



System i

Systems management

Backup, Recovery, and Media Services (BRMS)

*Version 5 Release 4*







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**Note**

Before using this information and the product it supports, read the information in “Notices,” on page 35.

**Fifth Edition (February 2006)**

This edition applies to version 5, release 4, modification 0 of IBM i5/OS (product number 5722-SS1) and Backup, Recovery, and Media Services (BRMS) (product number 5722-BR1), and to all subsequent releases and modifications until otherwise indicated in new editions. This version does not run on all reduced instruction set computer (RISC) models nor does it run on CISC models.

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## Backup, Recovery, and Media Services (BRMS)

IBM® Backup, Recovery, and Media Services (BRMS) helps you implement a disciplined approach to managing your backups and provides you with an orderly way to retrieve lost or damaged data.

BRMS is the IBM strategic solution for planning and managing save and restore operations on your System i™ product. BRMS base product provides all of the functions that most System i users need to implement a fully automated, single system, backup, recovery, and media management strategy. Using BRMS, you can manage your most critical and complex save operations, including online backups of Lotus® servers. It also supports parallel save operations of a library or single object using up to 32 tape devices, which shortens the save window by using multiple devices. You can also recover your system fully during a disaster or failure, or restore single objects or libraries from your save media. BRMS can also perform some daily maintenance activities that are related to your backup routine.

- | In addition to these backup and recovery features, BRMS can support and manage an unlimited number
- | of media, shared tape devices, automated tape libraries, virtual tape devices, and IBM Tivoli® Storage
- | Manager servers. BRMS enables you to track all of your media from creation to expiration. You no longer
- | have to keep track of which items are on which volumes, and worry that you will accidentally write over
- | active data.

As your business needs change and grow, you can add functions to the BRMS base product by purchasing and installing additional options. The Network feature of the BRMS product provides centralized management of multiple BRMS systems within a network using local TCP/IP, Advanced Peer-to-Peer Network (APPN), or both. A BRMS network system shares the inventory and policies associated with media managed within BRMS network group. In addition, users can view the save history of any system in the network from a single system. The networking feature also simplifies media duplication by using one system in the network to duplicate media for another system in the network. The systems in a BRMS network can be other System i platforms or individual i5/OS® partitions.

The Advanced feature of the BRMS product enables Hierarchical Storage Manager (HSM) archive with HSM dynamic retrieval and automated disk pool data migration. Parallel save operations work with the BRMS Advanced feature to allow for parallel archive and parallel dynamic retrieval of a single object. The ability to dynamically retrieve a large database file in parallel helps to reduce the window of the retrieval process. The BRMS Advanced feature allows archive capabilities of database files, stream files, and documents based on frequency of use, inactivity limit, object size, or disk pool thresholds.

- | BRMS provides both the traditional character-based interface and a graphical user interface (GUI), which
- | is available as a plug-in to iSeries™ Navigator. These interfaces are not mutually exclusive. You can either
- | choose both interfaces, using the character-based interface for some tasks and the BRMS plug-in for
- | others, or you can choose to use one interface exclusively. However, differences between these BRMS
- | interfaces do exist and you should be aware of them.

**Important:** BRMS is not a replacement for a backup, recovery, and media management strategy; it is a tool that you use to implement your strategy. Before you start doing backups using BRMS or any other product, you should plan your backup and recovery strategy.

### Related concepts

“BRMS interface differences” on page 4

You can manage backups, recovery operations, and your media with BRMS by using either the BRMS plug-in to iSeries Navigator or the character-based interface.

### Related information

Planning your backup and recovery strategy



## What's new for V5R4

For V5R4, the iSeries Navigator plug-in for Backup, Recovery, and Media Services for i5/OS contains numerous new functions and enhancements.

### Functional enhancements

Enhancements to Version 5 Release 4 (V5R4) Backup, Recovery, and Media Services (BRMS) include:

- Support for virtual media
- Capability to create and manage archive policies
- Ability to manage disk pool information stored in BRMS
- Ability to manage media containers and container pools
- Enhanced Tivoli Storage Manager (TSM) server management
- Performance improvements for Restore Wizard
- Enhance Backup Policy Properties to include the following new attributes:

#### Save item exit program

Allows you to specify an exit program to run after an item has been saved or after a save has been attempted. You can use the exit program as part of your error recovery procedures to determine why the save of an item failed.

#### Backup list for missed objects

Manages a list of objects that could not be saved because of an error. For example, if an object is currently in use, then the save will fail. This object will be added to the backup list for missed objects so a save can be performed at a later time.

#### Mark saved items for duplication

Allows you to create multiple copies of a backup item easily so it can be sent to an offsite storage location for safekeeping.

#### Force full backup

Allows you to specify that a full backup should be run after a certain number of days have expired from the last full backup.

- Enhanced Global Policy Properties to include the following new attributes:

#### Message logging and filtering

Allows you to add log message identifiers to a list of messages which you do not want recorded in the BRMS log.

#### Message distribution

Allows you to add log message identifiers to a list of messages you want distributed electronically to a cellular telephone, pager, or internet mailbox.

#### Offline notification period

Establishes how often you want the current system to notify you when it cannot communicate with another system in the network.


#### Network restricted state interfaces to start

Allows you to define specific interfaces which you want BRMS to start while in restricted state to perform BRMS network operations.



### Information enhancements

For V5R4, the Backup, Recovery, and Media Services (BRMS) topic has added several pages discussing how to use the new function, and improved existing scenario and task based information. In addition, the



- | online help for BRMS has been significantly updated and enhanced. The Backup Recovery and Media Services for iSeries  (SC41-5345-05) manual has also been updated with these newest functional enhancements for users of the character-based interface.

## | **How to see what's new or changed**

- | To help you see where technical changes have been made, this information uses:
  - | • The  image to mark where new or changed information begins.
  - | • The  image to mark where new or changed information ends.
- | To find other information about what's new or changed this release, see the Memo to users.

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## **Printable PDF**

Use this to view and print a PDF of this information.


To view or download the PDF version of this document, select Backup, Recovery, and Media Service  (about 584 KB).

## **Saving PDF files**

To save a PDF on your workstation for viewing or printing:

1. Right-click the PDF in your browser (right-click the link above).
2. Click the option that saves the PDF locally.
3. Navigate to the directory in which you want to save the PDF.
4. Click **Save**.

## **Downloading Adobe Reader**

- | You need Adobe Reader installed on your system to view or print these PDFs. You can download a free copy from the Adobe Web site ([www.adobe.com/products/acrobat/readstep.html](http://www.adobe.com/products/acrobat/readstep.html)) .

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## **Advantages of using BRMS**

Backup, Recovery, and Media Services (BRMS) provides a robust, easy-to-use graphical user interface to perform save and recovery operations and to manage media.

On the i5/OS operating system, you can perform backup and recovery operations in several ways. You can use local save and restore commands or the Save menu options, or you can create CL programs. However, BRMS provides a more dynamic solution for your backup and recovery needs, enables you to manage your media, provides archiving capabilities for infrequently used objects. It also maintains a history of all saved items, which simplifies the restore process and enables BRMS to create a detailed recovery report. BRMS provides the following added functions that other backup solutions do not have:

### **Robust graphical user interface**

The BRMS graphical user interface is available as an iSeries Navigator plug-in. The BRMS interface provides more granular backups of individual files and directories, the ability to create policies to control archives and backups on your system, a simple save history query function to quickly locate items to restore, and an easy, effective method of managing media and devices used for BRMS save operations.

### **Tailored save operations**

BRMS comes with several standard policies that cover your basic needs, but you can also create

customized policies that save data based on your company's specific needs. You have the options to create archive policies, which provide a systematic way of saving infrequently used objects to media to free space on the system, and backup policies, which perform save operations on data that is critical to your day-to-day operations. You can also choose to back up individual files or directories or perform incremental and online backups of Lotus servers while they are still active.

#### **Lotus server online and incremental saves**

BRMS enables you to save Lotus servers while they are active. You can also easily define items to omit from the save operation.

#### **Enhanced save-while-active**

BRMS allows you to use your system during all or part of the save process, which can help you reduce or eliminate your downtime for certain save operations.

#### **Parallel save and restore support**

BRMS provides the ability to save libraries and objects to multiple devices at once. You can use up to 32 devices in this manner.

#### **Network feature**

By placing multiple systems in a BRMS network, you can share BRMS policies, media information, and storage locations across the network. This allows you to manage saves and restores across all of your systems in a consistent manner.

#### **Media and device management**

BRMS enables you to keep an inventory of your media and track everything that is on them. When you do a backup, BRMS lets you know which tapes to use, so you do not have to worry about writing over active data. In addition, you can manage devices, such as Tivoli Storage Manager (TSM) servers, to store your saved data.

#### **Step-by-step disaster recovery**

After every backup, you can print a disaster recovery report that will guide you through the recovery of your system. It even tells you which media you need to restore on which pieces of the system.

**Note:** It is recommended that after every scheduled backup, you print your disaster recovery report. In the event of an unplanned system outage, this report will help guide you through a recovery of your entire system.

#### **Related concepts**

"Online backups of Lotus servers" on page 24

Backup, Recovery, and Media Services (BRMS ) supports online backups of Lotus server databases (such as Domino® and Quickplace).

#### **Related tasks**

"Working with media" on page 29

After media is added to the BRMS inventory, you can view that media based on the criteria that you specify, such as the volume name, status, media pool, or expiration date.

"Printing a recovery report" on page 27

When you back up your system using BRMS, information about each backed-up item is recorded in the save history. The information in the save history is used to create a **recovery report**, which guides you through a full system recovery.

"Creating a backup policy" on page 22

The **New Backup Policy** wizard in iSeries Navigator allows you to create a new backup policy.

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## **| BRMS interface differences**

- | You can manage backups, recovery operations, and your media with BRMS by using either the BRMS
- | plug-in to iSeries Navigator or the character-based interface.

If you have used the character-based interface in the past and want to use the BRMS plug-in, you should be aware of the differences between these two interfaces.

## Terminology differences

The following table describes the different terminology that exists in each interface and the definitions of these terms.

*Table 1. Terminology differences between the BRMS plug-in and character-based interface*

BRMS plug-in to iSeries Navigator	Character-based interface	Definition
Backup policy	Backup control group and media policy	A backup policy is the combined attributes of a backup control group and the media policy in the character-based interface. Both of these functions control how, when, and where a backup is performed.
Changes-only save	Non-incremental cumulative backup	Saves only those items that have changed since the last full save was performed.
Media pool	Media class	A grouping of media based on similar characteristics, such as density and capacity.
Disk pool	Auxiliary storage pool	A software-defined group of disk storage units on a system.
Disk pool group	Auxiliary storage pool class	A group of disk pools that are organized by similar purpose.
Container pool	Container class	A grouping of similar types of containers that hold similar media volumes.

## Compatibility differences

If you are currently using the character-based interface control groups and they do not reference the system policy (\*SYSPCY), archive policy (\*ARCPCY), backup policy (\*BKUPCY) and do not share media policies among control groups, then using the BRMS plug-in should have no functional impacts to your character-based control groups. If this is not true, read the following information:

The backup and archive policies created by the BRMS plug-in can be viewed and run from the character-based interface. Also, control groups created from the character-based interface can be viewed and edited via the BRMS plug-in backup and archive policy properties. A message will be presented to the user when a control group created or edited using the character-based interface is about to be changed by the BRMS plug-in; the user will have the opportunity to cancel the operation or continue. However, changing control groups created on the character-based interface using the BRMS plug-in is not recommended unless you understand the following:

- The BRMS plug-in backup and archive policies are designed to be independent of each other. Thus, if you make changes to one policy, it will not affect the others. To ensure this independence, control groups updated with the BRMS plug-in will have all references to the character-based interface system policy (\*SYSPCY), archive policy (\*ARCPCY), and backup policy (\*BKUPCY) removed. These references will be resolved and replaced with the actual values when the backup policy is saved by the BRMS plug-in. The archive policy, backup policy, or system policy do not affect backup or archive policies created or edited by the BRMS plug-in. The exceptions to this are the network function, signoff exceptions, and subsystem to check controls in the system policy, which are used by the BRMS plug-in.
- The BRMS plug-in hides the media policy from the user (no BRMS plug-in functions exist to show or edit media policies). Media policy attributes are indirectly shown and edited through backup and

- | archive policy properties. As mentioned earlier, the BRMS plug-in backup and archive policies are designed to be independent of each other. To ensure this, the BRMS plug-in will create a new media policy based on the currently used one if the control group being edited contains a media policy that is used by other control groups or is a shipped BRMS media policy. If a new media policy is created, the control group will be changed to use the new one.
- | • When you create a new backup or archive policy using the BRMS plug-in, it will use a new media policy that is dynamically created.
- | • Changes made to other, non-IBM supplied policies are reflected in the BRMS plug-in.

#### | **Related information**



| Backup Recovery and Media Services for iSeries



| BRMS Graphical User Interface: Frequently Asked Questions

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## Setting up BRMS

You can work with Backup, Recovery, and Media Services (BRMS) plug-in to iSeries Navigator after you have installed the program on your system.

A *plug-in* is a program that is created separately from iSeries Navigator, but, when installed, it looks and behaves like the rest of iSeries Navigator.

## Hardware and software requirements for BRMS

Before you install the BRMS plug-in to iSeries Navigator, ensure that your system and the client meet the necessary requirements.

### Requirements for your System i

- | • i5/OS Version 5 Release 4 (5722-SS1) or later
- | • Backup, Recovery, and Media Services (5722-BR1 \*BASE)
- | • Media and Storage Extensions (5722-SS1 Option 18)
- | • iSeries Access for Windows® (5722-XE1) and iSeries Navigator

### Optional installable features for BRMS

In addition to the System i requirements, you can also install optional features of BRMS that provide additional functions. You can purchase these features separately.

- | • BRMS -- Network feature (5722-BR1 Option 1)
- | • BRMS -- Advanced feature (5722-BR1 Option 2)
- | • Tivoli Storage Manager APIs (5733-197 \*BASE)

**Note:** This option is required if you plan to use TSM servers.

### Requirements for your PC

- | • Processor: 850 mHz, minimum
- | • Memory: 512 MB is recommended for all platforms
- | • Display: 800 x 600 resolution, minimum. If you have trouble reading the fonts on some panels, try using a screen resolution of 1024x768 or better.
- | • Operating system: Microsoft® Windows 2000, Microsoft Windows NT® 4.0 with Microsoft Service Pack 5 or later, Microsoft Windows XP, Microsoft Windows Server 2003 and later
- | • iSeries Access for Windows with iSeries Navigator installed

## Installing the BRMS plug-in to iSeries Navigator

To configure and manage your save operations on your system, you can install the Backup, Recovery, and Media Services (BRMS) plug-in to iSeries Navigator.

Before you install BRMS, you must first ensure that your system and client meet the hardware and software requirements. After you have installed all the prerequisite software and any optional features that you want, you can follow these steps to install the BRMS plug-in to iSeries Navigator:

1. In iSeries Navigator, right-click **My Connections** and select **Install Options** → **Install Plug-ins**.
2. On the Install Plug-ins panel, select the system that you want to install the plug-in from (must be a system that has the 5722-BR1 product installed) and click **OK**.
3. Enter your i5/OS user profile name and password on the Password panel and click **OK**. (The prompt may ask for the Windows password, but it needs to be the i5/OS user profile password.)

**Note:** Some Windows operating systems may require the Windows and i5/OS user profile passwords to match.

4. A scan for plug-ins on the selected system will occur next. When the Plug-in Selection panel appears, check the Backup, Recovery, and Media Services check box and click **Next**.
5. The first time the iSeries Navigator is used after installing a plug-in, the iSeries Navigator scan panel will appear. Click **Scan Now**. If you do not click the **Scan Now** button, the plug-in that was just installed will be disabled and will not show up in iSeries Navigator.

## Uninstalling BRMS

You might need to uninstall the BRMS plug-in to iSeries Navigator.

Follow these steps to uninstall the BRMS plug-in:

1. Go to your iSeries Access for Windows directory on your PC and double-click **Selective Setup**.
2. Click **Next** on the Selective Setup panel.
3. Select **Ignore, I'm going to uninstall components** on the Selective Setup Options panel.
4. Deselect **Backup, Recovery, and Media Services** on the Component Selection panel.
5. Click **Next** on the Component Selection panel. Backup, Recovery, and Media Services should be in the list of components to remove on the Start Copying Files panel.
6. Wait for the program to finish removing the files.
7. Click **Next** on the Start Copying Files panel.
8. Click **Finish** on the Setup Complete panel.

---

## Transitioning to BRMS

If you are already using Operational Assistant or iSeries Navigator Backup for your backups, and would like to switch to BRMS because of the advantages it offers, you could easily migrate your backup strategy to BRMS.

### Step 1: Adding media

One of the great advantages of BRMS is that it manages your media for you. Therefore, before you can use BRMS to do a backup, you have to add media to the BRMS media inventory. The **Add Media** wizard enables you to add backup media to the pool of media that is already being used by Backup, Recovery and Media Services. It also enables you to prepare the media for use. To add media, follow these steps:

1. In iSeries Navigator, expand **My Connections** (or your active environment).
2. Expand a system with Backup, Recovery, and Media Services installed on it.
3. Expand **Backup, Recovery, and Media Services** → **Media**.
4. Right-click **Tape Volumes** and select **Add**.

5. Follow the wizard's instructions to add the media to BRMS.

## Step 2: Preparing backup policies

Operational Assistant and iSeries Navigator Backup allow you to create three policies: one for daily backups, one for weekly backups, and one for monthly backups. In iSeries Navigator Backup, there are default values for each of these policies. Use the following information to set up BRMS to emulate the defaults in the iSeries Navigator Backup:

Policy	What iSeries Navigator Backup does	How to achieve the same result using BRMS
Monthly	Backs up all libraries, folders, and directories. Also backs up security data and configuration data.	Run the *System policy that is shipped with BRMS.
Weekly	Backs up all libraries, folders, and directories.	Run the *Bkugrp policy that is shipped with BRMS.
Daily	Backs up any changes since the last full backup of libraries and folders that you specify. Also backs up changes to all integrated file system directories.	Create a policy that includes the items you want to back up, and indicate that the policy should back up only the changes since the last full backup.

In Operational Assistant, there are no default values for each of the policies. Use the following information to set up BRMS to emulate the options in Operational Assistant:

What is backed up	To what extent is it backed up	How to achieve the same result using BRMS
Libraries, folders, directories, security data, configuration data	All - full system backup	Run the *System policy that is shipped with BRMS.
User libraries	All user libraries	Run the *Bkugrp policy that is shipped with BRMS.
	Selected user libraries	Create a policy that includes the items you want to back up.
Folders	All folders	Run the *Bkugrp policy that is shipped with BRMS.
	Selected folders	Create a policy that includes the items you want to back up.
Directories	All directories	Run the *Bkugrp policy that is shipped with BRMS.
Security data	All security data	Run the *Bkugrp policy that is shipped with BRMS.
Configuration data	All configuration data	Run the *Bkugrp policy that is shipped with BRMS.

## Step 3: Scheduling the backup policy to run

When you use BRMS, you can do backups, restores, and media moves without having to be nearby when they occur. For example, you have a four-hour save window every Saturday night when you could do a full-system backup. With BRMS, you can schedule the full system backup for Saturday night, but you don't have to be on site for the backup to occur. When you use the **New Backup Policy** wizard, you are given the option to schedule the backup when you complete the wizard. To schedule a backup policy to run other than when you create it, follow these steps:



1. In iSeries Navigator, expand **Backup, Recovery, and Media Services**.
2. Expand **Backup Policies**.
3. Right-click the policy you want to schedule and select **Schedule**.

When you schedule a policy to run, keep in mind that only the items that are scheduled to be backed up on the day you run the policy will be backed up. For example, you have a backup policy that includes the library MYLIB. In the policy properties, you have MYLIB scheduled to be backed up every Thursday. If you schedule the policy to run on Thursday, MYLIB will be backed up. If you schedule the same policy on any other day, MYLIB will not be backed up.

Also, be aware that some operations (such as a full system backup) require that your system be in a restricted state when they run. In BRMS, the interactive console monitor allows you to submit a backup job, either scheduled or directly, to the interactive session running on the system console. A system operator can use the interactive system console session to monitor the progress of the backup and respond to tape mount messages. When you schedule a backup using the interactive console monitor, you will see the instructions for how to start the console monitor.

If you choose not to use the interactive console monitor and no one will be present to process commands as the backup runs, then you must ensure that your backup can run without intervention. A restricted state backup not using the interactive console monitor can also be scheduled as long as the backup can run unattended.

**Note:** In addition to scheduling backup policies you can also schedule to restore items, reclaim media, and to move media.

#### **Related concepts**

“Advantages of using BRMS” on page 3

Backup, Recovery, and Media Services (BRMS) provides a robust, easy-to-use graphical user interface to perform save and recovery operations and to manage media.

“BRMS interface differences” on page 4

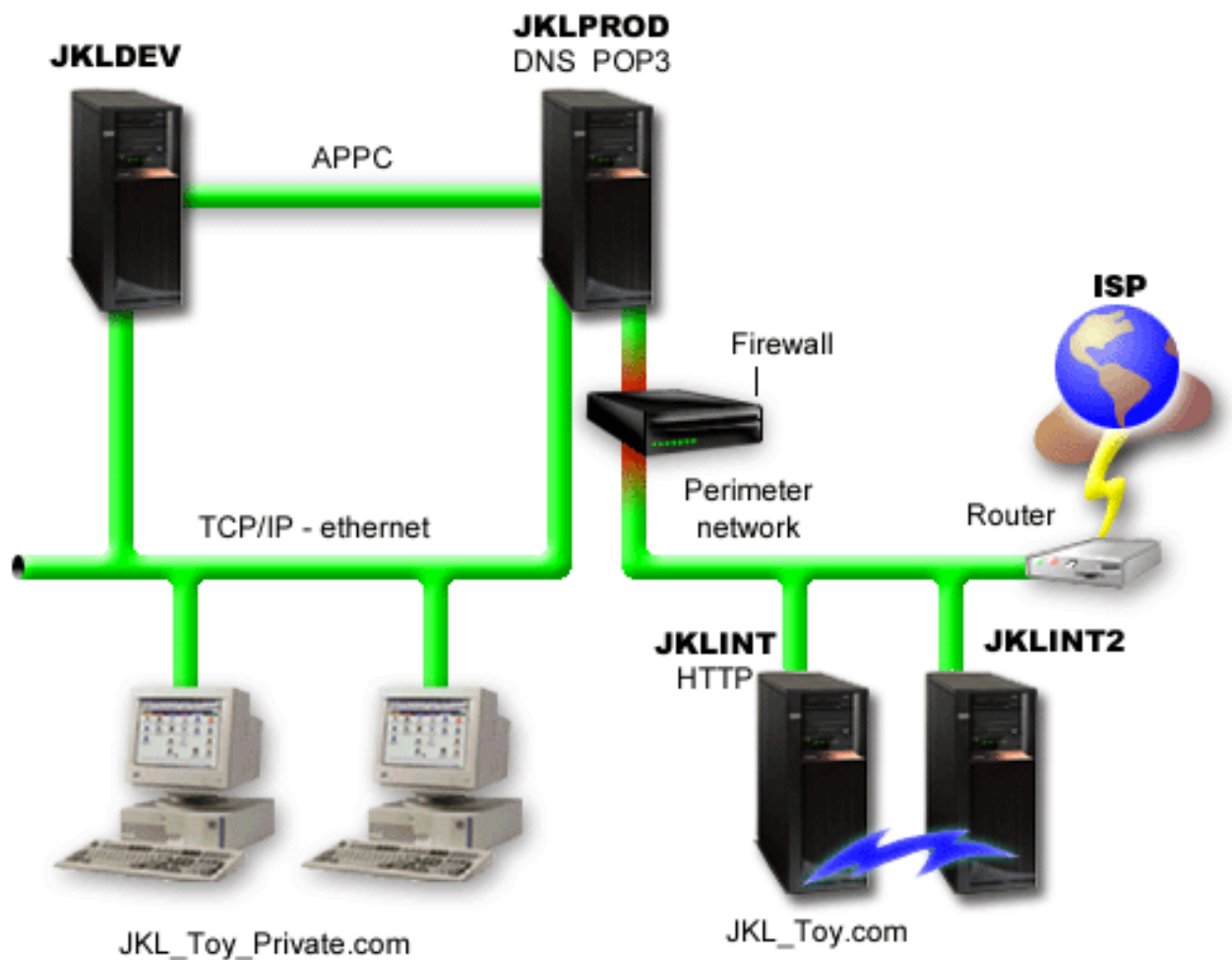
You can manage backups, recovery operations, and your media with BRMS by using either the BRMS plug-in to iSeries Navigator or the character-based interface.

---

## **Scenarios: How one company uses BRMS**

JKL Toy Company, a fictitious business, uses Backup, Recovery, and Media Services (BRMS) to perform backup and recovery operations on three of their systems. You can use these examples to create your own backup policies and media management strategy with BRMS.

Sharon Jones, the system administrator for the JKL Toy Company, is responsible for ensuring that all of their data is backed up and that they can recover their systems in the event of a disaster or system failure. Following is a diagram of JKL’s network:



JKL has four System i platforms that each serve a different purpose and have different backup, recovery, and availability needs. These systems are as follows:

- JKLDEV: This system is for development and is used primarily during the week and during the day, although there is some development activity into the evening hours and on weekends.
- JKLPROD: This is the system that JKL uses for all of their customer orders and where their business applications are installed (inventory control, customer orders, contracts and pricing, accounts receivable).
- JKLINT and JKLINT2: These systems are used for the JKL Web site and e-mail.

Sharon spent considerable time initially planning the backup strategy that would best meet JKL's needs--in doing so, she had to address the following questions:

- What will it cost JKL if a system goes down?
- What are the availability requirements for each system?
- What is the backup window for each system?
- What data has to be backed up and how often does it have to be backed up?

**Related information**

Scenario: JKL Toy Company e-business plans

Planning a backup and recovery strategy



## Scenario: Global policy properties

You can specify global properties to control how BRMS operates in your environment.

To access these settings, Sharon selects **Backup, Recovery, and Media Services** in iSeries Navigator, and then clicks **Global Policy Properties**. First, she wants to ensure that she is able to access the system during backup processing. She clicks the **Signoff Exceptions** tab and specifies the security officer user name.

Second, she wants to tailor how BRMS interacts with her during processing. She wants to be sure that she sees messages about a program or function ending abnormally, but she isn't interested in seeing messages that are purely informational. She clicks the **Notification** tab and specifies the settings she wants to use.

### Related concepts

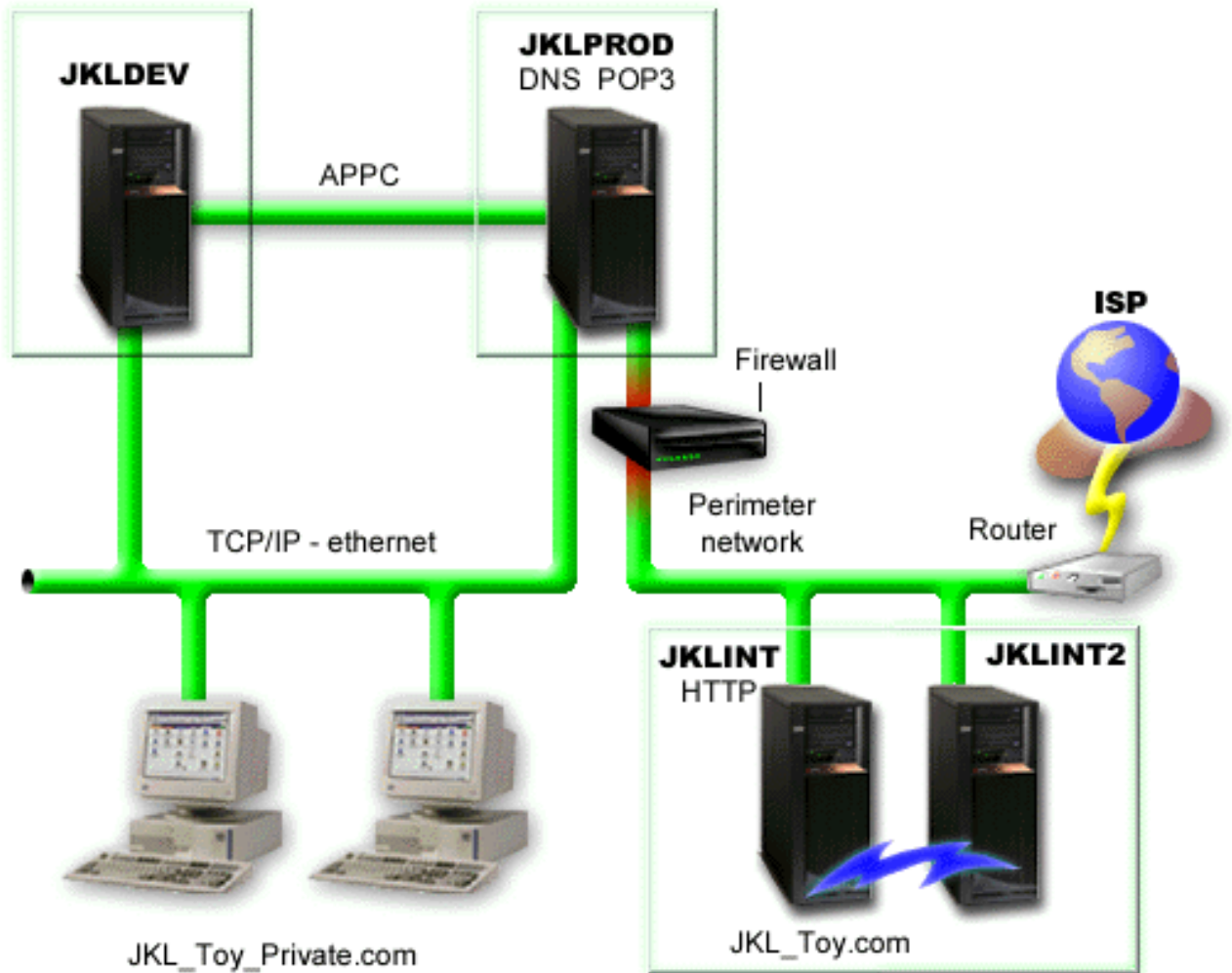
*"Specifying global policy properties"* on page 21

Global policy properties are settings that are used with values that you specify in your backup policies. You can use these properties to control how BRMS works in your environment.

## Scenario: Backup using BRMS

Sharon's backup plan for JKL took into account each system's purpose, workload, and availability requirements.

She also planned carefully for how the media that are used for each backup would be moved to and from offsite locations. Her strategy is reflected in the following diagram of JKL's network.



After Sharon established the backup strategy for each system (JKLPROD, JKLDEV, and JKLINT), she needed to decide how often the media from those backups would be rotated and moved to an offsite location for safekeeping.

**Related tasks**

“Creating a backup policy” on page 22

The **New Backup Policy** wizard in iSeries Navigator allows you to create a new backup policy.

“Creating a move policy” on page 29

As part of your backup plan, you need to manage media protection and rotation. Using Backup, Recovery, and Media Services (BRMS), you can create move policies to manage media movement.

**Related information**

Planning a backup and recovery strategy

**JKLDEV backup strategy**

JKLDEV is JKL’s development system and does not require continuous availability. It is used primarily during the week and during the day, although there is some development activity into the evening hours and on weekends.

## **JKLDEV**



This system can be taken down for a full backup on a weekend night and have changes backed up on all of the other nights.

To accommodate these requirements, Sharon uses the \*System policy that was shipped with BRMS. She schedules this policy to run every Saturday night at midnight. Sharon tested this backup and found that the amount of data being backed up would fit on a single tape so the backup could be run unattended. She just has to verify that the tape device is available and there is an expired tape mounted before leaving for the weekend.

During the week, Sharon also schedules the policy to start running at midnight every night. She chooses to override the policy setting and do a cumulative changes-only backup, which means that she saves all of the data that has changed since the last full backup.

### **Related tasks**

“Performing a fully automated backup” on page 23

In BRMS, you can start and run a system backup without having to use the interactive console monitor. This ability allows you to run your system backups unattended.

## **JKLPROD backup strategy**

JKLPROD is the system that JKL uses for all of their customer orders and where their business applications are installed (inventory control, customer orders, contracts and pricing, accounts receivable).

## **JKLPROD**



Right now their Web site is static, so customers place orders by phone or e-mail. The phone hours are 8 a.m. through 8 p.m. Monday through Saturday; if a customer wishes to place an order outside of those hours, they can send an e-mail.

The information on this system is extremely critical to their business, so it is important that they do frequent backups. Sharon has scheduled a full system backup to start every Saturday night at midnight. She used the \*System policy that came with BRMS to do these backups. Because there is a large amount of data that is backed up on this system, Sharon determined that she couldn't do an unattended backup.

A system operator would have to be there to change tapes during the backup. Sharon is planning on writing a proposal to her manager asking for a tape library which would eliminate the need for an operator to be present during the full backups.

During the week, she backs up all changed user data using the \*Bkugrp policy that came with BRMS. She overrides the default full backup with an incremental backup, which means that every night she backs up the changes since the previous night's incremental backup.

### **JKLINT backup strategy**

JKLINT is the system that JKL uses for their Web site and e-mail. While this data is critical to their business, it is fairly static--they don't make a lot of changes to the user profiles or configuration data on the system.



They need continuous availability for the critical data on this system, and they accomplish that by having a second system, JKLINT2, that shadows JKLINT. They use a high availability replication solution to copy the data from JKLINT to JKLINT2. Then, if JKLINT goes down, they can switch to JKLINT2.

There is no time to bring JKLINT down for a full backup, so Sharon instead backs up JKLINT2, since it is a replication of JKLINT. She does a full backup of JKLINT2 every weekend using the \*System backup policy that came with BRMS. She uses the Lotus server policy (QLTSSVR) to do an online backup of their Lotus Notes® mail databases every night except the night of the full backup.

**Another possible setup:** Sharon investigated using logical partitions on JKLINT and JKLINT2 to increase the security of these systems. They could use a firewall to filter all but e-mail on one partition and all but web traffic on the other partition. Then, the web partition would be protected from any security threats that might come through e-mail, which is a common route of attack. While this setup would have allowed for greater security, it also increased the level of complexity in their network, and Sharon decided that at this point they would stay with the simpler setup.

### **Scenario: Archiving data**

| Sharon Jones, the system administrator at the JKL Toy Company, wants to archive older data currently stored on one of the systems to media. You can use this example to plan and configure archive policies using BRMS.

#### **Situation**

| The JKL Toy Company stores large monthly sales invoices in an Accounts database on their JKLPROD system. Unfortunately these records have been kept on the system for several years and the large volume of data is negatively impacting the performance of the application. JKL wants to archive any records that are older than two years old. For this older data, the company wants to save it off the system to media, but ensure that it can be accessed, if necessary. Although this data is not current, employees occasionally need to access payment histories and other account information for these accounts. Users will typically be

| responding to a customer inquiries into this data, such as validating payment or addresses. Accounts that are younger than two years are considered active. Data in these accounts are updated regularly and are saved as part of the backup policy for JKLPROD system.

| For data that is older than two years, they would like to save it to media but retain it in case it is needed. Using the BRMS archive function, Sharon plans to save these monthly sales records to write once, read many (WORM) media and set criteria on what objects will be saved. She plans to create an archive policy for this data.

## | Objectives

| JKL Toy Company has the following objectives for this scenario:

- | 1. To improve application performance by removing older data from the system.
- | 2. To allow the access to data that has been archived.

## | Prerequisites and assumptions

| This scenario assumes that several prerequisite steps have been completed and tested before beginning any steps. These prerequisites are assumed to have been completed for this scenario:

| Ensure that the following requirements have been installed on your system:

- | • i5/OS Version 5 Release 4 (5722-SS1)
- | • Media and Storage Extensions (5722-SS1 Option 18)
- | • Backup, Recovery, and Media Services (5722-BR1 \*BASE)
- | • BRMS -- Network feature (5722-BR1 Option 1)
- | • BRMS -- Advanced feature (5722-BR1 Option 2)
- | • iSeries Access for Windows (5722-XE1) and iSeries Navigator
- | • Ensure that you have the latest PTFs installed on your system.

| Ensure that the requirements have been installed on the client:

- | • iSeries Access for Windows and iSeries Navigator
- | • BRMS iSeries Navigator plug-in

| Ensure that these planning tasks have been completed:

- | • All backup and recovery planning has been conducted and documented.
- | • All storage planning has been conducted and documented.

## | Configuration details

### | Preparing media

| Sharon needs to define write once, read many (WORM) with BRMS to save information that she wants to archive.

| Because invoice information does not change after an account is paid she feels that WORM media would be a good choice. Active and delinquent accounts will continue to be part of regular backups that are performed weekly. You can save once, but allow read access to the data. To add WORM media to BRMS, complete the following tasks:

- | 1. In iSeries Navigator, expand **My Connections** (or your active environment).
- | 2. Expand **JKLPROD** → **Backup, Recovery, and Media Services** → **Media** → **Media Pools** and right-click **Qic1000**. Then select **Properties**.

- | **Note:** The media pool name is generated automatically based on the tape density of the media, or you can right-click an existing media pool and select **New based on** to create a new media pool.
- | 3. On the **Properties** page, select **Write once media** to indicate that this media pool will contain write once media.
  - | 4. Click **OK**.

## | **Adding media**

| To store her archived data, Sharon Jones needs to add media to the system.

| Sharon Jones completed these steps:

- | 1. In iSeries Navigator, expand **My Connections** (or your active environment).
- | 2. Expand **JKLPROD** → **Backup, Recovery, and Media Services** → **Media**.
- | 3. Right-click **Tape Volumes** and select **Add**.
- | 4. On the **Welcome** page, click **Next**.
- | 5. On the **Select Media Pool** page, select *Qic1000*, and click **Next**.
- | 6. On the **Add Media--Add Volumes** page, type *vol1* in the **Volume name or prefix** field and click **Add**. This volume will be used for data that is over two years old. Click **Next**.
- | 7. On the **Add Media--Select Media Storage Location** page, select **Vault** in the **Location** field. Click **Next**.
- | 8. On the **Add Media--Initialize Volumes** page, select **Initialize** for *Vol1* in the **Volume to initialize** field. In the **Device** field, select *Tap01* for *Vol1*. In the **Media action when done** field select **Rewind**. Click **Next**.
- | 9. On the **Add Media--Summary** page, validate the entries and click **Finish**.

## | **Creating archive policy for older data**

| Sharon Jones also decided to create a new archive policy for older data.

| Sharon Jones completed these steps to create a new policy:

- | 1. In iSeries Navigator, expand **My Connections** (or your active environment).
- | 2. Expand **JKLPROD** → **Backup, Recovery, and Media Services**.
- | 3. Right-click **Archive Policies** and select **New Policy**.
- | 4. On the **Welcome** page, click **Next**.
- | 5. On the **New Archive Policy--Policy Name** page, type **OLDACCTS**. In the **Description** field, enter **Archive policy for accounts older than 2 years**. Click **Next**.
- | 6. On the **New Archive Policy--Select Items for Save** page, navigate to the Accounts library and select the folder called "Accounts". Click **Next**.
- | 7. On the **New Archive Policy--Create Directory List** page, type **Directory list for oldaccts** archive policy to the **Description** field. Click **Next**.
- | 8. On the **New Archive Policy--Save Order** page, click **Next**.
- | 9. On the **New Archive Policy--Disk Pool Threshold** page, select **No minimum** and click **Next**.
- | 10. On the **New Archive Policy--Frequency Used Threshold** page, select **No maximum** and click **Next**.
- | 11. On the **New Archive Policy--Inactivity Threshold** page, enter **730** in the **Number of Days Inactive** field and select **Since last used or changed** for the **Inactivity type**. Click **Next**.
- | 12. On the **New Archive Policy--Object Size Threshold** page, enter **50** in the **Save objects with a size greater than** field. Click **Next**.
- | 13. On the **New Archive Policy--Storage Freed Objects** page, select **Save object regardless of whether they can be storage freed** and deselect **Enable dynamic retrieval of storage freed objects**. Click **Next**.

14. On the **New Archive Policy--Retrieved Object Retention** page, specify **Indefinitely or until archived by subsequent archive operation**. Click **Next**.
15. On the **New Archive Policy--Where to Media** page, select **Save to media**. Click **Next**.
16. On the **New Archive Policy--Media Retention** page, enter **730** for the number of days to keep the data. Click **Next**.
17. On the **New Archive Policy--Select Devices** page, select **Qic1000** in the **Media Pool** field. This is the media pool that you selected in when you prepared your media. Click **Next**.
18. On the **New Archive Policy--Duplicate Media** page, select **No, do not mark the media for duplication**. Click **Next**.
19. On the **New Archive Policy--Add Media** page, click **Next**. This was completed in Step 2: Add media.
20. On the **New Archive Policy--Summary** page, validate the properties of the new archive policy and click **Finish**.

### Viewing archive policy report

Sharon Jones wants to ensure that the properties for the archive are correct. She will use BRMS to create a report that she can view and validate the archive policy that she just created.

She completed the following steps to create the archive policy report:

1. In iSeries Navigator, expand **My Connections** (or your active environment).
2. Expand **JKLPROD → Backup, Recovery, and Media Services → Archive Policies**.
3. Right-click *oldaccts* and select **View Report**.
4. On the **View Report** page, select **Include lists used by this policy** and click **View**.

**Note:** You can also choose to save the report to a file or print the report. The information in the reports will reflect what is on the system at the time the reports print, not at the time you schedule the report to print.

5. Sharon validated that the items on the Archive report were accurate.

### Scheduling archive policy

After creating and testing her archive policy, Sharon now is ready to schedule the policies to run.

She completes the following steps:

1. Expand **JKLPROD → Backup, Recovery, and Media Services → Archive Policies**.
2. Right-click *OLDACCTS* and select **Schedule**. Sharon chose to schedule these archives to occur once every 6 months.

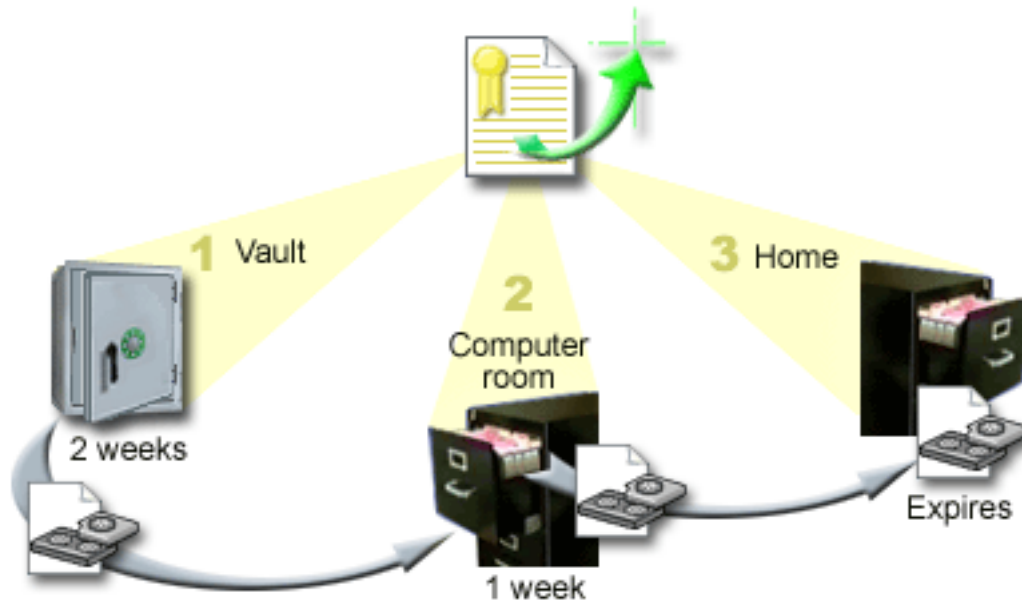
## Scenario: Moving media

This scenario describes how to create a move policy to track your backup media.

Sharon knows that media management is critical to the success of her backup strategy. If her media is damaged or destroyed, her backups are destroyed with it. If the correct media cannot be located when it is needed, her recoveries can be unnecessarily delayed. Sharon knows that it is important to have multiple copies of her media, and to have at least one copy stored offsite. Sharon creates a move policy in BRMS that she uses to track her media.

The following figure shows the locations that Sharon establishes:





She defines three locations in the move policy where the media will reside:

**Vault** This is Sharon’s secure offsite location. She has a contract with a local company who picks her media up every day and takes it to this facility for safekeeping. She indicates that the media will stay here for two weeks.

**Computer room**

Sharon defines this location as the filing cabinet in the computer room. The media will move from the vault to here and will stay here one week.

**Home** Sharon defines her home location as the filing cabinet in her office. This is the final location for the media. This is where the media expires, which means that it can be used again.

Every morning, Sharon prints out a copy of the BRMS recovery report for each system and makes two copies of each report. She also makes two copies of the media used for each backup. She gives one copy to the courier, stores one copy in a filing cabinet in her office, and stores the third copy in the computer room.

**Related tasks**

“Creating a move policy” on page 29

As part of your backup plan, you need to manage media protection and rotation. Using Backup, Recovery, and Media Services (BRMS), you can create move policies to manage media movement.

**Scenario: Reclaiming media**

This scenario describes how to copy active data from old tapes to new tapes. This process is called *reclaiming media*.

Periodically, Sharon retrieves a special set of tapes from the vault. These tapes contain some of their business records that need to be kept for several years. She decides to run reclaim to copy only the active data to new tape volumes. This will save the latest data that hasn’t expired on the tape volumes to the new volumes and they will be sent back to the vault.

To figure out the volumes to reclaim, Sharon does the following:

1. In iSeries Navigator, she expands **Backup, Recovery, and Media Services**.



2. She expands the **Media** folder.
3. She right-clicks **Tape volumes** and selects **Customize this View, Include**.
4. On the **Tape Volumes - Include** window, she selects **Active** for the Status field and clicks **OK**.
5. She right-clicks a Tape volume that she wants more information about and selects **Open**.
6. On the **Save History** window, she selects **View, Customize this View, Columns** and adds **File sequence** to the Columns to be displayed.

She can now look at the tape volume information and determine if the volume should be reclaimed. She looks for large gaps in the sequence numbers that indicate expired data. (For example, 1 ..... 10 .... 35 .....100 would be a good candidate. 1 ,2 ,3, 4, 5, 6, 7... would not.) She looks over several tape volumes and determines which ones should be reclaimed. Once she knows the volumes to be reclaimed, she right-clicks **Tape Volumes** and selects **Reclaim** to go through the Reclaim wizard and reclaim the media.

#### **Related tasks**

“Reclaiming your media” on page 29

Backup, Recovery, and Media Service (BRMS) enables you to efficiently reuse old fragmented tape volumes by copying active file sequences to unused media.

## **Scenario: Performing recovery operations**

One of the reasons that the JKL Toy Company chose BRMS as their backup and recovery solution is because of how easy it makes full system recoveries.

Sharon and her team are developing ways for JKL to expand their business over the Internet, and they recognize that system availability is key if they want to play in the Internet market. Any system downtime could mean a loss of sales and a loss of customer satisfaction. BRMS simplifies system recoveries so that, should disaster strike, they can get their system back online as quickly as possible.

BRMS also makes it very easy to restore a single item that has been accidentally deleted or corrupted. This is a task that Sharon does pretty regularly, as their developers work in a fast paced environment.

In addition to using BRMS, Sharon has a contract with IBM Business Continuity and Recovery Services. This contract ensures that she has an offsite system to use in the event of a disaster; Sharon goes to the recovery hot site twice a year to perform full system recoveries. Her contract with IBM Business Continuity and Recovery Services gives her an extra measure of security because she knows she can recover any of her systems should the need arise.

#### **Related concepts**

“Restoring items on your system” on page 26

When you back up your system using BRMS, information about each backed-up item is recorded in the save history. The information in the save history allows BRMS to provide the function of restoring individual objects or files.

#### **Related information**



IBM Business Continuity and Recovery Services

## **Recovering a system after a natural disaster using BRMS**

This scenario shows how Sharon Jones uses BRMS to recover one of her systems after a natural disaster.

In the middle of the night during a particularly wet spring, 8 inches of rain fell on the main office of the JKL Toy Company. A leak started in the corner of the roof that quickly turned into a small stream. The development system, JKLDEV, was positioned near the corner of the building where the water was leaking in. By the time Sharon arrived for work the next morning, JKLDEV was ruined.



While repairs were being made to the roof and she was waiting for the new system to be delivered, Sharon contacted her storage service provider and had them bring over the latest recovery report and media for JKLDEV. Then, she went to the recovery hot site provided by IBM Business Continuity and Recovery Services. With the assistance of the skilled staff at the hot site, Sharon followed each of the steps in the recovery report for JKLDEV, referring to the instructions in Backup and Recovery when necessary, until the system was recovered.

Once the roof was repaired and they had a new system to take JKLDEV's place, Sharon did a full backup of the system at the recovery hot site and then restored the latest data on the new JKLDEV system.


#### Related tasks

"Printing a recovery report" on page 27

When you back up your system using BRMS, information about each backed-up item is recorded in the save history. The information in the save history is used to create a **recovery report**, which guides you through a full system recovery.

#### Related information

 [IBM Business Continuity and Recovery Services](#)

 [Backup and Recovery](#)

### Restoring an accidentally deleted item using BRMS

Sharon Jones used BRMS to recover an important file that was deleted from the system.

**JKLDEV**



Nate Anderson is a recent college graduate who was hired by JKL for his Java™ programming and web systems administration skills. His primary duty is to ensure that the JKL web site is easy to use and functions correctly.

In his free time, he likes to work on innovative ideas for the future. He has a library on the JKL development system, JKLDEV, where he stores any programs he is working on for the future--ideas he hopes to implement one day when the JKL website becomes interactive. Last Thursday, another programmer accidentally deleted this library. Nate called on Sharon to restore the library for him.

Sharon uses the BRMS Restore wizard to restore Nate's library on JKLDEV. Because she uses BRMS to manage the backups on JKLDEV, she can restore the library right from the backup history. The backup strategy for JKLDEV includes a weekly full backup on Saturday night and a changes-only backup every other night of the week.

#### **Related tasks**

"Restoring individual items" on page 26

It is sometimes necessary for you to restore individual items on your system (for example, if a file is corrupted or accidentally deleted).

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## **Specifying global policy properties**

Global policy properties are settings that are used with values that you specify in your backup policies. You can use these properties to control how BRMS works in your environment.

Here are some of the global properties that you can specify:

#### **Notification**

You can specify how and when you want BRMS to communicate with you about backup processing.

#### **Power down**

You can specify the earliest and latest times that you want your system to be restarted, and you can specify the subsystems that you want to check for activity before the system restarts.

#### **Signoff exceptions**

You can specify any users or display devices that you want to stay active when BRMS does a backup. For example, you might add the security officer or the system console to this list to ensure that the system can be accessed by that person or device during processing.

#### **Maintenance**

You can customize the maintenance options that are to be run when maintenance is selected to be run from a backup policy.

#### **Retrieval**

You can specify the options you want BRMS to use when you retrieve objects that have had their storage freed by BRMS. For example, you can specify the type of media to retrieve objects from such as whether to use devices in parallel or serial mode and how long to retain retrieved objects on the system.

The retrieval options are associated with archive operations which are currently not supported by the BRMS client.

#### **Network**

You can manage the systems in your BRMS network and specify options such as whether TCP/IP should be used as your networking protocol for BRMS operations.

#### **Logging**

You can specify which messages that you want to include or exclude from the BRMS log.

To change the global policy properties on your system in iSeries Navigator, right-click **Backup, Recovery, and Media Services**, and select **Global Policy Properties**.

---

## Backing up your system

Backup policies allow you to easily control and manage your backup operations.

One of the advantages of using Backup, Recovery, and Media Services (BRMS) is that you can use global settings and backup policies to control your backups and other operations. Global settings control how your system processes backups in a general way.

A backup policy is a group of defaults that controls what information is saved, how it is saved, and where it is saved. Once you set up your backup policies, you can run them at any time or schedule them to run at particular times. This way, you can ensure that your backups are complete and are done when it is most convenient and appropriate for your business.

There are several basic backup policies that come with BRMS. You may be able to meet your backup needs by using these shipped policies, either alone or in combination. If so, you may not have to create any policies of your own.

When you back up data using a BRMS backup policy, information about each item backed up is stored in the **save history**. This information includes the item name, type of save done on that item, the date of the save, and the volume on which each item is saved. You specify the level of detail you want to track for each item in the properties for the policy. You can then restore items by selecting them from the save history; the information in the save history is also used for full system recoveries.

## Backup policies included with BRMS

To help you in creating backup policies on your system, IBM includes several standard backup policies with the BRMS product.

The following backup policies are shipped with BRMS:

- \*System - Backs up the entire system (except printer output).
- \*Sysgrp - Backs up all system data.
- \*Bkugrp - Backs up all user data.
- Qltssvr - Performs an online backup of all Lotus servers. This policy only appears in the list if you have Lotus servers.

If you do not have a very complicated environment, these backup policies may be all you need to use to protect your data.

## Creating a backup policy

The **New Backup Policy** wizard in iSeries Navigator allows you to create a new backup policy.

To access the wizard, follow these steps:

1. Expand **Backup, Recovery, and Media Services**.
2. Right-click **Backup policies** and select **New policy**.

The wizard gives you the following options for creating your backup policies:

Option	Description
Back up all system and user data	Enables you to do a full system backup of all user and IBM-supplied data. Printer output is not included in this backup.

Option	Description
Back up all user data	Enables you to back up the data that belongs to users on your system, such as user profiles, user libraries, folders, configuration data, security data, and objects in directories.
Back up Lotus server data online or a customized set of objects	Enables you to do online and incremental online backups of Lotus servers (such as Domino and QuickPlace®) or choose the items that you would like to back up.

When you finish creating the policy, you can choose to run the policy or schedule it to run later. If you want to modify the policy later, you can do that by editing the properties of the policy. There are many customization options available in the properties of the policy that are not available in the New Backup Policy wizard. To access the policy properties, right-click the policy and select **Properties**.

#### Related concepts

“Online backups of Lotus servers” on page 24

Backup, Recovery, and Media Services (BRMS ) supports online backups of Lotus server databases (such as Domino and Quickplace).

#### Related tasks

“Scheduling a backup policy” on page 24

When you use BRMS, you can do backups, restores, and media moves without having to be nearby when they occur.

## Backing up pieces of your system

In addition to using backup policies to back up the data on your system, you can back up individual files, libraries, or folders from the iSeries Navigator hierarchy.

To back up an individual item, right-click the item you want to back up under Integrated File System and select **Back Up**.

#### Related tasks

“Creating a backup policy” on page 22

The **New Backup Policy** wizard in iSeries Navigator allows you to create a new backup policy.

## Performing a fully automated backup

In BRMS, you can start and run a system backup without having to use the interactive console monitor. This ability allows you to run your system backups unattended.

- | To run a fully automated backup, you must make sure that you have enough tape capacity to ensure that
- | your backup can run without getting tape volume mount messages. For example, if you schedule an
- | automated system backup over the weekend, you need to verify that the tape device and enough expired
- | tapes are available before leaving for the weekend. You can use the Global Policy Properties to ensure
- | that you specify enough time for the backup to run.

To schedule a fully automated backup, follow these steps:

1. In iSeries Navigator, expand **Backup, Recovery, and Media Services**.
2. Expand **Backup Policies**.
3. Right-click the policy you want to run and select **Schedule**.
4. On the **Run Backup Policy \*System - Backup Overrides** window, clear the **Use interactive console monitor** check box and click **OK**.

## Scheduling a backup policy

When you use BRMS, you can do backups, restores, and media moves without having to be nearby when they occur.

To schedule a backup policy, complete these steps:

1. In iSeries Navigator, expand **Backup, Recovery, and Media Services**.
2. Expand **Backup Policies**.
3. Right-click the policy you want to schedule and select **Schedule**.

When you schedule a policy to run, keep in mind that only the items that are scheduled to be backed up on the day you run the policy will be backed up. For example, you have a backup policy that includes the library MYLIB. In the policy properties, you have MYLIB scheduled to be backed up every Thursday. If you schedule the policy to run on Thursday, MYLIB will be backed up. If you schedule the same policy on any other day, MYLIB will not be backed up.

Also, be aware that some operations (such as a full system backup) require that your system be in a restricted state when they run. With BRMS, the interactive console monitor allows you to submit a backup job, either scheduled or directly, to the interactive session running on the system console. A system operator can use the interactive system console session to monitor the progress of the backup and respond to tape mount messages. When you schedule a backup using the interactive console monitor, you will see the instructions for how to start the console monitor.

If you choose not to use the interactive console monitor and no one will be present to process commands as the backup runs, then you must ensure that your backup can run without intervention. A restricted state backup not using the interactive console monitor can also be scheduled as long as the backup can run unattended.

## Online backups of Lotus servers

Backup, Recovery, and Media Services (BRMS ) supports online backups of Lotus server databases (such as Domino and Quickplace).

An **online backup** is a backup that you do while your Lotus server databases are in use; there are no save-while-active synchronization points. You can direct your online backups to a tape device, media library, save file, or a Tivoli Storage Manager server.

**Important:** Do not use online Lotus server backups in place of complete system backups. Lotus server online backups only back up Lotus server databases. There are other important Lotus server and non-Lotus server system data that should be backed up on a regular basis.

### Related information

 [BRMS: Online Lotus Server backup](#)

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## Using archives

| Archiving provides a method of saving disk space by saving infrequently used objects to media, and then removing them from the disk.

| During the archive operation, the disk storage on the system is freed, thus allowing you to store more vital data in that disk space. Therefore, you have the benefit of retaining the data, but without an impact to the storage capacity of your primary disk space. BRMS tracks the information associated with the objects that you archive.

| **Note:** To use archive capabilities within BRMS, you must install the Advanced feature to BRMS (5722-BR1 Option 2).



| There are two concepts related to archiving: storage freed objects and dynamic retrieval of those objects.

### | **Storage freed objects**

| Archiving saves objects, then deletes those objects or just the content of that object. When you  
| archive objects that can be storage freed, you archive the data associated with the object to  
| alternate media, but the object's description remains on the system. This description uses very  
| little space and acts as a placeholder in the event that the object data needs to be retrieved. Only  
| certain objects can have their data storage freed. They include: Database files, source files, stream  
| files, and document library objects (DLOs).

### | **Dynamic retrieval of storage freed objects**

| Dynamic retrieval of storage freed objects provides a way to access archived objects. When you  
| need to use a storage freed object, such as a database file, BRMS locates and restores that object's  
| data dynamically, using the description stored on the system. See "Managing dynamic retrieval"  
| on page 26 of storage freed objects for details on how to use dynamic retrieval.

| With BRMS, you can manage archives by creating an **archive policy**. Unlike backup policies, archive  
| policies save objects that are used infrequently, but may need to be accessed for later use if needed. The  
| saved objects are removed from the system. For example, you may have legacy customer information  
| stored in a database and you want to free disk space by archiving this data to media. Another difference  
| between backup and archive is the difference between restore and retrieve. In general, objects saved as  
| part of a backup policy are recovered from the save media. Archived objects are retrieved from the  
| media, and then after they are used, can be re-archived back to the media.

| **Note:** Objects that are saved using an archive policy are not included in the system disaster recovery  
| report.

## | **Creating an archive policy**

| An archive policy allows you to handle infrequently used objects on your system. You can create a new  
| archive policy to control what items you archive and when.

| The **New Archive Policy** wizard enables you to create an archive policy, select the media you want to use  
| for that policy, and then run or schedule the policy once it is created. You can also create an archive  
| policy based on the properties of an existing archive policy. To create a new archive policy, follow these  
| steps:

- | 1. In iSeries Navigator, expand **My Connections** (or your active environment).
- | 2. Expand a system with Backup, Recovery, and Media Services installed on it.
- | 3. Expand **Backup, Recovery, and Media Services**.
- | 4. Right-click **Archive Policies** and select **New Policy**
- | 5. On the **Welcome** page, click **Next**.
- | 6. Follow the wizard's instructions to create the archive policy.

## | **Changing archive policy properties**

| Archive policies contain information about what, where, and when objects are being saved. You can  
| change the properties associated with a policy.

| To view or change the properties of a policy, follow these steps:

- | 1. In iSeries Navigator, expand **My Connections** (or your active environment).
- | 2. Expand a system with Backup, Recovery, and Media Services installed on it.
- | 3. Expand **Backup, Recovery, and Media Services** → **Archive Policies**.
- | 4. Right-click the policy you want to view and select **Properties**.
- | 5. On the **Archive Policy Properties** page, you can select these options to change the several archive  
| policy activities:

| **Before** Select **Before** to specify what activities should occur before the archive runs. These settings prepare your system for the save. You can specify commands to run before the save begins, whether to signoff interactive users, and whether to hold active job queues and subsystems.

| **During**

| Select **During** to control what activities should occur during the archive. This includes what items are archived, where those items are archived, what level of information is kept about the save, and when the policy is run. For archive policies you can also set specific archive criteria that will automatically archive those objects that meet those specifications when the archive policy is run.

| **After** Select **After** to specify what activities should occur after the archive runs. These activities are performed on your system after the archive completes. You can specify commands to run after the save ends, whether to signoff interactive users, and whether to release job queues and subsystems that have been held during archive processing.

## | **Managing dynamic retrieval**

| Storage freed objects allow you to archive certain object types, such as database files, source files, stream files, and document library objects (DLOs), off your system to media.

| When you archive objects that can be storage freed, you archive the data associated with the object to alternate media, but the object's description remains on the system. This description uses very little space and acts as a placeholder in the event that the object data needs to be retrieved.

| Dynamic retrieval of storage freed objects provides a way to access archived objects. If a user accesses the object, BRMS locates and restores that object's data dynamically, using the description stored on the system. You can either create an archive policy to handle storage freed objects or you can change an existing policy's archive criteria. To manage how retrieved objects are handled, follow these steps:

- | 1. In iSeries Navigator, expand **My Connections** (or your active environment).
- | 2. Expand a system with Backup, Recovery, and Media Services installed on it.
- | 3. Right-click **Backup, Recovery, and Media Services**, and select **Global Policy Properties**.
- | 4. On the **Retrieval** page, you can select the type of media from which you want to retrieve objects. You can also specify how long retrieved objects will be retained on the system, whether to extend the retention of an object if it was used, and monitor use of that object after it was retained. For specifics on these retrieval options, click **Help** on the **Retrieval** page.

---

## **Restoring items on your system**

When you back up your system using BRMS, information about each backed-up item is recorded in the save history. The information in the save history allows BRMS to provide the function of restoring individual objects or files.

The primary reason for having a backup and recovery strategy and doing regular backups is to be ready if an item needs to be restored, or if your entire system needs to be recovered. The only way to ensure that you are fully protected by your backup and recovery strategy is to perform a full system save and then recover your system from that save.

## **Restoring individual items**

It is sometimes necessary for you to restore individual items on your system (for example, if a file is corrupted or accidentally deleted).

When you use BRMS backup policies to back up items on your system, you can restore those items from the backup history. When you restore an item from the backup history, you can view details about the item, such as when it was backed up or how large it is. If there are several versions of the item in the save history, you can select which version of the item you want to restore.



To restore individual items on your system, use the Save History panel to find the item or items you want and then click **Restore** to start the **Restore** wizard. The items must have been backed up with a BRMS backup policy.

For example, if a mail database was corrupted by a user, you can easily find and restore the database file by following these steps:

1. Right-click **Backup, Recovery, and Media Services**, and select **Restore**.
2. On the **Save History - Include** panel, select **Directories or file** for **Saved items, Type** and enter 'userName.nsf' (for example, msmith.nsf) for **File** and click **OK**.  
Other include criteria can also be specified to further filter the search.
3. On the **Save History** window, find the file, right-click and select **Restore**.

## Printing a recovery report

When you back up your system using BRMS, information about each backed-up item is recorded in the save history. The information in the save history is used to create a **recovery report**, which guides you through a full system recovery.

Should your system fail or a disaster occur, you can use the recovery report to recover your system to the point it was at before the failure. Because your recovery report contains critical information about your system, it is important that you take a few precautions to ensure that this information is current and accessible when you need it.

- You cannot use your recovery report alone to recover your system. You must also have the recovery information in Backup and Recovery to be successful.
- Your recovery is only as good as your backup, so be sure to test your backup and recovery strategy any time you change it by doing a full system recovery. You may need to adjust your strategy to ensure that a full recovery is possible.
- You should test your recoveries at a disaster recovery hotsite, or by using a test system. **Do not** use your production system.
- Print your recovery report every time you do a backup. By doing this, you ensure that your report includes the most current information.
- Print at least two copies of your recovery report every time you do a backup. Keep one copy with your system and keep the other in a safe place offsite, such as an offsite vaulting location.

Follow these steps in iSeries Navigator to print your recovery report:

1. Expand a system with Backup, Recovery, and Media Services installed on it.
2. Right-click **Backup, Recovery, and Media Services**, and select **Print Reports**.
3. Select **Disaster Recovery** and click **OK**.

### Related concepts

"Viewing or printing BRMS reports" on page 32

Backup, Recovery, and Media Services (BRMS) provides powerful reporting capabilities to help you manage your save operations more effectively and track the information that BRMS records.

### Related information



Backup and Recovery



IBM Business Continuity and Recovery Services

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## Managing devices

You can use Backup, Recovery, and Media Services (BRMS) to display, add, remove, and change the properties of any stand-alone devices, media libraries, and Tivoli Storage Manager (TSM) servers used for your save operations.

BRMS enables you to back up your data to stand-alone devices, media libraries, and Tivoli Storage Manager (TSM) servers. Any device you want to use in your BRMS processing must be known to BRMS. You can display, add, remove, and change the properties of these devices through the Manage Devices window. For example, you can specify in the properties of a device whether the device is shared with other systems. You can also specify connection information for your TSM servers.

To add one of these devices to BRMS or to work with the properties of existing devices, follow these steps:

1. In iSeries Navigator, expand **My Connections** (or your active environment).
2. Expand a system with Backup, Recovery, and Media Services installed on it.
3. Right-click **Backup, Recovery, and Media Services**, and select **Manage Devices**. From here, you can edit a device, add a TSM server, add a media device, work with virtual devices, and change the properties of an existing device.

#### **Related information**

Storage solutions

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## **Managing disk pools**

Backup, Recovery, and Media Services (BRMS) allows you to manage information about the disk pools that are used during save operations.

A disk pool, also referred to as an auxiliary storage pool (ASP) in the character-based interface, is a software definition of a group of disk units on your system. BRMS stores information about the disk pool to perform migration of data between disk pools during save operations. This information is updated in the BRMS database but does not update the information of the actual disk pool on the system. To manage a disk pool, complete the following steps:

1. In iSeries Navigator, expand **My Connections** (or your active environment).
2. Expand a system with **Backup, Recovery, and Media Services** installed on it.
3. Right-click **Backup, Recovery, and Media Services** and select **Manage Disk Pools**.
4. On the **Manage Disk Pools** panel, you can select to edit disk pools or manage disk pool. For more detailed descriptions of each of these options, click **Help**.

---

## **Managing your media**

Backup, Recovery, and Media Services (BRMS) keeps an inventory of media and simplifies media management by tracking everything in that inventory--what pieces of information are saved where and which media have available space.

When you create your policies, you can specify the following locations for storing the save items--serial media, parallel media, save file, or Tivoli Storage Manager (TSM) server. Then, when you do a save, BRMS selects the media it needs from the available pool of that type of media. You don't have to worry about accidentally writing over active files or using an invalid piece of media because it is all tracked for you.

Once you back up your data, you can use BRMS to help you track your media as it moves through the different storage locations you define. For example, you may move your backups offsite for storage; BRMS will keep track of when the media leaves and when it is scheduled to return.

You can use the **Add Media** wizard to add media to BRMS and prepare it for use. You can also manually expire media, which returns it to the inventory of available media. You can also create media pools which are groupings of media based on similar characteristics, such as density or capacity. Over time, you may find that you have media that have many expired items on them and only a few active items. You can reclaim this media by moving the active items onto media that have other active items on them.

## Related information

Storage solutions

### Adding media

Before you can perform save operations using Backup, Recovery, and Media Service (BRMS), you need to add media to the BRMS inventory and initialize it.

You can use the **Add media** wizard to do that. To access the wizard in iSeries Navigator, follow these steps:

1. In iSeries Navigator, expand **My Connections** (or your active environment).
2. Expand **Backup, Recovery, and Media Services**.
3. Expand **Media**.
4. Right-click **Tape Volumes** and select **Add**.
5. Follow the wizard's instructions to add the media to BRMS.

### Working with media

After media is added to the BRMS inventory, you can view that media based on the criteria that you specify, such as the volume name, status, media pool, or expiration date.

Knowing the expiration date for the media helps to manually expire a piece of media, which returns that piece of media to the BRMS media inventory.

To filter which media you see in the list, follow these steps:

1. Expand **Backup, Recovery, and Media Services**.
2. Expand **Media**.
3. Right-click **Tape Volumes** and select **Customize this View** and **Include**.

### Reclaiming your media

Backup, Recovery, and Media Service (BRMS) enables you to efficiently reuse old fragmented tape volumes by copying active file sequences to unused media.

You can use the reclaiming media function to duplicate a volume or set of volumes that have become fragmented to new volumes. Typically, over time, you have volumes that just sit in storage unusable. These volumes are highly fragmented with gaps in the active file sequences due to the varying expiration dates of the saved items on the media. The reclaim function allows you to copy only the unexpired or active file sequences to unused (scratch) media. The old volumes will be expired and the backup history of the active saved items is updated to reflect the new volume. This allows you to remove the old volumes from the media inventory or make the old volumes available for reuse. Ultimately, this should reduce the number of active volumes you must manage plus reduce the total number of volumes being managed and minimize your media and media storage costs.

You can use the Reclaim wizard to reclaim one or more volumes in BRMS. To access the Reclaim wizard, follow these steps:

1. In iSeries Navigator, expand **Backup, Recovery, and Media Services**.
2. Expand **Media**.
3. Right-click **Tape Volumes** and select **Reclaim**.

### Creating a move policy

As part of your backup plan, you need to manage media protection and rotation. Using Backup, Recovery, and Media Services (BRMS), you can create move policies to manage media movement.

To ensure the safety of your data, it is recommended that you keep at least the last two versions of your full system backups and the most current backed up version stored on media. In addition, you should duplicate the media for each backup and keep the copies in a safe, offsite location to ensure that in the event of a natural disaster, such as a fire, these versions of your data can be obtained.

You can use move policies to keep track of where your media is and when it is scheduled to be in each storage location. Move policies include information about the different storage locations that your media resides in during its lifecycle. For example, when you do weekly full backups of your system, you have a courier come to pick up your media and take it to a vault, where it stays for 21 days. At the end of the 21 days, the media is returned to your site and placed in a filing cabinet in your computer room. A move policy for your full backups would keep track of where your media was at each step of its journey, and would include information about each storage location, such as how long it would take to retrieve the media from this location in the event of an emergency.

You can use the **New Move Policy** wizard to create a move policy using iSeries Navigator. To do that, follow these steps:

1. Expand **Backup, Recovery, and Media Services**.
2. Right-click **Move Policies** and select **New Policy**.
3. Follow the wizard's instructions to create a new move policy.

**Note:** Media management and movement is a very important part of your backup strategy. If your media is lost or not adequately protected, you could lose data in the event of a disaster or system failure. If you would like help in implementing an effective backup strategy for your company, including media management, contact IBM Business Continuity and Recovery Services.

#### Related information

 [IBM Business Continuity and Recovery Services](#)

## Verifying media movement

By creating a move policy, you can optionally choose to have BRMS automatically verify media movement or you can choose to manually verify the move.

When you create a move policy, you are asked if you want to verify the actions that take place when the move policy runs--what volumes move where and when. Verifying moves keeps BRMS synchronized with what actually happens.

You can choose to manually verify moves, or you can have BRMS automatically verify moves. Because you need to be sure that your media is where BRMS says it is, it is recommended that you verify moves manually at first. You may choose to have BRMS verify moves automatically once your media movement procedures are established and have been working smoothly for some time.

To manually verify a move using iSeries Navigator, follow these steps:

1. Right-click **Move Policies** and select **Verify Moves**. You will see a table of all volumes of media currently scheduled to be moved. For each volume listed, the table columns display the current location, the next location the volume is moving to, the move date, as well as the name of the move policy the volume is associated with.
2. Contact the storage location by phone or e-mail to ensure that the media has arrived at the location.
3. Select the volumes you want to verify and click **Verify**.

If you opt to have BRMS verify moves automatically, no action is required on your part to verify moves. When the date and time of the move passes, BRMS will automatically update the information about that media. In addition, BRMS will print a media movement report when you run or schedule the move policy.

**Important:** Remember that if you verify moves automatically, BRMS will update the information about the media whether the physical move of the volume takes place or not. If the move does not take place, the information in the BRMS database will not be accurate.

## Managing containers

Containers are any holders that store multiple media volumes on your system. You can also manage containers with Backup, Recovery, and Media Services (BRMS).

Containers typically hold one media pool, although you can specify any media pool. Using containers adds complexity to your storage management system and is optional. You can specify that you want to store media in physical containers at specified locations, and use these containers to move volumes in the container according to a move policy.

1. In iSeries Navigator, expand **My Connections** (or your active environment).
2. Expand a system with Backup, Recovery, and Media Services installed on it.
3. Expand **Backup, Recovery, and Media Services**.
4. Right-click **Move Policies** and select **Manage Containers**.

From this panel you can complete the following tasks:

- Create a new container
- Delete a container
- Edit a container
- Manage a container pool

## Managing locations

Move policies allow you to define the movement of media between storage locations and the length of time that the media stays in each location.

To create, delete, edit, or view the volumes that are at a particular location, follow these steps:

1. In iSeries Navigator, expand **My Connections** (or your active environment).
2. Expand a system with Backup, Recovery, and Media Services installed on it.
3. Expand **Backup, Recovery, and Media Services**.
4. Right-click **Move Policies** and select **Manage Locations**.
  - a. To create a new location, click **New Location**.
  - b. To create a location using an existing location as a base, click **New Based On**.
  - c. To delete a location, select the location in the list and click **Delete**.
  - d. To change an existing location, select the location in the list and click **Edit**.
  - e. To view a list of the volumes that are at a particular location, select the location and click **View Volumes**.

---

## Running BRMS maintenance

Running maintenance on your system automatically performs Backup, Recovery, and Media Services (BRMS) cleanup, updates save information, and runs reports.

You should run maintenance every day. You can customize which activities you want to perform when you run maintenance.

If you do not customize the maintenance activities, the following are performed:

- Expire media
- Remove media information

- Remove migration information (180 days old)
- Remove log entries (from beginning entry to within 90 days of current date)
- Run cleanup
- Retrieve volume statistics
- Audit system media (if you are working in a network)
- Change journal receivers
- Print expired media report
- Print media audit information
- Print version report
- Print media information
- Print recovery reports

To run maintenance in iSeries Navigator, right-click **Backup, Recovery, and Media Services** and select **Run Maintenance**. If you want to customize the maintenance activities, click **Options**. There is also an option to run maintenance at the end of a backup in the properties for each backup policy.

---

## Viewing or printing BRMS reports

Backup, Recovery, and Media Services (BRMS) provides powerful reporting capabilities to help you manage your save operations more effectively and track the information that BRMS records.

With iSeries Navigator, you can print reports immediately or you can schedule a report to print at a later time. To print reports, right-click **Backup, Recovery, and Media Services** and select **Print Reports**. For more information on the BRMS reports that are available to print, see BRMS printed reports.

You can also view or save selected reports in HTML format. HTML reports for backup and move policies contain the details for all policies or a selected policy. There are also reports available for volume information and BRMS log entry information. To view or save one of these reports in HTML format, right-click the folder or item that you want and select the **View Report** menu option.

## BRMS printed reports

The table shows the BRMS reports that are available to print, the name each report has in the output queue, and a brief description of each report.

Report name	File name	Description
Backup plan	QP1ABP	Lists all backup policies and the items that make up each policy.
Container	QP1ACN	Lists containers based on class, status, and location.
Container pool	QP1ACT	Lists all container pools that are specified in BRMS.
Devices and libraries	QP1ADV	Lists all devices defined to BRMS.
Disaster recovery	QP1ARCY - analysis QP1A2RCY - volume summary QP1AASP - disk pools	Lists the steps necessary to recover your system, the volumes that are required to complete a recovery, and the disk pools that are set up on your system.
Disk pools	QP1AASP	Lists all disk pools that are set up and provides statistical information for each.
Lists	QP1ALQ - printer output QP1AFL - folder QP1AOB - object QP1AFL - directory	Shows all of the items in each of the lists.



Report name	File name	Description
Locations	QP1ASL	Shows the storage locations that you have set up for your system and the current contents and maximums that you have set up.
Location analysis	QP1A2SL	Lists all locations that are specified to BRMS, together with details of the current and maximum volumes and containers at each location.
Media (active)	QP1AMM	Summarizes the status and location information for the active volumes in a media library.
Media (all)	QP1AMM	Summarizes the status and location information for all volumes in a media library.
Media (expired)	QP1AMM	Summarizes the status and location information for the expired volumes in a media library.
Media movement	QP1APVMS	Shows all volumes that are scheduled to move from one location to another location.
Media pools	QP1AMT	Shows basic information for each media pool that is defined to BRMS.
Media statistics	QP1AVU	Shows how your media are being used; helps to identify if any volumes are being used excessively when compared to others.
Move policies	QP1AMP	Shows the move sequences and associated values for each move policy defined to BRMS.
Save files	QP1ASF	Shows all libraries that have been saved to save files and whose media content information has not been deleted.

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## Related information for BRMS

Listed here are the product manuals and IBM Redbooks™ (in PDF format), Web sites, and information center topics that relate to the Backup, Recovery, and Media Services (BRMS) topic. You can view or print any of the PDFs.



### Manuals

- Backup Recovery and Media Services for iSeries  (4608 KB)
- Backup and Recovery  (6305 KB)

### IBM Redbooks

- Backup Recovery and Media Services for OS/400®: A Practical Approach 
- Integrating Backup Recovery and Media Services and IBM Tivoli Storage Manager on the IBM eServer™ iSeries Server 

### Web sites

- Backup, Recovery, and Media Services  (<http://www.ibm.com/servers/eserver/series/service/brms/>)  
Use this site to find the latest news and product information for Backup, Recovery, and Media Service.
- BRMS graphical user interface: Frequently asked questions  (<http://www.ibm.com/servers/eserver/series/service/brms/pluginfaq.html>)

Use this site to answer your common questions about the BRMS plug-in to iSeries Navigator.

- IBM Business Continuity and Recovery Services  (<http://www.ibm.com/services/continuity/recover1.nsf/documents/home>)

Use this site to help you assess your business continuity needs and provides resources to enable continuous availability of your information and processes.

### **Other information**


- Planning a backup and recovery strategy
- Storage solutions

### **Saving PDF files**

To save a PDF on your workstation for viewing or printing:

1. Right-click the PDF in your browser (right-click the link above).
2. Click the option that saves the PDF locally.
3. Navigate to the directory in which you want to save the PDF.
4. Click **Save**.

### **Downloading Adobe Reader**

- | You need Adobe Reader installed on your system to view or print these PDFs. You can download a free
- | copy from the Adobe Web site ([www.adobe.com/products/acrobat/readstep.html](http://www.adobe.com/products/acrobat/readstep.html)) .



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