NOVASCALE

NovaScale R630 E1

Setup Guide

REFERENCE
86 A1 43FA 00

NOVASCALE

NovaScale R630 E1

Setup Guide

Hardware

June 2008

BULL CEDOC
357 AVENUE PATTON
B.P.20845
49008 ANGERS CEDEX 01
FRANCE

REFERENCE
86 A1 43FA 00

Droits de propriété et déni de responsabilité

Les informations contenues dans ce document, y compris les graphiques et les documents connexes, sont la propriété de NEC Computers et/ou des tiers qui lui ont accordé des licences. NEC Computers et/ou lesdits tiers, selon le cas, se réservent les brevets, copyrights et autres droits de propriété sur ce document, notamment les droits de conception, de fabrication, de reproduction, d'utilisation et de commercialisation, sous réserve que d'autres n'en soient pas bénéficiaires.

La conception et les spécifications des produits décrits dans ce document faisant l'objet d'améliorations constantes, les informations contenues dans ce document peuvent être modifiées sans préavis. Aucune partie du présent document ne peut être reproduite sans l'accord préalable écrit de NEC Computers.

Le ou les produits Bull décrits dans ce document sont couverts par l'accord de garantie qui les accompagne. Cependant, leurs performances dépendent de facteurs tels que leur configuration, les données qu'ils hébergent et leur utilisation. Leur mise en œuvre pouvant varier en fonction du client, l'adéquation de configurations et d'applications spécifiques doit être déterminée par ledit client et ne relève pas de la responsabilité de Bull.

Marques commerciales

NEC ESMPRO, NEC DianaScope, NEC MWA, et ExpressBuilder sont des marques ou des marques déposées de NEC Corporation.

NovaScale est une marque déposée de Bull SAS.

Adobe et Adobe Acrobat sont des marques déposées d'Adobe Systems, Incorporated.

Microsoft, Microsoft Windows, Windows NT, Windows 95, Windows 98, Windows 2000, Windows XP et Windows Server 2003 sont des marques déposées de Microsoft Corporation.

Intel et Xeon sont des marques déposées d'Intel Corporation.

AMD est une marque déposée de Advanced Micro Devices, Inc.

Tous les autres noms de produit, de marque ou de société cités dans cette publication sont les marques commerciales ou déposées de leurs détenteurs respectifs.

Vos suggestions sur la forme, le fond et la présentation de ce manuel sont les bienvenues.
Une feuille destinée à recevoir vos remarques se trouve à la fin du présent manuel.

Des corrections ou des modifications au contenu de ce document peuvent intervenir sans préavis. Bull SAS ne pourra pas être tenu pour responsable des éventuelles erreurs qui pourraient y être contenues dans ce manuel, ni pour tout dommage pouvant résulter de son application.

Table of Contents

Keep this User's Guide handy for quick reference when necessary.

Safety Indications

To use our server series safely, follow the instructions in this User's Guide.

This guide explains components that pose a danger, types of dangers caused by failing to follow the instructions, and actions taken to prevent them; such components are labeled warning.

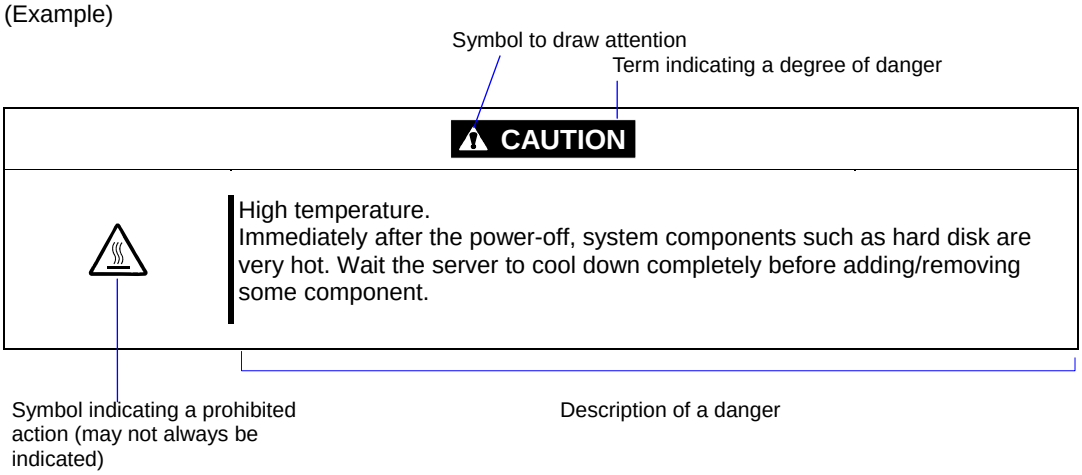
This guide and warning labels use “WARNING” and “CAUTION” to indicate a danger depending on the degree. These terms are defined as follows:

WARNING	Indicates a danger that could lead to a death or serious injury.
CAUTION	Indicates a danger that could lead to a burn, other injuries or damage to physical assets.

This guide uses the following three types of symbols to give indications and precautions against a danger. They are defined as follows:

	Indicates that there is a risk of a danger. Each image symbolizes a particular type of danger. (Attention)
	Indicates what you must not do. Each image symbolizes a particular type of prohibition. (Prohibited actions)
	Indicates what you must do. Each image symbolizes a particular type of action necessary to avoid a danger. (Mandatory actions)

(Example)



Symbols and its descriptions used in this User's Guide and warning labels are as follows:

Attention

	Indicates a risk of an electric shock.
	Indicates a risk of a personal injury due to heat.
	Indicates a risk of catching your fingers.
	Indicates a risk of a fire or smoke.
	Indicates a general precaution or warning that is not defined herein.
	Indicates a risk of losing eyesight due to laser beam.
	Indicates a risk of an explosion.
	Indicates a risk of a personal injury.

Prohibited actions

	Indicates a general prohibition that is not defined herein.
	Do no touch the indicated area. There is a risk of an electric shock or fire.
	Do not touch with wet hands. There is a risk of an electric shock.
	Keep from flame. There is a risk of a fire.
	Avoid using water or liquid nearby. If it spills on the equipment, there is a risk of an electric shock or fire.
	Do not disassemble, repair, or modify the equipment. There is a risk of an electric shock or fire.

Mandatory actions

	Unplug the server. There is a risk of an electric shock or fire.
	Indicates a general action to take that is not defined herein. Make sure to follow the instructions.

For detailed notes to set up the machine safely, refer to "NOTES FOR SAFE HANDLING" on page 1-2.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

CLASS 1
LASER PRODUCT

This system is classified as a CLASS 1 LASER PRODUCT. This label id located on the internal DVD-ROM installed in your system.

NOTE: This product provides resistance against hardware faults with its redundant hardware modules. However, this does not mean complete fault-tolerance is assured. For example, there is a risk of system down when:
- A fatal fault occurs in software.
- Both modules within a redundant hardware pair break down.
- A fatal fault occurs in a non-redundant component, such as the clock generator circuitry or the interconnect backplane.
- The entire system is cut off from AC power.

Trademarks and Patents

EXPRESSBUILDER, NEC ESMPRO and DianaScope are registered trademarks of NEC Corporation.

Microsoft, Windows, Windows Server, Windows NT, and MS-DOS are registered trademarks of Microsoft Corporation in the United States and other countries.

Intel and Pentium are registered trademarks of Intel Corporation.

AT is a registered trademark of International Business Machines Corporation in the United States and other countries.

Adobe, the Adobe logo, Acrobat, and the Acrobat logo are trademarks of Adobe Systems Incorporated.

Datalight is a registered trademark of Datalight, Inc. ROM-DOS is a trademark of Datalight, Inc.

Xeon is a trademark of Intel Corporation in the United States. DLT and DLTtape are trademarks of Quantum Corporation in the United States.

Mozilla is a registered trademark of Mozilla Foundation.

Netscape is a registered trademark of Netscape Communications Corporation in the United States and other countries.

Java is a registered trademark of Sun Microsystems, Inc in the United States and other countries.

All other product, brand, or trade names used in this publication are the trademarks or registered trademarks of their respective trademark owners.

Microsoft Windows Server 2003 R2 Standard x64 edition operating system and Microsoft Windows Server 2003 R2 Enterprise x64 Edition operating system or Microsoft Windows Server 2003 Enterprise x64 Edition operating system are called Windows Server 2003 x64 Edition for short. Microsoft Windows Server 2003 R2 32-bit Standard Edition operating system, Microsoft Windows Server 2003 R2 32-bit Enterprise Edition operating system, Microsoft Windows Server 2003 Standard Edition operating system and Microsoft Windows Server 2003 Enterprise Edition operating system are called Windows Server 2003 for short. Microsoft Windows 2000 Server operating system, Microsoft Windows 2000 Advanced Server operating system and Microsoft Windows 2000 Professional operating system are called Windows 2000 for short. Microsoft Windows Vista Business operating system is called Windows Vista for short. Microsoft Windows XP Professional x64 Edition operating system is called Windows XP x64 Edition for short. Microsoft Windows XP Home Edition operating system and Microsoft Windows XP Professional operating system are called Windows XP for short. Microsoft Windows NT Server network operating system version 3.51/4.0 and Microsoft Windows NT Workstation operating system version 3.51/4.0 are called Windows NT for short. Microsoft Windows Millennium Edition Operating System is called Windows Me for short. Microsoft Windows 98 operating system is

called Windows 98 for short. Microsoft Windows 95 operating system is called Windows 95 for short. Names used with sample applications are all fictitious. They are unrelated to any existing product names, names of organizations, or individual names.

Avocent and DVC (DAMBRACKAS VIDEO COMPRESSION) are registered trademarks of Avocent US in the United States and other countries.
ft remote management card, adopt the DVC technology of Avocent US.

The patent numbers for the DVC technology of Avocent US.

US Patent Number: 5,732,212/5,937,176/6,633,905/6,681,250/6,701,380 (others patents pending)
Taiwanese Patent Number: 173784
European Patent Number: 0 740 811

Notes:

(1) No part of this manual may be reproduced in any form without prior written permission of the manufacturer.

(2) The contents of this manual are subject to change without prior notice.

(3) The contents of this manual shall not be copied or altered without prior written permission of the manufacturer.

(4) All efforts have been made to ensure the accuracy of all information in this manual. If you find any part unclear, incorrect, or omitted in this manual, contact the sales agent where you purchased this product.

(5) The manufacturer assumes no liability arising from the use of this product, nor any liability for incidental or consequential damage arising from the use of this manual regardless of (4) above.

Preface

Welcome to the Fault Tolerant series.

Fault Tolerant series is a “fault-tolerant (ft)” server focusing on “high reliability” in terms of fault-tolerance, in addition to “high performance,” “scalability,” and “general versatility” provided by our server series. In the event of trouble, its dual configuration will allow the system to instantaneously isolate the failed parts to assure non-stop running; operation will be moved smoothly from one module to the other, minimizing damage to it. You can use Fault Tolerant series in a mission-critical system where high availability is required. By the use of Windows Server 2003 operating system, it also provides outstanding openness for general-purpose applications, etc.

To make the best use of these features, read this User's Guide thoroughly to understand how to operate Fault Tolerant series.

About This User’s Guide

This User's Guide helps a user to properly setup and use the product. Consult this guide when you set up the product.

Keep this manual and the separate volume of User’s Guide handy.

This User's Guide is intended for users who have a good knowledge on the basic use of Windows operating systems and general I/O devices such as a keyboard and mouse.

How to Use This User's Guide

This guide explains the procedures you should perform before you begin system operation after you purchased the product. Read the guide in order from Chapter 1. If you perform procedures according to this guide, you will set up the product properly.

Chapter 4 describes how to install the operating system. Chapter 5 describes post-installation procedures. Chapter 6 explains how to troubleshoot if you cannot set up the product properly. Refer to “SYSTEM REPAIR” on page 6-2 for details about system configurations and repairs of this product. Refer to “TROUBLESHOOTING” on page 6-13 if you feel you failed to set up the product.

See this User’s Guide for details of this product’s operation, and functions and operations of the hardware and the system.

Additional Symbols

The following symbols are used throughout this User's Guide in addition to the caution symbols described at the beginning.

IMPORTANT:	Important points or instructions to keep in mind when using the server or software
CHECK:	Something you need to make sure when using the server or software
TIPS:	Helpful information, something useful to know

This page is intentionally left blank.

Chapter 1

Before Using

This chapter includes information necessary for proper and safe operation of the server, the main unit and its accessories. Go through this chapter before you start setup of the product.

NOTES FOR SAFE HANDLING

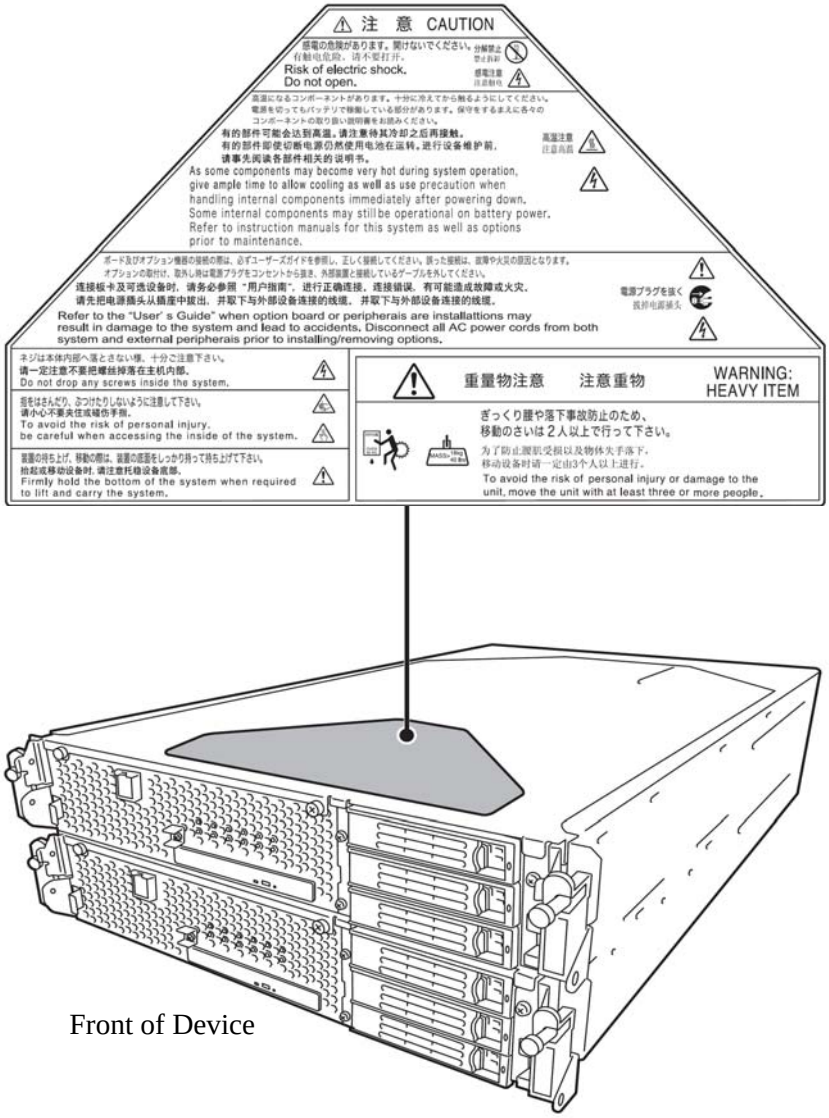
The following section describes necessary information to use the product properly and safely.

Warning Label

Warning label is placed in the certain part of the system so that the user stays alert to possible risks. Do not remove or damage the label.

If this label is missing, about to peel off, or illegible, contact your sales agent.

The figures below show the location of this label on the server.



Front of Device

PRECAUTIONS FOR SAFETY

This section provides precautions for using the server safely. Read this section carefully to ensure proper and safe use of the server. For symbol meanings, see “Safety Indications” described in the previous section.

General

⚠ WARNING

Do not use the server in an operation where human lives are involved or high reliability is required.

This equipment is not intended for use in controlling or use with facilities or systems where human lives are involved or high reliability is required, including medical devices or nuclear, aerospace, transportation, and traffic control facilities. The manufacturer assumes no liability for any accidents or damage to physical assets resulting from the use of this equipment in such systems or facilities.

Do not continue to use the server if you detect smoke, odor, or noise.

If the server emits smoke, odor, or noise, immediately flip off the POWER switch, unplug the cords, and contact your sales agent. There is a risk of a fire.

Do not insert a wire or metal object.

Do not insert a wire or metal objects into a vent or disk drive slot. There is a risk of an electric shock.

⚠ CAUTION

Prevent water or foreign objects from getting into the server.

Do not let water or foreign objects (e.g., pins or paper clips) enter the server. There is a risk of a fire, electric shock, and breakdown. When such things accidentally enter the server, immediately turn off the power and unplug the cords. Contact your sales agent instead of trying to disassemble it yourself.

Use of Power Supply and Power Cord

⚠ WARNING

Do not handle power plugs with a wet hand.

Do not plug/unplug power cords with a wet hand. There is a risk of an electric shock.

Do not connect the ground wire to a gas pipe.

Never connect the ground wire to a gas pipe. There is a risk of a gas explosion.

⚠ CAUTION

Do not plug the cords in nonconforming outlets.

Use wall outlets with specified voltage and power type. There is a risk of a fire or current leakage.

Avoid installing the server where you may need extension cords. If the cords do not meet the power specifications, there is a risk of overheating that could lead to a fire.

Do not plug too many cords in a single outlet.

If the rated current is exceeded, there is a risk of overheating that could lead to a fire.

Do not plug the cords insecurely.

Insert the plug firmly into an outlet. There is a risk of heat or fire due to poor contact. If dust settles on the slots and it absorbs moisture, there is also a risk of heat or fire.

Do not use nonconforming power cords.

AC cord is to spend the thing of the next specifications:

You also have to observe the following prohibitions to prevent an electric shock or fire caused by damage to the cords.

- Do not pull on the cords.
- Do not pinch the cords.
- Do not bend the cords.
- Keep chemicals away from the cords.
- Do not twist the cords.
- Do not place any object on the cords.
- Do not use cords as bundled.
- Do not alter, modify, or repair the cords.
- Do not staple the cords.
- Do not use any damaged cord. (Replace it with a new one of the same specifications. For replacement procedures, contact your sales agent.)

Installation, Relocation, Storage and Connection

⚠ CAUTION

Do not install the server in an unsuitable place.

Install the server in such a place as specified in this User's Guide. Avoid the following locations. There is a risk of a fire.

- a dusty place
- a humid place located near a boiler, etc
- a place exposed to direct sunlight
- an unstable place

Do not use or store this product in a corrosive environment.

Avoid the usage or storage of this product in an environment which may be exposed to corrosive gases, such as those including but not limited to :
sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine, ammonia and/or ozone.
Avoid installing the Fault Tolerant series in a dusty environment or one that may be exposed to corrosive materials such as sodium chloride and/or sulfur.
Avoid installing this product in an environment that may have excessive metal flakes or conductive particles in the air.
Such environments may cause corrosion or short circuits within this product, resulting in not only damage to this product, but may even lead to be a fire hazard.
If there are any concerns regarding the environment at the planned site of installation or storage, please contact your sales agent.

Do not use any non-designated interface cable.

Use only interface cables designated by the manufacturer; identify which component or connector to attach beforehand. If you use a wrong cable or make a wrong connection, there is a risk of short-circuit that could lead to a fire.

You also have to observe the following prohibitions about handling and connecting interface cables:

- Do not use any damaged cable connector.
- Do not step on the cable.
- Do not place any object on the cable.
- Do not use the server with loose cable connections.
- Do not use damaged cables.

Cleaning and Handling of Internal Devices

⚠ WARNING

Do not disassemble, repair, or alter the server.

Unless described herein, never attempt to disassemble, repair, or alter the server. There is a risk of an electric shock or fire as well as malfunction.

Do not look into the DVD-ROM drive.

The DVD-ROM drive uses a laser beam. Do not look or insert a mirror inside while the system is on. A laser beam is invisible; if your eyes get exposed to it, there is a risk of losing eyesight.

Do not detach a lithium battery yourself.

This equipment has a lithium battery. Do not detach it yourself. If the battery is exposed to fire or water, it could explode.
When the lithium battery is running down and the server does not work correctly, contact your sales agent instead of disassembling, replacing or recharging it yourself.

Disconnect the power plugs before cleaning the server.

Even though built-in options for the server can be replaced while the power cords are connected to power source, be sure to follow the instructions described in this User's Guide. Do not touch any internal device of the server unless instructed by this User's Guide. There is a risk of an electric shock.
Make sure to power off the server and disconnect the power plug from a power outlet before cleaning or installing/removing internal optional devices. Touching any internal device of the server with its power cords connected to power source may cause an electric shock even if the server is off-powered.
Disconnect the power plug from the outlet occasionally and clean the plug with a dry cloth. Heat will be generated if condensation is formed on a dusty plug, which may cause a fire.

⚠ CAUTION

High temperature

Immediately after powering off the system, system components such as hard disk may be very hot. Wait for the server to cool down completely before adding/removing components.

Make sure to completely insert cables and boards.

Completely insert all power cords, interface cables and/or boards. An incompletely inserted component may cause a contact failure, resulting in fire and/or smoke.

Protect the unused connectors with the protective cap.

The unused power cord connectors are covered with the protective cap to prevent short circuits and electrical hazards. When removing the power cord connector from the internal devices, attach the protective cap to the connector. Failure to follow this warning may cause a fire or an electric shock.

During Operation

⚠ CAUTION

Keep animals away.

Keep animals away from the server. Animal's waste or hair may get inside the server to cause a fire or electric shock.

Do not place any object on top of the server.

The object may fall off to cause injuries, damage to hardware and/or a fire.

Do not leave the DVD tray ejected.

Dust may get in the server to cause malfunction. The ejected tray may also become a cause of injuries.

Do not touch the server when it thunders.

Unplug the server when it threatens to thunder. If it starts to thunder before you unplug the server, do not touch the server or cables. There is a risk of a fire or electric shock.

Do not use a cellular phone or pager around the server.

Turn off your cellular phone or pager when you use the server. Their radio waves may cause the server to malfunction.

Rack-mount Model

⚠ WARNING

Do not install the server on a nonconforming rack.

Install the server on a 19-inch rack conforming to the EIA standard. Do not use the server without a rack or install it on a nonconforming rack. The server may not function properly, and there is a risk of damage to physical assets or injuries. For suitable racks, contact your sales agent.

Do not use the server in an unsuitable place.

Do not install a server rack in an unsuitable environment.
Other systems also may be affected, and the rack may fall over to cause a fire or injuries. For details about installation environment and quake-resistant engineering, see the attached manual or contact your sales agent.

⚠ CAUTION

Be careful not to hurt your fingers.

Exercise great care not to hurt your fingers on the rail when you mount/dismount the server into/from the rack.

Carry or install the server by more than 3 people.

To avoid a risk of injuries, users should not attempt to carry or install the server into a rack. Installation should be performed by trained maintenance personnel.

Do not install the server in such a manner that its weight is imposed on a single place.

To distribute the weight, use stabilizers or attach two or more racks. Unstable rack may fall down to cause injuries.

Do not assemble parts alone.

It takes at least two people to mount doors and trays to a rack. If you handle them alone, you may drop some parts to cause a breakage or injuries.

Do not pull a device out of the rack if the rack is unstable.

Before pulling out a device, make sure that the rack is fixed (by stabilizers or quake-resistant engineering).

Do not leave more than one device pulled out from the rack.

If you pull out more than one device, the rack may fall down. You can only pull out one device at a time.

Do not install excessive wiring.

To prevent burns, fires, and damage to the server, make sure that the rated load of the power branch circuit is not exceeded. For more information on installation and wiring of power-related facilities, contact your electrician or local power company.

Do not pull out a device during operation.

Do not pull out or remove a device while it is running. There is a risk of malfunction and a device may be detached from a rack to cause injuries.

UNPACKAGING

This product and various accessories are in the special shipping box. Take them out from the box and check the individual items. Store the box and unused accessories in a safe place.

Accessories

This product is shipped with various accessories. See the packing list to make sure everything is included and check the individual items. If any component is missing or damaged, contact your sales agent.

- Keep the accessories in a safe place. You will need them when you perform setup, addition of options, or replacement of failed components.
- To check EXPRESSBUILDER components, see the attached list.
- Be sure to fill out and mail the software registration card that is shipped with the operating system.
- Make backup copies of included floppy disks, if any. Keep the original disks as the master disks; use these copies in operation.
- Improper use of an included floppy disk or DVD may alter your system environment. If you find something unclear, stop using them and contact your sales agent.

(This page is intentionally left blank.)

Chapter 2

About Operating System

This chapter gives essential information on the Windows system supported by the server and how to install it.

INSTALLING Windows Server 2003 x64 Editions/ Windows Server 2003

For installing an operating system on the Fault Tolerant server series, refer to the below description.

IMPORTANT:
The Fault Tolerant server series is a precision instrument. You should ask maintenance personnel to install it.

Before performing the Fault Tolerant server series setup, contact your sales agent about the latest release of ft Server Control Software.

About OS Installation

Read the notes here carefully before installing the operating system.

Operating System Supported by the Fault Tolerant server series

The operating system that the Fault Tolerant server series supports is as follows:

- **Microsoft® Windows Server™ 2003 R2 Enterprise x64 Edition (English)**, hereafter called "Windows Server 2003 x64 Editions."

  For more information on how to install Windows Server 2003 x64 Editions, refer to "Manual Setup."

- **Microsoft® Windows Server™ 2003 R2 32-bit Enterprise Edition (English)**, hereafter called "Windows Server 2003."

  For more information on how to install Windows Server 2003, refer to "Express Setup."

The Fault Tolerant server series does not support any operating systems other than the above (e.g., Windows Server 2003 Standard Edition, Windows 2000 or Windows NT 4.0).

About Windows Server 2003

Use the Express Setup program to install Windows Server 2003. Note the following at installation:

IMPORTANT:

- Complete all the setups such as the memory expansion and the BIOS setting before installing Windows Server 2003.
- The software package, which is to be purchased separately, is also provided with the documentation for installation. However, see this User's Guide for installation into this server.
- After completing the Express Setup program, make settings for failure management (e.g., memory dump (debug information) setting) according to Chapter 4.
- The Express Setup is only applicable to Windows Server 2003; “Manual Setup” is applicable to Windows Server 2003 x64 Editions. “Manual Setup” allows you to manually and individually install Windows Server 2003 x64 Editions, disk drivers and other utilities.

About Auto Installation of Utilities

The Express Setup installs the following utilities automatically.

- Drivers and services for achieving duplicated operation
- NEC ESMPRO Agent

The Express Setup program is exclusively used for the Fault Tolerant server series. To execute the setup program, simply select the item [Express Setup] from the menu displayed when starting the system through the provided “EXPRESSBUILDER.” The setup program automatically performs the complete setups from hardware internal parameter/status settings to installation of the operating system (Windows Server 2003) and various utilities.

Use the Fault Tolerant server series setup program for the first installation and reinstallation of the operating system. This program accomplishes complicate setups.

(This page is intentionally left blank.)

Chapter 3

Installing Server

This chapter describes requirements for using the product properly and safely, the setup procedures to make Fault Tolerant Server series ready for use, and how to connect peripherals.

INSTALLATION

This section describes installation of Fault Tolerant Server series.

Rack-mount Model

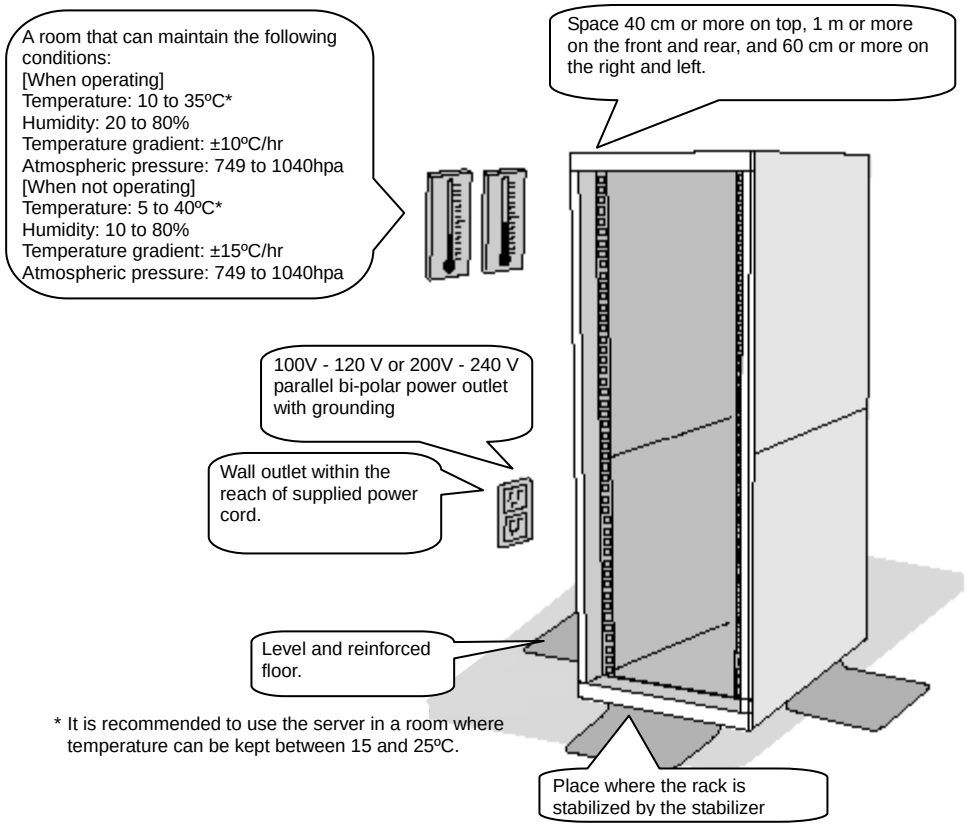
You can mount Fault Tolerant Server series on a rack that conforms to the EIA standards.

IMPORTANT:

Fault Tolerant Server series is a precision instrument. You should ask maintenance personnel to install it.

Installing a rack

To install a rack, see the instruction that comes with the rack, or contact your sales agent or maintenance personnel.



⚠ WARNING

Observe the following precautions to use the server safely. There is a risk of a death or serious injury. For details, see “Notes for Safe Handling” in Chapter 1.

- Do not install the server in non-designated places.
- Do not connect the ground wire to a gas pipe.

⚠ CAUTION

Observe the following precautions to use the server safely. There is a risk of a burn, personal injury, or damage to physical assets. For details, see “Notes for Safe Handling“ in Chapter 1.

- Do not carry or install a rack alone.
- Do not install a rack in such a manner that its weight is imposed on a single place.
- Do not assemble or disassemble parts alone.
- Do not pull a device out of the rack if the rack is unstable.
- Do not leave more than one device pulled out from the rack.
- Do not install excessive wiring.

Do not install Fault Tolerant Server series in such places as listed below. If you locate racks or install the server in such places, the server may malfunction.

- Place where you cannot pull out the components fully.
- Place that cannot sustain the total weight of the rack and its components.
- Place where you cannot use stabilizers or where you cannot perform installation without quake-resistant engineering.
- Place whose floor is uneven or inclined.
- Place where temperatures change widely (near a heater, an air conditioner, or a refrigerator).
- Place that is subject to intense vibration.
- Place where corrosive gas (sodium chloride, sulfur dioxide, hydrogen sulfide, nitrogen dioxide, or ozone) is generated, or a place that is close to chemicals or exposed to chemicals.
- Place whose floor is covered with non-antistatic carpet.
- Place that may be subject to falling objects.
- Place that is close to some equipment that generates intense magnetic field (e.g., TV set, radio, broadcasting/communications antenna, power transmission wire, and electromagnetic crane). (If unavoidable, contact your sales agent to request proper shield construction.)
- Place where the power cords of the server must be connected to outlets that share the outlet of another device with large power consumption.

- Place that is close to some equipment that causes power noises (e.g., sparks caused by power-on/off using a relay). If you must install the server close to such equipment, request your sales agent for separate power cabling or noise filter installation.

Installing the device to the rack

Install this device to the rack.

Installing the device to our company's racks or to other company's racks is explained in this section.

⚠ WARNING

Observe the following precautions to use the server safely. There is a risk of a death or serious injury. For details, see "Notes for Safe Handling" in Chapter 1.

- Do not use the product with the unspecified rack.
- Do not use the product at non-designated places.

⚠ CAUTION

Observe the following precautions to use the server safely. There is a risk of a burn, personal injury, or damage to physical assets. For details, see "Notes for Safe Handling" in Chapter 1.

- Do not install or remove a rack alone.
- Do not install the server with the cover removed.
- Do not squeeze your fingers in the product.

IMPORTANT:

Temperature increase inside the rack and airflow

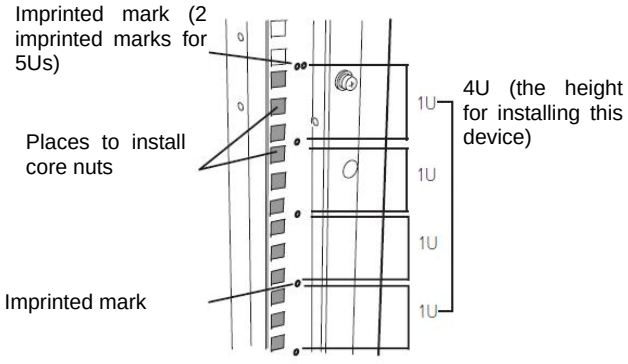
If you install several components or the ventilation isn't good inside the rack, the internal temperature may increase due to heat emitted from the components. When the operating temperatures of Fault Tolerant Server series (10 to 35°C) are exceeded, there is a risk of malfunction. You must take adequate precautions and measures for airflow inside the rack as well as in the room so that the internal temperature can be kept within this range during operation.

- Required tool

To install the device to the rack, a Phillips-head screw drive is required.

- Checking the place to install

Decide the place (height) to install. To keep balance, install it as low as you can on the rack. To install the rack, the height for 4U is required.



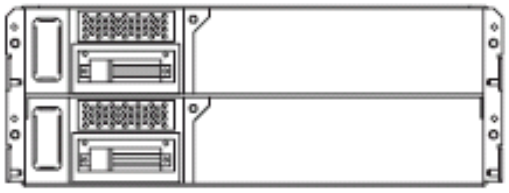
IMPORTANT:

To install this device to the rack, the space for 1U is required for installing the USB compatible floppy disk drive, in addition to the space for 4U.

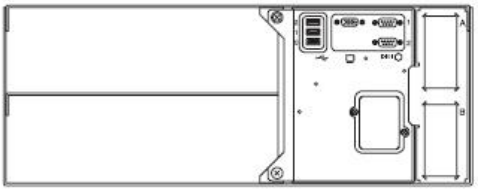
Next to the square hole of the rack, an imprinted mark is placed for 1U (This is the unit to show the height of the rack). This device is as high as 4U (about 176 mm), so install it between the imprinted marks that indicate the height of 4U.

- Installing this device

Follow the steps below to set the 4U chassis to the rack.



Front side of 4U chassis



Back side of 4U chassis

IMPORTANT:

4U chassis weighs about 10 Kg. To mount, remove or replace it, be sure to hold it with two or more people.

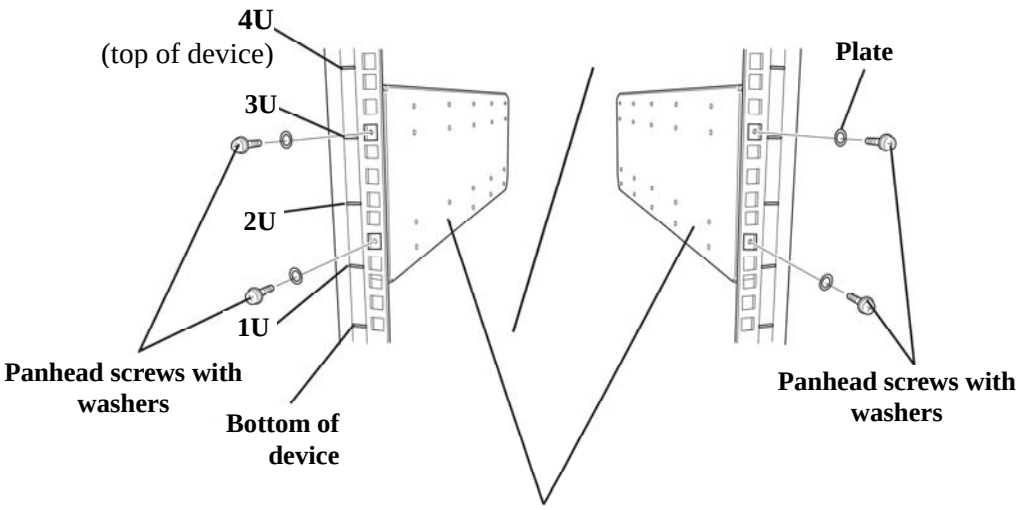
The following are the required accessories. Check if you have them all.

Tool Name	Qty
- Bracket	2
- Panhead screw	4
- Panhead screw with washer	4
- Plate screw (short)	8
- Plate screw (long)	4
- Washer for plate screw	12

TIPS:

Core nuts (8 pieces) are not included. Use the core nuts that are attached to the rack.

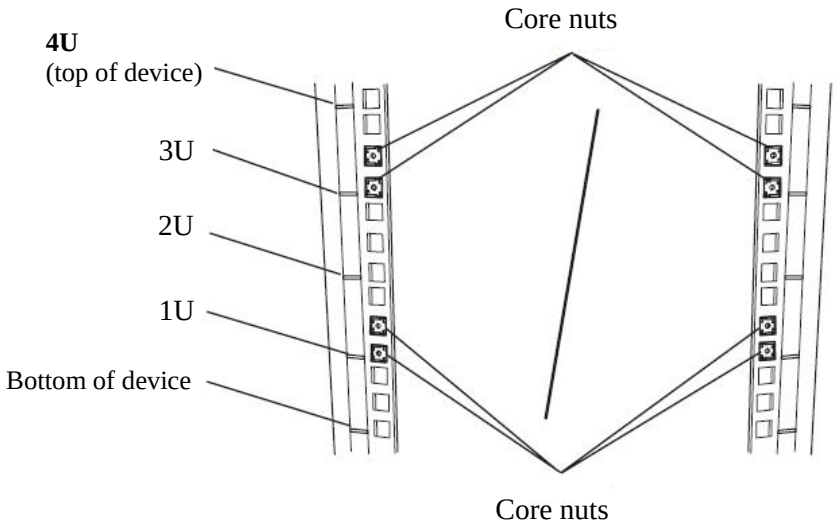
1. If the rack has front and rear doors, read the instruction that comes with the rack, and open them.
2. Install the brackets from the rear side of the rack. Install the brackets with its flat side facing inside. Place them with the round screws with washers that come with the device symmetrically (total: 4). Fasten the screws tentatively not tightly.



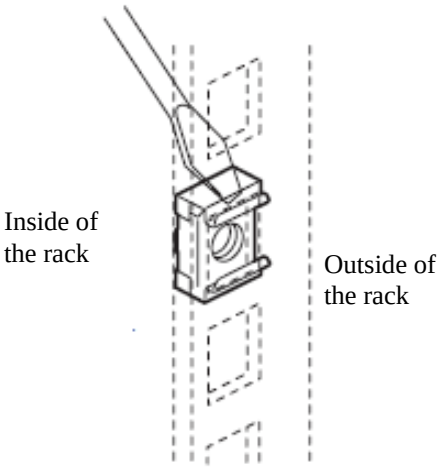
Bracket (flat sides are facing inside)

3. Fix the core nuts to the front side of the rack.

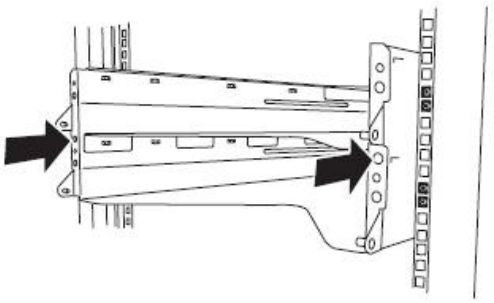
   Attach them symmetrically (total: 8 core nuts).



Fix a core nut from inside of the rack.
Hook either of the clips of the core nut to a square hole of the rack, and hook the other clip to a hole by a flat-blade screwdriver.

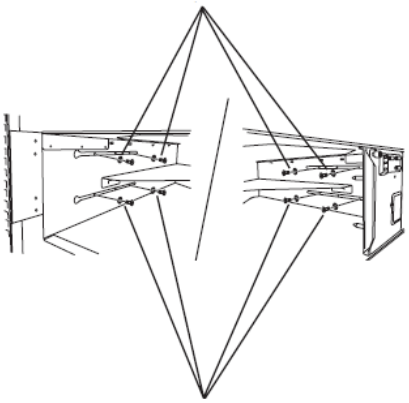


4. Insert the 4U chassis from the front side of the rack.



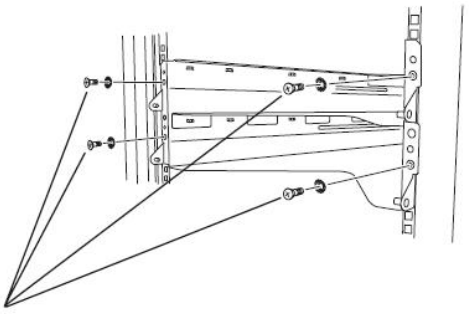
5. Tentatively fasten the washers and plate screws (short) to the 4 places on the front and back sides (total: 8) from the rear.

Washers and plate screws (short)



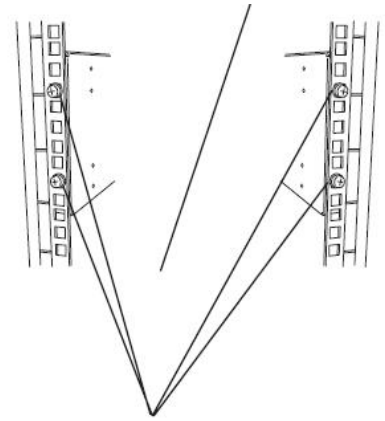
Washers and plate screws (short)

6. Fasten tightly the washers and round screws (long) to the 2 places on the left and right sides (total: 4) from the front.



Washers and plate screws (long)

7. Fasten tightly the 4 round screws on the back side and the 8 plate screws on the side panels (which you fastened tentatively).



Panhead screws on the side panels

Plate screws on the side panels

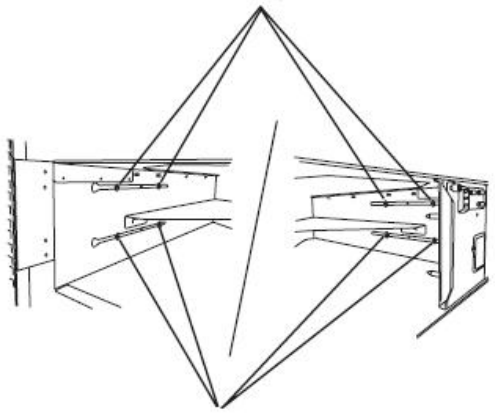
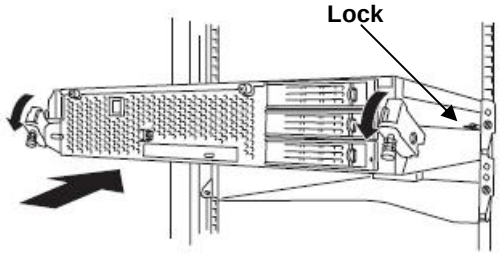


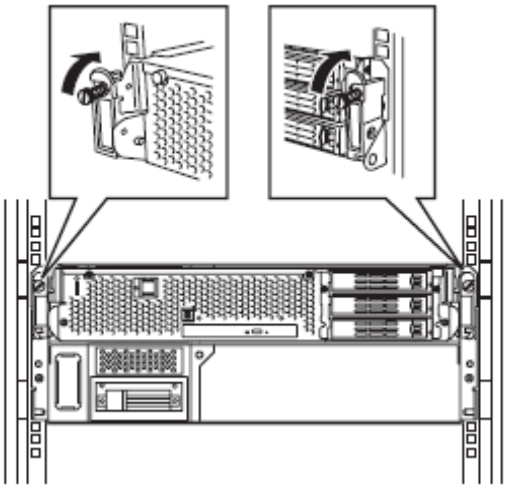
Plate screws on the side panels

8. Mount the CPU/IO module 0.

   Mount the module while lowering the lock so the module stacks on the way.



9. Fasten the levers on the left and right sides with screws.



10. Mount the CPU/IO module 1 in the same way.

Unmounting the device from the rack

Follow the steps below and unmount the device from the rack.

⚠ CAUTION

Observe the following precautions to use the server safely. There is a risk of a burn, personal injury, or damage to physical assets. For details, see “Notes for Safe Handling“ in Chapter 1.

- Do not carry or install a rack alone.
- Do not squeeze your fingers in the product
- Do not impose a weight on the device when it is pulled out from the rack.
- Do not pull a device out of the rack if the rack is unstable.
- Do not leave more than one device pulled out from the rack.
- Do not pull the device from the rack while it is operating.

1. Check that the device is powered off, and remove all the power cords and interface cables that are connected to the device.
2. Remove the front bezel.
3. Loosen the screws on the left and right sides of the front panel of the CPU/IO module and release the lock by pulling the ejector toward you.
4. Pull out the CPU/IO module gently from the rack.

IMPORTANT:

- When you pull out the device, do not load anything on its top. It is dangerous, since the device becomes unstable and it may fall.
- Do not hold the handle on the front side or the convex part on the back side. To move the device, hold the bottom.
- Since the device is locked and can not be pulled out, pull it out after releasing the lock by lowering the lock on the side of the CPU/IO module.

5. Hold tightly when you unmount 4U chassis from the rack,.

To remove the mechanical parts of the rack, see the installation procedure.

INSTALLING the Tower Conversion Kit

This section describes how to install the rack-mount model of Fault Tolerant Server series without using the dedicated rack.

IMPORTANT:

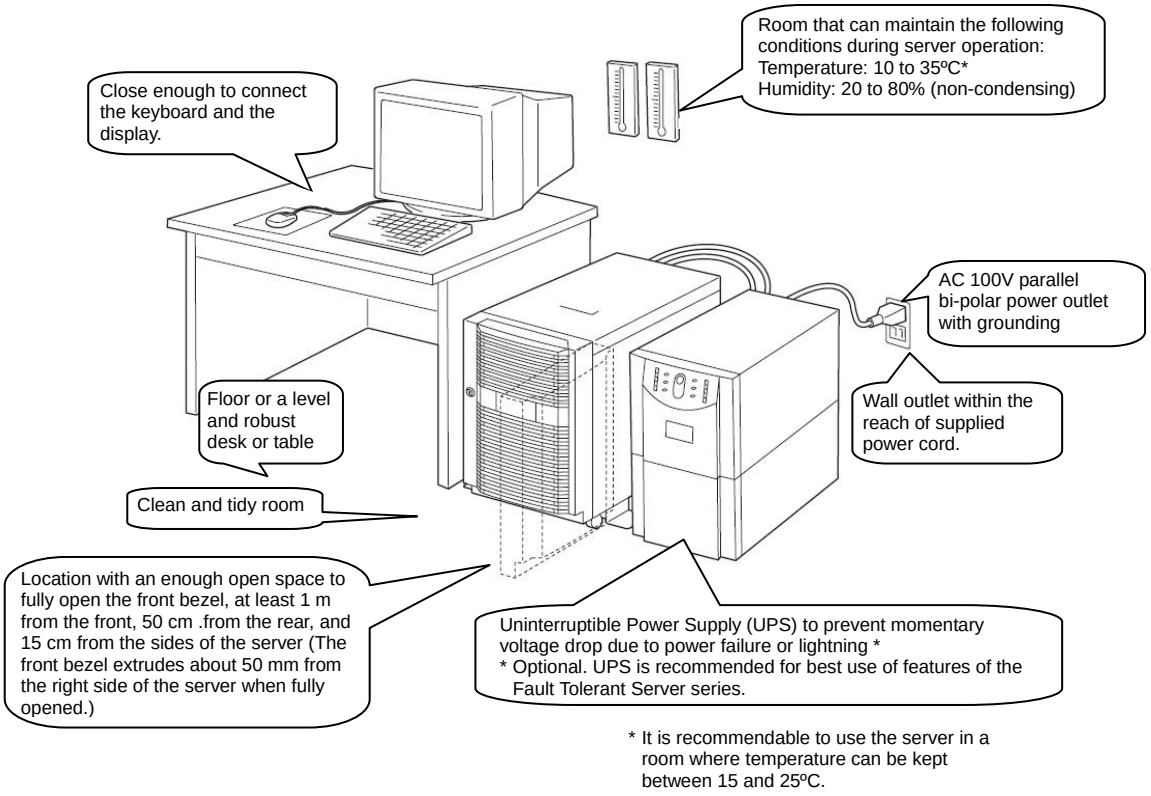
Fault Tolerant Server series is a precision instrument. You should ask maintenance personnel to install it.

Select a suitable site for tower model.

⚠ CAUTION

Observe the following precautions to use the equipment safely. There are risks of a burn, injury, or damage to physical assets. For details, see “Notes for Safe Handling“ in Chapter 1.

- Remove all modules before moving the equipment.
- Do not install the equipment in non-designated places.



* It is recommendable to use the server in a room where temperature can be kept between 15 and 25ºC.

Do not install Fault Tolerant Server series in such places as listed below. Otherwise, the server may malfunction.

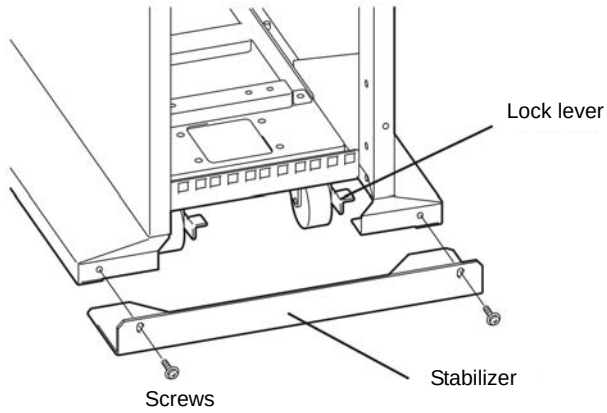
- Place where temperatures change widely (near a heater, air conditioner, or refrigerator).
- Place that is subject to intense vibration.
- Place where corrosive gas (sodium chloride, sulfur dioxide, hydrogen sulfide, nitrogen dioxide, or ozone) is generated, or a place that is close to chemicals or exposed to chemicals.
- Place whose floor is covered with non-antistatic carpet.
- Place that may be subject to falling objects.
- Place where you may step or trip on the power cords or interface cables.
- Place that is close to some equipment that generates intense magnetic field (e.g., TV set, radio, broadcasting/communications antenna, power transmission wire, and electromagnetic crane). (If unavoidable, contact your sales agent to request proper shield construction.)
- Place where the power cord of the server must be connected to an AC outlet that shares the outlet of another device with large power consumption.
- Place that is close to some equipment that causes power noises (e.g., sparks caused by power-on/off using a relay). If you must install the server close to such equipment, request your sales agent for separate power cabling or noise filter installation.

It takes at least three people to carry the server; hold it firmly by its bottom and place it slowly on the selected site.

IMPORTANT:

Do not hold the front bezel to lift it, or it may detach, fall down, and break the server.

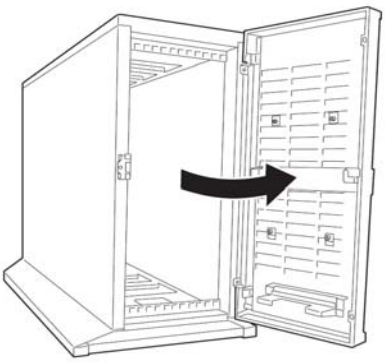
After placing the main cabinet, lock its two front casters out of four and screw the attached four stabilizers on the cabinet adjusting their height.



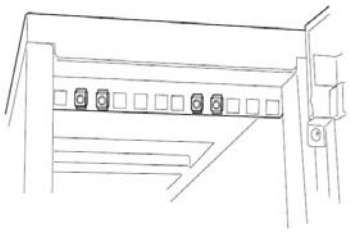
Steps to Install the Rack-mount Model to the Tower Conversion Kit

Follow the procedure below to install the devices to the tower conversion kit.

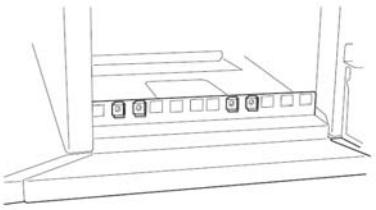
1. Open the front door of the tower conversion kit.
If the door is locked, use the server-accessory key to unlock.



2. Confirm the spots to fix 8 core nuts on the front of the chassis.
See the figure on the right for where to fix the core nuts
(4 on the front top and 4 on the front bottom.)

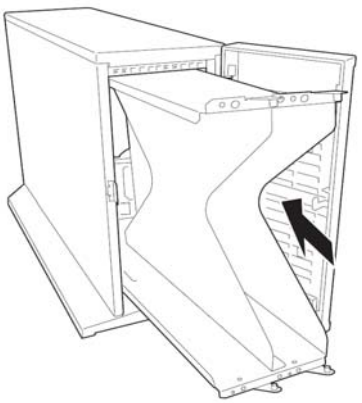


Tower conversion kit (on the front top)

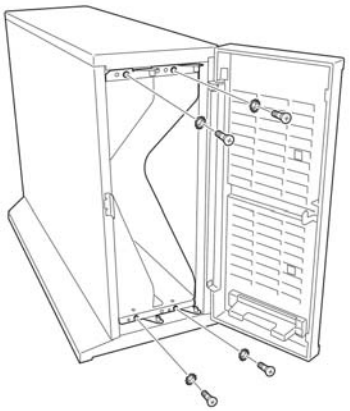


Tower conversion kit (on the front bottom)

3. Insert the bracket from the front of the conversion kit. Tuck the bracket firmly to the back.

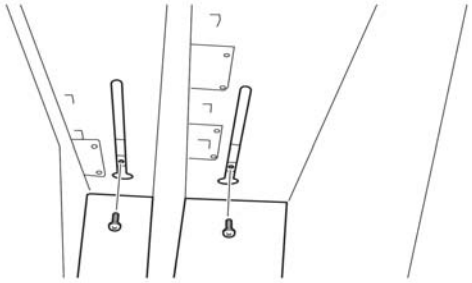


4. Fix the bracket with four washers and countersunk screws (long ones), two at the top and two at the bottom.

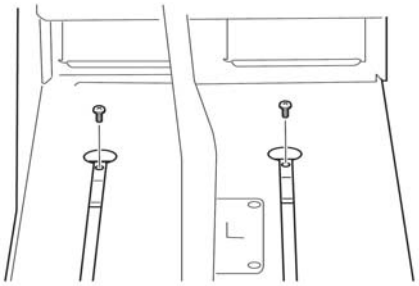


5. Fix the bracket with 4 washers and countersunk screws. See the figure on the right for where to fix the screws (2 screws for the backside on the top, and 2 for the bottom of the tower conversion kit).

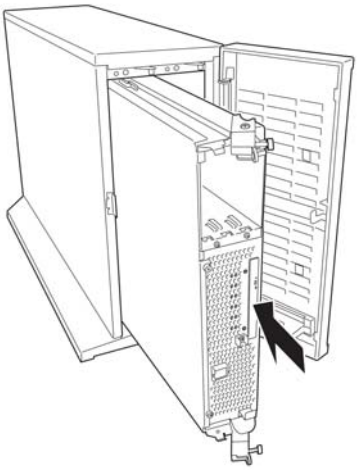
Top (toward the backside)



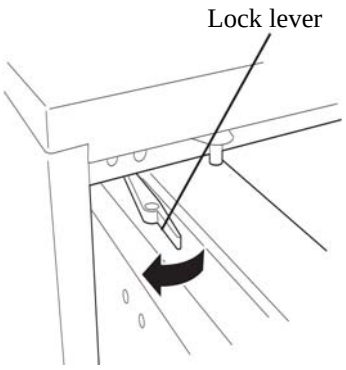
Bottom (toward the backside)



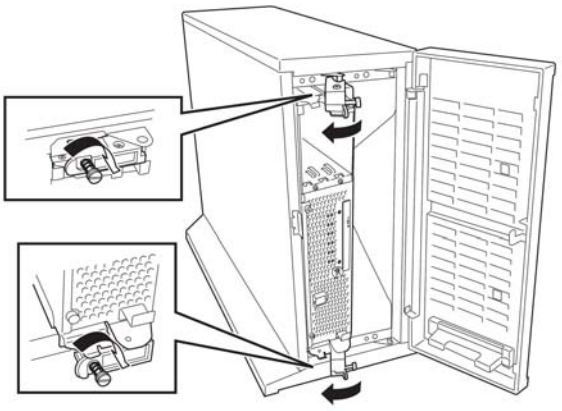
6. Insert the device slowly and securely into the bracket.



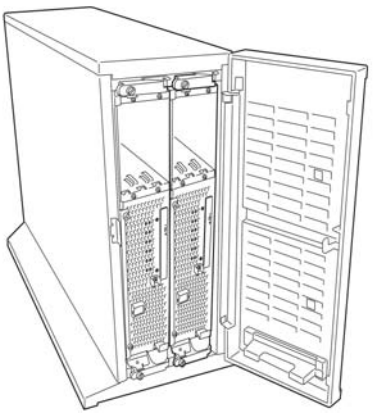
If it becomes rocked and cannot insert any further, push and keep the rock lever to the left as push the device further inside.



7. Close the lever on the top and the bottom of the device. Fix the device to the bracket with clinchers.



8. Take steps 6 to 8 to fix the other device to the bracket.



Connect peripheral devices to Fault Tolerant Server series

The server provides connectors for a wide variety of peripheral devices on its front and rear. The figure on the next page illustrates available peripheral devices for the server in the standard configuration, and locations of the connectors for the devices. After connecting the peripheral devices, connect the provided power cords with the server, and then plug the power cords into the power outlet.

⚠ WARNING

Observe the following precautions to use the server safely. There is a risk of a death or serious injury. For details, see “Notes for Safe Handling“ in Chapter 1.

- Do not hold the power plug with a wet hand.
- Do not connect the ground wire to a gas pipe.

⚠ CAUTION

Observe the following precautions instructions for the safe use of the equipment. There is a risk of a burn, personal injury, or damage to physical assets. For details, see “Notes for Safe Handling“ in Chapter 1.

- Do not plug the power cord in a nonconforming outlet.
- Do not plug too many cords in a single outlet.
- Do not plug the cord insecurely.
- Do not use nonconforming power cords.

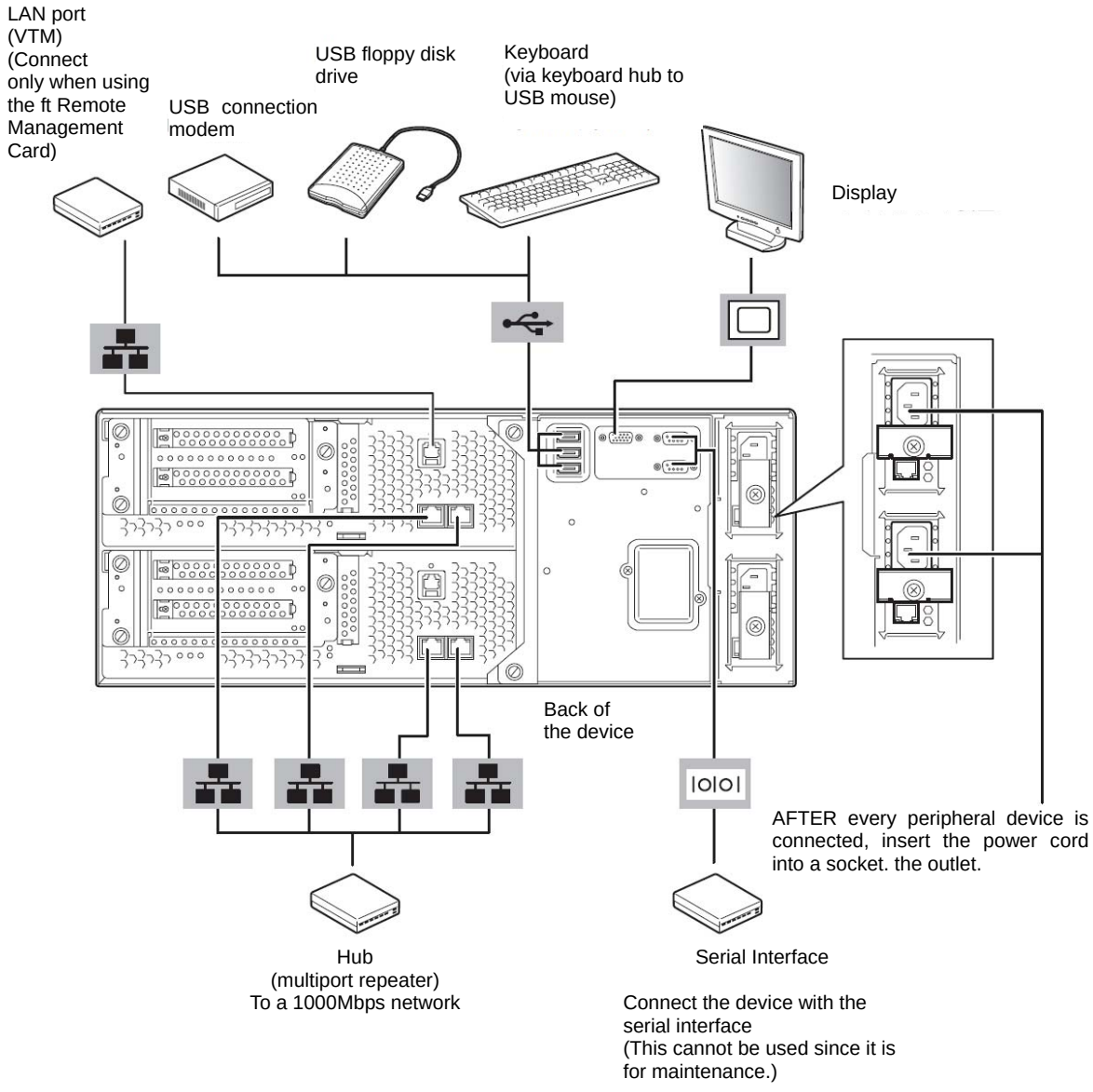
IMPORTANT:

- Power off the server before connecting peripheral devices, with the exception of peripherals with USB interface. Connecting a powered peripheral device to the powered server will cause malfunctions and failures.
- To connect a third-party peripheral device or interface cable to the server, check with your sales agent to see if they are compatible with Fault Tolerant Server series. Some third-party devices may not be used with the server.
- The total cable length of SCSI device connections is up to 6 m, including the internal SCSI cables.
- The serial port connectors are reserved for maintenance.
- Place the USB floppy disk drive on the server. Space of 1U is needed to put it on the server.

IMPORTANT:

Connection of optional devices

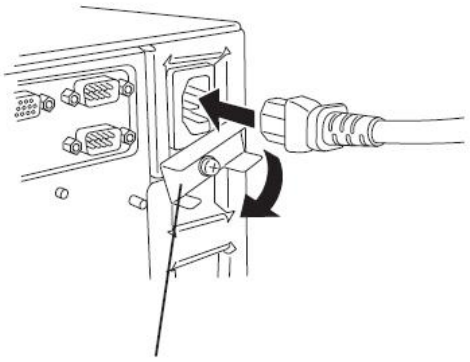
- In the case of standard configuration, you need to complete setup of the operating system before mounting optional PCI cards or hard disks that you purchased separately.
- If a Fiber Channel Controller is mounted, be sure to connect cables to the FC array unit before going on to the next step.



Rotate the stopper clockwise, and insert the power cords to the AC inlets of the power unit.

Connect the plug at the other end of the power cord to a wall outlet with parallel double-pole grounds provided or to an uninterruptible power supply (UPS).

To use the functions of the server, you should connect the server to the UPS.



Stopper

IMPORTANT:

- Be sure to use both of the power cords to make the server fault-tolerant.
- After connecting the power cords, wait at least 30 seconds before pressing the power switch.
- By pressing the power switch, the power switch's fans starts to rotate.

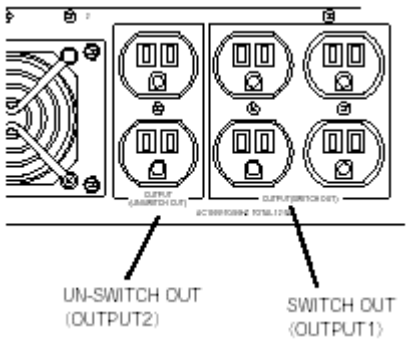
To connect the power cords from the server to an uninterruptible power supply (UPS), use service outlets on the rear of the UPS.

The UPS service outlets are categorized into two groups: SWITCH OUT and UN-SWITCH OUT. (They may be called "OUTPUT1" and "OUTPUT2".)

To restrict the power supply from ESMPRO/AutomaticRunningController, connect the power cable to SWITCH OUT.

For constant power supply, connect the power cords to a UN-SWITCH OUT outlet. (Connect the modem that is in service for 24 hours to this outlet.)

<Example>



When the power cords from the server are connected to a UPS, change the BIOS setup of the server to link with power supply from the UPS.

Select [AC-LINK] from [Server] on the BIOS setup utility and change parameters. See the separate volume of User's Guide for details.

(This page is intentionally left blank.)

Chapter 4

Windows Setup

This chapter describes procedures such as configuring OS Boot Monitoring function, setting dual LAN configuration, and setting dual disk configuration.

Before starting Setup

Read this section before starting setup.
This chapter describes two types of setup.

Procedures to Install and Reinstall the Windows OS

Installing and Reinstalling Windows Server 2003 x64 Edition

"Manual Install" is required to install/reinstall OS (Windows), the disk drivers and other utilities manually and individually.

Installing Windows Server 2003

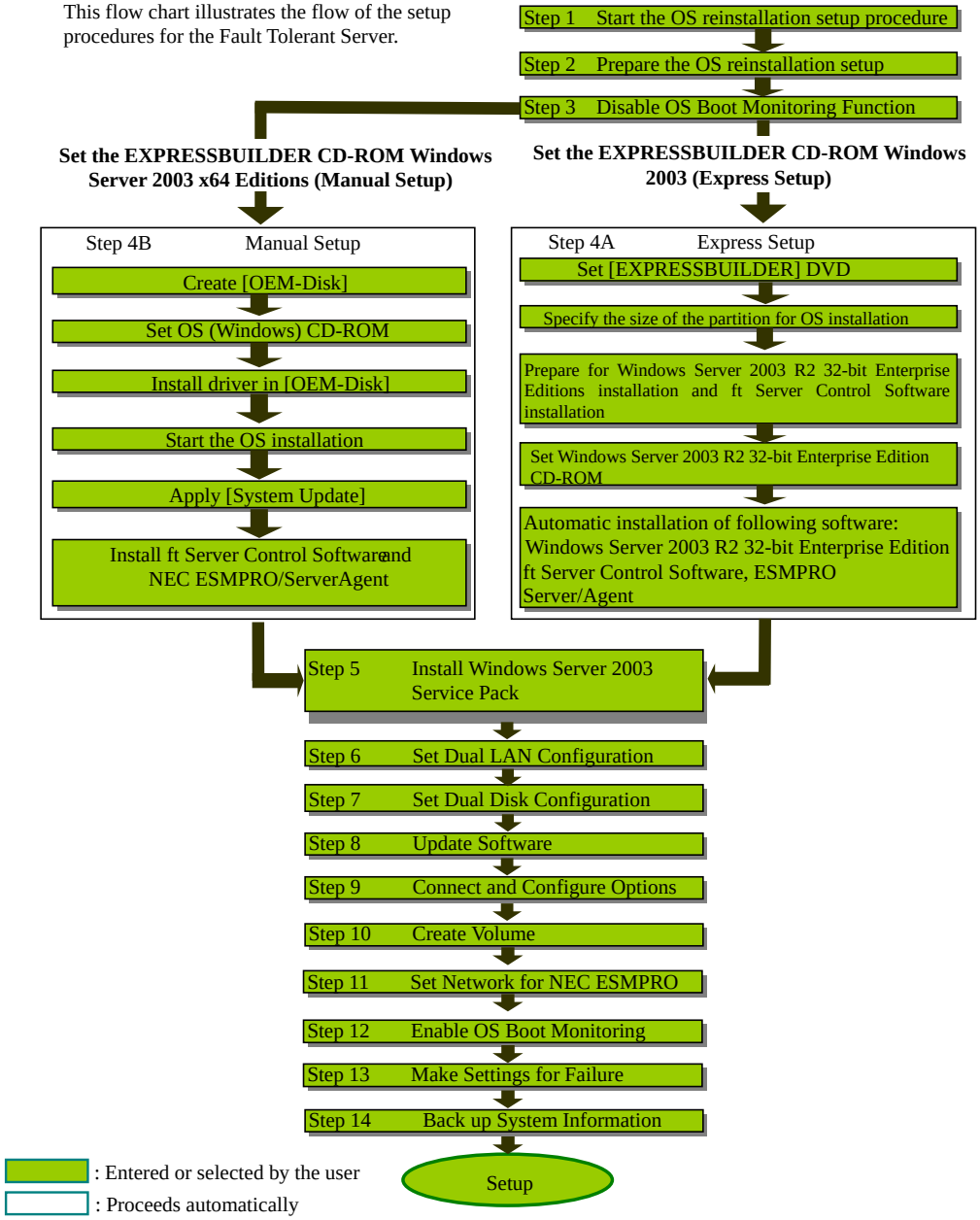
Use EXPRESSBUILDER to install/reinstall Windows Server 2003.

"Express Setup" is the setup program that is specific to Fault Tolerant Server series. EXPRESSBUILDER DVD, a server accessory, runs this setup program. Express Setup enables automatic install of Windows Server 2003 and other various utilities.

Refer to "Procedure to Install and Reinstall OS." Use this setup step if you want to reinstall OS or use the HDD with a partition setting that is different from the default partition setting.

SETUP FLOW

This flow chart illustrates the flow of the setup procedures for the Fault Tolerant Server.



Step 1: Procedure to Install and Reinstall OS

The following explains OS install and reinstall:

IMPORTANT:

- "Express Setup" deletes all data on the disk used for installation/reinstallation, as "Express Setup" formats the entire disk. If there is any data partition other than the system partition containing OS for reinstallation, you must back up the important data in the data partition first and then start "Express Setup."
- Do not apply service packs to Fault Tolerant Server series based on your judgment. If you want to apply service packs, contact your sales agent for the latest application and apply service packs to Fault Tolerant Server series.

Following items are required for install/reinstall:

For Windows Server 2003 x64 Editions

- EXPRESSBUILDER DVD
- ft Server Control Software UPDATE CD-ROM

  This CD-ROM is used to update ft Server Control Software; it may not be shipped with the equipment. (Not included if "EXPRESSBUILDER"DVD contains the latest version of software programs at the time of shipment.)
- Microsoft® Windows Server™ 2003 R2, Enterprise x64 Editions Disk 1
  (hereinafter referred to as "Windows Server 2003 x64 Editions CD-ROM")
  Microsoft® Windows Server™ 2003 R2, Enterprise x64 Edition Disk 2
  (One set consists of 2 disks.)
- Windows Server 2003 x64 Editions Service Pack CD-ROM
  Apply Windows Server 2003 x64 Editions Service Pack 2.
- Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER (or one 1.44MB, DOS-formatted 3.5-inch floppy disk.)
- User's Guide (Setup) (this manual)
- User's Guide

For Windows Server 2003

- EXPRESSBUILDER (DVD)
- ft Server Control Software UPDATE CD-ROM

  This CD-ROM is used to update ft Server Control Software; it may not be shipped with the equipment. (Not included if "EXPRESSBUILDER"DVD contains the latest version of software programs at the time of shipment.)
- Microsoft® Windows Server™ 2003 R2 32-bit Enterprise Edition Disk 1
  (hereinafter referred to as "Windows Server 2003 CD-ROM")

Microsoft® Windows Server™ 2003 R2 32-bit Enterprise Edition Disk2
(One set consists of two disks.)

- Windows Server 2003 Service Pack CD-ROM
  It is recommended to apply the latest service pack supported by ft Server.
- User's Guide (Setup) (this manual)
- User's Guide

IMPORTANT:

- About the latest release of ft Server Control Software and purchase of the latest version of its Update CD-ROM, ask your sales agent.

Before starting the setup, decide the size of the partition for the operating system.

Size of the Partition to be Created

For Windows Server 2003 x64 Editions:

The required minimum size of a partition to install the system can be obtained from the following formula:

Size required for installation + paging file size + dump file size

Size required for installation	= 5,900MB (Windows Server 2003 R2)
Paging file size (recommended)	= size of memory mounted* × 1.5
Dump file size	= size of memory mounted* + 1MB

IMPORTANT:

- The above paging file size is necessary for collecting debug information (memory dump). The boot volume requires a paging file size that is large enough to store the dump file. Set an adequate paging file size for the entire system, since an inadequate amount of paging file might cause a harvest of incorrect debug information (memory dump).
- The maximum size of the dump file is "mounted memory size + 1MB," regardless of the mounted memory and the debug information (the types of memory dump).
- If you need to install other applications, add the capacity of hard disk required for those applications.

For example, if memory of 1GB is mounted, the required minimum partition size obtained from the above formula is as follows:

5,900MB + (1,024MB × 1.5) + 512MB + 1MB = 7,949MB

For Windows Server 2003:

You can obtain the required minimum size of the partition to install the system from the following formula:

Size required for installation + paging file size + dump file size

Size required for installation	= 5,300MB (Windows Server 2003 R2)
Paging file size (recommended)	= size of memory mounted* × 1.5
Dump file size	= size of memory mounted* + 12MB

IMPORTANT:

- The above paging file size is necessary for collecting the debug information (memory dump). If a value smaller than the "Recommended" one is set for the initial size of the paging file, correct debug information (memory dump) may not be collected.
- The maximum paging file size is 4095MB in a partition. If 1.5 times the size of mounted memory is larger than 4095MB, set the size at 4095MB.
- If the size of mounted memory is larger than 2GB, the maximum size of dump file is "2048MB+12MB."

TIPS: The mounted memory size means the total of memory installed on a single CPU/IO module.

For example, if memory of 1GB is mounted, the required minimum partition size obtained from the above formula is as follows:

$$5{,}300\text{MB} + (1024\text{MB} \times 1.5) + (1024\text{MB} + 12\text{MB}) = 7{,}842\text{MB}$$

Step 2: Prepare for Express Setup

Before starting Express Setup, be sure to do the following. You can set up properly only when you make those preparations.

2-1: Prepare Fault Tolerant Server series

With the power of Fault Tolerant Server series off, follow the steps below:

1. Prepare Fault Tolerant Server series.

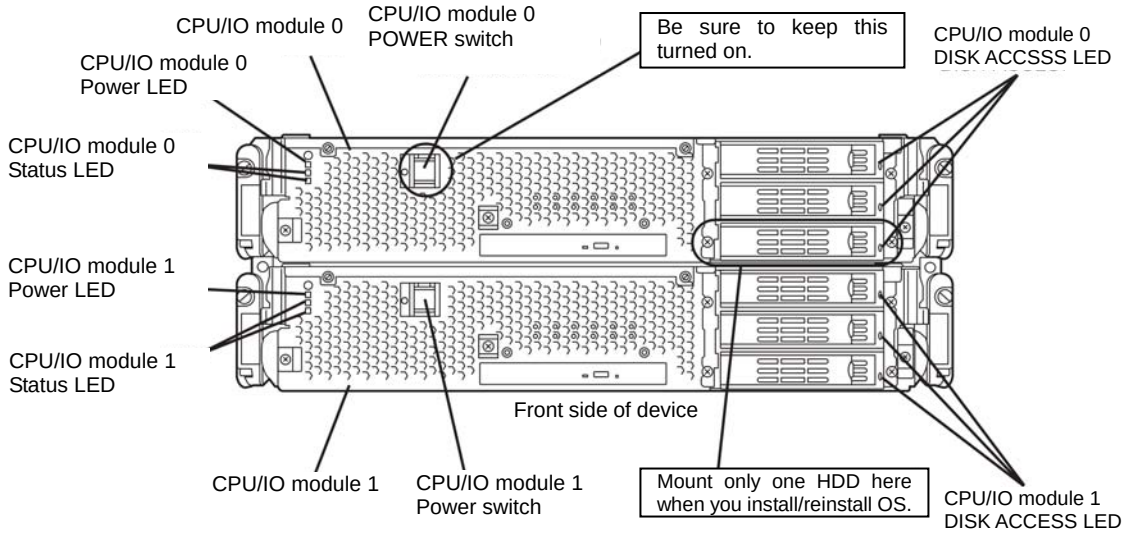
- Mount the modules for both systems.
- Mount only one hard disk to the Slot 1 of the CPU/IO module 0.
- Remove all LAN cables.
- Remove optional SCSI devices such as a tape device from the SCSI connector.
- Remove cables from the connectors attached to the Fibre Channel board.

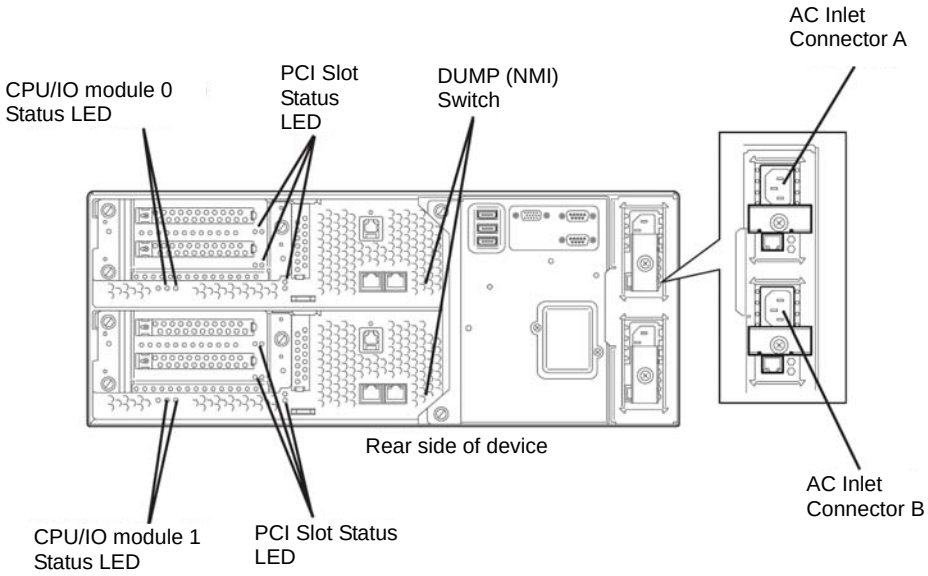
IMPORTANT:

Mount only one HDD to the designated slot of the designated CPU/IO module. If multiple HDDs are mounted, the hard disk to install OS cannot be determined.

2. Prepare the installation from the CPU/IO module 0. Mount a HDD to the designated place when installing the OS.

The location of the parts required for operation and checking are shown below:





When the AC power is on (The power cords are plugged into the wall outlet)

(1) Confirm the POWER LED of the CPU/IO module.

- If the POWER LED is illuminated, shut down the OS and unplug the AC power cord after the POWER LED turns off.
- If the POWER LED is turned off, unplug the AC power cord.

(2) Execute the operation to be taken when AC power supply is turned off.

When the AC power is off (The power cord is not plugged into the outlet)

Connect the power cords to Fault Tolerant Server series in the following order:

(1) Connect the power cord to the AC inlet A connector.

(2) Connect the power cord to the AC inlet B connector.

(3) Make sure that the CPU/IO module status LED is turned off.

Preparation is now completed.

Step 3: Disable OS Boot Monitoring Function

Check whether the power is ON and make settings for properly performing setup for later on.
This server has a function to monitor the main unit at startup. (Enabled in the configuration at shipment)
When installing/reinstalling the operating system, this monitoring function needs to be disabled; otherwise the OS may not install properly. Follow the steps in this section and make proper settings.

IMPORTANT:

If you skip the settings described here, the system will be forcefully restarted while Windows setup screen is shown and the setup will be unsuccessful. BIOS may repeat Windows setup in an invalid manner. In this case, you will need to restart the setup procedures from the beginning.

TIPS:

For details of operations for BIOS Setup Utility and parameters, see the separate volume of User's Guide.

Procedure for Changing BIOS settings

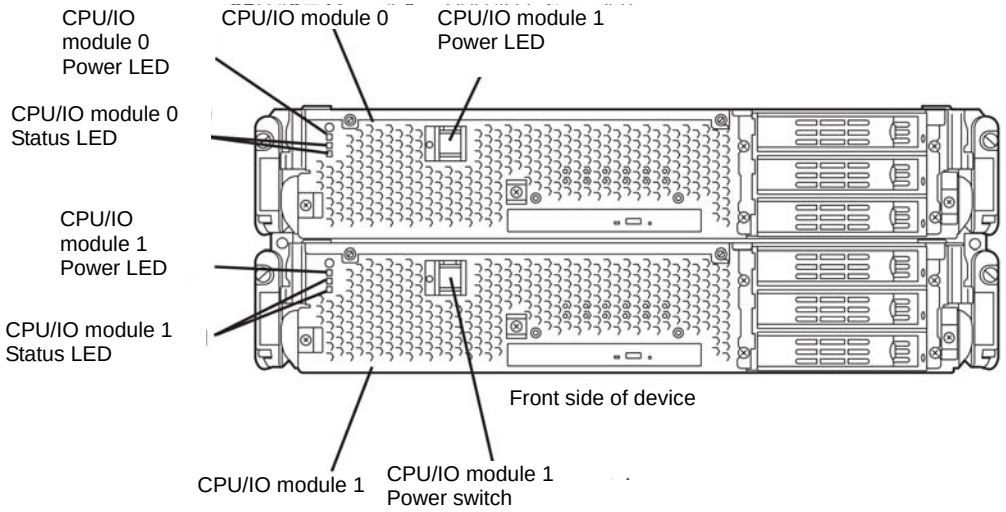
1. Turn on the display and the peripheral equipment connected to the Fault Tolerant Server series.

   CHECK:

   If the power cords are connected to a power controller like a UPS, make sure that it is powered on.

2. Detach the front bezel.

3. Press the POWER switch located on the front side of the server. (You can see LEDs lit on this side.)



IMPORTANT:

Do not turn off the power before the full screen logo appears.

After a while, the full screen logo will appear on the screen.

While the logo is displayed on the screen, Fault Tolerant Server series performs a power-on self test (POST) to check itself. For details, see the separate volume of User's Guide.

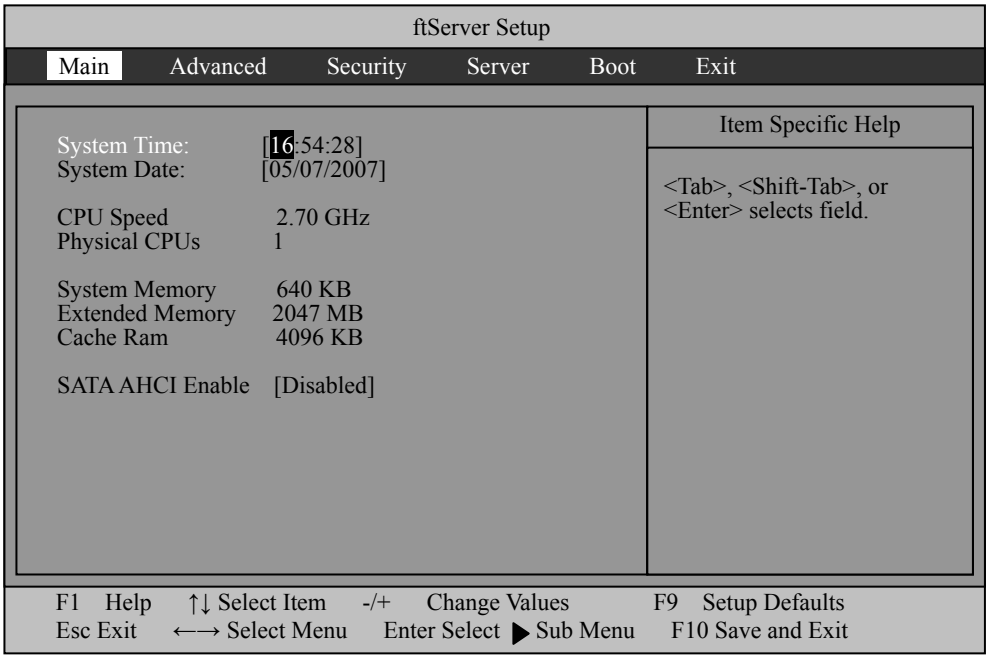
CHECK:

If the server finds errors during POST, it will interrupt POST and display the error message. See the separate volume of User's Guide.

4. When the message “Press <F2> to enter SETUP” or “Press <F2> to enter SETUP or Press <F12> to boot from Network” is displayed on the display screen, press **F2**.

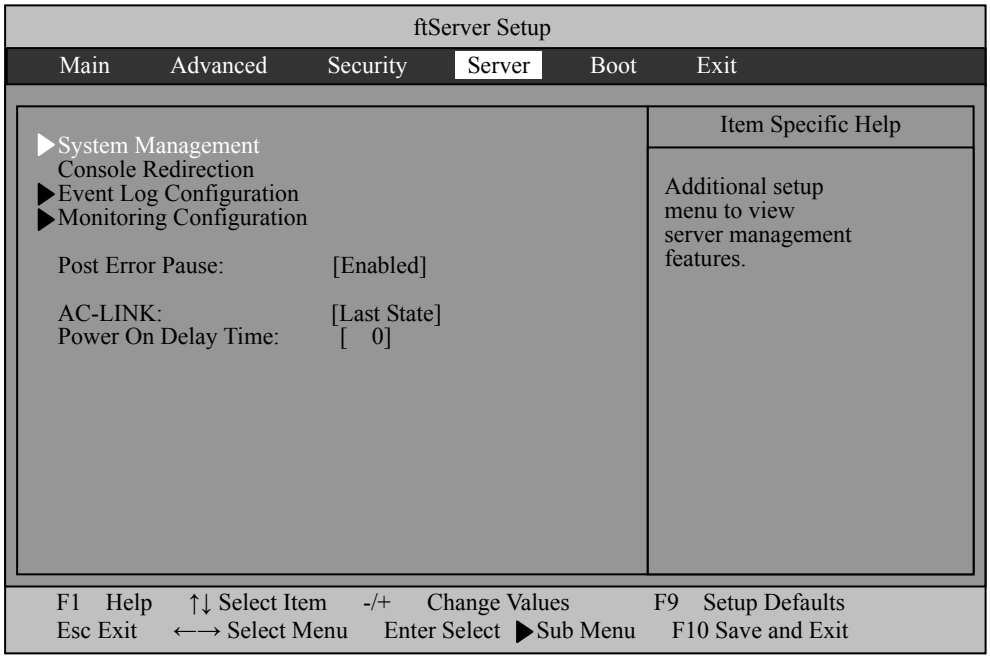
The BIOS Setup Utility “SETUP” starts and the Main menu is displayed on the screen.

Example:



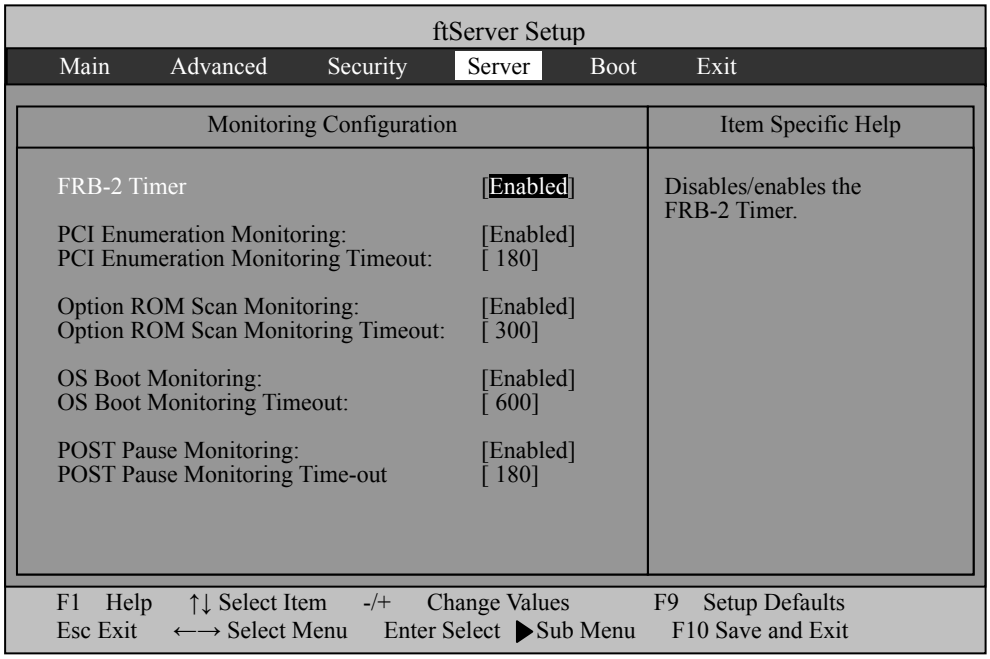
5. Move the cursor onto “Server” and select “Server.”

The Server menu will be displayed:



6. Move the cursor onto “Monitoring Configuration” and press **Enter**.

The Monitoring Configuration submenu appears:

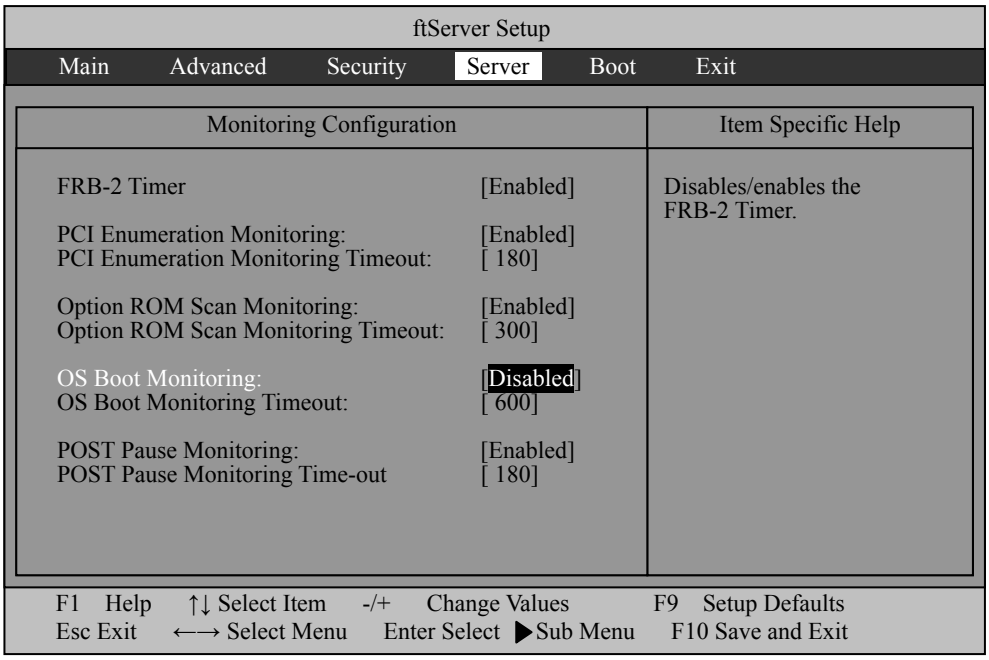


7. Move the cursor onto “OS Boot Monitoring” and press **Enter**.

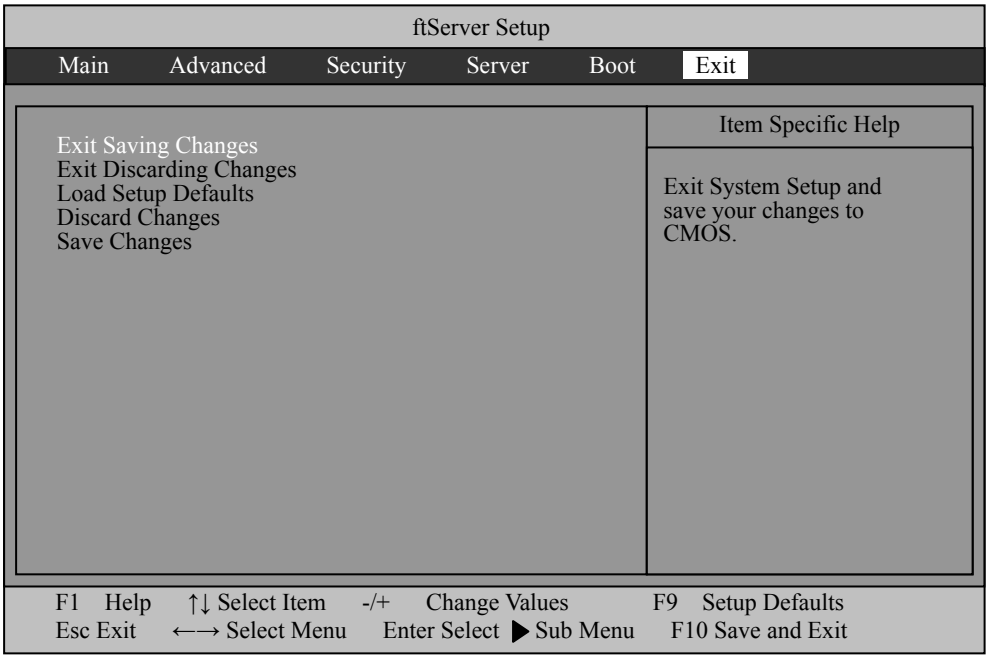
Parameters will be displayed.

8. Among the parameters, choose “Disabled” and press **Enter**.

The current display of the configuration for OS Boot Monitoring will be changed to “Disabled.”

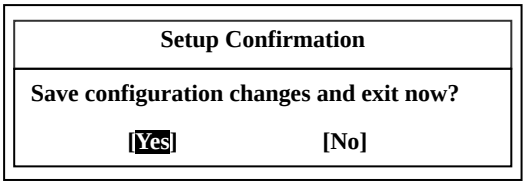


9. Press the **Esc** key to go back to the Server menu, and then move the cursor and select "Exit" to display the Exit menu.



10. Move the cursor onto "Exit Saving Changes" and press **Enter**.

The confirmation window will appear.



11. Select "Yes" and press **Enter**.

The configuration data is saved, SETUP terminated, and the system rebooted.
This is the end of steps for switching OS Boot Monitoring function.

TIPS:

After the procedure above is completed, power off this server to prepare for installation. Then, referring to "Step 4A : Start Express Setup" on the next page to continue the setup.

Step 4A : Start Express Setup

Set up with the Express Setup functions of EXPRESSBUILDER.

“Express Setup” is a setup method for Fault Tolerant Server series that allows configuration of hardware internal parameters and status and installation of OS (Windows Server 2003) and various utilities in seamless manners by using “EXPRESSBUILDER” DVD which comes with the server. Use the “Express Setup” to install the OS. It performs complicated setups automatically.

Express Setup edits the information required for the setup, saves it to a floppy disk before the setup, reads the information one by one at the setup and automatically performs a series of setup processes.

TIPS:

- Parameters file is a setup file that stores the information set/selected during Express Setup. Express Setup executes all the setup process automatically, based on this information. It is not necessary to sit by the system and check the status during the setup. If you use the parameters file that has been used last time, you can create the same setup condition as the previous one.
- You can create a parameter file in advance, by using “Parameter File” in EXPRESSBUILDER.

  If you create a configuration diskette in advance, you can skip the options that need to be entered or selected during Express Setup. (You can create or modify the setup information in the configuration diskette, during Express Setup.) If any computer that is running on Windows XP/Vista/Windows Server 2003 is available, it is recommended to edit the setup information with Configuration Diskette Creator in advance.
- This device does not include the floppy disk (FD) drive by standard. Prepare an optional floppy drive when you create and use parameters file.

Flow of Setup Procedures

The following flow chart illustrates the setup procedures for Express Setup.

Loading parameters (Step 2)

Skip

Next

Select the operating system (Step 3)

Next

RAID configuration (Step 4)

Next

Windows Confirm Setting / Input (Step 5 to 10)

Next

Save parameters (Step 11)

Next

Start Express Setup (Step 12)

Perform

Create the OS partition / format

Copying Windows driver

Copying Selected Application

Remove the Floppy Disk and CD/DVD-ROM from the drive

Insert Windows CD-ROM

Agree Software License Agreement

Install OS Automatically

Log on Automatically

The installation is completed

: Process that needs to input or select

: Process that proceeds automatically

Setup Procedures

Express Setup precedes the setup by selecting or inputting several parameters on the wizard. You can also save the parameters to a floppy disk as a parameters file.

CHECK:

To execute Express Setup with a parameter file, one empty 1.44MB formatted floppy disk is required. Prepare an empty floppy disk in advance.

When you reinstall OS, you can skip entering the parameter in the Wizard form, by reading the parameter file that has been saved.

IMPORTANT:

In case of changing the system configuration, update the system (page 6-8).

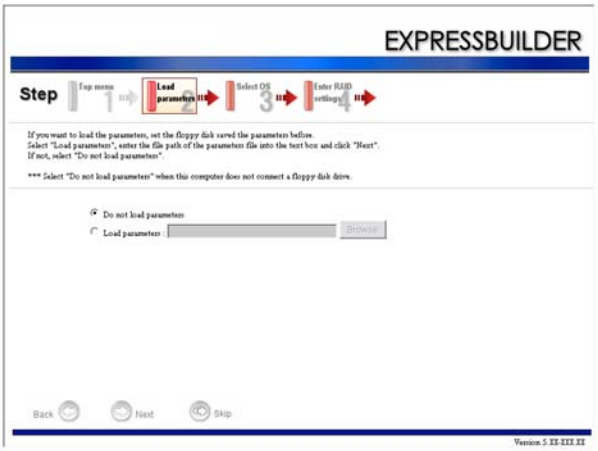
1. Turn the power of peripheral device on, and then turn on the server.
2. Insert the EXPRESSBUILDER DVD into the optical disk drive of the server.
3. Press the RESET switch or press **Ctrl**, **Alt**, and **Delete** to reboot from the EXPRESSBUILDER. (You may also turn off and then on again to reboot the server.)

The system will boot from the DVD-ROM and EXPRESSBUILDER starts. Select “OS installation *** default ***” from the boot selection menu.
(If you do not hit any key, “OS installation” is selected automatically.)

The Top menu will appear.

4. Select [Perform the Express setup] from the Top Menu, click [Next].

5. [Load parameters] steps are displayed.



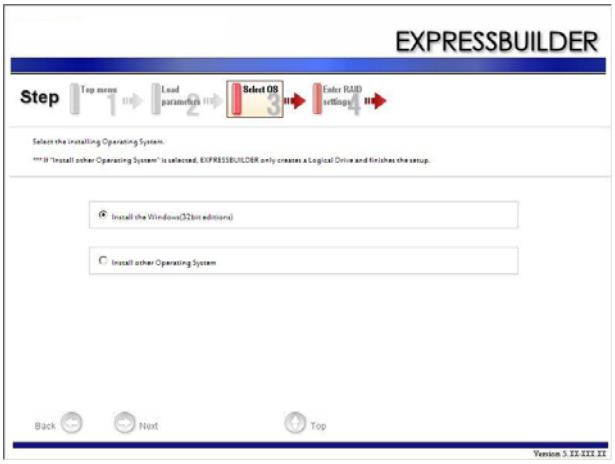
[Load parameters]
(1) Select [Do not load parameters].
(2) Click [Next].

NOTE: If a floppy disk drive is not connected, select this item.

[When you load parameters]
(1) Insert the floppy disk containing the parameters file.
(2) Select [Load parameters]; enter the file path of the parameters file into the text box.
(3) Click [Next].

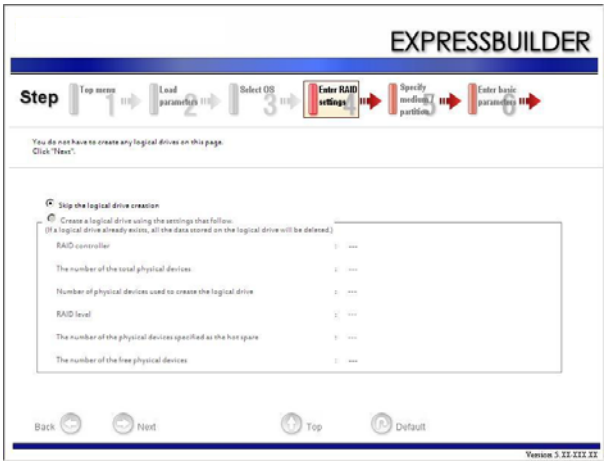
6. Select the installing Operating System.

Select [Install Windows (32-bit editions)] from the menu, click [Next].



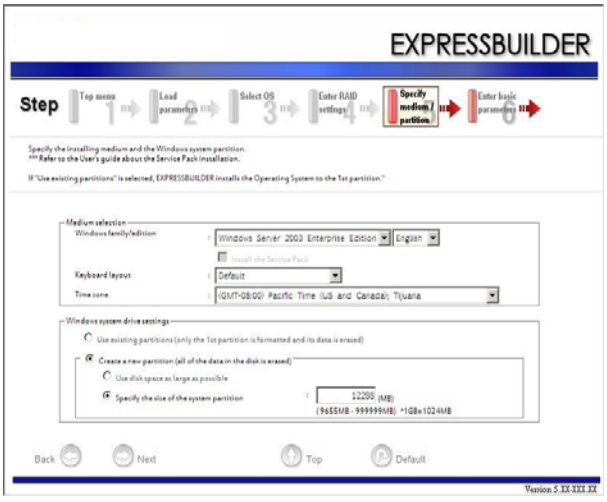
7. Enter the setting of a logical drive.

[Enter RAID settings] steps are displayed. Retain the default value, and click [Next].



8. Specify the installing medium and the Windows system partition.

[Specify medium / Partition] steps are displayed. Confirm the parameters, modify if necessary, and click [Next].



IMPORTANT:

- About partition size

1. Specify the partition size larger than required minimum size for OS installation.
2. Do not specify larger partition size than the capacity of connected hard disk drive.

- If you select “Create a new partition” at “Windows system drive settings,” the contents of the hard disk will be all deleted.
- If “Use existing partitions” is selected, EXPRESSBUJILDER installs the Operating System to the first partition (first partition is deleted). The data in the other partition is kept if the system has two or more partitions (see the figure below).

First Partition Deleted	Second Partition Retained	Third Partition Retained

- You cannot reinstall the system with the existing partition that is upgraded to Dynamic Disk remained. Do not select “Use existing partitions” at “Windows system drive settings.”

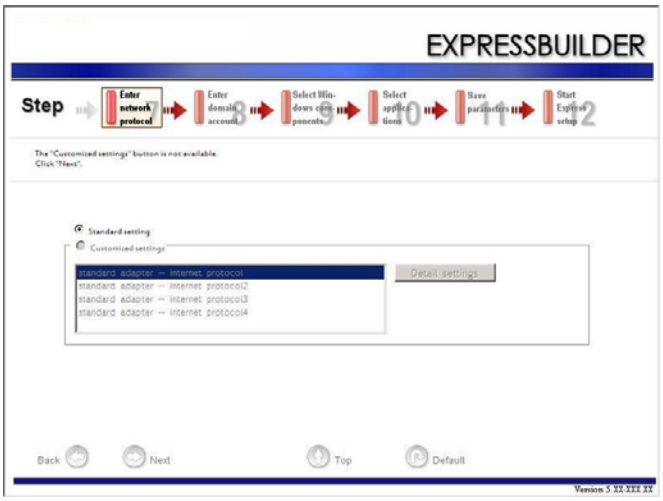
9. Enter the user information and client license mode.

[Enter basic parameters] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].

NOTE: Even if you do not input value into “Administrator password,” “Confirm password,” “??????” is displayed.

10. Enter the setting of the network protocol.

[Enter Network Protocol] steps are displayed.
Retain the default value, and click [Next].



11. Enter the domain or workgroup name to be used.

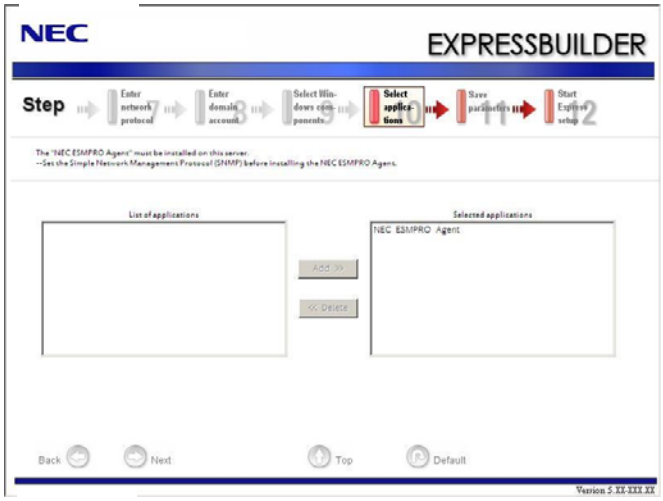
[Enter domain account] steps are displayed.
Retain the default value, and click [Next].

12. Select the installing components.

[Select Windows components] steps are displayed.
Retain the default value, and click [Next].

13. Select the installing applications.

[Select applications] steps are displayed. Retain the default value, and click [Next].



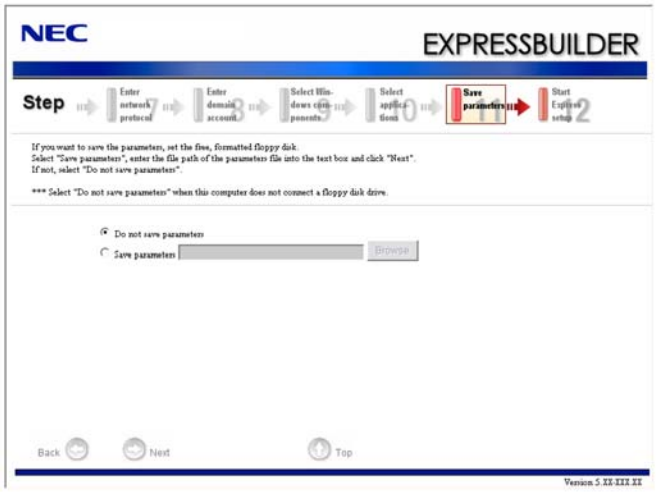
14. Save the parameters.

[Save parameters] steps are displayed.

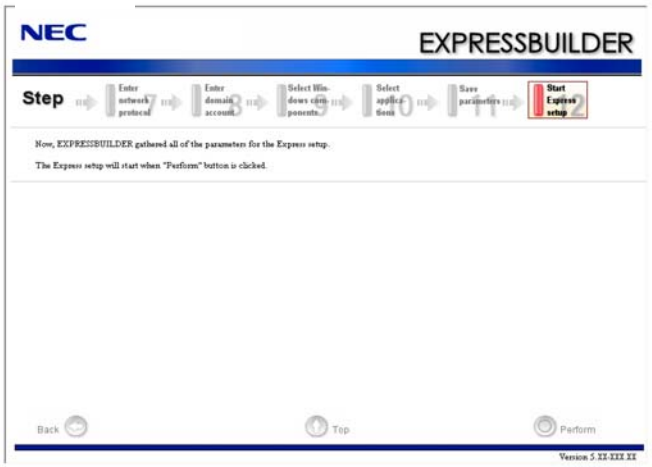
If you want to save the parameters, set free formatted floppy disk.

Select [Save parameters], enter the file path of the parameters files into the textbox and click [Next].

If not, select [Do not save Parameters].



15. The Express Setup will start when you click [Perform] in [Start Express setup] step.



16. Remove EXPRESSBUILDER DVD from the optical disk drive according to the message.

If you proceed the setup y using setup parameter file, remove the floppy disk from the floppy disk drive.

Insert Windows Server 2003 CD-ROM into the optical disk drive.

[Agree Software License Agreement] screen appears.

17. Read the contents carefully and click [Yes] if you do agree. If do not agree, click [No].

NOTES:

- If you do not agree to this agreement, the setup terminates and Windows Server 2003 will not be installed.
- If "NetWare Gateway (and Client) Service" is specified to install, the window to specify the details of "NetWare Gateway (and Client) Service" pops up on the first logon. Specify the appropriate value.

Windows Server 2003 and selected applications will be installed automatically and rebooted several times. After rebooting, it logs on to the system automatically.

18. Insert Microsoft Windows Server 2003 R2 Standard Edition DISK 2 into the optical disk drive after the OS installation.

Hereafter, proceed operations according to the message.

When the installation has finished, remove Microsoft Windows Server 2003 R2 Standard Edition DISC 2 from the optical disk drive, and restart the system.

Now the Setup using Express Setup has completed.

Step 4B: Manual Setup

Follow the procedures below to create "OEM-Disk" before starting the OS install.

Preparing to Install

Windows Server 2003 x64 Editions

You can create a Windows Server2003 x64 Edition OEM-Disk for EXPRESSBUILDER by following two procedures.

Create from EXPRESSBUILDER

Select this procedure when the Fault Tolerant Server series is the only computer for creating Windows Server2003 x64 Edition OEM-Disk for EXPRESSBUILDER. If Windows Server 2003 x64 Editions operates on the Fault Tolerant Server, you can also select [Create from the menu start by auto-run] described later.

The procedure is as follows:

1. Prepare one 3.5-inch floppy disk.
2. Insert the [EXPRESSBUILDER] DVD into the optical disc drive.
3. Reset (Press <Ctrl> + <Alt> +<Del>) or power off to reboot the server series.
   System launches from the DVD-ROM, and EXPRESSBUILDER starts.
4. Select [Create the OEM-Disk for Windows] from the [Step 1, Top menu], then click [Next].
5. Select [Create Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER] from the [Create Windows OEM-Disk], then click [Perform].
6. Follow the instruction on the screen and set the floppy disk into the floppy disk drive.
   [Windows Server 2003 x64 Editions OEM-Disk for EXPRESSBUILDER] is created.
   Protect the disk from overwrite and label as [Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER]. Store this OEM disk in a safe place.

Create from the menu start by auto run

Menu starts automatically by the auto run function when you load the DVD into an optical disc drive that is mounted on a computer running an operating system Windows 2000 + Internet Explorer 6.0, Windows XP, Windows Vista or Windows Server 2003. From this menu, you can create [Windows Server2003 x64 Edition OEM-Disk for EXPRESSBUILDER].

The procedure is as follows:

1. Prepare one 3.5-inch floppy disk.
2. Start the operating system.
3. Insert the [EXPRESSBUILDER] DVD into the Optical disk drive. The menu launches.
4. Click [Create drive disk (for Windows)], and select [OEM-Disk for Widows Server 2003 x64 Edition].

   NOTE:
   This operation is also possible on the menu that appears by right click.

5. Follow the instruction on the screen and set the floppy disk into the floppy disk drive. [Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER]. Store this OEM disk in a safe place.

Installing Windows

Windows Server 2003 x64 Editions Installation

Follow the procedure below to install.

1. Power on the system.
2. Load the backup CD-ROM DISK 1 or the Windows Server 2003 x64 Edition DISK 1 into the optical disk drive.
3. After loading the backup CD-ROM DISC 1 or the Windows Server 2003 R2 x64 Edition DISC 1 into the optical disc drive, reset (Press <Ctrl> + <Alt> +<Del>), or power off to reboot the server series.

System launches from the CD-ROM, and EXPRESSBUILDER starts.

IMPORTANT:

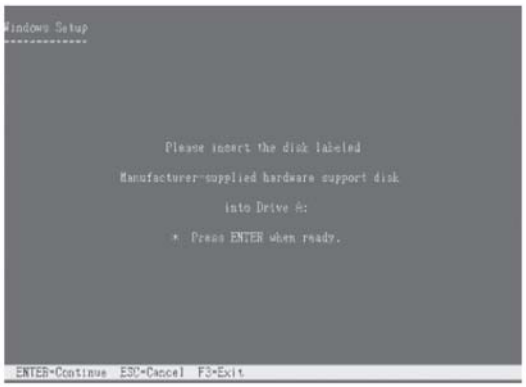
When a bootable OS is already installed on the HDD, press <Enter> key while [Press any key to boot from CD…] is appearing on the top of the screen. You do not need to operate this if no bootable OS is installed.
If the Windows Setup screen does not appear after this operation, it means <Enter> key was not pressed properly. Power on to restart the system and start from the beginning.

4. Press <F6> key while either of the following messages appears on the screen.
   On the top of the screen: [Setup is inspecting your computer's configuration…]
   On the bottom of the screen: [Press F6 if you need to install a third party SCSI or RAID driver]

   TIPS: After pressing <F6> key, no change appears on the screen.

5. Press <S> key when the right message appears.

The right message appears.

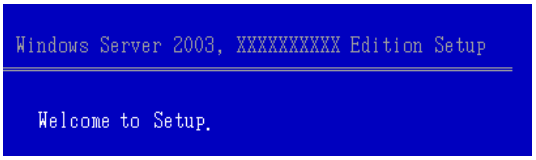


6. Set Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER floppy disk into the floppy disk drive, then press <Enter>.
SCSI adapter list appears.

7. Select [Stratus Virtual Disk Driver], then press <Enter>.
Go back to the step 5 screen and press <Enter>.

8. Select [Stratus Embedded SAS Adapter], then press <Enter>

9. Press <Enter> and start Windows setup when the right message appears.



IMPORTANT:

– On the process of the setup, the request to configure the partition size of Windows Server 2003 x64 Editions installation appears on the screen.

– When you try to install Windows Server 2003 x64 Editions on a disk that has larger partition than 2,097,152MB (2TB), the partition size should be 2,097,152MB and less.

– When there are multiple logical drives, select a partition that you would like to install the OS after the next message appears.

> The following list shows the existing partitions and unpartitioned space on this computer.
> Use the UP and DOWN ARROW keys to select an item in the list.

– You cannot change drive letters for the system volume or the boot volume after completing the setup. Make sure the drive letter is allocated to proper drive on this screen, and then proceed the setup.
After completing the setup, the drive letters may not be the same as before the setup. If you would like to change the drive letters, follow the procedure [How to change drive letters] described later.

TIPS:

After copying the files, the system automatically reboots. You do not have to eject the floppy disk and the CD-ROM. When you do not eject the floppy disk, do not eject the CD-ROM either.
Follow the instructions on the screen to continue the setup. Refer to [Fist Step Guide] for details.

10. After installing Windows Server 2003 x64 Editions, the system automatically reboots.

11. After logging on the system, [Windows Setup] screen appears.

IMPORTANT:

– [Windows Setup] screen may not appear; however, make sure to install Microsoft Windows Server 2003 R2 x64 Editions DISK 2.

– After applying [System Update], you can install Microsoft Windows Server 2003 x64 Edition DISK 2. Make sure to install Microsoft Windows Server 2003 R2 x64 Edition. [Windows Setup] screen does not appear this time.

12. Load the Microsoft Windows Server 2003 R2 x64 Edition DISK 2 into the Optical disk drive. Check the setting, then click [OK].

13. After the installation, eject the Microsoft Windows Server 2003 R2 x64 Edition DISK 2 from the Optical disk drive, then reboot the system.

14. Refer to the “System Update” to apply the update.

15. Install software

– ft Server Control software
– NEC ESMPRO/ServerAgent

Changing Drive Letters

You can change the drive letters with the following procedure:

> **NOTE:**
>
> The following procedure does not change the drive letters for the system volume or the boot volume.

1. Go to the start menu, right click [My Computer], select [Manage] and then launch [Computer Management].
2. Select [Disk Management] in the left window.
3. Select and right-click a volume that you want to change the drive letter, then select [Change Drive Letter and Path for…].
4. Click [Change].
5. Click [Change Drive Letter or Path], then select a letter for the drive.
6. Click [OK].
7. Click [Yes] after confirming the following message.

> Changing the drive letter of a volume might cause programs to no longer run.
> Are you sure you want to change this drive letter?

8. Exit [Computer Management].

Step 5: Windows Server 2003 Service Pack Installation

Installing Windows Server 2003 Service Pack

A Service Pack for Windows Server 2003 x64 Edition and Windows Server 2003 is not applied to the system immediately after Windows install and re-install.

Refer to “Applying Windows Service Pack” on page 5-14, and apply Windows Server 2003 x64 Edition and Windows Server 2003 Service Pack.

IMPORTANT:

The Service Pack 2 for Windows Server 2003 x64 Edition or for Windows Server 2003 must be installed on the Fault Tolerant Server server.

There is no Hot Fix when this User’s Guide is issued. Contact your sales representative for the latest Service pack or the Hot Fix.

Step 6: Set Duplex LAN Configuration

The Fault Tolerant Server series builds a duplex LAN configuration by using “Stratus emb-EB 2-Port Gigabit Adapter” mounted as standard on the CPU/IO module and extended PCI slot “NEC MT Gigabit Adapter,” “NEC MF Gigabit Adapter,” and “Stratus U575 Dual Port Copper Gigabit Adapter.”

Overview

The duplex LAN configuration is of three types as described below:

- **Adapter Fault Tolerance (AFT)**

  Adapter Fault Tolerance (AFT) is a feature that places more than one LAN controller on the same LAN (same segment), and automatically switches the process of the primary controller to the backup controller when any trouble occurred on the primary.

- **Adaptive Load Balancing (ALB)**

  Adaptive Load Balancing (ALB) is a feature that connects more than one LAN controller to the same hub and enhances the throughput by operating packet transmission from the server.

  Receive Load Balancing (RLB) is enabled by default. Disable RLB. When RLB is enabled, the network duplex configuration may fail.

- **Switch Fault Tolerance (SFT)**

  Switch Fault Tolerance is a feature that provides the network availability as the failover target (standby) adapter takes over MAC address and L3 address by connecting each two adapters to each two switches when a problem occurs on the adapter, cable or connecting target. One is assigned to the primary adapter and the other is to the standby. The primary adapter communicates on the network.

Regarding the path redundancy, you need to construct the environment by using the spanning tree not only on the server side but also on the switch side.
You need to set the priority of the switch so that the path through the primary adapter is available even when a switch on the path is broken and the path information is updated.

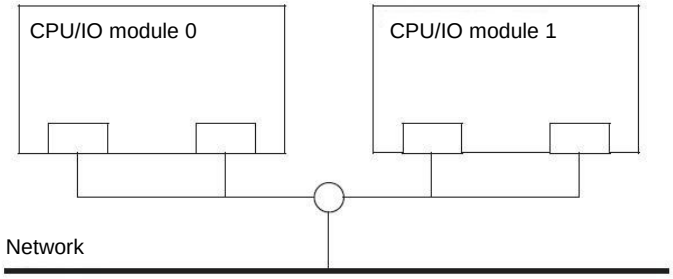
The other modes, “Static Link Aggregation” and “IEEE 802.3ad Link Aggregation” do not contribute to an enhancement of the fault tolerance. When a fault occurs, the communication performed on the controller with the fault will be lost; the backup controller does not take it over.

Fault Tolerant Server Series Duplication Rule

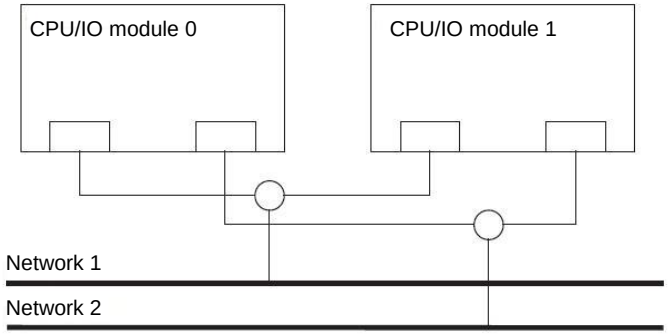
Be sure to set the duplex configuration in the server.

Also, when you set the duplex configuration, be sure to use one CPU/IO module 0 adapter and one CPU/IO module 1 adapter.

e.g.1) Set the duplex configuration with the improved endurance using all the adapters.



e.g.2) Set the duplex configuration for more than one LAN connection



Duplex Configuration Setup

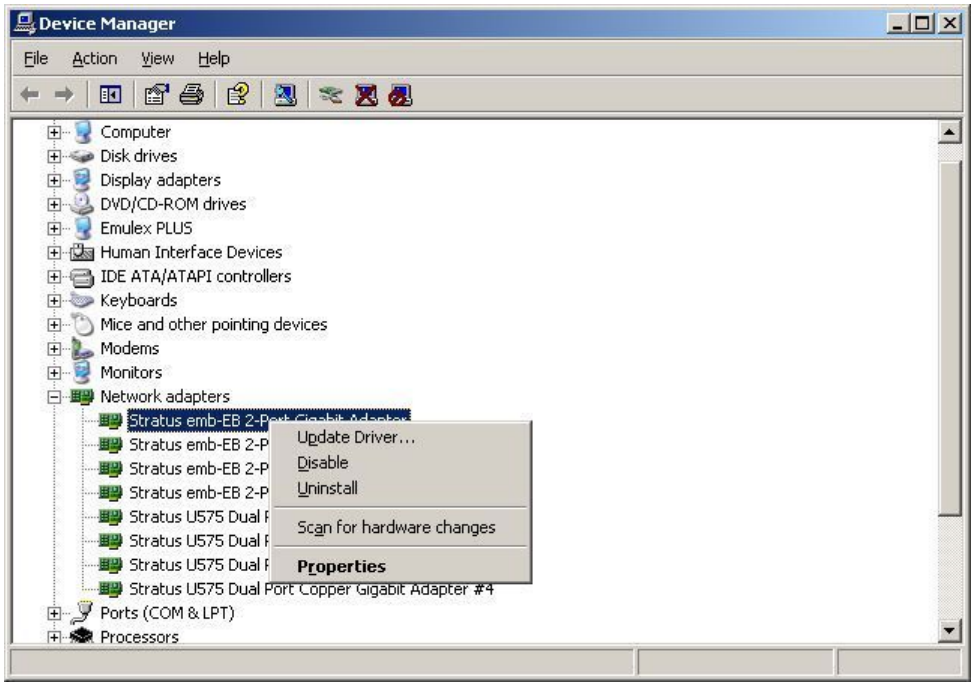
The following describes the procedure to set duplex LAN configuration.

The procedure to set the duplex LAN configuration of the example 1 in “Fault Tolerant Server Series Duplication Rule” above is explained.

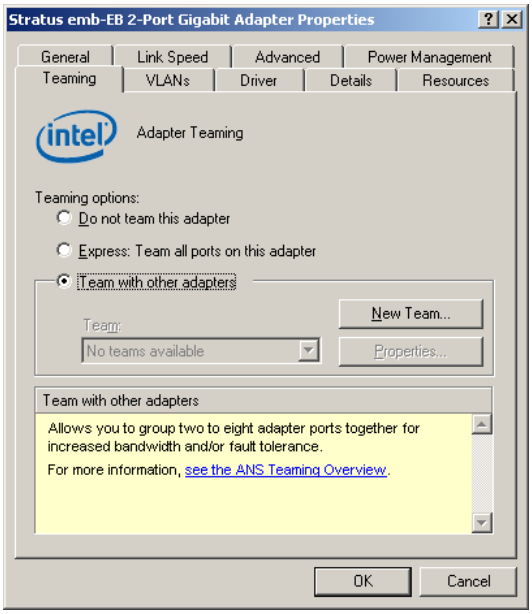
To set the duplex LAN configuration, log on as “Administrator” or a member of the group “Administrators.”

1. Start Device Manager.

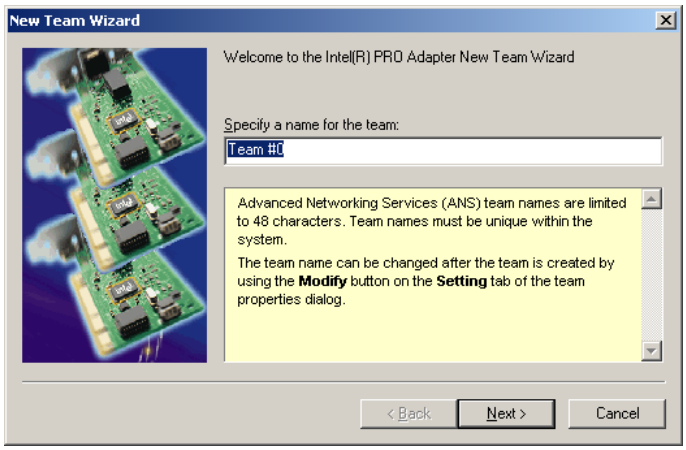
2. Select one target network adapter, right-click on it and select [Properties] from the displayed menu to display the Properties window.



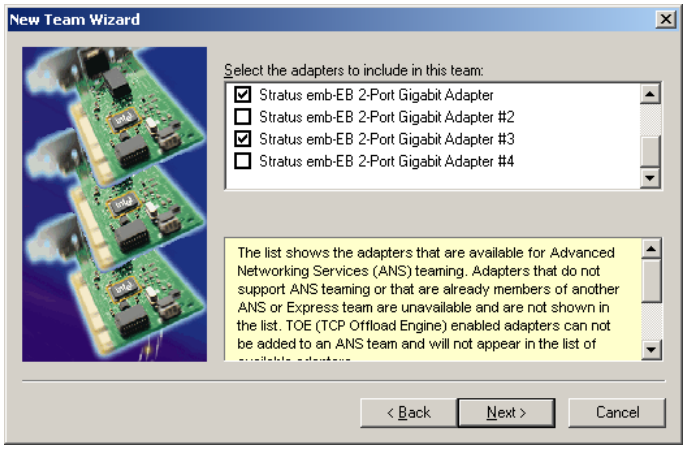
3. Select the [Teaming] tab in the Properties window. Check the radio button of [Team with other adapters] and click [New Team…].



4. Enter the team name, and click [Next >].

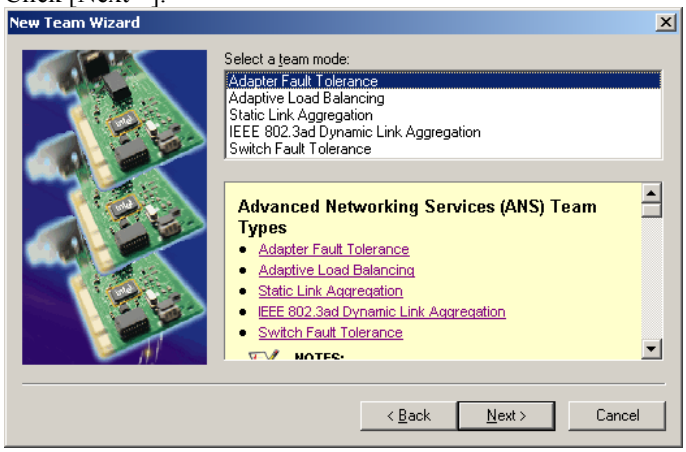


5. Select the check boxes of the adapters you want to include to the team, and click [Next>].

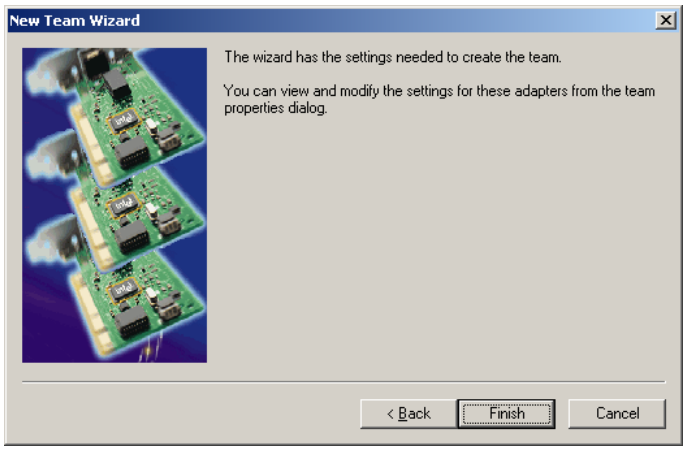


6. Select “Adapter Fault Tolerance” or “Adaptive Load Balancing” or “Switch Fault Tolerance” as a team mode. (Usually select “Adapter Fault Tolerance.”)

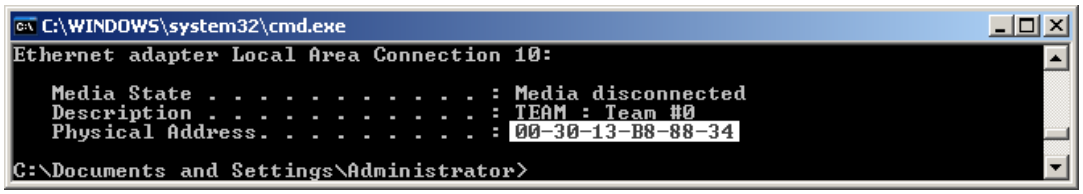
Click [Next >].



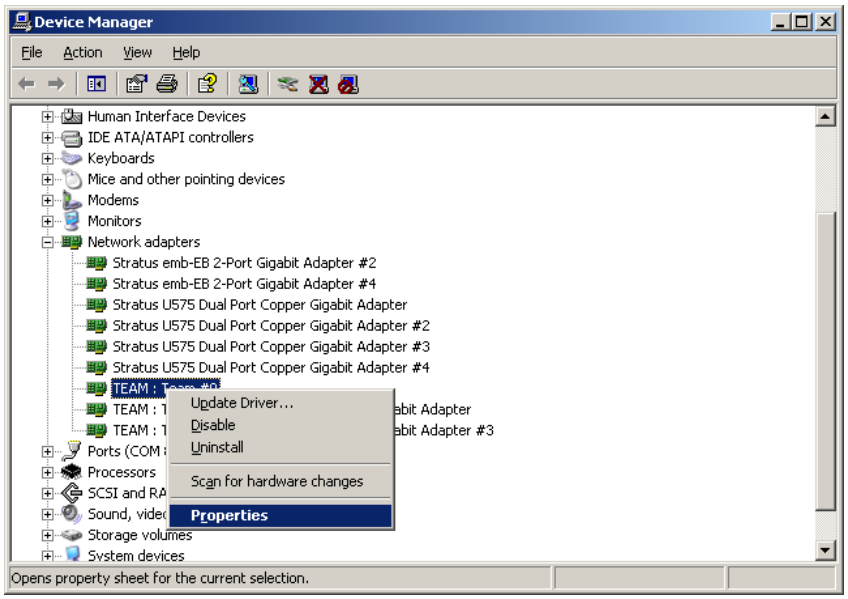
7. Click [Finish].



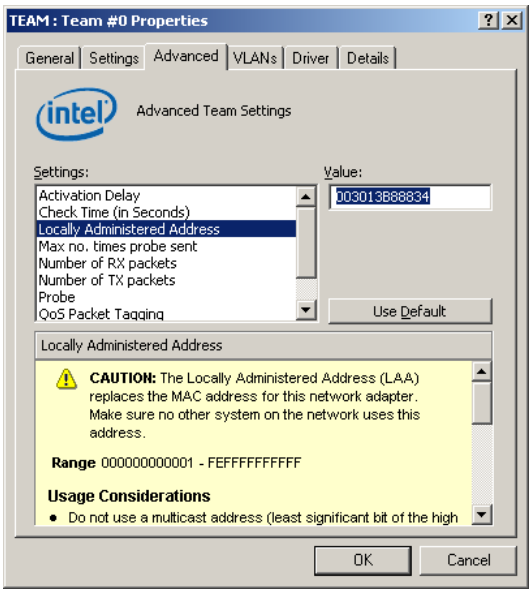
8. Start a command prompt, and confirm the physical MAC address of the team adapter with ipconfig /all.



9. Select the team adapter that has been set, right-click on it and select [Properties] from the menu displayed to display the Properties window.



10. Select the [Advanced] tab in the Properties window. Select [Locally Administered Address] from the [Settings] list box, and enter the MAC address of team adapter that you have checked in the [Value:] text box, and click [OK].



11. Set the probe setting disabled when a team of two adapters is configured.
Select the [Advanced] tab in the Properties window. Select [Probe] from the [Settings] list box, and click [Disabled] from the [Value:] dropdown list.

Step 7: Set Dual Disk Configuration

Fault Tolerant Server series secures data by setting dual disk configuration using "RDR (Rapid Disk Resync) function." Be sure to make dual disk settings by referring to the procedure.

IMPORTANT:

- Set dual disk configuration by the RDR (Rapid Disk Resync) function. If you want to use other disk management tool (e.g. VERITAS Storage Foundation), install it after "Step 13: Make Settings for Failure Management." If you perform this operation with a tool other than the RDR (Rapid Disk Resync), a mirror synchronization gap may occur when the system is rebooted.

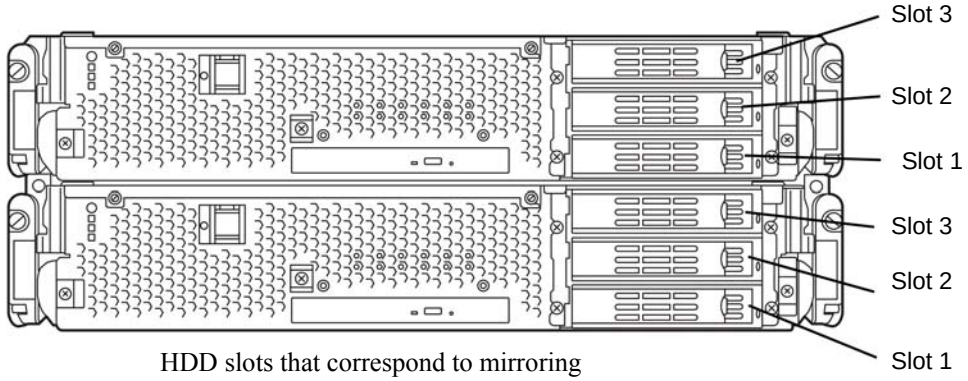
- CPU/IO module has a processor function part and IO function part, and monitors and manages each part. The IO function part is referred to as PCI module in this section.

- HDDs mounted to built-in slots need to be duplexed. Refer to "Setting Dual Disk Configuration by RDR (Rapid Disk Resync) function" and duplex the HDDs in each slot.

Setting Dual Disk Configuration by RDR (Rapid Disk Resync) function

This device sets dual configuration for each disk by the RDR function of the ft server control software.

By setting RDR, as the following figure and table show, dual configuration is set between the disks of the corresponding slots, and these disks are recognized as one virtual disk by Windows (such as Disk Management and Device Manager).



HDD slots that correspond to mirroring

Corresponding slot
PCI module 0 Slot 1 ⇔ PCI module 1 Slot 1
PCI module 0 Slot 2 ⇔ PCI module 1 Slot 2
PCI module 0 Slot 3 ⇔ PCI module 1 Slot 3

* In the table above, PCI module names correspond as follows:
PCI module (for CPU/IO module 0) - PCI module 0
PCI module (for CPU/IO module 1) - PCI module 1

IMPORTANT:

- To perform this procedure, you need to log on as an administrator or a member of administrator group.
- RDR can only be set on the basic disk inserted into the built-in slot of Fault Tolerant Server series. It cannot be set on the dynamic disk.
- For the disk on which RDR is set, use the products with the same serial number.
- Be sure to configure the RDR settings in the same way not only when the OS is installed but also when the disk is added to the PCI module.
- Create partitions only after the duplication of the hard disk drives are configured.

Follow the steps below to configure the dual disk configuration.

IMPORTANT:

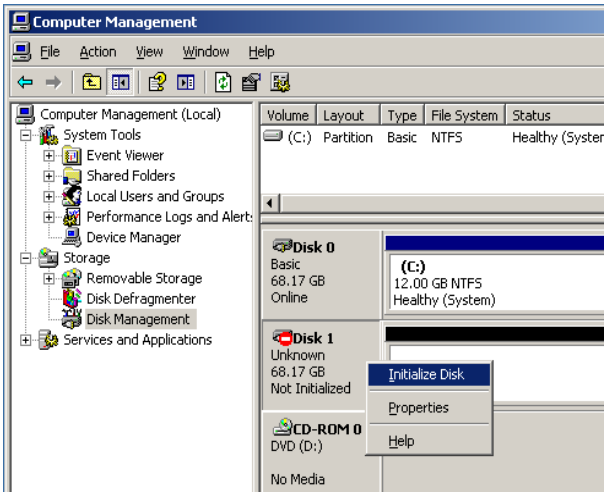
The following describes the dual disk configuration of the slot 1.
If the HDD is mounted to the slot 2 or the slot 3, follow the procedure below to configure the dual disk configuration likewise.

1. Insert a new HDD into an internal HDD slot.

IMPORTANT:

If the HDD is already mounted, this procejure is not required. Proceed to Step 2.

2. Start [Management Tool] by going to [Start] – [Control Panel], and select [Disk management on the left tree. If the disk you want to duplex is shown as "Not Initilized," right click on the disk to initialize.



TIPS:

A popup window is displayed when you inserted or initialized the disk; however, you do not need to restart the system. Select [No] to exit the popup window.

3. Start RDR Utility by goint to [Start] -
[All Programs] -[RDR] -
[RDR Utility].

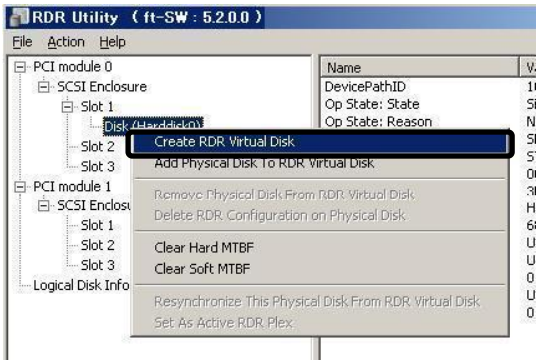
IMPORTANT:

If the [Disk Condition] of the OS-installed disk(the slot 1 of the PCI module 0) says "Boot/Configured/Active/Imported," you do not need to take the procedure 4 to 6. Proceed to the procedure 7.
If the [Disk Condition] is other than "Boot/Configured/Active/Imported," proceed to the procedure 4. To view [Disk Condition], go to the left pane of the RDR Utility, click the OS-installed disk, and see the display on the right pane.

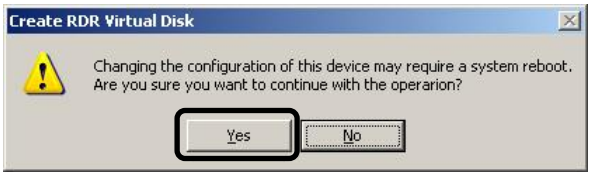
4. Right-click the disk (Slot 1 of PCI module 0) on which the system is installed on the left pane of the [RDR Utility] window, and click [Create RDR Virtual Disk].

TIPS:

Depending on the disk status, it takes time to set RDR, and RDR Utility may be stopped for a few minutes. This is not an error. Just wait for a while.



5. Click [Yes].



6. Click [OK].

IMPORTANT:

If you set RDR on the disk that includes a system partition or a partition that cannot be unmounted, the message on the right is displayed. Click [Yes]. The system is restarted after 2 minutes. After it is restarted, perform the steps 7and later.

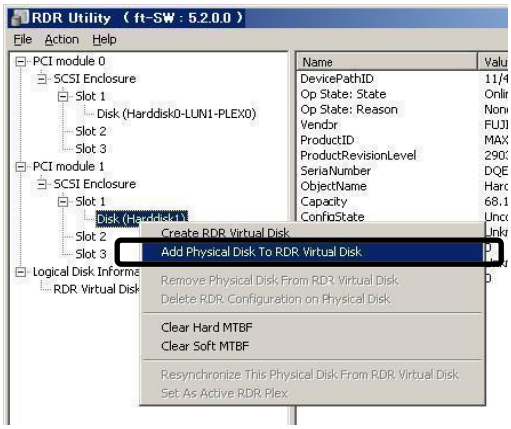
7. Insert the disk to set dual configuration into the slot 1 of PCI module 1, and execute the procedure 2.

IMPORTANT:

- If a HDD is already mounted, this procedure is not necessary. Proceed to the procedure 8.
- A popup window may come up when you inserted or initialized the disk; however, you do not need to restart the system. Select [No] to exit the popup window.
- As to the disk to be inserted, use a new disk or a physically formatted disk with the same capacity as the synchronization source disk. If you use other disks, dual configuration is not set normally.

* As for physical format, refer to "SAS BIOS – Adaptec SAS/SATA – Configuration Utility" in Chapter 4, "System Configuration" in the separate volume of the User's Guide, and perform Format Disk with Disk Utilities
To perform "Low-Level Format," on the BIOS setup utility, click [Server], [Monitoring Configuration] and set [Option ROM Scan Monitoring] to [Disabled]. For how to configure the settings, see "System BIOS – SETUP –" in Chapter 4, "System Configuration" in the separate volume of the User's Guide.

8. Right-click the Slot 1 of the PCI module 1 from the left pane of RDR Utility, and then click [Add Physical Disk To RDR Virtual Disk].

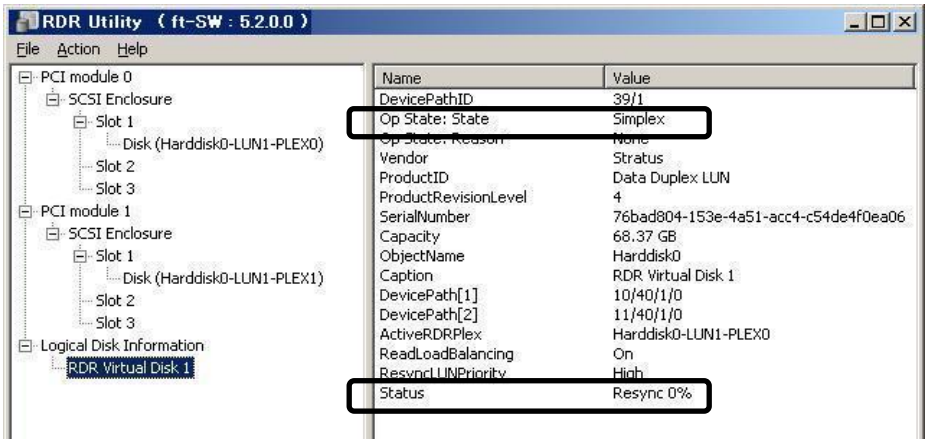


9. Click [OK].

10. Check that disk synchronization has been started and the status of the DISK ACCESS LED and RDR Utility display changes as the following table.

■ During synchronization

	DISK ACCESS LED	RDR Utility	
		Condition	Status
Synchronization source disk	Amber and blinking	Simplex	
Synchronization destination disk	Amber and blinking	Syncing	
RDR Virtual Disk		Simplex	Resync x % (x=0, 4, 8,…, 96)



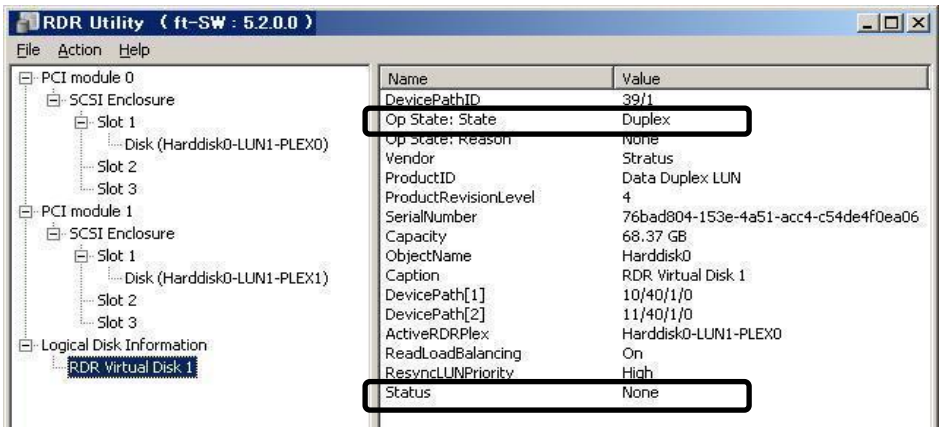
IMPORTANT:

– The time required for synchronization deffers depending on the size of the partition that exists on the disk. As for the partition with the 18GB capacity, it takes about 20 minutes. If there is no partition, synchronization completes soon after setting RDR is completed and the disk changes to the synchronization completion status.

– Setting dual disk configuration may not complete if the system is rebooted during synchronization. Do not reboot the system before synchronization process completes.

■ Synchronization completed

	DISK ACCESS LED	RDR Utility	
		Condition	Status
Synchronization source disk	Green and blinking	Duplex	
Synchronization destination disk	Green and blinking	Duplex	
RDR Virtual Disk		Duplex	None



IMPORTANT:

- If you have created a new partition on the disk where RDR has been set and which is duplexed, the created partition area is automatically synchronized.
- If the system is not stopped without terminating Windows normally (such as by pressing the power button), the whole disk area synchronized will be resynchronized after the system is rebooted.

Step 8: Update Software

If you use ftServer Control Software UPDATE CD-ROM, see “Installing ftServer Control Software” (page 6-12) to update the software. When there are other update modules, apply them in this step.

Step 9: Connect and Configure Options

When there are optional PCI boards or peripheral devices to connect to the main unit, power off the main unit. Then, for connecting them, follow the instructions in “PCI board” in the separate volume of the User’s Guide and the manual of the devices.

Make dual configuration when you added LAN and disks. For details, see “Step 6 Set Duplex LAN Configuration” on page 4-31 and “Step 7 Set Dual Disk Configuration” on page 4-38.

Step 10: Create Volume

For Fault Tolerant Server series, you need to perform mirroring for each disk by the RDR function. If you created a new partition or volume on the disk that has been set RDR and dual configuration, the area is mirrored automatically. You do not need to perform mirroring for each partition or volume. For more details about performing mirroring by the RDR function, see "Setting Dual Disk Configuration by RDR (Rapid Disk Resync) function" in "Step 7: Set Duplex Disk Configuration."

IMPORTANT:

Do not create any partition/volume on the OS HDD other than the one for the system.

TIPS:

- To create a partition or volume, refer to the Windows online help.
- You can create a partition or volume even after the operation has been started.

Step 11: Set Network for NEC ESMPRO Agent

NEC ESMPRO Agent is required for continuous operation of the Fault Tolerant Server series. It is automatically installed when you reinstall Windows 2003.

To operate NEC ESMPRO Agent, you need to set the SNMP.

To change the settings of the SNMP Service:

1. Double-click [Administrative Tools] in [Control Panel].
2. Open [Services] in [Administrative Tools].
3. Select [SNMP Service] from the service list and then [Properties] in the [Action] menu.

   The "SNMP Properties" dialog box appears.
4. Enter "public" in the [Community name] box in the [Traps] property sheet and click the [Add to list] button.

   IMPORTANT:

   - If you changed the community name of traps to be received from the default "*" in the NEC ESMPRO Manager site, enter the same name as the community name newly set in the NEC ESMPRO Manager site.
   - To receive trap from NEC ESMPRO Agent at the NEC ESMPRO Manager machine, both community names should be the same.

5. Click the [Add...] button in [Trap destinations]. After entering the IP address of the NEC ESMPRO Manager machine of the send destination in the [Host name, IP or IPX address] box, click the [Add] button.

   IMPORTANT: If the IP address (or host name) of the remote NEC ESMPRO Manager is specified as the trap send destination in the setup of the manager report (TCP/IP), the message warning the duplication appears. The specification of the same NEC ESMPRO Manager causes to be reported doubly.
6. Open the [Security] property sheet and make settings as follows:

   - Add the community name entered in 4 to [Accepted community names].
   - Set its authority to [READ CREATE] or [READ WRITE].
   - Select [Accept SNMP packets from any host].

   IMPORTANT:

   - If you entered any community name other than "public" in 4, add that name to "Accepted Community Names."
   - Unless you set the acceptable community's authority to "READ CREATE" or "READ WRITE," you cannot perform monitoring from NEC ESMPRO Manager.

   Setup of receiving SNMP packets from specific hosts only

   Select [Accept SNMP packets from these hosts], specify IP addresses of the hosts, IP addresses of the servers to install Agent, and the loop-back address (127.0.0.1).

Setup of receiving SNMP packets from specific communities only

Change the name of the community receiving SNMP packets from the default “public” to any name.

IMPORTANT:

- If the community name is changed, you must change the registered community of NEC ESMPRO Agent from [Control Panel]. To change the community to another and register it, use the [SNMP Community] list box in the [General] tab.
- To allow NEC ESMPRO Agent to receive SNMP packets sent from NEC ESMPRO Manager, set the send community name in NEC ESMPRO Manager to be the same as that accepted by the SNMP Service in NEC ESMPRO Agent.

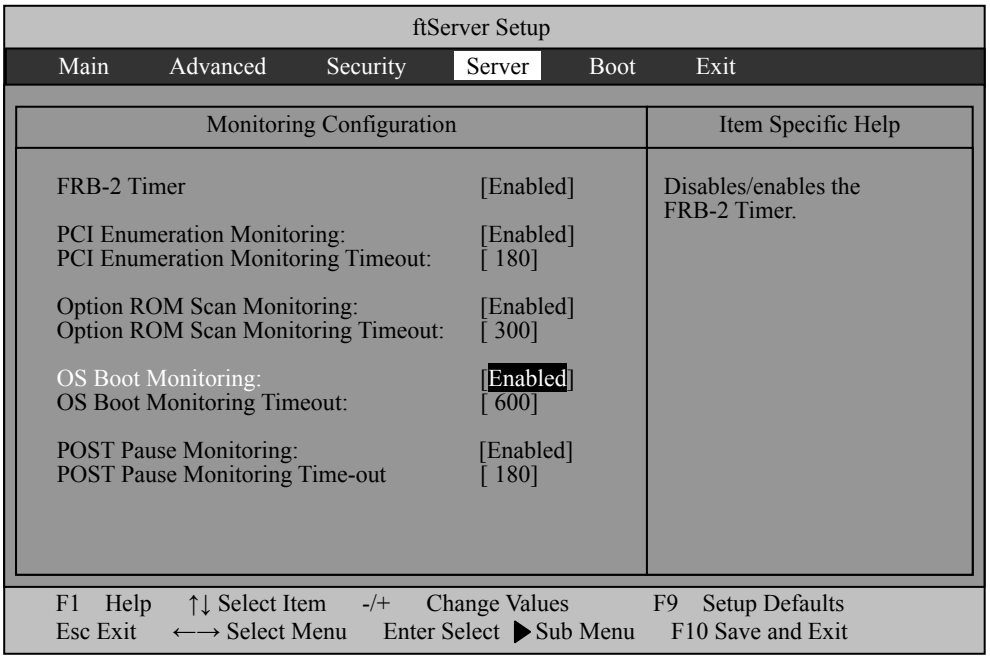
7. Terminate the network setup.

IMPORTANT:

- If the SNMP service is added to the system after the service pack had been applied at OS installation, apply it again. If not, the SNMP service may not operate properly. This can cause the improper operation of NEC ESMPRO Agent.
- The SNMP Service is required for operating NEC ESMPRO Agent. If the SNMP Service is deleted after the installation of NEC ESMPRO Agent, install the SNMP Service and then reinstall NEC ESMPRO Agent.
- Some software products provided by other vendors use the SNMP Service. If the SNMP Service and NEC ESMPRO Agent are installed in the system in which such software as above is installed, it may be impossible to start NEC ESMPRO Agent services. If so, delete the SNMP Service once and install the service again. Then, reinstall NEC ESMPRO Agent and the other vendor's software.

Step 12: Enable OS Boot Monitoring Function

Enable the “OS Boot Monitoring” setting which has been switched at “OS Boot Monitoring” (page 4-10). Refer to “Step 3: Disable OS Boot Monitoring Function“ (page 4-10), change to “Enabled,” and set appropriate time (default is 10 min.).



Step 13: Make Settings for Failure Management

Make the following settings beforehand to ensure quick recovery from failure.

You will see the procedure for Windows Server 2003 here; however, you can take the same procedure for Windows Server x64 Editions as well.

Set Memory Dump (Debug Information)

This section explains the setting for collecting memory dump (debug information) in the server.

IMPORTANT: Notes on memory dump

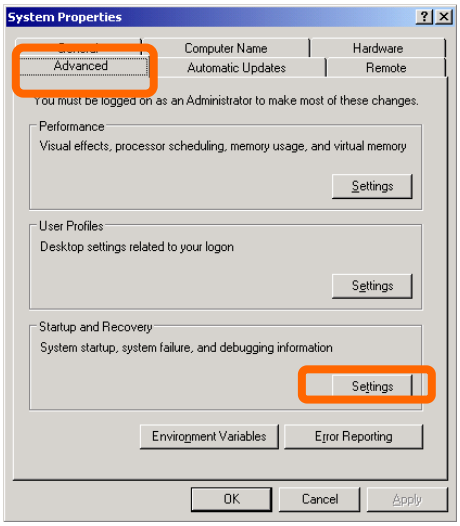
- The maintenance personnel designated by your sales agent are responsible for collecting memory dump. Customers should make settings of memory dump only.
- Sometimes a message indicating a shortage of virtual memory appears at the system startup, when a failure has occurred after making settings described here and you have restarted the system to save the memory dump. Continue the startup. If you restart the system, you may not be able to collect the memory dump accurately.
- If an error such as a stop error of the OS occurs, the normal dump function may run instead of the quick dump function depending on the system status. However, the memory dump file can be used for failure analysis equivalent to that of the quick dump function.

Take the following steps to set memory dump:

1. From the [Start] menu, select [Control Panel] and then click [System].

   The [System Properties] dialog box appears.

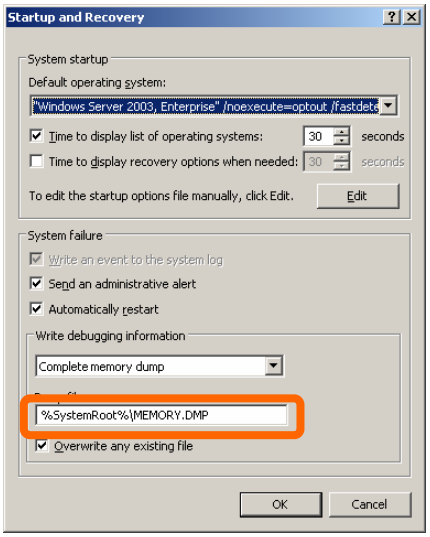
2. Click the [Advanced] tab.
3. Click [Settings] in the [Startup and Recovery] box.



4. Enter the location, where debug information is to be written, in the text box.

When writing debug information under the file name “MEMORY.DMP” in the D drive:

D:\MEMORY.DMP



IMPORTANT:

For Windows Server 2003 x64 Editions

- [Automatically restart] must be checked for the system error settings. If you uncheck [Automatically restart], debug info (memory dump) may not be saved.
- [Complete memory dump] should be specified for writing debug information. However, if the mounted memory size is over 2GB, specify [Kernel memory dump]; you cannot specify [Complete memory dump], as [Complete memory dump is not displayed on the drop down menu.
- Specify a disk drive that has a free space of the memory size on the Fault Tolerant Server series +1MB or more.
- If the memory is expanded to larger than 2GB, change Write Debugging Information to [Kernel memory dump] before expanding the memory. Size of the debugging information (memory dump) to be collected changes due to memory the memory increase. Verify how much free space on the hard disk that debugging information is to be written.

For Windows Server 2003

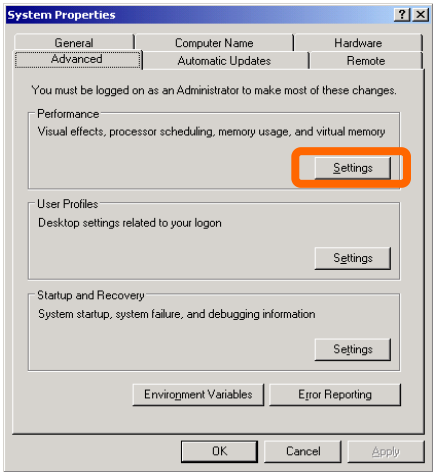
- [Complete memory dump] should be specified for writing debug information. However, if the mounted memory size is over 2GB, specify [Kernel Memory Dump]; you cannot specify [Complete memory dump], as [Complete memory dump] is not displayed on the drop down menu.
- Specify a drive that has a free space of the memory size on the Fault Tolerant Server series + 12MB or more (If the memory size is over 2GB, 2048MB +

12MB).

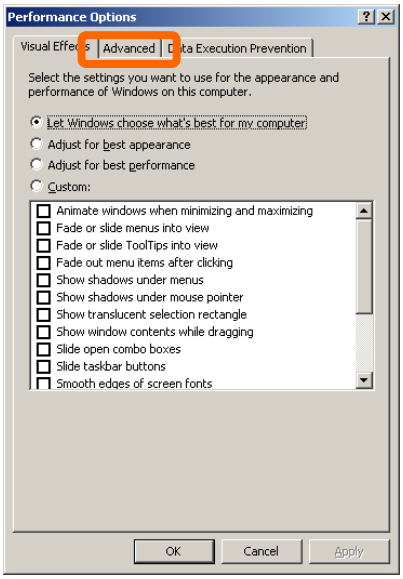
- If the memory is expanded to larger than 2GB, change Write Debugging Information to [Kernel memory dump] before expanding the memory. Size of the debugging information (memory dump) to be collected changes due to the memory increase. Verify how much free space on the hard disk that debugging information is to be written.
- If an error such as a stop error of the OS occurs, the normal dump function may run instead of the quick dump function depending on the system status. However, the memory dump file can be used for failure analysis equivalent to that of the quick dump function
- In the system failure settings, specify “Automatically restart.” When this option is unchecked, memory dump (debug information) may not be saved.

5. Click [Settings] in the [Performance] box.

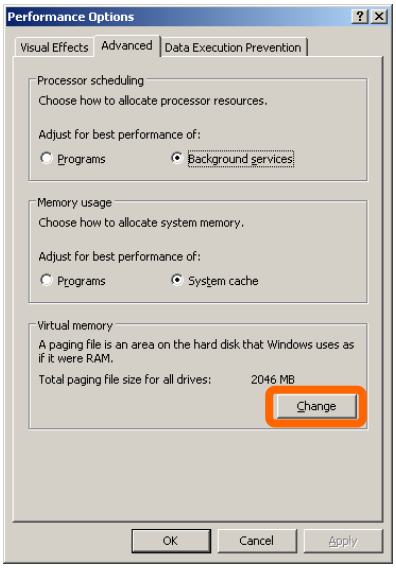
The [Performance Options] window appears.



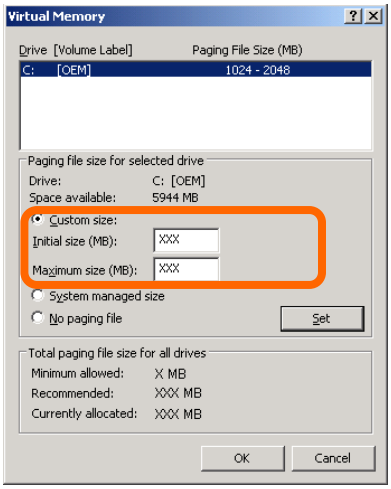
6. Click the [Advanced] tab on the [Performance Options] window.



7. Click [Change] in the [Virtual memory] box.



8. Change the value set for [Initial Size] in the [Paging file size for selected drive] box to the [Recommended] value or more, and then click [Set].



IMPORTANT:

- Be sure to create the file in the size more than [Recommended] value in the OS partition. If a value smaller than the [Recommended] value is set for [Initial Size] of the paging file, accurate debug information (memory dump) may not be collected.
- To be prepared for failure, it is recommended to press the dump button to see if the memory dump can be collected normally beforehand.
- If the memory has been expanded, re-set the paging file according to the memory size.

9. Click [OK].

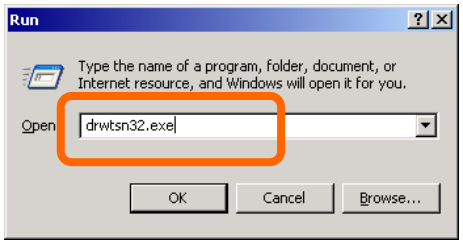
A message is displayed asking you to restart the system depending on the changed settings. Restart the system according to the messages.

Set Dr. Watson

Dr. Watson of Windows Server 2003 is a debugger for application errors. When detecting an application error, Dr. Watson diagnoses the Fault Tolerant Server series, and records the diagnostic information (log). Take the following steps to collect diagnostic information:

1. Click [Run...] from [Start].
2. Enter “drwtsn32.exe” in the [Open] box, and click [OK].

   The [Dr. Watson for Windows] dialog box appears.



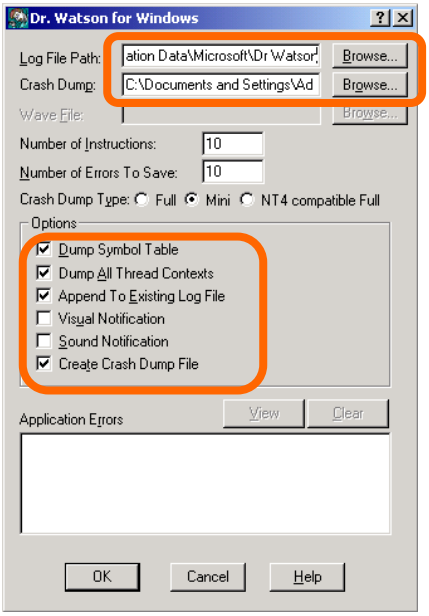
3. Specify where you want to save diagnostic information in the [Log File Path] box.

   Diagnostic information is saved under the file name “DRWTSN32.LOG.”

   CHECK: Do not specify a network path. Be sure to specify a path on the local computer.

4. Specify the crash dump file save destination in the [Crash Dump] box.

   TIPS: A “crash dump file” is a binary file that can be read by Windows Debugger.



5. Select the following check boxes in the [Options] box.

   ☐ [Dump Symbol Table]
   ☐ [Dump All Thread Contexts]
   ☐ [Append To Existing Log File]
   ☐ [Create Crash Dump File]
   For the above functions, see the online help.

6. Click [OK].

Install a Network Monitor

A network monitor is useful for examining the causes of network failures and taking the countermeasures. To use the network monitor, you need to restart the system after the installation. It is recommended to install the network monitor before a failure occurs.

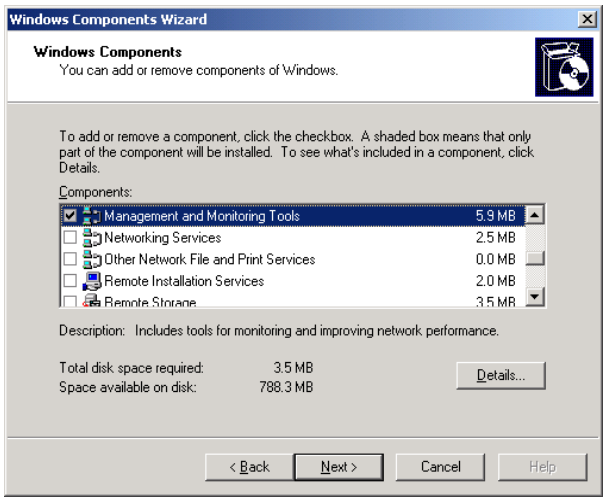
1. From the [Start] menu, select [Control Panel] and click [Add/Remove Windows Programs].

   The [Add/Remove Windows Programs] dialog box appears.

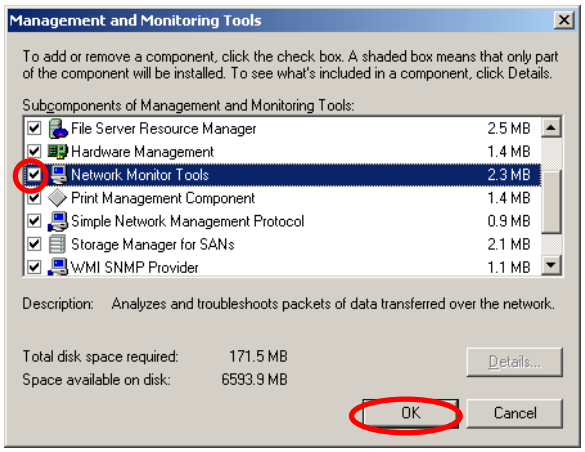
2. Click [Add/Remove Windows Components].

   The [Windows Components Wizard] dialog box appears.

3. Select the [Management and Monitoring Tools] on [Components] and click [Details…] at the bottom right of the window. [Management and Monitoring Tools] appears.



4. Check the [Network Monitor Tools] check box on the [Subcomponents of Management Monitoring Tools] dialog box and click [OK] at the bottom of the window.



5. Click [Next].
6. If a message is displayed asking you to insert “Windows Server 2003 R2A Enterprise Edition CD-ROM,” follow the instructions on the screen.

   Close the menu that appears by inserting the CD-ROM. To close the menu, click the [X] mark on the menu.
7. Click [Finish] in the [Windows Components Wizard] dialog box.
8. Click the [X] mark on the [Add or Remove Programs] dialog box.

You can also activate the network monitor by clicking [Start], pointing to [All Programs], pointing to [Administrative Tools] and then clicking [Network Monitor]. For details on the operation, see the online help.

Set Recovery Console

TIPS:

Recovery console is used for repairing the system when the system cannot be started for some reason.

There are cautions to be taken for using the Recovery console. Refer to “Cautions for using the Windows Server 2003 Recovery Console” of “SYSTEM REPAIR” in Chapter 6 “Troubleshooting” in the User’s Guide (Setup).

Step 15: Back up System Information

The system information includes the current BIOS settings and any specific information for the server. Save the information after completing the system setup. Without the backup data, you will not be able to recover the information.

You can save the information by the following process:

1. Insert the “EXPRESSBUILDER” DVD into the optical disk drive of the server, and restart the system.
2. Select [Tool menu].
3. Select [English].
4. Select [Maintenance Utility].
5. Select [System Information Management].
6. Insert a 3.5-inch floppy disk into the floppy disk drive.
7. Select [Save].

The setup is now completed.

(This page is intentionally left blank.)

Chapter 5

Procedures after Completion of Installation

This chapter describes how you install management utilities, how you back up system information, and setup of PCs on the network. You may need to confirm these procedures while the system is running.

INSTALLING MANAGEMENT UTILITIES

The provided “EXPRESSBUILDER” DVD contains “NEC ESMPRO Agent” for monitoring Fault Tolerant Server series and “NEC ESMPRO Manager” for managing the Fault Tolerant Server series. Install and setup these utilities in the Fault Tolerant Server series or the computer (management PC) that manages the Fault Tolerant Server series.

Updating the System

Perform system update in the following cases:

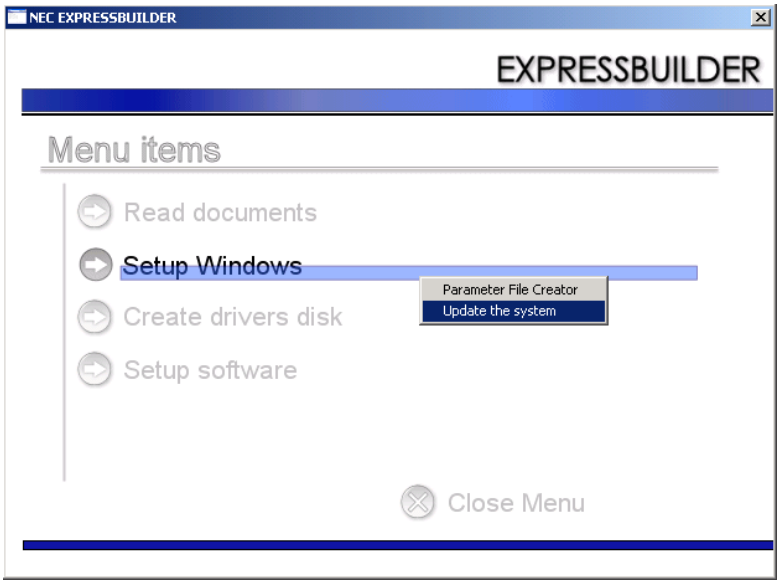
- When the system configuration is changed
- When the system is restored
- When the system is restored from the backup tool

TIPS:

Use the Windows Server 2003 CD-ROM that includes ServicePack1 to install this server.

Log on to the system with the account that has administrator rights (such as Administrator) and insert the “EXPRESSBUILDER” DVD into the DVD-ROM drive.

The menu screen is displayed. Click [Windows Setup] and click [Update the System] from the menu to start the system update. Follow the messages displayed on the screen to continue the process.



NEC ESMPRO Agent

NEC ESMPRO Agent is automatically installed by executing the “Fault Tolerant Server series setup program.”

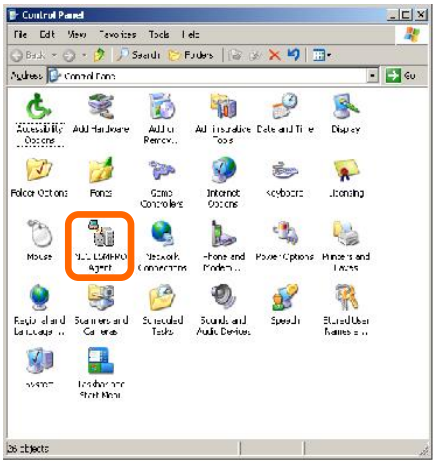
Click [Start] then [All Programs], and make sure that the installed utility folder exists. If it has not been installed while setting up the Fault Tolerant Server series, install it separately.

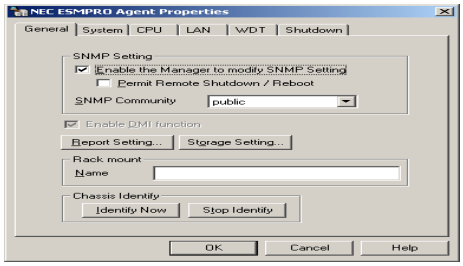
IMPORTANT:

Make sure that NEC ESMPRO Agent is installed because it is indispensable for continuous operation of Fault Tolerant Server series.

To set details about NEC ESMPRO Agent, double-click the [NEC ESMPRO Agent] icon in the [Control Panel] dialog box. The properties dialog box appears for changing the settings.

For details on the set items, see the online help displayed by clicking on [Help].





Operation Environment

NEC ESMPRO Agent can be operated in the hardware and software environments shown below.

- **Hardware**
  - Installation system Fault Tolerant Server series
  - Memory Memory capacity required to operate OS + 25.0 MB or larger
  - Empty capacity of hard disk 50.0 MB or larger
- **Software** Windows Server 2003 SP1

Preparation before Setup

Be sure to read the following description before system installation or setup.

To operate NEC ESMPRO Agent, you need to make settings of TCP/IP and the SNMP of components associated with TCP/IP.

TCP/IP Setting

See the Help started from the Start menu for how to set TCP/IP.

SNMP Service Setting

To install the SNMP Service:

1. Open [Add/Remove Programs] in [Control Panel].
2. Click [Add/Remove Windows Components].
3. Select [Management and Monitoring Tools] in the Windows component wizard and click the [Details...] button.
4. Check the check box of [Simple Network Management Protocol].
5. Click the [Next] button.

   The file copy operation is started.
6. After the file copy is finished, click the [Finish] button.

To change the settings of the SNMP Service:

1. Double-click [Administrative Tool] in [Control Panel].
2. Start [Services] in [Administrative Tool].
3. Select [SNMP Service] from the service list and then [Properties] in the [Action] menu.

   The “SNMP Properties” dialog box appears.

4. Enter “public” in the [Community name] box in the [Traps] property sheet and click the [Add to list] button.

IMPORTANT:

- To change the community name of traps to be received from the default “*” in the NEC ESMPRO Manager site, enter the same name as the community name newly set in the NEC ESMPRO Manager site.
- To receive trap from NEC ESMPRO Agent at the NEC ESMPRO Manager machine, both community names should be the same.

5. Click the [Add...] button in [Trap destinations]. After entering the IP address of the NEC ESMPRO Manager machine of the send destination in the [Host name, IP or IPX address] box, click the [Add] button.

IMPORTANT:

If the IP address (or host name) of the remote NEC ESMPRO Manager specified as the trap send destination in the setup of the manager report (TCP/IP), the message warning the duplication appears. The specification of the same NEC ESMPRO Manager causes to be reported doubly.

6. Open the [Security] property sheet and make settings as follows;

- Add the community name entered in Step 4 to [Accepted community names].
- Set its authority to [READ CREATE] or [READ WRITE].
- Select [Accept SNMP packets from any host.]

IMPORTANT:

- If you entered any community name other than “public” in Step 4, add that name to “Accepted community names.”
- Unless you set the acceptable community’s authority to “READ CREATE” or “READ WRITE,” you cannot perform monitoring from NEC ESMPRO Manager.

Setup of receiving SNMP packets from specific hosts only

Select [Accept SNMP packets from these hosts], specify IP addresses of the hosts, IP addresses of the servers to install Agent, and the loop-back address (127.0.0.1).

Setup of receiving SNMP packets from specific communities only

Change the name of the community receiving SNMP packets from the default “public” to any name.

IMPORTANT:

- If the community name is changed, the community of NEC ESMPRO Agent is changed and registered by starting from [Control Panel]. To change the community to another and register it, use the [SNMP Community] list box in the [General] tab.
- To allow NEC ESMPRO Agent to receive SNMP packets sent from NEC ESMPRO Manager, set the send community name in NEC ESMPRO Manager to be the same as that accepted by the SNMP Service in NEC ESMPRO Agent.

7. Terminate the network setup.

IMPORTANT:

- During OS installation, if the SNMP service is added to the system after applying the service package, apply it again. If not, the SNMP service may not operate properly, and this can cause the improper operation of NEC ESMPRO Agent.
- The SNMP Service is required for operating NEC ESMPRO Agent. If the SNMP Service is deleted after the installation of NEC ESMPRO Agent, install the SNMP Service and then reinstall NEC ESMPRO Agent.
- Some software products provided by other vendors use the SNMP Service. If the SNMP Service and NEC ESMPRO Agent are installed in the system in which such software as above is installed, it may be impossible to start NEC ESMPRO Agent services. If so, delete the SNMP Service once and install the service again. After which, reinstall NEC ESMPRO Agent and the other vendor's software.

Installation

NEC ESMPRO Agent is automatically installed together with the installation or re-installation of the Fault Tolerant Server series. NEC ESMPRO Agent may be installed manually on the master control menu of EXPRESSBUILDER as follows:

1. Login to the system with user name “Administrator.”
2. Insert “EXPRESSBUILDER” DVD into the DVD-ROM drive.

   TIPS:

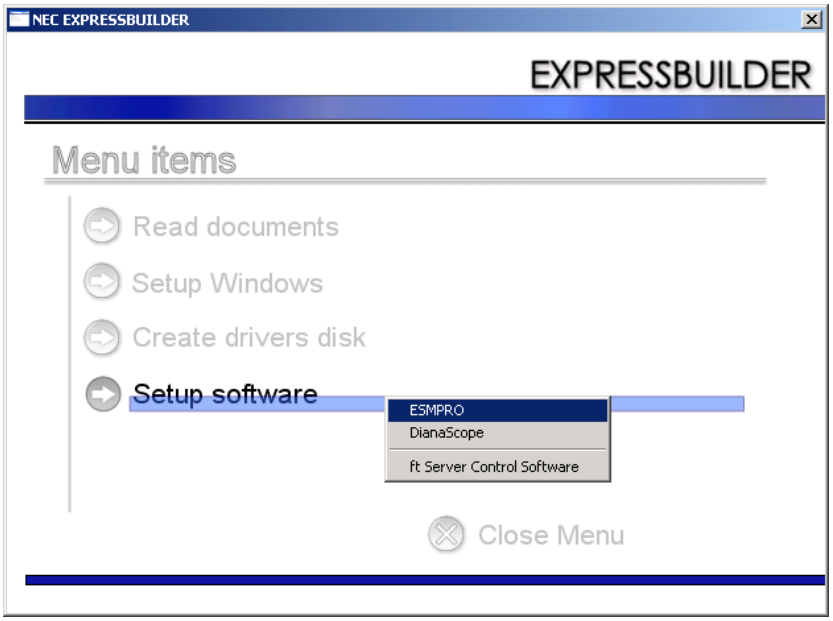
   The DVD-ROM drive may be either the drive connected to the system or any optical disk drive located on the network and connected by the LAN Manager. (These are collectively called the optical disk drive hereafter).

   IMPORTANT:

   To use a optical disk drive on the network, assign the network driver to the drive and then execute MC\1ST.EXE of the drive. Do not start the optical disk drive from the network computer in Windows Explorer.

   The autorun function automatically displays the master control menu of EXPRESSBUILDER.
3. Click [NEC ESMPRO] in [Setup].

   The NEC ESMPRO setup is started to display the main menu.



4. Click [Agent] in the main menu of the NEC ESMPRO setup.

TIPS:

The available menus vary depending on OS types. (The menus that cannot be installed are displayed gray.)

IMPORTANT:

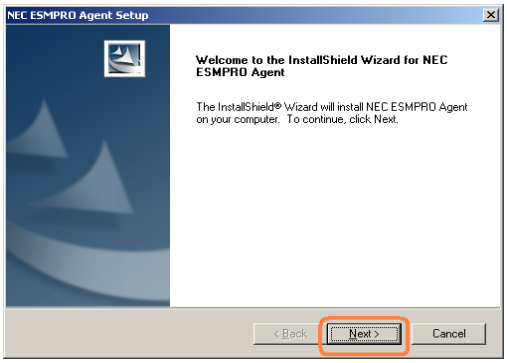
- Double-clicking to select a menu may display two same dialog boxes. Click the [End] button to close one of the dialog boxes.
- If you click the [Cancel] button during setup, the message asking whether to stop or not to stop the installation will appear. You can stop the installation by clicking on the [Stop] button (the main menu remains displayed). However, the file having been setup halfway will not be deleted.
- When NEC ESMPRO Agent is already installed, delete its older version from [Add or Remove Programs] in Control Panel, and install the new version.

5. The setup program determines the machine type automatically.

IMPORTANT:

If the setup program is unable to determine the machine model, the setup of NEC ESMPRO Agent will be stopped.

6. Click the [Next] button.



7. Enter the path in which NEC ESMPRO Agent is installed and click the [Next] button.

   The NEC ESMPRO Agent module is installed below the ESM directory of the root partition in default. If no problem is found, click the [Next] button without any modification.

   To change the installation directory, click the [Reference] button, specify the desired installation directory with the full path including the drive name, and click the [Next] button.

8. When the installation end window appears, click the [OK] button.

The installed is complete. The functions of installed NEC ESMPRO Agent will be enabled after the system is restarted.

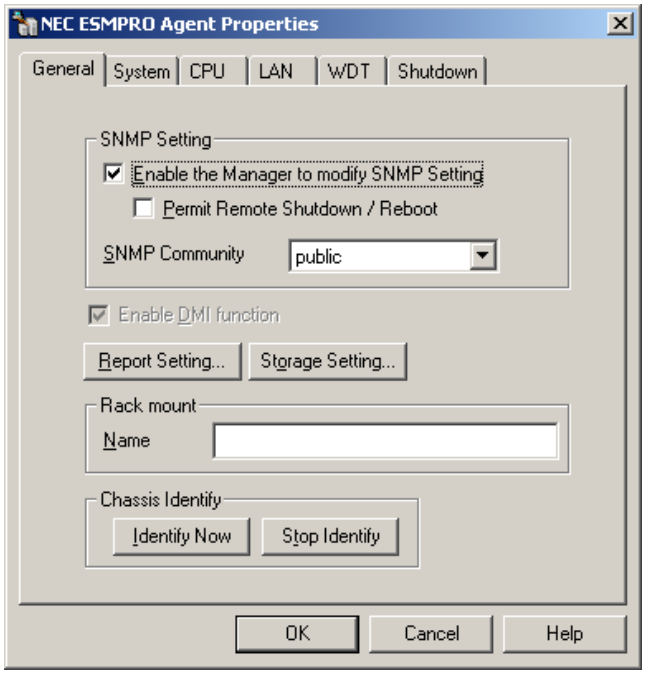
IMPORTANT:

- After the installation of NEC ESMPRO Agent, SNMP Service is stopped. The SNMP Services will be started when the OS is restarted.
- Even if the installation of NEC ESMPRO is completed, the main menu for the NEC ESMPRO setup remains displayed. Note that the main menu may be hidden by another dialog box. To terminate the NEC ESMPRO setup, click [End] in the main menu.

Setup of NEC ESMPRO Agent

The settings of installed NEC ESMPRO Agent remain unchanged from those at shipment. Click the [Start] button, [Setting], and [Control Panel] sequentially to open [Control Panel].

If you double-click the [NEC ESMPRO Agent] icon in [Control Panel], the property dialog box will appear. Modify the setting of each sheet in the dialog box to be fit to the used environment. The notes on setup and the necessary information are explained in “Supplement” in Chapter 5 of User’s Guide in the separate volume. See the supplement for setup or suspicion of malfunction.



Uninstall

The uninstallation of NEC ESMPRO Agent is described below.

Uninstallation of NEC ESMPRO Agent

The procedure of uninstalling NEC ESMPRO Agent is described below.

IMPORTANT:

Uninstallation of NEC ESMPRO Agent

- Start the uninstallation of NEC ESMPRO Agent after the system is started completely.
- If NEC ESMPRO Agent is uninstalled just after the system startup, the setup program may freeze displaying the [Service Being Deleted…] dialog box. Shutdown the system by using “Task Manager” or other operation. Then uninstall NEC ESMPRO Agent after the system is started completely.
- In the system that operates Windows Server 2003, do not change the setting of “Local security policy” from the default.
  The error occurs by InstallShield if the uninstallation is executed with the setting changed, and the uninstallation fails.

- With using EXPRESSBUILDER:
  1. Make the main menu of the NEC ESMPRO setup appear by referring to the section “Install” in this document.
  2. Click [NEC ESMPRO Agent].

     The “Welcome” dialog box appears.
  3. Select [Delete] and then click the [Next] button.

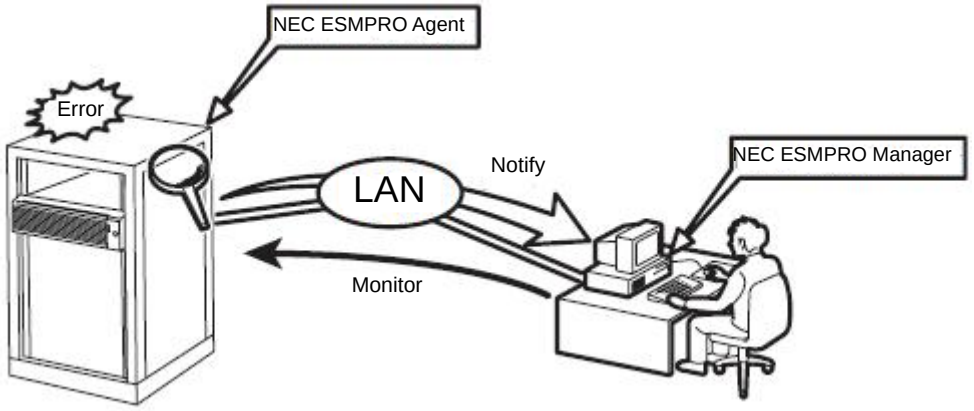
     Now NEC ESMPRO Agent is uninstalled.
- Without using EXPRESSBUILDER:
  1. Start [Add/Remove Programs] in [Control Panel].
  2. Select [NEC ESMPRO Agent] and click [Change/Remove].

     The “Welcome” dialog box appears.
  3. Select [Remove] and click [Next].

  Now NEC ESMPRO Agent is uninstalled.

NEC ESMPRO Manager

Linked with NEC ESMPRO Agent installed in the server, NEC ESMPRO Manager monitors the server status and receives alerts from the server.



When a failing module in the server is to be replaced, NEC ESMPRO Manager enables logical module disconnection from the server and logical installation after module replacement.

For the installation of NEC ESMPRO Manager and notes on the operation, see the separate volume of the User's Guide.

CONFIRMING THE ft Server Control Software VERSION

The following describes how to check the version of ft Server Control Software, which consists of various types of software for fault tolerance. Perform the procedure when you need to check the ft Server Control Software version of the current system before adding units or attachment to Fault Tolerant Server series.

Confirm the version following the steps below:

1. Log in the system as an authorized Administrator.
2. Open Control Panel from the Start menu.
3. Open “Add or Remove Programs.”

   You can confirm the version that corresponds to the name of [ft Server Control Software].

APPLYING Windows Service Pack

Notes to apply the Windows Service Pack

You should not apply service packs other than those listed in “Step 1; Things Required for Setup” of Chapter 4 “WINDOWS SETUP” (page 4-4) in User’s Guide (Setup) on Fault Tolerant Server series by yourself.

When applying Service Pack, also apply appropriate Microsoft’s HotFix.

IMPORTANT:

- If you want to apply Service Packs other than ones listed in “Step 1; Things Required for Setup” of Chapter 4 “WINDOWS SETUP” (page 4-4) in User’s Guide (Setup), ask your sales agent about the application status of the Service Packs, and apply them to Fault Tolerant Server series.
- The Service Pack applied to Fault Tolerant Server series is the same as the standard Windows Server 2003 Service Pack.

Applying Windows Service Pack

Follow the procedure below to apply Service Packs to Fault Tolerant Server series.

Service Packs will not be installed automatically to Fault Tolerant Server series during “ft series Setup” or “Updating the system” to repair the system.

If Server Packs need to be applied, follow the procedure below.

If you want to apply Service Packs other than the ones listed in “Step 1: Things Required for Setup” of Chapter 4 “WINDOWS SETUP” (page 4-4) in User’s Guide (Setup), as your sales agent about the application status of the Service Packs and apply them by following the procedure below:

How to apply the Windows Service Pack

IMPORTANT:

When Windows Service Pack is applied, considerations on settings of Power and Screen Saver are required.

If the following settings are enabled when applying Windows Service Pack, the process may stop or Windows Service Pack may not be applied properly. Disable the settings by clearing the checkboxes before applying Windows Service Pack. Reconfigure the following settings as necessary afterwards.

- Settings of Screen Saver
- Power Schemes (Turn off monitor, Turn off hard disks)
- Hibernation (enable Hibernation)

Logon to the system as a user with administrator authority and apply Service Packs.

1. Download Service Packs from the Web site of Microsoft and apply them.
2. Restart the system.

COMPRESSING A SYSTEM DRIVE

Do not compress the root directory and the Windows directory when compressing the System Drive. (The Windows Server 2003 directory is labeled as “Windows.”) If you compress the root directory and the Windows directory, operational stability cannot be ensured because the Windows File Protection (WFP) may replace an unassigned driver with a signed driver.

ABOUT Windows Update (APLYING SECURITY PATCHES)

Before updating Windows modules by using the Windows Update function on Fault Tolerant Server series, make sure to read the description of each module. Contact your sales agent for information about the test status of security patch and QFE on Fault Tolerant Server series. It is strongly recommended to contact your sales agent when updating the operating system on Fault Tolerant Server series.

→ Under a support policy for security patches and QFE on Fault Tolerant Server series, security patches released by Microsoft are categorized into the following levels according to their importance:

- **IMPORTANT Patches (Considered as IMPORTANT by the manufacturer and requires immediate application):** Tests will be performed upon publication of new patches and the results will be informed to your sales agents. The high-risk viruses (such as Nimba worm as a past example) will be immediately tested.
- **Security Rollup Package (SRP):** Tests will be performed along with the publications of SRP and the results will be informed to your sales agents.
- **Other patches:** Tests for the security patches regarding the standard functions of Windows Operating System will be periodically performed, and the results will be informed to your sales agents.

Contact your sales company if you have any questions or concerns regarding Windows Update.

Chapter 6

Troubleshooting

This chapter describes what to do when files needed to operate the OS are damaged and any trouble occurs on the product.

SYSTEM REPAIR

If the system cannot be operated by some reason, use Recovery Console to restore the system. However, this method is only recommended to users or administrators who have good knowledge of the system.

When you have restored a damaged file by using Recovery Console, always update the system as described later in this chapter.

IMPORTANT:

If hard disks cannot be recognized, the system cannot be repaired.

Cautions for using the Windows Server 2003 Recovery Console

For using the Recovery Console in a system where the system disk is a dynamic disk, the following settings need to be configured beforehand.

If these settings are not done, files on the hard disk cannot be updated on the Recovery Console, and the message "Access is denied" appears.

1. "Local Security Policy" setting

IMPORTANT:

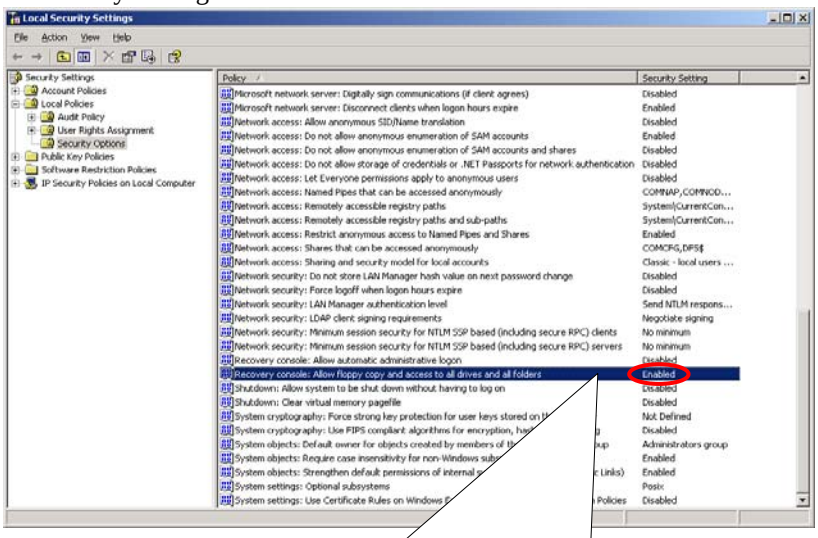
This setting should be made on the Windows Server 2003 in advance.

(a) Start Windows Server 2003, and log on as a user with the administrator authority.

(b) From the Start menu, select [Administrative Tools] and select [Local Security Policy].

(c) Select [Local Policies] and then select [Security Options] in the left pane of the [Local Security Settings] window.

(d) Double-click [Recovery console: Allow floppy copy and access to all drives and all folders] in the right pane, and enable the Security Setting.



2. Environ

IMPORTANT:

This setting is made on the Windows Server 2003 Recovery Console when the Windows Server 2003 Recovery Console is in use. This should be set every time when the Recovery Console is started.

(a) Start the Windows Server 2003 Recovery Console.
For how to start the Recovery Console, see "Preparation" (page 6-4) and "Starting up Recovery Console" (page 6-5).

(b) Log on to the Recovery Console, and execute the following command.
(The default is FALSE)
set AllowRemovableMedia = TRUE

IMPORTANT:

- The dynamic disk can be written from the Windows Server 2003 Recovery Console after the setting shown above is made.
- As the default, the Windows Server 2003 Recovery Console is not allowed to write data from the basic dynamic disk to a floppy disk. However, after the setting shown above is made, a floppy disk can be written (copy, access).

Default setting:

Write (copy, access)		Basic disk	Dynamic disk
Copy From	Copy To access destination		
HDD	HDD →	Copy available	Copy not available
FD	HDD →	Copy available	Copy not available
CD	HDD →	Copy available	Copy not available
CD	FD →	Copy not available	Copy not available
HDD	FD →	Copy not available	Copy not available

After the setting:

Write (copy, access)		Basic disk	Dynamic disk
Copy From	Copy To access destination		
HDD	HDD →	Copy available	Copy available
FD	HDD →	Copy available	Copy available
CD	HDD →	Copy available	Copy available
CD	FD →	Copy available	Copy available
HDD	FD →	Copy available	Copy available

Note: HDD : Hard disk (SystemDrive, SystemRoot only)
FD : Floppy disk
CD : CD-ROM

Preparation

You need a support disk, “Windows Server 2003 OEM-DISK for EXPRESSBUILDER” to start up the Recovery Console. Have “Windows Server 2003 OEM-DISK for EXPRESSBUILDER” ready before starting the Recovery Console.

If you do not have a computer that runs Windows Server 2003 or Windows XP/Vista.

Follow the steps below to create a “Windows Server 2003 OEM-DISK for EXPRESSBUILDER”:

1. Prepare a 3.5-inch floppy disk.
2. Power on the peripherals and then Fault Tolerant Server series.
3. Disable the configuration for OS Boot Monitoring function.

   In the BIOS setup, select [Server] - [Monitoring Configuration] - [OS Boot Monitoring] and choose “Disabled.” See “Step 3: Disable OS Boot Monitoring Function” (page 4-9) for details.
4. Insert the EXPRESSBUILDER DVD into the drive of the server.
5. Then, reset (pressing **Ctrl** + **Alt** + **Delete**) or power off/on Fault Tolerant Server series to reboot it.

   The system will start up from the EXPRESSBUILDER DVD.
6. Select [OS installation *** default ***] when [Boot Selection] menu is displayed. (Even if you enter nothing, it automatically proceeds to the next screen.)
7. Select [Create OEM-Disk for Windows] and click [Next].
8. Select [Create a “Windows Server 2003 OEM-DISK for EXPRESSBUILDER”] or [Create a “Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER”] and click [Perform] depending on the OS of your choice.
9. Set the floppy disk according to the direction displayed on the screen. An OS-specific [OEM-DISK] will be created. Write protect the floppy disk created, put on a label and store in a safe place.

IMPORTANT:

Enable the configuration for OS Boot Monitoring function to deploy the system without performing the system repair which uses the Recovery Console. In the BIOS setup, select [Server] - [Monitoring Configuration] - [OS Boot Monitoring] and set appropriate time. See “Step 13: Enable OS Boot Monitoring Function” (page 4-40) for details.

If you have a computer that runs Windows Server 2003 or Windows 2000/XP/NT.

You can also create a “Windows Server 2003 OEM-DISK for EXPRESSBUILDER” by the steps below:

1. Prepare a 3.5-inch floppy disk.
2. Insert the EXPRESSBUILDER DVD into the drive of a computer that runs Windows Server 2003 or Windows XP/Vista.
3. The menu screen starts up. Click [Create drivers disk] and select [OEM-Disk for Windows Server2003] or [OEM-Disk for Windows Server 2003 x64 Edition] depending on the OS of your choice.
4. Follow the instructions on the screen to insert the floppy disk.

   An OS-specific [OEM Disk] will be created. Write protect the floppy disk, put on a label and keep it in a safe place.

Starting up Recovery Console

You can start up Recovery Console in two ways:

- Start up Recovery Console installed on the system.
- Start up Recovery Console from the Windows Server 2003 CD-ROM.

■ Installing Recovery Console on the system

1. Start up the Fault Tolerant Server series and log on to Windows Server 2003.
2. Insert the Windows Server 2003 CD-ROM into the drive.
3. From [Start] of the taskbar, select [Run...] to run.

   For Windows Server 2003 R2, Enterprise Edition:
   Optical disk drive:\i386\winnt32.exe /cmdcons /syspart:c: /tempdrive:c:

   For Windows Server 2003 R2, Enterprise x64 Edition:
   Optical disk drive:\amd64\winnt32.exe /cmdcons /syspart:c: /tempdrive:c:

4. Follow the messages that appear on the screen to continue.

■ Starting up the Recovery Console

1. Disable the configuration for OS Boot Monitoring function.

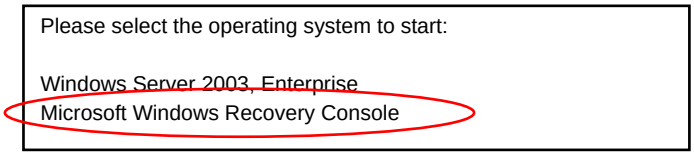
   Select [Server] - [Monitoring Configuration] - [OS Boot Monitoring] and choose “Disabled.”
   See “Step 3: Disable OS Boot Monitoring Function” (page 4-9) for details.

2. If you have duplexed the HDDs with the RDR (Rapid Disk Resync) feature, unmount and remove CPU/IO module 1 before starting up the Recovery Console. If the disk error of the slot 1 of the CPU/IO module 1 is apparent, unmount and remove the CPU/IO module 0.
   Note that if you execute the Recovery Console with two CPU/IO module mounted and implemented, there may occur the OS stop error on the startup after the Recovery Console is used.

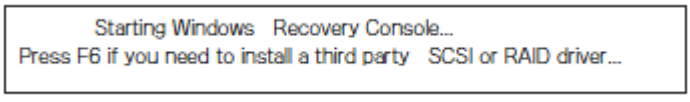
   Mount the removed CPU/IO module after using the Recovery Console and normal OS startup.

   <When starting up Recovery Console installed on the system>

   (a) Select Microsoft Windows Recovery Console in “Please select the operating system to start:”

   (b) When the following message appears on the screen press **F6** quickly.

<When starting Recovery Console from Windows Server 2003 CD-ROM>

(a) Insert the Windows Server 2003 CD-ROM into the drive.

(b) When the CD-ROM is set, reset the system (press **Ctrl** + **Alt** + **Delete**) or press the power switch to power off and on to reboot the Fault Tolerant Server series.

(c) When the following message appears, press any key to start up from the CD-ROM.

```
Press any key to boot from CD
```

IMPORTANT:

Press any key while the message is displayed. Otherwise the system will be started up from a hard disk and Recovery Console will not be started.

(d) When the following message appears on the screen, press **F6** quickly.

```
Press F6 if you need to install a third party  SCSI or RAID driver...
```

3. When the screen to select SCSI drivers appears, follow the steps below.

(a) When the following screen is displayed, press the **S** key.

```
Setup could not determine the type of one or more mass storage devices
installed in your system, or you have chosen to manually specify an adapter.
Currently, Setup will load support for the following mass storage devices(s):

  <none>

* To specify additional SCSI adapters, CD-ROM drives, or special
  disk controllers for use with Windows, including those for
  which you have a device support disks from a mass storage device
  manufacturer, press S.

* If you do not have any device support disks from a mass storage
  device manufacturer, or do not want to specify additional
  mass storage devices for use with Windows, press ENTER.
```

(b) Set the OS-specific “OEM-DISK” and press **Enter**.

(c) Select [Stratus Virtual Disk Driver] and then press **Enter**.
The screen of (a) is displayed again.

(d) Select [Stratus Embedded SAS Adapter] and then press **Enter**.
Go back to the screen of the procedure (a), press **S** key and proceed to the procedure (d).

(e) When the following screen appears, remove the floppy disk from the floppy disk drive and press **Enter**.

```
Setup will load support for the following mass storage device(s):

Stratus Virtual Disk Driver
Stratus Embedded SAS Adapter
```

Continue the operations by following the messages.

4. When you start up Recovery Console from Windows Server 2003 CD-ROM, the following message appears. Press the **R** key to boot Recovery Console.

```
Welcome to Setup.

This portion of the Setup program prepares Microsoft(R)
Windows(R) to run on your computer.

 - To set up Windows now, press ENTER.
 - To repair a Windows installation using
  - Recovery Console, press R.
 - To quit Setup without installing Windows, press F3.
```

IMPORTANT:

- The message shown above does not appear when you have started up the Recovery Console installed on the system.

5. Follow the messages on the screen to start up the Recovery Console.

IMPORTANT:

- When you restored a damaged file using the Recovery Console, update the system described in the next section.
- If you run the system without restoring files, enable the configuration for OS Boot Monitoring function. When necessary for system operation, select [Server] - [Monitoring Configuration] - [OS Boot Monitoring] and set appropriate time. See “Step 13: Enable OS Boot Monitoring Function” (page 4-40) for details.
- To write data to a dynamic disk, settings described in “Cautions for using the Windows Server 2003 Recovery Console” in “System Repair” need to be configured in advance. For details, see “Cautions for using the Windows Server 2003 Recovery Console” in “System Repair.”

Updating the System

IMPORTANT:

Fault Tolerant Server series is a precision instrument. You should ask maintenance personnel to update the system.

You will need to update the system after you repair the system using Recovery Console.

IMPORTANT:

- Make sure to follow the steps below when you have restored the system by using Recovery Console.
- Check the configuration for OS Boot Monitoring function.
  If [OS Boot Monitoring] selected in [Monitoring Configuration] of [Server] is not set to “Disabled”, disable it. See “Step 3: Disable OS Boot Monitoring Function” (page 4-9) for details.
- When updating the system, considerations on settings of Power and Screen Saver are required.
  If the following settings are enabled when updating the system, the process may stop or the system update may not be applied properly. Disable the settings by clearing the checkboxes before updating the system. Reconfigure the following settings as necessary afterwards.
  - Settings of Screen Saver
  - Power Schemes (Turn off monitor, Turn off hard disks)
  - Hibernation (enable Hibernation)

1. Log on to the system with OS installed as user with Administrative account.

IMPORTANT:

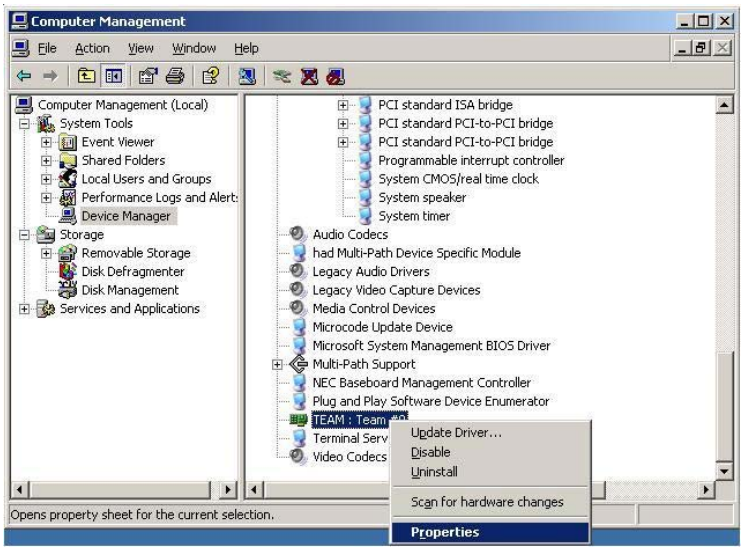
Check that the dual system is configured properly (Confirm that the STATUS LED 2 on the CPU/IO module illuminates green. See page 4-7 for location of the STATUS LED).

2. Remove duplications of all the LANs for both onboard and option boards.

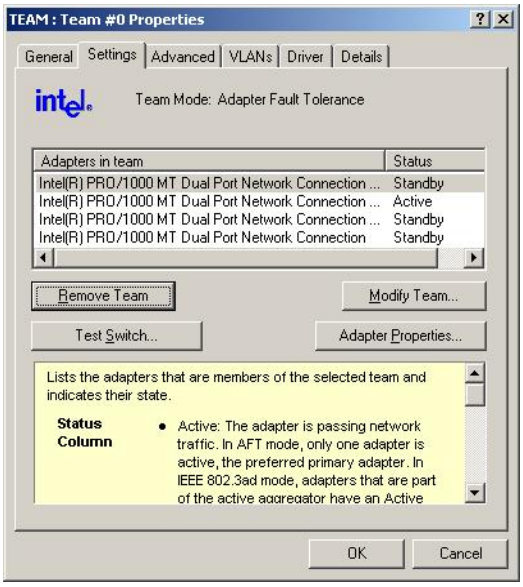
When dual LAN is disabled, a setup of LAN will be deleted. Note down the setup information.

(a) Start Device Manager.

(b) Select the team adapter that you want to cancel duplication, and select [Properties] from the menu displayed by right-click, to display the Properties window.



(c) Select the [Settings] tab in the Properties window, and click [Remove Team].



(d) The confirmation dialog will be displayed. Click [Yes].

3. Follow the steps below to update the system.

Do not input or output data during the update process.

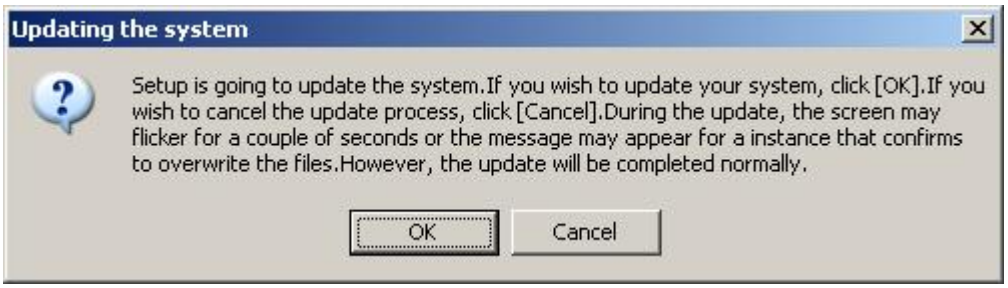
a) After logging on to the system as a user with the Administrative account, insert EXPRESSBUILDER DVD into the drive of the server.

b) When the “Master Control Menu” screen appears, click [Setup] and click [Update system] on the menu.

4. When the dialog box for confirmation of executing system update appears, click [OK].

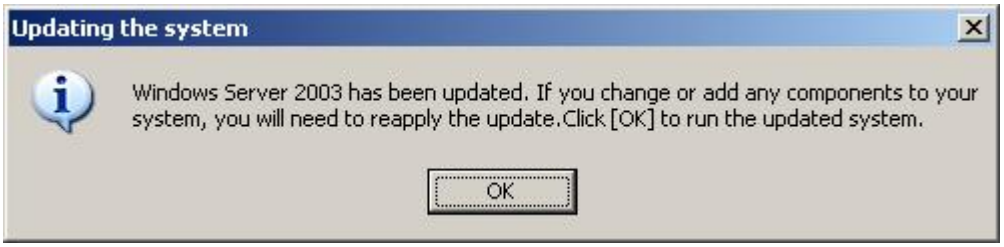
The system update will start.

Follow the instructions.



5. After the system update is completed, the dialog box below will be displayed. Click [OK].

The system will be rebooted. Eject a DVD from CD/DVD-ROM drive after the reboot process starts.



IMPORTANT:

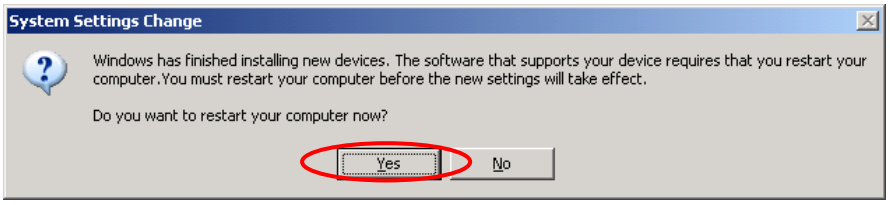
If the message, **"**Windows - FT Orphaning A disk that is part of a fault-tolerant volume can no longer be accessed**"** is displayed during the update process, an OS stop error may occur when restarting the OS. If an OS stop error occurs, Hold down the POWER switch, and turn off the system. In this case, the system will be successfully updated, however, disk mirroring is disabled. Make sure to check disk mirroring in 8.
When "Found New Hardware" wizard appears at the reboot, click [Cancel]. If the same message appears again, click [Cancel] again.

6. Check disk mirroring.

If the disk mirroring is disabled, enable the mirroring again. For the method to check disk mirroring, see "Step 8: Set Dual Disk Configuration" in Chapter 4.

IMPORTANT:

- During disk re-synchronization, do not shut down the system until the resynchronization is completed.
- If the following dialog appears, confirm that the disk is mirrored and click [Yes] to restart the system.



7. Reboot the system.

8. After the system has rebooted, log on as a user with Administrative account.

IMPORTANT:

Check that the dual system is configured properly (confirm that the STATUS LED 2 on the CPU/IO module illuminates green. See page 4-7 for location of the STATUS LED).

9. Duplicate the LAN again for both onboard and option boards.

Refer to "Step 7: Set Dual LAN Configuration" on page 4-23 or "DUAL LAN CONFIGURATION" in Chapter 3 of the separate volume of User's Guide. Reconfigure the LAN based on the memo you have taken.

10. When it is necessary for the system operation, enable [OS Boot Monitoring] selected in [Monitoring Configuration] of [Server]. See "Step 13: Enable OS Boot Monitoring Function" on page 4-40 for details.

Installing ft Server Control Software

When you install Windows Server 2003 R2, Enterprise x64 Edition with “Manual Setup,” or reinstall it in order to repair ft Server Control Software, take the following procedure to install the ft Server Control Software.

When you install Windows Server 2003 R2, Enterprise Edition with “Express Setup,” ft Server Control Software is automatically installed; therefore, you do not need to install ft Server Control software with the following procedure.

IMPORTANT:

- Terminate all programs before starting the installation.
  You must terminate all programs because the software will not be installed successfully, especially when Microsoft management console is running.
- The LAN settings will be deleted by the installation. Write down the setting information for making the settings after the installation as necessary.
- The dual configuration of LAN needs to be removed before starting the installation.
  If it is still set, remove the setting.
- When you execute the manual setup of ft Server Control Software or reinstall for a restoration, you need to follow the procedure in [Chapter 4 Windows Setup] and disable the OS Boot Monitoring function. After the reinstallation is finished, resume the setting of the OS Boot Monitoring function to “Enabled.”

1. Follow the steps below to install ft Server Control Software.

a) After logging on to the system as a user with the Administrative account, insert the “EXPRESSBUILDER” DVD-ROM into the DVD-ROM drive of the server.

b) When the “Master Control Menu” screen appears, click [Setup] and select [ft Server Control Software] on the menu.

Follow the instructions to with the installation. The message “ft Server Control Software, Now Installing... Please Wait.” is displayed while ft Server Control Software. Do not use the keyboard or mouse while this message is being displayed.

2. The system is rebooted during the installation.

The system is rebooted several times during the installation. Remove the DVD from the DVD-ROM drive once rebooting is started.

After the system is rebooted, log in again as the user logged in before rebooting. Installation of the ft Server Control Software is continued.

3. The message “Installation finished.” is displayed.

Once the installation is completed, the message “Installation finished.” is displayed and the rebooting starts by clicking [OK]. Change this screen to check the message, as the message can hide behind the screen.

For using “ft Server Control Software UPDATE CD-ROM” to update ft Server Control Software:
After installing the ft Server Control Software, follow the procedure on the setup card attached to the “ft Server Control Software UPDATE CD-ROM” and apply the update.

TROUBLESHOOTING

This section describes what you should do when a trouble occurs in the product.

Problems with EXPRESSBUILDER

When the Fault Tolerant Server series is not booted from the EXPRESSBUILDER DVD-ROM, check the following:

- ☐ Did you set the EXPRESSBUILDER DVD during POST and restart the server?

  → If you do not set the EXPRESSBUILDER DVD during POST and restart the server, an error message will appear or the OS will boot.

- ☐ 1 Is BIOS configuration correct?

  → The boot device order may be specified with the BIOS setup utility of the server. Use the BIOS setup utility to change the boot device order to boot the system from the optical disk drive first.
  <Menu to check: [Boot]>

- ☐ If [OS installation***default***] is selected at BOOT Selection screen, following message is displayed.

  After this message appears, check the error and take the appropriate corrective action according to the message listed in the table below.
  .

Message	Cause
This EXPRESSBUILDER version was not designed for this computer. Insert the correct version and click [OK]. (When you click [OK], the computer reboots.)	This EXPRESSBUILDER version is not designed for this server. Execute the EXPRESSBUILDER on the compliant server.
EXPRESSBUILDER could not get the hardware parameters written in this motherboard. This version is not designed for this computer or the motherboard may be broken. (When you click [OK], the computer reboots	This message is displayed when EXPRESSBUILDER cannot find system-specific information due to the replacement of a motherboard, and so on.
The hardware parameters written in this motherboard are incorrect. This version is not designed for this computer or the motherboard may be broken.	

An error message will also be displayed when an error was detected during system diagnosis. Take a note or print the error message displayed, and contact your sales agent.

Problems with Windows Setup

Failed to install Windows Server 2003 correctly.

- ☐ Have you checked instructions and information on installation?

  → See “Step 1: Things Required for Setup” (page 4-4) and “Step 2: Prepare for Express Setup” (page 4-7).

Rebooted during the setup.

→ See “Step 3: Disable OS Boot Monitoring Function” (page 4-9), and set the parameter of this machine’s OS Boot Monitoring function to correct value.

ft Server Control Software UPDATE CD-ROM is not included.

→ ft Server Control Software UPDATE CD-ROM is used to update ft Server Control Software; it may not be shipped with the equipment. (Not included if “EXPRESSBUILDER” DVD contains the latest version of software programs at the time of shipment). For the latest release of ft Server Control Software and purchase of the latest version of its ft Server Control Software UPDATE CD-ROM, contact your sales agent.

During a setup, “Previous Operating System C:” was selected on a selection screen of the operating system.

→ The process will be stopped along the display of DOS prompt or black screen. In this case, press **Ctrl** + **Alt** + **Delete**, or turn off the power to reboot the system. Installation will be continued after a reboot.

Windows can be operated after a setup but each module or PCI board is not duplicated. (Status LED 2 on the CPU/IO module does not light on green).

- ☐ Did you abort the installation during a setup such as by closing a window of the programs that are running?

  → Installation will be aborted if you finish the programs that are running such as by closing a window. Although the operation on Windows will be feasible, PCI boards will not be duplicated properly if you abort the installation. In this case, “Step 1: Things Required for Setup” needs to be done from the beginning.

DISK Access LED will be lit in amber.

- ☐ Did you properly setup the duplex of HDDs?

  → DISK Access LED will be lit in amber, if a setup for duplex is not performed. (See “LEDs” in the separate volume of the User’s Guide for details about the indication status of LED.) See “Step 8: Set Dual Disk Configuration” in Chapter 4 and set up the duplex of HDDs.

“Complete memory dump” cannot be specified to the write debug information on “Set Memory Dump” (Debug Information).

→ “Complete memory dump” cannot be specified (not displayed) if the memory size exceeds 2GB. Specify “Kernel memory dump” in this case.

Cannot find the recommended value for a paging file.

→ See “Size of the Partition to be Created” in “Step 1: Things Required for Setup.”

Cannot specify a network path for the storage location of diagnosis information (collect log) in “Set Dr. Watson.”

→ You cannot specify a network path. Specify a path to a local computer.

The Telnet Service is not installed.

→ Adjust the computer name to 14 characters or less, and then install the Telnet Service according to <How to install the Telnet Service>.

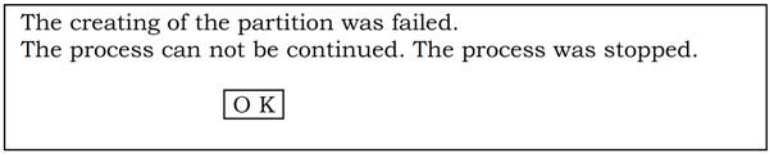
<How to install the Telnet Service>

1. Select [Run] from the Start menu.
2. Type “tlntsvr /service” in the [Open] box, and click [OK].
3. From the Start menu, point to [Control Panel] and click [Administrative Tools] and then click [Services] to specify whether the Telnet Service is registered.

Note: Once the installation of Telnet Service is finished, you may change the computer name to 15 or more characters.

Problems with Express Setup

Following message appeared when you tried to install Express Setup to the hard disk drive that has smaller capacity than the specified partition size:



→ Cannot continue the setup.
Specify a smaller partition size than the capacity of connected hard disk drive, and then retry the setup.

The system partition is created with a smaller size than the specified value.

→ In Express Setup, there could be that the system partition is created with a size which is about 8MB smaller than the specified size. This has no negative effect on operating the system.

Data on the peripheral HDD was erased during the Express Setup.

☐ Is there any HDD other than the HDD to install OS attached?

→ Detach external HDD(s) and run the Express Setup again.

.

Cannot configure the details of network adapter.

→ You cannot configure the details of network adapter during setup of Fault Tolerant Server servers.

You can configure this **after** the startup of Windows.

Problems with NEC ESMPRO Setup

A menu which cannot be chosen with a setup main menu.

→ The available menus vary depending on the OS types. (The menus that cannot be installed are displayed in gray.)

Stop the setup of NEC ESMPRO Agent on the way.

→ If you click [Cancel] during the setup, the message asking whether to stop or not to stop the installation will appear. You can stop the installation by clicking [Stop] (the main menu remains displayed). However, the file having been setup halfway will not be deleted.

Start the uninstallation of NEC ESMPRO Agent after the system is started completely.

→ If NEC ESMPRO Agent is uninstalled just after the system startup, the setup program may freeze displaying the [Service Being Deleted…] dialog box. Shutdown the system by using Task Manager or other operation. Then uninstall NEC ESMPRO Agent after the system is started completely.

* For installation procedure and detailed explanations on NEC ESMPRO Manager, refer to the online document in the EXPRESSBUILDER DVD.

Problems with System Repair

"Press F6 if you need to install a third party SCSI or RAID driver…" was not displayed and there was no chance to enter F5 and F6 when "When starting Recovery Console from Windows Server 2003 CD-ROM" was performed.

- ☐ Did you press any key when the message "Press any key to boot from CD" is displayed on top of the screen?

  → Start-up from Windows Server 2003 CD-ROM is required to start the Recovery Console from Windows Server 2003 CD-ROM. Press any key while the message "Press any key to boot from CD" is displayed on the screen. You cannot start the Recovery Console from the CD-ROM unless the any key is pressed while the message is being displayed. Restart the system when it does not start from CD-ROM and the message "Press F6 if you need to install a third party SCSI or RAID driver…" is not displayed. See "Starting up Recovery Console" in "SYSTEM REPAIR" in this chapter to start again.

The screen turns out to be black for a while when booting the Recovery Console.

→ If you start the Recovery Console that is installed in the system, the screen turns out to be black for a while when booting the Recovery Console. Since the system is normally working, please wait for a while.

When the system's update is being processed, Operating System Stop Error occurred at the system reboot.

→ During the system update process, the message "Windows-FT Orphaning A disk that is part of a fault–tolerant volume can no longer be accessed" is displayed, and there is sometimes a case that OS Stop Error occurs on a reboot after this process. See IMPORTANT of step 5 in "Updating the System" in this chapter when OS Stop Error occurs, and reboot the system. In addition, the system's update is successfully being performed when the message "Windows-FT Orphaning A disk that is part of a fault-tolerant volume can no longer be accessed" is displayed. However, the mirroring of HDD is not applied. Make sure to check the hard disk's mirroring after the system start-up.

This page is intentionally left blank.

Vos remarques sur ce document

Titre :	NovaScale R630 E1 Setup Guide

Référence :	86 A1 43FA 00

Date:	June 2008

ERREURS DETECTEES

AMELIORATIONS SUGGEREES

Vos remarques et suggestions seront examinées attentivement.
Si vous désirez une réponse écrite, veuillez indiquer ci-après votre adresse postale complète.

NOM : _____ DATE : _____

SOCIETE : _____

ADRESSE : _____

_____

Remettez cet imprimé à un responsable BULL ou envoyez-le directement à :

Bull - Documentation Dept.
1 Rue de Provence
BP 208
38432 ECHIROLLES CEDEX
FRANCE
info@frec.bull.fr

Bon de commande de documents techniques

Pour commander des documents techniques, remplissez une copie de ce formulaire et envoyez-la à :

BULL CEDOC
357 AVENUE PATTON
B.P.20845
49008 ANGERS CEDEX 01
FRANCE

Téléphone : +33 (0) 2 41 73 72 66
FAX : +33 (0) 2 41 73 70 66
Courriel : srv.Duplicopy@bull.net

Référence	Désignation	Qté
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
_ _ _ _ _ _ _ _ _ [_ _]		
[_ _] : La révision la plus récente sera fournie si aucun numéro de révision n'est indiqué.		

NOM : ______________________________ DATE : ____________

SOCIETE : ______________________________

ADRESSE : ______________________________

____

TELEPHONE : ____________________ FAX : ____________________

COURRIEL : ______________________________

Pour les Filiales Bull :
Identification : ______________________________

Pour les Clients Affiliés Bull :
Code Client : ______________________________

Pour les Clients Internes Bull :
Section Budgétaire : ______________________________

Pour les autres : Merci de demander à votre contact Bull.

BULL CEDOC
357 AVENUE PATTON
B.P.20845
49008 ANGERS CEDEX 01
FRANCE

REFERENCE
86 A1 43FA 00