//SELECT-NODE-FILES PATH-NAMES=*ALL, -  
//  OUTPUT=HSMS.SELECTION1
```

- All the node files in the archive SYSNODEBACKUP are selected and saved in the file HSMS.SELECTION1.

## **SHOW-ARCHIVE**

### **Show archive directory**

This statement provides information on files, node files, job variables, save files, save versions and volumes listed in an HSMS archive. The scope of output depends on the user's access rights:

- The HSMS administrator can display in full all objects in the archive.
- If a nonprivileged user is the owner or co-owner of this archive, he or she can have his own objects (files, node files, job variables, save files) displayed from the archive. Nonprivileged users can also display files and job variables of which they are co-owners.

In addition to output to SYSOUT or SYSLST or to a file, the statement also supports structured output to an S variable.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

## Format

SHOW-ARCHIVE	Alias: SHA
<p><b>ARCHIVE-NAME</b> = <u>*SYSBACKUP</u> / <u>*SYSARCHIVE</u> / <u>*SYSMIGRATE</u> / <u>*SYSNODEBACKUP</u> / <u>*SYSNODEARCHIVE</u> / <u>*BY-DIRECTORY-NAME(...)</u> /            &lt;filename 1..22 without-cat-gen-vers&gt;</p> <p><b>*BY-DIRECTORY-NAME(...)</b>                  <b>DIRECTORY-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p><b>,ENVIRONMENT</b> = <u>*STD</u> / <u>*NODE-STD</u> / <u>*SINGLE-FEATURE</u> / <u>*SYSTEM-MANAGED(...)</u></p> <p><b>*SYSTEM-MANAGED(...)</b>                  <b>CATALOG-ID</b> = &lt;cat-id&gt;</p> <p><b>,SELECT</b> = <u>*FILES(...)</u> / <u>*NODE-FILES(...)</u> / <u>*JV(...)</u> / <u>*SAVE-VERSIONS(...)</u> / <u>*SAVE-FILES(...)</u> / <u>*VOLUMES(...)</u></p> <p><b>*FILES(...)</b>                  <b>FILE-NAMES</b> = <u>*OWN</u> / <u>*ALL</u> / list-poss(20):                              &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;</p> <p><b>,SAVE-VERSION-NAME</b> = <u>*ANY</u> / &lt;name 1..8&gt;</p> <p><b>,SAVE-VERSION-DATE</b> = <u>*INTERVAL(...)</u> / <u>*LATEST</u> / &lt;date with-compl&gt;(...)</p> <p>      <b>*INTERVAL(...)</b>                        <b>CREATED-BEFORE</b> = <u>*LATEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;                        <b>CREATED-AFTER</b> = <u>*EARLIEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;</p> <p>      &lt;date with-compl&gt;(...)                        <b>TIME</b> = <u>23:59:59</u> / &lt;time&gt;</p> <p><b>,EXPIRATION-DATE</b> = <u>*ANY</u> / <u>*INTERVAL(...)</u></p> <p>      <b>*INTERVAL(...)</b>                        <b>EXPIRATION-BEFORE</b> = <u>*LATEST-DATE</u> / &lt;date with-compl&gt; /                                              &lt;integer -99999..99999 days&gt;                        <b>EXPIRATION-AFTER</b> = <u>*EARLIEST-DATE</u> / &lt;date with-compl&gt; /                                              &lt;integer -99999..99999 days&gt;</p>	

(part 1 of 4)

```

,FILE-SAVE-STATE = *ANY / *SAVED(...) / *CATALOGED-NOT-SAVED(...)
  *SAVED(...)
    |
    | TYPE = *ANY / *FULL-FILE / *PARTIAL-FILE / *MIGRATED-FILE / *FGG-INDEX /
    |           *CATALOG-ENTRY / *WITH-PLAM-INFO / *FULL-NOD-FILE
  *CATALOGED-NOT-SAVED(...)
    |
    | TYPE = *ANY / *OPEN-ERROR
,SHOW-FILE-VERSIONS = *DIFFERENT / *LATEST / *ALL
,INFORMATION = *SUMMARY / *VOLUMES / *ORIGINAL
*NODE-FILES(...)
  PATH-NAMES = *OWN / *ALL / *PATH-NAME(...)
  *PATH-NAME(...)
    |
    | PATH = <posix-pathname 1..1023 with-wild>
    |
    | ,NODE-ID = *BS2000-UFS / *ALL / <posix-filename 1..48 with-wild>
,SELECTION-BOUNDARY = *ALL-FILE-SYSTEMS / *SPECIFIED-PATHS
,SAVE-VERSION-NAME = *ANY / <name 1..8>
,SAVE-VERSION-DATE = *INTERVAL(...) / *LATEST / <date with-compl>(…)
  *INTERVAL(...)
    |
    | CREATED-BEFORE = *LATEST-DATE / <date with-compl> / <integer -99999..0 days>
    | ,CREATED-AFTER = *EARLIEST-DATE / <date with-compl> / <integer -99999..0 days>
  <date with-compl>(…)
    |
    | TIME = 23:59:59 / <time>
,EXPIRATION-DATE = *ANY / *INTERVAL(...)
  *INTERVAL(...)
    |
    | EXPIRATION-BEFORE = *LATEST-DATE / <date with-compl> /
    |                       <integer -99999..99999 days>
    | ,EXPIRATION-AFTER = *EARLIEST-DATE / <date with-compl> /
    |                       <integer -99999..99999 days>

```

(part 2 of 4)

```
,FILE-SAVE-STATE = *ANY / *SAVED(...) / *CATALOGED-NOT-SAVED
```

```
  *SAVED(...)
```

```
    | TYPE = *ANY / *MODIFIED-DURING-SAVE
```

```
,SHOW-FILE-VERSIONS = *LATEST / *ALL
```

```
,INFORMATION = *SUMMARY / *VOLUMES / *ORIGINAL
```

```
*JV(...)
```

```
  JV-NAMES = *OWN / * ALL / list-poss(20):
```

```
    <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>
```

```
,SAVE-VERSION-NAME = *ANY / <name 1..8>
```

```
,SAVE-VERSION-DATE = *INTERVAL(...) / *LATEST / <date with-compl>(…)
```

```
  *INTERVAL(...)
```

```
    | CREATED-BEFORE = *LATEST-DATE / <date with-compl> / <integer -99999..0 days>
```

```
    | ,CREATED-AFTER = *EARLIEST-DATE / <date with-compl> /  
      <integer -99999..0 days>
```

```
  <date with-compl>(…)
```

```
    | TIME = 23:59:59 / <time>
```

```
,EXPIRATION-DATE = *ANY / *INTERVAL(…)
```

```
  *INTERVAL(...)
```

```
    | EXPIRATION-BEFORE = *LATEST-DATE / <date with-compl> /  
      <integer -99999..99999 days>
```

```
    | ,EXPIRATION-AFTER = *EARLIEST-DATE / <date with-compl> /  
      <integer -99999..99999 days>
```

```
,INFORMATION = *SUMMARY / *VOLUMES / *ORIGINAL
```

(part 3 of 4)

**\*SAVE-VERSIONS(...)**

```

USER-ID = *OWN / *ALL / <name 1..8>
, SAVE-VERSION-NAME = *ANY / <name 1..8>
, SAVE-VERSION-DATE = *INTERVAL(...) / *LATEST / <date with-compl>(…)
    *INTERVAL(...)
        | CREATED-BEFORE = *LATEST-DATE / <date with-compl> / <integer -99999..0 days>
        | CREATED-AFTER = *EARLIEST-DATE / <date with-compl> / <integer -99999..0 days>
    <date with-compl>(…)
        | TIME = 23:59:59 / <time>
, EXPIRATION-DATE = *ANY / *INTERVAL(...)
    *INTERVAL(...)
        | EXPIRATION-BEFORE = *LATEST-DATE / <date with-compl> /
          <integer -99999..99999 days>
        | EXPIRATION-AFTER = *EARLIEST-DATE / <date with-compl> /
          <integer -99999..99999 days>
, INFORMATION = *SUMMARY(...) / *USER-INFORMATION / *FILES
    *SUMMARY(...)
        | SEARCH-STRING = *NONE / <c-string 1..80>

```

**\*SAVE-FILES(...)**

```

SAVE-FILE-ID = *ALL / *BY-ATTRIBUTES(...) / list-poss(10): <composed-name 15..15>
    *BY-ATTRIBUTES(...)
        | SAVE-FILE-STATE = *ANY / *OBSOLETE
        | EXPIRATION-BEFORE = *LATEST-DATE / <date with-compl> /
          <integer -99999..99999 days>
        | CREATED-BEFORE = *LATEST-DATE / <date with-compl> / <integer -99999..0 days>
        | SAVE-FILE-STORAGE = *ANY / *PUBLIC-DISK / *PRIVATE-DISK / *TAPE
, INFORMATION = *SUMMARY / *VOLUMES

```

**\*VOLUMES(...)**

```

VOLUMES = *ALL / *BY-ATTRIBUTES / list-poss(10): <vsn 1..6>
    *BY-ATTRIBUTES(...)
        | VOLUME-STATE = *ANY / *OBSOLETE / *AVAILABLE / *UNUSABLE / *FORCED-DELETE
, OUTPUT = *SYSOUT / *NONE / list-poss(2): *SYSOUT / *SYSLST
, STRUCTURE-OUTPUT = *NONE / *SYSINF / <composed-name 1..255>(…)
    <composed-name 1..255>(…)
        | WRITE-MODE = *REPLACE / *EXTEND

```

(part 4 of 4)

**ARCHIVE-NAME =**

Name of the archive whose objects are to be displayed. The default system archives can be accessed via their symbolic names.

When displaying files and job variables, the default system archives are selected via the catalog ID of the specified BS2000 files or job variables or, for node files, via the node ID.

If files on several different pubsets/node S0s are specified, and if they are to be output from a default system archive, the same default system archive must be assigned to all pubsets/node S0s; otherwise the HSMS statement will be rejected. To prevent this you should only specify files from *one* pubset/node S0 in each request.

When displaying save files, save versions and volumes, the following applies with regard to the use of symbolic archive names:

- If \*SYSNODEBACKUP or \*SYSNODEARCHIVE is specified, the default system archive for node files assigned to the local BS2000-UFS for the environment.
- If a symbolic archive name for BS2000 is specified, the standard system archive of the user's standard pubset is found for the nonprivileged user if an SF environment is selected. For the HSMS administrator it is a prerequisite that the same standard system archive is assigned for all SF pubsets.
- If a default system archive for node files is assigned to the node S0 of a workstation, it can only be assigned via its name and not via the symbolic name.

If the archive directory is protected by a password, this password must first be entered by means of the ADD-PASSWORD command. This applies to HSMS administrators as well.

So that the nonprivileged user can use the archive of another user, read access must exist for that archive (USER-ACCESS=\*ALL-USERS and ACCESS=\*READ) or you must have co-ownership of the directory of the archive.

**ARCHIVE-NAME = \*SYSBACKUP**

Information is provided on objects in the assigned default system archive for backup in the specified environment.

**ARCHIVE-NAME = \*SYSARCHIVE**

Information is provided on objects in the assigned default system archive for archival in the specified environment.

**ARCHIVE-NAME = \*SYSMIGRATE**

Information is provided on objects in the assigned default system archive for migration in the specified environment.

**ARCHIVE-NAME = \*SYSNODEBACKUP**

Information is provided on objects in the assigned default system archive for backup of node files.

**ARCHIVE-NAME = \*SYSNODEARCHIVE**

Information is provided on objects in the assigned default system archive for archival of node files.

**ARCHIVE-NAME = \*BY-DIRECTORY-NAME(...)**

This operand value is permissible only if the directory file concerned contains the names of BS2000 files.

Information is provided on objects in a directory which does not have to belong to an HSMS archive (e.g. a directory for data transfer or and ARCHIVE directory file.

In such instances, the directory can have been created without a catalog ID.

**DIRECTORY-NAME = <filename 1..54 without-gen-vers>**

Path name of the directory file.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

Information is provided on objects in the specified archive.

**ENVIRONMENT =**

Defines the HSMS environment where the specified archive is located.

**ENVIRONMENT = \*STD**

The archive is in the default environment for DMS archives:

- *For privileged users:* \*STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*NODE-STD**

The environment is derived from either:

- the PATH-NAMES=\*PATH-NAME(NODE-ID) operand or
- the node IDs of the node files which are referenced using the PATH-NAMES operand.

For a workstation, this is the environment in which the HSMS statement MODIFY-NODE-PARAMETERS is performed.

For a privileged user under BS2000-UFS, it is the SINGLE-FEATURE environment; for a nonprivileged user, \*NODE-STD takes the value of the environment in which the home directory of the user is defined.

If the affected node files reside in different environments the statement is rejected with the message HSM0530.

**ENVIRONMENT = \*SINGLE-FEATURE**

The HSMS statement relates only to the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The archive is in the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**SELECT =**

Determines whether information on files, job variables, save versions, save files or volumes is to be displayed.

**SELECT = \*FILES(...)**

Information on the files managed in the archive is displayed. During output, the files are sorted primarily according to file name and secondarily according to the time of backup. Among other things, the file name, file version, time of backup, expiration date, save type and volume are displayed.

Details on the content of the screen mask(s) are provided starting on [page 526](#).

**FILE-NAMES =**

Specifies the files for which information is to be displayed. Only files on an available pubset can be displayed and only if the user ID has a JOIN entry for this pubset. The user can further restrict the selection made here by means of other operands.

All nonprivileged users can also select files belonging to other user IDs if they are co-owners of these files.

**FILE-NAMES = \*OWN**

Information is displayed on all files of the user's own ID residing on all pubsets. The selection is made using the names listed in the directory file.

**FILE-NAMES = \*ALL**

Information is displayed on all files residing on all pubsets.

In the case of nonprivileged users, only those files of which they are the owner or co-owner are output.

**FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files on which information is to be displayed are specified directly. A list of up to 20 names may be specified. Only path names of BS2000 files are permitted in the list.

The BS2000 file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and with the catalog ID which is taken either from the specified environment or from the default catalog ID of the user ID.

You can also use wildcard syntax to select the files. The wildcards are replaced according to the file names listed in the archive directory.

**SAVE-VERSION-NAME = \*ANY / <name 1..8>**

Includes the save version in the selection according to the name assigned to it at creation.

The option of selecting save versions that were created by other users is restricted to the HSMS administrator.

Unless otherwise specified, the save versions are included in the selection irrespective of their names.

**SAVE-VERSION-DATE =**

Includes the save version in the selection according to its creation date.

If a save version was selected by its name, only those save versions having the save name are selected by the creation date.

**SAVE-VERSION-DATE = \*INTERVAL(...)**

Serves to select the save versions using a time interval as the selection criterion. The interval includes all save versions created between CREATED-AFTER and CREATED-BEFORE.

Unless otherwise specified, all save versions, starting with the one created first (\*EARLIEST-DATE) up to the one created last (\*LATEST-DATE), are selected.

**CREATED-BEFORE = \*LATEST-DATE**

The save versions are to be selected irrespective of whether they were created before a specific date.

**CREATED-BEFORE = <date with compl>**

Restricts selection to save versions created on or before the specified date.

**CREATED-BEFORE = <integer -99999..0 days>**

Restricts selection to save versions created on or before the specified relative date.

**CREATED-AFTER = \*EARLIEST-DATE**

The save versions are to be selected irrespective of whether they were created after a specific date.

**CREATED-AFTER = <date with compl>**

Restricts selection to save versions created on or after the specified date.

**CREATED-AFTER = <integer -99999..0 days>**

Restricts selection to save versions created on or after the specified relative date.

**SAVE-VERSION-DATE = \*LATEST**

Only the most recently created save version in the archive is to be included in the selection.

**SAVE-VERSION-DATE = <date with-compl>(…)**

Includes the last save version created on or before the specified date in the selection.

**TIME = 23:59:59 / <time>**

Includes the last save version created at or before the specified date and time in the selection.

**EXPIRATION-DATE =**

The save versions to be used for file selection can be selected using their expiration date as the selection criterion.

If the save version was selected by its name, only save versions having this name are selected via the expiration date.

With long-term archives, the expiration date of a save version is derived from the file expiration date; with all other archives it is derived from the physical retention period valid for the corresponding save file.

**EXPIRATION-DATE = \*ANY**

The save versions are to be used for file selection irrespective of their expiration date.

**EXPIRATION-DATE = \*INTERVAL(…)**

The save versions to be used for file selection can be selected on the basis of a time interval within which their retention period will expire.

**EXPIRATION-BEFORE = \*LATEST-DATE**

The save versions are selected irrespective of whether or not their retention period expires before a given date.

**EXPIRATION-BEFORE = <date with-compl> / <integer -99999..99999 days>**

Restricts selection to save versions whose retention period expires before the specified date.

**EXPIRATION-AFTER = \*EARLIEST-DATE**

The save versions are selected irrespective of whether or not their retention period expires after a given date.

**EXPIRATION-AFTER = <date with-compl> / <integer -99999..99999 days>**

Restricts selection to save versions whose retention period expires on or after the specified date.

**FILE-SAVE-STATE =**

File selection depends on whether or how they were saved (save type).

**FILE-SAVE-STATE = \*ANY**

The files are to be selected irrespective of whether and how they were saved.

**FILE-SAVE-STATE = \*SAVED(...)**

Restricts selection to saved files.

**TYPE =**

Serves to select the files using their save type as the selection criterion (save type).

**TYPE = \*ANY**

The files are to be selected irrespective of their save type.

**TYPE = \*FULL-FILE**

Restricts selection to files saved by a full backup (save type FULL).

**TYPE = \*PARTIAL-FILE**

Restricts selection to files saved by a partial backup (save type PART).

**TYPE = \*MIGRATED-FILE**

Restricts selection to files which have been migrated and whose catalog entry has been saved (save type MIGF).

**TYPE = \*FGG-INDEX**

Restricts selections to files containing the index of a file generation group (save type FGGI).

**TYPE = \*CATALOG-ENTRY**

Restricts selection to files for which only the catalog entry was saved (from tape or disk); save type CATL.

**TYPE = \*WITH-PLAM-INFO**

Only library files for which the element structure was also saved are selected (save type FULB or PARB). Only with these libraries can individual elements be restored with the RESTORE-LIBRARY-ELEMENTS statement.

**TYPE = \*FULL-NOD-FILE**

Restricts selections to SAM-Node files saved by a full backup for which SAM structure wasn't saved (save type FNOD).

**FILE-SAVE-STATE = \*CATALOGED-NOT-SAVED(...)**

Restricts selection to files which were not saved but which are indicated in the archive directory (save type CNS). These can be

- files which were not saved during an incremental backup because they were not modified
- or files which could not be saved due to an error.

**TYPE =**

The files can be selected according to the reason why they were not saved.

**TYPE = \*ANY**

The files are selected irrespective of the reason why they were not saved.

**TYPE = \*OPEN-ERROR**

Restricts selection to files which could not be saved because an error occurred when the file was opened.

**SHOW-FILE-VERSIONS =**

Determines the extent to which different save versions of a file are displayed on the screen.

**SHOW-FILE-VERSIONS = \*DIFFERENT**

Restricts output to save versions of a file containing modifications made since the last time the file was saved, i.e. a version having a different version number or a different internal file name (coded file ID, CFID).

**SHOW-FILE-VERSIONS = \*LATEST**

Only the latest save version of each file is displayed.

**SHOW-FILE-VERSIONS = \*ALL**

All save versions of a file are displayed.

**INFORMATION =**

Specifies the scope of the information that is output.

**INFORMATION = \*SUMMARY**

The file name, file version, backup time, expiration date and backup type are output. Details on the content of the screen mask are provided in the section [“Output with SELECT=\\*FILES and INFORMATION=\\*SUMMARY” on page 526.](#)

**INFORMATION = \*VOLUMES**

The file name, backup time, and a list (maximum 3) of the different volumes are output. If the file was backed up to disk, the catalog ID of the disk is output in the format:<cat-id 1..4>: (in other words enclosed in colons).

Details on the content of the screen mask are provided in the section [“Output with SELECT=\\*FILES and INFORMATION=\\*VOLUMES” on page 528.](#)

**INFORMATION = \*ORIGINAL**

With backup archives the output takes place as for INFORMATION=\*SUMMARY:

The file name, file version, backup time, release date and the backup type are output (as for INFORMATION=\*SUMMARY).

With long-term archives the original date and time are output:

- in the screen display instead of the backup time and release date
- in the S variables display as additional variables

Details of the screen mask are provided in the section [“Output with SELECT=\\*FILES and INFORMATION=\\*ORIGINAL” on page 529.](#)

**SELECT = \*NODE-FILES(...)**

Information on the node files of a BS2000-UFS (POSIX) or node S0 managed in the archive is displayed. During output, the node files are sorted primarily according to file name and secondarily according to the time of backup. Among other things, the file name, file version, time of backup, expiration date, save type and volume are displayed.

Details on the content of the screen mask(s) are provided starting on [page 536.](#)

**PATH-NAMES =**

Path names of the node files about which information is to be displayed.

Nonprivileged users are restricted to specifying their own node files residing on the central BS2000 node S0.

The selection can be further restricted by means of other operands.

More information about path names can be found in the “HSMS Vol. 1” manual [1].

**PATH-NAMES = \*OWN**

\*OWN is equivalent to “/” (*root*), subject to the restriction that the user must be the owner of all the node files.

*Meaning for the HSMS administrator:*

Information is displayed about all node files of the user ID *root* residing on the central BS2000-UFS in the specified environment.

*Meaning for the nonprivileged user:*

Information is displayed about all node files of the user’s own ID residing on the local BS2000-UFS in the specified environment.

The selection is made using the directory file for node files.

**PATH-NAMES = \*ALL**

*Meaning for the HSMS administrator:*

All node files are selected which reside on the local BS2000-UFS and on a decentral node S0 which is under HSMS control in the specified environment. The selection is made using the directory file for node files. \*ALL is equivalent to "/".

*Meaning for nonprivileged users:*

All node files are selected which reside on the local BS2000-UFS in the specified environment and which meet the following conditions:

- If the node files are taken from a long-term archive, the nonprivileged user must have read permission at backup.
- If the node file are taken from a backup archive, the nonprivileged user must be the owner of the files.

\*ALL is equivalent to "/", subject to the restrictions listed above.

**PATH-NAMES = \*PATH-NAME(...)**

The path name of the node file to be selected is specified directly.

**PATH = <posix-pathname 1..1023 with-wild>**

Path name of the node file.

**NODE-ID =**

*This operand is only available to the HSMS administrator.*

Physical location of the node file to be selected.

**NODE-ID = \*BS2000-UFS**

The node file resides on the central BS2000-UFS in the specified environment.

**NODE-ID = \*ALL**

The node file resides on the central BS2000-UFS or on one of the decentralized node S0s under HSMS control in the specified environment.

**NODE-ID = <posix-filename 1..48 with-wild>**

Name of the node S0 on which the node file resides. The node S0 which is defined with //MODIFY-NODE-PARAMETERS is mounted under the directory /HSMS/<node-id> in POSIX, and access takes place via NFS.

**SELECTION-BOUNDARY =**

Defines which part of the node file tree is used for file name expansion.

**SELECTION-BOUNDARY = \*ALL-FILE-SYSTEMS**

All node files and directories specified with the PATH-NAMES operand will be processed.

Any node files and directories subordinated to a directory to be processed will be included in the selection.

Node files and directories will be selected from all levels of the file tree.

**SELECTION-BOUNDARY = \*SPECIFIED-PATHS**

All node files and directories specified with the PATH-NAMES operand will be processed.

For directories, only their inodes will be included. Any node files and directories subordinated to a directory to be processed will be ignored.

**SAVE-VERSION-NAME = \*ANY / <name 1..8>**

The save versions to be used for file selection can be selected using the names assigned to them at creation time as the selection criterion.

The option of selecting save versions created by other users is restricted to the HSMS administrator.

Unless otherwise specified, the save versions are selected irrespective of their names.

**SAVE-VERSION-DATE =**

The save versions to be used for file selection can be selected using their creation date as the selection criterion.

In combination with explicit specification of a save version name this operand restricts the selection of save versions to those with both the specified name and creation date.

**SAVE-VERSION-DATE = \*INTERVAL(...)**

Serves to select the save versions using a time interval as the selection criterion.

The interval includes all save versions created between CREATED-AFTER and CREATED-BEFORE.

Unless otherwise specified, all save versions, starting with the one created first (\*EARLIEST-DATE) up to the one created last (\*LATEST-DATE), are selected.

**CREATED-BEFORE = \*LATEST-DATE**

The save versions are to be selected irrespective of whether they were created before a specific date.

**CREATED-BEFORE = <date with-compl>**

Restricts selection to save versions created on or before the specified date.

**CREATED-BEFORE = <integer -99999..0 days>**

Restricts selection to save versions created on or before the specified relative date.

**CREATED-AFTER = \*EARLIEST-DATE**

The save versions are to be selected irrespective of whether they were created after a specific date.

**CREATED-AFTER = <date with-compl>**

Restricts selection to save versions created on or after the specified date.

**CREATED-AFTER = <integer -99999..0 days>**

Restricts selection to save versions created on or after the specified relative date.

**SAVE-VERSION-DATE = \*LATEST**

Only the most recently created save version in the archive is to be used for selection.

**SAVE-VERSION-DATE = <date with-comp1>(…)**

The last save version created on or before the specified date is to be used for selection.

**TIME = 23:59:59 / <time>**

The last save version created at or before the specified date and time is to be used for selection.

**EXPIRATION-DATE =**

The save versions to be used for file selection can be selected using their expiration date as the selection criterion.

In combination with explicit specification of a save version name this operand restricts the selection of save versions to those with both the specified name and the expiration date.

With long-term archives, the expiration date of a save version is derived from the file expiration date, with backup archives it is derived from the physical retention period valid for the corresponding save file.

**EXPIRATION-DATE = \*ANY**

The save versions are to be used for file selection irrespective of their expiration date.

**EXPIRATION-DATE = \*INTERVAL(…)**

The save versions to be used for file selection can be selected on the basis of a time interval within which their retention period will expire.

**EXPIRATION-BEFORE = \*LATEST-DATE**

The save versions are selected irrespective of whether or not their retention period expires before a given date.

**EXPIRATION-BEFORE = <date with-comp1> / <integer -99999..99999 days>**

Restricts selection to save versions whose retention period expires before the specified date.

**EXPIRATION-AFTER = \*EARLIEST-DATE**

The save versions are selected irrespective of whether or not their retention period expires after a given date.

**EXPIRATION-AFTER = \*EARLIEST-DATE / <date with-comp1> / <integer -99999..99999 days>**

Restricts selection to save versions whose retention period expires after the specified date.

**FILE-SAVE-STATE =**

Serves to select the node files according to their save type, i.e. depending on whether and how they were saved (save type).

**FILE-SAVE-STATE = \*ANY**

The node files are to be selected irrespective of whether and how they were saved.

**FILE-SAVE-STATE = \*SAVED(...)**

Restricts selection to saved node files.

**TYPE =**

Serves to select the node files using their save type as the selection criterion.

**TYPE = \*ANY**

The node files are to be selected irrespective of their save type.

**TYPE = \*MODIFIED-DURING-SAVE**

Restricts selection to node files which were opened while being saved.

**FILE-SAVE-STATE = \*CATALOGED-NOT-MADE**

Restricts selection to node files which were not saved but which are indicated in the archive directory (save type CNS). These can be node files which were not saved during an incremental backup because they were not modified or node files which could not be saved due to an error.

**SHOW-FILE-VERSIONS =**

Determines the extent to which different save versions of a node file are included in the information displayed.

**SHOW-FILE-VERSIONS = \*LATEST**

Information is to be displayed only about the most recently created save versions containing the node files.

**SHOW-FILE-VERSIONS = \*ALL**

Information is to be displayed about all save versions of the node files (including CNS backups).

**INFORMATION =**

Specifies the scope of the information that is output.

**INFORMATION = \*SUMMARY**

The file name, file version, backup time, expiration date and backup type are output. Details on the content of the screen mask are provided in the section “[Output with SELECT=\\*NODE-FILES and INFORMATION=\\*SUMMARY](#)” on page 536.

**INFORMATION = \*VOLUMES**

The file name, backup time, and a list of the different volumes (maximum 3) are output. If the file was backed up to disk, the catalog ID of the disk is output in the format:<cat-id 1..4>: (in other words enclosed in colons).

Details on the content of the screen mask are provided in the section “[Output with SELECT=\\*NODE-FILES and INFORMATION=\\*VOLUMES](#)” on page 538.

**SELECT = \*JV(...)**

Information on the job variables managed in the archive is displayed.

For output, the job variables are sorted primarily according to name and secondarily according to the time they were saved. Among other things, the name, backup time, expiration date and volume are displayed.

Details on the content of the screen mask(s) are provided starting on [page 531](#).

**JV-NAMES =**

Specifies the job variables for which information is to be displayed.

All nonprivileged users can also specify job variables belonging to other user IDs if they are co-owners of these job variables.

**JV-NAMES = \*OWN**

Information on all job variables of the user’s own ID residing on all pubsets is displayed.

**JV-NAMES = \*ALL**

Information on all job variables of all user IDs residing on all pubsets is displayed.

In the case of nonprivileged users, only those job variables are output of which they are the owner or co-owner.

**JV-NAMES = list-poss(20): <filename 1..80 without-gen-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables for which information is to be displayed are specified directly. A list of up to 20 names may be specified.

The job variable names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the job variable names can be extended by the user ID of the request and the default catalog ID of the user ID.

You can also use wildcard syntax to select the job variables. The wildcards are replaced on the basis of the job variables listed in the archive directory.

**SAVE-VERSION-NAME = \*ANY / <name 1..8>**

For a description of this suboperand, see the suboperand of the same name under the FILES operand (see [page 510](#)).

**SAVE-VERSION-DATE = \*INTERVAL(...) / \*LATEST / <date with-compil>(…)**

For a description of this suboperand, see the suboperand of the same name under the FILES operand (see [page 510](#)).

**EXPIRATION-DATE = \*ANY / \*INTERVAL(…)**

For a description of this suboperand, see the suboperand of the same name under the FILES operand (see [page 511](#)).

**INFORMATION =**

Specifies the scope of the information that is output.

**INFORMATION = \*SUMMARY**

The job variable name, backup time and expiration date are output.

Details on the content of the screen mask are provided in the section “[Output with SELECT=\\*JV and INFORMATION=\\*SUMMARY](#)” on [page 531](#).

**INFORMATION = \*VOLUMES**

The job variable name, backup time, and a list of the different volumes (maximum 3) are output. If the job variable was backed up to disk, the catalog ID of the disk is output in the format:<cat-id 1..4>: (in other words enclosed in colons).

Details on the content of the screen mask are provided in the section “[Output with SELECT=\\*JV and INFORMATION=\\*VOLUMES](#)” on [page 533](#).

**SELECT = \*SAVE-VERSIONS(...)**

Information on the save versions managed in the archive is displayed.

Users who are not owners of the archive containing the save versions should note the following:

They can only obtain information on save versions created under their own user ID, and only if the save versions were assigned a save version name at their creation.

Details on the content of the screen mask(s) are provided starting on [page 541](#).

**USER-ID =**

The save versions can be selected via the user ID under which they were created.

**USER-ID = \*OWN**

Restricts selection to save versions created under the user's own ID.

**USER-ID = \*ALL**

The save versions of all users are selected.

If the definition of the archive and directory permit it, nonprivileged users are also shown all save versions. However, they are only shown those files which they can restore (with their own user ID and of which they are co-owner).

**USER-ID = <name 1..8>**

Selection is restricted to the save versions of the specified user ID.

**SAVE-VERSION-NAME = \*ANY / <name 1..8>**

For a description of this suboperand, see the suboperand of the same name under the FILES operand (see [page 510](#)).

**SAVE-VERSION-DATE = \*INTERVAL(...) / \*LATEST / <date with-compl>(...)**

For a description of this suboperand, see the suboperand of the same name under the FILES operand (see [page 510](#)).

**EXPIRATION-DATE = \*ANY / \*INTERVAL(...)**

For a description of this suboperand, see the suboperand of the same name under the FILES operand (see [page 511](#)).

**INFORMATION = \*SUMMARY(...)**

One line is displayed for each save version; the save versions are sorted according to backup time. Among other things, the backup date and time, expiration date, relevant save file ID and save version name with user ID are displayed.

Details on the content of the screen mask are provided in the section “[Output with SELECT=\\*SAVE-VERSIONS and INFORMATION=\\*SUMMARY \(ARCHIVAL and NODE-ARCHIVAL\)](#)” on [page 541](#).

**SEARCH-STRING =**

Specifies whether the output is to be restricted to save versions with particular user information.

**SEARCH-STRING = \*NONE**

All save versions are listed.

**SEARCH-STRING = <c-string 1..80>**

Restricts the output to save versions which contain the specified string in the user information. The screen mask contains the note that the output has been restricted.

**INFORMATION = \*USER-INFORMATION**

One screen is displayed for each save version. Among other things, this screen contains user information specified by the user during archival.

Details on the content of the screen mask are provided in the section “[Output with SELECT=\\*SAVE-VERSIONS and INFORMATION=\\*USER-INFORMATION](#)” on [page 551](#).

**INFORMATION = \*FILES**

All (user) files and job variables recorded in the save version are displayed.

Details on the content of the screen mask are provided in the section “[Output with SELECT=\\*SAVE-VERSIONS and INFORMATION=\\*FILES \(ARCHIVAL\)](#)” on [page 543](#).

**SELECT = \*SAVE-FILES(...)**

Information on the save files managed in the archive is displayed.

Details on the content of the screen mask(s) are provided starting on [page 552](#).

**SAVE-FILE-ID = \*ALL**

Information on all save files in the archive is displayed.

**SAVE-FILE-ID = \*BY-ATTRIBUTES(...)**

The save files are selected by their attributes.

**SAVE-FILE-STATE =**

The save files can be selected by their status.

**SAVE-FILE-STATE = \*ANY**

The save files are selected irrespective of their status.

**SAVE-FILE-STATE = \*OBSOLETE**

Restricts selection to save files whose retention period has expired.

**EXPIRATION-BEFORE = \*LATEST-DATE**

The save versions are selected irrespective of whether or not their retention period expires after a given date.

**EXPIRATION-BEFORE = <date with compl>**

Restricts selection to save files whose retention period expires on or before the specified date.

**CREATED-BEFORE = \*LATEST-DATE**

The save files are to be selected irrespective of whether they were created before a specific date.

**CREATED-BEFORE = <date with compl>**

Restricts selection to save versions created on or before the specified date.

**CREATED-BEFORE = <integer -99999..0 days>**

Restricts selection to save versions created on or before the specified relative date.

**SAVE-FILE-STORAGE =**

The save files can be selected according to the device class to which they belong.

**SAVE-FILE-STORAGE = \*ANY**

The save files are selected irrespective of the device class to which they belong.

**SAVE-FILE-STORAGE = \*PUBLIC-DISK**

Restricts selection to save files on public disks.

**SAVE-FILE-STORAGE = \*PRIVATE-DISK**

Restricts selection to save files on private disks.

**SAVE-FILE-STORAGE = \*TAPE**

Restricts selection to save files on volumes belonging to the class "TAPE".

**SAVE-FILE-ID = list-poss(10): <composed-name 15..15>**

Information on the specified save files is displayed. The save file ID is specified in the format S.yymmdd.hhmmss

**INFORMATION = \*SUMMARY**

One line is displayed for each save file; the save files are sorted according to the save file ID and creation time. The following information is displayed:

- save file ID
- creation date
- expiration date
- access rights
- storage level
- volume type
- number of volumes
- parallel runs
- save versions

Details on the content of the screen mask are provided in the section [“Output with SELECT=\\*SAVE-FILES and INFORMATION=\\*SUMMARY” on page 552.](#)

**INFORMATION = \*VOLUMES**

The volumes used in each parallel run are displayed.

Details on the content of the screen mask are provided in the section [“Output with SELECT=\\*SAVE-FILES and INFORMATION=\\*VOLUMES” on page 554.](#)

**SELECT = \*VOLUMES(...)**

Information on the volumes managed in the archive is displayed. The following is output:

- volume serial number (VSN)
- save file ID (SFID)
- volume state (VOLUME-STATE)
- expiration date (EXP-DATE)
- device type (DEVICE)
- owner (OWNER: OPERATOR or POOL).

Details on the content of the screen mask are provided in the section [“Output with SELECT=\\*VOLUMES” on page 556.](#)

**VOLUMES =**

Specifies the volumes for which information is to be displayed.

**VOLUMES = \*ALL**

Information on all volumes in the archive is displayed.

**VOLUMES = \*BY-ATTRIBUTES(...)**

The volumes are selected by their attributes.

**VOLUME-STATE =**

The volumes can be selected by their status.

**VOLUME-STATE = \*ANY**

The volumes are selected irrespective of their status.

**VOLUME-STATE = \*OBSOLETE**

Restricts selection to the volumes of save files whose retention period has expired.

**VOLUME-STATE = \*AVAILABLE**

Restricts output to the volumes of save files which were not modified after being copied to the volume pool of the archive or whose retention period has elapsed and whose save file was deleted.

**VOLUME-STATE = \*UNUSABLE**

Restricts output to volumes which are marked as unusable due to an error.

**VOLUME-STATE = \*FORCED-DELETE**

Restricts output to volumes whose assigned save file was deleted before the end of the retention period and whose file expiration date has not yet been reached. (If files are written to these volumes before the end of the retention period, the volumes must be removed from the pool, reinitialized and returned to the pool.)

**VOLUMES = list-poss(10): <vsn 1..6>**

Information on the specified volumes is displayed.

**OUTPUT =**

Determines the output medium for the desired information. Output generally takes place to SYSLST for batch requests.

**OUTPUT = \*SYSOUT**

The information is output to the logical system file SYSOUT, i.e. it is normally displayed on the screen in interactive mode.

**OUTPUT = \*SYSLST**

The information is output to the logical system file SYSLST. Each mask comprises 43 lines.

**OUTPUT = \*NONE**

The information is not output in text format.

**STRUCTURE-OUTPUT =**

Controls structured output in S variables (for the variable layout see [page 557](#)).

**STRUCTURE-OUTPUT = \*NONE**

No structured output is required.

**STRUCTURE-OUTPUT = \*SYSINF**

Structured output is directed to the SYSINF S variable stream.

**STRUCTURE-OUTPUT = <composed-name 1..255>(…)**

Name of the S variable that is to be used for the structured output.

**WRITE-MODE=**

Determines whether the output should replace or complement the current content of the S variables.

**WRITE-MODE = \*REPLACE**

The current content of the S variable is to be replaced by the new output.

**WRITE-MODE = \*EXTEND**

The new output is appended to the current content of the S variable.

**Layout of the screen masks:**

*Output with SELECT=\*FILES and INFORMATION=\*SUMMARY*

```

SHOW-ARCHIVE (FILES)                SHOW-FILE-VERSIONS = @@@@@@@@@@
ENVIRONMENT      = @@@@@@@@@@
CATALOG-ID      = @@@@
USER-ID         = @@@@@@@@@@
FILE-SAVE-STATE = @@@@@@@@@@@@@@@@@@@@@@
INFORMATION     = SUMMARY
SHOW-FILE-VERSIONS = @@@@@@@@@@
ARCHIVE-NAME    = @@@@@@@@@@@@@@@@@@@@@@
SV-NAME        = @@@@@@@@@@
SV-DATE        = @@@@@@@@@@ @@@@@@@@@@
EXP-DATE       = @@@@@@@@@@ @@@@@@@@@@
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M FILE-NAME                                VERS SAV-DATE SAV-TIME EXP-DATE TYPE
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```

*Key:*

<b>Column Values</b>	<b>Meaning</b>
ENVIRONMENT	Environment in which the archive is located
M	Mark column for selecting the files for which a detailed view with file name and volumes is to be output (the branch from a detailed mask takes place in accordance with the current assignment in the NEXT-PAGE field).
NEXT-PAGE	Input field for scrolling within an environment, for leaving an environment and for specifying the return address:
+	– Next page of the current environment
-	– Previous page of the current environment
++	– Last page of the current environment
--	– First page of the current environment
E	– Return to the previous environment
Blank	– Same page of the current environment
FILE-NAME	Path name of the file
VERS	File version at the time of backup
SAV-DATE	Date the file was saved
SAV-TIME	Time the file was saved
EXP-DATE	Logical file expiration date, if stipulated; otherwise, expiration date of the save file
TYPE	File save type:
FULL	– File was fully saved
FULB	– File is a library which was fully backed up with SAVE-PLAM-INFO=*YES
PART	– File was partially saved
PARB	– File is a library which was partially backed up with SAVE-PLAM-INFO=*YES
MIGF	– File migrated; catalog entry was saved
CATL	– Only the catalog entry was saved
FGGI	– Index of a file generation group was saved
CNS	– File is in catalog, but was not saved (e.g. during incremental backup)
OPER	– CNS, due to error when opening the file
FNOD	– SAM node file that was saved without SAM structure and thus cannot be restored as file with FILE-TYPE *BS2000.

Output with *SELECT=\*FILES and INFORMATION=\*VOLUMES*

```

SHOW-ARCHIVE (FILES)                                SHOW-FILE-VERSIONS = @@@@@@@@@@
ENVIRONMENT = @@@@@@@@@@                          ARCHIVE-NAME = @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
CATALOG-ID = @@@@                                  SV-NAME = @@@@@@@@@@
USER-ID = @@@@@@@@@@                              SV-DATE = @@@@@@@@@@ @@@@@@@@@@ @@@@@@@@@@
FILE-SAVE-STATE = @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ EXP-DATE = @@@@@@@@@@ @@@@@@@@@@
INFORMATION = VOLUMES

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FILE-NAME                                           SAV-DATE SAV-TIME VOLUME(S):
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NEXT-PAGE :      (+, -, ++, --, E)
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```

Key:

Column	Meaning
ENVIRONMENT	Environment in which the archive is located
FILE-NAME	Path name of file
SAV-DATE	Date the job variables were saved
SAV-TIME	Time the job variables were saved
VOLUME(S)	Name of the volume(s): <ul style="list-style-type: none"> <li>- The vsn of the volume when saving to S2 storage level or private disk.</li> <li>- The catalog ID enclosed in colons when saving to public disk.</li> <li>- The catalog ID of assigned pubset enclosed in colons when saving to Net-Storage, if the global HSMS parameter SAVE-FILE-PROCESSING was set to *HSMS-V10-COMPATIBLE when the file was saved.</li> <li>- The vsn of the Net-Storage volume when saving to Net-Storage, if the global HSMS parameter SAVE-FILE-PROCESSING was set to *HSMS-V9-COMPATIBLE when the file was saved.</li> </ul>



Column Values	Meaning
VERS	File version at the time of backup
SAV-DATE	Date the file was saved
ORI-DATE	Original date of the backup
ORI-TIME	Original time of the backup
TYPE	File save type:
FULL	– File was fully saved
FULB	– File is a library which was fully backed up with SAVE-PLAM-INFO=*YES
PART	– File was partially saved
PARB	– File is a library which was partially backed up with SAVE-PLAM-INFO=*YES
MIGF	– File migrated; catalog entry was saved
CATL	– Only the catalog entry was saved
FGGI	– Index of a file generation group was saved
CNS	– File is in catalog, but was not saved (e.g. during incremental backup)
OPER	– CNS, due to error when opening the file
FNOD	– SAM node file that was saved without SAM structure and thus cannot be restored as file with FILE-TYPE *BS2000.

(part 2 of 2)



<b>Column Values</b>	<b>Meaning</b>
SAV-DATE	Date of backup of job variable
SAV-TIME	Time of backup of job variable
EXP-DATE	Logical job variable expiration date, if stipulated; otherwise, expiration date of the save file

(part 2 of 2)

Output with *SELECT=\*JV* and *INFORMATION=\*VOLUMES*

```

SHOW-ARCHIVE (JV)
ENVIRONMENT      = @@@@@@@@          ARCHIVE-NAME = @@@@@@@@@@@@@@@@@@@@@@@@@@@@
CATALOG-ID      = @@@@             SV-NAME     = @@@@@@@@
USER-ID         = @@@@@@@@          SV-DATE    = @@@@@@@@ @@@@@@@@ @@@@@@@@
INFORMATION     = VOLUMES          EXP-DATE   = @@@@@@@@ @@@@@@@@
-----
JV-NAME          SAV-DATE SAV-TIME VOLUME(S) :
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Key:

Column	Meaning
ENVIRONMENT	Environment in which the archive is located
JV-NAME	Name of the job variable
SAV-DATE	Date of backup of job variable
SAV-TIME	Time of backup of job variable
VOLUME(S)	Name of the volume(s)



<b>Column Values</b>	<b>Meaning</b>
JV-NAME	Name of the job variable
SAV-DATE	Date of backup of job variable
ORI-DATE	Original date of the backup
ORI-TIME	Original time of the backup



Column Values	Meaning
F-TY DIRW / DIRU XENU REGW / REGU SYMW / SYMU DBIW / DBIU DBLW / DBLU DBOW / DBOU DBQW / DBQU DBSW / DBSU DBXW / DBXU DBYW / DBYU	File type – Directory in Windows or UNIX – Special XENIX file – Ordinary file in Windows or UNIX – File with symbolic reference in Windows or UNIX – DB file for INFORMIX – DB file for LOTUS NOTES – DB file for ORACLE – DB file for SQL – DB file for SAP – DB file for EXCHANGE – DB file for SYSTEM STATE
SAV-DATE	Date the node file was saved
SAV-TIME	Time the node file was saved
EXP-DATE	Logical expiration date of the node file, if stipulated; otherwise, expiration date of the save version
TYP FUL CNS OPE MDS	Save type of the node file The node file was fully saved The node file is in the catalog but was not saved CNS due to error when opening the node file The node file was modified while being saved

(part 2 of 2)

Output with *SELECT=\*NODE-FILES* and *INFORMATION=\*VOLUMES*

```

SHOW-ARCHIVE (NODE-FILES)                SHOW-FILE-VERSIONS = @@@@@@@@@@
ENVIRONMENT = @@@@@@@@@@                 ARCHIVE-NAME = @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
FILE-SAVE-STATE = @@@@@@@@@@@@@@@@@@@@@@ SV-NAME = @@@@@@@@@@
EXPIRATION-DATE = @@@@@@@@@@ @@@@@@@@@@ SV-DATE = @@@@@@@@@@ @@@@@@@@@@ @@@@@@@@@@
NODE-ID = @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ SELECTION-BOUNDARY = @@@@@@@@@@@@@@@@@@@@@@
USER# = @@@@@@
INFORMATION = VOLUMES

-----
PATH-NAME                                SAV-DATE  SAV-TIME  VOLUME(S) :
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```

Key:

Column	Meaning
ENVIRONMENT	Environment in which the archive is located
PATH-NAME	Path name of the node file More information about path names can be found in the "HSMS Vol. 1" manual [1].
SAV-DATE	Date the node file was saved
SAV-TIME	Time the node file was saved
VOLUME(S)	Name of the volume(s); for backup to disk, the catalog ID enclosed in colons



Column Values	Meaning
F-TY DIRW / DIRU XENU REGW / REGU SYMW / SYMU DBIW / DBIU DBLW / DBLU DBOW / DBOU DBQW / DBQU DBSW / DBSU DBXW / DBXU DBYW / DBYU	File type – Directory in Windows or UNIX – Special XENIX file – Ordinary file in Windows or UNIX – File with symbolic reference in Windows or UNIX – DB file for INFORMIX – DB file for LOTUS NOTES – DB file for ORACLE – DB file for SQL – DB file for SAP – DB file for EXCHANGE – DB file for SYSTEM STATE
SAV-DATE	Date the node file was saved
ORI-DATE	Original date of the backup
ORI-TIME	Original time of the backup
TYP FUL CNS OPE MDS	Save type of the node file The node file was fully saved The node file is in the catalog but was not saved CNS due to error when opening the node file The node file was modified while being saved

(part 2 of 2)

Output with *SELECT=\*SAVE-VERSIONS* and *INFORMATION=\*SUMMARY*  
(ARCHIVAL and NODE-ARCHIVAL)

```

SHOW-ARCHIVE (SAVE-VERSIONS)      INFORMATION = SUMMARY@@@@@@@@@@@@@@@
ENVIRONMENT = @@@@@@@@@@          ARCHIVE-NAME = @@@@@@@@@@@@@@@@@@@@@@
SV-NAME      = @@@@@@@@@@          SV-DATE      = @@@@@@@@@@ @@@@@@@@@@ @@@@@@@@@@
USER-ID      = @@@@@@@@@@          EXP-DATE     = @@@@@@@@@@ @@@@@@@@@@
-----
M SAV-DATE SAV-TIME EXP-DATE SFID          IND USER-ID SV-NAME  DESCR/ORIG
- @@@@@@@@@ @@@@@@@@@ @@@@@@@@@ @@@@@@@@@@@@@@@@@@ @@@ @@@@@@@@@ @@@@@@@@@ @@@@@@@@@@@@@
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NEXT-PAGE :      (+, -, ++, --, E)  INFORMATION : (File,User-Info)
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```

Key:

Column Values	Meaning
INFORMATION	Shows whether the output of the save versions has been restricted: - SUMMARY if all save versions are displayed - SUMMARY/SEARCH-STRING if the output has been restricted by specifying a string (see "SEARCH-STRING = <c-string 1..80>" on page 522)
ENVIRONMENT	Environment in which the archive is located
M	Mark column for selecting the save versions for which a detailed view with file name and user information is to be specified (the branch from a detailed mask takes place in accordance with the current assignment in the NEXT-PAGE field).

(part 1 of 2)

Column Values	Meaning
NEXT-PAGE	Input field for scrolling within an environment, for leaving an environment and for specifying the return address:
+	– Next page of the current environment
-	– Previous page of the current environment
++	– Last page of the current environment
--	– First page of the current environment
E	– Return to the previous environment
Blank	– Same page of the current environment
SAV-DATE	Creation date of the save version
SAV-TIME	Creation time of the save version
EXP-DATE	Logical expiration date of the save version, if stipulated; otherwise, expiration date of the save file
SFID	Save file ID of the save file containing the save version
IND	Indicator
C	– Save version contains compressed data
USER-ID	User ID under which the save version was created
SV-NAME	Name of the save version
DESCRIPTOR	Descriptor assigned when the file was created

(part 2 of 2)



Column Values	Meaning
TYPE	File save type:
FULL	– File was fully saved
FULB	– File is a library which was fully backed up with SAVE-PLAM-INFO=*YES
PART	– File was partially saved
PARB	– File is a library which was partially backed up with SAVE-PLAM-INFO=*YES
CNS	– File is in catalog, but was not saved (e.g. during incremental backup)
OPER	– CNS, due to error when opening the file
MDS	– The file was modified during the backup
FNOD	– SAM node file that was saved without SAM structure and thus cannot be restored as file with FILE-TYPE *BS2000.

(part 2 of 2)

*Output with SELECT=\*SAVE-VERSIONS and INFORMATION=\*FILES  
(BACKUP, MIGRATION and BY-DIRECTORY-NAME)*

```

SHOW-ARCHIVE (SAVE-VERSIONS)          INFORMATION = FILES
ENVIRONMENT = @@@@@@@@@@             ARCHIVE-NAME = @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
SV-NAME     = @@@@@@@@@@             SV-DATE     = @@@@@@@@@@ @@@@@@@@@@ @@@@@@@@@@
USER-ID     = @@@@@@@@@@             EXP-DATE    = @@@@@@@@@@ @@@@@@@@@@
-----
  SAV-DATE SAV-TIME  EXP-DATE SFID          SEL  BC IND  USER-ID  SV-NAME
  @@@@@@@@@ @@@@@@@@@ @@@@@@@@@ @@@@@@@@@@@@@@@@@ @@@@@ @ @@@ @@@@@@@@@ @@@@@@@@@
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FILE-NAME                                     VERS  TYPE
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```

Key:

Column Values	Meaning
ENVIRONMENT	Environment in which the archive is located
SAV-DATE	Creation date of the save version
SAV-TIME	Creation time of the save version
EXP-DATE	Logical expiration date of the save version, if stipulated; otherwise, expiration date of the save file
SFID	Save file ID of the save file containing the save version
SEL	Scope of backup
MOD-F	– Incremental backup implemented
ALL-F	– Full backup implemented
CAT-F	– Incremental backup implemented after catalog modification
BC	Maximum backup class saved
IND	Indicator
C	– Save version contains compressed data
USER-ID	User ID under which the save version was created

(part 1 of 2)

Column Values	Meaning
SV-NAME	Name of the save version
FILE-NAME	Path name of the file
VERS	File version at the time of backup
TYPE	File save type:
FULL	– File was fully saved
FULB	– File is a library which was fully backed up with SAVE-PLAM-INFO=*YES
PART	– File was partially saved
PARB	– File is a library which was partially backed up with SAVE-PLAM-INFO=*YES
MIGF	– File migrated; catalog entry was saved
CATL	– Only the catalog entry was saved
FGGI	– Index of a file generation group was saved
CNS	– File is in catalog, but was not saved (e.g. during incremental backup)
OPER	– CNS, due to error when opening the file
FNOD	– SAM node file that was saved without SAM structure and thus cannot be restored as file with FILE-TYPE *BS2000.

(part 2 of 2)



<b>Column Values</b>	<b>Meaning</b>
TYPE FULL CNS OPE MDS	Save type of the file – The node file was fully saved – The node file is in the catalog but was not saved – CNS due to error when opening the node file – The node file was modified while being saved



<b>Column Values</b>	<b>Meaning</b>
VERS	Version of the file at backup time
TYPE FULL CNS OPE MDS	Save type of the file – The node file was fully saved – The node file is in the catalog but was not saved – CNS due to error when opening the node file – The node file was modified while being saved

(part 2 of 2)





<b>Column Values</b>	<b>Meaning</b>
OBS YES NO	Indication as to whether the retention period has expired – Retention period has expired – Retention period has not expired
ACCESS	Authorization to access the save file
ST PRV PUB NET TAP	Storage where the save file resides – Private disk – (S1) pubset – Net-Storage – Magnetic tape cartridge (S2)
DEVICE	Type of volume on which the save file resides
#VOL	Number of volumes <sup>1)</sup>
#SV	Number of save versions in the save file <sup>1)</sup>
#RUNS	Number of parallel runs during creation <sup>1)</sup>

(part 2 of 2)

<sup>1)</sup> If the number is greater than 9999, then 9999 will be displayed.

Output with *SELECT=\*SAVE-FILES* and *INFORMATION=\*VOLUMES*

```

SHOW-ARCHIVE (SAVE-FILES)                INFORMATION = VOLUMES
ENVIRONMENT = @@@@@@@@                  ARCHIVE-NAME = @@@@@@@@@@@@@@@@@@@@@@@@
SAVE-FILE-STATE = @@@@@@@@@@@@@@@@@@  SAVE-FILE-STORAGE = @@@@@@@@@@@@@@@@@@
CREATED-BEFORE = @@@@@@@@              EXPIRATION-BEFORE = @@@@@@@@
-----
SFID          CREA-DATE EXP-DATE OBS ACCESS ST  DEVICE   #VOL #SV #RUNS
@@@@@@@@@@@@ @@@@@@@@ @@@@@@@@ @@@ @@@@@@ @@@ @@@@@@@@ @@@@ @@@ @@@@@
-----
#RUN: VOLUME:
@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@
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NEXT-PAGE :      (+, -, ++, --, E)
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```

Key:

Column Values	Meaning
ENVIRONMENT	Environment in which the archive is located
SFID	Save file ID of the displayed save file
CREA-DATE	Creation date of the save file
EXP-DATE	Expiration date of the save file
OBS YES NO	Indication as to whether the retention period has expired: – Retention period has expired. – Retention period has not expired.
ACCESS	Authorization to access the save file
ST PRV PUB NET TAP	Storage where the save file resides: – Private disk – (S1) pubset – Net-Storage – Magnetic tape cartridge (S2)
DEVICE	Type of volume on which the save file resides
#VOL	Number of volumes <sup>1)</sup>

(part 1 of 2)

Column Values	Meaning
#SV	Number of save versions in the save file <sup>2)</sup>
#RUNS	Number of parallel runs during creation <sup>1)</sup>
#RUN	Number of the parallel run
VOLUME	Volumes used in this parallel run. For save files on public disk or Net-Storage, if the global HSMS parameter SAVE-FILE-PROCESSING was set to *HSMS-V10-COMPATIBLE, output is as follows: <#run>: <cat_id> (for save files on Net-Storage <cat_id> is the catalog ID of the assigned pubset) For save files on S1-SM-pubset which are spread over several volume sets the output for each used volume set is: <#run>:<cat_id>

(part 2 of 2)

- 1) If the number is greater than 9999, then 9999 will be displayed.  
2) If the number is greater than 999, then 999 will be displayed.



### Output in S variables

All variables are of the data type string.

The integer values are output in string format.

*Output with SELECT=\*FILES, INFORMATION=\*SUMMARY/\*ORIGINAL*

Name of the S variable	Content	Footnote
var(*list).USER-ID	<string 1..8>	
var(*list).FILE(*list).PUBSET-ID	<string 1..4>	
var(*list).FILE(*list).F-NAME	<string 1..41>	
var(*list).FILE(*list).VERSION	0..9999 “	
var(*list).FILE(*list).SAVE-DATE	<string 8..8>	
var(*list).FILE(*list).SAVE-TIME	<string 8..8>	
var(*list).FILE(*list).ORIGINAL-DATE	<string 8..8>	1)
var(*list).FILE(*list).ORIGINAL-TIME	<string 8..8>	1)
var(*list).FILE(*list).EXPIR-DATE	<string 8..8>	
var(*list).FILE(*list).SAVE-TYPE	*FULL *FULB *PART *PARB *MIGF *FGGI *CNS *OPER	

- 1) Only for long-term archives (type ARCHIVAL) when INFORMATION=\*ORIGINAL is specified.

*Output with SELECT=\*FILES, INFORMATION=\*VOLUMES*

Name of the S variable	Content	Footnote
var(*list).USER-ID	<string 1..8>	
var(*list).FILE(*list).PUBSET-ID	<string 1..4>	
var(*list).FILE(*list).F-NAME	<string 1..41>	
var(*list).FILE(*list).SAVE-DATE	<string 8..8>	
var(*list).FILE(*list).SAVE-TIME	<string 8..8>	
var(*list).FILE(*list).VOL(*list).VOL	<string 1..6>	

*Output with SELECT=\*NODE-FILES, INFORMATION=\*SUMMARY/\*ORIGINAL*

Name of the S variable	Content	Footnote
var(*list).NODE-ID	<string 1..48>	
var(*list).FILE(*list).F-NAME	<string 1..41>	
var(*list).FILE(*list).F-TYPE	*DIRW / *DIRU *XENU *REGW / *REGU *SYMW / *SYMU *DBIW / *DBIU *DBLW / *DBLU *DBOW / *DBOU *DBQW / *DBQU *DBSW / *DBSU *DBXW / *DBXU *DBYW / *DBYU	
var(*list).FILE(*list).SAVE-DATE	<string 8..8>	
var(*list).FILE(*list).SAVE-TIME	<string 8..8>	
var(*list).FILE(*list).ORIGINAL-DATE	<string 8..8>	1)
var(*list).FILE(*list).ORIGINAL-TIME	<string 8..8>	1)
var(*list).FILE(*list).EXPIR-DATE	<string 8..8>	
var(*list).FILE(*list).SAVE-TYPE	*FUL *CNS *OPE *MDS	

- 1) Only for long-term archives (type ARCHIVAL) when INFORMATION=\*ORIGINAL is specified.

*Output with SELECT=\*NODE-FILES, INFORMATION=\*VOLUMES*

Name of the S variable	Content	Footnote
var(*list).NODE-ID	<string 1..48>	
var(*list).FILE(*list).F-NAME	<string 1..41>	
var(*list).FILE(*list).SAVE-DATE	<string 8..8>	
var(*list).FILE(*list).SAVE-TIME	<string 8..8>	
var(*list).FILE(*list).VOL(*list).VOL	<string 1..6>	

*Output with SELECT=\*JV, INFORMATION=\*SUMMARY/\*ORIGINAL*

<b>Name of the S variable</b>	<b>Content</b>	<b>Footnote</b>
var(*list).USER-ID	<string 1..8>	
var(*list).JV(*list).PUBSET-ID	<string 1..4>	
var(*list).JV(*list).JV-NAME	<string 1..41>	
var(*list).JV(*list).SAVE-DATE	<string 8..8>	
var(*list).FILE(*list).ORIGINAL-DATE	<string 8..8>	1)
var(*list).FILE(*list).ORIGINAL-TIME	<string 8..8>	1)
var(*list).JV(*list).SAVE-TIME	<string 8..8>	
var(*list).JV(*list).EXPIR-DATE	<string 8..8>	

- 1) Only for long-term archives (type ARCHIVAL) when INFORMATION=\*ORIGINAL is specified.

*Output with SELECT=\*JV, INFORMATION=\*VOLUMES*

<b>Name of the S variable</b>	<b>Content</b>	<b>Footnote</b>
var(*list).USER-ID	<string 1..8>	
var(*list).JV(*list).PUBSET-ID	<string 1..4>	
var(*list).JV(*list).JV-NAME	<string 1..41>	
var(*list).JV(*list).SAVE-DATE	<string 8..8>	
var(*list).JV(*list).SAVE-TIME	<string 8..8>	
var(*list).JV(*list).VOL(*list).VOL	<string 1..6>	

*Output with SELECT=\*SAVE-VERSIONS, INFORMATION=\*SUMMARY*

Name of the S variable	Content	Footnote
var(*list).SAVE-DATE	<string 8..8>	
var(*list).SAVE-TIME	<string 8..8>	
var(*list).EXPIR-DATE	<string 8..8>	
var(*list).SFID	<string 15..15>	
var(*list).SEL-F	*MOD-F *ALL-F *CAT-F “	1)
var(*list).BACKUP-CLASS	<string 1..1> “	1)
var(*list).INDICATOR	*C *A “	
var(*list).USER-ID	<string 1..8> “	
var(*list).SV-NAME	<string 1..8> “	
var(*list).DESCRIPTOR	<string 1..10> “	2)

- 1) The empty character string is output for long-term archives (type ARCHIVAL).
- 2) The empty character string is output for backup and migration archives (type BACKUP or MIGRATION).

*Output with SELECT=\*SAVE-VERSIONS, INFORMATION=\*USER-INFORMATION*

Name of the S variable	Content	Footnote
var(*list).SAVE-DATE	<string 8..8>	
var(*list).SAVE-TIME	<string 8..8>	
var(*list).EXPIR-DATE	<string 8..8>	
var(*list).SFID	<string 15..15>	
var(*list).INDICATOR	*C *A “	
var(*list).USER-ID	<string 1..8> “	
var(*list).SV-NAME	<string 1..8> “	
var(*list).DESCRIPTOR	<string 1..10> “	1)
var(*list).USER-INFO	<string 1..720> “	
var(*list).ORIGINAL-DATE	<string 8..8>	1)
var(*list).ORIGINAL-TIME	<string 8..8>	1)

- 1) The empty character string is output for backup and migration archives (type BACKUP or MIGRATION).

Output with *SELECT=\*SAVE-VERSIONS,INFORMATION=\*FILES*

Name of the S variable	Content	Footnote
var(*list).SAVE-DATE	<string 8..8>	
var(*list).SAVE-TIME	<string 8..8>	
var(*list).EXPIR-DATE	<string 8..8>	
var(*list).SFID	<string 15..15>	
var(*list).SEL-F	*MOD-F *ALL-F *CAT-F “	1)
var(*list).BACKUP-CLASS	<string 1> “	1)
var(*list).INDICATOR	*C *A “	
var(*list).USER-ID	<string 1..8> “	
var(*list).SV-NAME	<string 1..8> “	
var(*list).DESCRIPTOR	<string 1..10> “	2)
var(*list).FILE(*list).F-NAME	<string 1..69>	
var(*list).FILE(*list).VERSION	0..9999 “	
var(*list).FILE(*list).SAVE-TYPE	*FULL *FULB *FULJ *PART *PARB *MIGF *FGGI *OPER *CNS *MDS	

- 1) The empty character string is output for long-term archives (type ARCHIVAL).
- 2) The empty character string is output for backup and migration archives (type BACKUP or MIGRATION).

*Output with SELECT=\*SAVE-FILES,INFORMATION=\*SUMMARY*

<b>Name of the S variable</b>	<b>Content</b>	<b>Footnote</b>
var(*list).SFID	<string 15..15>	
var(*list).CREA-DATE	<string 8..8>	
var(*list).EXPIR-DATE	<string 8..8>	
var(*list).OBSOLET	*YES *NO “	
var(*list).ACCESS	<string 1..5> “	
var(*list).STOR	*PRV *PUB *TAP	
var(*list).DEV	<string 1..8>	
var(*list).VOL-COUNT	1..9999	
var(*list).SV-COUNT	1..9999	
var(*list).RUN-COUNT	1..9999	

*Output with SELECT=\*SAVE-FILES,INFORMATION=\*VOLUMES*

<b>Name of the S variable</b>	<b>Content</b>	<b>Footnote</b>
var(*list).SFID	<string 15..15>	
var(*list).CREA-DATE	<string 8..8>	
var(*list).EXPIR-DATE	<string 8..8>	
var(*list).OBSOLET	*YES *NO “	
var(*list).ACCESS	<string 1..5> “	
var(*list).STOR	*PRV *PUB *TAP	
var(*list).DEV	<string 1..8>	
var(*list).VOL-COUNT	1..9999	
var(*list).SV-COUNT	1..999	
var(*list).RUN-COUNT	1..99999	
var(*list).RUN(*list).RUN-NUMBER	0..999	
var(*list).RUN(*list).VOL(*list).VOL	<string 1..6>	

*Output with SELECT=\*VOLUMES*

<b>Name of the S variable</b>	<b>Content</b>	<b>Footnote</b>
var(*list).VOL	<string 1..6>	
var(*list).SFID	<string 15..15>	
var(*list).VOL-STATE	*AVAILABLE *IN-USE *OBSOLETE *FORCED-DELETE *UNUSABLE	
var(*list).EXPIR-DATE	<string 8..8>	
var(*list).DEV	<string 1..8>	
var(*list).OWNER	*POOL *OPERATOR	

Detailed information on S variables is provided in the manual “Commands” [\[5\]](#).

## SHOW-ARCHIVE-ATTRIBUTES

### Show archive attributes

This statement is used to display the attributes of an HSMS archive.

All nonprivileged users can output the attributes of an archive which does not belong to them provided that the archive is shareable or the user is co-owner of the archive directory.

In addition to output to SYSOUT or SYSLST or to a file, the statement also supports structured output to an S variable.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

#### Format

SHOW-ARCHIVE-ATTRIBUTES	Alias: <b>SAA</b>
<b>ARCHIVE-NAME</b> = <b>*BY-ATTRIBUTES</b> (...) / <filename 1..22 without-cat-gen-vers> <b>*BY-ATTRIBUTES</b> (...)   <b>OWNER-ID</b> = <b>*OWN</b> / <b>*ALL</b> / <name 1..8>   <b>,ALLOWED-USAGE</b> = <b>*ANY</b> / <b>*BACKUP</b> / <b>*ARCHIVAL</b> / <b>*MIGRATION</b> / <b>*NODEBACKUP</b> /   <b>*NODEARCHIVAL</b> / <b>*SHADOW</b> <b>,ENVIRONMENT</b> = <b>*STD</b> / <b>*NODE-STD</b> / <b>*SINGLE-FEATURE</b> / <b>*SYSTEM-MANAGED</b> (...)   <b>*SYSTEM-MANAGED</b> (...)   <b>CATALOG-ID</b> = <cat-id> <b>,INFORMATION</b> = <b>*SUMMARY</b> / <b>*ALL</b> <b>,OUTPUT</b> = <b>*NONE</b> / list-poss(2): <b>*SYSOUT</b> / <b>*SYSLST</b> <b>,STRUCTURE-OUTPUT</b> = <b>*SYSINF</b> / <b>*NONE</b> / <composed-name 1..255>(…)   <composed-name 1..255>(…)   <b>WRITE-MODE</b> = <b>*REPLACE</b> / <b>*EXTEND</b>	

#### **ARCHIVE-NAME =**

Specifies the archives about which information is to be displayed.

**ARCHIVE-NAME = \*BY-ATTRIBUTES(...)**

The archives are selected in the specified environment by their attributes.

**OWNER-ID =**

The archives can be selected within the specified environment by their owner IDs.

**OWNER-ID = \*OWN**

Only the archives under the user's own owner ID are selected.

**OWNER-ID = \*ALL**

*This operand value is only available to the HSMS administrator.*

The archives under all owner IDs are selected.

**OWNER-ID = <name 1..8>**

The archives under the specified owner ID are selected.

**ALLOWED-USAGE =**

You can restrict the selection of archives still further by archive type, i.e. by their allowed usage.

**ALLOWED-USAGE = \*ANY**

The archives are selected irrespective of their usage.

**ALLOWED-USAGE = \*BACKUP**

Only backup archives are selected.

**ALLOWED-USAGE = \*ARCHIVAL**

Only long-term archives are selected.

**ALLOWED-USAGE = \*MIGRATION**

Only migration archives are selected.

**ALLOWED-USAGE = \*NODEBACKUP**

Only backup archives for node files of a BS2000-UFS (POSIX) or node S0 are selected.

**ALLOWED-USAGE = \*NODEARCHIVAL**

Only long-term archives for node files of a BS2000-UFS (POSIX) or node S0 are selected.

**ALLOWED-USAGE = \*SHADOW**

*This operand value is only available to the HSMS administrator.*

Only shadow archives for node files are selected.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

Name of the archive.

**ENVIRONMENT =**

HSMS environment of the selected archives.

**ENVIRONMENT = \*STD**

Default environment for DMS archives:

- *For privileged users:* \*STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*NODE-STD**

Default environment for node archives:

- *For privileged users:* \*NODE-STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*NODE-STD is set to the value of the environment in which the home directory of the user is defined.

**ENVIRONMENT = \*SINGLE-FEATURE**

SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The SM pubset environment specified below.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset.

**INFORMATION = \*SUMMARY**

The following attributes are displayed in table format for each archive:

- owner ID
- archive name
- allowed usage of the archive
- access rights
- default values for the S2 device type.

Additional information on individual archives can be requested by marking the archive.

Details on the content of the screen mask are provided in the section [“Output with INFORMATION=\\*SUMMARY” on page 569.](#)

**INFORMATION = \*ALL**

All the archive attributes are output (see also CREATE-ARCHIVE).

Details on the content of the screen mask are provided in the section [“Output with INFORMATION=\\*ALL \(comprises 2 screens\) per archive” on page 571.](#)

**OUTPUT =**

Determines the output medium for the desired information. Output generally takes place to SYSLST for batch requests.

**OUTPUT = \*NONE**

The information is not output in text format.

**OUTPUT = \*SYSOUT**

The information is output to the logical system file SYSOUT, i.e. it is normally displayed on the screen in interactive mode.

**OUTPUT = \*SYSLST**

The information is output to the logical system file SYSLST. Each mask comprises 43 lines.

**STRUCTURE-OUTPUT =**

Controls structured output in S variables (for the variable layout see [page 577](#)).

**STRUCTURE-OUTPUT = \*SYSINF**

Structured output is directed to the SYSINF S variable stream.

**STRUCTURE-OUTPUT = \*NONE**

No structured output is required.

**STRUCTURE-OUTPUT = <composed-name 1..255>(…)**

Name of the S variable that is to be used for the structured output.

**WRITE-MODE =**

Determines whether the output should replace or complement the current content of the S variables.

**WRITE-MODE = \*REPLACE**

The current content of the S variable is to be replaced by the new output.

**WRITE-MODE = \*EXTEND**

The new output extends the current content of the S variable.



Column Values	Meaning
USER-ACCESS OWNER-ONLY ALL-USERS (WRITE) ALL-USERS (READ)	Right of other users to access the archive – Other users are not allowed to access the archive (private) – Write access exists for the archive – Read access exists for the archive
S2-DEVICE STD	Default volume type for writing to the archive: – HSMS/other volume type from the control file
COMPRESS NO YES S1-ONLY	Compression option – Data is not compressed – Data is compressed during write operations – Data is compressed only when written to S1

(part 2 of 2)



Key:

Column Values	Meaning
OWNER-ID	Owner ID of the displayed archive
ARCHIVE-NAME	Name of the displayed archive
USAGE	Type of usage allowed for the archive (archive type)
USER-ACCESS OWNER-ONLY ALL-USERS (WRITE) ALL-USERS (READ)	Right of other users to access the archive – Other users are not allowed to access the archive (private) – Write access exists for the archive – Read access exists for the archive
S2-DEVICE STD	Default volume type for writing to the archive HSMS/other volume type from the control file
COMPRESS NO YES S1-ONLY	Compression option – Data is not compressed – Data is compressed during write operation – Data is compressed only when written to S1
HSMS	Minimum HSMS version necessary so that all possible functions can be used for this archive. If an earlier HSMS version is used, only SHOW statements can be issued; action statements will not be possible.
OWNER-FIELD	Remark entered when the archive was created
DIRECTORY-NAME	Archive directory name
LINKED-ARCHIVE-NAME	Name of the assigned archive
SHADOW-COPY  ALLOWED  INHIBIT WITH-NEW-SFID	Indicates whether the save version is automatically duplicated in a shadow archive if one is assigned. – When the request is completed the save version is automatically copied to the shadow archive assigned. – The save version is not automatically duplicated. – The attribute has been set to *ALLOWED-AND-NEW-SFID using //MODIFY-ARCHIVE-ATTRIBUTES. The save version is automatically copied to the shadow archive assigned, always as a new save file.
LOCATION	Storage location of the archive
BACKUP-SERVER-USAGE	Specifies whether the backup server will be used to process requests
NORMAL-USER-ACCESS	Indicates the archive access rights for a remote node user who does not possess administrator privileges.

(part 1 of 5)

Column Values	Meaning
ADMINISTRATOR-ACCESS	Indicates the archive access rights for the administrator of a remote node.
RETENTION-PERIOD	Retention period of the archive in days or Keyword FROM-ORIG-SAVE-F for a shadow archive that was defined with RETENTION-PERIOD=*FROM-ORIGINAL-SAVE-FILE.
FILE-EXPIRATION- DATE RESTRICTED  UNRESTRICTED	Logical expiration date for archived files <ul style="list-style-type: none"> <li>– The logical expiration date must be a date in the retention period of the save file or volume</li> <li>– The logical expiration date is not restricted</li> </ul>
SAVE-DATA  S0 S1-S0  S2-S1-S0	Indicates whether just the catalog entry or the catalog entry and the data are saved for migrated files. <ul style="list-style-type: none"> <li>– Only the files on S0 are saved with their data.</li> <li>– Only the files on S0 and the files migrated to S1 are saved with their data.</li> <li>– All files are saved with their data</li> </ul>
SAVE-FILE-STRUCTURE  SINGLE-SVID SEVERAL-SVID	Save file structure: <ul style="list-style-type: none"> <li>– Each save file of the archive contains only one save version</li> <li>– Each save file of the archive contains more than one save version.</li> </ul>
SAVE-PLAM-INFO  STD NO  YES	Indicates whether or not the information about the element structure should be written to the backup volume. This additional information enables elements of a library file to be restored: <ul style="list-style-type: none"> <li>– The default settings for the archive apply.</li> <li>– No information about the element structure is written to the save volume.</li> <li>– Information about the element structure is written to the save volume.</li> </ul>

(part 2 of 5)

Column Values	Meaning
MONITORING NO  STD	Indicates monitoring in an SE Server environment.  – No requests concerning the archive will be monitored unless MONITORING=*ALL is set with the MODIFY-HSMS-PARAMETERS statement or unless the user is SYSHSMS and MONITORING=*SYSHSMS-ONLY is set with MODIFY-HSMS-PARAMETERS.  – The requests concerning the archive will be monitored according to the MONITORING operand of the MODIFY-HSMS-PARAMETERS statement.
REQUEST-PRIORITIES  READ WRITE	Indicates the processing priority of read and write requests which are issued for the specified archive.  – Processing priority of read requests – Processing priority of write requests
AUTOMATIC-DELETION  NO OBSOLETE-SFID OBSOLETE-SVID	Shows whether obsolete save files are automatically (when saving or copying) deleted (for backup and long-term archives).  – Save files are not deleted automatically – When backing up or copying obsolete save files are deleted implicitly – When backing up or copying save versions are also deleted from the beginning of the save file in the save files that are not yet obsolete if their expiration date has been reached.
PARALLEL-RUNS	Number of parallel save tasks
WRITE-CHECKPOINTS  YES NO	Indicates whether checkpoints are written to the checkpoint file during processing.  – Checkpoints are written to the file. – Checkpoints are not written to the file.
NUMBER-OF-DEVICES	Number of devices available for a backup run.
MULTIPLEXING-FACTOR	Multiplexing factor per device, i.e. the number of ARCHIVE subtasks generated for this device.
OPERATOR-INTERACTION  ALLOWED NOT-ALLOWED	Indicates whether messages requiring operator an response are displayed on the console.  – Messages are displayed on the console. – Messages are not displayed on the console.

(part 3 of 5)

Column Values	Meaning
SAVE-FILE-RETPD-UPD	Indicates whether the expiration date of the save file is automatically modified:
YES	– If the expiration date of a save version becomes subsequent to that of the associated save file then the retention period of the save file is automatically extended.
NO	– The expiration date of the save file is not automatically modified.
<i>Content of the next screen:</i>	
OWNER-ID	Owner ID of the displayed archive
ARCHIVE-NAME	Name of the displayed archive
USAGE	Type of usage allowed for the archive (archive type)
USER-ACCESS	Right of other users to access the archive
OWNER-ONLY	– Other users are not allowed to access the archive (private)
ALL-USERS (WRITE)	– Write access exists for the archive
ALL-USERS (READ)	– Read access exists for the archive
S2-DEVICE	Default volume type for writing to the archive
STD	HSMS/other volume type from the control file
COMPRESS	Compression option
NO	– Data is not compressed
YES	– Data is compressed during write operation
S1-ONLY	– Data is compressed only when written to S1
HSMS	Minimum HSMS version necessary so that all possible functions can be used for this archive. If an earlier HSMS version is used, only SHOW statements can be issued; action statements will not be possible.
UNLOAD-TAPE	Indicates whether a magnetic tape is to be unloaded when processing has finished:
YES	– The magnetic tape is unloaded.
NO	– The magnetic tape is not unloaded.

(part 4 of 5)

Column Values	Meaning
NEW-STD-SAVE-FILE AT-EACH-REQUEST EACH-TAPE-SESSION  IN-PERIODS  PUBLIC-DISK(<catid>)	Indicates when the archive's default save file is to be changed: <ul style="list-style-type: none"> <li>– The default save file is changed with each new save version.</li> <li>– The default save file is changed at the start of each new tape session.</li> <li>– The default save file is changed at the start of each new continuation period.</li> <li>– A BACKUP-NODE-FILES request with reference to the standard save file is redirected to TO-STORAGE=*PUBLIC-DISK(&lt;catid&gt;).</li> </ul>
BLOCKING-FACTOR	Blocking factor used to write to the save file to the magnetic tape. The value specified is the number of 2Kbyte blocks (PAM pages) which can be written to the magnetic tape in a single I/O operation.
STD-SAVE-FILE	Identification for the default save file
STREAM-MODE  YES NO PRIMARY-ALLOCATION	Indicates whether the data is written to the magnetic tape in streaming mode: <ul style="list-style-type: none"> <li>– Writing is performed in streaming mode.</li> <li>– Writing is not performed in streaming mode.</li> </ul> Size in PAM pages of the primary allocation for the creation of save files on the hard disk
WRITE-CHECK  YES NO SAVE-FILES RESTORED-FILES	Indicates whether a write check is to be carried out after each write operation in order to detect errors: <ul style="list-style-type: none"> <li>– Write check is carried out.</li> <li>– Write check is not carried out.</li> <li>– Write check is only carried out on save files.</li> <li>– Write check is only carried out on restored files.</li> </ul>
SECONDARY-ALLOCATION	Size in PAM pages of the secondary allocation for the expansion of save files on the hard disk
DESTROY-BY-DELETE  YES NO	Indicates whether the storage space released when a save file is deleted is overwritten with binary zeros: <ul style="list-style-type: none"> <li>– The released storage space is overwritten with binary zeros.</li> <li>– The released storage space is not overwritten with binary zeros.</li> </ul>

(part 5 of 5)

**Output in S variables**

All variables are of the data type string.

Name of the S variable	Content	Footnote
var(*list).ARCHIVE-NAME	<string 1..22>	
var(*list).USAGE	*BACKUP *ARCHIVAL *NODEBACKUP *NODEARCHIVAL *MIGRATION *SHADOW	
var(*list).USER-ACCESS	*OWNER-ONLY *ALL-USER(Access=*WRITE) *ALL-USER(Access=*READ)	
var(*list).S2-DEV-TYPE	*STD <string 1..8>	
var(*list).COMPRESS	*YES *NO *S1-ONLY	
var(*list).MIN-HSMS-VERSION	<string 3..3>	2)
var(*list).OWNER-FIELD	*NONE <string 1..54>	2) 2)
var(*list).SAVE-F-STRUCT	*SINGLE-SVID *SEVERAL-SVID	2) 2)
var(*list).DIR-NAME	<string 1..54>	2)
var(*list).SHADOW-ARCHIVE	<string 1..22>	2) 6)
var(*list).ORIG-ARCHIVE	<string 1..22>	2) 7)
var(*list).LOCATION	*ANY <string 1..8>	2) 2)
var(*list).BACKUP-SERVER-USAGE	*NO *STD	2) 2)
var(*list).RETENT-PERIOD	*FROM-ORIG-SAVE-F 0..32767	1) 2) 1) 2)
var(*list).F-EXPIR-DATE	*RESTRICT *UNRESTRICT	2) 2)
var(*list).SAVE-F-RETPD-UPDATE	*YES *NO	2) 2)

(part 1 of 3)

Name of the S variable	Content	Footnote
var(*list).ACCESS-FROM-NODE.NORMAL-USER	*NONE *READ *WRITE *SAME	2) 2) 2) 2)
var(*list).ACCESS-FROM-NODE.ADM	*NONE *READ *WRITE *SAME	2) 2) 2) 2)
var(*list).SAVE-OPT.SAVE-DATA	*S0 *S1-S0 *S2-S1-S0	2) 3) 2) 2)
var(*list).SAVE-OPT.SAVE-PLAM-INFO	*YES *NO	2) 3) 2)
var(*list).MONITORING	*NO *STD	2) 2)
var(*list).OPERATION-CONTR.PARALLEL-RUN	1..16 *MULTIPLEX	1) 2) 2)
var(*list).OPERATION-CONTR.NUM-OF-DEV	1..16	1) 2) 8)
var(*list).OPERATION-CONTR.MULTIPLEX-FACT	2..4 *AUTO	1) 2) 8) 2) 8)
var(*list).OPERATION-CONTR.WRITE-CHECKP	*YES *NO *MAX	2) 2) 2)
var(*list).OPERATION-CONTR.OPER-INTERACT	*ALLOW *NOT-ALLOW	2) 2)
var(*list).OPERATION-CONTR. AUTOMATIC-DELETION	*NO *OBSOLETE-SFID *OBSOLETE-SVID	
var(*list).SHADOW-CONTR.SHADOW-COP	*ALLOW *INHIBIT *WITH-NEW-SFID	2) 2) 2) 6))
var(*list).TAPE-CONTR.NEW-STD-SAVE-F	*AT-EACH-REQ *EACH-TAPE-SESSION *IN-PERIOD	2) 4) 2) 4) 2) 4)
var(*list).TAPE-CONTR.CONTI-PERIOD	1..32767	1) 2) 5)
var(*list).TAPE-CONTR.STD-SAVE-F	*UNDEF <string 1..19>	2) 2)

(part 2 of 3)

Name of the S variable	Content	Footnote
var(*list).TAPE-CONTR.BLOCK-FACT	*STD *MAX 1..15	2) 2) 1) 2)
var(*list).TAPE-CONTR.UNLOAD-TAPE	*YES *NO	2) 2)
var(*list).TAPE-CONTR.STREAM-MODE	*YES *NO	2) 2)
var(*list).DISK-CONTR.PRIMARY-ALLOC	*STD 36..50331645	2) 6) 1) 2) 6)
var(*list).DISK-CONTR.SECONDARY-ALLOC	*STD 0..32767	2) 6) 1) 2) 6)
var(*list).DISK-CONTR.WRITE-CHECK	*NO *YES *SAVE-F *RESTORE-F	2) 6) 2) 6) 2) 6) 2) 6)
var(*list).DISK-CONTR.DESTROY-BY-DEL	*STD *YES *NO	2) 6) 2) 6) 2) 6)
var(*list).REQ-PRIO.READ	*STD 1..255	1) 2) 1) 2)
var(*list).REQ-PRIO.WRITE	*STD 1..255	1) 2) 1) 2)

(part 3 of 3)

- 1) The integer values are output in string format.
- 2) Output if //SHOW-ARCHIVE-ATTRIBUTES INFORMATION=\*ALL
- 3) Useable output only if USAGE=\*BACKUP/\*ARCHIVAL; otherwise output with blank character string
- 4) Useable output only if SAVE-FILE-STRUCTURE=\*SEVERAL-SVID; otherwise output with blank character string
- 5) Useable output only if NEW-STD-SAVE-FILE=\*IN-PERIOD; otherwise output with blank character string
- 6) Output with blank character string if USAGE=\*SHADOW
- 7) Useable output only if USAGE=\*SHADOW; otherwise output with blank character string
- 8) Useable output only if PARALLEL-RUNS=\*MULTIPLEXING; otherwise output with blank character string

For more detailed information on S variables, refer to the manual "Commands" [5].

## SHOW-HSMS-PARAMETERS

### Show HSMS parameters

This statement is for the HSMS administrator only and is used to display the current or permanent HSMS parameters.

In addition to output to SYSOUT or SYSLST or to a file, the statement also supports structured output to an S variable.

#### Format (only for HSMS administrators)

SHOW-HSMS-PARAMETERS	Alias: SHP
<pre> <b>VALID-PERIOD</b> = <u>*SESSION</u> / *PERMANENT , <b>OUTPUT</b> = *NONE / list-poss(2): <u>*SYSOUT</u> / *SYSLST , <b>STRUCTURE-OUTPUT</b> = <u>*SYSINF</u> / *NONE / &lt;composed-name 1..255&gt;(…)     &lt;composed-name 1..255&gt;(…)       <b>WRITE-MODE</b> = <u>*REPLACE</u> / *EXTEND </pre>	

#### **VALID-PERIOD =**

Determines whether the current or permanently valid HSMS parameters are to be displayed.

#### **VALID-PERIOD = \*SESSION**

The HSMS parameters valid for the current session are displayed.

#### **VALID-PERIOD = \*PERMANENT**

The permanently valid HSMS parameters are displayed.

#### **OUTPUT =**

Determines the output medium for the desired information. Output generally takes place to SYSLST for batch requests.

#### **OUTPUT = \*NONE**

The information is not output in text format.

#### **OUTPUT = \*SYSOUT**

The information is output to the logical system file SYSOUT, i.e. it is normally displayed on the screen in interactive mode.

#### **OUTPUT = \*SYSLST**

The information is output to the logical system file SYSLST. Each mask comprises 43 lines.

**STRUCTURE-OUTPUT =**

Controls structured output in S variables.

**STRUCTURE-OUTPUT = \*SYSINF**

Structured output is directed to the SYSINF S variable stream.

**STRUCTURE-OUTPUT = \*NONE**

No structured output takes place.

**STRUCTURE-OUTPUT = <composed-name 1..255>(…)**

Name of the S variable that is to be used for the structured output.

**WRITE-MODE =**

Determines whether the output should replace or complement the current content of the S variables.

**WRITE-MODE = \*REPLACE**

The current content of the S variable is replaced by the new output.

**WRITE-MODE = \*EXTEND**

The new output extends the current content of the S variable.



Key:

Column Values	Meaning
VALID-PERIOD	Indicates which control parameters (current or permanent) were requested in the operand of the same name.
HSMS-ACCOUNT	Account number for accounting resources used by HSMS server tasks.
HSMS-VERSION	Shows the current HSMS version.
SAVE-FILE-PROC HSMS-V9-COMP  HSMS-V10-COMP	Current mode of save file processing. <ul style="list-style-type: none"> <li>– Save files are created in the same way as in HSMS V9.0B and are completely supported by HSMS V9.0B. The functionality of HSMS introduced since V10.0A is not completely available.</li> <li>– The functionality of HSMS V10.0A is completely available. Save files on public disk and Net-Storage created in this mode are not supported by lower versions.</li> </ul>
<i>OPERATION-CONTROL</i>	<i>Information block with the parameters for starting HSMS.</i>
OPERATIONAL-MODUS OPERATION SIMULATION  DEFINE-SHOW	Indicates the HSMS operating mode. <ul style="list-style-type: none"> <li>– HSMS is run with the full range of functions.</li> <li>– All HSMS statements are permitted but action statements are only simulated.</li> <li>– Only HSMS statements which modify or output HSMS settings are permitted.</li> </ul>
NUMBER-OF-SUBTASK	Number of HSMS server tasks
COMMON-MEMORY-SIZE	Minimum size of the HSMS common memory pool in 1-Mbyte segments
HSMS-SV-PORT-NUMBER	<i>for compatibility reasons:</i> port number which HSMS-SV uses
FILE-SIZE-DEFAULT	Primary and secondary allocation for internal HSMS files
FILE-SIZE-RESULT	Primary and secondary allocation for internal HSMS result files

(part 1 of 4)

Column Values	Meaning
MONITORING NONE ALL BY-ARCHIVE-ATTRIBUTE	Indicates monitoring in an SE Server environment. – No requests are monitored regardless of the definition of the corresponding archive attribute or privilege of the user. – All requests are monitored regardless of the definition of the corresponding archive attribute. – If monitoring is performed, all requests concerning archives with the attribute MONITORING=*STD are monitored.
SYSHSMS-ONLY	– If monitoring is performed, only the following requests are monitored: – All requests concerning archives of the owner SYSHSMS. – Requests that do not concern archives (EXPORT- /IMPORT-FILES), if the run is started under a user ID with the HSMS-ADMINISTRATOR privilege.
OUTPUT PRINTER MAIL	Indicates the default destination for report output. – A report is to be directed to a printer. – A report is sent as an email attachment to the address which is entered in a caller's user entry. If it is not possible to send the report by email, it is printed out.
<i>DEFAULT-HSMS-STORAGE</i>	<i>Information block with the parameters for standard S1 pubset and standard system archives of the SF environment</i>
S1-PUBSET-ID	ID of pubset used as the default S1 pubset
S2-DEVICE-TYPE	Default device type for backups to S2
SYSMIGRATE	Name of the default system archive for migration
SYSBACKUP	Name of the default system archive for backup
SYSARCHIVE	Name of the default system archive for archival
SYSNODEBACKUP	Name of the default system archive for the backup of nodes
SYSNODEARCHIVE	Name of the default system archive for the archival of nodes
BACKUP-SERVER	Host name of the backup server

(part 2 of 4)

Column Values	Meaning
<i>MIGRATION-CONTROL</i>	<i>Information block with parameters for migration</i>
EXCEPT-FILE	Name of the except file containing the names of files to be excluded from migration
FILE-INHIBIT RESPECTED IGNORED	Indicates whether migration inhibits set by the user are respected. <ul style="list-style-type: none"> <li>– The user's migration inhibits are respected.</li> <li>– The user's migration inhibits are ignored.</li> </ul>
RECALL-FROM-S2  ALLOWED BATCH-ONLY NOT-ALLOWED	Indicates whether the BS2000 DMS may implicitly recall migrated files from storage level S2. <ul style="list-style-type: none"> <li>– Permitted in batch and dialog requests.</li> <li>– Permitted in batch requests only.</li> <li>– Not permitted.</li> </ul>
CANCEL-AT-RECALL ALLOWED NOT-ALLOWED	Displays whether cancel is permitted when a file is recalled <ul style="list-style-type: none"> <li>– Cancel is allowed</li> <li>– Cancel is not allowed</li> </ul>
MAXIMUM-WAIT-TIME	Specification in seconds defining how long HSMS is to wait for the user's response
BACKUP-MANDATORY	Indicates whether the migration of files which have not yet been backed up is permitted or not.
<i>REQUEST-WAIT-LIMITS</i>	<i>Information block with parameters for maximum wait times</i>
DIALOG-REQUEST-TIME	Maximum wait time for HSMS to respond to a dialog request
BATCH-REQUEST-TIME	Maximum wait time for HSMS to respond to a batch request
DIALOG-EXEC-TIME	Maximum wait time for HSMS to complete a dialog request
BATCH-EXEC-TIME	Maximum wait time for HSMS to complete a batch request

(part 3 of 4)

Column Values	Meaning
<i>DEFAULT-TAPE-CONTROL</i>	<i>Information block with parameters for tape processing</i>
READ-CONTROL PROCESS-REQUESTS HOLD-REQUESTS BY-TAPE-SESSIONS	Indicates tape sessions for read access. – Tape access is permitted at any time. – Tape access is temporarily disabled. – Tape access according to preset chronological pattern defined by tape sessions.
WRITE-CONTROL	Indicates tape session for write access. Settings shown are the same as for READ-CONTROL.
EXPRESS-CONTROL	Indicates tape sessions for express requests. Settings shown are the same as for READ-CONTROL.
START-TIME  IMMEDIATELY  <time>	Start time of the tape session for READ, WRITE and EXPRESS-CONTROL – Tape access is permitted as soon as the statement is issued or the HSMS session starts. – Time at which tape session starts.
PERIOD	Time in minutes which is to elapse between tape sessions for READ, WRITE and EXPRESS-CONTROL
<i>REQUEST-PRIORITIES</i>	<i>Information block with parameters for processing priorities of the different request types</i>
READ	Processing priority for read requests of the request type concerned
WRITE	Processing priority for write requests of the request type concerned
IMPORT/EXPORT	Import/export requests
IMPLICIT-RECALL	Implicit recall requests (only read requests are possible here)
BACKUP	Requests for a backup archive
ARCHIVAL	Requests for a long-term archive
MIGRATION	Requests for a migration archive
NODEBACKUP	Requests for a node backup archive
NODEARCHIVAL	Requests for a node long-term archive
SHADOW	Requests for a shadow archive

(part 4 of 4)

## Output in S variables

All variables are of the data type string.

Name of the S variable	Content	Footnote
var(*list).VALID-PERIOD	*SESSION *PERM	
var(*list).HSMS-ACCOUNT	*NONE <string 1..8>	
var(*list).SAVE-FILE-PROCESSING	*HSMS-V9-COMPATIBLE *HSMS-V10-COMPATIBLE	
var(*list).OPERATION-CONTR.OPERATION-MODE	*OPER *SIMULATION *DEFI-SHOW	
var(*list).OPERATION-CONTR.NUM-OF-SUB-TASK	0..99	1)
var(*list).OPERATION-CONTR.COMMON-MEM-SIZE	1..99	1)
var(*list).OPERATION-CONTR.HSMS-SV-PORT-NUM	1..65535	1)
var(*list).OPERATION-CONTR.PRI-ALLOC-DEFAULT	24..32767	1)
var(*list).OPERATION-CONTR.SEC-ALLOC-DEFAULT	24..32767	1)
var(*list).OPERATION-CONTR.PRI-ALLOC-RESULT	24..32767	1)
var(*list).OPERATION-CONTR.SEC-ALLOC-RESULT	24..32767	1)
var(*list).OPERATION-CONTR.MONITORING	*ALL *BY-ARCHIVE-ATTRIBUTE *SYSHSMS-ONLY *NONE	
var(*list).OPERATION-CONTR.OUTPUT	*PRINTER *MAIL	
var(*list).DEF-HSMS-STOR.S1-PUBSET	*UNDEF <string 1..4>	
var(*list).DEF-HSMS-STOR.S2-DEV-TYPE	<string 1..8>	
var(*list).DEF-HSMS-STOR.SYSMIGRATE	*UNDEF <string 1..22>	
var(*list).DEF-HSMS-STOR.SYSARCHIVE	UNDEF <string 1..22>	
var(*list).DEF-HSMS-STOR.SYSBACKUP	*UNDEF <string 1..22>	

(part 1 of 3)

Name of the S variable	Content	Footnote
var(*list).DEF-HSMS-STOR.SYSNODEARCHIVE	UNDEF <string 1..22>	
var(*list).DEF-HSMS-STOR.SYSNODEBACKUP	UNDEF <string 1..22>	
var(*list).DEF-HSMS-STOR.BACKUP-SERVER	*NONE *LOCALHOST <string 1..8>	
var(*list).MIGR-CONTR.EXCEPT-F	*NONE <string 1..54>	
var(*list).MIGR-CONTR.F-INHIBIT	*RESPECT *IGNORE	
var(*list).MIGR-CONTR.RECALL-FROM-S2	*ALLOW *BATCH-ONLY *NOT-ALLOW	
var(*list).MIGR-CONTR.CANCEL-AT-RECALL	*ALLOW *NOT-ALLOW	
var(*list).MIGR-CONTR.MAX-WAIT-TIME	10..3600	1) 2)
var(*list).MIGR-CONTR.BACKUP-MANDATORY	*YES *NO	
var(*list).REQ-WAIT-LIM.DIALOG-REQ-TIME	0..99999	1)
var(*list).REQ-WAIT-LIM.BATCH-REQ-TIME	0..99999	1)
var(*list).REQ-WAIT-LIM.DIALOG-EXEC-TIME	0..99999	1)
var(*list).REQ-WAIT-LIM.BATCH-EXEC-TIME	0..99999	1)
var(*list).DEF-TAPE-CONTR.READ-CONTR.STA	*PROC-REQ *HOLD-REQ *BY-TAPE-SESSION	
var(*list).DEF-TAPE-CONTR.READ-CONTR.START-TIME	*IMMED <string_1..8>	3) 3)
var(*list).DEF-TAPE-CONTR.READ-CONTR.PERIOD	*END-OF-DAY 1..1440	3) 1) 3)
var(*list).DEF-TAPE-CONTR.WRITE-CONTR.STA	*PROC-REQ *HOLD-REQ *BY-TAPE-SESSION	
var(*list).DEF-TAPE-CONTR.WRITE-CONTR.START-TIME	*IMMED <string_1..8>	4) 4)
var(*list).DEF-TAPE-CONTR.WRITE-CONTR.PERIOD	*END-OF-DAY 1..1400	4) 1) 4)

(part 2 of 3)

Name of the S variable	Content	Footnote
var(*list).DEF-TAPE-CONTR.EXPRESS-CONTR.STA	*PROC-REQ *HOLD-REQ *BY-TAPE-SESSION	
var(*list).DEF-TAPE-CONTR.EXPRESS-CONTR.START-TIME	*IMMED <string_1..8>	5) 5)
var(*list).DEF-TAPE-CONTR.EXPRESS-CONTR.PERIOD	*END-OF-DAY 1..1440	5) 1) 5)
var(*list).REQ-PRIO.IMP	1..255	1)
var(*list).REQ-PRIO.EXP	1..255	1)
var(*list).REQ-PRIO.IMPL-RECALL	1..255	1)
var(*list).REQ-PRIO.BACKUP-READ	1..255	1)
var(*list).REQ-PRIO.BACKUP-WRITE	1..255	1)
var(*list).REQ-PRIO.ARCHIVAL-READ	1..255	1)
var(*list).REQ-PRIO.ARCHIVAL-WRITE	1..255	1)
var(*list).REQ-PRIO.MIGR-READ	1..255	1)
var(*list).REQ-PRIO.MIGR-WRITE	1..255	1)
var(*list).REQ-PRIO.NODEBACKUP-READ	1..255	1)
var(*list).REQ-PRIO.NODEBACKUP-WRITE	1..255	1)
var(*list).REQ-PRIO.NODEARCHIVAL.READ	1..255	1)
var(*list).REQ-PRIO.NODEARCHIVAL.WRITE	1..255	1)
var(*list).REQ-PRIO.SHADOW-READ	1..255	1)
var(*list).REQ-PRIO.SHADOW-WRITE	1..255	1)
var(*list).CN-CTRL.PRIM-CN-NAME	*NONE <string_1..48>	
var(*list).CN-CTRL.PRIM-CN-IP-ADDR	*NONE <string_1..15>	
var(*list).CN-CTRL.SEC-CN-NAME	*NONE <string_1..48>	
var(*list).CN-CTRL.SEC-CN-IP-ADDR	*NONE <string_1..15>	

(part 3 of 3)

- 1) The integer values are output in string format.
- 2) Useable output only if CANCEL-AT-RECALL=\*ALLOW; otherwise output with blank character string

- 3) Useable output only if READ-CONTR.STA=\*BY-TAPE-SESSION; otherwise output with blank character string
- 4) Useable output only if WRITE-CONTR.STA=\*BY-TAPE-SESSION; otherwise output with blank character string
- 5) Useable output only if EXPRESS-CONTR.STA=\*BY-TAPE-SESSION; otherwise output with blank character string

For more detailed information on S variables, refer to the manual "Commands" [5].

## SHOW-MANAGEMENT-CLASS

### Show attributes of management classes

This statement is used to output the attributes of management classes which were defined for an SM pubset under HSMS control.

The statement has the same format for nonprivileged users and HSMS administrators.

#### Note

If a management class is protected by a guard profile which is not available, access to the management class is suppressed.

#### Format

<b>SHOW-MANAGEMENT-CLASS</b>	Alias: <b>SMC</b>
<pre> <b>ENVIRONMENT</b> = *SYSTEM-MANAGED(...)   *SYSTEM-MANAGED(...)         <b>CATALOG-ID</b> = &lt;cat-id&gt; <b>,MANAGEMENT-CLASS</b> = *ALL / &lt;alphanum-name 1..8&gt; <b>,INFORMATION</b> = *SUMMARY / *ALL <b>,OUTPUT</b> = list-poss(2): *SYSOUT / *SYSLST </pre>	

#### **ENVIRONMENT =**

Defines the HSMS environment in which the management class is defined.

#### **ENVIRONMENT = \*STD**

*This operand value is rejected for HSMS administrators.*

\*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

For users whose default pubset is an SF pubset, the value \*STD is rejected.

#### **ENVIRONMENT = \*SYSTEM-MANAGED(...)**

A management class can only be defined in a system-managed environment.

#### **CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset where the management class is defined.

The SM pubset must be imported locally.

**MANAGEMENT-CLASS =**

The name of the management class is specified.

Nonprivileged users are only given information about management classes if they have access permission to them.

**MANAGEMENT-CLASS = \*ALL**

All management classes of the specified environment are output.

**MANAGEMENT-CLASS = <alphanum-name 1..8>**

Explicit name of the management class in the specified environment.

**INFORMATION = \*SUMMARY**

For each management class only the following attributes are output in table format:

- Name of the management class
- Protection attribute (for HSMS administrators also the name of the guard profile)
- Owner ID
- Creation date
- Date of the last modification

Details on the content of the screen mask are provided in the section [“Output with INFORMATION=\\*SUMMARY” on page 593.](#)

**INFORMATION = \*ALL**

For each management class the name and all attributes are output.

HSMS administrators are also shown the name of the guard profile.

Details on the content of the screen mask are provided in the section [“Output with INFORMATION=\\*ALL” on page 594.](#)

**OUTPUT =**

Determines the output medium for the required information. Batch requests are always output to SYSLST.

**OUTPUT = \*SYSOUT**

The information is output to the logical system file SYSOUT, i.e. normally in the dialog on the screen.

**OUTPUT = \*SYSLST**

The information is output to the logical system file SYSLST. Each mask comprises 43 lines.





<b>Column Values</b>	<b>Meaning</b>
MIGRATION-FROM-S1-LEVEL:	<i>Attributes of the management class for migration from the S1 level:</i>
MINIMUM-DAYS-ON-S1	Minimum number of days a save file must reside on S1 to be eligible for migration to a background level
MAXIMUM-DAYS-ON-S1	Maximum number of days a save file may reside on S1 to be eligible for migration to a background level
MINIMUM-SIZE	Minimum number of PAM pages that a save file must have in order to be eligible for migration to a background level
TO-STORAGE	Background level to which the save files on S1 level are to be migrated
BACKUP-ATTRIBUTES:	<i>Attributes for volume protection:</i>
RETENTION-PERIOD	(Physical) retention period in days during which the save file and the save volumes must not be modified or deleted
USER-INFORMATION	User information about the management class

(part 2 of 2)

## SHOW-NODE-PARAMETERS

### Show node S0 parameters

This statement is for the HSMS administrator only. It is used to display the parameters of node S0s under HSMS management.

In addition to output to SYSOUT or SYSLST or to a file, the statement also supports structured output to an S variable.

#### Format (only for HSMS administrators)

SHOW-NODE-PARAMETERS	Alias: <b>SNP</b>
<p><b>NODE-ID</b> = <u>*ALL</u> / *BS2000-UFS / *BY-ATTRIBUTES(...) / &lt;posix-filename 1..48 without-wild&gt;</p> <p>*BY-ATTRIBUTES(...)</p> <ul style="list-style-type: none"> <li>  <b>SYSNODEBACKUP</b> = <u>*ANY</u> / &lt;filename 1..22 without-cat-gen-vers&gt;</li> <li>  <b>SYSNODEARCHIVE</b> = <u>*ANY</u> / &lt;filename 1..22 without-cat-gen-vers&gt;</li> </ul> <p>,<b>ENVIRONMENT</b> = <u>*NODE-STD</u> / *SINGLE-FEATURE / *SYSTEM-MANAGED(...)</p> <p>*SYSTEM-MANAGED(...)</p> <ul style="list-style-type: none"> <li>  <b>CATALOG-ID</b> = &lt;cat-id&gt;</li> </ul> <p>,<b>OUTPUT</b> = *NONE / list-poss(2): <u>*SYSOUT</u> / *SYSLST</p> <p>,<b>STRUCTURE-OUTPUT</b> = <u>*SYSINF</u> / *NONE / &lt;composed-name 1..255&gt;(...</p> <p>&lt;composed-name 1..255&gt;(...</p> <ul style="list-style-type: none"> <li>  <b>WRITE-MODE</b> = <u>*REPLACE</u> / *EXTEND</li> </ul>	

#### **NODE-ID =**

Determines the node S0s whose parameters are to be displayed. The node S0s must have been brought under HSMS management with MODIFY-NODE-PARAMETERS.

#### **NODE-ID = \*ALL**

The parameters of all node S0s under HSMS management and in the specified environment are displayed.

#### **NODE-ID = \*BS2000-UFS**

The parameters of the central BS2000-UFS are displayed.

**NODE-ID = \*BY-ATTRIBUTES(...)**

The node S0s whose parameters are to be displayed are selected by their attributes.

**SYSNODEBACKUP = \*ANY**

The node S0s are selected irrespective of their default system archive for backup.

**SYSNODEBACKUP = <filename 1..22 without-cat-gen-vers>**

Displays only the parameters of node S0s to which the specified archive has been assigned as the default system archive for backup.

**SYSNODEARCHIVE = \*ANY**

The node S0s are selected irrespective of their default system archive for long-term archival.

**SYSNODEARCHIVE = <filename 1..22 without-cat-gen-vers>**

Displays only the parameters of node S0s to which the specified archive has been assigned as the default system archive for long-term archival.

**NODE-ID = <posix-filename 1..48 without-wild>**

Name of the node S0 whose parameters are to be displayed.

**ENVIRONMENT =**

HSMS environment in which the selected nodes are defined.

**ENVIRONMENT = \*NODE-STD**

The environment is derived from the NODE-ID operand.

For a workstation, it is the environment in which the HSMS statement MODIFY-NODE-PARAMETERS is performed.

For a privileged user under BS2000-UFS, it is the SINGLE-FEATURE environment; for the nonprivileged user \*NODE-STD takes the value of the environment in which the home directory of the user is defined.

If the selected node S0s have different environments, the statement is rejected with message HSM0530. If SM environments are also used, the S0 node must be specified precisely.

**ENVIRONMENT = \*SINGLE-FEATURE**

The statement only relates to the SF environment.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The statement only relates to the specified SM pubset environment.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset for which the statement is valid.

**OUTPUT =**

Determines the output medium for the desired information. Output generally takes place to SYSLST for batch requests.

**OUTPUT = \*NONE**

The information is not output in text format.

**OUTPUT = \*SYSOUT**

The information is output to the logical system file SYSOUT, i.e. it is normally displayed on the screen in interactive mode.

**OUTPUT = \*SYSLST**

The information is output to the logical system file SYSLST. Each mask comprises 43 lines.

**STRUCTURE-OUTPUT =**

Controls structured output in S variables (for the variable layout see [page 600](#)).

**STRUCTURE-OUTPUT = \*SYSINF**

Structured output is directed to the SYSINF S variable stream.

**STRUCTURE-OUTPUT = \*NONE**

No structured output is required.

**STRUCTURE-OUTPUT = <composed-name 1..255>(…)**

Name of the S variable that is to be used for the structured output.

**WRITE-MODE =**

Determines whether the output should replace or complement the current content of the S variables.

**WRITE-MODE = \*REPLACE**

The current content of the S variable is to be replaced by the new output.

**WRITE-MODE = \*EXTEND**

The new output extends the current content of the S variable.



**Output in S variables**

All variables are of the data type string.

<b>Name of the S variable</b>	<b>Content</b>	<b>Footnote</b>
var(*LIST).NODE-ID	*BS2000-UFS <string 1..48>	
var(*LIST).REMOTE-NODE	*YES *NO	
var(*LIST).SYSNODEBACKUP	*STD <string 1..22>	
var(*LIST).SYSNODEARCHIVE	*STD <string 1..22>	
var(*LIST).MIN-HSMS-VERSION	<string 3..3>	

For more detailed information on S variables, refer to the manual “Commands” [5].

## SHOW-PUBSET-PARAMETERS

### Show SF pubset parameters

This statement is for the HSMS administrator only. It is used to display the parameters of SF pubsets provided these were set up with MODIFY-PUBSET-PARAMETERS.

In addition to output to SYSOUT or SYSLST or to a file, the statement also supports structured output to an S variable.

#### Format (only for HSMS administrators)

SHOW-PUBSET-PARAMETERS	Alias: SPP
<pre> <b>PUBSET-ID</b> = <u>*ALL</u> / <u>*BY-ATTRIBUTES(...)</u> / &lt;cat-id&gt;   <u>*BY-ATTRIBUTES(...)</u>             <b>STORAGE-LEVEL</b> = <u>*ANY</u> / <u>*S0</u> / <u>*S1</u>       ,<b>S1-PUBSET-ID</b> = <u>*ANY</u> / &lt;cat-id&gt;       ,<b>SYSBACKUP</b> = <u>*ANY</u> / &lt;filename 1..22 without-cat-gen-vers&gt;       ,<b>SYSARCHIVE</b> = <u>*ANY</u> / &lt;filename 1..22 without-cat-gen-vers&gt;       ,<b>SYSMIGRATE</b> = <u>*ANY</u> / &lt;filename 1..22 without-cat-gen-vers&gt;   ,<b>OUTPUT</b> = <u>*NONE</u> / list-poss(2): <u>*SYSOUT</u> / <u>*SYSLST</u>   ,<b>STRUCTURE-OUTPUT</b> = <u>*SYSINF</u> / <u>*NONE</u> / &lt;composed-name 1..255&gt;(…)     &lt;composed-name 1..255&gt;(…)             <b>WRITE-MODE</b> = <u>*REPLACE</u> / <u>*EXTEND</u>           </pre>	

#### **PUBSET-ID =**

Determines the SF pubsets and S1-SM-pubsets whose parameters are to be displayed.

#### **PUBSET-ID = \*ALL**

The parameters of all SF pubsets and S1-SM-pubsets which are under HSMS management are displayed.

#### **PUBSET-ID = \*BY-ATTRIBUTES(...)**

The SF pubsets whose parameters are to be displayed are selected by their attributes.

#### **STORAGE-LEVEL = \*ANY**

The SF pubsets are selected irrespective of the storage level to which they are assigned. Additionally all S1-SM-pubsets are selected.

#### **STORAGE-LEVEL = \*S0**

Displays only the parameters of SF pubsets assigned to storage level S0.

**STORAGE-LEVEL = \*S1**

Displays only the parameters of SF pubsets assigned to storage level S1 and of S1-SM-pubsets.

**S1-PUBSET-ID =**

You can restrict the selection of the SF pubsets further according to their assigned S1 pubset.

**S1-PUBSET-ID = \*ANY**

The SF pubsets are selected irrespective of their assigned S1 pubset.

**S1-PUBSET-ID = <cat-id>**

Selects only of SF pubsets to which the specified pubset is assigned as the S1 pubset.

**SYSBACKUP = \*ANY**

The SF pubsets are selected irrespective of their default system archive for backup.

**SYSBACKUP = <filename 1..22 without-cat-gen-vers>**

Displays only the parameters of SF pubsets to which the specified archive is assigned as the default system archive for backup.

**SYSARCHIVE = \*ANY**

The SF pubsets are selected irrespective of their default system archive for archival.

**SYSARCHIVE = <filename 1..22 without-cat-gen-vers>**

Selects only SF pubsets to which the specified archive is assigned as the default system archive for archival.

**SYSMIGRATE = \*ANY**

The SF pubsets are selected irrespective of their default system archive for migration.

**SYSMIGRATE = <filename 1..22 without-cat-gen-vers>**

Selects only SF pubsets to which the specified archive is assigned as the default system archive for migration.

**PUBSET-ID = <cat-id>**

ID of the SF pubset or S1-SM-pubset whose parameters are to be displayed.

**OUTPUT =**

Determines the output medium for the desired information. Output generally takes place to SYSLST for batch requests.

**OUTPUT = \*NONE**

The information is not output in text format.

**OUTPUT = \*SYSOUT**

The information is output to the logical system file SYSOUT, i.e. it is normally displayed on the screen in interactive mode.

**OUTPUT = \*SYSLST**

The information is output to the logical system file SYSLST. Each mask comprises 43 lines.

**STRUCTURE-OUTPUT =**

Controls structured output in S variables (for the variable layout see [page 605](#)).

**STRUCTURE-OUTPUT = \*SYSINF**

Structured output is directed to the SYSINF S variable stream.

**STRUCTURE-OUTPUT = \*NONE**

No structured output is required.

**STRUCTURE-OUTPUT = <composed-name 1..255>(…)**

Name of the S variable that is to be used for the structured output.

**WRITE-MODE =**

Determines whether the output should replace or complement the current content of the S variables.

**WRITE-MODE = \*REPLACE**

The current content of the S variable is to be replaced by the new output.

**WRITE-MODE = \*EXTEND**

The new output extends the current content of the S variable.



**Output in S variables**

All variables are of the data type string.

<b>Name of the S variable</b>	<b>Content</b>	<b>Footnote</b>
var(*LIST).PUBSET	<string_1..4>	
var(*LIST).STOR-LEV	*UNDEF *S0 *S1	
var(*LIST).SYSBACKUP	*STD <string_1..22>	
var(*LIST).SYSARCHIVE	*STD <string_1..22>	
var(*LIST).SYSMIGRATE	*STD <string_1..22>	1) 1)
var(*LIST).S1-PUBSET	*STD <string_1..4>	1) 1)
var(*LIST).MIGR	*ALLOW *S2-ONLY *INHIBIT	1) 1) 1)

- 1) Useable output only if STORAGE-LEVEL=\*S0; otherwise output with blank character string

For more detailed information on S variables, refer to the manual "Commands" [5].

## SHOW-PUBSET-USAGE

### Show pubset usage

This statement is for the HSMS administrator only and is used to display the usage and assignment of one or more pubsets in an environment.

#### Format (only for HSMS administrators)

SHOW-PUBSET-USAGE	Alias: <b>SPU</b>
<b>ENVIRONMENT</b> = <u>*SINGLE-FEATURE(...)</u> / <u>*SYSTEM-MANAGED(...)</u> <u>*SINGLE-FEATURE(...)</u> <b>PUBSET-ID</b> = <u>*ALL</u> / <cat-id> <b>INFORMATION</b> = <u>*SUMMARY</u> / <u>*UNUSED-DAYS(...)</u> / <u>*REUSABLE-S1-SPACE(...)</u> / <u>*MIGRATION-EVALUATION</u> <u>*UNUSED-DAYS(...)</u> <b>MINIMUM-SIZE</b> = <u>*NONE</u> / <integer 0..2147483647 2Kbyte> <b>MINIMUM-UNUSED-DAYS</b> = <integer 0..9999 days> <b>MAXIMUM-UNUSED-DAYS</b> = <integer 0..9999 days> <u>*REUSABLE-S1-SPACE(...)</u> <b>MINIMUM-DAYS-ON-S1</b> = <u>0</u> / <integer 0..9999 days> <b>MAXIMUM-DAYS-ON-S1</b> = <u>9999</u> / <integer 0..9999 days> <b>MINIMUM-SIZE</b> = <u>*NONE</u> / <integer 1..2147483647 2Kbyte> <b>ARCHIVE-NAME</b> = <u>*SYSMIGRATE</u> / <filename 1.22 without-cat-gen-vers> <u>*SYSTEM-MANAGED(...)</u> <b>INFORMATION-LEVEL</b> = <u>*GLOBAL(...)</u> <u>*GLOBAL(...)</u> <b>CATALOG-ID</b> = <cat-id> <b>INFORMATION</b> = <u>*REUSABLE-S1-SPACE(...)</u> / <u>*MIGRATION-EVALUATION</u> <u>*REUSABLE-S1-SPACE(...)</u> <b>MINIMUM-DAYS-ON-S1</b> = <u>0</u> / <integer 0..9999 days> <b>MAXIMUM-DAYS-ON-S1</b> = <u>9999</u> / <integer 0..9999 days> <b>MINIMUM-SIZE</b> = <u>*NONE</u> / <integer 1..2147483647 2Kbyte> <b>ARCHIVE-NAME</b> = <u>*SYSMIGRATE</u> / <filename 1..22 without-cat-gen-vers> <b>OUTPUT</b> = list-poss(2): <u>*SYSOUT</u> / <u>*SYSLST</u>	

**ENVIRONMENT = \*SINGLE-FEATURE(...)**

The statement only processes SF pubsets or S1-SM-pubsets.

**PUBSET-ID = \*ALL**

The usage of all pubsets imported in master mode is displayed.

**PUBSET-ID = <cat-id>**

ID of the pubset whose usage is to be displayed. The pubset must be imported in master mode. It may also be an S1-SM-pubset.

**INFORMATION = \*SUMMARY**

A summary containing the following information for each pubset is displayed:

- catalog ID
- storage level (S0, S1, UNDEFINED)
- total capacity in PAM pages
- percentage of used, free and migrated pages.

The following additional information is displayed for S0 pubsets:

- total number of pages migrated to S1
- number of used and free pages on the allocated S1 pubset.

Details on the content of the screen mask are provided in the section [“Output with INFORMATION=\\*SUMMARY” on page 612](#).

**INFORMATION = \*UNUSED-DAYS(...)**

A summary of the inactive files on a pubset is displayed. The period, amounting to 9999 days before the date in question, is divided into individual intervals. One line is displayed on the summary table for each interval:

- beginning and end of interval (e.g. 100-199 days)
- number of files which have not been accessed since this time
- storage space occupied by these files.

This summary does not include the following:

- migrated files
- temporary user and system files
- files which have been cataloged but not processed.

Output depends on the specifications for MINIMUM and MAXIMUM-UNUSED-DAYS. These entries define a main interval which is divided into smaller equal subintervals. The total number of files and the occupied storage space are displayed on the first line of the summary table for the files which were not accessed before MINIMUM-UNUSED-DAYS.

The same information is displayed on the last line for files which were not accessed after MAXIMUM-UNUSED-DAYS.

Details on the content of the screen mask are provided in the section [“Output with INFORMATION=\\*UNUSED-DAYS” on page 613.](#)

**MINIMUM-SIZE = \*NONE / <integer 1..2147483647 2Kbyte>**

The files included in the summary can be selected according to their minimum size in PAM pages.

Unless otherwise specified, the files are selected irrespective of their minimum size.

**MINIMUM-UNUSED-DAYS = <integer 0..9999 days>**

Beginning of main interval (see above).

**MAXIMUM-UNUSED-DAYS = <integer 0..9999 days>**

End of main interval (see above).

**INFORMATION = \*REUSABLE-S1-SPACE(...)**

Provides information about the specified SF pubset's S1 pubset. Displays a summary containing the space to be obtained through reorganization for selectable save files in the specified migration archive.

The save files are divided according to amount of unused space into intervals of 10%, i.e. 0% – 10%, 10% – 20% etc.

The following is displayed in a table for each of these intervals:

- number of save files
- number of PAM pages occupied by the save files
- number of unused PAM pages in these save files.

The total number of save files is also displayed.

Details on the content of the screen mask are provided in the section [“Output with INFORMATION=\\*REUSABLE-S1-SPACE” on page 614.](#)

For compressed save files, the percentage is not calculated as the ratio between unused and used pages but rather as the ratio between the number of invalid and valid files.

**MINIMUM-DAYS-ON-S1 = 0 / <integer 0..9999 days>**

The save files included in the summary can be selected according to the minimum number of days they have been residing on S1.

Unless otherwise specified, the save files are selected irrespective of the number of days they have been residing on S1.

**MAXIMUM-DAYS-ON-S1 = 9999 / <integer 0..9999 days>**

The save files included in the summary can be selected according to the maximum number of days they have been residing on S1.

Unless otherwise specified, the save files are selected irrespective of the number of days they have been on S1.

**MINIMUM-SIZE = \*NONE / <integer 1..2147483647 2KByte>**

The save files included in the summary can be selected according to their minimum PAM page size.

Unless otherwise specified, the save files are selected irrespective of their size.

**ARCHIVE-NAME = \*SYSMIGRATE / <filename 1..22 without-cat-gen-vers>**

Name of the migration archive.

If the archive directory is protected by a password, this password must first be entered by means of the ADD-PASSWORD command.

**ARCHIVE-NAME = \*SYSMIGRATE**

Default system archive for migration (SYSMIGRATE) on the specified pubset.

**INFORMATION = \*MIGRATION-EVALUATION**

*For S0 pubsets only:*

displays a summary of inconsistent migrated files. A distinction is made between the following:

- A file is not contained (with the same CFID as in the catalog) in the migration archive (NOT-IN-ARC). The file can therefore not be recalled.
- According to the catalog entry (PUB/S1), a file was migrated to storage level S1 but is not contained in a save file there.

For the specified pubset (or all of them), the inconsistent files are displayed for each user ID in a table, indicating the type of inconsistency.

Details on the content of the screen mask are provided in the section [“Output with INFORMATION=\\*MIGRATION-EVALUATION” on page 616](#).

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The statement only processes SM pubsets.

**INFORMATION-LEVEL = \*GLOBAL(...)**

The information for the specified SM pubset is output globally.

**CATALOG-ID = <cat-id>**

ID of the SM pubsets whose usage is to be output. The pubset must be available (imported).

**INFORMATION = \*REUSABLE-S1-SPACE(...)**

Information is output about the S1 volume set of the specified SM pubset.

An overview is displayed showing the space for selectable save files of the specified migration archive that is to be obtained for reorganization.

The save files are assigned in accordance with the size of the unused space at intervals of 10% increments, i.e. 0% – 10%, 10% – 20%.

A table is output for each of these intervals with the:

- number of save files
- number of PAM pages occupied by the save files
- number of PAM pages not used in these save files

Furthermore, the grand total of save files is also output.

Details on the content of the screen mask are provided in the section [“Output with INFORMATION=\\*REUSABLE-S1-SPACE” on page 614](#).

Where save files are compressed, the percentage is calculated not as a ratio of the unused to used pages but as a ratio of the number of invalid to valid files.

*Notes*

Depending on how the S1-VOLUME-SET is defined the behaviour is as follows:

- S1 volume set is defined by a single volume set (S1-VOLUME-SET=<cat-id>):  
The values for the specific volume set are output.
- S1 volume set is defined by all HSMS-CONTROLLED volume sets (S1-VOLUME-SET=\*ALL-HSMS-CONTROLLED):  
Sums of the respective values of all volume sets that are defined as HSMS-CONTROLLED are output.

**MINIMUM-DAYS-ON-S1 = 0 / <integer 0..9999 days>**

The save files included in the overview can be selected using the minimum number of days they have been on S1 as the selection criterion.

Unless otherwise specified, the save files are selected irrespective of this information.

**MAXIMUM-DAYS-ON-S1 = 9999 / <integer 0..9999 days>**

The save files included in the overview can be selected using the maximum number of days they have been on S1 as the selection criterion.

Unless otherwise specified, the save files are selected (more or less) irrespective of this information.

**MINIMUM-SIZE = \*NONE / <integer 1..2147483647 2Kbyte>**

The save files included in the overview can be selected using their minimum size in PAM pages as the selection criterion.

Unless otherwise specified, the save files are selected irrespective of this information.

**ARCHIVE-NAME = \*SYSMIGRATE / <filename 1..22 without-cat-gen-vers>**

Name of the migration archive.

If the archive directory is protected by a password, this password must be entered by means of the ADD-PASSWORD command prior to statement entry.

**ARCHIVE-NAME = \*SYSMIGRATE**

Default system archive for migration (SYSMIGRATE) of the specified SM pubset.

**INFORMATION = \*MIGRATION-EVALUATION**

An overview of the inconsistent, migrated files of the specified SM pubset is output.

A distinction is made between two different possibilities:

- A file is not listed at all in the migration archive (with the same CFID as in the catalog) (NOT-IN-ARC). However, the file still can be recalled if the save file with the data exists and is not corrupt.
- A file was migrated to the S1 storage level – according to the current S1 volume set of the SM pubset – but is not located there in a save file.

The inconsistent files are output in a table for each user ID in the specified SM pubset with specification of the type of inconsistency.

Details on the content of the screen mask are provided in the section [“Output with INFORMATION=\\*MIGRATION-EVALUATION” on page 616](#).

**OUTPUT =**

Determines the output medium for the desired information. Output generally takes place to SYSLST for batch requests.

**OUTPUT = \*SYSOUT**

The information is output to the logical system file SYSOUT, i.e. it is normally displayed on the screen in interactive mode.

**OUTPUT = \*SYSLST**

The information is output to the logical system file SYSLST. Each mask comprises 43 lines.







*Key:*

<b>Column</b>	<b>Meaning</b>
PUBSET	<i>In an SF environment only:</i> Pubset ID of the displayed pubset
VOLSET	<i>In an SM environment only:</i> Volume set of the SM pubset or *ALL if the S1 volume set is defined by all HSMS-CONTROLLED volume sets.
CAPACITY	Pubset capacity in PAM pages
%USED	Percentage of used pages
%AVAIL	Percentage of free pages
% UNUSED-SPACE	Percentage of invalid save files
#SAVE-FILES	Number of save files in this interval
#PAGES	Number of pages occupied by save files in this interval
#UNUSED-PAGES	Number of pages unused by save files in this interval



*Key:*

<b>Column Values</b>	<b>Meaning</b>
INCONSISTENT FILE	Name of the inconsistent file
ERROR NOT-IN-ARC NO-S1-DATA S1-NOT-DEF S1 NOT-AVL ER-SEQ-NUM	Type of inconsistency – File not in migration archive – File not in a save file on S1. – At least one of the parts of a save file which consists of several parts and contains data of the migrated file does not exist (in case of extended S1 level for a SM pubset). The data of the file can be accessed with the help of //REPAIR-CATALOG-BY-RESTORE. – No S1 pubset resp. S1 volume set is assigned to the specified S0 pubset in HSMS. – The S1 pubset resp. S1 volume set assigned to the specified S0 pubset is not available. – Incorrect tape sequence number. Use //REPAIR-CATALOG-BY-EXCHANGE to correct information. – Wrong volume set(s) in the catalog entry of the migrated file or incorrect sequence number of the volume set(s) (in SM pubset environment).

## SHOW-REQUESTS

### Show requests

This statement is used to display requests in the request file. Each HSMS user can check the current status of his own requests. The HSMS administrator can output all requests and evaluate the load on the HSMS subsystem.

The requests displayed in the output mask can be deleted by marking them with a special delete flag (as an alternative to the DELETE-REQUEST statement).

The request file of the SF environment is managed in the home pubset, but the request file of each SM environment in the relevant SM pubset. The preset value ENVIRONMENT=\*ALL causes the requests to be output from the SF environment and all existing SM environments. To obtain the requests only from a particular environment you must enter the relevant value in the ENVIRONMENT operand. Furthermore there are consequences for shared pubset operation.

Archiving and EXPORT requests are global requests which are always entered in the HSMS global request file. If only these requests are to be output the user whose standard pubset is an SM pubset must enter the value \*SINGLE-FEATURE in the ENVIRONMENT operand.

COPY-SAVE-FILE requests are entered in the target environment. To output such requests therefore, you must specify the target environment in SHOW-REQUESTS.

The screen masks for the SF and the SM environment are very similar. The screen mask for the SM environment displays information about the processing inhibits on SM pubsets.

In addition to output to SYSOUT or SYSLST or to a file, the statement also supports structured output to an S variable.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

## Format

SHOW-REQUESTS	Alias: SHR
<p><b>REQUEST-NAME</b> = <u>*ANY</u> / &lt;name 1..8&gt;</p> <p><b>ENVIRONMENT</b> = <u>*ALL</u> / <u>*STD</u> / <u>*NODE-STD</u> / <u>*SINGLE-FEATURE</u> / <u>*SYSTEM-MANAGED</u>(...)</p> <p>    <u>*SYSTEM-MANAGED</u>(...)</p> <p>            <b>CATALOG-ID</b> = &lt;cat-id&gt;</p> <p><b>REQUEST-DATE</b> = <u>*INTERVAL</u>(...) / <u>*LATEST</u> / &lt;date with-compl&gt;(…)</p> <p>    <u>*INTERVAL</u>(...)</p> <p>            <b>CREATED-BEFORE</b> = <u>*LATEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;</p> <p>            <b>CREATED-AFTER</b> = <u>*EARLIEST-DATE</u> / &lt;date with-compl&gt; / &lt;integer -99999..0 days&gt;</p> <p>    &lt;date with-compl&gt;(…)</p> <p>            <b>TIME</b> = &lt;time&gt;</p> <p><b>REQUEST-ORIGIN</b> = <u>*BS2000</u>(...) / <u>*NODE-CL</u>(...)</p> <p>    <u>*BS2000</u>(...)</p> <p>            <b>USER-ID</b> = <u>*OWN</u> / <u>*ALL</u> / &lt;name 1..8&gt;</p> <p>    <u>*NODE-CL</u>(...)</p> <p>            <b>NODE-ID</b> = <u>*ALL</u> / &lt;posix-filename 1..48 without-wild&gt;</p> <p><b>REQUEST-STATE</b> = <u>*ANY</u> / <u>*COMPLETED</u> / <u>*ACCEPTED</u> / <u>*STARTED</u> / <u>*INTERRUPTED</u></p> <p><b>ARCHIVE-NAME</b> = <u>*ALL</u> / &lt;filename 1..22 without-cat-gen-vers&gt;</p> <p><b>INFORMATION</b> = <u>*SUMMARY</u> / <u>*ALL</u></p> <p><b>OUTPUT</b> = <u>*NONE</u> / list-poss(2): <u>*SYSOUT</u> / <u>*SYSLST</u></p> <p><b>STRUCTURE-OUTPUT</b> = <u>*SYSINF</u> / <u>*NONE</u> / &lt;composed-name 1..255&gt;(…)</p> <p>    &lt;composed-name 1..255&gt;(…)</p> <p>            <b>WRITE-MODE</b> = <u>*REPLACE</u> / <u>*EXTEND</u></p>	

**REQUEST-NAME =**

Serves to select the requests to be displayed using the request name as the selection criterion.

The default name specified via the action statement or assigned by HSMS is extended internally by a prefix formed by the user ID and a suffix in the form of a time stamp. Since the name by itself need not be unique, it can be used to refer to more than one request at a time.

**REQUEST-NAME = \*ANY**

The requests are to be selected irrespective of their names.

**REQUEST-NAME = <name 1..8>**

Displays only requests with the specified name.

**ENVIRONMENT =**

Defines the HSMS environment from which requests are output.

**ENVIRONMENT = \*ALL**

The requests from the SF environment and from all existing SM environments are output. The screen masks for information output are formatted exactly as for the output for a particular HSMS environment. If no requests can be shown for one of the environments displayed no particular message to this effect is issued. A message is output only if no requests at all can be displayed.

**ENVIRONMENT = \*STD**

The HSMS statement relates to the default environment for DMS requests:

- *For privileged users:* \*STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*STD is the environment that is associated with the user's default pubset (the default pubset is defined in the user catalog).

**ENVIRONMENT = \*NODE-STD**

The HSMS statement relates to the default environment for node requests:

- *For privileged users:* \*NODE-STD is set to the value \*SINGLE-FEATURE.
- *For nonprivileged users:* \*NODE-STD is set to the value of the environment in which the home directory of the user is defined.

**ENVIRONMENT = \*SINGLE-FEATURE**

Only the requests from the SF environment are output.

**ENVIRONMENT = \*SYSTEM-MANAGED(...)**

Only the requests from the specified SM pubset environment are output.

**CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**REQUEST-DATE =**

Serves to select the requests to be displayed using the creation date as the selection criterion.

**REQUEST-DATE = \*INTERVAL(...)**

The requests to be displayed are to be selected using a time interval as the selection criterion. The interval includes all requests created between CREATED-AFTER and CREATED-BEFORE.

Unless otherwise specified, all requests, starting with the one created first (\*EARLIEST-DATE) up to the one created last (\*LATEST-DATE), are selected.

**CREATED-BEFORE = \*LATEST-DATE**

The requests are to be displayed irrespective of whether they were created before a specific date.

**CREATED-BEFORE = <date with-compl>**

Displays only requests created on or before the specified date.

**CREATED-BEFORE = <integer -99999..0 days>**

Displays only requests created on or before the specified relative date.

**CREATED-AFTER = \*EARLIEST-DATE**

The requests are to be restarted irrespective of whether they were created after a specific date.

**CREATED-AFTER = <date with-compl>**

Displays only requests created on or after the specified date.

**CREATED-AFTER = <integer -99999..0 days>**

Displays only requests created on or after the specified relative date.

**REQUEST-DATE = \*LATEST**

Displays only the most recently generated requests.

**REQUEST-DATE = <date with-compl>(…) / <integer -99999..0 days>(…)**

The requests to be displayed are selected using the date and time of their creation as the selection criterion.

**TIME = <time>**

Time specification in the format hh:mm:ss

**REQUEST-ORIGIN =**

*This operand is only available to the HSMS administrator.*

The requests to be selected are displayed according to their place of origin: by default this is the central BS2000 host (DMS and node requests).

**REQUEST-ORIGIN = \*BS2000(...)**

The requests were issued on the BS200 host by a BS2000 user.

**USER-ID =**

Serves to select the requests to be displayed using the user ID under which they were created as the selection criterion.

**USER-ID = \*OWN**

Displays only requests created under the user's own ID (or, in the case of the HSMS administrator, under SYSHSMS).

**USER-ID = \*ALL**

Requests from all users are to be displayed.

**USER-ID = <name 1..8>**

Only requests of the specified user ID are to be displayed.

**REQUEST-ORIGIN = \*NODE-CL(...)**

*This operand only exists for compatibility reasons.*

**REQUEST-STATE =**

Selects the requests using their processing state as the selection criterion.

**REQUEST-STATE = \*ANY**

Selects the requests irrespective of their processing state.

**REQUEST-STATE = \*COMPLETED**

Displays only completed requests.

**REQUEST-STATE = \*ACCEPTED**

Displays only requests which were accepted for processing but have not yet been started.

**REQUEST-STATE = \*STARTED**

Displays only requests currently being processed.

**REQUEST-STATE = \*INTERRUPTED**

Displays only requests whose processing was interrupted.

**ARCHIVE-NAME =**

*Only for archive owners:*

The requests to be displayed can be selected in the specified environment according to the archive for which they were created. In the case of requests where two archives are involved (copying), the request is assigned to the target archive.

**ARCHIVE-NAME = \*ALL**

The requests to be displayed are selected irrespective of the archive.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

Only requests referring to this archive are displayed.

**INFORMATION =**

Specifies the scope of information that is to be output.

**INFORMATION = \*SUMMARY**

Summary information is output for each request. If output is sent to SYSOUT then one or more requests can be selected for full information display.

Details on the content of the screen mask are provided in the section [“Output for requests which were issued at a BS2000 host \(summary\)” on page 625.](#)

**INFORMATION = \*ALL**

More detailed information is output for each request.

Details on the content of the screen mask are provided in the section [“Output for requests which were issued on a BS2000 host \(all information\)” on page 629.](#)

**OUTPUT =**

Determines the output medium for the desired information. Output generally takes place to SYSLST for batch requests.

**OUTPUT = \*SYSOUT**

The information is output to the logical system file SYSOUT, i.e. it is normally displayed on the screen in interactive mode.

**OUTPUT = \*SYSLST**

The information is output to the logical system file SYSLST. Each mask comprises 43 lines.

**OUTPUT = \*NONE**

The information is not output in text format.

**STRUCTURE-OUTPUT =**

Controls structured output in S variables (for the variable layout see [page 631](#)).

**STRUCTURE-OUTPUT = \*SYSINF**

Structured output is directed to the SYSINF S variable stream.

**STRUCTURE-OUTPUT = \*NONE**

No structured output takes place.

**STRUCTURE-OUTPUT = <composed-name 1..255>(…)**

Name of the S variable that is to be used for the structured output.

**WRITE-MODE =**

Determines whether the output should replace or complement the current content of the S variables.

**WRITE-MODE = \*REPLACE**

The current content of the S variable is to be replaced by the new output.

**WRITE-MODE = \*EXTEND**

The new output extends the current content of the S variable.

**Layout of the screen masks**

*Output for requests which were issued at a BS2000 host (summary)*

//SHOW-REQUESTS . . . ,REQUEST-ORIGIN=\*BS2000, . . . ,INFORMATION=\*SUMMARY

```

SHOW-REQUEST INFORMATION=SUMMARY      USER-ID      = @@@@@@@@
REQUEST-NAME  = @@@@@@@@              REQUEST-DATE  = @@@@@@@@ @@@@@@@@ @@@@@@@@
ENVIRONMENT   = @@@@@@@@              REQUEST-STATE = @@@@@@@@@@@@
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M USER-ID  DATE          TIME          REQUEST      STATE        SUB-STATE    HOST/TSN
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-----
NEXT-PAGE : + (+, -, ++, --, E) M : / = DELETE-REQUEST, ? = ALL-INFORMATION
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```

Key:

Column Values	Meaning
M	Mark column for selecting the requests which are either to be displayed with all their information in a separate mask or are to be deleted: file not selected = blank; delete request = “/”; all information = “?” or another character, but not “/” (the branch from a detailed mask takes place in accordance with the current assignment in the NEXT-PAGE field)
NEXT-PAGE	Input field for scrolling within an environment, for leaving an environment and for specifying the return address:
+	– Next page of the current environment
-	– Previous page of the current environment
++	– Last page of the current environment
--	– First page of the current environment
E	– Return to the previous environment
Blank	– Same page of the current environment

Column Values	Meaning	
USER-ID	User ID under which the request was created	
DATE	Creation date of the request in the format YYYY-MM-DD	
TIME	Creation time of the request in the format HH:MM:SS	
REQUEST	Name of the request (freely selectable by the user); default names are:	
	Action statement	Default name
	ARF#yyyy	ARCHIVE-FILES
	ANF#yyyy	ARCHIVE-NODE-FILES
	BCF#yyyy	BACKUP-FILES
	BNF#yyyy	BACKUP-NODE-FILES
	CES#yyyy	COPY-EXPORT-SAVE-FILE
	EXF#yyyy	EXPORT-FILES
	IMF#yyyy	IMPORT-FILES
	CNF#yyyy	COPY-NODE-SAVE-FILE
	CSF#yyyy	COPY-SAVE-FILE
	MGF#yyyy	MIGRATE-FILES
	MSV#yyyy	MOVE-SAVE-FILES
	RMF#yyyy	RECALL-MIGRATED-FILES
	RCR#yyyy	REPAIR-CATALOG-BY-RESTORE
	RFR#yyyy	REPLACE-SAVE-FILE-BY-RESTORE
	RLE#yyyy	RESTORE-LIBRARY-ELEMENTS
	RSF#yyyy	RESTORE-FILES
	RNF#yyyy	RESTORE-NODE-FILES
	UES#yyyy	UPDATE-EXPORT-SAVE-FILE
	yyyy: TSN of the calling user task	
STATE	Request status (for details see SUBSTATE)	
INCOMPLETE	Request not accepted (error during acceptance)	
ACCEPTED	Request accepted by HSMS	

(part 2 of 4)

Column Values	Meaning
STARTED	Request being processed; additional information in SUBSTATE: <ul style="list-style-type: none"> <li>– COLLECTED                      Processed by collector request</li> <li>– START-ARCHIVE                  Request transferred to ARCHIVE</li> <li>– ARCHIVE-COMPLETED        Request completed by ARCHIVE</li> <li>– START-REPORT                  Report creation started</li> <li>– SENT-TO-MASTER              Request sent to master of shared pubset</li> <li>– MASTER-REPLIED              Reply to request received from master of shared pubset</li> <li>– MASTER-NO-CONNECT        Master of shared pubset has not replied (crash). Request stopped.</li> <li>– MASTER-TIMEOUT              Master of shared pubset failed to reply within specified time. Request stopped.</li> <li>– IN-TRANSMIT                  Report is ready; it just needs to be sent to the active node.</li> <li>– IN-DELETE                      Pseudo substatus <sup>1</sup></li> </ul>
COMPLETED	Request processed by HSMS; Additional information in SUBSTATE: <ul style="list-style-type: none"> <li>– WITH-WARNINGS              Processed with warnings</li> <li>– WITH-ERRORS                  Processed with errors</li> </ul>

(part 3 of 4)

Column Values	Meaning
INTERRUPTED	<p>Request interrupted during processing. It can be restarted after cause is eliminated; additional information in SUBSTATE:</p> <ul style="list-style-type: none"> <li>– MASTER-NO-CONNECT Master of shared pubset has not replied (crash). Request stopped.</li> <li>– MASTER-TIMEOUT Master of shared pubset failed to reply within specified time. Request stopped.</li> <li>– MASTER-REPLIED Master of shared pubset failed after response. Request stopped.</li> <li>– BACK-SERV-NO-CONN Backup server has not replied (crash). Request stopped.</li> <li>– BACK-SERV-TIMEOUT Backup server failed to reply within specified time. Request stopped.</li> <li>– BACK-SERV-REPLIED Backup server failed after response. Request stopped.</li> <li>– START-ARCHIVE Request transferred to ARCHIVE</li> </ul>
CANCELLED	Request was canceled before it was started.
SUBSTATE	Additional information on request status (for possible values see STATE)
HOST/TSN	<p>Information about a possible request lock:</p> <ul style="list-style-type: none"> <li>– Blank: No current lock.</li> <li>– 'LOC-xxx': The request is locked by the local host; xxx is the TSN of the executing server task (if one exists)</li> <li>– Other string BCAM name of the remote host that is currently locking the request.</li> </ul>

(part 4 of 4)

<sup>1</sup> If a DELETE-REQUESTS statement is issued for a request with the status "STARTED", the substatus of the request is set to "IN-DELETE" while the request is being deleted.



Column Values	Meaning
REPORT-FILENAME	Name of the DMS file to which the report is to be output. If the user has specified *PRINTER as the output medium in the HSMS statement, *PRINTER is output. If no report has been requested, a hyphen is output.
CONTROL-JV-NAME	Name of the job variable assigned to the request.
DESCRIPTOR	Any user-defined text for the console.
SIMULATED YES NO	Indicates whether the request is simulated.  The request is simulated.  The request is not simulated.
WAITING-USER-TSN	If the HSMS statement was issued with WAIT-FOR-COMPLETION=*YES: TSN of the task which is waiting for the completion of the request. Otherwise: hyphen
HSMS-VERSION	Functional version of the request. This information is useful in shared pubset configurations if different versions of the HSMS subsystem are running on the various sharers.
EXPRESS YES NO	Indicates whether the request is processed as an express request.  The request is processed as an express request.  The request is not processed as an express request.
CCOPY-SESSION-ID	If a CCOPY session is involved, its ID is output. The session is closed until completion of the CCOPY request and *CLOSED is output. If no CCOPY session is involved, a hyphen is output.
FROM-REMOTE YES NO	Indicates whether the request was sent from a slave host.  The request was sent from a slave host.  The request was not sent from a slave host.
TO-MASTER-HOST	If the request was sent to a master host for processing, this field contains the BCAM name of the master host. Otherwise a hyphen is output.
RESTARTED YES NO	Indicates whether the request has been restarted.  The request has been restarted.  The request has not been restarted.
PRIORITY 1..255	Processing priority of the request  The values are only available during the processing of the request.

(part 2 of 2)

## Output in S variables

All variables are of the data type string.

Name of the S variable	Content	Corresponding field in the screen mask	Footnote
var(*LIST).USER-ID	<string 1..8>	USER-ID	2)
var(*LIST).NODE-ID	<string 1..48>	NODE-ID	3)
var(*LIST).USER-NUM	<integer>	USER#	1) 3)
var(*LIST).REPLY-IP-ADDR	<string 1..15>	REPLY-IP-ADDR	3)
var(*LIST).PORT	<integer>	PORT#	1) 3)
var(*LIST).BSPI-ID	<string 1..12>	BSPI-ID	3)
var(*LIST).REQ-NAME	<string 1..8>	NAME	
var(*LIST).REQ-DESCRIPTOR	<string 1..60>		
var(*LIST).DATE	<string 10..10>	DATE	
var(*LIST).TIME	<string 8..8>	TIME	
var(*LIST).SIMULATION	*YES *NO	IND(1)	
var(*LIST).EXPRESS	*YES *NO	IND(2)	
var(*LIST).RESTART	*YES *NO	IND(3)	
var(*LIST).ENVIRONMENT – *SINGLE-FEATURE with SF pubset – Catid with SM pubset	*SINGLE- FEATURE <string 1..4>	ENVIRONMENT	
var(*LIST).FROM-REM	*YES *NO	IND(4)	
var(*LIST).STA	<string 1..11>	STATE	
var(*LIST).SUB-STA	<string 1..17>	SUB-STATE	
var(*LIST).PROCESSOR-NAME	*LOCAL <string 1..8>		
var(*LIST).SERVER-TSN	<string 4..4>	TSN	
var(*LIST).MASTER-HOST	<string 1..8>		5)
var(*LIST).WAIT-USER-TSN	<string 4..4>		6)
var(*LIST).ACTION	<string 3..3>		
var(*LIST).ARCHIVE-NAME	<string 1..22>		6)

(part 1 of 2)

Name of the S variable	Content	Corresponding field in the screen mask	Footnote
var(*LIST).PRIO	<integer>		1)
var(*LIST).CCOPY-SESSION-ID	<string 1..8>		7)
var(*LIST).CONTR-JV	*NONE <string 1..54>		
var(*LIST).REPORT-OUT	*PRINTER <string 1..54>		
var(*LIST).MIN-HSMS-VERSION	<string 3..3>		

(part 2 of 2)

- 1) The integer values are output in string format.
- 2) Element only output if REQUEST-ORIGIN=\*BS2000.
- 3) Element only output if REQUEST-ORIGIN=\*NODE-CL (operand value only exists for compatibility reasons).
- 4) TSN not available.
- 5) Useable output only if the request is sent to a master; otherwise output with blank character string
- 6) Useable output only if relevant; otherwise output with blank character string
- 7) Useable output only for CCOPY requests; otherwise output with blank character string

For more detailed information on S variables, refer to the manual "Commands" [5].

## SHOW-SM-PUBSET-PARAMETERS

### Show parameters of SM pubset

This statement is for the HSMS administrator only. It outputs the parameters of an SM pubset under HSMS management.

In addition to output to SYSOUT or SYSLST or to a file, the statement also supports structured output to an S variable.

#### Format (only for HSMS administrators)

<b>SHOW-SM-PUBSET-PARAMETERS</b>	Alias: <b>SSP</b>
<pre> <b>SM-PUBSET-ID</b> = &lt;cat-id&gt; , <b>OUTPUT</b> = *NONE / list-poss(2): *<b>SYSOUT</b> / *<b>SYSLST</b> , <b>STRUCTURE-OUTPUT</b> = *<b>SYSINF</b> / *NONE / &lt;composed-name 1..255&gt;(…)     &lt;composed-name 1..255&gt;(…)       <b>WRITE-MODE</b> = *<b>REPLACE</b> / *<b>EXTEND</b> </pre>	

#### **SM-PUBSET-ID = <cat-id>**

ID of the SM pubset whose parameters are to be displayed. This pubset must be imported locally.

#### **OUTPUT =**

Determines the output medium for the required information. Batch requests are always output to SYSLST.

#### **OUTPUT = \*NONE**

Output is not performed in text format.

#### **OUTPUT = \*SYSOUT**

Output is to the logical system file SYSOUT, i.e. as a rule in the dialog on the screen.

#### **OUTPUT = \*SYSLST**

Output is to the logical system file SYSLST. Each mask comprises 43 lines.

**STRUCTURE-OUTPUT =**

Controls structured output in S variables (for the variable layout see [page 637](#)).

**STRUCTURE-OUTPUT = \*SYSINF**

Structured output is directed to the SYSINF S variable stream.

**STRUCTURE-OUTPUT = \*NONE**

No structured output is required.

**STRUCTURE-OUTPUT = <composed-name 1..255>(…)**

Name of the S variable that is to be used for the structured output.

**WRITE-MODE =**

Determines whether the output should replace or complement the current content of the S variables.

**WRITE-MODE = \*REPLACE**

The current content of the S variable is to be replaced by the new output.

**WRITE-MODE = \*EXTEND**

The new output extends the current content of the S variable.



Column Values	Meaning
S2-DEVICE-TYPE	Default device type with which the objects are to be saved to the S2 level.
SYSBACKUP	Name of the default backup archive
SYSARCHIVE	Name of the default long-term archive
ARCHIVAL-ENVIRONMENT	SF or SM pubset environment
SYSMIGRATE	Name of the default migration archive
SYSNODEBACKUP	Name of the default backup archive for node files
SYSNODEARCHIVE	Name of the default long-term archive for node files
MIGRATION-CONTROL	Parameters for migration control:
MIGRATION = *ALLOWED = *S2-ONLY = *INHIBITED	– Specification as to whether and to what degree nonprivileged users may migrate files: Nonprivileged users may migrate files without restriction. Nonprivileged users may only migrate files to S2. Only the HSMS administrator may migrate files.
BACKUP-MANDATORY = *YES = *NO	– Migration of files without backup: Migration of unsaved files is permitted Migration of unsaved files is not permitted
EXCEPT-FILE	– Name of the exception file with names of the files excluded from migration.
FILE-INHIBIT = *STD = *RESPECTED = *IGNORED	– Indicates whether the migration inhibits set as file attributes by the user are respected: The value is taken from the global HSMS parameters of the host Migration inhibits set as file attributes are respected Migration inhibits set as file attributes are not respected

(part 2 of 2)

**Output in S variables**

All variables are of the data type string.

Name of the S variable	Content	Footnote
var(*LIST).PUBSET	<string_1..4>	
var(*LIST).GLOBAL-PAR.DESTROY-BY-DEL	*YES *NO	
var(*LIST).S1-DEFI.S1-VOL-SET	*UNDEF <string_1..4> *ALL-HSMS-CONTROLLED	
var(*LIST).S2-DEV-TYPE	*STD *UNDEF <string_1..8>	
var(*LIST).SYSBACKUP	*UNDEF <string_1..22>	
var(*LIST).SYSARCHIVE	*STD *UNDEF <string_1..22>	
var(*LIST).SYSARCHIVE-ENVIR	*SINGLE-FEATURE *SYS-MANAGE	1) 1)
var(*LIST).SYSMIGRATE	*UNDEF <string_1..22>	
var(*LIST).SYSNODEBACKUP	*UNDEF <string_1..22>	
var(*LIST).SYSNODEARCHIVE	*UNDEF <string_1..22>	
var(*LIST).MIGR-CONTR.MIGR	*ALLOW *S2-ONLY *INHIBIT	
var(*LIST).MIGR-CONTR.BACKUP-MANDATORY	*YES *NO	
var(*LIST).MIGR-CONTR.EXCEPT-F	*NONE <string_1..54>	
var(*LIST).MIGR-CONTR.F-INHIBIT	*STD *RESPECT *IGNORE	
var(*LIST).MIN-HSMS-VERSION	<string_3..3>	

1) Useable output only if SYSARCHIVE=<string\_1..22>; otherwise output with blank character string

## SHOW-TAPE-CONTROL

### Show tape control parameters

This statement is for the HSMS administrator only. It displays

- the current or permanent parameter values for controlling archive-specific tape sessions
- the number of requests in an SF or SM pubset environment waiting to be processed.

In addition to output to SYSOUT or SYSLST or to a file, the statement also supports structured output to an S variable.

#### Format (only for HSMS administrators)

SHOW-TAPE-CONTROL	Alias: STC
<pre> <b>ENVIRONMENT</b> = <u>*SINGLE-FEATURE</u> / *SYSTEM-MANAGED(...)   *SYSTEM-MANAGED(...)       <b>CATALOG-ID</b> = &lt;cat-id&gt; <b>,ARCHIVE-NAME</b> = *<u>ALL</u> / &lt;filename 1..22 without-cat-gen-vers&gt; <b>,REQUEST-TYPE</b> = *<u>ANY</u> / list-poss(2): *WRITE / *READ / *EXPRESS <b>,CONTROL</b> = *<u>ANY</u> / list-poss(3): *STD / *PROCESS-REQUESTS / *HOLD-REQUESTS /   *BY-TAPE-SESSIONS <b>,OUTPUT</b> = *<u>NONE</u> / list-poss(2): *SYSOUT / *SYSLST <b>,STRUCTURE-OUTPUT</b> = *<u>SYSINF</u> / *<u>NONE</u> / &lt;composed-name 1..255&gt;(…)   &lt;composed-name 1..255&gt;(…)       <b>WRITE-MODE</b> = *<u>REPLACE</u> / *EXTEND </pre>	

#### **ENVIRONMENT =**

Defines the HSMS environment where the selected archives are located.

#### **ENVIRONMENT = \*SINGLE-FEATURE**

The archives are defined in the SF environment.

#### **ENVIRONMENT = \*SYSTEM-MANAGED(...)**

The archives are defined in an SM pubset environment.

#### **CATALOG-ID = <cat-id>**

Catalog ID of the SM pubset to which the HSMS statement applies.

**ARCHIVE-NAME = \*ALL**

The tape processing parameters for all archives in the specified environment are displayed.

**ARCHIVE-NAME = <filename 1..22 without-cat-gen-vers>**

Name of the archive in the specified environment for which the tape processing parameters are to be displayed.

**REQUEST-TYPE =**

The tape processing parameters can be selected according to the type of access.

**REQUEST-TYPE = \*ANY**

The tape processing parameters are displayed irrespective of the type of access.

**REQUEST-TYPE = \*WRITE**

Displays only tape processing parameters for write access.

**REQUEST-TYPE = \*READ**

Displays only tape processing parameters for read access.

**REQUEST-TYPE = \*EXPRESS**

Displays only tape processing parameters for express access.

**CONTROL =**

The tape processing parameters can be displayed according to the tape access control method.

**CONTROL = \*ANY**

The tape processing parameters are displayed irrespective of access control.

**CONTROL = \*STD**

Displays only tape processing parameters for accessing requests which correspond to the value of the global HSMS parameter CONTROL.

**CONTROL = \*PROCESS-REQUESTS**

Displays only tape processing parameters for accessing requests to be processed immediately.

**CONTROL = \*HOLD-REQUESTS**

Displays only tape processing parameters for accessing requests to be processed at a later time.

**CONTROL = \*BY-TAPE-SESSIONS**

Displays only tape processing parameters for accessing requests in a definable time slot.

**OUTPUT =**

Determines the output medium for the desired information. Output generally takes place to SYSLST for batch requests.

**OUTPUT = \*NONE**

Output is not performed in text format.

**OUTPUT = \*SYSOUT**

The information is output to the logical system file SYSOUT, i.e. it is normally displayed on the screen in interactive mode.

**OUTPUT = \*SYSLST**

The information is output to the logical system file SYSLST. Each mask comprises 43 lines.

**STRUCTURE-OUTPUT =**

Controls structured output in S variables (for the variable layout see [page 642](#)).

**STRUCTURE-OUTPUT = \*SYSINF**

Structured output is directed to the SYSINF S variable stream.

**STRUCTURE-OUTPUT = \*NONE**

No structured output is required.

**STRUCTURE-OUTPUT = <composed-name 1..255>(…)**

Name of the S variable that is to be used for the structured output.

**WRITE-MODE =**

Determines whether the output should replace or complement the current content of the S variables.

**WRITE-MODE = \*REPLACE**

The current content of the S variable is to be replaced by the new output.

**WRITE-MODE = \*EXTEND**

The new output extends the current content of the S variable.

**Layout of the screen mask**

```

SHOW-TAPE-CONTROL  VALID-PERIOD=@@@@@@@@  REQUEST-TYPE=@@@@@@@@@@@@@@@@
                    ENVIRONMENT =@@@@@@@@@  CONTROL          =@@@@@@@@@@@@@@@@@@@@@@@@
-----
OWNER-ID  ARCHIVE-NAME  RQ-TYPE  CONTROL  START-T.  PERIOD  MIN.-PAGES  #REQ
@@@@@@@@  @@@@@@@@@@@@@@  @@@@@@@  @@@@@@@@  @@@@@@@@  @@@@@@  @@@@@@@@@@@  @@@@@@
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NEXT-PAGE : __ ( + , - , ++ , -- , E )
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
    
```

Key:

Column Values	Meaning
OWNER-ID	Owner ID of the archive to be displayed
ARCHIVE-NAME	Name of the archive whose tape processing parameters are to be displayed
RQ-TYPE READ WRITE EXPRESS	Type of access whose values are to be displayed - Read request - Write request - Express request (HSMS administrator only)
CONTROL STD PROCESS HOLD SESSIONS	Tape processing control - HSMS parameter definition applies - Tape access is possible at any time - Tape access is placed on hold - Tape access takes place during tape sessions.
START-T.	Time at which the first tape session begins

Column Values	Meaning
PERIOD	Period between two tape sessions
MIN.-PAGES	Minimum number of 2-Kbyte blocks to be written during a tape session (only for RQ-TYPE=*WRITE and CONTROL=*SESSIONS)
#REQ	Number of requests

### Output in S variables

All variables are of the data type string.

Name of the S variable	Content	Footnote
var(*LIST).ARCHIVE-NAME	<string_1..22>	
var(*LIST).READ-CONTR.STA	*STD *PROC-REQ *HOLD-REQ *BY-TAPE-SESSION	
var(*LIST).READ-CONTR.START-TIME	*IMMED <string_8..8>	2) 2)
var(*LIST).READ-CONTR.PERIOD	*END-OF-DAY 1..1440	2) 1) 2)
var(*LIST).READ-CONTR.NUM-OF-REQ	<integer>	1)
var(*LIST).WRITE-CONTR.STA	*STD *PROC-REQ *HOLD-REQ *BY-TAPE-SESSION	
var(*LIST).WRITE-CONTR.START-TIME	*IMMED <string_8..8>	3) 3)
var(*LIST).WRITE-CONTR.PERIOD	*END-OF-DAY 1..1440	3) 1) 3)
var(*LIST).WRITE-CONTR.MIN-PAGE	*NONE <integer>	3) 1)
var(*LIST).WRITE-CONTR.NUM-OF-REQ	<integer>	1)

Name of the S variable	Content	Footnote
var(*LIST).EXPRESS-CONTR.STA	*STD *PROC-REQ *HOLD-REQ *BY-TAPE-SESSION	
var(*LIST).EXPRESS-CONTR.START-TIME	*IMMED <string_8..8>	4) 1) 4)
var(*LIST).EXPRESS-CONTR.PERIOD	*END-OF-DAY 1..1440	4) 1) 4)
var(*LIST).EXPRESS-CONTR.NUM-OF-REQ	<integer>	1)

- 1) The integer values are output in string format.
- 2) Useable output only if READ-CONTR.STA=\*BY-TAPE-SESSION; otherwise output with blank character string
- 3) Useable output only if WRITE-CONTR.STA=\*BY-TAPE-SESSION; otherwise output with blank character string
- 4) Useable output only if EXPRESS-CONTR.STA=\*BY-TAPE-SESSION; otherwise output with blank character string

For more detailed information on S variables, refer to the manual “Commands” [5].

## START-HSMS

### Load HSMS

This statement is for the subsystem administrator only and is used to load HSMS and define global parameters for the HSMS session. The parameters of the imported SM pubset are also loaded.

The parameters specified for START-HSMS are valid for the duration of the started HSMS session only if they are different from the parameters defined in the control file.

#### Format (only for subsystem administrators)

<b>START-HSMS</b>	Alias: <b>STA</b>
<b>VERSION</b> = <u>*STD</u> / <c-string 4..4> / <c-string 7..7> <b>,OPERATIONAL-MODUS</b> = <u>*STD</u> / *DEFINE-SHOW / *SIMULATION / *OPERATION <b>,NUMBER-OF-SUBTASKS</b> = <u>*STD</u> / <integer 0..99> <b>,COMMON-MEMORY-SIZE</b> = <u>*STD</u> / <integer 1..99 Mbyte>	

#### **VERSION =**

Version of the HSMS subsystem to be started. The version must be declared in the subsystem catalog.

#### **VERSION = \*STD**

The lowest version declared for HSMS in the static system catalog is loaded.

#### **VERSION = <c-string 4..4>**

The version is specified by the version identification (format: nn.m); the characters must be numerical.

#### **VERSION = <c-string 7..7>**

The version is specified by a version identification and the update level, using the following format: nn.mxyy, where x represents a letter and the remaining characters are numerical.

#### **OPERATIONAL-MODUS =**

Determines the operating mode of HSMS for the session to be started.

#### **OPERATIONAL-MODUS = \*STD**

HSMS is loaded in the operating mode stipulated in the HSMS control file.

**OPERATIONAL-MODUS = \*DEFINE-SHOW**

HSMS is loaded in DEFINE/SHOW mode.

Operation is restricted to HSMS statements which modify or display HSMS control parameters and other settings.

**OPERATIONAL-MODUS = \*SIMULATION**

HSMS is loaded in simulation mode.

All HSMS statements are allowed, but the action statements are merely simulated.

In simulation mode, action statements from active nodes are rejected.

**OPERATIONAL-MODUS = \*OPERATION**

HSMS is loaded in operational mode and all functions are available to their full extent.

**NUMBER-OF-SUBTASKS = \*STD / <integer 0..99>**

Number of HSMS server tasks At least one server task should be assigned per default system archive.

Unless otherwise specified, the number of server tasks as defined in the HSMS control file is used.

**COMMON-MEMORY-SIZE = \*STD / <integer 1..99 Mbyte>**

Size of the HSMS common memory pool in 1-Mbyte segments.

Unless otherwise specified, the size of the common memory pool as defined in the HSMS control file is used.

## STOP-HSMS

### Unload HSMS

This statement for the subsystem administrator only. It is used to terminate the HSMS session and unload HSMS.

#### Format (only for subsystem administrators)

STOP-HSMS	Alias: <b>STP</b>
<b>COMPLETE-REQUESTS</b> = * <u>YES</u> / *NO <b>SUBSYSTEM</b> = * <u>DELETE</u> / *HOLD	

#### **COMPLETE-REQUESTS** = \*YES / \*NO

Determines whether the HSMS server tasks are still to start the requests they have already accepted but not yet started before the HSMS server tasks terminate. (One effect of the STOP-HSMS statement is in any case to prevent the HSMS server tasks from accepting any further requests.)

#### **COMPLETE-REQUESTS** = \*YES

The HSMS server tasks will still process the requests they have accepted.

#### **COMPLETE-REQUESTS** = \*NO

The HSMS server tasks will no longer start the requests they have accepted but not yet started. These requests will be started automatically in the next HSMS session.

#### **SUBSYSTEM** =

Determines what DSSM is to do with the HSMS subsystem after the HSMS session has been terminated.

#### **SUBSYSTEM** = \*DELETE

The subsystem is to be unloaded.

#### **SUBSYSTEM** = \*HOLD

The subsystem is not to be unloaded, but to be set to HOLD instead; this serves to speed up the next startup.

## UPDATE-EXPORT-SAVE-FILE

### Update save file

This statement is used to update save files created by means of the HSMS statement EXPORT-FILES using data from a specified online data set.

The files in question must satisfy the same access rules as apply to the EXPORT-FILES statement. For foreign files read access is sufficient for nonprivileged users.

This statement has different formats for nonprivileged users and HSMS administrators. Privileged operands or operand values are highlighted in gray.

### Format

UPDATE-EXPORT-SAVE-FILE	Alias: <b>UES</b>
<p><b>DIRECTORY-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p><b>,SAVE-FILE-ID</b> = *<b>LATEST</b> / &lt;composed-name 15..15&gt;</p> <p><b>,SELECT-FILES</b> = *<b>ALL</b> / *<b>NONE</b> / *<b>SELECTED</b> / *<b>FROM-FILE(...)</b> / *<b>FROM-LIBRARY-ELEMENT(...)</b> / list-poss(20): &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;</p> <p>*<b>FROM-FILE(...)</b></p> <p>      <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p>*<b>FROM-LIBRARY-ELEMENT(...)</b></p> <p>      <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p>      <b>,ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</p> <p><b>,EXCEPT-FILES</b> = *<b>NONE</b> / *<b>FROM-FILE(...)</b> / *<b>FROM-LIBRARY-ELEMENT(...)</b> / list-poss(20): &lt;filename 1..80 without-vers with-wild&gt; / &lt;partial-filename 2..79 with-wild&gt;</p> <p>*<b>FROM-FILE(...)</b></p> <p>      <b>LIST-FILE-NAME</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p>*<b>FROM-LIBRARY-ELEMENT(...)</b></p> <p>      <b>LIBRARY</b> = &lt;filename 1..54 without-gen-vers&gt;</p> <p>      <b>,ELEMENT</b> = &lt;composed-name 1..64 with-under&gt;</p>	

(part 1 of 4)

```

,SELECT-JV = NONE / *ALL / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
             list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>

*FROM-FILE(...)
  | LIST-FILE-NAME = <filename 1..54 without-gen-vers>

*FROM-LIBRARY-ELEMENT(...)
  | LIBRARY = <filename 1..54 without-gen-vers>
  | ,ELEMENT = <composed-name 1..64 with-under>

,EXCEPT-JV = NONE / *FROM-FILE(...) / *FROM-LIBRARY-ELEMENT(...) /
              list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>

*FROM-FILE(...)
  | LIST-FILE-NAME = <filename 1..54 without-gen-vers>

*FROM-LIBRARY-ELEMENT(...)
  | LIBRARY = <filename 1..54 without-gen-vers>
  | ,ELEMENT = <composed-name 1..64 with-under>

,ADD-FILES-AND-JV = *NO / *YES(...)

*YES(...)
  ADD-FILE-NAMES = *OWN / *ALL / *NONE / *SELECTED / *FROM-FILE(...) / list-poss(20):
                  <filename 1..80 without-vers with-wild> / <partial-filename 2..79 with-wild>
    *FROM-FILE(...)
      | ADD-LIST-FILE-NAME = <filename 1..54 without-gen-vers>
    ,EXCEPT-FILE-NAMES = *NONE / *FROM-FILE(...) / list-poss(20):
                          <filename 1..80 without-vers with-wild> / <partial-filename 2..79 with-wild>
    *FROM-FILE(...)
      | LIST-FILE-NAME = <filename 1..54 without-gen-vers>
    ,SUPPORT = *ANY / *PUBLIC-DISK / *PRIVATE-DISK(...) / *TAPE
    *PRIVATE-DISK(...)
      | VOLUMES = *ALL / list-poss(150): <vsn 1..6>
    ,ADD-JV-NAMES = *NONE / *OWN / *ALL / *FROM-FILE(...) / list-poss(20):
                  <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>
    *FROM-FILE(...)
      | ADD-LIST-FILE-NAME = <filename 1..54 without-gen-vers>
    ,EXCEPT-JV-NAMES = *NONE / *FROM-FILE(...) / list-poss(20):
                       <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>
    *FROM-FILE(...)
      | LIST-FILE-NAME = <filename 1..54 without-gen-vers>

```

(part 2 of 4)

```

,SAVE-SAM-STRUCTURE = *YES/*NO
,PASSWORDS = *NONE / *SECRET-PROMPT / list-poss(63): <c-string 1..4> / <x-string 1..8> /
               <integer -2147483648..2147483647>
,COMPRESS-FILES = *NO / *YES
,SAVE-DIRECTORY = *NO / *YES
,OUTPUT-SAVE-FILE = *NEW(...) / *CONTINUE(...)
  *NEW(...)
    | RETENTION-PERIOD = 0 / <integer 0..16383 days>
    | ,USER-ACCESS = *ALL-USERS / *OWNER-ONLY
    | ,SAVE-FILE-PASSWORD = *NONE / *SECRET-PROMPT / <c-string 1..4> / <x-string 1..8> /
    |               <integer -2147483648..2147483647>
  *CONTINUE(...)
    | SAVE-FILE-ID = *LATEST / <composed-name 15..15>
,TO-STORAGE = *TAPE(...) / *PUBLIC-DISK(...) / *NET-STORAGE(...)
  *TAPE(...)
    | VOLUMES = *FROM-POOL / *FROM-OPERATOR / list-poss(100): <vsn 1..6>
    | ,DEVICE-TYPE = *STD / <device>
    | ,LOCATION = *ANY / <alphanum-name 1..8>
  *PUBLIC-DISK(...)
    | PUBSET-ID = <cat-id>
  *NET-STORAGE(...)
    | VOLUMES = list-poss(16): <vsn 1..6>
,OPERATION-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    | REQUEST-NAME = *STD / <name 1..8>
    | ,REQUEST-DESCRIPTOR = *NONE / <text 1..60>
    | ,EXPRESS-REQUEST = *NO / *YES
    | ,CONTROL-JV = *NONE / <filename 1..54 without-gen-vers>
    | ,WAIT-FOR-COMPLETION = *NO / *YES
    | ,CATALOG-ID-MODE = *YES / *NO
    | ,PARALLEL-RUNS = 1 / <integer 1..16>
    | ,WRITE-CHECKPOINTS = *YES / *NO
    | ,OPERATOR-INTERACTION = *NOT-ALLOWED / *ALLOWED

```

(part 3 of 4)

```

,TAPE-CONTROL = *STD / *PARAMETERS(...)
  *PARAMETERS(...)
    |   BLOCKING-FACTOR = *STD / <integer 15..15 2Kbyte> / *MAX
    |   ,UNLOAD-TAPE = *NO / *YES
,PERFORMANCE-ANALYSIS = *NO / *YES(...)
  *YES(...)
    |   SEPARATOR = ; / <c-string 1..1>
,REPORT = *SUMMARY / *FULL / *NONE
,OUTPUT = *STD / *PRINTER / *MAIL / *LIBRARY-ELEMENT(...) / <filename 1..54 without-gen-vers>
  *LIBRARY-ELEMENT(...)
    |   LIBRARY = <filename 1..54 without-gen-vers>
    |   ,ELEMENT = <composed-name 1..64 with-under>

```

(part 4 of 4)

**DIRECTORY-NAME = <filename 1..54 without-gen-vers>**

The directory specified is used in the export run. The nonprivileged caller must be owner or co-owner of this file.

**SAVE-FILE-ID =**

Save file which is to be copied.

If the save file is copied into an existing save file (see the OUTPUT-SAVE-FILE=\*CONTINUE(...) operand, [page 660](#)), the save file ID may not be the same as the save file ID of the output file (the default value \*LATEST may not be used for both save files).

**SAVE-FILE-ID = \*LATEST**

The save file of the most recently created archive is to be copied.

**SAVE-FILE-ID = <composed-name 15..15>**

The specified save file is to be copied. The save file ID must be specified in the format S.yymmdd.hmmss

**SELECT-FILES =**

Serves to specify the files to be copied from the save file.

*Note*

With a file which can be selected both by SELECT-FILES and ADD-FILES (in other words the file is both in the save file and on disk), the version on disk is copied.

**SELECT-FILES = \*ALL**

All files are to be copied from the save file.

**SELECT-FILES = \*NONE**

No files are copied from the save file.

**SELECT-FILES = \*SELECTED**

The path names of the files to be copied are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-FILE-NAMES.

**SELECT-FILES = \*FROM-FILE(...)**

The path names of the files to be copied are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. The list file can be created, for instance, by means of the HSMS statement SELECT-FILE-NAMES or the BS2000 command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**SELECT-FILES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files to be copied are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element with the highest existing version is used.

**SELECT-FILES = list-poss(20): <filename 1..80 without-vers with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be copied are specified directly. A list of up to 20 names may be specified.

The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the default catalog ID of the user ID.

The files can alternatively be selected using wildcards. Note, however, that only the HSMS administrator may use wildcards for user ID specification.

The wildcards are replaced in accordance with the file names listed in the archive directory.

**EXCEPT-FILES =**

Serves to specify files that are to be excluded from copying. In migration archives, the selection can be further restricted by means of the MIGRATION-STATE operand.

**EXCEPT-FILES = \*NONE**

All files from the save file specified in the SELECT-FILES operand are to be copied.

**EXCEPT-FILES = \*FROM-FILE(...)**

The path names of the files to be excluded from copying are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. The list file can be created, for instance, by means of the BS2000 command SHOW-FILE-ATTRIBUTES.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-FILES = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the files not to be copied are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element with the highest existing version is used.

**EXCEPT-FILES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be excluded from copying are specified directly. A list of up to 20 names may be specified.

The first character of the file names must not be a hyphen. The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the default catalog ID.

The files can alternatively be selected using wildcards. Note, however, that only the HSMS administrator may use wildcards for user ID specification because only the HSMS administrator is allowed to specify other user IDs. Wildcards are replaced using the file names contained in the archive directory.

**SELECT-JV =**

Serves to specify the job variables to be copied from the save file. The selection made here applies to all save versions of the save file that are to be copied.

**SELECT-JV = \*NONE**

No job variables are to be copied from the save file.

**SELECT-JV = \*ALL**

All job variables are to be copied from the save file.

**SELECT-JV = \*FROM-FILE(...)**

The path names of the files to be copied are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**SELECT-JV = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables to be copied are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element with the highest existing version is used.

**SELECT-JV = list-poss(20): <filename 1..80 without-gen-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables to be copied are specified directly. A list of up to 20 names may be specified. The job variables can alternatively be selected using wildcards.

**EXCEPT-JV =**

Serves to specify job variables that are to be excluded from copying. The selection specified here applies to all save versions of the save file that is to be copied.

**EXCEPT-JV = \*NONE**

All job variables specified in the SELECT-JV operand are to be copied.

**EXCEPT-JV = \*FROM-FILE(...)**

The path names of the job variables to be excluded from copying are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-JV = \*FROM-LIBRARY-ELEMENT(...)**

The path names of the job variables not to be copied are taken from a PLAM library element (type S). The library element contains one path name per record. Only upper-case letters may be used.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the type-S element. The element with the highest existing version is used.

**EXCEPT-JV = list-poss(20): <filename 1..80 without-gen-vers with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables to be excluded from copying are specified directly. A list of up to 20 names may be specified. The first character of the job variable names must not be a hyphen.

The job variables can alternatively be selected using wildcards.

**ADD-FILES-AND-JV =**

You can specify whether, in addition to the files and job variables which are copied from the save file using SELECT-FILES or SELECT-JV, further files and job variables should be exported from disk.

**ADD-FILES-AND-JV = \*NO**

No files or job variables are exported in addition.

**ADD-FILES-AND-JV = \*YES (...)**

Files and/or job variables are exported in addition.

**ADD-FILE-NAMES =**

The files to be exported are specified. The selection can be restricted via the operands EXCEPT-FILE-NAMES and SUPPORT.

*Note*

If a file can be selected with either SELECT-FILES or ADD-FILES (which means that the file is already on the input save file and still on the hard disk), the version on the hard disk is copied to the output save file.

**ADD-FILE-NAMES = \*OWN**

All files of the user's own ID residing on any imported pubset (except for shared SF pubsets for which the home computer is the slave) are exported.

**ADD-FILE-NAMES = \*ALL**

All files residing on any imported pubset (except for shared SF pubsets for which the home computer is the slave) are exported.

**ADD-FILE-NAMES = \*NONE**

No files are exported.

**ADD-FILE-NAMES = \*SELECTED**

The path names of the files to be exported are to be taken from a list that was compiled within the same HSMS run by means of the HSMS statement SELECT-FILE-NAMES.

**ADD-FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be exported are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. The list file can be created, for instance, by means of the HSMS statement SELECT-FILE-NAMES or the BS2000 command SHOW-FILE-ATTRIBUTES.

**ADD-LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**ADD-FILE-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the files to be exported are specified directly. A list of up to 20 names may be specified.

The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the default catalog ID of the user ID.

The files can alternatively be selected using wildcards. Note, however, that only the HSMS administrator may use wildcards for user ID specification. In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

The following applies to file generations: when specifying fully qualified file names, the specification of a generation number (version) is permissible. Only the specified generations will be exported.

**EXCEPT-FILE-NAMES =**

Serves to specify files that are to be excluded from export.

**EXCEPT-FILE-NAMES = \*NONE**

All files specified with the FILE-NAMES operand are to be exported.

**EXCEPT-FILE-NAMES = \*FROM-FILE(...)**

The path names of the files to be excluded from export are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record. The list file can be created, for instance, by means of the BS2000 command SHOW-FILE-ATTRIBUTES.

File names must be in uppercase only.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-FILE-NAMES = list-poss(20):**

**<filename 1..80 without-vers-with-wild> /<partial-filename 2..79 with-wild>**

The path names of the files to be excluded from export are specified directly. A list of up to 20 names may be specified.

The first character of the file names must not be a hyphen. The file names may be specified as fully or partially qualified names, with or without a catalog/user ID. If required, the file name is extended by the user ID of the request and the default catalog ID.

The files can alternatively be selected using wildcards. Note, however, that only the HSMS administrator may use wildcards for user ID specification because only the HSMS administrator is allowed to specify other user IDs. In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

The following applies to file generations: when specifying fully qualified file names, the specification of a generation number (version) is permissible. Only the specified generations will be exported.

**SUPPORT =**

The files to be exported can be selected according to the volumes on which they reside.

**SUPPORT = \*ANY**

The files are exported irrespective of the volume on which they reside.

**SUPPORT = \*PUBLIC-DISK**

Restricts export to files residing on public volumes.

**SUPPORT = \*PRIVATE-DISK(...)**

Restricts export to files which reside on private disks and which have been imported, i.e. recorded in the catalog of a pubset.

**VOLUMES = \*ALL**

Files on all (imported) private disks are exported.

**VOLUMES = list-poss(150): <vsn 1..6>**

Volume serial numbers of private disks. All files having at least one extent to the specified disks are exported.

**SUPPORT = \*TAPE**

Only the catalog entries of tape files are exported.

**ADD-JV-NAMES =**

Serves to specify the job variables to be exported.

**ADD-JV-NAMES = \*NONE**

No job variables are exported.

**ADD-JV-NAMES = \*OWN**

All job variables of the user's own ID residing on any imported pubset (except for shared SF pubsets for which the home computer is the slave) are exported.

**ADD-JV-NAMES = \*ALL**

All job variables residing on any imported pubset (except for shared SF pubsets for which the home computer is the slave) are exported.

**ADD-JV-NAMES = \*FROM-FILE(...)**

The path names of the job variables to be exported are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**ADD-LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**ADD-JV-NAMES = list-poss(20): <filename 1..80 without-vers-with-wild> / <partial-filename 2..79 with-wild>**

The path names of the job variables to be exported are specified directly. A list of up to 20 names may be specified.

The job variables can alternatively be selected using wildcards. In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

**EXCEPT-JV-NAMES =**

Serves to specify job variables that are to be excluded from export.

**EXCEPT-JV-NAMES = \*NONE**

No job variable is to be excluded from export.

**EXCEPT-JV-NAMES = \*FROM-FILE(...)**

The path names of the job variables to be excluded from export are to be taken from a file. The nonprivileged caller must be owner or co-owner of this file. This list file must be a SAM file with variable-length records containing one path name per record.

**LIST-FILE-NAME = <filename 1..54 without-gen-vers>**

Path name of the list file.

**EXCEPT-JV-NAMES = list-poss(20):****<filename 1..80 without-vers-with-wild> /<partial-filename 2..79 with-wild>**

The path names of the job variables to be excluded from export are specified directly. A list of up to 20 names may be specified. The first character of the job variable names must not be a hyphen.

The job variables can alternatively be selected using wildcards. In the case of shared pubsets, the replacement of wildcards for catalog IDs does not refer to SF pubsets for which the home computer is the slave.

**SAVE-SAM-STRUCTURE = \*YES/\*NO**

Determines whether the structure of SAM-Node files is to be saved.

SAM node files that have been saved without SAM structure can only be restored as a SAM node file again.

SAM node files that have been saved with SAM structure can be restored either as FILE-TYPE=\*BS2000 (on public space or Net-Storage) or FILE-TYPE=\*NODE-FILE.

**PASSWORDS = \*NONE / \*SECRET-PROMPT / list-poss(63): <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>**

If a file or job variable which is to be exported using ADD-FILE-NAMES or replaced using SELECT-FILES is protected by a password, the passwords must be specified here. The HSMS administrator can export files and job variables without specifying passwords.

If a save file protected by a password is to be updated, the password must also be specified here. The PASSWORDS operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in an interactive dialog.
- In unguided dialog and foreground procedures, the entry \*SECRET or ^ permits concealed input of the password.

**COMPRESS-FILES = \*NO / \*YES**

Determines whether or not data is compressed before being written to the output volume.

**SAVE-DIRECTORY = \*NO / \*YES**

Determines whether or not the directory is written to the export volume as the last file in the export run.

**OUTPUT-SAVE-FILE =**

Defines the save file to which the exported files are to be written.

**OUTPUT-SAVE-FILE = \*NEW(...)**

The exported files are to be written to a new save file. The following attributes for this save file can be defined here:

**RETENTION-PERIOD = 0 / <integer 0..16383 days>**

Physical retention period in days. During this period, neither the save file nor the save volume may be modified or deleted.

**USER-ACCESS = \*ALL-USERS**

The save file is created as a shareable file. The data can be imported under a different user ID.

**USER-ACCESS = \*OWNER-ONLY**

The save file is created as a non-shareable file. The data can be imported only under the same user ID.

**SAVE-FILE-PASSWORD = \*NONE / \*SECRET-PROMPT / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>**

The save file to be created can be assigned a password which must be entered when the file is continued or imported.

The SAVE-FILE-PASSWORD operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in an interactive dialog.
- In unguided dialog and foreground procedures, the entry \*SECRET or ^ permits concealed input of the password.

**OUTPUT-SAVE-FILE = \*CONTINUE(...)**

The save file that can be specified through the following entries is to be continued.

The save file from which the user wishes to copy may not be specified (see the SAVE-FILE-ID operand, [page 650](#)). The default \*LATEST may not be used for both save files.

**SAVE-FILE-ID = \*LATEST**

The most recently created save file is continued.

**SAVE-FILE-ID = <composed-name 15..15>**

The specified save file is continued. The save file ID must be specified in the format S.yymmdd.hhmmss

**TO-STORAGE = \*TAPE(...)**

The files are exported to tape. The volumes can be defined in greater detail; if several volumes are specified, they all must be of the same device type.

**VOLUMES = \*FROM-POOL**

The volumes are taken from the volume pool of the specified archive or the associated MAREN pool.

**VOLUMES = \*FROM-OPERATOR**

The volumes are to be allocated by the operator on request.

**VOLUMES = list-poss(100): <vsn 1..6>**

List of volume serial numbers, which will be requested in the specified order.

**DEVICE-TYPE = \*STD / <device>**

Device type of the requested volumes. The device type must belong to the class "TAPE". Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.

The default value is the value defined with the S2-DEVICE-TYPE operand of the MODIFY-HSMS-PARAMETERS statement if OUTPUT-SAVE-FILE=NEW(...) or the device type of the device previously used if OUTPUT-SAVE-FILE=CONTINUE(...).

**LOCATION = \*ANY / <alphanum-name 1..8>**

Location used for requesting volumes. This location must be known to MAREN. If the location manager is in use, the location should be properly defined in MARENLM. Otherwise MAREN ignores the specified value.

If MAREN is not in use, you must specify for LOCATION the value \*ANY.

**LOCATION = \*ANY**

No location is to be used.

**TO-STORAGE = \*PUBLIC-DISK(...)**

*This operand value is only available to the HSMS administrator.*

The save file is to be exported to a pubset.

**PUBSET-ID = <cat-id>**

Catalog ID of the pubset.

**TO-STORAGE = \*NET-STORAGE(...)**

The save file is to be exported to a Net-Storage.

**VOLUMES = list-poss(16): <vsn 1..6>**

Specifies the Net-Storage volume to which the files are to be copied. The volume specified must be accessible.

More than one Net-Storage volume can also be specified in a list (e.g. when there is more than one save task).

**OPERATION-CONTROL =**

Enables you to define certain parameters for the execution of the export run.

**OPERATION-CONTROL = \*STD**

The default values of the operands described below apply.

**OPERATION-CONTROL = \*PARAMETERS(...)**

The following operands which control the export run can be modified:

**REQUEST-NAME = \*STD / <name 1..8>**

Request name that can be used in the request management statements (DELETE-REQUESTS, RESTART-REQUESTS and SHOW-REQUESTS) to refer to this request. The name is extended internally by a prefix derived from the user ID (or SYSHSMS for the HSMS administrator) and a suffix in the form of a time stamp.

Unless otherwise specified, the request name is formed by the short code "UES#" and the TSN of the calling user task yyyy as follows: UES#yyyy.

**REQUEST-DESCRIPTOR = \*NONE / <text 1..60>**

It is possible to enter any text that describes the request in more detail.

This text is displayed at the operator console when the request is started. The text can be output using the HSMS statement SHOW-REQUESTS.

**EXPRESS-REQUEST = \*NO / \*YES**

*This operand is only available to the HSMS administrator.*

Determines whether tape access is to take place during the sessions defined for express requests.

**CONTROL-JV = \*NONE / <filename 1..54 without-gen-vers>**

Specifies the name of a job variable that HSMS supplies with various values corresponding to important actions performed by HSMS/ARCHIVE.

The nonprivileged caller must be owner or co-owner of this job variable. The user issuing the request can query the job variable to obtain an overview of the current processing status. How to use the job variable is described in detail in the "HSMS Vol. 1" manual [1] in the section "Job variable for request monitoring".

**WAIT-FOR-COMPLETION = \*NO / \*YES**

Specifies whether the user wishes to wait until processing of his or her request has been completed (synchronous processing) or whether control is to be returned to the user after the validity of the HSMS statement has been checked (asynchronous processing). The maximum wait times for batch tasks and interactive tasks are different and are determined by preset global HSMS parameters.

Interactive tasks are permitted to carry out synchronous HSMS statement processing during tape sessions only.

**CATALOG-ID-MODE = \*YES / \*NO**

Determines whether the data is written to the save file with or without a catalog ID (according to the CATID parameter in ARCHIVE).

**PARALLEL-RUNS = 1 / <integer 1..16>**

Number of save tasks (ARCHIVE subtasks) running in parallel.

There must be two tape devices available for each task.

Unless otherwise specified, only one save task is running.

For further information on parallel processing, see the "HSMS Vol. 1" manual [1].

**WRITE-CHECKPOINTS = \*YES / \*NO**

Defines whether any checkpoints are to be written to the ARCHIVE checkpoint file during processing; these checkpoints permit a request to be restarted following an interruption (state INTERRUPTED).

Unless otherwise specified, the preset value from the archive definition applies.

**OPERATOR-INTERACTION = \*NOT-ALLOWED / \*ALLOWED**

Determines whether messages requiring an operator response are to be output at the console (\*ALLOWED) or not (\*NOT-ALLOWED). If \*NOT-ALLOWED applies, HSMS performs default handling (see the description of the PARAM statement in the "ARCHIVE" manual [2]).

**TAPE-CONTROL =**

Defines the parameters which are relevant for export to tape.

**TAPE-CONTROL = \*STD**

The default values of the operands described below apply.

**TAPE-CONTROL = \*PARAMETERS(...)**

The parameters relevant for export to tape can be modified as follows:

**BLOCKING-FACTOR = \*STD / <integer 15..15 2Kbyte> / \*MAX**

Blocking factor to be used for writing the save file to tape, specified as the number of 2-Kbyte blocks (PAM pages) written to tape in a single input/output operation. As the higher blocking factor means that the occupancy level of the volume and the tape processing performance improve, values below 15 should not be selected. When the default value \*STD is selected, the default values of the ARCHIVE parameters apply (BLOCK-SIZE-TAPE for tapes, BLOCK-SIZE-T-C for magnetic tape cartridges).

\*MAX selects the maximum blocking factor possible in the current BS2000 version. Currently this is the value 128.

**UNLOAD-TAPE = \*NO / \*YES**

Specifies whether or not tapes are to be unloaded after processing.

**PERFORMANCE-ANALYSIS =**

Specifies whether a statistics file is to be produced for each ARCHIVE subtask.

ARCHIVE writes a new line to this statistics file:

- when it opens a save file ARCHIVE.SAVE.FILE.
- when it closes this save file.
- whenever it begins saving or restoring a new file.
- every 2 seconds while it is saving/restoring.

This gives a detailed overview of the ARCHIVE activities taking place during the save and restore operations.

**PERFORMANCE-ANALYSIS = \*NO**

No statistics file is to be produced.

**PERFORMANCE-ANALYSIS = \*YES(...)**

A statistics file is to be produced for each ARCHIVE subtask.

**SEPARATOR = ; / <c-string 1..1>**

Character that is inserted between the different fields in the statistics files. This enables programs such as EXCEL or LOTUS to differentiate the different fields. The default value is “;”. This corresponds to the EXCEL default setting.

**REPORT =**

Determines whether a report is to be output for this export request and to determine the scope of this report.

**REPORT = \*SUMMARY**

A summary of the results of the export request, including any error messages, is to be output.

**REPORT = \*FULL**

A full report is to be output, including a list of all exported files.

**REPORT = \*NONE**

No report is to be output.

**OUTPUT =**

Specifies where the report is to be output.

**OUTPUT = \*STD**

The output destination of the report is determined by the default value that is defined by the global HSMS parameter OUTPUT.

**OUTPUT = \*PRINTER**

The report for this export request is to be printed.

**OUTPUT = \*MAIL**

The report for this export request is sent as an email attachment to the address which is entered in the caller's user entry. If it is not possible to send the report by email, it is printed out.

**OUTPUT = \*LIBRARY-ELEMENT(...)**

The report for this export request is edited and output to the specified PLAM library element (type P). If this is not possible, the report is printed out.

**LIBRARY = <filename 1..54 without-gen-vers>**

Name of the PLAM library.

**ELEMENT = <composed-name 1..64 with-under>**

Name of the element. A type P element is created with a version which contains the user ID plus the date and time.

**OUTPUT = <filename 1..54 without-gen-vers>**

The report for this export request is to be prepared for printing and written to the specified file.

If the file already exists, the following applies:

- if it is a non-empty SAM file, it is continued
- if not, the report is printed.

For nonprivileged callers the report files must be under the user's own user ID. If not, co-ownership is a prerequisite.



---

# Glossary

## **action statement**

Statement issued to HSMS which, in order to be processed, requires I/Os to and from user files. The following are action statements:

ARCHIVE-FILES, ARCHIVE-NODE-FILES , BACKUP-FILES,  
BACKUP-NODE-FILES, COPY-EXPORT-SAVE-FILE,  
COPY-NODE-SAVE-FILE, COPY-SAVE-FILE, EXPORT-FILES,  
IMPORT-FILES, LIST-VOLUMES, MIGRATE-FILES, MOVE-SAVE-FILES,  
RECALL-MIGRATED-FILES, REPAIR-CATALOG-BY-RESTORE,  
REPLACE-SAVE-FILE-BY-RESTORE, RESTORE-FILES,  
RESTORE-NODE-FILES, SELECT-FILE-NAMES, SELECT-JV-NAMES,  
SELECT-NODE-FILES, UPDATE-EXPORT-SAVE-FILE

## **additional mirror unit**

→ BCV data volume or → clone unit

## **archival**

Long-term saving of selected files, e.g. for product liability or revision security reasons. The files are deleted from the processing level once they have been saved.

## **ARCHIVE**

BS2000 software product which saves files and job variables logically. ARCHIVE has an internal interface with HSMS and implements the → HSMS action statements.

## **archive**

Management unit for files under HSMS management, consisting of the archive definition and the associated archive directory (directory file). Archives are addressed via their → owner ID and the archive name.

HSMS makes a distinction between various archive types:

*For DMS files:* archives for → data backup (backup archives), → archival (long-term archives) → migration (migration archives) and → shadow archives.

*For node files:* archives for node backup (node backup archives) and node archival (node long-term archives).

An archive can be private, i.e. only available to the → archive owner, or public, i.e. available to all users.

**archive directory**

File used for managing the objects saved in an archive, i.e. files, job variables, → save files, → save versions and the → volume pool, and implemented as an ARCHIVE directory file (→ ARCHIVE).

**archive owner**

Users have the right to create archives by means of the CREATE-ARCHIVE statement. The creator of an archive is the archive owner. Only the HSMS administrator may enter any user ID in the archive name, using the CREATE-ARCHIVE statement. In doing this, the corresponding user becomes the archive owner.

**archive type**

Determines the basic HSMS function for which an archive is to be used.

**backup**

The regular creation of copies of the data inventory for the restoration of data lost due to hardware or software errors or inadvertent deletion, etc. This facility can also be used to reorganize disk storage.

**backup archive**

HSMS archive used for backup.

**backup class**

Save level assigned to a file and entered in the catalog; this level is used to determine the frequency with which the file is backed up. Possible values are \*A, \*B, \*C, \*D and \*E. Files of backup class \*A are backed up with each backup run. Files with backup class \*E are saved only if MAXIMUM-BACKUP-CLASS=\*E was specified explicitly.

**backup monitor**

→ BS2000 Backup Monitor

**backup server**

Backup server for workstations which are connected to the local BS2000-UFS (POSIX) via NFS.

**BCV data volume**

Additional → mirror disk in a → disk storage system system which can be split off for other purposes (backups, test operations etc.) without impairing current operation. A BCV data volume is also referred to as an Additional Mirror Unit.

**BS2000 Backup Monitor**

The BS2000 backup monitor is an SE management application which is integrated into the **Applications** main menu of the SE Manager. The BS2000 backup monitor provides information on the status of the backup requests which were assigned in the SE server's BS2000 systems with the software products HSMS and FDDRL.

**BS2000 file**

Specifies a file which is created and processed exclusively by BS2000. BS2000 files have been processed on Net-Storage (FILE-TYPE=BS2000) since BS2000/OSD-BC V9.0. They reside directly on a Net-Storage volume. Open systems may only access them in read mode.

**BS2000 net storage file**

→ net storage file

**BS2000-UFS**

UNIX file system residing on a BS2000 server (POSIX).

**Cataloged-Not-Saved (CNS)**

Indicates that a file was not saved either because an incremental backup was performed and the file had not been changed since the previous backup, or because an error (e.g. open error) prevented it from being saved.

**CFID**

Coded File ID → internal file name

**client**

Computer that accesses the services of another computer (→ server) via the network. Any one computer can simultaneously function as a client requesting services from other computers and as a server offering services to other computers.

see also → HSMS client

**client/server architecture**

System architecture in which computing capacities and applications are distributed over → clients and → servers.

Client functions are typically performed by PCs, workstations and → UNIX systems.

Server functions are primarily performed by mainframes and UNIX systems subject to certain constraints.

Client and server systems can be combined as required; in principle, any client has access to any server.

### **clone unit**

A clone unit is the copy of an (original) unit at a particular time (Point-in-Time Copy) which, depending on the disk storage system, is created by the component EquivalentCopy, TimeFinder/Clone or SnapViewClone. Following activation, the unit and the clone unit are separated from each other, and applications can access both.

### **CNS**

→ Cataloged-Not-Saved

### **coded file ID**

→ internal file name

### **collector request**

Request for migration to S2 or requests for archival in the → standard save file of a system archive can be combined in a collector request unless they were issued by the HSMS administrator. The requests are then executed together (thus reducing the number of tape access and positioning operations) but HSMS still outputs separate request-specific reports. An aborted collector request must be restarted by the HSMS administrator.

### **Concurrent Copy**

Option of the HSMS statement BACKUP-FILES which permits BS2000 files to be modified during a backup.

### **computer network**

Organization of several computers interconnected via a physical line with the purpose of permitting peer-to-peer data exchange between these computers. A distinction is made between local computer networks (→ LAN) and non-local computer networks (→ WAN).

### **continuation period**

Period of time during which the standard save file of an archive is continued. The continuation period may have any length between a day and a month.

### **control file**

File under user ID SYSHSMS that contains the HSMS control parameters and the archive definitions.

On system managed storage, the control file is located under the SYSHSMS user ID of an SM pubset; it contains the control parameters for this SM pubset.

### **co-ownership**

Nonprivileged users can also work with files and job variables of which they are co-owners.

**data**

Within the context of HSMS, files, job variables and catalog entries of files (on magnetic tape cartridge or private disk).

**data transfer**

The transfer of files, job variables or catalog entries from files to other BS2000 systems or other user IDs, implemented by exporting data to magnetic tape cartridge, public disk or → Net-Storage and then importing it to the destination.

**default system archive**

→ Archive assigned globally to the entire system or to specific SF/SM pubsets and accessed unless another archive is specifically specified. There is a separate default system archive for each of the basic HSMS functions → migration (→ SYSMIGRATE), → backup (→ SYSBACKUP), → archival (→ SYSARCHIVE), node backup (→ SYSNODEBACKUP) and node archival (→ SYSNODEARCHIVE).

**directory**

Part of a UNIX file system that serves to group and organize files and directories.

**directory file**

A term used synonymously for → archive directory; for more detailed information about the structure of a directory file, see “Directory file”, in the “ARCHIVE” manual [2].

**disk storage system**

External disk system. Mirroring functions (e.g. backing up Snapsets) can be used in BS2000 for disk storage systems which the BS2000 host component SHC-OSD manages.

**ETERNUS disk system**

→ disk storage system of the company Fujitsu Technology Solutions.

**Ethernet**

Standardized method of computer interconnection used to build → local area networks (LAN).

**except file**

File maintained by the system administrator, containing the (fully or partially qualified) names of the files which are to be exempted from migration. The names are stored in the except file.

**export**

Writing data to magnetic tape cartridge, public disk or → Net-Storage for the purpose of → data transfer.

**express request**

Category of requests restricted to the HSMS administrator for which special → tape sessions can be defined.

**file expiration date**

→ retention period for the save version in a long-term archive.

**file system**

Hierarchical collection of → directories and files forming a tree structure. The origin of this tree structure is referred to as the → root directory (*/*). All other directories are branches of this tree. Each file of a file system is accessible via exactly one path of this file system.

**HSMS**

Hierarchical Storage Management System: BS2000 software product offering such functions as → migration, → backup, → archival, and → data transfer, implemented in a → storage hierarchy and in → archives.

**HSMS administrator**

User enjoying the HSMS administrator privilege. This privilege is granted to any user working under the user ID SYSHSMS and under TSOS.

The HSMS administrator can use all HSMS functions without restrictions. The following are typical HSMS administrator tasks: managing the storage hierarchy, creating the default system archives, system backup and control of tape processing.

**HSMS client**

→ passive HSMS client

**HSMS functions**

→ HSMS

**HSMS run**

Period of time between starting the HSMS program and terminating it with END.

**HSMS session**

Period of time between loading subsystem HSMS (with /START-SUBSYSTEM or //START-HSMS) and unloading it (with /STOP-SUBSYSTEM or //STOP-HSMS); see also → SM pubset session.

**implicit recall**

Automatic recall of migrated files as a result of attempts, on the part of DMS, to access these files, as opposed to → recall requested via an HSMS statement.

**import**

The loading of exported data to the destination during → data transfer.

**inactive date**

Date on which a file was last accessed.

**inactive files**

Files with a high → inactive date, i.e. files which have not been referenced for a long time, are obvious candidates for → migration.

**internal file name**

Internal name (CFID) listed in the catalog along with the file name; this name uniquely identifies the file and is modified each time the file is altered. It is transferred in the FSTAT macro but not output with SHOW-FILE-ATTRIBUTES.

**invalid file**

→ Migrated file which is still contained in the → save file of the → migration archive, but which was already recalled, overwritten or deleted on processing level S0.

**LAN (Local Area Network)**

Hardware configuration of a local → network consisting of data display terminals and other devices installed in proximity to one another, e.g. in the same building. The proximity permits the use of simple transmission technology and thus transmission at higher speed and lower cost.

Depending on national legislation, the boundaries of the user's premises may constitute the boundaries of the LAN. A LAN may be connected to other → computer networks as a private subnetwork and thus become part of a larger network such as a WAN.

Synonyms: local computer network, local network.

**level**

→ storage hierarchy

**locally available**

→ pubset

**local computer**

The computer at which the user is working. All other computers in a → computer network are → remote computers for that user. Once a user has connected up with a remote computer, that computer becomes that user's local computer.

**long-term archive**

HSMS archive used for archival.

**master computer**

Computer on which all the DMS management functions of a → shared pubset are executed.

**MDS**

→ Modified-during-save

**migrated file**

A migrated file is a file whose data has been deleted from the processing level but whose catalog entry remains on this level. The catalog entry indicates the background level to which the data was migrated.

**migration**

Moving → inactive files from the processing level to a background level without deleting the catalog entry.

**migration archive**

HSMS archive used for migration.

**mirror disk**

Disk set consisting of at least two disks having identical contents.

**Modified-during-save**

Indicates that a → node file was opened by another user while being saved.

**monitoring**

If HSMS is linked to the application SM2, SM2 users can better monitor migration or recall activities. The resulting information can result in the migration parameters having to be reset.

**MPVS**

Multiple public volume set: public volumes distributed over several → pubsets. It is possible to assign specific pubsets to specific users.

**multiplexing operation**

Multiplexing operation is only available for HSMS backup server functions, i.e. for backing up and restoring files at remote workstations. In this operating mode, multiple ARCHIVE subtasks can simultaneously share the same MTC devices and magnetic tape cartridges in parallel. This ensures enhanced performance and the optimum utilization of MTC devices and guarantees that magnetic tape cartridges are optimally filled.

**network**

A complex structure of lines and control units that provides data communication services.

**Net-Storage**

The storage space provided by a Net-Server in the computer network and released for use by external servers. Net-Storage can be a file system or also only a node in the Net-Server's file system.

**Net-Storage file**

Specifies a file which is created on a Net-Storage volume. On Net-Storage a distinction is made between two file types: BS2000 file and node file.

**NFS (Network File System)**

BS2000 software product that permits distributed data storage in a heterogeneous → computer network. It enables users to access remote files as if they were residing on their → local computer.

NFS is thus used for connecting systems. Furthermore, the automatic and reliable BS2000 data saving functions can be made available for the files of such systems via NFS.

**node**

Computer (workstation or PC) connected to a computer network.

**node backup archive**

HSMS archive used to → back up node files.

### **node file**

*Meaning in Net-storage context:*

Specifies a Net-Storage file (FILE-TYPE=NODE-FILE) which can be created and processed both by BS2000 and open systems. Node files are supported in BS2000 OSD/BC V10.0 and higher. They reside on a Net-Storage volume in a user-specific directory (name of the user ID), and the file names comply with the BS2000 naming conventions.

*Meaning for UNIX workstations:*

Node files are files or → directories in a UNIX file system (UFS) of a UNIX workstation. When implementing → NFS, node files are understood to be the files or → directories of a workstation which can be accessed via → BS2000-UFS. Node files are case-sensitive.

If directories or file systems have been mounted via BS2000-UFS (POSIX), the files contained therein can be saved or archived with HSMS BACKUP-NODE-FILES oder ARCHIVE-NODE-FILES, however, they cannot be processed by BS2000 DMS directly.

### **node long-term archive**

HSMS archive for the → archival of node files.

### **node S0**

Designates a remote → file system mounted on the “HSMS” node of a → local BS2000-UFS by the system administrator.

The local BS2000-UFS is also considered as a node S0.

### **owner ID**

Upon creation of an archive, the user ID of the → archive owner is stored as the owner ID in the HSMS control file.

The owner ID SYSHSMS is assumed if the HSMS administrator creates an archive without specifying an owner ID.

### **passive HSMS client**

*For UNIX workstations:*

The software product → NFS is required in addition.

A passive HSMS client is mounted using → NFS in BS2000's POSIX files system. → Backup/archiving takes place using HSMS with the BACKUP-NODE-FILES or ARCHIVE-NODE-FILES statement. No additional software is required on the node.

### **path name**

Under → UNIX, each file and each → directory is identified by a unique path name. The path name designates the position of the file or the directory within the → file system as well as indicating how the file/directory can be accessed. The path name is formed by the names of a file's or directory's parent

directories, starting with the → root directory, and its own name. The names of the individual directories are separated by a slash.

(Example: c:dir1/dir2/protocol)

UNIX distinguishes between absolute and relative path names.

**pool**

→ volume pool

**protection attributes**

Security-relevant attributes of an object (file, job variable, etc.) which determine the type and scope of access to this object.

Examples of file protection attributes are: ACCESS, USER-ACCESS, AUDIT READ-PASSWORD, WRITE-PASSWORD, EXEC-PASSWORD, RETENTION-PERIOD, BASIC-ACL and GUARD.

**pubset**

Public volume set: set of public disks which belong together and may, for instance, have a common catalog. A pubset is considered to be locally available once its catalog and data have been imported (IMPORT-PUBLIC).

A pubset is identified by a one- to four-character ID.

**recall**

To move migrated files back from a background level to the processing level → S0. The recall can be started explicitly using the RECALL-MIGRATED-FILES statement or implicitly by opening the file.

**remote computer**

A → network comprises remote and → local computers. All computers in a network other than the one at which the user is working are remote computers for that user. Users can communicate with all remote computers in the network. Once a user has connected up with a remote computer, that computer becomes that user's local computer.

**reorganization**

HSMS function used primarily to reorganize the migration archive, i.e. to reshuffle save files without transferring → invalid files.

When long-term archives are reorganized, only save versions whose → file expiration date has not yet been reached are copied. Obsolete save versions are not accepted.

However, HSMS can also reorganize → pubsets and private disks (→ backup).

**repository**

→ archive directory for node files

**request**

Generated for the processing of → action statements and in connection with → implicit recall. All requests are entered in the → request file.

**request file**

File under the SYSHSMS user ID containing the requests. It is from this file that the tasks which process the → action statements are started.

**restore**

To move data from an HSMS archive back to the processing level → S0.

**retention period**

Period of time during which data modification or deletion is prohibited. The (physical) retention period prevents save files and save volumes from being overwritten during this time, while the (logical) retention period defined by the file expiration date prevents files from being modified or deleted.

**root directory**

Main directory of a tree-structured → file system which constitutes the origin of all other → directories. The root directory must be present in any file system.

**S0**

Online processing level, implemented by disk storages with short access times. Its management units are the pubsets.

**S1**

Online background level, implemented by disk storages (possibly with more capacity and longer access times than → S0); its management units are the pubsets.

**S1-SM-pubset**

An SM pubset which is used as S1 storage level of SF pubsets. This ensures that the storage space available for backup and migration at storage level S1 is no longer limited to the size of an SF pubset of 4TB, but can almost be 1000TB in size.

**S2**

Offline background level implemented by archives on magnetic tape cartridges.

**save**

Generally speaking the copying of data to a → save file, irrespective of the basic function used. Also used as a synonym for → backup.

**save, logical**

To read data from one or more volumes and write it contiguously to one or more volumes.

**save, physical**

Block-by-block copying of the entire data of a volume, including the volume labels, to another volume, so that the contents and structure of the second are identical to those of the original volume.

**save file**

“Receptacle“ for saved files and job variables. The save file contains one or more → save versions and consists of a set of volumes which all have the same owner and → retention period. The distinction between save file and save versions is introduced with HSMS, where it is possible to manage several save versions in a single save file in conjunction with archival, migration and node backup. Only entire save files can be released. Each save file is identified by a save file ID (→ SFID) formed by the date and time of its creation.

**save version**

Result of a backup or archival request. The save version is internally identified by an SVID (save version ID). The user can refer to it via its creation date or the name assigned to it at creation.

**server**

Computer providing services to other computers (→ clients) in a network.

**SFID**

Identifies a → save file; the save file ID has the following format:  
S.yymmdd.hhmmss

**SF pubset**

Abbreviation for “single-feature pubset”.

An SF pubset consists of a set of public disk storages with a shared catalog. It is defined by its catalog ID.

An SF pubset is not the same as an → SM pubset.

**SF pubset environment**

Set of HSMS parameters which are specific to all → SF pubsets. The SF pubset environment includes the parameters of the global control file and the global request file.

**shadow archive**

Archive that is linked to a → backup or → long-term archive. A shadow archive holds the automatically created copies of data which is stored in a backup or long-term archive.

**shared pubset**

Pubset that can be accessed simultaneously by more than one computer.

**sharers**

Computers that have simultaneously imported a particular pubset (→ shared pubset).

**single-feature pubset**

→ SF pubset

**SM pubset**

Abbreviation for system-managed pubset.

The DMS object SM pubset consists of a set of → volume sets.

An SM pubset is not the same as an → SF pubset.

The term SM pubset is also used in this manual to denote

→ “SM pubset under HSMS control”.

**SM pubset not under HSMS control**

SM pubset that was not declared for HSMS and can therefore also not be managed by HSMS.

**SM pubset under HSMS control**

Closed container that holds both the data and the metadata.

In this manual also often simply referred to as → SM pubset.

**SM pubset session**

For HSMS, the time from the start of the HSMS subsystem (or the import of the SM pubset if this is done later) to the time the HSMS subsystem is stopped (or the SM pubset is exported if this is done later).

**SM pubset environment**

Set of HSMS parameters that are specific to an → SM pubset. The SM pubset environment includes the parameters of the SM pubset control file and the SM pubset request file.

**Snapset**

Copy of a → pubset on additional → mirror disks (Snap disks) which as of BS2000/OSD-BC V7.0 can be created as a pubset backup in a → disk storage system with SHC-OSD. Files and job variables can be restored from a Snapset using a DMS command or saved with HSMS.

**standard save file**

Save file to which → backups for an → archive are written unless otherwise specified.

**storage hierarchy**

Assignment of storage units to different storage levels, depending on their availability, access time and storage costs (→ S0, → S1, → S2).

**storage level**

→ storage hierarchy

**SYSARCHIVE**

→ default system archive for → archival.

**SYSBACKUP**

→ default system archive for → backup.

**SYSMIGRATE**

→ default system archive for → migration.

**SYSNODEARCHIVE**

→ default system archive for → archival of → node files.

**SYSNODEBACKUP**

→ default system archive for → backup of → node files.

**system archive**

→ default system archive

**system-managed pubset**

→ SM pubset

**system startup**

Loading of the BS2000 operating system software. The following variants exist: AUTOMATIC-STARTUP, DIALOG-STARTUP and FAST-STARTUP. The variants are differentiated by their automation. Synonym: system initialization

### **TAPE**

Volumes of the class "TAPE" are assigned to storage level → S2, these are magnetic tapes with a recording density of 1600 bpi (T1600) and 6250 bpi (T6250) as well as magnetic tape cartridges (TAPE-C2, TAPE-C3, etc.).

### **tape session**

Period of time during which the I/Os to and from → S2 are processed.

### **UFS (UNIX File System)**

Component of → NFS providing access to local file systems.

### **UNIX**

Interactive operating system developed by Bell Laboratories in 1969 for use in small computers but meanwhile used in all computer classes. Since only the central UNIX kernel is hardware-dependent, UNIX can be installed on a wide range of systems of different manufacturers.

### **valid file**

→ Migrated file which, up to now, has not been recalled or deleted or overwritten on the processing level. It is marked as a migrated file in the catalog (# before its name).

### **volume pool**

Set of volumes managed by an archive and registered in the directory. Volumes required for save requests are normally fetched from the free volume pool of the archive.

### **volume set**

Set of disks that can be addressed by their volume set ID. Several volume sets make up an → SM pubset.

### **WAN (Wide Area Network)**

→ Computer network not restricted to a limited area. A WAN may include several → LANs.

---

## Abbreviations

ACS	Alias Catalog Service
AML	Automatic Media Library
ASCII	American Standard Code for Information Interchange
BACL	Basic Access Control List
BCAM	Basic Communication Access Method
BCV	Basic Continuance Volumes
BLS	Binder Loader Starter
catid	CATalog IDentifier
CCOPY	Concurrent COPY
CFID	Coded File ID
CHKPT	CHeckPoinT
CL	CLient
CNS	Cataloged Not Saved
DAB	Disk Access Buffer
DCAM	Data Communication Access Method
DEFLUID	DEFauLt User ID
DFS	Distributed File System
DMS	Data Management System
DSECT	Dummy SECTion
DSSM	Dynamic SubSystem Management
EBCDIC	Extended Binary Coded Decimal Interchange Code
EDT	EDiTor
EOF	End Of File
EOV	End Of Volume
FARMTSAV	File ARchiving MeTadata SAVe
FCB	File Control Block
FDDRL	Fast Disk Dump and ReLoad

## Abbreviations

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FGG	File Generation Group
FHS	Format Handling System
FIFO	First In First Out
FTP	File Transfer Protocol
GCF	Generic Catalog Facility
GS	Global Storage
GUARDS	Generally Usable Access contRol aDministration System
HIPLEX	Highly Integrated system compLEX
HSMS	Hierarchical Storage Management System
IFG	Interactive Format Generator
IMON	Installation MONitor
INOP	INOPerable (device status)
IDRC	Improved Data Recording Capability
ISAM	Indexed Sequential Access Method
JV	JobVariable
K-format	Key format
KB	KiloByte
LMS	Library Maintenance System
MAREN	Volume archiving system in computer networks (German abbreviation)
MIP	Message Improvement Processing
MPVS	Multiple Public Volume Set
MRSCAT	master CATalog
MSCF	Multiple System Control Facility
MSG	MeSsaGe
MTC	Magnetic Tape Cartridge
NDM	Nucleus Device Management
NFS	Network File System
NK-format	NonKey format
OPS	Output Presentation Services
OSD	Open Server Dimension (up to now: Open Systems Direction)
PAM	Primary Access Method
PCS	Performance Control Subsystem
PFA	Performant File Access

POSIX	Portable Open System Interface for UNIX
PVS	Public Volume Set (Pubset)
RAID	Redundant Array of Independent Disks
RFA	Remote File Access
ROBAR	ROBot ARchive
RSO	Remote Spool Output
RU	Release Unit
SAM	Sequential Access Method
SDF	System Dialog Facility
SECOS	SEcurity COntrol System
SF pubset	Single-Feature pubset
SHC	Storage Host Component
SM pubset	System-Managed pubset
SMS	System-Managed Storage
SNMP	Simple Network Management Protocol
SOLIS	SOftware supPLy and Information System
SPVS	Shared Public Volume Set
SFID	Save File IDentification
SRDF	Symmetrix Remote Data Facility
SRPM	System Resources and Privileges Management
SV	SerVer
SVID	Save Version IDentification
SYSSII	Structure and Installation Information
TCP/IP	Transmission Control Protocol / Internet Protocol
TEMPFILE	TEMPorary FILE
TFT	Task File Table
TIAM	Terminal Interactive Access Method
TLS	Tape Library System
TPR	Task PRivileged
TSN	Task Sequence Number
TSOS	Time Sharing Operating System
TU	Task Unprivileged
UDS	Universal Database System

## Abbreviations

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UFS	UNIX File System
VOL	VOLume header Label
VSN	Volume Serial Number

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## Related publications

You will find the manuals on the internet at <http://manuals.ts.fujitsu.com>. You can order manuals which are also available in printed form at <http://manualshop.ts.fujitsu.com>.

- [1] **HSMS V11.0A** (BS2000)  
**Hierarchical Storage Management System**  
**Volume 1: Functions, Management and Installation**  
User Guide
- [2] **ARCHIVE** (BS2000)  
User Guide
- [3] **SDF** (BS2000)  
**SDF Dialog Interface**  
User Guide
- [4] **BS2000 OSD/BC**  
**Introductory Guide to DMS**  
User Guide
- [5] **BS2000 OSD/BC**  
**Commands**  
User Guide
- [6] **SDF-P** (BS2000)  
**Programming in the Command Language**  
User Guide
- [7] **SECOS** (BS2000)  
**Security Control System**  
User Guide



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