Express 5800





NEC Express Server Express5800 Series

Express5800/R320c-E4

Model Number: N8800-173F, EXP320P

Express5800/R320c-M4

Model Number: N8800-174F, EXP320Q

Express5800/R320d-E4

Model Number: N8800-184F, EXP320P

Express5800/R320d-M4

Model Number: N8800-185F, EXP320Q

Installation Guide (Windows)

Chapter 1 Installing OS

Chapter2 Installing Bundled Software

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Documents for This Product

Documents for this product are provided as booklets (\square) and as electronic manuals (\blacksquare) in the EXPRESSBUILDER DVD (\bigcirc).

\bigcap	Precautions for Use	Describes points of caution to ensure the safe use of this server.	
	4	Read these cautions before using this server.	
\bigcap	Getting Started	Describes how to use this server, from unpacking to operations.	
	1	See this guide at first and read the outline of this product.	
		l	
\bigcirc	EXPRESSBUILDER		
PDF	User's Guide		
	Chapter 1: General Description	Overviews, names, and functions of the server components	
	Chapter 2: Preparations	Installation of additional options, connection of peripheral devices	
		and suitable location for this server	
	Chapter 3: Setup	System BIOS configurations and summary of EXPRESSBUILDER	
	Chapter 4: Appendix	Specifications	
	Installation Guide (Windows	3)	
	Chapter 1: Installing OS	Installation of OS and drivers, and important information for installation	
	Chapter 2: Installing Bundled Software	Installation of bundled software, such as NEC ESMPRO	
	Maintenance Guide		
	Chapter 1: Maintenance	Server maintenance and troubleshooting	
	Chapter 2 Configuring and	Configure hardware and setup management tool associated with	
	Upgrading the System	hardware	
	Chapter 3: Useful Features	Useful features and the detail of system BIOS settings, SAS Configuration Utility, and EXPRESSBUILDER	
	Other documents		
	Provides the detail of NEC ESMPRO, BMC Configuration, and the other features.		

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Notations Used in This Document

Notations used in the text

In addition to safety-related symbols urging caution, three other types of notations are used in this document. These notations have the following meanings.

Important	Indicates critical items that must be followed when handling the hardware or operating software. If the procedures described are not followed, hardware failure, data loss, and other serious malfunctions could occur .
Note	Indicates items that must be confirmed when handling the hardware or operating software.
Tips	Indicates information that is helpful to keep in mind when using this server.

Optical disk drive

This server is equipped with one of the following drives. These drives are referred to as *optical disk drive* in this document.

- DVD-ROM drive
- DVD Super MULTI drive

Removable media

Unless otherwise stated, removable media described in this document refer to both of the following.

- USB flash drive
- Flash FDD

Abbreviations of Operating Systems (Windows)

Windows Operating Systems are referred to as follows.

Refer to Chapter 1 (1.2 Supported Windows OS) in Installation Guide (Windows) for detailed information.

Notations in this document	Official names of Windows
Windows Sonier 2012	Windows Server 2012 Standard
Windows Server 2012	Windows Server 2012 Datacenter
Windows Sonier 2009 D2	Windows Server 2008 R2 Standard
Windows Server 2006 R2	Windows Server 2008 R2 Enterprise

POST

POST described in this document refer to the following.

• Power On Self-Test

BMC

BMC described in this document refer to the following.

• Baseboard Management Controller

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	Equipment Name	: FT Server		
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regulations on content limit for certain hazardous substances in electrical products"

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	(затвердженого Постановою №1057 Кабінету Міністрів України)			
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	 кадмій (Cd) – не перевищує 0,01 % ваги речовини або в концентрації до 100 частин на мільйон; 			
	 ртуть(Hg) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон; 			
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Ис об	Использования некоторых Вредных Веществ в электрическом и электронном оборудовании (ТР ОИВВ).			
Cc Nº	держание вредных веществ в случаях, не предусмотренных Дополнением 2 ТР ОИВВ:			
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	 ртуть (Hg) – не превышает 0,1 % веса вещества или в концентрации до 1000 миллионных частей; 			
	 шестивалентный хром (Сг⁶⁺) – не превышает 0,1 % веса вещества или в концентрации до 1000 миллионных частей; 			
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India

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The most recent version of the guide, as well as other related documents, is also available for download from the following website.

http://www.nec.com/

NEC Express5800 Series Express5800/R320c-E4, R320c-M4, R320d-E4, R320d-M4

Installing Operating System

This chapter describes how to install an operating system. Read through this chapter to set up the system correctly.

1. Before Starting Setup

Describes the Service Packs and mass storage controllers that EXPRESSBUILDER supplied with this product supports.

2. Setting Up the Operating System

Describes the flow of setting up the operating system.

3. Setting Up Windows Server 2012

Describes how to set up Windows Server 2012.

4. Setting Up Windows Server 2008 R2

Describes how to set up Windows Server 2008 R2.

5. Setting Up for Solving Problems

Describes the features that must be set up in advance so that the server can recover from any trouble immediately and precisely.

6. Windows OS Parameter File

Describes how to set up the operating system by using the parameter file.

7. Backing Up System Information

Describes how to inherit system information when the device is replaced.

8. Precautions for Using Hyper-V

This section describes precautions for using Hyper-V on Express5800/ft series.

I. Before Starting Setup

This section describes available combination of service packs that EXPRESSBUILDER supports, and items that should be confirmed at setup of operating system.

I.I Starting EXPRESSBUILDER

Use the attached EXPRESSBUILDER to re-install the OS.

To start EXPRESSBUILDER, insert the media into the optical disk drive of the server and power on the server, or press <**Ctrl**> + <**Alt**> + <**Delete**> keys to reboot the server. EXPRESSBUILDER starts from DVD.

Refer to Chapter 3 (5. Details of EXPRESSBUILDER) in the Maintenance Guide for more information.

1.2 Supported Windows OS

EXPRESSBUILDER supports the following editions of Windows operating systems:

See the next section (1.3 Service Pack Support) for Service Pack.

Name of Windows OS			Supported
Windows Sonver 2012	12 *	Windows Server 2012 Standard	~
Windows Server 2012		Windows Server 2012 Datacenter	~
Windows Oceania 0000 D0	+	Windows Server 2008 R2 Standard	_
windows Server 2008 R2		Windows Server 2008 R2 Enterprise	~

✓ : Supported – : Not Supported

* : Supported on server with GUI or full installation only.

1.3 Service Pack Support

The following combination of operating system installation media and Service Packs are supported by EXPRESSBUILDER.

Service Pack	Windows Server 2012	Windows Server 2008 R2
Service Pack 1 Included	_	✓
NO Service Pack + Service Pack 1	_	~
NO Service Pack	~	_

✓ : Supported -: Not Supported

1.4 Mass Storage Controllers Supported by EXPRESSBUILDER

The table below lists the mass storage controllers supported by the supplied EXPRESSBUILDER.

	Windows Server 2012	Windows Server 2008 R2
Other options		
N8803-038 Fibre Channel board kit (8Gbps x 1ch)	✓	✓

✓: Supported by EXPRESSBUILDER

$oldsymbol{2}$. Setting Up the Operating System

See the figure below to find a section appropriate to your OS installation.



3. Setting Up Windows Server 2012

Set up Windows Server 2012.

3.1 Before Starting Setup

3.1.1 Precautions

Read through the cautions explained here before starting setup.

- **EB** : Confirm during Setup with EXPRESSBUILDER
- **0S** : Confirm during Setup with Windows standard installer

Hardware configuration			
The fo	The following hardware configurations require special procedures.		
EB	OS	LTO and similar r Do not set media t	nedia hat is unnecessary to installation during setup.
EB	OS	Setup when mass memory is installed If mass memory is installed in your system, the large size of paging file is required at installation. Thus, partition size for storing debug information (dump file) may not be secured.	
		If you fail to secure required for storing 1. Set the sy 2. Specify ar referring t	e the dump file size, use Windows standard installer for setup, and allocate the file space g the dump file to other hard disk drives by performing the following steps. Instem partition size to a size sufficient to install the OS and paging file. Inother disk as the destination to store the debug information (required dump file size) by to Chapter 1 (5. Setup for Solving Problems).
		If the hard disk drive does not have enough space to write the dump file, set the partition size to sufficient to install the OS and paging file, and then add another hard disk drive for the dump file.	
		Note	If the partition size for installing Windows is smaller than the size to install the OS and paging file, expand the partition size or add another hard disk drive.
		If sufficient space Windows is complete	cannot be secured for the paging file, perform either of the following after setting up ete.
		 — Specify a h collecting m 	ard disk drive other than the system drive as the location to store the paging file for emory dump.
		Create a pa drive.	ging file of the installed memory size + 400 MB or more in a drive other than the system

Example of correct setting
C: No paging file exists
D: Paging file whose size is "installed memory size + 400 MB" or more
→ The paging file in drive D can be used for collecting memory dump because its size satisfies the requirement.
Example of incorrect setting 1
C: Paging file whose size is smaller than the installed memory size D: Paging file whose size is "installed memory size + 400 MB" or more
→ The paging file in drive C is used for collecting memory dump, but collection may fail because the size of the paging file is smaller than the installed memory size.
Example of incorrect setting 2
C: Paging file whose size is "installed memory size × 0.5"
D: Paging file whose size is "installed memory size \times 0.5" E: Paging file whose size is 400 MB
→ The total paging file size in all drives is "installed memory size + 400 MB", but collection may fail because only the paging file in drive C is used for collecting memory dump.
Example of incorrect setting 3
C: No paging file exists D: Paging file whose size is "installed memory size + 400 MB" or more (in dynamic volume)
→ Paging files in a dynamic volume cannot be used for collecting memory dump. Thus, collecting memory dump fails.

	 Specify a drive other than the system drive for "Dedicated Dump File".
	Create the registry shown below by using the Registry Editor and specify the name of Dedicated Dump File.
	<when "dedicateddumpfile.sys"="" d="" drive="" file="" in="" named="" specifying="" the=""></when>
	Key: HKEY_LOCAL_MACHINE\SYSTEM \CurrentControlSet\Control\CrashControl Name: DedicatedDumpFile Type: REG_SZ Data: D:\dedicateddumpfile.sys
	 Note the following when specifying Dedicated Dump File: Pay strict attention to edit the registry. The setting is applied after restarting the system. Specify a drive that has free space of "installed memory size + 400 MB" or more. Dedicated Dump File cannot be placed in dynamic volumes. To collect memory dump by using Dedicated Dump File, a paging file is required in any drive. Dedicated Dump File is only used for collecting memory dump, and is not used as virtual memory. Specify the paging file size so that sufficient virtual memory can be allocated in the entire system.
System pa	rtition size
EBOS	The system partition size can be calculated by using the following formula. OS size + paging file size + dump file size + application size
	OS size= 9,400MBPaging file size (recommended)= installed memory size × 1.5Dump file size= installed memory size + 400MBApplication size= as required by the application
	For example, if the installed memory size is 4 GB (4,096 MB) and application size is 100 MB, and Full Installation is selected, the partition size is calculated as follows: $9.400MB + (4.096MB \times 1.5) + 4.096MB + 400MB + 100 MB = 12.460MB$
	The above mentioned partition size is the minimum partition size required for system installation. Ensure that the partition size is sufficient for system operations.



Windows Server 2012 Hyper-V support			
EB	OS	Refer to the following web site for information related to Windows Server 2012 Hyper-V. • http://www.58support.nec.co.jp/global/download/w2012/hyper-v/hyper-v-ws2012.html • See Chapter 1 (8. Precautions for Using Hyper-V).	
When	compr	ressing system drive	
EB	OS	Do not compress the root directory and the Windows directory.	
		Tips The Windows Server 2012 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.	
Supp	Support for NIC teaming in Windows Server 2012		
ЕВ	OS	The NIC teaming feature, which used to be provided by network interface card (NIC) vendors, is built into Windows Server 2012. In Windows Server 2012, this feature is also called "load balancing and failover (LBFO)". Important The server does not support this feature.	
Support for Storage spaces and thin-provisioning in Windows Server 2012			
EB	OS	The server does not support this feature.	

3.1.2 Preparation

The following steps are required to prepare for re-installing an OS (setup with EXPRESSBUILDER or Winodws standard installer):

- 1. If the POWER LED on CPU/IO module is on, shutdown the OS.
- 2. Unplug the power cord from outlet while the POWER LED is blinking.
- 3. Perform the preparation process for the server as shown below.
 - Install CPU/IO modules 0 and 1.
 - Install a hard disk drive in slot 0 of CPU/IO module 0.
 - Disconnect all LAN cables.
 - Disconnect the cable for tape device from the connector on SAS board.
 - Disconnect the cable for device from the connector on Fibre Channel board.

Important

- Install only one hard disk drive in the slot specified here.
 - If the hard disk drive is not a new one, physically format it. Refer to *Chapter 3 (3. SAS Configuration Utility)* in *Maintenance Guide* for physical formatting.
- 4. Prepare for setup on CPU/IO module 0.

The location of components that are required for setup or confirmation is as shown in the figure below.

Install only one hard disk drive in CPU/IO module 0. Do not install any hard disk drive in CPU/IO module 1.



- 5. Connect power cords to the server in the following order.
 - (1) Connect a power cord to AC inlet connector A.
 - (2) Connect a power cord to AC inlet connector B.
 - (3) Make sure the Status LED on CPU/IO module is unlit.



Note

If you disconnect the power cord, wait at least 30 seconds before connect it again.

3.1.3 Disabling OS Boot Monitoring Feature

Before starting setup process, the OS boot monitoring function needs to be disabled.

Important	Be sure to disable boot monitoring function before setting up the system for successful setup. This function is enabled by shipping default.
Tips	For details of operations for BIOS Setup Utility and parameters for boot monitoring function, refer to <i>Chapter 3 (1. System BIOS)</i> in <i>Maintenance Guide</i> .

1. Turn on the display and the peripheral equipment connected to the NEC Express5800/ft series.

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

- 2. Remove the front bezel.
- 3. Press the POWER switch located on the front side of the server.

Lift the acrylic cover, and press the POWER switch.



After a while, the "NEC" logo will appear on the screen.

Tips	While the "NEC" logo is displayed on the screen, NEC Express5800/ft series performs a power-on self test (POST) to check itself. OS starts upon completion of POST.
	For details, refer to Chapter 3 (1.1 POST Check) in User's Guide.
Note	If the server finds errors during POST, it will interrupt POST and display the error message. Refer to <i>Chapter 1 (6.2 POST Error Messages)</i> in <i>Maintenance Guide</i> .

4. When POST proceeds, the following message appears at lower left of the screen.

Press <F2> SETUP, ... (The on-screen message depends on your system environment.)

If you press <**F2**>, SETUP will start after POST, and the Main menu appears. (You can also start SETUP by pressing <**F2**> key while expanding option ROM.)

Example:

Aptio Setup Ut Main Advanced Security S	ility – Copyright (C) 2012 Amer Verver Boot Save & Exit	ican Megatrends, Inc.
BIOS Information BIOS Version Build Date Access Level	6.0:34 05/30/2012 Administrator	Set the Date. Use Tab to switch between Date elements.
Memory Information		
Total Memory	16384 MB	
System Date System Time	[Thu 06/28/2012] [13:51:11]	
		F4: Save & Exit Setup ESC: Exit
Version 2.14.	1219n Copyright (C) 2012 Americ:	an Megatrends, Inc.

5. When you move the cursor onto Server, the Server menu appears.

Aptio Setup Utility – Main Advanced Security Server B	Copyright (C) 2012 American M Soot Save & Exit	egatrends, Inc.
Main Advanced Security Server 1 System Management Event Log Configuration FRB-2 Timer PCI Enumeration Monitoring Timeout Option ROM Scan Monitoring Timeout Option ROM Scan Monitoring Timeout OS Boot Monitoring OS Boot Monitoring Timeout POST Pause Monitoring Timeout Thermal Sensor POST Error Pause AC-LINK	Soot Save & Exit [Enabled] [Enabled] 180 [Enabled] 600 [Enabled] 180 [Enabled] [Disabled] [Stay Off]	F1: General Help F4: Save & Exit Setup ESC: Exit
Version 2.14.1219n Co	opyright (C) 2012 American Meg	atrends, Inc.

- 6. Move the cursor onto OS Boot Monitoring and press Enter.
- 7. Among the parameters, choose **Disabled** and press **Enter**.

8. Move the cursor onto Save & Exit, the Save & Exit menu appears.

Aptio Setup Utility – Copyright (C) 2012 An Main Advanced Security Server Boot Save & Exit	merican Megatrends, Inc.
Save & Exit Options Save Changes and Exit Discard Changes Discard Changes Load Setup Defaults	Exit system setup after saving the changes.
Version 2.14.1213n Convertent (C) 2012 Ame	F1: General Help F4: Save & Exit Setup ESC: Exit

9. Select Save changes and Exit.

On the confirmation window shown below, select Yes to save parameters and exit SETUP.

System reboots when SETUP completes.

Save configuration and exit?
[Yes] No

Now OS Boot Monitoring function is disabled.

3.2 Setup with EXPRESSBUILDER

This section describes how to install Windows with EXPRESSBUILDER.

Important	 Setup with EXPRESSBUILDER may delete all data of the hard disk drived depending on the settings. Pay attention to input parameters. You must be especially careful when configuring the following: Partition Settings Backing up user data, as needed, is recommended. Before starting setup, be sure to disconnect hard disk drives that is not to be setup. Install those hard disk drives after setup has completed. Conducting setup with hard disk drives being connected may cause existing data to be erased unintentionally. It is recommended to make backup copy of user data before starting setup. Although some dialog boxes and popup windows are displayed during installing ft Server Control Software in Setup, do not operate from the keyboard and the mouse. Installation is continued automatically. Do not operate especially although the following dialog is displayed. When		
	installation is stopped with operation of a keyboard or a mouse, there is a		
	Microsoft Windows X		
	You must restart your computer to apply these changes Before restarting, save any open files and close all programs. Restart Now Restart Later		
Note	The Scalable Networking Pack (SNP) function is disabled on systems that have been installed by using EXPRESSBUILDER. The setting of SNP function may affect the system performance. Contact your sales representative for details.		
Tips	 Setup with EXPRESSBUILDER allows you to use a pre-specified parameter file or save the parameters specified in setup as a parameter file on a removable media. For details on creating a parameter file, see <i>Chapter 1 (6. Windows OS Parameter File)</i>. 		

3.2.1 Setup flow



3.2.2 Requirements for Setup

Prepare the following media and instruction manuals before starting setup.

- > Either of the following OS installation media
 - NEC operating system installation media (hereafter referred to as Backup DVD-ROM)
 - Microsoft operating system installation media (hereafter referred to as *Windows Server 2012 DVD-ROM*)
- > First Steps Guide
- EXPRESSBUILDER DVD
- > ft Server Control Software UPDATE media

Used to update ft Server Control Software. This might not be provided with your server.

- > Prepare if needed:
 - Removable media for Windows OS parameter file
 - ft Server Control Software update module See Chapter 1 (3.7.1 Applying ft Server Control Software Update Module) for more information.

3.2.3 Before setting up

During Setup with EXPRESSBUILDER, parameters are specified through the wizard. You can also save the parameters as one file (a parameter file) in removable media.

Note

Read through the items in *Chapter 1 (3.1 Before Starting Setup*) prior to installing Windows.

3.2.4 Setup procedure

- 1. Prepare for setup according to Chapter 1 (3.1.2 Preparation).
- 2. Be sure to disable OS Boot Monitoring feature according to *Chapter 1 (3.1.3 Disabling OS Boot Monitoring Feature)*.

Important OS Boot Monitoring feature is enabled by the shipping default. Setup process will fail if this feature is enabled.

- 3. Turn the display unit power on, and then turn the server power on.
- 4. Start EXPRESSBUILDER according to Chapter 1 (1.1 Starting EXPRESSBUILDER).
- 5. When the following message appears, select OS installation *** default ***.

OS installation *** default *** Tool menu
Tool menu
Automatic boot in 7 seconds

The following window appears.

- 1 -	Starting EXPRESSE	3UILDER
	0	
Show Datah		0

The server starts from EXPRESSBUILDER.



6. Select **English** on the language selection window, and then click **OK**.

EXPRESSBUILDER
Question 表示する言語を選んでください。 Select the language for displaying. O 日本語 ② English O Français O Italiano O Deutsch O Español

7. Click Setup.

Setup		₽
Version] 	
() Exit	2	

8. On the OS selection menu, select the OS to install or specify the parameter file.

When not using parameter file:
 When using a parameter file:

Go to Step 9. Go to Step 10.

Note

When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.

9. When not using a parameter file, select an OS by either of the following two ways:

1 OS selection 2 Settings	3 Confirmation	4. Installation
Select an operating sy	stem to inst	all.
Automatic Detec	tion	
Manual Selection	n	
Load Settings		
		Setu

To automatically detect the OS on the OS installation media:

(1) Click Automatic Detection.

I Selection Settings Confirmation	4 Installation
Select an operating system to inst (Click Manual Selection to configure a RAID array of	all.
Automatic Detection	₽
Select an operating system automatically with an installation disc	
Load Settings	
	Setup

Insert the OS installation media, and then click $\ensuremath{\text{OK}}$.

Quest	on				
	To check y	rour OS installatio	n disc, insert it into I [Mi	he computer. ssage ID : B2014]	
0					
					11
		ОК	Cancel		

(2) Click \bigcirc on the right side of the screen.

 \rightarrow Go to

1 OS se	lection 2 Settings	3 Confirmation	4 Installation	
1	Select an operatii (Click Manual Selection t	ng system to ins o configure a RAID array	tall.	
-	Automatic D	etection		
	Manual Sele	ction		
B	Load Setting	ıs		
			Se	fture

To select an OS from the menu:

(1) Click Manual Selection.

1 OS selection	2 Settings	3 Confirmation	4 Installation
Sele	ct an operating Manual Selection to (g system to inst configure a RAID array	all.
	Automatic De	tection	
	Manual Selec	tion	<i>v</i>
You can se the installat	lect the target OS of ion from the menu.		
			Setup

(2) From the pull-down menu, select Windows Server 2012, and then click OK.

	Select an operating	system to install.	
	• windows	windows server 2012	
9	O V Mware		

(3) Click \bigcirc on the right side of the screen.

1 OS sele	ection 2 Settings	3 Confirmation	4 Installation	
1 .	Select an operatii	ng system to ins o configure a RAID array	tall.	
E	Automatic D	etection		\bigcirc
-	Manual Sele	ction		<u> </u>
B	Load Setting	s		
			Set	tup

10. When *using* the parameter file, click **Load Settings**.

1 OS selec	tion Settings	3 Confirmation	4 Installation
Se	elect an operatin	ng system to ins o configure a RAID array	tall.
2	Automatic D	etection	
	Manual Sele	ction	
Þ	Load Setting	s	₽
Load i	nstallation settings.		Setup

mnt usr_cor	inect	
Places	Name	▼ Modified
🗋 root	🗁 cdrom1	07/26/2012
File System	🗁 usb1	Unknown

Follow the on-screen instruction to load the parameter file (*.tre).

Tips

For the removable media in which the parameter file is saved, see "/mnt/usr_connect/usb*" (* indicates a number).

Click \bigcirc on the right side of the screen.

1 s	elect an operating system to install.	
(C	ick Manual Selection to configure a RAID array only)	ſ
e	Automatic Detection	Ľ
	Manual Selection	
< B	Load Settings	

When the following screen appears, click \bigcirc on the right side of the screen. Click **Custom** to check and modify the setting in the wizard.

)	¢	Default	
	~ 01	Custom	

 \rightarrow Go to step 12.
11. Specify the setup parameters by using either of the following methods:

2 •••	er installation settings	
6	Default	
6	Custom	

Use Default:

(1) Click Default.

	1 2 3 OS selection Settings Con	firmation Alistallation
	2 Enter installation settings	
0	Default	₽
	Specify minimum settings for the installation. Default values are used for other settings.	
		Setun

(2) Type the password, and then click **Finish**.

Settings	: Windows Ser	/er 2012		
rating system	: Windows Ser	ver 2012		
ion				
ion	: Standard(Ser	ver with a GUI) 🛛 🔻		
guage	English			
sword Settings-				
dministrator Pass	sword	:	(Require	ed)
eenter Administra	ator Password	1	(Require	ed)
	6			
	ssword Settings− dministrator Pase Reenter Administr	word Settings dministrator Password leenter Administrator Password	sword Settings dministrator Password : teenter Administrator Password :	dministrator Password (Requin keenter Administrator Password (Requin

(3) Click \bigcirc on the right side of the screen.

	2 "	iter installation settings.	
\bigcirc	~ 0	Default	
	Ø	Custom	

 \rightarrow Go to step 12.

Use Custom:

(1) Click Custom.

	1 OS selection	2 Settings	3 Confirmation	4 Installation
2	Enter ins	stallation s	ettings.	
)	Defa	ault		
9	Cust	tom		<i>s</i>
	Specify all settings installation.	for the		
				Setup

(2) RAID Configuration is unavailable on this server. Click Next.

An operating system will be installed to t Uninstall all RAID controllers not to be u selected.	the logical drive on the following RAID controller: used for the OS installation if the incorrect RAID controller is
Device Information	
RAID Controller	: No RAID controller is detected.
Number of Physical Drives	: 1
Summary of RAID Array	
	*
RAID Configuration	
Skip Configuring RAID Array	
	1 / 10 Page
Next	Cancel

(3) Check the settings specified for **Basic Settings**.

Modify the settings as needed, and then click Next.

W Cł ap	noose Use Windows standard installer to ins indows installation disc. noose Install Windows using EXPRESSBUIL plications at one time.	stall Windows by using the installer contained in the
T	-Basic Settings	
	Operating system : Wind	dows Server 2012
ſ	Copy OEM drivers to removable me Sinstall Windows using EXPRESSBUILDED Edition : <u>Standard(Sen</u> Language : English Time Zone : (UTC-08:00)	edia R ver with a GUI) 「▼ 「▼) Pacific Time (US & Canada) 「▼
		4 / 10 Page

(4) Check the settings specified for Partition Settings.

Modify the settings as needed, and then click Next.

system partition is 21 All data currently on a	B. n existing partition, shown w	ve or logical drive. The ith a red frame, will be	maximum partition size for the deleted.
Current Partitions (the a	rea shown with a red frame will b	e deleted) :	
Create a new Create a new O Use all O Type a	partition pace artition size :[(Minimum: 4	40](GB) 0GB / Recommended:	*1TE=1024GB 40GB / Maximum: 278G8)
			5 / 10 Page

Important	•	Partition size
		- Specify a partition size larger than the minimum required for installing the
		operating system. (See Chapter 1 (3.1 Before Starting Setup).)
		 Specify a partition size not exceeding 2,097,152MB.
	•	The entire contents of the destination hard disk drive will be erased.

(5) Enter the user information, and then click Next.

	Wizard Personalize the computer.
	Personalize the computer.
	Type Computer Name within 15 characters. Administrator Password must be at least six characters in length and must contain characters from three of the four categories (numbers/uppercase/lowercase/symbols).
	Computer Name : I Automatic Numbering
	User Name : Administrator
	Administrator Password : (Required)
$\langle \langle \rangle$	Reenter Administrator Password : (Required)
	*
	6 / 10 Page
	Back Next Cancel
	ລາະສາເຫເບ
	e e de de la
lote	Computer name and Administrator Password are required parameters.
	Enter Administrator Password that satisfies the following conditions:
	Contains 6 or more characters
	 Contains characters from at least three of the following categories: numbers,
	uppercase alphabetic characters, lowercase alphabetic characters, and symbols.
Fine	The Computer name has been assigned by automatic assignment function. If you need
iha	The computer name has been assigned by automatic assignment function. If you need
	to assign another computer name, remove the checkmark from "Automatic
	Numbering", and enter the desired computer name.
	 If a parameter file is used for setup or if you return to a previous screen, •••••• is

(6) Network Protocols is unavailable on this server.

boxes.

Click Next.

Advanced
7 / 10 Page

(7) Specifying domain or workgroup is unavailable on this server.

Click Next.

□ O Join a workgroup —		
Workgroup Name	WORKGROUP	
Join a domain		
Domain Name	:	
Account Name		
Reenter Password	:	
	×	

(8) Check the settings of Windows components.

Modify the settings as needed, and then click Next.

Server Roles		
Web Server (IIS)	Print and Document Services	
DHCP Server	File Services	
DNS Server	Hyper-V	
Windows Features		
SNMP Service		Advanced
		Auvanceu
WING Services		
L WINS Server		
	R.	
		9 / 10 Page

(9) Check the settings of applications.

Click Finish.

NEC ESMPRO Agent is ma	ndatory.		
Available Applica	tions	Selected Application	15
	<u>م</u> <>	kidd >> Delete	Ă
Description	Y		×
		•	10 Page
			10 Tube
Back	Finish	Cance	

On the screen as shown below,	click 🔘	on the right side of	f the screen.
-------------------------------	---------	----------------------	---------------



12. Check the settings.

To save the settings, click **Save**.

	2 Confirm insta	llation settings.	
	(Check if valid installa	tion settings are specified)	
\sim		<u> </u>	
$\langle \rangle$	Operating system	: Windows Server 2012	(>)
<u> </u>	(Install Windows using EXPRES	SBUILDER)	
	Edition	: Standard(Server with a GUI)	
	Language	: English	
	Time Zone	(UTC-08:00) Pacific Time (US & Canada)	
	Partition Settings	: Create a new partition(40GB)	ר

Click \bigcirc on the right side of the screen.

13. The setup process starts.

Click Start to continue setup.

	1 2 3 Selection 2 Settings 3 4 Installation
	Ready to set up the computer.
I	A partition has already been created. If you proceed, any data stored on the partition will be lost.
	Copying files
\bigcirc	Changing media
	Start
	Setup

14. Insert the EXPRESSBUILDER disk into the optical disk drive, and then click OK.

	Insert EXPRESSBUILDE	ER.	Message ID : J2002]	
0				

15. Insert the OS installation media into the optical disk drive, and then click OK.

 Insert an OS inst	allation disc for i	nstalling.		
		[]	Aessage ID : J20	000]

The Starter Pack and the selected applications are automatically installed.
 Wait until the process completes without performing any operation.



Screen displayed when Starter Pack is being installed



Screen displayed when an application is being installed

17. Read the terms of License Agreement.

If you agree, select I accept the license terms, and then click Start.

Please	read the license terms.
MICROS	OFT SOFTWARE LICENSE TERMS
MICROS	OFT WINDOWS SERVER 2012 STANDARD
These lie	cense terms are an agreement between you and
• the :	server manufacturer that distributes the software with the server; or
the :	software installer that distributes the software with the server.
Please ri apply to	and them. They apply to the software named above, which includes the media on which you received it, if any. The terms also any Microsoft
· upda	otes,
. supp	ements,
- Inter	met-based services, and
· supp	ort services
for this s from Mic with the	oftware, unless other terms accompany those items. If so, those terms apply, If you obtain updates or supplements directly orandi, Microsoft, and not the manufacturer or installer, licenses those to you. Finited paper license terms, which may come software, take jaked and you access theories terms.
lac	ccept the license terms for using Windows

18. When the following message appears, press <Ctrl> + <Alt> + keys to sign-in.



When the following message appears, enter your password.



19. Click OK.



20. When ft Server Setup list appears, confirm the list items.

Provide setup for the item which is unchecked.

📕 ft Server Setup list	-		x		
ft Server Control Software [Version : 9.1.0000.00] was installed. Refer to the Installation guide (Windows), follow the procedures below to setup. And check the following checkbox.	o com	plete			
1. Install NEC ESMPRO Agent					
2. Install Options (LAN, SAS, Fibre Channel board)					
3. Update Software					
4. Configure duplex LAN					
5. Configure dual Disk					
6. Create Volume					
7. Change setting of SNMP service for NEC ESMPRO Agent					
8. Enable OS Boot Monitoring					
9. Setup for Solving Problems					
10. Back up System Information					
 If Symantec pcAnywhere is installed, system may not operate normally, for example, system may not become duplex. 					
 When ARCserve Backup or Backup Exec is installed, if the services of these backup softwares have started before system becomes duplex, system may not become duplex or the backup software may not operate normally. 					
This dialog is displayed also at next logon		Histor			
		HISCOI	y		

□ Install Options (LAN, SAS, Fibre Channel Board)

If you have an option board that is not yet installed, install it according to Chapter 2 (6.7 PCI Card) in Maintenance Guide.

Update Software

See Chapter 1 (3.7.1 Applying ft Server Control Software Update Module).

Configure duplex LAN

See Chapter 1 (3.8 Duplex LAN Configuration).

Configure dual Disk

See Chapter 1 (3.9 Configuring Duplexed Disks).

□ Create Volume See Chapter 1 (3.10 Creating Volume).

□ Change setting of SNMP service for NEC ESMPRO Agent

As described in Chapter 2 (1.1 NEC ESMPRO Agent (for Windows), setup SNMP service by referring to NEC ESMPRO Agent Installation Guide (Windows).

Enable OS Boot Monitoring See Chapter 1 (3.12 Enabling OS Boot Monitoring Feature). Setup for Solving Problems

See Chapter 1 (5. Setup for Solving Problems).

Tips

If necessary, perform license authentication procedure according to Chapter 1 (3.13 License Authentication).

Back up System Information

See Chapter 1 (7. Backing Up System Information).

Setup with EXPRESSBUILDER is now complete.

3.3 Setup with Windows Standard Installer

This section describes how to install Windows with Windows Standard Installer.



3.3.1 Setup flow



3.3.2 Requirements for Setup

Prepare the following media and instruction manuals before starting setup.

- > Either of the following OS installation media
 - NEC operating system installation media (hereafter referred to as Backup DVD-ROM)
 - Microsoft operating system installation media (hereafter referred to as *Windows Server 2012 DVD-ROM*)
- First Steps Guide
- > EXPRESSBUILDER DVD
- > ft Server Control Software UPDATE media

Used to update ft Server Control Software. This might not be provided with your server.

- > Prepare if needed:
 - Removable media for Windows OS parameter file
 - ft Server Control Software update module See Chapter 1 (3.7.1 Applying ft Server Control Software Update Module) for more information.

3.3.3 Before setting up

Before starting setup, read through Chapter 1 (3.1 Before Starting Setup) for successful setup.

3.3.4 Setup procedure

- 1. Prepare for setup according to Chapter 1 (3.1.2 Preparation).
- 2. Be sure to disable OS Boot Monitoring feature according to *Chapter 1 (3.1.3 Disabling OS Boot Monitoring Feature)*.

Important OS Boot Monitoring feature is enabled by the shipping default. Setup process will fail if this feature is enabled.

- 3. Power on the display unit, and then power on the server.
- 4. Start EXPRESSBUILDER according to Chapter 1 (1.1 Starting EXPRESSBUILDER).
- 5. When the following message appears, select OS installation *** default ***.

Boot selection
OS installation *** default *** Tool menu
Automatic boot in 7 seconds

The following window appears.

Starting EXPRE	SSBUILDER	
: Stow Delek	o	

The server starts from EXPRESSBUILDER.



6. Select **English** on the language selection window, and then click **OK**.

EXPRESSBUILDER
Cuestion 東示する言語を選んでください。 Select the language for displaying. 日本語 ◎ English ○ Français ○ Italiano ○ Deutsch ○ Español

7. Click Setup.

Setur	the computer	₽
	Veneiene	
	Versions	
٥	Exit	

8. On the OS selection menu, select the OS to install or specify the parameter file.

When not using parameter file:	Go to Step 9.
When using a parameter file:	Go to Step 10.

- **Note** When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.
- 9. When not using a parameter file, select an OS by either of the following two ways:

1 se	elect an operating system to i	nstall.
(CI	ick Manual Selection to configure a RAID ar	rray only)
e	Automatic Detection	
	Manual Selection	
Ŀ	Load Settings	

To automatically detect the OS on the OS installation media:

(1) Click Automatic Detection.

1 2 3 Settings Conf	Irmation Installation
Select an operating system	n to install.
(Click Manual Selection to configure a	RAID array only)
Automatic Detection	ı 💦
Select an operating system automatically with an installation disc.	
Load Settings	
	Setup

Insert the OS installation media, and then click $\ensuremath{\text{OK}}$.

0	Question				
	То	check your OS installat	ion disc, insert it into th [Me:	e computer. sage ID : B2014]	
	?				
		ОК	Cancel		

(2) Click \bigcirc on the right side of the screen.

1 OS selection	n Settings	3 Confirmation	4 Installation	
Sele	ect an operatin Manual Selection to	g system to insi configure a RAID array	tall.	
¥ [9	Automatic De	etection		C
	Manual Selec	ction		
B	Load Setting	5		
			Sefi	Jp

To select an OS from the menu:

(1) Click Manual Selection.

Select an operating syste (Click Manual Selection to configure	re a RAID array only)
Automatic Detection	ion
Manual Selection	\$
You can select the target OS of the installation from the menu.	
	Coffi

(2) From the pull-down menu, select Windows Server 2012, and then click OK.

2010			
V	Windows	Windows Server 2012	
	√Mware		

(3) Click \bigcirc on the right side of the screen.

1 OS sele	ction Settings	3 Confirmation	4 Installation	
1 s	elect an operatir Nick Manual Selection to	ng system to ins o configure a RAID array	tall. only)	
e	Automatic D	etection		\bigcirc
•	Manual Sele	ction		
Þ	Load Setting	s		
			Set	lup

10. When *using* the parameter file, click **Load Settings**.

1 OS selec	tion Settings	3 Confirmation	4 Installation
Se	elect an operatin	g system to ins configure a RAID array	tall.
	Automatic De	etection	
	Manual Selec	tion	
Þ	Load Settings	5	<i>w</i>
Load	installation settings.		Setup

mnt usr_conne	ct		
<u>P</u> laces	Name		▼ Modified
i root	🗁 cdrom1		Tuesday
File System			
	:		
	1		
💠 <u>A</u> dd 🛛 📟 <u>R</u> emo	ve		
	,		
		X <u>C</u>	incel 🕞 Open
			SOFT

Follow the on-screen instruction to load the parameter file (*.tre).

Tips

For the removable media in which the parameter file is saved, see "/mnt/usr_connect/usb*" (* indicates a number).

Click \bigcirc on the right side of the screen.

1 Se	lect an operating system to install.
(Cli	:k Manual Selection to configure a RAID array only)
Ľ	Automatic Detection
	Manual Selection
< B	Load Settings

When the following screen appears, click \bigcirc on the right side of the screen. Click **Custom** to check and modify the setting in the wizard.

2	Litter	Installation	settings.		
(D	efault			(
~ (C	ustom			C

 \rightarrow Go to step 12.

11. Click Custom.



(1) RAID Configuration is unavailable on this server. Click Next.

Device Information		
RAID Controller	: No RAID contr	oller is detected.
Number of Physical Drive	s : 1	
Summary of RAID Array		
	*	
RAID Configuration		
Skip Configuring RAI) Array	

(2) Check the settings specified for Basic Settings.

Select Use Windows standard installer, and then click Next.

Basic Settings			
Operating system	: Wi	ndows Server 2012	
Use Windows Copy OEM	standard installer drivers to removable n	nedia	
O Install Windows	using EXPRESSBUILD	ER erver with a GUI)	1
Language Time Zone	: (UTC-08:00)) Pacific Time (US &	Canada) 🛛 🗐
			4 / 10 P

(3) On the following screen, click \bigcirc on the right side of the screen.



12. Check the parameter settings. To save the settings, click **Save**.

-

Click \bigcirc on the right side of the screen.

13. The setup process starts.

Click Start to continue setup.

	1 OS selection	2 Settings	3 Confirmation	4 Installation	
	Ready	to set up the	e computer.		
	A partition If you pro	i has already been ci ceed, any data store	reated. Id on the partition will be	lost.	
	* Chan	ging a CD/DVD			
\bigcirc	* Instal	lling an OS			
		s	Start		
				Sefi	q

14. Proceed with setup according to on-screen message.

Insert the OS installation media into the disk drive, and then click OK.

	Insert an OS installation	ı disc for installing.	I Massage ID	120001
			t message in	
6				

- 15. The server reboots automatically.
- 16. The system starts from the OS installation media.

If an operating system is already installed on the hard disk drive, the message "Press any key to boot from CD or DVD..." is displayed on the top of the screen. Press **<Enter>** key to boot from OS installation media.

The boot sequence proceeds and the message "Windows is loading files..." appears.



This step is unnecessary if no operating system exists.

17. Click Next at default settings.

🖆 Windows Setup	
Windows Server 2012	
Language to install: <mark>English (United States)</mark>	
Time and currency format English (United States)	•
Keyboard or input method: US	•
Enter your language and other preferences and click "Next" to continue.	
© 2012 Microsoft Corporation. All rights reserved.	<u>N</u> ext

18. Click Install Now.

Windows Server 2012 installation starts.

Wind	lows Setup	
🕂 Win	dows Server 201	2
	Install now	
<u>R</u> epair your computer		
© 2012 Microsoft Corporation. All rights reserved.		

19. Select the operating system to install, and the click Next.

The screen display differs depending on an OS installation media you are using.

Select the operating system you want to install			
Operating system Windows Server 2012 Standard (Server Core Installation) Windows Server 2012 Standard (Server with a COII)	Architecture x64 x64	Date modified 7/26/2012 7/26/2012	
Decopions Decopions Decopions is useful when a GUI is required—for example, to application that cannot be non on a Server Core installation. A supported. You can which be a different installation option to Options."	provide backward II server roles and I ter. See "Windows	compatibility for an leatures are Server Installation	
		Net	

- 20. Confirm the content of the license agreement.
 - If you agree, select I accept the license terms and then click Next.

License terms	
MICROSOFT SOFTWARE LICENSE TERMS	<u>^</u>
MICROSOFT WINDOWS SERVER 2012 STANDARD	
These license terms are an agreement between you and	
the server manufacturer that distributes the software with the server; or	
 the software installer that distributes the software with the server. 	
Please read them. They apply to the software named above, which includes the media on which you received it, if any. The terms also apply to any Microsoft	
· updates,	
 supplements, 	
	×
I gccept the license terms	
	Next

21. Select the installation type.

Select Custom: Install Windows only (advanced) in this case.

🕑 🕂 Windows Setup	
Which type of installation do you want?	
Upgrade: Install Windows and keep files, settings, and applications The files, settings, and applications are moved to Windows with this sptein. The option is only available when a supported version of Windows is already running on the computer.	
Custom: Install Windows only Labranced) The file, settings, and applications aren't moved to Windows with this option. If you want to information of the setting of the setting of the setting of the installation disc. We recommend buckling up your files before you cardina.	
Lible me deside	
1 Cellecting information 2 Installing Windows	

22. If the disk has no OS installed, click Drive options (advanced).

W	here do you want to install Wir	ndows?		
	Name	Total size	Free space Type	
	Drive 3 Unallocated Space	1861.7 GB	1861.7 GB	
0	Load driver			
			Net	

If you are going to setup the disk with OS being installed, go to the next step. If the partition has already been created, go to step 26.

23. Click New.

windows 021 22/1* =7048011	も選んでください。		
名前 	<u>合計サイズ</u> ない機械 698.5 GB	空き鏡板 種類 698.5 GB	
◆●最新の情報に更新(B) ×	削除(D) - マット(E)	* 16(R)(E)	
● ドライバーの読み込み()	1634(2)		

24. Specify the partition size in the Size, and the click Apply.

	😧 🕰 Windows Setup
	Where do you want to install Windows?
	Name Total size Free space Type
	4g Bathach ∑Dalea ∉Econaz
	Ber
1 Collecting inform	nrifon 2 Installing Windows
Note	The partition size must be 2TB or smaller.
Tips	When creating new partition, 350MB of boot partition is secured. When the following message appears, click OK .
	Windows Setup
	To ensure that all Windows features work correctly, Windows might create additional partitions for system files.
	OK Cancel

- 25. Select the partition created in step 24, and then click Format.
- 26. Select the created partition, and then click Next.

G	🔣 Windows Setup						
	Where do you want to install Win	dows?					
	Name Drive 3 Partition 1: System Reserves Drive 3 Partition 2	Total size 3 350.0 MB 1861.4 GB	Free space Type 320.0 MB System 1861.4 GB Primary				
	fg-Batrach X Daleta @ Load driver 20 Egtend		- Mgw				
			Next				
ting information 2	Installing Windows						
					-		
Time	The number	of par	itions display	ed differs	dependina	on the	hardw

When the following message appears, Windows installation starts automatically.



27. Type a password and click **Finish**.

	Setting	S	
	Type a password for the to this computer.	e built-in administrator account that you can	use to sign in
	User name	Administrator	
	Password		
	Reenter password		
Ŷ			Finish

28. To Sign-in to Windows Server 2012, press <Ctrl> + <Alt> + on the screen below.



29. Type the password and press Enter.



Windows Server 2012 starts.

30. The following screen appears according to the contents selected (or displayed) in Step 19.



- 31. Install Starter Pack by referring to Chapter 1 (3.4 Installing Starter Pack).
- 32. Install the ft Server Control Software according to *Chapter 1 (3.5 Installing ft Server Control Software)*. When installation completes, Setup Checklist appears on screen.
- 33. Install the NEC ESMPRO Agent.

Tips	See Chapter 2 (1.1 NEC ESMPRO Agent (for Windows) for installation of NEC ESMPRO
	Agent.

34. When **ft Server Setup list** appears, confirm the list items. Provide setup for the item which is unchecked.

It Server Control Software (Version : 9.1.0000.00) was installed. Refer to the Installation guide (Windows), follow the procedures below to complete setup. And check the following checkbox.			
1. Install NEC ESMPRO Agent			
2. Install Options (LAN, SAS, Fibre Channel board)			
3. Update Software			
4. Configure duplex LAN			
5. Configure dual Disk			
6. Create Volume			
7. Change setting of SNMP service for NEC ESMPRO Agent			
8. Enable OS Boot Monitoring			
9. Setup for Solving Problems			
10. Back up System Information			
 If Symantec pcAnywhere is installed, system may not operate normally, for example, system may not become duplex. 			
 When ARCserve Backup or Backup Exec is installed, if the services of these backup softwares have started before system becomes duplex, system may not become duplex or the backup software may not operate normally. 			
This dialog is displayed also at next logon			

□ Install Options (LAN, SAS, Fibre Channel board)

If you have an option board that is not yet installed, install it according to Chapter 2 (5.7 PCI Card) in Maintenance Guide.

Update Software

See Chapter 1 (3.7.1 Applying ft Server Control Software Update Module).

Configure duplex LAN

See Chapter 1 (3.8 Duplex LAN Configuration).

Configure dual Disk

See Chapter 1 (3.9 Configuring Duplexed Disks).

Create Volume

See Chapter 1 (3.10 Creating Volume).

□ Change setting of SNMP service for NEC ESMPRO Agent

As described in Chapter 2 (1.1 NEC ESMPRO Agent (for Windows), setup SNMP service by referring to NEC ESMPRO Agent Installation Guide (Windows).

□ Enable OS Boot Monitoring

See Chapter 1 (3.12 Enabling OS Boot Monitoring Feature).

Setup for Solving Problems

See Chapter 1 (5. Setup for Solving Problems).

Tips

If necessary, perform license authentication procedure according to Chapter 1 (3.13 License Authentication).

Back up System Information

See Chapter 1 (7. Backing Up System Information).

Setup with Windows standard installer is now complete.

3.4 Installing Starter Pack

Starter Pack contains drivers customized for this server. Be sure to apply Starter Pack before running the system.

Important	Also install Starter Pack in the following cases.
	 The system configurations have changed (when internal option devices have been added or removed) If a dialog box prompting you to restart appears after changing system configurations, click No and then install Starter Pack. If the system was restored using a restore process
	 If a system has been restored using the backup tool
Note	The Scalable Networking Pack (SNP) function is disabled upon Starter Pack installation is complete. The setting of SNP function may affect the system performance.
Tips	If the OS is installed by using EXPRESSBUILDER, Starter Pack is already applied. If the configuration is not changed, you do not need to apply Starter Pack again.

- 1. Log in to the system with the built-in administrator (or user with administrative privileges).
- 2. Insert EXPRESSBUILDER DVD into the optical disk drive.
- 3. Click Integrated Installation on the menu.

10	EXPRESSBUILDER	
Autorun R	lenu	Version 7.00-000.00 (000)
	Instruction Manual	
0	Versions	
F	Integrated Installation	\supset
	Applications	
	Exit	

On the following screen, make sure that the Starter Pack option is selected, and then click Install.

	Setup
Install the following software - Unable to select [Applications - Uninstall the application origo © Starter Pack T Server Control Software Applications - NEC ESMPRO Agent - Express Report Servic - Product Info Collection - BMC Configuration	Setup when Starter Pack is not installed. o reinstalling the application. (HTTPS) Utility
Tins If Start	er Pack is already installed, the ft Server Control Software is selected by
iips ii etait	

- default. To install Starter Pack again, select the **Starter Pack**.
- 4. Read the message, and then click OK.
 - Starter Pack installation starts.



5. The following message appears when Starter Pack installation is complete.

Follow the instructions in the message, and remove EXPRESSBUILDER DVD.



6. Click **OK** to restart the system.

Installation of Starter Pack is now complete.

3.5 Installing ft Server Control Software

You must quit all programs including Microsoft management console.

1. Install ft Server Control Software in the following procedure.

When ft Server Control Software UPDATE media is not provided:

- (1) After logging on to the system as a user with the Administrative account, insert the EXPRESSBUILDER DVD into the optical disk drive of the server.
- (2) On the menu screen, click Integrated Installation, select ft Server Control Software on the menu, and then click Install.

Setup	
Install the following software. - Unable to select [Applications] when Starter Pack is not installed. - Uninstall the application prior to reinstalling the application. O Starter Pack I Server Control Software	
NEC ESMPRO Agent Express Report Service Express Report Service (HTTPS) Product Info Collection Utility BMC Configuration	
Install Cancel	

When ft Server Control Software UPDATE media is provided:

Install ft Server Control Software from the UPDATE media according to *Instruction Manual* that comes with the media.

Follow the instructions to proceed with the installation.

Note	The message "ft Server Control Software, Now Installing Please Wait." is displayed
	during installation.
	Do not use the keyboard or mouse while this message is being displayed.

- 2. When installation starts, a message "If there is a disc in the DVD drive, please remove it." will be displayed. If EXPRESSBUILDER DVD is set in optical disk drive, remove it.
- 3. The system is rebooted several times during the installation. After the system is rebooted, log in again as the user logged in before rebooting.

Installation of the ft Server Control Software resumes after you logged on.

4. When the message "Installation is finished" is displayed, click **OK** to reboot the server.

Note

Change the screen to check the message by using the taskbar, as the message may hide behind the screen.

3.6 Installing Applications

EXPRESSBUILDER contains applications including NEC ESMPRO Agent and NEC ESMPRO Manager. Some applications stored in EXPRESSBUILDER can be installed collectively by performing the procedures described below. When installing these applications individually, see *Chapter 2 (Installing Bundled Software)*. This feature is available only on the server with Full Installation.

- 1. Logon to Windows on the server with the Built-in Administrator (or an account having administrative privilege).
- 2. Insert the EXPRESSBUILDER DVD into the optical disk drive and run \autorun\dispatcher_x64.exe.
- 3. Click Integrated Installation on the menu.

	EXPRESSBUILDER	×
Autorun N	Aenu	Version 7.00-000.00 (000)
	Instruction Manual	
0	Versions	
P	Integrated Installation	\supset
	Applications	
	Exit	

4. On the following screen, select **Applications**, and select the check boxes corresponding to the applications to install, and then click **Install**.

Setup	
Install the following software. - Unable to select (Applications) when Starter Pack is not installed. - Uninstall the application prior to reinstalling the application.	
Starter Pack ft Server Control Software	
Applications INEC ESMPRO Agent Express Report Service Express Report Service (HTTPS) Product Info Collection Utility BMC Configuration	
Install Cancel	

Note	•	Applications available for installation are selected by default.
	•	An application that has been already installed need to be uninstalled before installing it
		again.
	•	If your system environment does not satisfy the prerequisite for an application, you
		cannot install it. (For details, refer to the on-screen information and Chapter 2
		(Installing Bundled Software.)

The selected applications are installed automatically.

5. When a message appears, click **Restart**, and then remove the EXPRESSBUILDER disk from the optical disk drive.

Now installation of applications is completed.

3.7 Setup Various Software

3.7.1 Applying ft Server Control Software Update Module

If you use ft Server Control Software UPDATE media, refer to the installation procedure enclosed in the UPDATE media to apply the update.

Note

•	Be sure to disable OS Boot Monitoring feature before updating ft Server Control Software according to <i>Chapter 1 (3.1.3 Disabling OS Boot Monitoring Feature)</i> . In addition, disconnect all the network cables from the server before starting update.
•	Upon completion of update, set OS Boot Monitoring feature to Enabled .
•	If ft Server Control Software is updated in dual LAN configuration, the name of team is deleted from display name of LAN card. It does not affect system operation, however, if you want to return them to original state, remove the team and create it again.
•	When you update ft Server Control Software in the state of non-activating the LAN port which is not used, the LAN port is activated after updating. You need to make the LAN port to non-activation state again.

3.7.2 Applying Security Patches and QFE

When applying security patches and QFE, there is no restriction specific to ft Server is imposed. Apply patches according to your system environment.

Important

As for Windows service pack, use only the one provided with the server. Do not apply any other service pack.
3.8 Duplex LAN Configuration

The Express5800/ft series builds a duplex LAN configuration by using "Stratus emb-82576 2-Port Gigabit Adapter" or "Stratus emb-X540 2-Port Copper 10 Gigabit Adapter (*)" mounted as standard on the CPU/IO module and the additional LAN card "Stratus 82576 2-Port Copper Gigabit Adapter" or "Stratus X540 1-Port Copper 10 Gigabit Adapter".

(*) Express5800/R320c-E4 and R320d-E4 does not have this adapter.

(1) Overview

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

• Adapter Fault Tolerance (AFT)

AFT is a feature that places more than one LAN adapters on the same switch, and automatically switches the process of the active adapter to the backup adapter when any trouble occurred on the active adapter. STP (Spanning Tree Protocol) on switch must be disabled.

Adaptive Load Balancing (ALB)

ALB includes features of AFT, and enhances the throughput by distributing packet transmission by using LAN adapters simultaneously.

Receive Load Balancing (RLB) is enabled by default. Disable RLB and remove adapter priority when using ALB.

• Switch Fault Tolerance (SFT)

SFT is a feature that provides redundant network, as two adapters are connected to corresponding two switches. One is assigned to the active adapter and the other is assigned to the standby adapter. Usually the active adapter is used for communication.

Spanning Tree Protocol (STP) function is required to construct the path redundancy on the switch devices.

When you build the environment, you need to set the switch priority in order to maintain the path to the active adapter after the path information is updated if a switch on the path is broken. In addition, you need to set the priority to use the standby adapter's switch if the active adapter's switch is broken.

The other modes, "Static Link Aggregation", "IEEE 802.3ad Link Aggregation", and "Virtual Machine Load Balancing" do not contribute to enhancement of network availability. When a fault occurs, the communication performed on the failed adapter is not taken over by the standby adapter but lost.

(2) Rules of Duplex Configuration on Express5800/ft series

When building duplex configuration, be sure to use both adapters CPU/IO module 0 and 1.

Example 1) Configure the duplex network which enhances the service life by using all adapters.



Example 2) Configure the duplex network which corresponds to multiple LAN connection.



(3) Configuring Duplex LAN

This section describes how to configure duplex LAN.

Note

- Because the configuration from the remote site may fail, you need to log on as an Administrator or a member of Administrators group.
 The screen images are subject to change because of the network driver version.Substitute as appropriate when content has been modified.
- 1. Select Start \rightarrow Administrative Tool \rightarrow Computer Management \rightarrow Device Manager.

Note	Check Network Adapter , and if LAN adapters are duplicated as shown below, remove all LAN adapters from Device Manager , then select Action – Scan for hardware changes .
	Stratus emb-82576 2-Port Gigabit Adapter
	Stratus emb-82576 2-Port Gigabit Adapter
	Stratus emb-82576 2-Port Gigabit Adapter #2
	Stratus emb-82576 2-Port Gigabit Adapter #2
	The display will be as follows when the actions are performed properly.
	Stratus emb-82576 2-Port Gigabit Adapter
	Stratus emb-82576 2-Port Gigabit Adapter #2
	Stratus emb-82576 2-Port Gigabit Adapter #3
	Stratus emb-82576 2-Port Gigabit Adapter #4
	When 10GBASE-T is used, the network adapter names"Stratus emb-X540 2-Port Copper
	10 Gigabit Adapter" and "Stratus X540 1-Port Copper 10 Gigabit Adapter" are displayed.

2. Select a target LAN Adapter. Select **Properties** from the right-click menu to open the **Properties** window.

2	Computer Manager	nent		_ 🗆 X
File Action View Help				
🗢 🄿 🖄 🖬 🗐 🚺	👰 🖹 🍢 🎜			
🜆 Computer Management (Local	⊿ 🚔 WIN-SV13V4040MI		^	Actions
⊿ 👔 System Tools	Image: Computer			Device Manager
Description: De	Disk drives			Device Manager =
Event Viewer	Display adapters			More Actions
Shared Folders	DVD/CD-ROM drives			
Local Users and Groups	Human Interface Devices			
Performance	b			
🚔 Device Manager	Mice and other pointing devices			
⊿ 📇 Storage	Monitors			
Windows Server Backup	⊿ Yetwork adapters		≡	
🔤 Disk Management	Microsoft Kernel Debug Network Adapter			
Services and Applications	Stratus emb-82576 2-Port Gigabit Adapter		-	
	Stratus emb-82576 2-Port Gigabit Adapter	Update Driver Software		
	Stratus emb-82576 2-Port Gigabit Adapter	Disable		
	Stratus emb-82576 2-Port Gigabit Adapter	Uninstall		
	Stratus emb-X540 2-Port Copper 10 Gigabi	Com for book on above a	-11	
	Stratus emb-X540 2-Port Copper 10 Gigabi	Scan for hardware changes	_	
	Stratus emb-X540 2-Port Copper 10 Gigabi	Properties		
	Stratus emb-X340 2-Port Copper 10 Gigabler		78	
	Print queues Processors		Ц	
< III >	Processors		×	1
Opens property sheet for the current	t selection.			

3. Select the **Teaming** tab on the **Properties** dialog box. Select the **Team this adapter with other adapters**, and then click the **New Team...** button.

Stratus em	b-82576	2-Port	Gigabit Ad	lapter Pro	perties 🗙		
General	General Link Speed Advanced Power Management						
Teaming	VLANs	Driver	Details	Events	Resources		
intel	Adapter Teaming						
	this adapter	r with othe	r adapters				
Tea	<u>m</u> :			<u>N</u> ew T	eam		
No	teams availa	ble	\sim	Proper	ties		
Team with Allows yo participate If not che	other adapte ou to specify e in a team. I cked this ad	ers y whether For an ov apter is n	a network cor erview of team ot part of a tea	nnection will ning, <u>click her</u> m.	r <u>e.</u> ^		

Stratus emb-82576 2-Port Gigabit Adapter and Stratus 82576 2-Port Copper Gigabit Adapter is used

Stratus emb-X540 2-Port Copper 10 Gigabit Adapter 💌
General Link Speed Advanced Power Management Data Center
Teaming VLANs Boot Options Driver Details Events Resources
Adapter Teaming
Team:
No teams available
Team with other adapters Allows you to specify whether a network connection will participate in a team. For an overview of teaming, <u>click here</u> . If not checked this adapter is not part of a team.
~
OK Cancel

Stratus emb-X540 2-Port Copper 10 Gigabit Adapter and Stratus X540 1-Port Copper 10 Gigabit Adapter is used 4. Enter the team name and click Next.



5. Select the adapters to include in the team and click Next.



Note

Check "PCI bus" and "Function (*)" of adapters to be included in the team. Use adapters of the same functionality. Create a team with an adapter having smaller PCI bus number and an adapter having larger PCI bus number. (*) "Function" can be verified in General tab of Properties window. PCI bus: Smaller value (PCI module #0 side) Larger value (PCI module #1 side) Function: 0 (Port #0 side) 1 (Port #1 side) Example: Team 0 PCI bus (smaller value), Function 0 (Port #0 side) PCI bus (larger value), Function 0 (Port #0 side) Team 1 PCI bus (smaller value), Function 1 (Port #1 side) PCI bus (larger value), Function 1 (Port #1 side)

6. Select Adapter Fault Tolerance, Adaptive Load Balancing, or Switch Fault Tolerance as a team mode. Click Next.



Note

Virtual Machine Load Balancing is displayed when Hyper-V feature is enabled.

7. Select Standard Server from the dropdown list on Select a profile to apply to the team, and click Next.



The dialog box "**Select a profile to apply to the team**" may not be displayed. In such a case, go to Step 8.

New Team Wizard	
Select a grofile to apply to the team: Standard Server Select the Profile for the team. Selecting a profile sets several Advanced options on al adapters in the team for optimal performance for that role. Standard Server – This profile is optimized for typical servers. Web Server – This profile is optimized for IS and HTTP based web servers. Virtualization Server – This profile is optimized for Microsoft Shyper-V virtualization environment. Storage Server – This profile is optimized for Fibre Channel over Ethernet or for ISCSI over DCB performance.	^
< Back Next > Cance	4

8. Click Finish.

New Team Wizard
The wizard has the settings needed to create the team. You can view and modify the settings for these adapters from the team properties dialog.
< Back Finish Cancel

- 9. Start Command prompt and enter as follows to check the physical MAC address of team adapter.
 - > ipconfig /all

C:N.	Administrator: Command Prompt	×
Ethernet adapte Media State Connection-s Description Physical Add DHCP Enabled Autoconfigur	Ethernet 10: ecific DNS Suffix . : ess : TEAM : Team #0 ess : 00-25-5C-A6-A2-55 : Yes tion Enabled : Yes	~
<	III >	

10. Select the Team Adapter you have set from **Device Manager**. Select **Properties** from the right-click menu to open the properties dialog box.



- 11. Set the MAC address for Team Adapter as follows:
 - Select the Advanced tab on the Properties dialog box. Select Locally Administered Address from the Settings list box
 - Enter the MAC address of a Team Adapter, which you have checked in Step 9 in the Value: text box.
 - Click OK.

TEAM : Team #0 Properties
General Settings Advanced VLANs Driver Details Events
Advanced Team Settings
Settings: Value: Activation Delay Allow Failback Check Time (in Seconds) Locally Administered Address Probes
Use Default
Changes the MAC address used by this network adapter. The address is a 12-digit hexadecimal number in this range: 0000 0000 0001 - FEFF FFFF FFFF. CAUTION: Make sure no other systems on the network
 use this address. Notes Do not use a multicast address (least significant bit of the high byte = 1)
OK Cancel

- 12. Disable probe function when the team configured with only two adapters.
 - Select the Advanced tab in the Properties window. Select Probes from the Settings list box.

TEAM : Team #0 Properties
General Settings Advanced VLANs Driver Details Events
Advanced Team Settings
Settings:
Allow Failback Check Time (in Seconds) Locally Administered Address
Probes
Enables the use of probes for the team. Probes are packets passed over the network between team members to allow the Advanced Network Services (ANS) Teaming software to test the member's status. They do add a small amount of traffic to the network and should be turned off in near-capacity networks
Note: Changing this setting may cause a momentary loss of connectivity.
OK Cancel

- Click Properties and uncheck to Send Probes.

Probes		x
Send probes		
Number of probes to send		
10		
Probe type		
 Broadcast 		
○ Multicast	Use Defaults	
Probes are packets passed over the ne team members to allow the Advanced h (ANS) Teaming software to test the me • Send Probes enables the use of p team.	twork between letwork Services mber's status. robes for the	^ ~
 Number of probes to send defin 	es the number of	_
Ok	Cancel	

- Click OK.

The Probe setting is not displayed when **Switch Fault Torelance (SFT)** feature is specified. Go to Step 13.

Note

When **Probe** is enabled in an environment where the team is configured with two adapters, if either of adapters fails, the other (healthy) adapter may be recognized as failed. If the team is configured with four adapters, you do not need to disable **Probe**.

- 13. When you select **Adaptive Load Balancing** as a team mode, you need to disable **Receive Load Balancing** and remove the adapter priority.
 - (1) Select the **Advanced** tab on the properties dialog box. Select **Receive Load Balancing** from the **Settings:** list box, and then select **Disabled** from the **Value:** drop down list.

TEAM : Team #0 Properties				
General Settings Advanced VLANs Driver Details Events				
Advanced Team Settings				
<u>S</u> ettings: <u>V</u> alue:				
Activation Delay Allow Failback Check Time (in Seconds) Load Balance Refresh Rate Locally Administered Address Probes Receive Load Balancing				
Use Default				
Allows you to enable or disable Receive Load Balancing (RLB). This is enabled by default on Adaptive Load Balancing teams. RLB requires a Primary adapter. Intel® PROSet will automatically assign a Primary adapter when the team is created. To change the Drimary adapter use the Modify Team button on the				
Notes: ALB and RLB load balance IP traffic. All other terffic is bandled by the Drimons a dealer				
OK Cancel				

- (2) Click **OK** to apply a change. The dialog will close.
- (3) Show the properties dialog again.
- (4) Select the **Settings** tab on the Properties dialog box and click **Modify Team** button to display the dialog box.
- (5) Select the adapter that the priority is set, and then press the **Remove Priority** button to remove the priority.

	Team #0	?	x
Adapters Type Nam	ne		
Select the adapters t	o include in this team: '6 2-Port Gigabit Adapter	Priority Primary	^
Stratus emb-8257	6 2-Port Gigabit Adapter # 6 2-Port Gigabit Adapter # 6 2-Port Gigabit Adapter # III	2 3 Not Set 4	~
Set <u>P</u> rimary Set <u>S</u> econdary		Remove Priority	
This list shows the a Networking Services support ANS teaming are otherwise unable	idapters that are available f s (ANS) teaming. Adapters g, are already members of a e to join a team. are not liste	for Advanced that do not another team, or ed.	^
Adapters with a che ANS team. The Prior to Primary or Second	ck next to them are current ity column shows if a team dary.	ly included in the ed adapter is set	~
		OK Ca	ancel

(6) Click **OK** to close the dialog box.

3.9 Configuring Duplexed Disks

Express5800/ft series secures data by setting dual disk configuration using RDR (Rapid Disk Resync) function. Be sure to make dual disk settings according to the procedure described below.

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 performing procedure in <i>Chapter 1 (5. Setup for Solving Problems</i>).
	•	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.
	•	All hard disk drives installed in built-in slots need to be duplexed. See Chapter 1 (3.9 (1) Setting Dual Disk Configuration by RDR (Rapid Disk Resync) function) and duplex the hard disk drives in each slot.

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

The server 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 OS (such as Disk Management and Device Manager).



Slots corresponding to the mirroring process

Corresponding slot	
PCI module 10 Slot 0 ⇔ PCI module 11 Slot 0	
PCI module 10 Slot 1 ⇔ PCI module 11 Slot 1	
PCI module 10 Slot 2 ⇔ PCI module 11 Slot 2	
PCI module 10 Slot 3 ⇔ PCI module 11 Slot 3	
PCI module 10 Slot 4 ⇔ PCI module 11 Slot 4	
PCI module 10 Slot 5 ⇔ PCI module 11 Slot 5	
PCI module 10 Slot 6 ⇔ PCI module 11 Slot 6	
PCI module 10 Slot 7 ⇔ PCI module 11 Slot 7	

In the table above, PCI module names correspond as follows:
 PCI module (for CPU/IO module 0) - PCI module 10
 PCI module (for CPU/IO module 1) - PCI module 11

N	ote
	ULC.

	•	To perform	this procedure	e, you need to	log on as an A	Administrator.
--	---	------------	----------------	----------------	----------------	----------------

- RDR can only be set on the basic disk inserted into the built-in slot of NEC Express5800/ft series. It cannot be set on the dynamic disk.
- For the disk on which RDR is set, use the products with the same model 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.
- Be sure to use a basic disk as the system disk. Only a data disk can be used for a dynamic disk.

Dual disk configuration procedure differs depending on the procedure whether it is for the system disk (slot 0) or the data disk (slot 1 to slot 7).

Tips

To configure the dual disk of the system disk, see (2) System Disk Dual Configuration Procedure below.

To configure the dual disk of the data disk, see (3) Data Disk Dual Configuration Procedure below.

(2) System Disk Dual Configuration Procedure

Configure the dual disk of the system disk with the following procedure.

From Start, click RDR Utility to start RDR Utility.

1. On the left pane of the RDR Utility, select Slot 0 of PCI Module 10 and confirm that "ConfigState" on the right pane shows "Boot, Configured, Active, Imported".

🗊 RDR Utility (ft-SW :					
<u>File Action H</u> elp					
PCI module 10	Name	Value			
Sof Enclosure Slot 0 - Harddisk0-LUN1-PLEX0 Slot 1 Slot 2 Slot 3 Slot 4	DevicePathiD Op State: State Op State: Reason Vendor ProductID ProductID ProductRevisionLevel SerialNumber	10/40/7/0 Simplex None SEAGATE ST9146853SS N005 6XM030/50000S128NGD0			
Slot 5 Slot 6	ObjectName Capacity	Harddisk0-LUN1-PLEX0 136.44 GB			
Slot 7 ⇒ PCI module 11 ⇒ SCSI Enclosure → Slot 0 → Slot 1 → Slot 2 → Slot 3 → Slot 4 → Slot 5 → Slot 6 → Slot 7 ⇒ Logical Disk Information BDR Victual Disk 1	ConfigState M1BF: HardCurrent MTBF: HardNumberOfFaults MTBF: SoftCurrent MTBF: SoftNumberOfFaults	Boot, Configured, Active, Imported Unknown 0 Unknown 0			
	<	III >			

Tips

For details of RDR Utility, refer to Chapter 2 (1.2 Disk Operations Using RDR (Rapid Disk Resync) Function) in the Maintenance Guide.

- The display of RDR Utility does not refresh automatically. From the menu, go to Action and click Refresh or press F5 key every time you conduct disk-related operations such as connecting/disconnecting disks or configuring the RDR.
- On RDR Utility, PCI module names appear as follows.
 - PCI module (CPU/IO module 0) PCI module 10
 - PCI module (CPU/IO module 1) PCI module 11
- 2. Insert the disk for the dual configuration to the Slot 0 of PCI Module 11.

ImportantFor a disk to be inserted, use a new or physically formatted disk which has the same
capacity as the synchronization source. If such a disk is not used, disks are not
duplicated successfully.As for physical format, refer to Chapter 3 (3. SAS Configuration Utility) in
Maintenance Guide.

3. From Start, select Control Panel, Administrative Tools and start Computer Management. On the tree in the left pane, click Disk Management.

If the inserted disk is indicated as Not Initialized in the right pane, right-click the disk and initialize it.

3	Disk Management	_ D X
File Action View Help		
🗢 🔿 🗔 🔽 🖬 😫 📽		
Volume Layout	Type File System Status Capacity	Free Spa
📼 (C:) Simple	Basic NTFS Healthy (B 40.00 GB	18.07 GB 4
System Reserved Simple	Basic NTFS Healthy (S 350 MB	109 MB 3
<	Ш	>
		^
Basic System Rese 136.44 GB 350 MB NTFS Online Healthy (Syst	erv (C:) 40.00 GB NTFS Healthy (Boot, Page File, Crash I Unallocated	
Disk 1		
Unk 36 Initialize Disk		
Not Offline		
Properties		
👶 Help		_
DVD-(U)		
N. M. F.		

Important When a disk is inserted or initialized, a popup window asking for rebooting the system may be displayed, but there is no need to reboot it. Select Restart Later and close the popup window.

4. On the left tree of RDR Utility, right-click Slot 0 disk of PCI Module 11 and click Add Physical Disk To RDR Virtual Disk.



5. Click OK.



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

	DISK ACCESS LED	RDR Utility					
		Op State: State	Status				
Source disk	Amber (Blinking)	Simplex	-				
Destination disk	Amber (Blinking)	Syncing	-				
RDR Virtual Disk	_	Simplex	Resync x % (x = 0, 4, 8,, 96)				

Synchronizing

Tips

DISK ACCESS LED is lit green when hard disk drive is accessed. If access is made while synchronization is in progress (LED is blinking amber), it seems that the green and amber LEDs are lit alternately.

 The time required for synchronization varies depending on the partition size on the disk. For a 136 GB partition, it takes about 100 minutes.

di RDR	R Utility (ft-SW :	_ D X
File Action Help		
File Action Help □ PCI module 10 □ □ Slot 0 - Harddisk0-LUN1-PLEX0 □ □ Slot 1 □ Slot 2 □ Slot 2 □ Slot 4 □ Slot 5 □ Slot 6 □ Slot 7 □ PCI module 11 □ Slot 0 - Harddisk0-LUN1-PLEX1 □ Slot 7 □ □ PCI module 11 □ □ Slot 2 □ □ Slot 1 □ □ Slot 2 □ □ Slot 1 □ □ Slot 2 □ □ Slot 2 □ □ Slot 3 □ □ Slot 5 □ □ Slot 5 □ □ Slot 6 □ □ Iorical Disk Information	Name DevicePathID Op State: State Op State: Reason Vendor ProductID ProductRevisionLevel SerialNumber Capacity ObjectName Capatity ObjectName Capatity ObjectName Capatity DevicePath[1] DevicePath[1] DevicePath[2] ActiveRDRPlex ReadLoadBalancing ResyncLUNPriority Status	Value 39/1 Simplex None Stratus Data Duplex LUN 8 74bb1668-4d91-45fe-b239-e82cb8625e2e 136.44 GB Harddisk0 RDR Virtual Disk 1 10/40/1/0 H/40/1/0 Harddisk0-LUN1-PLEX0 On High Resync 12%, <mm:ss> remaining 01:00</mm:ss>
	<	III >

Important

- If the system is rebooted during synchronization, the process cannot be completed. Do not restart the system until the synchronization is completed.
- When the system is halted without shutting down OS properly due to forced shutdown or others, the entire area of the partition on the synchronized disks will be resynchronized after the system is restarted.

Synchronization completed

		RDR Utility		
		Op State: State	Status	
Source disk	Green (Blinking)	Duplex	-	
Destination disk	Green (Blinking)	Duplex	-	
RDR Virtual Disk	_	Duplex	None	

Tips

DISK ACCESS LED is lit green only when hard disk drive is accessed. If no access is made, the LED seems to be unlit.

J RE	DR Utility (ft-SW :	– – X
File Action Help		
PCI module 10 SCSI Enclosure Slot 0 - Harddisk0-LUN1-PLEX0 Slot 2 Slot 3 Slot 4 Slot 5 Slot 6 Slot 7 PCI module 11 Slot 2 Slot 0 - Harddisk0-LUN1-PLEX1 Slot 2 Slot 6 Slot 7 Slot 1 Slot 2 Slot 1 Slot 2 Slot 3 Slot 4 Slot 5 Slot 5 Slot 6 Slot 7 C. Logical Disk Information	Name DevicePathID Op State: State Op State: Reason Vendor ProductID ProductRevisionLevel SerialNumber Capacity ObjectName Caption DevicePath[1] DevicePath[2] ActiveRDRPlex ReadLoadBalancing ResyncLUNPriority Status	Value 39/1 Duplex None Stratus Data Duplex LUN 8 74bb1668-4d91-45fe-b239-e82cb8625e2e 136.44 GB Harddisk0 RDR Virtual Disk 1 10/40/1/0 11/40/1/0 Harddisk0-LUN1-PLEX0 On Hiah None
	<	III >

(3) Data Disk Dual Configuration Procedure

Follow the procedure below to configure dual data disk for the slots 1 to 7.

Note

The following shows how to configure dual disk for the slot 1. If you want to configure the dual disk for slot 2 to slot 7, read "slot 1" as the slots you want to make dual configuration and perform the procedure.

1. Insert a disk for the dual configuration into the slot 1 of PCI Module 10.

If a disk is already mounted, this procedure is not necessary. Go to step 4.

2. From **Start**, select **Control Panel**, **Administrative Tools** and start **Computer Management**. On the tree in the left pane, click **Disk Management**.

If the inserted disk is indicated as Not Initialized in the right pane, right-click the disk and initialize it.

3		Di	sk Managemer	nt		- 🗆 X
File Action V	iew Help					
(+ +) 🖬 🛛	🖬 🖸 📽 🖥					
Volume	Layout	Туре	File System	Status	Capacity	Free Spa
📾 (C:)	Simple d Simple	Basic	NTFS	Healthy (B	40.00 GB 350 MB	18.07 GB
System Reserve	a simple	Dasic	NIFS	riedicity (5	330 1010	105 1010
<			ш			>
						<u>^</u>
Basic	System Reserv	(C:)				
136.44 GB Online	350 MB NTFS	40.00 GB N	NTFS Root, Page File, Cra	96.09 GB	ad	
	linearity (Syster		oot, ragerne, era			
Disk 1		1				=
Unknown						
279.40 GB Not Initializ	Initialize Disk					
	Offline					
	Properties					
DVD (D:)	Help					
No Media						
						~
Unallocated	Primary partition					

- Important
 When a disk is inserted or initialized, a popup window asking for rebooting the system may be displayed, but there is no need to reboot it. Select Restart Later and close the popup window.
 Disk may become offline when RDR is set. In this case, use "Disk Management" to make it online.
- 3. From Start, click RDR Utility to start RDR Utility.

4. On the left pane of the RDR Utility, right click on the **Slot 1** disk of **PCI Module 10** and select **Create RDR Virtual Disk**.



Depending on the disk condition, RDR setting may take some time and RDR Utility may pause for a few minutes. There is no error, so wait until the process is completed.

<u>6</u> 1		RDR Utility (ft-SW :			- • ×	
File Action Help						
PCI module 10 SCSI Enclosure Slot 0 - Harddisk	0-LUN1-PLEX0	Name DevicePathID Op State: State On State: Reason	Value 10/40/2/1 Online None			
Slot 2	Create RDR Virt	ual Disk				
Slot 3	Add Physical Di	sk To RDR Virtual Disk				
Slot 4	Remove Physic	al Disk From RDR Virtual [Disk	47KHPG		
Slot 5	Delete RDR Con	figuration on Physical Di	sk			
Slot 7	Clear Hard MTBE			_		
E- PCI module 11	Clear Soft MTBE					
SCSI Enclosure	Resynchronize	This Physical Disk From R	DR Virtual Dick			
Slot 0 - Hard	Cet As A strike PDP Diev					
Slot 2	Set As Active Iti					
Slot 3						
Slot 4						
Slot 5						
Slot 6	Slot 6					
Logical Disk Information						

5. Click Yes.

6.

	Changing the configuration of this device may require a system reboot. Are you sure you want to continue with the operation?	
	<u>Yes</u> <u>No</u>	
Click OK .		
	Create RDR Virtual Disk × This operation was completed.	
Important I t t	f RDR is specified to a disk which contains th cannot be unmounted, the system restart pop-t the system is restarted in two minutes auton system is restarted.	e system partition or partition which up message appears. If you click Yes natically. Go on to Step 7. when the

7. Insert the disk to set dual configuration into the slot 1 of PCI module 11, and perform the Step 2.

If a hard disk drive is already mounted, this procedure is not necessary. Perform the Step 2 only.

Important	For a disk to be inserted, use a new or physically formatted disk which has the same capacity as the synchronization source. If such a disk is not used, disks are not duplicated successfully.				
	As for physical format, refer to Chapter 3 (2. SAS Configuration Utility) in Maintenance Guide.				

8. Right-click the **Slot 1** of the **PCI module 11** from the left pane of RDR Utility, and then click **Add Physical Disk To RDR Virtual Disk**.

<u>a</u>	R	DR Utility (ft-SW :)	L	- •	x
File Action Help						
⊡ PCI module 10		Name	Value			
SCSI Enclosure		DevicePathID	11/40/2/2			
- Slot 0 - Harddis	k0-LUN1-PLEX0	Op State: State	Offline			
Slot 1 - Harddis	k1-LUN5-PLEX0	Op State: Reason	None			
Slot 2		Vendor	SEAGATE			
Slot 3		ProductID	ST300MP0004			
Slot 4		ProductRevisionLevel	N001			
Slot 5		ObjectName	SZJUTNIVIAUUUUSS40AP	EC.		
Slot 6		Capacity	270 / GR			
Slot 7		ConfigState	Unconfigured			
PCI module 11		MTBF: HardCurrent	Unknown			
SCSI Enclosure		MTBF: HardNumberOfFaults	0			
Slot 0 - Harddis	k0-LUN -PLEX1	MTDF. SoftCurrent	Unknown			`
Slot 1 - Ha		MTBF: SoftNumberOfFaults	0			
Slot 2	Create RDR Virtual	Disk				
Slot 3	Add Physical Disk T	o RDR Virtual Disk				
Slot 4	Remove Physical D	isk From RDR Virtual Disk				
Slot 5	Remove Physical D					
Slot 6	Delete RDR Configu	uration on Physical Disk				
Slot 7	Clear Hard MTBF					
🖃 Logical Disk Inform	Clear Soft MTBF					
RDR Virtual Disl	Resynchronize This Set As Active RDR P	Physical Disk From RDR Virtua	l Disk			

9. Click OK.



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

Synchronizing

		RDR Utility				
	DISK ACCESS LED	Op State: State Status				
Source disk	Green (Blinking)	Online	-			
Destination disk	Amber (Blinking)	Syncing	-			
RDR Virtual Disk	-	Simplex	Resync x % (x=0,4,8,,96)			

Tips

```
DISK ACCESS LED is lit green when hard disk drive is accessed.
If access is made while synchronization is in progress (LED is blinking amber), it seems that the green and amber LEDs are lit alternately.
The time required for synchronization varies depending on the partition size on the disk.
For a 136 GB partition, it takes about 100 minutes. When no partition exists on the disk, synchronization is completed immediately after the RDR is set, and Op State: State changes to Duplex.
However, when the dynamic disk is used, the time required for synchronization depends on the disk size regardless of whether or not a partition exists. For a 136 GB disk, it takes about 100 minutes.
```

្រា	RDR Utility (ft-SW :	
<u>File</u> <u>Action</u> <u>H</u> elp		
₽ PCI module 10	Name	Value
SCSI Enclosure	DevicePathID	39/2
Slot 0 - Harddisk0-LUN1-PLEX0	Op State: State	Simplex
Slot 1 - Harddisk1-LUN2-PLEX0	Op State: Reason	None
Slot 2	ProductID	Data Dupley I UN
Slot 3	ProductRevisionLevel	8
Slot 4	SerialNumber	649b46f0-b1bf-477e-bab5-af37cc663163
Slot 5	Capacity	279.4 GB
Slot 6	ObjectName	Harddisk1
Slot 7	Caption	RDR Virtual Disk 2
PCI module 11	DevicePath[1]	10/40/2/1
SCSI Enclosure	DevicePath[2]	11/40/2/1
Slot 0 - Harddisk0-LUN1-PLEX1	ActiveRDRPlex	Harddisk1-LUN2-PLEX0
Slot 1 - Harddisk1-LUN2-PLEX1	ReadLoadBalancing	On
Slot 2	ResyncLUNPriority	High
Slot 3	Status	Resync 80%, <mm:ss> remaining 00:09</mm:ss>
Slot 4		
Slot 5		
Slot 6		
Slot 7		
E-Logical Disk Information		
BDR Virtual Disk 1		
BDR Virtual Disk 2		

Important

- If the system is rebooted during synchronization, the process cannot be completed. Do not restart the system until the synchronization is completed.
- When the system is halted without shutting down Windows properly due to forced shutdown or others, the entire area of the partition on the synchronized disks will be resynchronized after the system is restarted.

Synchronization completed

		RDR Utility			
		Op State: State Status			
Source disk	Green (Blinking)	Online	-		
Destination disk	Green (Blinking)	Online	-		
RDR Virtual Disk	-	Duplex	None		

Tips

DISK ACCESS LED is lit green only when hard disk drive is accessed. If no access is made, the LED seems to be unlit.

61	RDR Utility (ft-SW:) <u> </u>
<u>File</u> <u>Action</u> <u>H</u> elp		
⊡ PCI module 10	Name	Value
SCSI Enclosure	DevicePathID	39/2
Slot 0 - Harddisk0-LUN1-PLEX0	Op State: State	Duplex
Slot 1 - Harddisk1-LUN2-PLEX0	Op State: Reason	None
Slot 2	Vendor	Stratus
Slot 3	ProductID	Data Duplex LUN
Slot 4	ProductRevisionLevel	8
Slot 5	SerialNumber	64964610-6161-4//e-babb-at3/cc663163
Slot 6	Capacity	2/9.4 GB
Slot 7	Cantion	RDR Virtual Dick 2
DCI modulo 11	DevicePath[1]	10/40/2/1
	DevicePath[2]	11/40/2/1
E- SCSI Enclosure	ActiveRDRPlex	Harddisk1-LUN2-PLEX0
Slot U - Harddisku-LUNI-PLEXT	ReadLoadBalancing	On
Slot I - HarddiskI-LUN2-PLEXI	ResyncLUNPriority	High
Slot 2	Status	None
Slot 3		
Slot 4		
Slot 5		
Slot 6		
Slot 7		
🖃 Logical Disk Information		
RDR Virtual Disk 1		
RDR Virtual Disk 2		
]	

3.10 Creating Volume

For NEC Express5800/ft series, you need to set 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.

Important	•	Note the following issues when you execute Active Upgrade under the status that the OS installed disk has partitions other than the system partition.
		 All the data upgrade is discarded for the system disk of the Production Side that runs Active Upgrade.
	•	A mirrored volume (RAID-1) or RAID-5 volume cannot be used on a dynamic disk.

3.11 Installing Bundled Software for the Server

NEC ESMPRO Agent and NEC ESMPRO Manager are contained in EXPRESSBUILDER.

Make sure that the installed utilities are shown on **Start** - **Programs** or on **Control Panel**. If you did not install these utilities during setup with EXPRESSBUILDER, install them individually by according to *Chapter 2* (*Installing Bundled Software*).

3.12 Enabling OS Boot Monitoring Feature

Enables OS Boot Monitoring feature.

Set OS Boot Monitoring feature to **Enabled** on BIOS SETUP according to *Chapter 1 (3.1.3 Disabling OS Boot Monitoring Feature)*. Then, specify the timeout time for **OS Boot Monitoring Timeout** parameter appropriately.

Aptio Setup Utility – Copyr Main Advanced Security <mark>Server</mark> Boot	ight (C) 2012 American Megatrend Save & Exit	s, Inc.
System Management Event Log Configuration FR8-2 Timer Ena PCI Enumeration Monitoring IEna PCI Enumeration Monitoring Timeout 0ption ROM Scan Monitoring Timeout 0ption ROM Scan Monitoring Timeout 0S Boot Monitoring Timeout 0S Boot Monitoring Timeout 0S Boot Monitoring Timeout 180 POST Pause Monitoring Timeout 180 Thermal Sensor Ena POST Error Pause IDis AC-LINK ISta	bled] bled] bled] bled] bled] abled] g Off] F1: Gen F4: Sav ESC: Ex	eral Help e & Exit Setup it

3.13 License Authentication

To use Windows Server 2012, you need to perform license authentication procedure.

Confirm if your license is authenticated. If not, perform the following procedures to have your license authenticated.

Connect to the Internet to perform the authentication procedure.

Or, use the telephone to perform the authentication procedure.

1. Click Search on the Charms bar.

(Or, right-click the bottom left corner on the screen, and then click Run.)



2. Enter "slui" in the Search box, and then press the <Enter> key.

Search			Run	
1000		Search		Run 🗙
	Administrat	Apps		Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Internet Explorer	Cor Sen	Apps	<u>O</u> pen:	slui v
	Con Mar	Files		
	Ever	C Internet Explorer		OK Cancel <u>B</u> rowse
	iscs 🧟			
4				

3. Read the contents, and then continue the license authentication procedure.

۴	Windows Activation		- 8 X
💿 💿 🕤 🕈 🏲 🕨 Conti	rol Panel + System and Security + Action Center + Windows Activation	v 🖒 Search Control P	Panel P
	Big Hand A Student, P. Andra Center & Windows Activation Windows sint a citivated Windows and be citivated right new. Ty scheding Windows later. If this issue pensist, contact Microsoft Support field in a scheding Mindows later. If this issue pensist, contact Microsoft Contract Biology and the State State Biology and State Scheding Windows later. If this issue pensist, contact Microsoft Contract Biology and State Scheding Windows State. If this issue pensist, contact Microsoft Contract Scheding Windows State Scheding Windows Sched	Cuttome Service and	× 100
			Cancel
Tips	If your license is already authent	icated, you	ı do not

Windows activation is now complete.

3.14 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 devices to NEC Express5800/ft series or updating ft Server Control Software.

Confirm the version following the steps below, and take a note of the displayed version number.

Version: _____.___.

- 1. Log on to the system with an account that has administrator privilege.
- 2. Open Control Panel from the Start menu.
- 3. Open Programs and Features.

If the **Programs and Features** icon is not displayed, open **Programs** and click **Programs and Features**.

4. Check the version of ftServer Control Software from the list of programs.

3.15 Setting TCP/IP Timeout

Timeout values of TCP/IP are changed at setup by adding the following registries on Express5800/ft series.

HKLM\System\CurrentControlSet\Services\Tcpip\Parameters

Value: TcpMaxDataRetransmissions

Type: REG_DWORD

Default: 8

This setting is required if Hyper-V is enabled.

If you are not using Hyper-V on your server, this setting is not required. To restore the factory-set value, run the following batch file with administrator account, and restart the server.

C:\Program Files\NEC\HAS_SW\SUPPORT

SetTcpMaxDR_OsDef.bat

To restore the factory-set value, run the following batch file with administrator account, and restart the server.

C:\Program Files\NEC\HAS SW\SUPPORT

ResetTcpMaxDR_FtDef.bat

3.16 Checklist Display Function at Installation

The server has a factory-installed feature that displays Setup Checklist during installation to support configuration work. This feature starts after ft Server Control Software is installed at re-installation.

Using this checklist, you can proceed setup work while viewing the items required for setup.

(1) Displaying setup list

When you logon the system with builtin Administrator account, **ft Server Setup list** automatically appears. The checklist appears everytime you logon the system unless you specify not to display at next logon.

The first line of dialog shows the version of ft Server Control Software. The version number depends on the time of shipment and software upgraded status.

💾 ft Server Setup list	-		x					
ft Server Control Software [Version : 9.1.0000.00] was installed. Refer to the Installation guide (Windows), follow the procedures below to complete setup. And check the following checkbox.								
✓ 1. Install NEC ESMPRO Agent	✓ 1. Install NEC ESMPRO Agent							
2. Install Options (LAN, SAS, Fibre Channel board)								
3. Update Software								
4. Configure duplex LAN								
5. Configure dual Disk								
6. Create Volume								
7. Change setting of SNMP service for NEC ESMPRO Agent								
8. Enable OS Boot Monitoring								
9. Setup for Solving Problems								
10. Back up System Information								
 If Symantec pcAnywhere is installed, system may not operate normally for example, system may not become duplex. 	у.							
 When ARCserve Backup or Backup Exec is installed, if the services of these backup softwares have started before system becomes duplex, system may not become duplex or the backup software may not operate normally. 								
This dialog is displayed also at next logon								
until all checkbox is checked. History								

Setup Check List

The following item is checked automatically, and if installation of it is finished, it is dimmed.

1. Install NEC ESMPRO Agent

For the other items, click the checkbox to check it when you have finished setup of relevant item.

If you put a mouse onto check item, a help window that shows the page where detailed information is described in User's Guide or Installation Guide.

If all items are checked, a checkbox "Hide this dialog at next logon" appears at bottom of dialog. If you do not want to display this checklist, click the checkbox and close dialog.

📕 ft Server Setup list 📃 🗖 🗙
ft Server Control Software [Version : 9.1.0000.00] was installed. Refer to the Installation guide (Windows), follow the procedures below to complete setup. And check the following checkbox.
✓ 1. Install NEC ESMPRO Agent
✓ 2. Install Options (LAN, SAS, Fibre Channel board)
✓ 3. Update Software
✓ 4. Configure duplex LAN
✓ 5. Configure dual Disk
✓ 6. Create Volume
✓ 7. Change setting of SNMP service for NEC ESMPRO Agent
✓ 8. Enable OS Boot Monitoring
9. Setup for Solving Problems
✓ 10. Back up System Information
 If Symantec pcAnywhere is installed, system may not operate normally, for example, system may not become duplex. When ARCserve Backup or Backup Exec is installed, if the services of these backup softwares have started before system becomes duplex, system may not become duplex or the backup software may not operate normally.
Setup is completed. If you do not want to show this dialog at next logon, please check the following checkbox. Hide this dialog at next logon. Close

When all items are checked:

This checklist is not displayed during update of ft Server Control Software.

(2) Re-displaying setup checklist

If you want to open the dialog again, logon the system with built-in Administrator account, and run the following file.

C:\Program Files\NEC\HAS_SW\ftServerSetuplist

ftServerSetupList.exe

Only the user having built-in Administrator account can open this checklist, and can start only one at a time.

(3) Displaying check history

Click the History button to confirm the date and time each item was checked.

4	History	- D X
No 01 02 03 04 05 06 07 08 09 10	Date 3/10/2014 11:28:58 AM 3/10/2014 11:59:26 AM 3/10/2014 12:35:11 PM 3/10/2014 12:38:52 PM 3/10/2014 1:09:23 PM 3/10/2014 1:22:35 PM 3/10/2014 1:28:35 PM 3/10/2014 1:49:05 PM	Check ^ ON (Auto) ON ON ON ON ON ON OFF(Initial) OFF(Initial)
<	Ш	>
		Close

Check history

Check column displays:

ON:	Item that was checked
ON (Auto):	Item that was checked automatically
OFF (Initial):	Item that is not checked yet
OFF:	Item that was checked once but unchecked later

4. Setting Up Windows Server 2008 R2

Set up Windows Server 2008 R2.

4.1 Before Starting Setup

4.1.1 Precautions

Read through the precautions explained here before starting setup.

- **EB** : Confirm during Setup with EXPRESSBUILDER
- **0S** : Confirm during Setup with Windows standard installer

Hardwar	e configur	ation	
The following hardware configurations require special procedures.			
EB	OS	Media such as	LTO, and similar media
		Do not set media	a such as LTO during setup.
EB	OS	Setup when ma If mass memory Thus, the partitio	ass memory is installed is installed in your system, the large size of paging file is required at installation. on size for storing debug information (dump file) may not be secured.
		If you fail to secu required file spa 1. Set the sy 2. Specify an by referrir	ure the dump file size, use Windows standard installer for setup, and allocate the ce to multiple disks by performing the following steps. /stem partition size to a size sufficient to install the OS and paging file. nother disk as destination to store the debug information (required dump file size) ng to <i>Chapter 1</i> (5. Setup for Solving Problems).
		If the hard disk of size to a size su the dump file.	drive does not have enough space to write the debug information, set the partition fficient to install the OS and paging file, and then add another hard disk drive for
		Note	If the partition size for installing Windows is smaller than the size to install the OS and paging file, expand the partition size or add another hard disk drive.
		If sufficient spac setting up using	e cannot be secured for the paging file, perform either of the following after Windows Standard Installer is complete.
		 Specify a for collect 	hard disk drive other than the system drive as the location to store the paging file ing memory dump.
		Create a the system	paging file of the installed memory size + 300 MB or more in a drive other than m drive.

-	Example of correct setting
	 C: No paging file exists D: Paging file whose size is "installed memory size + 300 MB" or more → The paging file in drive D can be used for collecting memory dum because its size satisfies the requirement.
	Example of incorrect setting 1
	C: Paging file whose size is smaller than the installed memory size D: Paging file whose size is "installed memory size + 300 MB" or more
	→ The paging file in drive C is used for collecting memory dump, bu collection may fail because the size of the paging file is smaller than the installed memory size.
	Example of incorrect setting 2
	C: Paging file whose size is "installed memory size ${ imes}$ 0.5"
	D: Paging file whose size is "installed memory size × 0.5" E: Paging file whose size is 300 MB
	→ The total paging file size in all drives is "installed memory size + 300 MB" but collection may fail because only the paging file in drive C is used for collecting memory dump.
	Example of incorrect setting 3
	C: No paging file exists
	D: Paging file whose size is "installed memory size + 300 MB" or more (in dynamic volume)
	\rightarrow Paging files in a dynamic volume cannot be used for collecting memor

		 Specify a drive other that 	an the system drive for "Dedicated Dump File".
		Create the registry sho Dedicated Dump File.	own below by using the Registry Editor and specify the name of
		<when specifying="" th="" the<=""><th>file named "dedicateddumpfile.sys" in drive D></th></when>	file named "dedicateddumpfile.sys" in drive D>
		Key: HKEY	r_LOCAL_MACHINE\SYSTEM entControlSet\Control\CrashControl
		Name: Dedic	atedDumpFile
		Type: REG_	SZ
		Data: D:\dee	dicateddumpfile.sys
		Note the following whe	en specifying Dedicated Dump File:
		Pay strict attents The setting is or	ion to edit the registry.
		• The setting is ap	bplied after restarting the system.
		Specify a drive t	hat has free space of "installed memory size + 300 MB" or more.
		 Dedicated Dump 	p File cannot be placed in dynamic volumes.
		To collect memo	bry dump by using Dedicated Dump File, a paging file is required in
		any drive.	
		Dedicated Dum	p File is only used for collecting memory dump, and is not used as
		virtual memory.	Specify the paging file size so that sufficient virtual memory can be
		allocated in the	entire system.
Curatama .			
System	partition si	ze	
EB	partition si	ze The system partition size can t	be calculated by using the following formula.
EB	partition si	ze The system partition size can t OS size + paging file size +	be calculated by using the following formula. H dump file size + application size
EB	oartition si	ze The system partition size can b OS size + paging file size +	be calculated by using the following formula. H dump file size + application size — 15 600MR
EB	08	ze The system partition size can b OS size + paging file size + OS size	 be calculated by using the following formula. dump file size + application size = 15,600MB (Windows Server 2008 R2 + Service Pack 1.)
EB	08	ze The system partition size can b OS size + paging file size + OS size	 be calculated by using the following formula. dump file size + application size = 15,600MB (Windows Server 2008 R2 + Service Pack 1) = 8,400MB
EB	08	ze The system partition size can b OS size + paging file size + OS size	 be calculated by using the following formula. dump file size + application size = 15,600MB (Windows Server 2008 R2 + Service Pack 1) = 8,400MB (Windows Server 2008 R2 with Service Pack 1)
EB	08	ze The system partition size can b OS size + paging file size + OS size	 be calculated by using the following formula. dump file size + application size = 15,600MB (Windows Server 2008 R2 + Service Pack 1) = 8,400MB (Windows Server 2008 R2 with Service Pack 1)
EB	08	ze The system partition size can to OS size + paging file size + OS size Paging file size (recomment Dump file size	 be calculated by using the following formula. dump file size + application size = 15,600MB (Windows Server 2008 R2 + Service Pack 1) = 8,400MB (Windows Server 2008 R2 with Service Pack 1) anded) = installed memory size × 1.5 = installed memory size + 300MB
EB	08	ze The system partition size can b OS size + paging file size + OS size Paging file size (recommen Dump file size Application size	 be calculated by using the following formula. dump file size + application size = 15,600MB (Windows Server 2008 R2 + Service Pack 1) = 8,400MB (Windows Server 2008 R2 with Service Pack 1) aded) = installed memory size × 1.5 = installed memory size + 300MB = as required by the application
EB	08	ze The system partition size can b OS size + paging file size + OS size Paging file size (recommen Dump file size Application size For example, if the installed me	 be calculated by using the following formula. dump file size + application size = 15,600MB (Windows Server 2008 R2 + Service Pack 1) = 8,400MB (Windows Server 2008 R2 with Service Pack 1) anded) = installed memory size × 1.5 = installed memory size + 300MB = as required by the application emory size is 1 GB (1,024 MB) and application size is 100 MB, and
EB	08	ze The system partition size can b OS size + paging file size + OS size Paging file size (recommen Dump file size Application size For example, if the installed me the full installation is selected,	 be calculated by using the following formula. dump file size + application size = 15,600MB (Windows Server 2008 R2 + Service Pack 1) = 8,400MB (Windows Server 2008 R2 with Service Pack 1) anded) = installed memory size × 1.5 = installed memory size + 300MB = as required by the application emory size is 1 GB (1,024 MB) and application size is 100 MB, and the partition size is calculated as follows:
EB	08	ze The system partition size can be observed and the size of	 be calculated by using the following formula. dump file size + application size 15,600MB (Windows Server 2008 R2 + Service Pack 1) 8,400MB (Windows Server 2008 R2 with Service Pack 1) anded) installed memory size × 1.5 installed memory size + 300MB as required by the application emory size is 1 GB (1,024 MB) and application size is 100 MB, and the partition size is calculated as follows: 1.5) +1,024MB +300MB +100MB
EB	08	ze The system partition size can be or size + paging file size can be or size OS size Paging file size (recommendation file size can be or size) Paging file size (recommendation file size can be or size) For example, if the installed means the full installation is selected, a,000MB + (1,024MB × = 10,960MB) The above mentioned partition file size is	 be calculated by using the following formula. dump file size + application size = 15,600MB (Windows Server 2008 R2 + Service Pack 1) = 8,400MB (Windows Server 2008 R2 with Service Pack 1) aded) = installed memory size × 1.5 = installed memory size + 300MB = as required by the application emory size is 1 GB (1,024 MB) and application size is 100 MB, and the partition size is calculated as follows: 1.5) +1,024MB +300MB +100MB
EB	oartition si	ze The system partition size can be observed and the size of	be calculated by using the following formula. the dump file size + application size = 15,600MB (Windows Server 2008 R2 + Service Pack 1) = 8,400MB (Windows Server 2008 R2 with Service Pack 1) anded) = installed memory size × 1.5 = installed memory size + 300MB = as required by the application emory size is 1 GB (1,024 MB) and application size is 100 MB, and the partition size is calculated as follows: 1.5) +1,024MB +300MB +100MB I size is the minimum partition size required for installing Windows. sufficient for system operations.
EB	08	ze The system partition size can be or size OS size + paging file size + paging file size OS size Paging file size (recomment Dump file size Application size For example, if the installed mether full installation is selected, 8,000MB + (1,024MB × = 10,960MB The above mentioned partition size is The above mentioned partition size is The following partition sizes arr 32,768MB (32GB) or	be calculated by using the following formula. be calculated by using the following formula. t dump file size + application size = 15,600MB (Windows Server 2008 R2 + Service Pack 1) = 8,400MB (Windows Server 2008 R2 with Service Pack 1) anded) = installed memory size × 1.5 = installed memory size + 300MB = as required by the application emory size is 1 GB (1,024 MB) and application size is 100 MB, and the partition size is calculated as follows: 1.5) +1,024MB +300MB +100MB I size is the minimum partition size required for installing Windows. a sufficient for system operations. e recommended.
EB	os	The system partition size can b OS size + paging file size + OS size Paging file size (recommend Dump file size Application size For example, if the installed mendion the full installation is selected, 8,000MB +(1,024MB × =10,960MB The above mentioned partition Ensure that the partition size is The following partition sizes ar 32,768MB (32GB) or *1 GB = 1,024 MB	be calculated by using the following formula. to calculated by using the following formula. t dump file size + application size = 15,600MB (Windows Server 2008 R2 + Service Pack 1) = 8,400MB (Windows Server 2008 R2 with Service Pack 1) t e installed memory size × 1.5 = installed memory size + 300MB = as required by the application temory size is 1 GB (1,024 MB) and application size is 100 MB, and the partition size is calculated as follows: 1.5) + 1,024MB + 300MB + 100MB It is the minimum partition size required for installing Windows. te recommended. more



Installing Service Pack			
EB	OS	• If the OS installation media contains Service Pack 1, you need not apply the service pack again.	
		• You can install the Service Pack on the server. When the Service Pack is not attached to your system, prepare it by yourself.	
License	License authentication		
EB	OS	License authentication might be required, depending on the installation of Windows. For details, see Chapter 1 (<i>4.14 License Authentication</i>).	
		 Activate within 30 days following installation. A Virtual Product Key is used when installing in a virtual environment. It is not used when directly installing an operating system to a physical server. 	
When co	mpressing	g system drive	
EB	OS	Do not compress the root directory and the Windows directory.	
		TipsThe Windows Server 2008 R2 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.	

4.1.2 Preparation

The following steps are required to prepare for re-installing an OS (setup with EXPRESSBUILDER or Winodws standard installer):

- 1. If the POWER LED on CPU/IO module is on, shutdown the OS.
- 2. Unplug the power cord from outlet while the POWER LED is blinking.
- 3. Perform the preparation process for the server as shown below.
 - Install CPU/IO modules 0 and 1.
 - Install a hard disk drive in slot 0 of CPU/IO module 0.
 - Disconnect all LAN cables.
 - Disconnect the cable for tape device from the connector on SAS board.
 - Disconnect the cable for device from the connector on Fibre Channel board.

Important

- Install only one hard disk drive in the slot specified here.
 - If the hard disk drive is not a new one, physically format it. Refer to *Chapter 3 (3. SAS Configuration Utility)* in *Maintenance Guide* for physical formatting.
- 4. Prepare for setup on CPU/IO module 0.

The location of components that are required for setup or confirmation is as shown in the figure below.

Install only one hard disk drive in CPU/IO module 0. Do not install any hard disk drive in CPU/IO module 1.



- 5. Connect power cords to the server in the following order.
 - (1) Connect a power cord to AC inlet connector A.
 - (2) Connect a power cord to AC inlet connector B.
 - (3) Make sure the Status LED on CPU/IO module is unlit.



Note

If you disconnect the power cord, wait at least 30 seconds before connect it again.

4.1.3 Disabling OS Boot Monitoring Feature

Before starting setup process, the OS boot monitoring function needs to be disabled.

Important	Be sure to disable boot monitoring function before setting up the system. This function is enabled by shipping default.
Tips	For details of operations for BIOS Setup Utility and parameters for boot monitoring function, refer to <i>Chapter 3 (1. System BIOS)</i> in <i>Maintenance Guide</i> .

1. Turn on the display and the peripheral equipment connected to the NEC Express5800/ft series.

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

- 2. Remove the front bezel.
- 3. Press the POWER switch located on the front side of the server.

Lift the acrylic cover, and press the POWER switch.



After a while, the "NEC" logo will appear on the screen.

Tips	While the "NEC" logo is displayed on the screen, NEC Express5800/ft series performs a power-on self test (POST) to check itself. OS starts upon completion of POST.
	For details, refer to Chapter 3 (1.1 POST Check) in User's Guide.
Note	If the server finds errors during POST, it will interrupt POST and display the error message. Refer to <i>Chapter 1 (6.2 POST Error Messages)</i> in <i>Maintenance Guide</i> .
4. When POST proceeds, the following message appears at lower left of the screen.

Press <F2> SETUP, ... (The on-screen message depends on your system environment.)

If you press <**F2**>, SETUP will start after POST, and the Main menu appears. (You can also start SETUP by pressing <**F2**> key while expanding option ROM.)

Example:

Aptio Setup Ut Main Advanced Security S	ility – Copyright (C) 2012 Amer erver Boot Save & Exit	ican Megatrends, Inc.
BIOS Information BIOS Version Build Date Access Level	6.0:34 05/30/2012 Administrator	Set the Date. Use Tab to switch between Date elements.
Memory Information Total Memory	16384 MB	
System Date System Time	[Thu 06/28/2012] [13:51:11]	
		F1: General Help F4: Save & Exit Setup ESC: Exit
Vacion 0.14	1915e Sonuriakt (S) 9019 Amerika	

5. When you move the cursor onto Server, the Server menu appears.

Aptio Setup Utility – Main Advanced Security Server (Copyright (C) 2012 American M Boot Save & Exit	egatrends, Inc.
Aptio Setup Utility - Main Advanced Security Server I System Management Event Log Configuration FRB-2 Timer PCI Enumeration Monitoring PCI Enumeration Monitoring Timeout Option ROM Scan Monitoring Timeout Option ROM Scan Monitoring Timeout OS Boot Monitoring POST Pause Monitoring POST Pause Monitoring Timeout Thermal Sensor POST Enror Pause AC-LINK	Copyright (C) 2012 American M Nort Save & Exit [Enabled] [Enabled] 180 [Enabled] 300 [Enabled] 600 [Enabled] 180 [Enabled] [Disabled] [Disabled] [Stay Off]	F1: General Help F4: Save & Exit Setup ESC: Exit
Version 2.14.1219n Co	ppyright (C) 2012 American Meg	atrends, Inc.

- 6. Move the cursor onto OS Boot Monitoring and press Enter.
- 7. Among the parameters, choose **Disabled** and press **Enter**.

8. Move the cursor onto Save & Exit, the Save & Exit menu appears.

Aptio Setup Utility – Copyright (C) 2012 A Main Advanced Security Server Boot Save & Exit	merican Megatrends, Inc.
Save & Exit Options Save Changes and Exit Discard Changes Discard Changes Load Setup Defaults	Exit system setup after saving the changes.
Vacion 2 14 12100 Conucipit (C) 2012 And	F1: General Help F4: Save & Exit Setup ESC: Exit

9. Select Save changes and Exit.

On the confirmation window shown below, select Yes to save parameters and exit SETUP.

System reboots when SETUP completes.

Save configuration and exit?
[Yes] No

Now OS Boot Monitoring function is disabled.

4.2 Setup with EXPRESSBUILDER

This section describes how to install Windows with EXPRESSBUILDER.

Important	 Setup with EXPRESSBUILDER may delete all data of the hard disk drive depending on the settings. Pay attention to input parameters. You must be especially careful when configuring the following: Partition Settings in the Windows Setup wizard Backing up user data, as needed, is recommended. Before starting setup, be sure to disconnect hard disk drives that is not to be setup. Install those hard disk drives after setup has completed. Conducting setup with hard disk drives being connected may cause existing data to be erased unintentionally. It is recommended to make backup copy of user data before starting setup. Although some dialog boxes and popup windows are displayed during installing ft Server Control Software in Setup, do not operate from the keyboard and the mouse. Installation is continued automatically. Do not operate especially although the following dialog is displayed. When installation is stopped with operation of a keyboard or a mouse, there is a possibility that OS does not start normally.
Note	The Scalable Networking Pack (SNP) function is disabled on systems that have been installed by using EXPRESSBUILDER. The setting of SNP function may affect the system performance. Contact your sales representative for details.
Tips	Setup with EXPRESSBUILDER allows you to use a pre-specified parameter file or save the parameters specified in setup as a parameter file on a removable media. For details on creating a parameter file, see <i>Chapter 1 (6. Windows OS Parameter File)</i> .

4.2.1 Setup flow



4.2.2 Requirements for Setup

Prepare the following media and instruction manuals before starting setup.

- > Either of the following OS installation media
 - NEC operating system installation media (hereafter referred to as Backup DVD-ROM)
 - Microsoft operating system installation media (hereafter referred to as *Windows Server 2008 R2 DVD-ROM*)

(If your OS install media does not contain Service Pack 1, prepare it.)

- > First Steps Guide
- > EXPRESSBUILDER DVD
- > ft Server Control Software UPDATE media

Used to update ft Server Control Software. This might not be provided with your server.

- Prepare if needed:
 - Removable media for Windows OS parameter file
 - Service Pack

(If the OS installation media contains Service Pack 1, you need not apply the service pack again.)

> ft Server Control Software update module

See Chapter 1 (4.8.1 Applying ft Server Control Software Update Module) for more information.

4.2.3 Before setting up

During Setup with EXPRESSBUILDER, parameters are specified through the wizard. You can also save the parameters as one file (a parameter file) in removable media.

Note

Read through the items in *Chapter 1 (4.1 Before Starting Setup*) prior to installing Windows.

4.2.4 Setup procedure

- 1. Prepare for setup according to Chapter 1 (4.1.2 Preparation).
- 2. Be sure to disable OS Boot Monitoring feature according to *Chapter 1 (4.1.3 Disabling OS Boot Monitoring Feature)*.

Important OS Boot Monitoring feature is enabled by the shipping default. Setup process will fail if this feature is enabled.

- 3. Turn the display unit power on, and then turn the server power on.
- 4. Start EXPRESSBUILDER according to Chapter 1 (1.1 Starting EXPRESSBUILDER).
- 5. When the following message appears, select OS installation *** default ***.

Boot selection
OS installation *** default ***
1001 menu
Automatic boot in 7 seconds

The following window appears.

	Starting EXPF	RESSBUILDE	R
4			
	۰		

The server starts from EXPRESSBUILDER.



6. Select **English** on the language selection window, and then click **OK**.

	EXI	PRESSBUILDER
-		
0	Question 表示する言語を選んでください。 Select the language for displaying.	
	 日本語 English Français Italiano Deutsch Español 	
	OK	

7. Click Setup.

Set up	the computer.	t
` O	Versions	
٢	Exit	

- 8. On the OS selection menu, select the OS to install or specify the parameter file.
 - □ When not using parameter file: Go to Step 9.

□ When using a parameter file: Go to Step 10.

Note When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.

9. When not using a parameter file, select an OS by either of the following two ways:

	1 OS select	ion Settings	3 Confirmation	4 Installation
•	Se	elect an operatin	ig system to ins	stall. ronly)
(e	Automatic D	etection	
		Manual Sele	ction	
	₿	Load Setting	s	
				Setup

To automatically detect the OS on the OS installation media:

(1) Click Automatic Detection.

-			
(Click	Manual Selection to	g system to insi configure a RAID array	call.
	Automatic De	tection	₽
Select an automatic disc.	operating system cally with an installation	tion	
Þ	Load Settings		

Insert the OS installation media, and then click **OK**.

To	check your OS installatior	n disc, insert it into the	e computer.
		[Mes	sage ID : B2014]
6			

(2) Click \bigcirc on the right side of the screen.

 \rightarrow Go to step 11.

1	Se	lect an operating system to install.	
I	(Clie	ck Manual Selection to configure a RAID array only)	
~	EO	Automatic Detection	
		Manual Selection	
	₽	Load Settings	

To select an OS from the menu:

(1) Click Manual Selection.

1 2 OS selection Settings	3 Confirmation	4 Installation
Select an operatin (Click Manual Selection to	ng system to inst	all.
Automatic D	etection	
Manual Sele	ction	Ś
You can select the target OS of the installation from the menu.	5	
		Setup

(2) From the pull-down menu, select Windows Server 2008 R2, and then click OK.

Se	lection				_
		Select an operating	system to install.		
		 Windows 	Windows Server 2008 F	82 -	
		OVMware			
	?				
		0	K Cancel		

(3) Click \bigcirc on the right side of the screen.

 \rightarrow Go to step 11.

1	elect an operating system to insta	dl.
•	Automatic Detection	ny)
~ [Manual Selection	
G	Load Settings	

10. When *using* the parameter file, click Load Settings.

1 OS selecti	on Settings	3 Confirmation	4 Installation
Se	lect an operatin	g system to ins	tall.
(Clic	k Manual Selection to	configure a RAID array	only)
e	Automatic De	etection	
	Manual Selec	tion	
Þ	Load Settings	;	N
Load in	stallation settings.		
			Setu

wn
*

Follow the on-screen instruction to load the parameter file (*.tre).

Tips

For the removable media in which the parameter file is saved, see "/mnt/usr_connect/usb*" (* indicates a number).

Click \bigcirc on the right side of the screen.

1 Se	lect an operating system to ins	tall.
(Cli	ck Manual Selection to configure a RAID array	r only)
E	Automatic Detection	
	Manual Selection	
< P>	Load Settings	

When the following screen appears, click \bigcirc on the right side of the screen.

Click **Custom** to check and modify the setting in the wizard.

2	Enter installation	settings.		
	Default			٢
~ 0	Custom			C
			Sei	tuj

 \rightarrow Go to step 12.

11. Specify the setup parameters by using either of the following methods:

)	nter installation	settings.	
0	Default		
¢X	Custom		

Use Default:

(1) Click Default.



(2) Type the password, and then click **Finish**.

	Wizard
	Enter the minimum settings to set up the computer. Click Custom if you want to use the Windows standard installer.
	Basic Settings Operating system : Windows Server 2008 R2
()	Edition : Enterprise(Full Installation)) Language : English Password Settings Administrator Password : (Required) Reenter Administrator Password : (Required)
	k
	Finish Cancel

Click \bigcirc on the right side of the screen.

2	Enter installation	settings.	
× .	Default		0
C	Custom		Ľ

 \rightarrow Go to step 12.

Use Custom:

(1) Click Custom.

	1 OS selection Settings	3 Confirmation
	2 Enter installation sett	ings.
\bigcirc	Default	
	Custom	₽
	Specify all settings for the installation.	
		Setup

(2) RAID Configuration is unavailable on this server. Click Next.

Device Information RAID Controller RAID Controller No RAID controller is detected. Number of Physical Drives 1 Summary of RAID Array	
RAID Controller : No RAID controller is detected. Number of Physical Drives : 1 Summary of RAID Array	1
Number of Physical Drives : 1	
-Summary of RAID Array	
k :	
RAID Configuration	
Skip Configuring RAID Array	
1/10	

(3) Check the settings specified for **Basic Settings**.

Modify the settings as needed, and then click Next.

app	Does Installation use. Jose Install Windows using EXPRESSBUILDER to install both the operating system and plications at one time.
Γ	Basic Settings
	Operating system : Windows Server 2008 R2
	O Use Windows standard installer
	Install Windows using EXPRESSBUILDER
	Edition Enterprise(Full Installation)
	Language : English
	Time Zone : (UTC-05:00) Pacific Time (US & Canada)
	۲ 4 / 10 Page

(4) Check the settings specified for Partition Settings.

Modify the settings as needed, and then click Next.

P	f any partitions at the drive have been created, the following red-framed area is deleted. Current partitions(the red-framed area will be deleted) :
	ID OB(NTFS) Free space
	(Total:1861.7GB) (0GB)
	Partition Settings
	Create a new partition
	O Use all
	● Size : 40 (GB) *1TB=1024GB
	(17 GB - 1861 GB)
	5 / 10 Page
-	
	Back Next Cancel

- Specify a partition size not exceeding 2,097,152MB.
- The entire contents of the destination hard disk drive will be erased.

operating system. (See Chapter 1 (4.1 Before Starting Setup).)

(5) Enter the user information, and then click Next.

Type Computer Name within 15 character	ers.	
Administrator Password must be at leas three of the four categories (numbers/upp	st six characters in length and m ercase/lowercase/symbols).	ust contain characters from
Computer Name	· Z Automatic Numbering	
Computer Name	BD3898030931	(Bequired)
User Name	: Administrator	(1040100)
Administrator Password	:	(Required)
Reenter Administrator Password	:	(Required)
		,
•	4	
		6 / 10 Page
Back Next		Cancel

Note

Computer name and Administrator Password are required parameters.

Enter Administrator Password that satisfies the following conditions:

- Contains 6 or more characters
- Contains characters from at least three of the following categories: numbers, uppercase alphabetic characters, lowercase alphabetic characters, and symbols.

- Tips
- The Computer name has been assigned by automatic assignment function. If you need to assign another computer name, remove the checkmark from "Automatic Numbering", and enter the desired computer name.
- If a parameter file is used for setup or if you return to a previous screen, •••••• is displayed in the Administrator password and Confirm Administrator password text boxes.
- (6) Network Protocols is unavailable on this server.

Click Next.

Г	Network Protocols		
	Standard S	Gettings	
	Custom Se	ettings	
	Standard Ac	dapter - Internet Protocol (IPv4) 🛛 🔻	Advanced
1			
		*	
			7 / 10 Page
			20

(7) Specifying domain or workgroup is unavailable on this server.

Click Next.

0 - 1	
Join a workgroup	workerour
	WORKBROOP
Join a domain	
Account Name	:
Password	:
Reenter Password	:
	ĸ
	8 / 10 Page

(8) Check the settings of Windows components.

Modify the settings as needed, and then click Next.

	ents you want to	o Install.	
Server Roles			
U Web Server (IIS)	Print and Document Services	
DHCP Server		File Services	
DNS Server		☐ Hyper-V	
Windows Features			
SNMP Service			Advanced
Simple TCP/IP	Services		
WINS Server			
		k	
			9 / 10 Page

(9) Check the settings of applications.

Click Finish.

NEC ESMPRO Agent is manda	ory.	
Available Application	5	Selected Applications
	Add	NEC ESMPRO Agent Express Report Service Express Report Service(HTTPS)
Description	v	
	k	10 / 10 Page

On the screen as shown below, click \bigcirc on the right side of the screen.

2 *	nter installation setti	ngs.	
0	Default		٢
~ 01	Custom		C

12. Check the settings.

To save the settings, click Save.

	O Confirm install	ation settings.	
	3 (Check if valid installatio	n settings are specified)	
	•		
\geq			
\bigcirc	Operating system	: Windows Server 2008 R2	\bigcirc
	(Install Windows using EXPRESSB	UILDER)	
	Edition	: Enterprise(Full Installation)	
	Language	: English	
	Time Zone	UTC-08:00) Pacific Time (US & Canada)	
	Partition Settings	: Create a new partition(40GB)	
	- I dianon penniep		

Click \bigcirc on the right side of the screen.

13. The setup process starts.

Click Start to continue setup.

	OS selection Settings Confirmation Installation
	Ready to set up the computer.
I	A partition has already been created If you proceed, any data stored on the partition will be lost.
	* Copying files
C	 Changing media
	Start
	Setu

14. Insert the EXPRESSBUILDER disk into the optical disk drive, and then click **OK**.

	Insert EXPRESS	BUILDER.		M 15	- 12002 1
			,	wessage ID	. 12002]
0					

15. Insert the OS installation media into the optical disk drive, and then click OK.

	Insert an OS installation	disc for installing.	[Message ID : J20	000]
0				
•				

The setup proceeds automatically.

Wait for approximately 40 minutes without performing any operation.

16. The Starter Pack and the selected applications are automatically installed.

Wait until the process completes without performing any operation.

$1 / 2 \neq 2 / 2$
Installing Starter Pack. Please wait for a while.
Screen displayed when Starter Pack is being installed
$1_{/2}$
Installing applications.

Screen displayed when an application is being installed

17. Read the terms of License Agreement.

If you agree, select I accept the license terms, and then click Start (Full installation only).

Set Up Windows	
🌍 🧃 Set Up Windows	
Please read the license terms	
MICROSOFT SOFTWARE LICENSE TERMS	-
MICROSOFT WINDOWS SERVER 2008 R2 XXXXXXXXXX	
These license terms are an agreement between Microsoft Corporation (or based on where you live, one of its affiliates) and you. Please read them. They apply to the software named above, which includes the media on which you received it, if any. The terms also apply to any Microsoft	
· updates,	
· supplements,	
· Internet-based services, and	
 support services 	-
I accept the license terms	
	itart

18. When the following message appears, press <Ctrl> + <Alt> + keys.



Type your password you have set in Step 9-(2) or 9-(5) into the text box, and then click 🥯.



19. Click OK.

The setup is completed	
The Setup with EXPRESSBUILDER has been successfully completed.	
	OK

20. When ft Server Setup list appears, confirm the list items.

Provide setup for the item which is unchecked.

ı∰ft Server Setup list
ft Server Control Software [Version : 8.0.0000.00] was installed. Refer to the Installation guide (Windows), follow the procedures below to complete setup. And check the following checkbox.
1. Install NEC ESMPRO Agent
2. Install Options (LAN, SAS, Fibre Channel board)
3. Update Software
4. Apply Windows Service Pack 1
5. Configure duplex LAN
6. Configure dual Disk
7. Create Volume
8. Change setting of SNMP service for NEC ESMPRO Agent
9. Enable OS Boot Monitoring
🔲 10. Setup for Solving Problems
🔲 11. Back up System Information
 If Symantec pcAnywhere is installed, system may not operate normally, for example, system may not become duplex.
 When ARCserve Backup or Backup Exec is installed, if the services of these backup softwares have started before system becomes duplex, system may not become duplex or the backup software may not operate normally.
This dialog is displayed also at next logon until all checkbox is checked. History

Install Options (LAN, SAS, Fibre Channel Board)

If you have an option board that is not yet installed, install it according to Chapter 2 (5.7 PCI Card) in Maintenance Guide.

Update Software

See Chapter 1 (4.8.1 Applying ft Server Control Software Update Module).

Apply Windows Service Pack

See Chapter 1 (4.7 Applying Service Pack).

Service Pack 1 is applied if you use the OS install media containing Service Pack 1.

Configure duplex LAN

See Chapter 1 (4.9 Duplex LAN Configuration).

Configure dual Disk

See Chapter 1 (4.10 Configuring Duplexed Disks).

Create Volume

See Chapter 1 (4.11 Creating Volume).

□ Change setting of SNMP service for NEC ESMPRO Agent

As described in Chapter 2 (1.1 NEC ESMPRO Agent (for Windows), setup SNMP service by referring to NEC ESMPRO Agent Installation Guide (Windows).

Enable OS Boot Monitoring

See Chapter 1 (4.13 Enabling OS Boot Monitoring Feature).

Setup for Solving Problems

See Chapter 1 (5. Setup for Solving Problems).

Tips

If necessary, perform license authentication procedure according to Chapter 1 (4.14 License Authentication).

Back up System Information

See Chapter 1 (7. Backing Up System Information).

Setup with EXPRESSBUILDER is now complete.

4.3 Setup with Windows Standard Installer

This section describes how to install Windows with Windows Standard Installer.

File).

Important	•	Setup with Windows standard Installer may erase all data in the hard disk drive depending on the settings. Pay attention to input parameters. Backing up user data, as needed, is recommended.
	•	Although some dialog boxes and popup windows are displayed during installing ft Server Control Software in Setup, do not operate from the keyboard and the mouse. Installation is continued automatically. Do not operate especially although the following dialog is displayed. When installation is stopped with operation of a keyboard or a mouse, there is a possibility that OS does not start normally.
		Microsoft Windows
		You must restart your computer to apply these changes Before restarting, save any open files and close all programs.
		Restart Later
Tips	•	Setup with Windows Standard Installer allows you to use a pre-specified parameter file or save the parameters specified in setup as a parameter file on a removable media.
	•	For details on creating a parameter file, see Chapter 1 (6. Windows OS Parameter

4.3.1 Setup flow



4.3.2 Requirements for Setup

Prepare the following media and instruction manuals before starting setup.

- > Either of the following OS installation media
 - NEC operating system installation media (hereafter referred to as Backup DVD-ROM)
 - Microsoft operating system installation media (hereafter referred to as *Windows Server 2008 R2 DVD-ROM*)

(If your OS install media does not contain Service Pack 1, prepare it.)

- > First Steps Guide
- > EXPRESSBUILDER DVD
- > ft Server Control Software UPDATE media

Used to update ft Server Control Software. This might not be provided with your server.

- > Prepare if needed:
 - Removable media for Windows OS parameter file
 - Service Pack (If the OS installation media contains Service Pack 1, you need not apply the service pack again.)
 - ft Server Control Software update module See Chapter 1 (4.8.1 Applying ft Server Control Software Update Module) for more information.

4.3.3 Before setting up

Before starting setup, read through Chapter 1 (4.1 Before Starting Setup) for successful setup.

4.3.4 Setup procedure

- 1. Prepare for setup according to Chapter 1 (4.1.2 Preparation).
- 2. Be sure to disable OS Boot Monitoring feature according to *Chapter 1 (4.1.3 Disabling OS Boot Monitoring Feature)*.

Important OS Boot Monitoring feature is enabled by the shipping default. Setup process will fail if this feature is enabled.

- 3. Power on the display unit, and then power on the server.
- 4. Start EXPRESSBUILDER according to Chapter 1 (1.1 Starting EXPRESSBUILDER).
- 5. When the following message appears, select OS installation *** default ***.

Boot selection
OS installation *** default ***
Tool menu
Automatic boot in 7 seconds

The following window appears.

Str	arting EXPRES	SBUILDER	
	٠		

The server starts from EXPRESSBUILDER.



6. Select **English** on the language selection window, and then click **OK**.

	EXPRESSBUILDE	R
0	Question	
	表示する言語を選んでください。 Select the language for displaying.	
	 ○ 日本語 ⑧ English ○ Français ○ Italiano ○ Deutsch ○ Español 	
	ок	

7. Click Setup.

Setup	Setup	
0	Versions	
٥	Exit	

- 8. On the OS selection menu, select the OS to install or specify the parameter file.
 - □ When not using parameter file: Go to Step 9.

□ When using a parameter file: Go to Step 10.

Note When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.

9. When not using a parameter file, select an OS by either of the following two ways:

ć) S selection	2 Settings	3 Confirmation	4 Inst	allation
1	Selec	t an operatin	g system to in	istall.	
ſ		utomatic De	etection	.,,	$\overline{)}$
(lanual Selec	tion		Ď
(C» ۱	oad Settings	5		5
					Setup

To automatically detect the OS on the OS installation media:

(1) Click Automatic Detection.

1 2 3 Selection settings	4 Installation
Select an operating system to ins (Click Manual Selection to configure a RAID array	tall.
Automatic Detection	₽
Select an operating system automatically with an installation disc.	
Load Settings	
	Setup

Insert the OS installation media, and then click **OK**.

To	check your OS installatior	n disc, insert it into the	e computer.
		[Mes	sage ID : B2014]
6			

(2) Click \bigcirc on the right side of the screen.

 \rightarrow Go to step 11.

1 Se	elect an operating system to install.
(Cli	ck Manual Selection to configure a RAID array only)
¥ 🕑	Automatic Detection
	Manual Selection
₽	Load Settings

To select an OS from the menu:

(1) Click Manual Selection.

1 2 3 Selection Settings Confirmation Installation	on
Select an operating system to install. (Click Manual Selection to configure a RAID array only)	
Automatic Detection	
Manual Selection	Ś
You can select the target OS of the installation from the menu.	
9	setup

(2) From the pull-down menu, select Windows Server 2008 R2, and then click OK.

	Select an operating system to install. O Windows Windows Server 2008 R2	
9	OVMware	
		-

- (3) Click \bigcirc on the right side of the screen.
 - \rightarrow Go to step 11.

1	Sele	ect an operating	system to ins	tall.	
1	(Click	Manual Selection to co	nfigure a RAID array	r only)	
E	9	Automatic Det	ection		
~ [Manual Selecti	on		
ſ	•	Load Settings			

10. When *using* the parameter file, click Load Settings.

1 OS selecti	on 2 Settings	3 Confirmation	4 Installation
Se	ect an operating	system to inst	all.
(Clic	k Manual Selection to c	onfigure a RAID array o	only)
e	Automatic De	ection	
	Manual Select	ion	
B	Load Settings		_₽
Load in	tallation settings.		
			Sei

1 OS selection	2 Settings	3 Confirmation	4 Installation	
mnt usr_connect				
<u>P</u> laces	Name		▼ Modified	
🗋 root	🗁 cdrom1		Tuesday	
File System				
💠 <u>A</u> dd 🛛 📟 <u>R</u> emove	1		-	
		X <u>C</u> a	ancel 🗁 Open	
			© _∆n	
			신엄미	21

Follow the on-screen instruction to load the parameter file (*.tre).

Tips

For the removable media in which the parameter file is saved, see "/mnt/usr_connect/usb*" (* indicates a number).

Click \bigcirc on the right side of the screen.

1 se	lect an operating sys	tem to install.	
(CI	ck Manual Selection to configu	ire a RAID array only)	ſ
e	Automatic Detect	ion	L
	Manual Selection		
¥ 🕒	Load Settings		

When the following screen appears, click \bigcirc on the right side of the screen. Click **Custom** to check and modify the setting in the wizard.

)	ð	Default	(
)			L

 \rightarrow Go to step 12.

11. Click Custom.



(1) RAID Configuration is unavailable on this server. Click Next.

Device Information			
RAID Controller		: No RAID contr	oller is detected.
Number of Physical	Drives	: 1	
-Summary of RAID Array	(
		k	
RAID Configuration	RAID Array		
			1 / 10 Page

(2) Check the settings specified for Basic Settings.

Select Use Windows standard installer, and then click Next.

Bas	ic Settings			
	Operating system	: Windows Serve	er 2008 R2	
	Use Windows sta	andard installer		
	🔲 Сору ОЕМ с	lrivers to removable m	edia	
	C Install Windows	using EXPRESSBUILDE	R	
	Edition	: Enterprise(Full I	Installation) 👻	
	Language	: English	*	
	Time Zone	: (UTC-08:00) Pa	acific Time (US & C	anada) 👻

(3) On the following screen, click \oslash on the right side of the screen.

2		
Ó	Default	
~ 01	Custom	

12. Check the parameter settings.

To save the settings, click $\ensuremath{\textbf{Save}}$.

	Confirm install	ation settings.	
	5 (Check if valid installation	on settings are specified)	
)	Operating system	: Windows Server 2008 R2	
/	(Use Windows standard installe	r)	
	Copying OEM drivers	: No	
		_	_

Click \bigcirc on the right side of the screen.

13. The setup process starts.Click Start to continue setup.

	1 2 3 Selection 2 Settings 3 4 Installation	
	Ready to set up the computer.	
	A partition has already been created. If you proceed, any data stored on the partition will be lost.	
~	Changing a CD/DVD	
\bigcirc	Installing an OS	
	Start	
	Setup	

Proceed with setup according to on-screen message.

14. Insert the OS installation media into the disk drive, and then click OK.

	Insert an OS installation	n disc for installing.	[Message ID : J2	000]
3				

- 15. The server reboots automatically.
- 16. The system starts from the OS installation media.

If an operating system is already installed on the hard disk drive, the message "Press any key to boot from CD or DVD..." is displayed on the top of the screen. Press **<Enter>** key to boot from OS installation media.

The boot sequence proceeds and the message "Windows is loading files..." appears.



This step is unnecessary if no operating system exists.

17. Click Next at default settings.



18. Click Install Now 😂.

Windows Server 2008 R2 installation starts.



19. Select the edition of the Windows you are going to install and the installation type.

The screen display differs depending on an OS installation media you are using.

Operating system	Architecture	Date modified
Windows Server 2008 R2 Standard (Full Installation)	x64	7/14/2009
Windows Server 2008 R2 Standard (Server Core Installation)	x64	7/14/2009
Windows Server 2008 R2 Enterprise (Full Installation)	x64	7/14/2009
Windows Server 2008 R2 Enterprise (Server Core Installation)	x64	7/14/2009
Windows Server 2008 R2 Datacenter (Full Installation)	x04	//14/2009
Windows Server 2008 R2 Datacenter (Server Core Installation)	x64	7/14/2009
Windows Web Server 2008 R2 (Full Installation)	x04	7/14/2009
user interface, and it supports all of the server roles.		

20. Confirm the content of the license agreement. If you agree, select **I accept the license terms** and then click **Next**.

MICROSOFT WINDOWS SERVER 2008 R2 XXXXXXXXX
These license terms are an agreement between you and
 the server manufacturer that distributes the software with the server; or
the software installer that distributes the software with the server.
Please read them. They apply to the software named above, which includes the media on which you received it, if any. Printed paper license terms, which may come with the software, take the place of any on-screen license terms. The terms also apply to any Microsoft
· updates,
₽ jaccept the license terms
Next

21. Select the installation type.

Select Custom (advanced) in this case.



- 22. "Where do you want to install Windows?" window appears.
- 23. Select a hard disk drive in which partition is to be created, click **Drive options (advanced)**.

If a partition has already been created, go to step 26.

Name		Total Size	Free Space Type
S Disk 0 Una	llocated Space	74.5 GB	74.5 GB
€ <u>y R</u> efresh € Load Driver	Delete	Eormat	<mark>∦</mark> Ne <u>w</u>

24. Click New.

Specify the partition size in the Size box, and then click Apply.

Note	The partition size must be 2TB or smaller.
Tips	When creating new partition, 100MB of boot partition is secured. When the following message appears, click OK .
	Install Windows To ensure that all Windows features work correctly, Windows might create additional partitions for system files. OK Cancel

- 25. Select the partition created in step 24, and then click Format.
- 26. Select the created partition, and then click Next.

0	🍠 Install Windows Where do you wa	ant to install Windo	ows?			
	Name		Total Size	Free Space	Туре	
	Disk 0 Partitio	n 1: System Reserved	100.0 MB	86.0 MB	System	
	Disk 0 Partitic	in 2	39.9 GB	39.9 GB	Primary	
	€ <u>R</u> efresh @ Load Driver	▶ Delete	✓ Eormat	₩ N <u>e</u> w	N	et
1 Collecting infor	mation 2 ^{Inst}	alling Windows				

Tips

The number of partitions displayed differs depending on the hardware configuration.

The following message appears and Windows installation starts.



27. After the installation of Windows Server 2008 R2 is completed, the following window appears, prompting you to change your password, click **OK**.

8	The user's p	assword must be	changed befo	re logging on the	
		ОК	Can	cel	
	-	Windo	ws Serv	er [.] 2008 <mark>R2</mark>	
28. Change your password, and then click the ジ button.



Tips

Passwords must satisfy the following requirements.

- Contains 6 or more characters.
- Contains characters from at least three of the following categories: numbers, uppercase letters, lowercase letters, and symbols.
- 29. Click OK.



30. Confirm the following according to the settings selected (displayed) in Step 19.

When the Initial Configuration Tasks window appears after you logged on, enter the user information.

				Mindows Son
Pe	rform the following tasks to configure t	his server		standbard with a www.serv
0	Provide Computer Information	1		Specifying computer information
	💦 Activate Windows	Product ID:	Not activated	
	P Set time zone	Time Zone:	(UTC-08:00) Pacific Time (US & Canada)	
	E Configure networking	Local Area Connection:	Not connected	
	Novide computer name and domain	Full Computer Name: Workgroup:	WIN-Q1SKAJAVAF5 WORKGROUP	
0	Update This Server			Updating your Windows server
	Seable automatic updating and feedback	Updates: Feedback:	Not configured Windows Error Reporting off Not participating in Customer Experience In	sprovement Program
	Pownload and install updates	Checked for Updates: Installed Updates:	Never Never	
0	Customize This Server			Customizing your server
	K Add roles	Roles:	None	
	Add features	Features:	None	
	Same Enable Remote Desktop	Remote Desktop:	Disabled	
	Configure Windows Frewall	Firewall:	Public: On	

- 31. Install Starter Pack by referring to Chapter 1 (4.4 Installing Starter Pack).
- 32. Install the ft Server Control Software according to *Chapter 1 (4.5 Installing ft Server Control Software)*. When installation completes, Setup Checklist appears on screen.
- 33. Install the NEC ESMPRO Agent.

Tips	See Chapter 2 (1.1 NEC ESMPRO Agent (for Windows) for installation of NEC ESMPRO
	Agent.

 When ft Server Setup list appears, confirm the list items. Provide setup for the item which is unchecked.



□ Install Options (LAN, SAS, Fibre Channel board)

If you have an option board that is not yet installed, install it according to Chapter 2 (5.7 PCI Card) in Maintenance Guide.

Update Software

See Chapter 1 (4.8.1 Applying ft Server Control Software Update Module).

Apply Windows Service Pack

See Chapter 1 (4.7 Applying Service Pack).

Service Pack 1 is applied if you use the OS install media containing Service Pack 1.

Configure duplex LAN

See Chapter 1 (4.9 Duplex LAN Configuration).

Configure dual Disk

See Chapter 1 (4.10 Configuring Duplexed Disks).

Create Volume

See Chapter 1 (4.11 Creating Volume).

□ Change setting of SNMP service for NEC ESMPRO Agent

See Chapter 2 (Installing Bundled Software).

Enable OS Boot Monitoring

See Chapter 1 (4.13 Enabling OS Boot Monitoring Feature).

Setup for Solving Problems

See Chapter 1 (4. Setup for Solving Problems).

Tips

If necessary, perform license authentication procedure according to *Chapter 1* (4.14 *License Authentication*).

Back up System Information

See Chapter 1 (7. Backing Up System Information).

Setup with Windows standard installer is now complete.

4.4 Installing Starter Pack

Starter Pack contains drivers customized for this server. Be sure to apply Starter Pack before running the system.

Important	Also install Starter Pack in the following cases.
	 The system configurations have changed (when internal option devices have been added or removed) If a dialog box prompting you to restart appears after changing system configurations, click No and then install Starter Pack. If the system was restored using a restore process
	If a system has been restored using the backup tool
Note	The Scalable Networking Pack (SNP) function is disabled upon Starter Pack installation is complete.
	The setting of one function may alreet the system performance.
Tips	If the OS is installed by using EXPRESSBUILDER, Starter Pack is already applied. If the configuration is not changed, you do not need to apply Starter Pack again.

- 1. Log in to the system with the built-in administrator (or user with administrative privileges).
- 2. Insert EXPRESSBUILDER DVD into the optical disk drive.
- 3. Click **Integrated Installation** on the menu.

Autorun N	denu	Version 7.00-000.00 (000)
	Instruction Manual	
0	Versions	
	Integrated Installation	
	Applications	
×	Exit	

On the following screen, make sure that the Starter Pack option is selected, and then click Install.

- Uninstall the app	plication prior to reinstalling t	the application.	
Starter Pack			
Applications-	-or software		
NEC ESM	IPRO Agent		
Express	Report Service		
Express	Report Service (HTTPS)		
Product :	Info Collection Utility		
BMC Con	figuration		
	la stall	0	

- Tips
- If Starter Pack is already installed, the **ft Server Control Software** is selected by default. To install Starter Pack again, select the **Starter Pack**.
- 4. Read the message, and then click OK.

Starter Pack installation starts.



5. The following message appears when Starter Pack installation is complete.

Follow the instructions in the message, and remove EXPRESSBUILDER DVD.



6. Click **OK** to restart the system.

Installation of Starter Pack is now complete.

4.5 Installing ft Server Control Software

You must quit all programs including Microsoft management console.

1. Install ft Server Control Software in the following procedure.

When ft Server Control Software UPDATE media is not provided:

- (1) After logging on to the system as a user with the Administrative account, insert the EXPRESSBUILDER DVD into the optical disk drive of the server.
- (2) On the menu screen, click Integrated Installation, select ft Server Control Software on the menu, and then click Install.

Application NEC ESMPRO Agent Express Report Service Express Report Service (HTTPS) Product Info Collection Utility BMC Configuration	- (Jnable to select (Applications] when Starter Pack is not installed. Jninstall the application prior to reinstalling the application.
NEC ESMPRO Agent Express Report Service Express Report Service (HTTPS) Product Info Collection Utility BMC Configuration	,	tr server Control Software
Express Report Service Express Report Service (HTTPS) Product Info Collection Utility BMC Configuration	Τ	NEC ESMPRO Agent
Express Report Service (HTTPS) Product Info Collection Utility BMC Configuration		Express Report Service
Product Info Collection Utility BMC Configuration		Express Report Service (HTTPS)
BMC Configuration		Product Info Collection Utility
		BMC Configuration

When ft Server Control Software UPDATE media is provided:

Install ft Server Control Software from the UPDATE media according to *Instruction Manual* that comes with the media.

Follow the instructions to proceed with the installation.

Note	The message "ft Server Control Software, Now Installing Please Wait." is displayed
	during installation.
	Do not use the keyboard or mouse while this message is being displayed.

- 2. When installation starts, a message "If there is a disc in the DVD drive, please remove it." will be displayed. If EXPRESSBUILDER DVD is set in optical disk drive, remove it.
- 3. The system is rebooted several times during the installation. After the system is rebooted, log in again as the user logged in before rebooting.
- 4. Installation of the ft Server Control Software resumes after you logged on.
- 5. When the message "Installation is finished" is displayed, click OK to reboot the server.

Note

Change the screen to check the message by using the taskbar, as the message may hide behind the screen.

4.6 Installing Applications

EXPRESSBUILDER contains applications including NEC ESMPRO Agent and NEC ESMPRO Manager. Some applications stored in EXPRESSBUILDER can be installed collectively by performing the procedures described below. When installing these applications individually, see *Chapter 2 (Installing Bundled Software)*. This feature is available only on the server with Full Installation.

- 1. Logon to Windows on the server with the Built-in Administrator (or an account having administrative privilege).
- 2. Insert the EXPRESSBUILDER DVD into the optical disk drive, double-click **dispatcher_x64.exe** in the following folder.

<EXPRESSBUILDER>:\autorun\dispatcher_x64.exe

3. Click Integrated Installation on the menu.

	Instruction Manual	
0	Versions	
Ŧ	Integrated Installation	
	Applications	
	Exit	

4. On the following screen, select **Applications**, and select the check boxes corresponding to the applications to install, and then click **Install**.

- (Ininistall the application prior to reinstalling the application.
1	Applications
	♥ NEC ESMPRO Agent ♥ Express Report Service ♥ Express Report Service (HTTPS) ♥ Product Info Collection Utility ♥ BMC Configuration

Note

- Applications available for installation are selected by default.
 - An application that has been already installed need to be uninstalled before installing it again.
 - If your system environment does not satisfy the prerequisite for an application, you cannot install it. (For details, refer to the on-screen information and *Chapter 2* (*Installing Bundled Software.*)

The selected applications are installed automatically.

5. When a message appears, click **Restart**, and then remove the EXPRESSBUILDER disk from the optical disk drive.

Now installation of applications is completed.

4.7 Applying Service Pack

When applying Service Pack 1, refer to "About Windows Server 2008 R2 Service Pack 1" on the web site below.

http://www.58support.nec.co.jp/global/download/w2008r2/sp1.html

4.8 Setup Various Software

4.8.1 Applying ft Server Control Software Update Module

If you use ft Server Control Software UPDATE media, refer to the installation procedure enclosed in the UPDATE media to apply the update.

note

·	 Be sure to disable OS Boot Monitoring feature before updating ft Server Control Software according to <i>Chapter 1 (4.1.3 Disabling OS Boot Monitoring Feature)</i>. In addition, disconnect all the network cables from the server before starting update.
•	Upon completion of update, set OS Boot Monitoring feature to Enabled .
·	If ft Server Control Software is updated in dual LAN configuration, the name of team is deleted from display name of LAN card. It does not affect system operation, however, if you want to return them to original state, remove the team and create it again.
•	When you update ft Server Control Software in the state of non-activating the LAN port which is not used, the LAN port is activated after updating. You need to make the

4.8.2 Applying Security Patches and QFE

When you use the server for the first time, apply the QFE for knowledge information listed below, for stable operation of your server. You can obtain these QFEs from Microsoft web site.

• KB2471472

An NDIS device cannot be failed over on a fault-tolerant system that is running Windows 7 or Windows Server 2008 R2 after you remove another NDIS device. (http://support.microsoft.com/kb/2471472)

KB2528507

Fails to collect memory dump in Windows 7 (x64) or Windows Server 2008 R2 SP1 environment. (http://support.microsoft.com/kb/2528507)

Note that KB2528507 must be applied on the system where Windows Server 2008 R2 Service Pack 1 has already been applied.

The QFEs listed below contains the infomation of KB2528507, therefore, if you apply any of these QFEs, you need not to apply KB2528507 furthermore.

KB2534366, KB2556532, KB2633171, KB2724197, KB2799494, KB2813170, KB2859537, KB2872339

• KB2528984

Functionality issues on USB devices that are connected to a Windows 7-based computer on an Intel platform

(http://support.microsoft.com/kb/2528984)

Refer to Microsoft knowledge base for details of QFE. These QFEs may be included in the other update programs in future. If such a program is already applied, you need not to apply these programs.

When applying security patches and QFE, there is no restriction specific to ft Server is imposed. Apply patches according to your system environment.

Important

As for Windows service pack, use only the one provided with the server. Do not apply any other service pack.

4.9 Duplex LAN Configuration

The Express5800/ft series builds a duplex LAN configuration by using "Stratus emb-82576 2-Port Gigabit Adapter" or "Stratus emb-X540 2-Port Copper 10 Gigabit Adapter (*)" mounted as standard on the CPU/IO module and the additional LAN card "Stratus 82576 2-Port Copper Gigabit Adapter" or "Stratus X540 1-Port Copper 10 Gigabit Adapter".

(*) Express5800/R320c-E4 and R320d-E4 model do not have this adapter.

(1) Overview

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

• Adapter Fault Tolerance (AFT)

AFT is a feature that places more than one LAN adapters on the same switch, and automatically switches the process of the active adapter to the backup adapter when any trouble occurred on the active adapter. STP (Spanning Tree Protocol) on switch must be disabled.

Adaptive Load Balancing (ALB)

ALB includes features of AFT, and enhances the throughput by distributing packet transmission by using LAN adapters simultaneously.

Receive Load Balancing (RLB) is enabled by default. Disable RLB and remove adapter priority when using ALB.

• Switch Fault Tolerance (SFT)

SFT is a feature that provides redundant network, as two adapters are connected to corresponding two switches. One is assigned to the active adapter and the other is assigned to the standby adapter. Usually the active adapter is used for communication.

Spanning Tree Protocol (STP) function is required to construct the path redundancy on the switch devices.

When you build the environment, you need to set the switch priority in order to maintain the path to the active adapter after the path information is updated if a switch on the path is broken. In addition, you need to set the priority to use the standby adapter's switch if the active adapter's switch is broken.

The other modes, "Static Link Aggregation", "IEEE 802.3ad Link Aggregation", and "Virtual Machine Load Balancing" do not contribute to enhancement of network availability. When a fault occurs, the communication performed on the failed adapter is not taken over by the standby adapter but lost.

(2) Rules of Duplex Configuration on Express5800/ft series

When building duplex configuration, be sure to use both adapters CPU/IO module 0 and 1.

Example 1) Configure the duplex network which enhances the service life by using all adapters.



Example 2) Configure the duplex network which corresponds to multiple LAN connection.



(3) Configuring Duplex LAN

This section describes how to configure duplex LAN.

Note

- Because the configuration from the remote site may fail, you need to log on as an Administrator or a member of Administrators group.
 The screen images are subject to change because of the network driver version.Substitute as appropriate when content has been modified.
- 1. Select Start \rightarrow Administrative Tool \rightarrow Computer Management \rightarrow Device Manager.

Note	Check Network Adapter , and if LAN adapters are duplicated as shown below, remove all LAN adapters from Device Manager , then select Action – Scan for hardware changes .
	Stratus emb-82576 2-Port Ginabit Adapter
	Stratus emb-82576 2-Port Gigabit Adapter
	Stratus emb-82576 2-Port Gigabit Adapter #2
	Stratus emb-82576 2-Port Gigabit Adapter #2
	The display will be as follows when the actions are performed properly.
	Stratus emb-82576 2-Port Gigabit Adapter
	Stratus emb-82576 2-Port Gigabit Adapter #2
	Stratus emb-82576 2-Port Gigabit Adapter #3
	Stratus emb-82576 2-Port Gigabit Adapter #4
	When 10GBASE-T is used, the network adapter names"Stratus emb-X540 2-Port Copper
	10 Gigabit Adapter" and "Stratus X540 1-Port Copper 10 Gigabit Adapter" are displayed.

 Select a target LAN Adapter. Select Properties from the right-click menu to open the Properties window.



3. Select the **Teaming** tab on the **Properties** dialog box. Select the **Team this adapter with other adapters**, and then click the **New Team...** button.

Stratus emb-82576 2-Port Gigabit Adapter P	roperties	1	×
Driver Details	Resou	rces	1
General Link Speed Advanced	Teaming	VLANs	Ļ
Adapter Teaming			
Team this adapter with other adapters			1
Team:	New Tea	m	
No teams available	Propertie	\$	
Team with other adapters			
Allows you to specify whether a network cor participate in a team. For an overview of team If not checked this adapter is not part of a team	nnection will ing, <u>click here</u> . m.	*	
		¥	
	ОК	Cancel	1

Stratus emb-82576 2-Port Gigabit Adapter and Stratus 82576 2-Port Copper Gigabit Adapter is used



Stratus emb-X540 2-Port Copper 10 Gigabit Adapter and Stratus X540 1-Port Copper 10 Gigabit Adapter is used

4. Enter the team name and click Next.



Note

Specify the team name with 3 or more characters.

If the team name is specified with 3 or less characters, creating the secondary team will fail with the following pop-up message displayed: **"Failed to create a team."**

5. Select the adapters to include in the team and click Next.

New Team Wizard		×
	Select the adapters to include in this team: Stratus emb-82576 2-Port Gigabit Adapter Stratus emb-82576 2-Port Gigabit Adapter #2 Stratus emb-82576 2-Port Gigabit Adapter #3 Stratus emb-82576 2-Port Gigabit Adapter #4 Stratus emb-X540 2-Port Cooper 10 Gigabit Adapter	•
	This list shows the adapters that are available for Advanced Networking Services (ANS) teaming. Adapters that do not support ANS teaming, are already members of another team, or are otherwise unable to join a team, are not listed. Check the adapters you wish to include in the team. Some non-Intel adapters are supported in ANS teams. For	4
	< Back Next > Cance	el

Note	Check "PCI b Use adapters bus number a	us" and "Function (*)" of adapters to be included in the team. of the same functionality. Create a team with an adapter having smaller PCI nd an adapter having larger PCI bus number.
	(*) "Function"	can be verified in General tab of Properties window.
	PCI bus:	Smaller value (PCI module #0 side) Larger value (PCI module #1 side)
	Function:	0 (Port #0 side) 1 (Port #1 side)
	Example:	
	Team 0 PCI bus PCI bus	s (smaller value), Function 0 (Port #0 side) s (larger value), Function 0 (Port #0 side)
	PCI bus PCI bus	s (smaller value), Function 1 (Port #1 side) s (larger value), Function 1 (Port #1 side)

feature is enabled.

6. Select Adapter Fault Tolerance, Adaptive Load Balancing, or Switch Fault Tolerance as a team mode. Click Next.

Adapter Fault Tolerance (AFT) provides redundancy through adapter fault Tolerance (AFT) provides redundancy through adapter in the case of switch port, cable, or adapter failure. One adapter is selected to be the active adapter. All other adapters are in standby. Primary and Secondary adapters can be selected for the team, but are not required.	Select a team type: Adaptive Load Balancing Static Link Aggregation IEEE 802.3ad Dynamic Link Aggregation Cirkle For the Televener
< Back Next > Cancel	Adapter Fault Tolerance Adapter Fault Tolerance (AFT) provides redundancy through automatic failovers from an active adapter to a standby adapter in the case of switch port, cable, or adapter failure. One adapter is selected to be the active adapter. All other adapters are in standby. Primary and Secondary adapters can be selected for the team, but are not required. • If a Primary adapter is chosen it becomes the active
	< Back Next > Cancel

7. Select Standard Server from the dropdown list on Select a profile to apply to the team, and click Next.



8. Click Finish.



- 9. Start Command prompt and enter as follows to check the physical MAC address of team adapter.
 - > ipconfig /all

🕰 Administrator: Command Prompt) ×
Ethernet adapter Locamana to a constant of the set of t	
Link-local IPv6 Address : fe80::7501:ff87:8ecc:c6c0743(Preferred) Autoconfiguration IPv4 Address . : 169.254.198.192(Preferred) Subnet Mask : 255.255.00	
Default Gateway : DNS Servers : fec0:0:0:ffff::1x1 fec0:0:0:ffff:2x1 fec0:0:0:ffff:3x1	
NetBIOS over Tcpip : Enabled	-

10. Select the Team Adapter you have set from **Device Manager**. Select **Properties** from the right-click menu to open the properties dialog box.

File Action View Help Image:	File Action View Heip Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Manager (R320C) Image: Server Serv	Server Manager		<u>_ ×</u>
Image: Roles Image: Roles Image: Roles Device Manager Image: Roles Image: Roles Image: Roles Image: Roles <tr< th=""><th>Server Manager (R320C) Packets Diagnostics Packets Packets</th><th>File Action View Help</th><th></th><th></th></tr<>	Server Manager (R320C) Packets Diagnostics Packets	File Action View Help		
Image: Resure Manager (R320C) Image: Relatives Image: Relat	Image: Device Hanage: Image: Image:	🗢 🔿 🖄 🖬 🗐 😨 👘		
	popula property and content according	Server Manager (R320C) H Role Features Dagnotics Derrotics Derrotics Derrotice Manager Configuration Storage	Device Manager R 320C Disk drives Stratus emb-353752-Port Gigabit Adapter #3 Stratus emb-350-2-Port Copper 10 Gigabit Adapter #3 Stratus emb-350-2-Port Copper 10 Gigabit Adapter #4 Diskabe Dishor hardware ch	
	opena property anece for the content accessorie	Opens property sheet for the current se	lecton.	

- 11. Set the MAC address for Team Adapter as follows:
 - Select the Advanced tab on the Properties dialog box. Select Locally Administered Address from the Settings list box
 - Enter the MAC address of a Team Adapter, which you have checked in Step 9 in the Value: text box.
 - Click OK.

TEAM : Team #0 Properties	X
General Settings Advanced VLANs Dr	iver Details
Advanced Team Settings	
Settings:	Value:
Activation Delay Allow Failback	00255CA6A255
Check Time (in Seconds)	
Number of RX packets	
Probes	
	Use Default
Locally Administered Address	
Changes the MAC address used by this n address is a 12-digit hexadecimal number 0000 0001 - FEFF FFFF FFFF	etwork adapter. The 🔺 in this range: 0000
CAUTION: Make sure no other sys use this address.	tems on the network
Notes	
Do not use a multicast address (least shorte = 1)	significant bit of the high
	OK Cancel

- 12. Disable probe function when the team configured with only two adapters.
 - Select the Advanced tab in the Properties window. Select Probes from the Settings list box.

TEAM : Team #0 Properties	×
General Settings Advanced VLANs Driver Details	
Settings: Activation Delay Allow Failback Check Time (in Seconds) Locally Administered Address Number of RX packets Number of TX packets Probes	
Probes Enables the use of probes for the team. Probes are packets passed over the network between team members to allow the Advanced Network Services (ANS) Teaming software to test the member's status. They do add a small amount of traffic to the network and should be turned off in near-capacity networks. Image: Software to the team of team of team of team of the team of t	
OK Cancel	

- Click Properties and uncheck to Send Probes.

Probes	×
Send probes	
Number of probes to send	
10	
Probe type	
Broadcast	
C Multicast	Use Defaults
Probes are packets passed over the net team members to allow the Advanced I (ANS) Teaming software to test the me • Send Probes enables the use of p team. • Number of probes to send defin	etwork between letwork Services mber's status. robes for the es the number of Cancel

- Click OK.

The Probe setting is not displayed when **Switch Fault Torelance (SFT)** feature is specified. Go to Step 13.

Note

When **Probe** is enabled in an environment where the team is configured with two adapters, if either of adapters fails, the other (healthy) adapter may be recognized as failed. If the team is configured with four adapters, you do not need to disable **Probe**.

- 13. When you select **Adaptive Load Balancing** as a team mode, you need to disable **Receive Load Balancing** and remove the adapter priority.
 - (1) Select the **Advanced** tab on the properties dialog box. Select **Receive Load Balancing** from the **Settings:** list box, and then select **Disabled** from the **Value:** drop down list.

TEAM : Team #0 Properties	×
General Settings Advanced VLANs Driver Details	
Advanced Team Settings	
Settings: Value:	
Check Time (in Seconds) Load Balance Refresh Rate Locally Administered Address Number of TX packets Probes Receive Load Balancing Use Default	
Receive Load Balancing	
Allows you to enable or disable Receive Load Balancing (RLB). Allows is enabled by default on Adaptive Load Balancing teams.	
RLB requires a Primary adapter. Intel® PROSet will automatically assign a Primary adapter when the team is created. To change the Primary adapter, use the Modify Team button on the Settings tab.	
Notes: ALB and RLB load balance IP traffic. All other traffic is backled by the Drimony adapter	
OK Cancel	

- (2) Click **OK** to apply a change. The dialog will close.
- (3) Show the properties dialog again.
- (4) Select the **Settings** tab on the Properties dialog box and click **Modify Team** button to display the dialog box.
- (5) Select the adapter that the priority is set, and then press the **Remove Priority** button to remove the priority.

am #0		?
Adapters Type Name		
Select the adapters to include in this team:		Priority 🔺
Stratus emb-82576 2-Port Gigabit Adapte	er	Primary
Stratus emb-82576 2-Port Gigabit Adapte	er #2	
Stratus emb-82576 2-Port Gigabit Adapte	er #3	
Stratus emb-82576 2-Port Gigabit Adapte	er #4	Not Set 🚬
Set Primary	Remove	Priority
Set Secondary		
This list shows the adapters that are availab Networking Services (ANS) teaming. Adapte support ANS teaming, are already members are otherwise unable to join a team, are not Adapters with a check next to them are curr ANS team. The Priority column shows if a te to Primary or Secondary.	ble for Advar ers that do no of another to listed. rently include amed adapte	nced ot eam, or ed in the er is set
		1

(6) Click **OK** to close the dialog box.

4.10 Configuring Duplexed Disks

Express5800/ft series secures data by setting dual disk configuration using RDR (Rapid Disk Resync) function. Be sure to make dual disk settings according to the procedure described below.

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 performing procedure in <i>Chapter 1 (4. Setup for Solving Problems</i>).
	•	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.
	•	All hard disk drives installed in built-in slots need to be duplexed. See Chapter 1 (4.10 (1) Setting Dual Disk Configuration by RDR (Rapid Disk Resync) function) and duplex the hard disk drives in each slot.

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

The server 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).



Slots corresponding to the mirroring process

Corresponding slot
PCI module 10 Slot 0 ⇔ PCI module 11 Slot 0
PCI module 10 Slot 1 ⇔ PCI module 11 Slot 1
PCI module 10 Slot 2 ⇔ PCI module 11 Slot 2
PCI module 10 Slot 3 ⇔ PCI module 11 Slot 3
PCI module 10 Slot 4 ⇔ PCI module 11 Slot 4
PCI module 10 Slot 5 ⇔ PCI module 11 Slot 5
PCI module 10 Slot 6 ⇔ PCI module 11 Slot 6
PCI module 10 Slot 7 ⇔ PCI module 11 Slot 7

 In the table above, PCI module names correspond as follows: PCI module (for CPU/IO module 0) - PCI module 10 PCI module (for CPU/IO module 1) - PCI module 11

•	To perform this procedure, you need to log on as an Administrator.
•	RDR can only be set on the basic disk inserted into the built-in slot of NEC Express5800/ft series. It cannot be set on the dynamic disk.
•	For the disk on which RDR is set, use the products with the same model 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.
•	Be sure to use a basic disk as the system disk. Only a data disk can be used for a dynamic disk.
	• • •

Dual disk configuration procedure differs depending on the procedure whether it is for the system disk (slot 0) or the data disk (slot 1 to slot 7).

Tips

Note

To configure the dual disk of the system disk, see (2) System Disk Dual Configuration Procedure below.

To configure the dual disk of the data disk, see (3) Data Disk Dual Configuration Procedure below.

(2) System Disk Dual Configuration Procedure

Configure the dual disk of the system disk with the following procedure.

From Start, select All Programs then RDR and click RDR Utility to start RDR Utility.

1. On the left pane of the RDR Utility, select Slot 0 disk of PCI Module 10 and confirm that "ConfigState" on the right pane shows "Boot, Configured, Active, Imported".

🗿 RDR Utility (ft-SW :		
<u>Eile A</u> ction <u>H</u> elp		
⊡-PCI module 10	Name	Value
🖻 - SCSI Enclosure	DevicePathID	10/40/1/0
Slot 0 - Harddisk0-LUN1-PLEX0	Op State: State	Simplex
Slot 1	Op State: Reason	None
Slot 2	Vendor	SEAGATE
Slot 2	ProductID	ST9146852SS
Slot 3	ProductRevisionLevel	N005
Slot 4	SerialNumber	3TB09FAG00009952HLUU
Slot 5	ObjectName	Harddisk0-LUN1-PLEX0
Slot 6	Capacity	136.44 GB
Slot 7	ConfigState	Boot, Configured, Active, Imported
Ė-PCI module 11	MIBH: HardCurrent	Unknown
⊟- SCSI Enclosure	MTBF: HardNumberOfFaults	0
Slot 0	MTBF: SoftCurrent	Unknown
Slot 1	MIBE: SoftNumberOfFaults	U

Tips

- For details of RDR Utility, refer to Chapter 2 (1.2 Disk Operations Using RDR (Rapid Disk Resync) Function) in the Maintenance Guide.
- The display of RDR Utility does not refresh automatically. From the menu, go to Action and click Refresh or press F5 key every time you conduct disk-related operations such as connecting/disconnecting disks or configuring the RDR.
- On RDR Utility, PCI module names appear as follows.
 - PCI module (CPU/IO module 0) PCI module 10
 - PCI module (CPU/IO module 1) PCI module 11
- 2. Insert the disk for the dual configuration to the Slot 0 of PCI Module 11.

Important	For a disk to be inserted, use a new or physically formatted disk which has the same capacity as the synchronization source. If such a disk is not used, disks are not duplicated successfully.
	As for physical format, refer to Chapter 3 (3. SAS Configuration Utility) in
	Maintenance Guide.

3. From Start, select Control Panel, Administrative Tools and start Computer Management. On the tree in the left pane, click Disk Management.

If the inserted disk is indicated as Not Initialized in the right pane, right-click the disk and initialize it.



- Important When a disk is inserted or initialized, a popup window asking for rebooting the system may be displayed, but there is no need to reboot it. Select Restart Later and close the popup window.
- 4. On the left tree of RDR Utility, right-click **Slot 0** disk of **PCI Module 11** and click **Add Physical Disk To RDR Virtual Disk**.



5. Click OK.



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

	DISK ACCESS LED	RDF	t Utility
		Op State: State	Status
Source disk	Amber (Blinking)	Simplex	-
Destination disk	Amber (Blinking)	Syncing	-
RDR Virtual Disk	_	Simplex	Resync x % (x = 0, 4, 8,, 96)

Synchronizing

Tips

DISK ACCESS LED is lit green when hard disk drive is accessed. If access is made while synchronization is in progress (LED is blinking amber), it seems that the green and amber LEDs are lit alternately.

The time required for synchronization varies depending on the partition size on the disk. For a 136 GB partition, it takes about 100 minutes.



Important

- If the system is rebooted during synchronization, the process cannot be completed. Do not restart the system until the synchronization is completed.
- When the system is halted without shutting down Windows properly due to forced shutdown or others, the entire area of the partition on the synchronized disks will be resynchronized after the system is restarted.

Synchronization completed

	DISK ACCESS LED	RDR	t Utility
		Op State: State	Status
Source disk	Green (Blinking)	Duplex	-
Destination disk	Green (Blinking)	Duplex	-
RDR Virtual Disk	-	Duplex	None

Tips

DISK ACCESS LED is lit green only when hard disk drive is accessed. If no access is made, the LED seems to be unlit.

PCI module 10	Name	Value
Ė- SCSI Endosure	DevicePathID	39/1
- Slot 0 - Harddisk0-LUN1-PLEX0 - Slot 1	Op State: State Op State: Reason	Duplex Ivone
Slot 2 Slot 3	Vendor ProductID	Stratus Data Duplex LUN
Slot 4 Slot 5	SerialNumber	4 89c5d465-79ed-47f6-a70c-166ce9efaa 126-44-CP
Slot 6	ObjectName	Harddisk0 BDB Vietnal Diele 1
PCI module 11	DevicePath[1]	10/40/1/0
SCSI Enclosure	ActiveRDRPlex	Harddisk0-LUN1-PLEX0
Slot 1	ReadLoadBalancing Resynct LINPriority	Un High
Slot 2 Slot 3	Status	None
Slot 4 Slot 5		
Slot 6		

(3) Data Disk Dual Configuration Procedure

Follow the procedure below to configure dual data disk for the slots 1 to 7.

Note

The following shows how to configure dual disk for the slot 1. If you want to configure the dual disk for slot 2 to slot 7, read "slot 1" as the slots you want to make dual configuration and perform the procedure.

1. Insert a disk for the dual configuration into the slot 1 of PCI Module 10.

If a disk is already mounted, this procedure is not necessary. Go to step 4.

2. From **Start**, select **Control Panel**, **Administrative Tools** and start **Computer Management**. On the tree in the left pane, click **Disk Management**.

If the inserted disk is indicated as Not Initialized in the right pane, right-click the disk and initialize it.



- Disk may become offline when RDR is set. In this case, use "Disk Management" to make it online.
- 3. From Start, select All Programs then RDR and click RDR Utility to start RDR Utility.

4. On the left pane of the RDR Utility, right click on the **Slot 1** disk of **PCI Module 10** and select **Create RDR Virtual Disk**.

Tips

Depending on the disk condition, RDR setting may take some time and RDR Utility may pause for a few minutes. There is no error, so wait until the process is completed.

🗿 RDR Utility (ft-SW:)			
File Action Help				
⊡ PCI module 10		Name	Value	
 SCSI Enclosure 		DevicePathID	10/40/2/	1
Slot 0 - Harddisk0-	LUN1-PLEX0	Op State: State	Online	
Slot 1 - Harddisk1		Op State: Reason	None	
Slot 2	Create RDR	Virtual Disk		355
····Slot 3	Add Physical	Disk To RDR Virtual Disk		100
··· Slot 4	sical Disk From RDR Virtual D	rick	00009923WHJM	
···· Slot 5	Delete RDR. Configuration on Physical Disk			
···· Slot 6				
Slot 7	Clear Hard MTBF			red
⊡ PCI module 11	Clear Soft M	TBF		
SCSI Enclosure				-
Slot 0 - Harddisk0	Resynchroni	ze This Physical Disk From RI	DR. Virtual Disk.	
Slot 1	Set As Activ	e RDR Plex		
Slot 2				_
Slot 3				
Slot 4				
Slot 5				
Slot 6				

5. Click Yes.

Create RI	DR Virtual Disk	×
Â	Changing the configuration of this device may require a system reboot. Are you sure you want to continue with the operation?	
	<u>Y</u> es	.)

6. Click OK.



Important If RDR is specified to a disk which contains the system partition or partition which cannot be unmounted, the system restart pop-up message appears. If you click Yes, the system is restarted in two minutes automatically. Go on to Step 8. when the system is restarted.

7. Insert the disk to set dual configuration into the slot 1 of PCI module 11, and perform the Step 2.

If a hard disk drive is already mounted, this procedure is not necessary. Perform the Step 2 only.

ImportantFor a disk to be inserted, use a new or physically formatted disk which has the same
capacity as the synchronization source. If such a disk is not used, disks are not
duplicated successfully.As for physical format, refer to Chapter 3 (2. SAS Configuration Utility) in
Maintenance Guide.

8. Right-click the **Slot 1** of the **PCI module 11** from the left pane of RDR Utility, and then click **Add Physical Disk To RDR Virtual Disk**.

🗿 RDR Utility (ft-SW:	4 A D		
File Action Help			
⊡-PCI module 10		Name	Value
È - SCSI Enclosure 	HUN1-PLEX0 HUN2-PLEX0	DevicePathID Op State: State Op State: Reason Vendor ProductID ProductRevisionLevel SerialNumber ObjectName Capacity ConfigState MTBF: HardCurrent MTBF: HardCurrent MTBF: SoftCurrent MTBF: SoftCurrent MTBF: SoftCurrent	11/40/2/2 Online None SEAGATE ST9146803S5 N005 33D2QFN400 Harddisk2 136.44 GB Unconfigured Unknown 0 Unknown 0
Slot 1 - Harddisk2	Create RDR Vi	irtual Disk	
Slot 2	Add Physical D	Disk To RDR Virtual Disk	
Slot 4 Slot 5 Slot 6	Remove Physi Delete RDR Co	cal Disk From RDR. Virtual Disk onfiguration on Physical Disk	
Slot 7 Clear Hard MTBF			
RDR Virtual Disk 1 RDR Virtual Disk 2	Resynchroniza Set As Active	e This Physical Disk From RDR Virt RDR Plex	:ual Disk

9. Click **OK**.



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

Synchronizing

		RDF	R Utility
		Op State: State	Status
Source disk	Green (Blinking)	Online	-
Destination disk	Amber (Blinking)	Syncing	-
RDR Virtual Disk	_	Simplex	Resync x % (x=0,4,8,,96)

Tips

S	 DISK ACCESS LED is lit green when hard disk drive is accessed.
	If access is made while synchronization is in progress (LED is blinking amber), it
	seems that the green and amber LEDs are lit alternately.
	 The time required for synchronization varies depending on the partition size on the disk.
	For a 136 GB partition, it takes about 100 minutes. When no partition exists on the disk
	synchronization is completed immediately after the RDR is set, and Op State: State changes to Duplex .
	However, when the dynamic disk is used, the time required for synchronization
	depends on the disk size regardless of whether or not a partition exists. For a 136 GB
	disk, it takes about 100 minutes.

RDR Utility (ft-SW: 444) Ele Action Help -PCI module 10 -Slot 0 - Harddisk0-LUN1-PLEX0 -Slot 1 - Harddisk1-LUN2-PLEX0 -Slot 2 -Slot 3 -Slot 4 -Slot 5 -Slot 5 -Slot 6	Name DeviceDathTD Op State: State Op State: Reason Vendor ProductID ProductRevisionLevel SerialNumber Capacity ObjectName	Value 39/2 Simplex Norne Stratus Data Duplex LUN 4 d5cd47f2-9105-46b9-b489-a8ccb564774a 136.44 GB Harddisk1	
Slot 6 Slot 7 PCI module 11 SCSI Enclosure Slot 0 - Harddisk0-LUN1-PLEX1 Slot 1 - Harddisk1-LUN2-PLEX1 Slot 2 Slot 3 Slot 4 Slot 5 Slot 5 Slot 6 Slot 7 Slot 5 Slot 6 Slot 7 Slot 7 S	Opjectvame Caption DevicePath[1] DevicePath[2] ActiveRDRPlex ReadLoadBalancing Recyncl LINPriority Status	Hardolsk1 RDR Virtual Disk 2 10/40/2/1 11/40/2/1 Harddisk1-LUN2-PLEX0 On Normal Resync 92%, <mm:ss> remaining 00:01</mm:ss>	
Important If the sy complete	rstem is rebooted d. Do not restart the	during synchronization, the system until the synchronizatio	process cannot be on is completed.

• When the system is halted without shutting down Windows properly due to forced shutdown or others, the entire area of the partition on the synchronized disks will be resynchronized after the system is restarted.

Synchronization completed

	DISK ACCESS LED	RDR Utility Op State: State Status		
Source disk	Green (Blinking)	Online	-	
Destination disk	Green (Blinking)	Online	-	
RDR Virtual Disk	_	Duplex	None	

Tips

DISK ACCESS LED is lit green only when hard disk drive is accessed. If no access is made, the LED seems to be unlit.

RDR Utility (ft-SW :		
<u>File Action H</u> elp		
⊡ • PCI module 10 ⊡ • SCSI Enclosure Slot 0 - Harddisk0-LUN1-PLEX0	Name DevicePathID Op State: State	Value 39/2 Duplex
	Vendor Vendor ProductID ProductRevisionLevel SerialNumber Capacity ObjectName Caption DevicePath[1] DevicePath[2] ActiveRDRPlex ReadLoadBalancing	Vone Stratus Data Duplex LUN 4 d5cd47f2-9105-46b9-b489-a8ccb564774a 136.44 GB Harddisk1 RDR Virtual Disk 2 10/40/2/1 11/40/2/1 Harddisk1-LUN2-PLEX0 On
- Slot 2 - Slot 3 - Slot 4 - Slot 5 - Slot 5 - Slot 6 - Slot 7 - RDR Virtual Disk 1 - RDR Virtual Disk 2	Status	None

4.11 Creating Volume

For NEC Express5800/ft series, you need to set 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.

Important	•	Note the following issues when you execute Active Upgrade under the status that the OS installed disk has partitions other than the system partition.
		 All the data upgrade is discarded for the system disk of the Production Side that runs Active Upgrade.
	•	A mirrored volume (RAID-1) or RAID-5 volume cannot be used on a dynamic disk.

4.12 Installing Bundled Software for the Server

NEC ESMPRO Agent and NEC ESMPRO Manager are contained in EXPRESSBUILDER.

Make sure that the installed utilities are shown on **Start** - **Programs** or on **Control Panel**. If you did not install these utilities during setup with EXPRESSBUILDER, install them individually by according to *Chapter 2* (*Installing Bundled Software*).

4.13 Enabling OS Boot Monitoring Feature

Enables OS Boot Monitoring feature.

Set OS Boot Monitoring feature to **Enabled** on BIOS SETUP according to *Chapter 1 (4.1.3 Disabling OS Boot Monitoring Feature)*. Then, specify the timeout time for **OS Boot Monitoring Timeout** parameter appropriately.

Aptio Setup Utility – Copy Main Advanced Security <mark>Server</mark> Boot	r ight (C) 2012 Am∈ Save & Exit	rican Megatrends, Inc.	
System Management Event Log Configuration FRB-2 Timer [En PCI Enumeration Monitoring IEn PCI Enumeration Monitoring IEn Option ROM Scan Monitoring IEn Option ROM Scan Monitoring IEn OS Boot Monitoring IEn OS Boot Monitoring IEn OS Boot Monitoring IEn POST Pause Monitoring IEn POST Pause Monitoring Timeout 180 Thermal Sensor IEn POST Error Pause IDi AC-LINK IStantion	abled] abled] abled] abled] abled] abled] sabled] sabled] sg_Off]	F1: General Help F4: Save & Exit Setup ESC: Exit	

4.14 License Authentication

Confirm whether the license has been authenticated. If it has not, perform the license authentication procedure.

The following describes the license authentication procedure.

 Open the Control Panel from the Start menu, click System and Security, and then select System. If the following message appears, Windows has already been activated on your system. You do not need to complete this procedure.

Control Panel •	System and Security * System		 Search C
Control Panel Home	View basic information abo	ut your computer	
Denire Manager	Windows edition		
Device Manager	Windows Convert 2008 D.3 V	000000	
Remote settings	Conversibility of 2000 Microsoft	Connection All rights research	
	System		
	Processor:	Intel(R) Xeon(R) CPU E5506 @ 2.13GHz 2.13 GHz	
	Installed memory (RAM):	4.00 G8	
	System type:	64-bit Operating System	
	Per and Todon	No Perfor Todol alports available for alls Display	
	Computer name, domain, and w	orkgroup settings	
	Computer name:	200000000000000000000000000000000000000	Change settings
	Full computer name:	XX000XX000XX000XX	
	Computer description:		
-	Workgroup:	WORKGROUP	
(Windows activation		
	Windows is activated		Provide Contraction of the
	Product ID: x0x0xx-x0x-x00	0000-0000	genuine
			Microsoft
See also			EXTONE O

2. If you installed from Backup DVD-ROM, replace the product key. When the following window appears, click **Change product key**.

🔿 🔾 🗢 👯 🔹 Control Panel 🔹	System and Security + System	•	Search Control Panel	
Control Panel Home Device Manager Remote settings Advanced system settings	Windows edition Windows Server 2008 R2 X Copyright © 2009 Microsoft	oxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	ved.	
	System Processor: Installed memory (RAM): Susted memory	Intel(R) Xeon(R) CPU 4.00 GB	E5506 @ 2.13GHz 2.13 GHz	
	Pen and Touch:	No Pen or Touch Input is	available for this Display	
	Computer name domain, and w	orkeroup cattions		
	Computer name: Full computer name: Computer description: Workgroup:	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	& Ch	ange settings
See also Action Center Windows Update	Windows activation N 2 days until automatic a Product ID: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	activation. Activate Windows	now Juct key	

3. When the following window appears, enter the product key found on the COA label, and then click Next.

Type your produc	ct key			
The Windows Se inside the Windo	rver 2008 R2 Stand ows package. Activa	lard product key can be tion will register the pro	found on the installation duct key to this comput	n disc holde er.
The product key	looks like this:			
PRODUCT	KEY: XXXXX-XXX	XX-XXXXX-XXXXX-XX	oxox	
Where do I find	my Windows produ	<u>ict key?</u>		
Product Key:				
What is activatio	<u>n?</u>			
Read the privacy	statement online			

4. Follow the instructions in the following message to start the license authentication process.



Windows activation is now complete.

4.15 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 devices to NEC Express5800/ft series or updating ft Server Control Software.

Confirm the version following the steps below, and take a note of the displayed version number.

Version: _____.___.

- 1. Log on to the system with an account that has administrator privilege.
- 2. Open Control Panel from the Start menu.
- 3. Open Programs and Features.

If the Programs and Features icon is not displayed, open Programs and click Programs and Features.

4. Check the version of ftServer Control Software from the list of programs.

4.16 Setting TCP/IP Timeout

Timeout values of TCP/IP are changed at setup by adding the following registries on Express5800/ft series.

HKLM\System\CurrentControlSet\Services\Tcpip\Parameters

Value: TcpMaxDataRetransmissions

Type: REG_DWORD

Default: 8

This setting is required if Hyper-V is enabled.

If you are not using Hyper-V on your server, this setting is not required. To restore the factory-set value, run the following batch file with administrator account, and restart the server.

C:\Program Files\NEC\HAS_SW\SUPPORT

SetTcpMaxDR_OsDef.bat

To restore the factory-set value, run the following batch file with administrator account, and restart the server.

C:\Program Files\NEC\HAS_SW\SUPPORT

ResetTcpMaxDR_FtDef.bat

4.17 Checklist Display Function at Installation

The server has a factory-installed feature that displays Setup Checklist during installation to support configuration work. This feature starts after ft Server Control Software is installed at re-installation.

Using this checklist, you can proceed setup work while viewing the items required for setup.

(1) Displaying setup list

When you logon the system with builtin Administrator account, **ft Server Setup list** automatically appears. The checklist appears everytime you logon the system unless you specify not to display at next logon.

The first line of dialog shows the version of ft Server Control Software. The version number depends on the time of shipment and software upgraded status.

🚇 ft Server Setup list 📃 🗆 🗙
ft Server Control Software [Version : 8.0.0000.00] was installed. Refer to the Installation guide (Windows), follow the procedures below to complete setup. And check the following checkbox.
1. Install NEC ESMPRO Agent
2. Install Options (LAN, SAS, Fibre Channel board)
3. Update Software
4. Apply Windows Service Pack 1
5. Configure duplex LAN
Б. Configure dual Disk
7. Create Volume
8. Change setting of SNMP service for NEC ESMPRO Agent
9. Enable OS Boot Monitoring
10. Setup for Solving Problems
11. Back up System Information
 If Symantec pcAnywhere is installed, system may not operate normally, for example, system may not become duplex.
 When ARCserve Backup or Backup Exec is installed, if the services of these backup softwares have started before system becomes duplex, system may not become duplex or the backup software may not operate normally.
, This dialog is displayed also at next logon until all checkbox is checked. History

Setup Check List

The following items are checked automatically, and if installation of them are finished, they are dimmed.

- 1. Install NEC ESMPRO Agent
- 4. Apply Windows Service Pack 1

For the other items, click the checkbox to check it when you have finished setup of relevant item.

If you put a mouse onto check item, a help window that shows the page where detailed information is described in User's Guide or Installation Guide.

In addition, read precautions on setup shown in the box below the list.

If all items are checked, a checkbox "Hide this dialog at next logon" appears at bottom of dialog. If you do not want to display this checklist, click the checkbox and close dialog.

📕ft Server Setup list			
ft Server Control Software [Version : 8.0.0000.00] was installed. Refer to the Installation guide (Windows), follow the procedures below complete setup. And check the following checkbox.	to		
1. Install NEC ESMPRO Agent			
2. Install Options (LAN, SAS, Fibre Channel board)			
✓ 3. Update Software			
☑ 4. Apply Windows Service Pack 1			
5. Configure duplex LAN			
🔽 6. Configure dual Disk			
✓ 7. Create Volume			
☑ 8. Change setting of SNMP service for NEC ESMPRO Agent			
9. Enable OS Boot Monitoring			
✓ 10. Setup for Solving Problems			
✓ 11. Back up System Information			
 If Symantec pcAnywhere is installed, system may not operate norm for example, system may not become duplex. 	ially,		
 When ARCserve Backup or Backup Exec is installed, if the services of these backup softwares have started before system becomes duplex, system may not become duplex or the backup software may not operate normally. 			
Setup is completed. If you do not want to show this dialog at next logon	History		
please check the following checkbox.			
Hide this dialog at next logon.	Close		

When all items are checked:

This checklist is not displayed during update of ft Server Control Software.

(2) Re-displaying setup checklist

If you want to open the dialog again, logon the system with built-in Administrator account, and run the following file.

C:\Program Files\NEC\HAS SW\ftServerSetuplist

ftServerSetupList.exe

Only the user having built-in Administrator account can open this checklist, and can start only one at a time.
(3) Displaying check history

Click the History button to confirm the date and time each item was checked.

🚇 Hist	ory		_ 🗆 ×
No 01 02 03 04 05 06 07 08 09 10 11	Date 2012/10/01 2012/10/01 2012/10/01 2012/10/01 2012/10/01 2012/10/01 2012/10/01 2012/10/01 2012/10/01	8:48:10 9:19:31 9:55:47 10:55:33 11:30:49 11:33:19 11:43:05 12:10:20	Check Auto) ON (Auto) ON ON (Auto) ON ON ON ON ON ON OFF(Initial) OFF(Initial)
<u> </u>			Close

Check history

Check column displays:

- ON: Item that was checked
- ON (Auto): Item that was checked automatically
- OFF (Initial): Item that is not checked yet
- OFF: Item that was checked once but unchecked later

5. Setup for Solving Problems

This section describes the features that must be set up in advance so that the server can recover from any trouble immediately and precisely.

5.1 Memory Dump (Debug Information)

The following describes the procedures for collecting a memory dump (debug information).

Important

- Memory dumps must be collected by a staff member from the maintenance service company. Customers only need to specify the settings for the memory dump.
- If any trouble occurs after specifying the settings below and you attempt to
 restart the system to save the memory dump, a message informing you that the
 system is short of virtual memory might appear. However, this message can be
 ignored and you can proceed with the restart. If you restart the system a second
 time, the memory dump might not be stored normally.

5.1.1 Windows Server 2012

Follow the procedure below to specify the memory dump settings.

 On the Charms bar, click Settings. To go to step 5 directly, right-click the left bottom of the screen, and then click System.

<Select Settings>



<Select System>



2. In Settings, click Control Panel.



3. In Control Panel, click System and Security.



4. In System and Security, click System.



5. In System, click Advanced system setting. The System Properties dialog box appears.



6. In Startup and Recovery, click Settings....

System Properties	x		
Computer Name Hardware Advanced Remote			
You must be logged on as an Administrator to make most of these changes. Performance Visual effects, processor scheduling, memory usage, and virtual memory			
<u>S</u> ettings			
User Profiles			
Desktop settings related to your sign-in			
S <u>e</u> ttings			
Startup and Recovery			
System startup, system failure, and debugging information			
Seţings]		
Enviro <u>n</u> ment Variables]		
OK Cancel Apply			

7. Type a file name to save the debug information in **Dump file**, and then click **OK**.

For example: <Save information in drive D: with the file name "MEMORY.DMP">

Startup and Recovery
System startup
Default operating system:
Windows Server 2012 V
✓ Time to display list of operating systems: 30 🔹 seconds
Time to display recovery options when needed: 30 🔶 seconds
System failure ✓ Write an event to the system log ✓ Automatically restart Write debugging information Kernel memory dump
Dump file: D:\MEMORY.DMP
Qverwrite any existing file
OK Cancel

Note the following when specifying a dump file:

- We recommend you specify Kernel memory dump for Write debugging information.
- Specify a drive that has a free space of at least "the memory capacity mounted on the server + 400 MB".
- The size of the debug information (memory dump) changes if DIMM is added. Make sure that the free space of the drive to store the debug information (memory dump) is sufficient.
- Do not remove checkmark (uncheck) from **Automatically restart** check box.

8. In **Performance**, click **Settings**.

The **Performance Options** window appears.

System Properties X				
Computer Name Hardware Advanced Remote				
You must be logged on as an Administrator to make most of these changes.				
Performance				
Visual effects, processor scheduling, memory usage, and virtual memory				
Settings				
User Profiles				
Desktop settings related to your sign-in				
S <u>e</u> ttings				
Startup and Recovery				
System startup, system failure, and debugging information				
Seţtings				
Enviro <u>n</u> ment Variables				
OK Cancel Apply				

9. Click the Advanced tab on the Performance Options window.

Performance Options			
Visual Effects Advanced Data Execution Prevention			
Select the settings you want to use for the appearance and performance of Windows on this computer.			
• Let Windows choose what's best for my computer			
 Adjust for <u>b</u>est appearance 			
Adjust for best performance			
O <u>C</u> ustom:			
Animate controls and elements inside windows			
Animate windows when minimizing and maximizing			
Animations in the taskbar			
Enable Peek			
Fade or slide menus into view			
Fade or slide ToolTips into view			
Save taskbar thumboail previews			
Show shadows under mouse pointer			
Show thumbnails instead of icons			
Show translucent selection rectangle			
Show window contents while dragging			
Slide open combo boxes			
✓ Smooth edges of screen fonts			
Smooth-scroll list boxes			
Use drop shadows for icon labels on the desktop			
OK Cancel Apply			

10. In Virtual memory, click Change....

Performance Options				
Visual Effects Advanced Data Execution Prevention				
Processor scheduling Choose how to allocate processor resources. Adjust for best performance of:				
<u>P</u> rograms				
Virtual memory A paging file is an area on the hard disk that Windows uses as				
Total paging file size for all drives: 4096 MB				

11. Clear the Automatically manage paging file size for all drivers check box, and then click Custom size.

Virtual Memory	x			
<u>Automatically manage paging file size for all drives</u>				
Paging file size for each drive <u>D</u> rive [Volume Label] Paging File Size (MB) C: System managed				
Selected drive: C: Space available: 38852 MB				
Initial size (MB): 3559 Maximum size (MB): 7118				
 ○ System managed size ○ No paging file Set 				
Total paging file size for all drives Minimum allowed: 16 MB Recommended: 3559 MB Currently allocated: 4096 MB				
OK Cancel				

12. In **Paging file size for each drive**, enter the value equal or larger than the recommended value for **Initial size**, and the value larger than **Initial size** for **Maximum size**, and then click **Set**.

Virtual Memory X			
<u>A</u> utomatically manage paging file size for all drives Paging file size for each drive Drive [Volume Label] Paging File Size (MB)			
C: System managed			
Space available: 38852 MB			
<u>Custom size:</u> <u>I</u> nitial size (MB): <u>3559</u>			
Maximum size (MB): 7118			
System managed size O No paging file			
Total paging file size for all drives			
Minimum allowed: 16 MB			
Recommended: 3559 MB Currently allocated: 4096 MB			
OK Cancel			

Note the following when specifying a paging file size:

- The boot volume (usually created in drive C:) must have a paging file of its initial size (Total capacity
 of physical memory mounted + 400MB or larger) is enough to store the dump file. Specify "Total
 capacity of physical memory mounted + 400MB" or larger size.
- Make sure to specify a sufficient paging file size (recommended size: Total capacity of physical memory mounted * 1.5 or more) for entire system.
- See "System Partition" in Chapter 1 (3.1 Before Starting Setup) for recommended value.
- When DIMM is added, re-specify the paging file according to the increased memory size.
- 13. Click OK.
- 14. If a message to restart Windows appears, restart the system according to on-screen message.

Specification of the memory dump settings is now complete.

5.1.2 Windows Server 2008 R2

Follow the procedure below to specify the memory dump settings.

1. Select Control Panel from the Start menu.

The Control Panel window appears.

2. Click System and Security on the Control Panel window.

If View by is not Category, select System from Control Panel directly.

- 3. Click System.
- 4. Click Advanced system settings.

Tips

The System Properties dialog box appears.

	🛂 System	
	🕒 🕞 🖉 🔹 Control Pan	el 🔹 System and Security 👻 System 🔹 😨
	Control Panel Home	View basic information about your computer
	🛞 Device Manager	Windows edition
	Remote cettings	Windows Server 2008 R2 Enterprise
ſ	Advanced system settings	Copyright © 2009 Microsoft Corporation. All rights reserved.
U	Wavanced system settings	Service Pack 1
T		

5. Click Settings under Startup and Recovery.

System Properties	×			
Computer Name Hardware Advanced Remote				
You must be logged on as an Administrator to make most of these chang Performance				
Visual effects, processor scheduling, memory usage, and virtual memory				
User Profiles Desktop settings related to your logon				
Settings				
Startup and Recovery				
System startup, system failure, and debugging information				
Settings				
Environment Variables				
OK Cancel Apply				

6. Specify the folder to store the debug information in the **Dump file:** text box and click **OK**.

Example: To store the debug information in D drive under the file name MEMORY.DMP:

Default operat	ing system:			
Windows Serv	/er 2008 R2			
✓ Time to dis	play list of ope	rating systems	: 30	÷ seco
Time to dis	play recovery (options when r	needed: 30	🗧 seco
System failure		t		
🔽 Write an e	vent to the sys	tem log		
Automatica	ally restart			
Write debugg	ing information	ı ———		
Kernel memo	ry dump		•	
Dump file:			_	
D: MEMORY	.DMP			J
Overwrite	any existing f	ile		

Note the following when specifying a dump file.

- For the Write debugging information drop-down list, we recommend specifying Complete memory dump. If the mounted memory size is greater than 2 GB, however, Complete memory dump cannot be specified because it is not displayed on the drop-down list. In this case, specify Kernel memory dump instead.
- Specify a drive that has a free space of at least "the memory capacity mounted on the server + 300 MB".
- The size of the debug information (memory dump) to be collected changes if memory is added. Make sure that the free space of the drive to store the debug information (memory dump) is sufficient. If you attempt to add memory that will cause the mounted memory size to exceed 2 GB, specify Kernel memory dump.
- Do not remove checkmark (uncheck) from Automatically restart check box.

7. Click Settings under Performance.

The Performance Options dialog box appears.

System Properties	×		
Computer Name Hardware Advanced Remote			
	1		
You must be logged on as an Administrator to make most of these changes.			
Performance			
Visual effects, processor scheduling, memory usage, and virtual memory			
Settinge	٦I		
	וע		
User Profiles			
Desktop settings related to your logon			
Settings			
 System startup, system failure, and debugging information 			
-	ı İ		
Environment Variables	11		
OK Cancel Apply			
	_		

8. Click the Advanced tab on the Performance Options dialog box.

Performance Options	×
Visual Effects Advanced Data Execution Prevention	
Select the settings you want to use for the appearance and performance of Windows on this computer.	
lacet Let Windows choose what's best for my computer	L
O Adjust for best appearance	L
Adjust for best performance	L
O Custom:	L
Animate controls and elements inside windows Animate windows when minimizing and maximizing Animations in the taskbar and Start Menu Fade or slide menus into view Fade or slide ToolTips into view Fade out menu items after clicking Show shadows under mouse pointer Show shadows under windows Show translucent selection rectangle Show window contents while dragging Slide open combo boxes Smooth edges of screen fonts Smooth-scroll list boxes Use drop shadows for icon labels on the desktop Use visual styles on windows and buttons	
OK Cancel Apply	

9. Click Change under Virtual memory.

Performance Options	×
Visual Effects Advanced Data Execution Prevention	1
Visual Effects Advanced Data Execution Prevention Processor scheduling Choose how to allocate processor resources. Adjust for best performance of: Programs I Background services Virtual memory A paging file is an area on the hard disk that Window if it were RAM. Total paging file size for all drives:	ws uses as
OK Cancel	Apply

10. Clear the **Automatically manage paging file size for all drives** check box, and then select the **Custom size** option button.

V	irtual Memory	×
	Automatically mana	age paging file size for all drives
	Paging file size for eac Drive [Volume Label] C: E: [New Volume]	h drive Paging File Size (MB) 2048 - 4096 None
	Selected drive: Space available: Custom size: Initial size (MB): Maximum size (MB):	C: 23998 MB 2048 4096
	C System managed : C No paging file	sizeSet
	Total paging file size for Minimum allowed: Recommended: Currently allocated:	or all drives 16 MB 6120 MB 4080 MB
		OK Cancel

11. In the Paging file size for each drive group box, specify as follows:

For the **Initial size** text box, specify a value equal to or greater than the **Recommended** value shown in the **Total paging file size for all drives** area.

For the **Maximum size** text box, specify a value equal to or greater than the value specified in the **Initial size** text box.

Drive [Volume Label]	Paging File Size (MB)
C:	2048 - 4096
E: [New Volume]	None
Selected drive:	C:
Space available:	23998 MB
Custom size:	
Initial size (MB):	2048
Maximum size (MB):	4096
C System managed	size
C No paging file	Sat
Sinto paging nic	
Fotal paging file size f	or all drives
Minimum allowed:	16 MB
Recommended:	6120 MB
Currently allocated:	4080 MB

After specifying the above values, click Set.

Note the following when specifying a paging file size.

- The above paging file sizes are recommended for collecting debug information (dump file). The initial
 size of the Windows partition paging file must be large enough to store dump files. Make sure to set a
 sufficient paging file size. If the paging file size is insufficient, correct debug information might not be
 able to be collected due to a shortage of virtual memory.
- For details about the Recommended value in the Total paging file size for all drives area, see *System partition size* in *Chapter 1 (4.1 Before Starting Setup)*.
- When memory is added, re-specify the paging file according to the increased memory size.
- 12. Click OK.
- 13. A message to restart the system might appear, depending on the modifications made. In this case, restart the system.

Specification of the memory dump settings is now complete.

5.2 How to Create a User-mode Process Dump File

The user-mode process dump file records information when an application error occurs.

If an application error occurs, obtain user-mode process dump information using the following procedures without closing the pop-up window that reported the error:

5.2.1 Windows Server 2012

- 1. Right-click the left bottom of screen and then click **Task Manager** or press <Ctrl> + <Shift> + <Esc> keys to start **Task Manager**.
- 2. Click More details.

P	Task Manager	- 🗆 X
	There are no running apps	
More <u>d</u> etails)	<u>E</u> nd task

- 3. Click the **Processes** tab.
- 4. Right-click the name of the process that you want to get dump information for, and then click **Create Dump File**.
- 5. A dump file for the process is created in the following folder:

C:\Users\(user name)\AppData\Local\Temp

ips	If the fo	olderi	is not	displa	yed,	open Exp	olore	r, select	Hidden items	in the V	iew tab.
		Ŧ				Li	braries			_	□ X
	File	Home	Share	View							^ 🕐
	Navigation pane •	🔲 Previe	ew pane Is pane	List	m icons	Small icons Details Content	* *	Sort by •	 ☐ Item check boxes ☐ The name extensions ☑ Hidden items 	H de selected items	Sptions

Obtain the user-mode process dump file from the folder shown in step 5.

5.2.2 Windows Server 2008 R2

- 1. Right-click an empty area of the taskbar and then click **Task Manager**, or press **<Ctrl>** + **<Shift>** + **<Esc>** keys to start **Task Manager**.
- 2. Click the **Processes** tab.
- 3. Right-click the name of the process that you want to obtain dump information for, and then click **Create Dump File**.
- A dump file for the process is created in the following folder: C:\Users\user name\AppData\Local\Temp

Tips	The folder above may be treated as a hidden folder.
	If the folder is not displayed, perform the following:
	For Windows Server 2008 R2:
	Open Explorer, click Organize and then Folder and search options. Click the View tab
	and then select the Show hidden files, folders, and drives check box.

5. Once the user-mode process dump file has been created, obtain the file from the folder in step 4.

User-mode process dump file creation is now complete.

5.3 Installing Network Monitor

Using Network Monitor helps you investigate and manage network troubles.

(OS of Windows Server 2012 or later does not support network monitor.)

(1) Setting up Network Monitor

Tips

Windows Server 2008 R2 does not provide Network Monitor.

To capture network traces on Windows Server 2008 R2, Microsoft Network Monitor must be installed using the procedure described below.

1. Download Network Monitor from the following Microsoft web page:

http://support.microsoft.com/kb/933741/en-us

2. Run the downloaded file to start the installer.

Follow the onscreen instructions to install Network Monitor.

Tips

If the Security Alert message appears, click **Run**. In the setup format selection window, select **Complete**.

Network Monitor installation is now complete.

Tips

To uninstall Network Monitor, use Programs and Features.

(2) Capturing network traces

Described below are procedures to capture network traces by Microsoft Network Monitor 3.4. The procedures might be changed according to specification change in the future.

- 1. Select Microsoft Network Monitor from the Start menu to start Network Monitor.
- 2. On the Start Page tab, click Create a new capture tab... . Or, select New from the File menu, and then click Capture....

A new tab for capturing network traces is created.

- Click Capture Settings on menu to open Capture Settings dialog.
 On the Select network adapters to capture: pane, select the network whose traces are to be captured.
- 4. Select Start from the Capture menu to start capturing the network traces.
- 5. Select Stop from the Capture menu to stop capturing the network traces.
- Select Save As... from the File menu.
 The Save As dialog box appears. Select All captured frames from Frame selection, and then enter the folder and file names.



The default folder is as follows: C:\Users\<User name>\Documents\Network Monitor 3\Captures

7. Click Save.

The network trace file is created in the folder specified in Step 6.

The setup for capturing network traces is now complete.

6. Windows OS Parameter File

This section describes a parameter file for Windows OS.

6.1 Creating Windows OS Parameter File

If a parameter file is used when performing Setup with EXPRESSBUILDER, the settings from the previous installation can also be used when re-installing the system.

It is therefore recommended to use a parameter file to set up the server.

6.1.1 How to create a parameter file

Follow the procedure described below to create a parameter file.

Note	Do not remove EXPRESSBUILDER DVD from the drive while creating a parameter file.
Tips	Use Internet Explorer 7 or later version for creating a parameter file.

- 1. Start Windows OS.
- 2. Insert the supplied EXPRESSBUILDER DVD into the optical disk drive.

Run the program by using autorun feature of Windows.

3. Click Applications.

Autorun R	lenu	⊻ Version 7.10-001.01 (001)
	Instruction Manual	
0	Versions	
	Integrated Installation	
	Applications	
	Exit	

4. Click Create a parameter file for Windows OS.



The following window appears.



- 5. On the $\ensuremath{\text{OS}}$ selection menu, select either of the following:
 - □ When creating a parameter file: Go to be a constrained of the constraint of the c

Go to Step 6. Go to Step 7.

6. Click Manual Selection.

Create a parameter file for Windows 05	×
1 2 Selection Settings Confirmation	
Select an operating system to install. (Click Manual Selection to configure a RAID array on	y)
Manual Selection	\supset
Choose an operating system manually.	\supset
	Setup

From the menu, select an operating system to install, and then click **OK**.

	OS selection			
Question				
	Select an operat	ing system to in:	stall.	
	• Windows	Windows	s Server 2012	
•				
	C	ок о	Cancel	
			(201



$\rightarrow 00 10 300 0$.

	1 OS selection	2 Settings	3 Confirmati	on	
	elect an op Click Manual Se	Derating sys	tem to insta ure a RAID array	ill. only)	
~	Manua	l Selection			C
Þ	Load Se	ettings			
					A

7. When editing the parameter file, click Load Settings.

Create a parameter file f	br Windows 05		2
	1 2 OS selection Settings	3 Confirmation	
1	Select an operating syst (Click Manual Selection to configu	em to install. re a RAID array only)	
	Manual Selection		
	Load Settings)
) 7	Setup

Follow the on-screen instruction to load the parameter file (*.tre).

Look in: 📑	Documents			- + 🖻) 💣 🎟 -	
Name 🔺		Na itawa matu	- Da	ate modified	- Type	
		ivo items matci	n your sea	ren.		
<u>. </u>						
(tre				Open	

Click \bigcirc on the right side of the screen.

k Manual Sele	ction to configu	re a RAID array (only)	
Manual S	Selection			C
Load Set	tings			
	Manual S	Manual Selection	Manual Selection Load Settings	Manual Selection Load Settings

 \rightarrow Go to step 9.

8. Specify the parameters by using either of the following methods:

Create a parame	eter file for Windows	05			2
		1 OS selection	2 Settings	3 Confirmation	
	2 *	nter install	ation setting	js.	
\bigcirc	0	Default			\supset
	8	Custom	ı		\supset
					Setup

Use Default:

(1) Click Default.

Create a paramete	The for Windows 05	3 Confirmation
	2 Enter installation settings.	
\bigcirc	Default	
	Custom	
		Setur

(2) Type the password, and then click **Finish**.

E	Enter the minimum settings to set up the computer.	
0	Click Custom if you want to use the Windows standard installer.	
⊢		
	Basic Settings	
		-
	Edition Standard(Server with a GUI)	
	Language : English 💌	
	Password Settings	7
	Administrator Password : (Required)	
	Reenter Administrator Password : (Required)	
-		
	Finish Cancel	

(3) Click \bigcirc on the right side of the screen.

🖪 Create a paramete	file for Windows 05	×
	1 OS selection 2 Settings	3 Confirmation
	2 Enter installation settings.	
\bigcirc	Default	
	Custom	
		Seitun

(4) Check the settings, and then click Save.Save the file according to the on-screen instructions.

	11	2 2
	OS selection	Settings Confirmation
-	Confirm instal	ation settings.
	2	
	(Check if valid instal	ation settings are specified)
		×
)		
/	Operating system	: Windows Server 2012
	(Install Windows using EXPRES	SBUILDER)
	Edition	: Standard(Server with a GUI)
	Edition Language	: Standard(Server with a GUI) : English
	Edition Language Time Zone	: Standard(Server with a GUI) : English . (UTC-09:00) Pacific Time (US & Canada)
	Edition Language Time Zone	: Standard(Server with a GUI) : English : (UTC-08:00) Pacific Time (US & : Canada)
	Edition Language Time Zone	: Standard(Server with a GUI) : English : (UTC-08:00) Pacific Time (US & Canada)
	Edition Language Time Zone	: Standard(Server with a GUI) : English : (UTC-08:00) Pacific Time (US & Canada)

 \rightarrow Go to step 10.

Use Custom:

(1) Click Custom.

🛄 Create a par	rameter file for Window	s 05	2	13		2
		OS selection	Settings	Confirmation		
	2	Enter install	ation setting	js.		
	2					
\bigcirc	< Ø	Default				\bigcirc
	8	Custor	n			
				(Set	വര

(2) RAID Configuration is unavailable on this server. Click $\ensuremath{\textit{Next}}.$

An operating system will be installed to Uninstall all RAID controllers not to be controller is selected.	the logical drive on the following RAID controller: used for the OS installation if the incorrect RAID
Device Information	
RAID Controller	: No RAID controller is detected.
Number of Physical Drives	: 1
Summary of RAID Array	
	T
RAID Configuration	
Skip Configuring RAID Array	
	1 / 10 Page
Next	Cancel

(3) Check the settings specified for **Basic Settings**. Modify the settings as needed, and then click **Next**.

-	Wizard	
In: sel Yo EX	stall Windows by using the lect Use Windows standa u can install easily both W IPRESSBUILDER.	e standard installer contained in the OS installation disc when you ard installer. Jindows and applications when clicking Install Windows using
T	Basic Settings	
	Operating system	: Windows Server 2012
	O Use Windows sta	ndard installer
	Copy OEM di	rivers to removable media
	 Install Windows u 	Ising EXPRESSBUILDER
	Edition	: Standard(GUI server)
	Language	: English -
	Time zone	: (UTC-08:00) Pacific Time (US & Canada)
		4 / 10 Page

(4) Check the settings specified for **Partition Settings**. Modify the settings as needed, and then click **Next**.

Wizard			
cify the settings of the system dows will be installed into the for the system partition is 2T	i partition for Windo e first hard disk driv B.	ows. ve or logical drive. Th	ne maximum partition
Partition Settings			
Create a new partition			
O Use all space			
 Type a partition size 	:	40 (GB) *1T	B=1024GB
((Minimum:40GB / Re	commended:40GB /	Maximum:2047GB)
			5 / 10 Page
Back Nex	ĸt		Cancel
			- 2)IZIII
	Vizard Cify the settings of the system constrained of the system Partition Settings Create a new partition C Use all space @ Type a partition size Back Nex	Vizard Cify the settings of the system partition for Windd Cows will be installed into the first hard disk driv for the system partition is 2TB. Partition Settings Create a new partition C Use all space @ Type a partition size : [Vizard cify the settings of the system partition for Windows. dows will be installed into the first hard disk drive or logical drive. TI for the system partition is 2TB. Partition Settings Create a new partition C Use all space @ Type a partition size :40 (GB) *11 (Minimum:40GB / Recommended:40GB / Back Next

Important • Backing up user data, as needed, is recommended.

- Partition size
 - Specify a partition size larger than the minimum required for installing the operating system. (See *Chapter 1 (4.1 Before Starting Setup)*.
- Specify a partition size not exceeding 2,097,152MB.
- The entire contents of the hard disk drive will be erased.

(5) Enter the user information, and then click Next.

ite a parameter file for Windows	
Wizard	
Personalize the computer. Type Computer Name within 15 charact Administrator Password must be at lea from three of the four categories (numbe	ters. ast six characters in length and must contain character rs/uppercase/lowercase/symbols).
User Information	
Computer Name	: 🗹 Automatic Numbering
	BD6147456495 (Required)
User Name	: Administrator
Administrator Password	: (Required)
Reenter Administrator Password	: (Required)
	6 / 10 Page
Back Next	Cancel

Note	Computer name and Administrator Password are required parameters.					
	Enter Administrator Password that satisfies the following conditions:					
	Contains 6 or more characters					
	 Contains characters from at least three of the following categories: numbers, uppercase alphabetic characters, lowercase alphabetic characters, and symbols. 					
Tips	 The Computer name has been assigned by automatic assignment function. If you need to assign another computer name, remove the checkmark from Automatic Numbering, and enter the desired computer name. 					
	 If a parameter file is used for setup or if you return to a previous screen, •••••• is displayed in the Administrator password and Confirm Administrator password text boxes even if no value has been entered. 					

(6) Network Protocols is unavailable on this server.

Click Next.

Crea	te a parameter file for Windows	x
	Wizard	
	Standard Settings must be choosed.	
	Network Protocols	
	 Standard Settings 	
	Custom Settings	
0	Standard Adapter - Internet Protocol (IPv4) V Advanced	
\leq		
-		
	7 / 10 Page	
	Back Next Cancel	
	JGUU	

(7) Specifying domain or workgroup is unavailable on this server.

Click Next.

	11	10		
?	Wizard			
W	/orkgroup name and domain setti	ings are specified a	after the OS installation.	
	 O Join a workgroup 			
	Workgroup Name	: WORK	SROUP	
	🖉 🖉 Join a domain			
	Domain Name	:		
	Account Name	:		
	Password	:		
	Reenter Password	:		
			8 /	10 Page
	Back Novi		Cana	al [
	Dauk		Cano	=1

(8) Check the settings of Windows components.

Modify the settings as needed, and then click Next.

(Choose Windows components you v	vant to install.	
	Server Roles		
	Web Server (IIS)	Print and Document Service	vices
	DHCP Server	File Services	
	DNS Server	Hyper-V	
	Windows Features		
	SNMP Service		Advanced
	Simple TCP/IP Services		
	WINS Server		
			9 / 10 Page
	Back Next		Cancel

(9) Check the settings of applications.

Click Finish.

0	1				
Wizard					
NEC ESMPRO Age	nt is mandatory.				
Availab	le Applications		Selected	Applications	
			NEC ESMPRO Agent		
		Add >>	Express Report Serv	ice	
			Express Report Serv	ice(HTTPS)	
		<< Delete			
Description—					
				10 / 10 Page	•
Back	Finish		l	Cancel	

On the screen as s	shown below.	click 🔘	on the	riaht side	of the s	screen
	onom,			ingine onalo		



Check the settings, and then click Save.
 Save the parameter file according to on-screen instructions.

ite a parameter file	for Windows			
	0S selection	2 Settings	3 Confirmation	
_	Confirm ind	tallation cett	inac	
2	Committee		ings.	
J	(Check if valid in	stallation settings	are specified)	
Γ				-
	Operating system	: V	Vindows Server 2012	-
	(Install Windows using EXF	PRESSBUILDER)		
	Edition	: 5	itandard(Server with a GUI)	_
	Language Time Zone	: [inglish UTC-08:00) Pacific Time (US Canada)	8
	-			-
			CS	ave
			G	ave Sofiir

10. Click **OK**.

ameter file for Windows	×
1 2 3 CS selection Settings Confirmation	
Information	
Saving the file is complete. [Message ID : D1000]	
8	
ОК	
	qL
	Information Information Saving the file is complete. [Message ID : D1000]

11. Click **Yes** to close the window.

🔣 Create a para	meter file for Windo	ws	×
		1 2 3 OS selection Settings Confirmation	
	Question		
		Do you want to stop creating a parameter file for Windows OS? [Message ID : D2000]	
	3		
		Yes No	
		Setup	

Creation of parameter file is now complete.

7. Backing Up System Information

When replacing the server, system information including system-specific information, BIOS configuration, and/or BMC configuration data can be inherited to the new server. Refer to "BMC Configuration User's Guide" for how to backup the system information.

Note

Backup/restore process must be performed on duplex system configuration. If it is performed on simplex system configuration, the information may not be inherited correctly. Refer to *Chapter 1 (4. Names and Functions of Components)* in *User's Guide* for how to verify the duplex system configuration.

8. Precautions for Using Hyper-V

Express5800/ft series supports Hyper-V feature.

This section describes precautions for using Hyper-V with Express5800/ft series. Refer to the URL below for precautions other than those described in this section.

Windows Server 2012

http://www.58support.nec.co.jp/global/download/w2012/hyper-v/hyper-v-ws2012.html

Windows Server 2008 R2

http://www.58support.nec.co.jp/global/download/w2k8r2/hyper-v/hyper-v-v2.html

8.1 System Down Time Caused by Duplexing CPU Module

In the duplex process of CPU modules, a memory copy is performed to duplex memory on both the CPU modules. The system does not respond for a longer period of time during the duplex process of CPU modules as compared to when Hyper-V is not used. The following are the reference values of each model.

Important	•	Starting a memory copy does not cause OS shutdown. However, a process that was running before copying is interrupted, and it does not respond for a certain period of time. The interrupted process will be resumed after the memory copy is completed
		completed.

- The time required for copying increases in proportion to the installed memory size.
- When a large amount of memory is installed, non-responding time will become longer and the connection from a client may time out. Adjust the timeout values of TCP/IP, etc., on the client side as necessary.

Model/Memory Size	8GB	16GB	64GB	128GB	256GB
Express5800/R320c-E4 Express5800/R320d-E4	2 sec	3 sec	10 sec	18 sec	36 sec
Express5800/R320c-M4 Express5800/R320d-M4	2 sec	3 sec	8 sec	14 sec	27 sec

Use the above memory copy time as a guide when no load is applied to OS. The actual time may differ depending on the status of use.

8.2 Virtual Network Setting and Active Upgrade

Active Upgrade process allows you to upgrade system and application software with minimum required downtime while the Express5800/ft series system is online and available to users.

A team assigned to the virtual network by Hyper-V Virtual Network Manager cannot be used in Active Upgrade. To use Active Upgrade, at least one team that is not assigned to virtual network is required.



NEC Express5800 Series Express5800/R320c-E4, R320c-M4, R320d-E4, R320d-M4

Installing Bundled Software

This chapter provides brief explanation of bundled software and how to install them.

- Bundled Software for the Server Describes the bundled software to be installed in the server system.
- Bundled Software for "PC for Management" Describes the bundled software to be installed in "PC for management" that is used to monitor and manage the server system.

I. Bundled Software for the Server

This section introduces the software bundled in the server package. For details, refer to the software documents.

I.I NEC ESMPRO Agent (for Windows)

NEC ESMPRO Agent (for Windows) is an application used to monitor the server.

It is automatically installed when a Windows OS is installed by using EXPRESSBUILDER.

When installing NEC ESMPRO Agent (for Windows) individually, refer to NEC ESMPRO Agent Installation Guide (Windows) in EXPRESSBUILDER.

1.2 NEC ESMPRO Agent Extension

NEC ESMPRO Agent Extension allows you to manage this server remotely by the server's BMC connecting in linkage with NEC ESMPRO Manager.

For details about how to install NEC ESMPRO Agent Extension, refer to NEC ESMPRO Agent Extension Installation Guide in EXPRESSBUILDER.

1.3 RDR

Express5800/ft series duplexes disks to secure data by using "Rapid Disk Resync (RDR) function".

The software is installed along with the ft Server Control Software, however, you need to duplex disks in manual mode.

1.*4* BMC Configuration

BMC Configuration enables you to specify configurations to this server's BMC.

It is automatically installed when a Windows OS is installed by using EXPRESSBUILDER.

When installing BMC Configuration individually, refer to *BMC Configuration User's Guide* in EXPRESSBUILDER.

1.5 Active Upgrade

Active Upgrade technology allows you to upgrade or install system and application software on an Express5800/ft series system with minimal downtime. (Windows Server 2012 does not support Active Upgrade.)

Active Upgrade is an optional software. To use this feature, you need prepare the following option separately. "Active Upgrade option for ft series"

This section describes the overview of Active Upgrade process, the procedure and prerequisites necessary for preparing the system for the upgrade process, and configuring and performing the upgrade process with Active Upgrade Console.

1.5.1 Overview

Active Upgrade technology allows you to upgrade system and application software on an Express5800/ft series system with minimal downtime.

The features of Active Upgrade are as follows:

• Install software updates with minimal disruption to your applications.

The applications required for the server operation continue to run on one CPU/IO module while you upgrade or install software on the other CPU/IO module. There is only a brief disruption when you are finished installing updates, as your applications are restarted on the upgraded software. (The time required to stop or restart applications depends on the application type. Active Upgrade does not shorten time to stop or restart applications.)

Test the latest software updates in your environment before making the updates permanent.

After your applications are restarted on the upgraded software, you can verify the success of your software updates. If you want to keep the changes, there is no additional downtime. Otherwise, as quickly as your system can restart, you can abort the upgrade to go back to the original version of your software.

• Abort the upgrade process before you commit the changes.

If you are not satisfied with an upgrade, you can abort the upgrade session to return the system to its original state. Nothing is permanent until you choose to commit the changes. Also, there is no disruption to your applications if you abandon the upgrade in the split mode.

Risks during Active Upgrade process

When one of the CPU/IO module is upgrading software (in split mode), the other CPU/IO module is running user application. If a device failure occurs before two systems are merged, a system down will occur.

RDR resynchronization process starts to restore the duplex configuration after the upgrade was committed or upgrade was aborted before commitment. The internal disks loses redundancy until resynchronization completes.

(1) Active Upgrade Process

The Active Upgrade process involves the following basic steps:

- 1. Preparing for Active Upgrade process
 - Managing Applications during the Upgrade Process
 - Configuring Remote Desktop Connection
 - Configuring Remote KVM Console
 - Preparing an IP address to assign to the Upgrade Side
 - Installing the Active Upgrade Console
 - Configuring Windows Firewall for the Active Upgrade Process
 - Copying Software Upgrade Packages to the System
- 2. Configuring Active Upgrade process
 - Creating a Configuration File
 - System IP Configuration on the Upgrade Side
 - Selecting Disks to Upgrade
 - Selecting Other Configurations to Include
 - Selecting Application Services to Control
 - Selecting Event Log Files to Back Up
 - Configuring Custom Actions
 - Programming Notes for Custom Actions
 - Providing a Description for a Configuration File
- 3. Performing Active Upgrade process
 - Performing a Readiness Check
 - Splitting the System
 - Verifying the Upgrade Side Before Merging the System
 - Merging the System
 - Verifying the Upgrade Side Before Committing the Upgrade
 - Committing the Upgrade
 - Finishing the Upgrade
 - Aborting the Upgrade (if necessary)
 - Viewing Active Upgrade Process Status

(2) System operation during upgrade

Active Upgrade splits the system into two independently running systems (split mode).

During upgrade, one side of system (CPU/IO module) continues to run application (Production Side), while the other side of system (CPU/IO module) upgrades software (Upgrade Side).

Upon completion of software upgrade, the Production Side system runs synchronously with the Upgrade Side (merge mode).

Details of these actions are described below.

(a) Splitting the system

You start the upgrade process by initiating split mode, which divides the fault-tolerant, duplexed system into two independent, simplexed systems — a Production Side, which continues to run your applications, and an Upgrade Side, on which you can run software installation packages. If there are any problems during upgrade, you can abort the upgrade to return the system to its original state.



Splitting the System

Data disk

When you split the system, the Active Upgrade Console disables any Rapid Disk ReSync (RDR) mirroring between the internal disks in each CPU/IO module enclosure and isolates the Upgrade Side from system resources such as the user-specified application data disks, and any external PCI resources (such as external storage). The network can communicate with Production side only. It also disables user-specified applications and services on the Upgrade Side so they cannot restart if you restart the Upgrade Side.

Meanwhile, the Production Side retains access to system resources and continues to run your applications uninterrupted.

Keyboard and mouse operation at Upgrade Side

After the system successfully enters split mode, you establish a remote connection to the Upgrade Side of the system through the private network that exists between management LAN ports and between internal LANs in each CPU/IO module enclosure.

Using this remote connection, you can perform any of the following upgrade tasks on the Upgrade Side:

- Run software updaters
- Restart the operating system, if necessary.
- Perform testing of the installed updates

(the Upgrade Side has no access to the user-specified data disk, external storage, or network).

(b) Merging System

When you are finished installing software on the Upgrade Side, you disconnect the remote connection to the Upgrade Side and initiate the *merge* process.

When you merge the system, the Active Upgrade Console stops your applications on the Production Side and unmounts any data disks to ensure that pending disk updates are flushed to disk. It then merges system resources so that the network, external storage, and data disks become available to the whole system again. With the exception of the internal disks, all system resources return to duplex mode (see the figure below).



Merged System

Finally, the system restarts user-specified applications from the Upgrade Side system disk. A brief downtime is incurred before the application starts.

If you discover a problem, you can still abort the upgrade process and restore the system to its previous state, because the original copy of your system disk (on the Production Side) has not been overwritten yet

(c) Committing the Upgrade

When you are certain that the upgrade(s) were successful, you can *commit* the changes to make them permanent.

When you commit the changes, the Active Upgrade Console resynchronizes the RDR disks in your system by overwriting the original Production Side system disk and stale Upgrade Side data disks with their partner disks, which are up-to-date (see the figure below).





Committing the Upgrade

When the RDR disk resynchronization is finished, all system resources are running in duplex mode, and the Active Upgrade process is complete. You do not need to restart the system. Also, because your application is already running on the upgraded software, there is no additional downtime.
(d) Aborting the Active Upgrade Process

Important You can abort the Active Upgrade process and restore the system to its original state before committing the upgrade. You cannot abort the upgrade process after you commit an upgrade.

If you abort the upgrade session while the system is in split mode, no downtime is incurred. Your applications continue to run on the Production Side while the Active Upgrade Console restores the system to duplex mode.

If you abort the upgrade session while the system is in merge mode, a short period of downtime is incurred while the Active Upgrade Console initiates a system restart. The Active Upgrade Console shuts down the Upgrade Side and restarts the system from the Production Side, which automatically restarts your applications from the Production Side. The period of downtime is only as long as it takes your system and applications to restart.

In either case, the abort process uses RDR resynchronization to restore the internal disks to their original state by overwriting the Upgrade Side system disk and stale Upgrade Side data disks with their original partner disks (see the figure below).



Aborting the Upgrade

After you abort the Active Upgrade process, you can start another Active Upgrade session as soon as the RDR disk resynchronization is complete.

1.5.2 Preparing for the Active Upgrade Process

Preparing for the Active Upgrade process involves the following tasks:

- 1. Learning about the prerequisites for your Express5800/ft series system.
 - Software Upgrade Support
 - Prerequisites
 - Recommendations
- 2. If necessary, plan for the brief downtime associated with restarting your applications while merging the system.
 - Managing Applications during the Upgrade Process
- Configure Remote Desktop Connection if necessary. Either one of remote desktop connection or remote KVM must be enabled so that the Production Side can communicate with Upgrade Side during upgrade.
 - Configuring Remote Desktop Connection
- Verify the prerequisites to use Remote KVM Console and configure if required. Either one of remote desktop connection or remote KVM must be enabled so that the Production Side can communicate with Upgrade Side during upgrade.
 - Configuring Remote KVM Console
- 5. Prepare the IP address to allocate to the Upgrade Side's system.
 - Preparing an IP address to assign to the Upgrade Side
- 6. Install the Active Upgrade Console
 - Installing the Active Upgrade Console
- 7. If necessary, enable the exception for Active Upgrade Console in Windows Firewall properties
 - Configuring Windows Firewall for the Active Upgrade Process
- 8. If necessary, copy any required software installation packages to the system.
 - Copying Software Upgrade Packages to the System
- 9. Verify if your system is prepared for Active Upgrade process.
 - Verifying preparation
- 10. When you are finished preparing for the upgrade, start the Active Upgrade Console.
 - Starting and Exiting the Active Upgrade Console

(1) Software Upgrade Support

Active Upgrade technology supports the installation or upgrade of application software that meets the following criteria:

- The application's executable files, configuration files, and temporary files (for example, cache files) reside on internal system disks that are mirrored with RDR.
- The application's data files reside on data disks. Data volumes that reside on the same physical disk as a system volume are not supported.
- The application's installation or upgrade utility does not involve changes to files or data on the data disks while performing upgrade (the system is in split mode).
 The Upgrade Side has no access to the data disks while the system is split.
- You must download the software upgrade package to the system before initiating split mode. Network connection is disabled during upgrade because the system is in split mode.
- BIOS, BMC firmware updates are unavailable.

(2) Prerequisites

To use Active Upgrade, the following conditions must be satisfied:

(a) Prerequisites on Express5800/ft series

- In the environment where the backup software such as ARCServe and BackupExec is installed, ensure to stop the backup software service before performing Active Upgrade.
- When BackupExec is installed, Upgrade Side must be restarted after Split is completed.
- The CPU/IO modules must be duplexed, and running in duplex mode prior to starting the upgrade process.
- Embedded LAN must be duplexed.
 Embedded LANs must be duplexed between LAN ports of each CPU/IO module, and must have an active network link in each CPU/IO module.
- You do not need to duplex optional LAN cards, but it is recommended. The readiness check in Active
 Upgrade Console will display a warning for each non-duplexed LAN cards, but the warnings will not prevent
 you from proceeding with the Active Upgrade process.

Important	•	To use Active Upgrade, a duplexed LAN not assigned to the virtual network by Hyper-V is required.
	•	If you need to modify duplexed LAN that are actively providing network connectivity, this could affect network connectivity and should be scheduled to minimize impact to your applications.

Tips

See Chapter 1 (4.9 Duplex LAN Configuration) for more information.

- Has one new IP address for Active Upgrade ready.
 You need to prepare one IP address to communicate between the Production Side and the Upgrade Side via LAN during the Split. The IP address is allocated to the Upgrade Side system with the Split status.
- Do not use the devices connected with USB except the keyboard, mouse, and server switch unit. In Active Upgrade, if you are using the devices connected with USB other than the keyboard, mouse, and server switch unit, be sure to remove them physically before performing Active Upgrade.

- Setting for the remote management function is completed.
 By using the remote management function, the connection between the Production Side and the Upgrade Side by the remote KVM becomes possible during the Active Upgrade process. The setting of the management LAN required for using the remote management function needs to be completed.
- Restrict each user to a single session is cancelled. By OS default settings, the connection is restricted to one session per user. When you access the Upgrade Side from the Production Side using a remote desktop under the split mode, the connection may fail due to this restriction.
 - 1. Select Administrative Tools Remote Desktop Services Remote Desktop Session Host Configuration Restrict each user to a single session.
 - 2. Clear the check box from the **Restrict each user to a single session** property to cancel the restriction.
- Can tolerate running in simplex mode for a brief period during the upgrade. Because each side of the system runs in simplex mode during the upgrade, an interruption on the side that is actively running your applications can result in downtime.

Important

- You cannot restart the operating system on the Production Side during an upgrade (though you can restart the Upgrade Side as many times as necessary.)
- Also, it is unsafe to pull an enclosure from a split-mode, simplexed system because doing so terminates all processes running on that enclosure.
- Can tolerate a potential decrease in performance during the upgrade. For example, if load balancing is configured for LAN, there might be a decrease in network performance when the system is split because the network adapters on the Upgrade Side lose access to the network.

(b) Storage requirements

- Mirror volume (RAID-1)/RAID-5 volume are not configured in dynamic disk.
- All internal hard disks must be configured with Rapid Disk Resync (RDR) and must be duplexed (synchronized) before the Active Upgrade process starts.
- The operating system boot volume and all active Windows operating system components must be located on internal RDR disks.
 - This includes any volumes that contain paging (virtual memory) files for the operating system.
- Any disk that contains software you want to upgrade cannot contain persistent data files for your applications (those applications that will continue to run during the Active Upgrade process). Data file must not reside on the same physical disk as a paging file. You must store your data files on separate data disks.
- Do not upgrade software on external storage devices. External storage devices are always considered data disks. You cannot upgrade software on external storage devices, as these devices not available to the Upgrade Side of the system while the system is in split mode.

(3) Recommendations

When preparing your system for the Active Upgrade process, also consider the following recommendations:

- Use static IP addresses for duplexed LAN.
- If your system is protected by Windows Firewall, enable the exception for Active Upgrade Console as shown in *Chapter 2 (1.5.2 (9) Configuring Windows Firewall for the Active Upgrade Process)*. If Windows Firewall is running, and the exception for Active Upgrade Console is not enabled, communication between the Production Side and Upgrade Side might fail during the Active Upgrade process.

(4) Managing Applications during the Upgrade Process

The Active Upgrade Console enables to specify how applications are started and stopped during the Active Upgrade process.

If your Express5800/ft series system runs business-critical applications, such as Microsoft Exchange Server or SQL Server, these applications can run on only one side of the system—the Production Side—when you split the system. They must be stopped on the other side—the Upgrade Side—to prevent resource conflicts and to allow you to proceed with upgrade tasks. Furthermore, when you merge the system, the same applications must be stopped on the Production Side and restarted on the Upgrade Side, so you can test the applications with the newly-upgraded system disk, and possibly commit the upgrade.

If necessary, plan for the brief downtime associated with restarting your applications while merging the system.

(a) Restarting applications

In general, applications are launched and exited automatically by the operating system. In most cases, to minimize downtime, the Active Upgrade Console executes upgrade operations, like split and merge, without restarting the operating system. Active Upgrade Console provides two methods for controlling your applications during the upgrade process.

Application services

If your application runs as a standard service that already accounts for interdependencies (with other services) and requires no special handling, you can specify it on the **Application Services** page of the Active Upgrade Console during the configuration process. On the **Application Services** page, you can select each service you want to manage from the list of services on your system, and, when you start the upgrade process, the Active Upgrade Console will automatically start and stop these services at the appropriate times.

Tips

See Chapter 2 (1.5.3 (5) Selecting Application Services to Control) for more information.

Custom actions

If you have special executables that start and stop these applications, you can specify the executables on the **Custom Actions** page of the Active Upgrade Console during the configuration process. Using the controls on the **Custom Actions** page, you can specify when your executables will run during the upgrade process.

Tips

Using the controls on the **Custom Actions** page, you can specify when your executables will run during the upgrade process, and, if you have several executables, you can specify the order in which they will run. See *Chapter 2 (1.5.3 (7) Configuring Custom Actions)* for more information.

(5) Configuring Remote Desktop Connection

In the setup window of Remote Desktop Connection, enable the remote connection. For more information, see the Windows online Help.

If the remote connection is not enabled, the Production Side with Remote Desktop Connection cannot access the Upgrade Side in split mode.

(6) Configuring Remote KVM Console

Configure Remote KVM Console function.

Tips

Refer to *Chapter 3 (3. EXPRESSSCOPE Engine 3)* in *User's Guide* for details of remote management feature.

If remote KVM console feature is not enabled, the Production Side cannot access the Upgrade Side using remote KVM feature.

(7) Preparing an IP address to assign to the Upgrade Side

Prepare one IP address that meets the conditions below for Active Upgrade.

You need this IP address to connect to the Upgrade side via LAN while the system is in split mode.

- · A network address that is the same as the one assigned to the duplexed LAN
- An unassigned, unused IP address

For how to configure IP address, see Chapter 2 (1.5.3 (2) System IP Configuration on the Upgrade Side).

(8) Installing the Active Upgrade Console

Important • Your login account must be in the Administrators group to install the Active Upgrade Console.

 If you use Windows Firewall, install the Active Upgrade when the Windows Firewall service is running. If you install it when the service is not running, the Windows Firewall exceptions will not be added properly.

To install the Active Upgrade Console, do the following:

- 1. Insert the Active Upgrade CD-ROM into the optical disk drive.
- 2. In the DVD file listing, double-click install.exe to start the installation utility.

The Active Upgrade Software Setup Wizard is displayed.

- 3. Click Next to view the end-user license agreement.
- If you agree to the terms of the license, click the radio button for I accept the terms in License Agreement and click Next.
- 5. Click **Install** to install the files.
- 6. Click **Finish** to close the wizard.

The setup process installs the Active Upgrade Console and associated files in C:\Program Files\ftsys\ActiveUpgrade.

It also creates **Active Upgrade Console** under **ftSys** of Start menu items under ftsys and a shortcut on your desktop.

(9) Configuring Windows Firewall for the Active Upgrade Process

The Active Upgrade Console requires network access to:

- Communicate with system components and underlying services in the ft control Software.
- Allow communication between the Production Side and the Upgrade Side while the system is split, so you can perform upgrade tasks.

If you have enabled Windows Firewall to protect your system, it might prevent you from using some of the features of Active Upgrade Console. Therefore, you should enable the exception for the Active Upgrade Console in your Windows Firewall settings.

ImportantInstall the Active Upgrade software while the Windows Firewall service is running.If the Windows Firewall service is not running, the installation process does not add
an entry for the Active Upgrade Console to the list of Windows Firewall exceptions.In this case, uninstall Active Upgrade once, and install it again while the Windows
Firewall service is running.

(10) Copying Software Upgrade Packages to the System

When the system runs in split mode, the Upgrade Side has no access to the network, external storage, or data disks. You need to put the software upgrade package to be used on Upgrade Side on system disk before you split the system.

Tips

If your software upgrade packages are on CD-ROMVDVD, no action is necessary. You can access the DVD-ROM drive on the upgrade side while the system is in split mode.

(11) Verifying preparation

Before you start configuring the Active Upgrade process on your system, considering the following items:

- Did you decide the IP address for the Active Upgrade? This IP address should be the same network address that is allocated to duplexed LAN and should be a new one.
- After you complete this upgrade, will you ever want to run the same type of upgrade again? Save the configuration file so that you can use it again at a later upgrade process.
- Do you intend to incorporate other existing configuration files into the current configuration? You can use more than one configuration file at a time by nesting them.
- Which disks in your system contain the software you want to upgrade?
- Is there any disk that cannot or should not be upgraded?
 See Chapter 2 (1.5.2 Preparing for the Active Upgrade Process).
- Did you prepare the software upgrade packages you are going to run during the Active Upgrade process? You need to copy the software upgrade package to the system before initiating split mode.
- Do any of software upgrade packages require access to the network or data disks during the upgrade? If so, you cannot use them with Active Upgrade process.
- How do you start and stop applications on the system you want to upgrade? Use Application Services or Custom Actions (executables such as .bat, .exe, .vbs) to start and stop your applications at the appropriate times during the upgrade process. See Chapter 2 (1.5.2 (4) Managing Applications during the Upgrade Process) for details.
- Do you want to preserve event log entries that are generated on the Production Side while the system is running in split mode?
 These log entries are lost during the commit process, when the system resynchronizes RDR disks. If you want to save the files, see *Chapter 2 (1.5.3 (6) Selecting Event Log Files to Back Up)*.

When you finish confirmation, you can use the worksheet on the next page to record your configuration information.

Active Upgrade Process Worksheet

Item	Comment
IP address for Active Upgrade	
Configuration files to use	
Disks to upgrade	
Disks that cannot be upgraded	
Software installation utilities to run	
Application services to start/stop	
Custom actions to run	
Log files on Production Side to back up	

(12) Starting and Exiting the Active Upgrade Console



Follow steps below to start or exit Active Upgrade Console.

(a) Starting Active Upgrade

To start the Active Upgrade Console, do one of the following:

- Double-click the Active Upgrade Console icon 🔞 on your system's desktop.
- On the Start menu, click All Programs, select the ftSys folder, and click Active Upgrade Console.

(b) Exiting Active Upgrade

If you need to exit the Active Upgrade Console, click the close button ()) in the upper right-hand corner of the window.

Important	If you are currently editing a configuration file, save the file before exiting the Active Upgrade Console.
Tips	If you exit the Active Upgrade Console by mistake during an upgrade task, the program maintains its state. For example, if you exit the Active Upgrade Console while you are in
	the process of splitting the system, the split process continues to run in the background. You can safely restart the Active Upgrade Console to continue where you left off.

(13) Understanding the Active Upgrade Console Interface

The Active Upgrade Console window (see the figure below) is divided into four major parts: a title bar, a navigation bar, a main window, and a status bar.



Active Upgrade Console

- 1 Title bar
- 2 Navigation bar
- 3 Main window
- 4 Status bar

(a) Title Bar

The title bar displays the name of the current page of the Active Upgrade Console.

(b) Navigation Bar

The navigation bar displays your current location in the Active Upgrade Console.

If you are creating or editing a configuration file, the navigation bar also allows you to skip between configuration pages by clicking any item under the **Configuration** heading (see the figure below), or by clicking **Active Upgrade** to start a readiness test.



Navigation Bar: Opening a Configuration Page

After you initiate an upgrade (by clicking **Split** on the **Active Upgrade** page), the navigation bar reverts to a static mode, in which it only indicates where you are in the upgrade process and does not allow you to skip between pages. You must follow the upgrade steps (split, merge, commit, and finish) in order to complete the upgrade process, or you can abort the process altogether.

Menu item	Description
Configuration	Allows you to create, open an existing configuration file, or modify it.
	Allows you to verify the system network configuration and to configure IP address of the Upgrade Side.
Network Settings	Important When you execute Active Upgrade for the first time, be sure to configure IP address of the Upgrade Side.
Disk Selection	Allows you to select the disks that contain the software you want to upgrade.
Other Configurations	Allows you to select other configuration files that will be incorporated into the current configuration.
Application Services	Allows you to select the application services that need to be stopped and restarted during the upgrade process.
Log File Backup	Allows you to select the Event Log files from the Production Side that the Active Upgrade Console will preserve upon merging the system. (Otherwise, any event logs generated on the Production Side while the system is in split mode are lost when you commit the upgrade).
Custom Actions	Allows you to specify executables that the Active Upgrade Console can use to stop and start your applications.
Description	Allows you to specify a title and comments for the current configuration file.
Upgrade Summary	Displays a summary of the current upgrade configuration.
Active Upgrade	Allows you to perform a readiness test and, if applicable, to split the system for an upgrade.
Split System	Indicates that the system is entering split mode, and allows you to merge system resources (or abort the upgrade) after you finish running installation packages.
Merge System	Indicates that the system is entering merge mode, and allows you to commit (or abort) the upgrade after you have tested your changes.
Commit Upgrade	Indicates that the system is committing the upgrade, and allows you to finish the process by cleaning up ft series system resources.
Abort Upgrade	Indicates that the upgrade process has been aborted, and allows you to finish the process by cleaning up ft series system resources. (You can abort the upgrade process at the split mode or the merge mode prior to committing the upgrade.)
Finish	Indicates that the upgrade process is complete and allows you to save a copy of the activity log to a file, and exit the Active Upgrade Console.
Links:	 Remote Desktop Allows you to establish a Remote Desktop Connection session to the Upgrade Side while the system is split to perform upgrade tasks. Remote KVM Allows you to set a Remote KVM session on the Upgrade Side while the system is split to perform upgrade tasks.

Menu items in navigation bar

(c) Main Window

The main window allows you to configure and run the Active Upgrade process.

• Main Window: Configuring the Active Upgrade Process

During the configuration phase, main window allows you to specify settings for your system (see the figure below),

The settings you have made can be saved in configuration file.

📧 Active Upgrade: (no n	iame)								_ 🗆 ×
NEC							C	isk Selectior	0
Configuration Network Settings Disk Selection Other Configurations Application Services Loe File Backup Custom Actions Description Upgrade Summary Active Upgrade	For each hard di If the disk conta data (such as de Data radio butte When you are fin <u>Name Trpp</u> Disk0 Syn Disk1 Dat	isk, specify whe ins software th itabase files) a n. (You canno nished selectine se stem Only a	ther the di at you wan nd must be t uperade s t disks, clic <u>RDR</u> True True	sk is a syn t to upgrav available oftware or <u>k Next to Boot</u> True False	tem disk or de, click the for your live a data disl proceed wi Paging True False	r a data disk. System rad application: th the config Dynamic False False	dio button. If the sthroughout the sthroughout the strength of the state of the sta	ne disk contains persiste e upgrade process, click	nt the
Split System Merge System Commit Upgrade Abort Upgrade Finish	Disk0 6837GB C Data	(C:¥) 12.00GB	56.36G	Back		Next			_
Links Remote Desktop	Disk1 68.37GB © Data © System	ポリューム (Y:¥) 1.00GB	67.36G Unallo	B					
tmp.Config		Fault Tole	erant	Idle			🕐 Ready		

Main Window: Configuring the Active Upgrade Process

Main Window: Activity Log

When you perform a readiness test and begin the upgrade process, the configuration settings in the main window are replaced with an activity log (see the figure below) that allows you to track the progress and success of the Active Upgrade process.

Active Upgrade: (no r	ame)		-
NEC			Split System (
onfiguration Network Settings Disk Selection Other Configurations Application Services Log File Backup	If the status bar reports the upravide state as Production Side Spill Read numme on the Production Side of the system, above mith your circled againston connection to the Update Side and optimum ergonide state. After your complete your upravide tasks, click Marger , There will be a bort error are meeted and your circled againstance extention don the Uppade Side If the Uppade Side appears hung, you can click Reset to insiste a hard reset of	y, your system is in split mode. The s. Click Remote KVM or Remote ce interruption and the screen might f the Upgrade Side (without aborting to the Upgrade Side (without aborting to)	Active Upgrade console is Desktop to open a Tlicker as system resources the upgrade process). Use
Justom Actions	Description	Time Source	Sustam .
Description	Check CPI Status	21.3627 CPUM	mager SYS24
Inerada Summani	Save system settings Shared dire	ctory informat··· 21:36/27 AppMa	nager SYS24
opgrade dammary	n 🙆 Check IO Status	21:36:27 10 Mana	war SYS24
stive Uperade	🗑 🚱 Check disk status.	21:36:27 Disk.Ma	mager SYS24
Solit System	Check P2P network configuration	21:36:28 Networ	kInterface SYS24
Marian Caratan	IP address 19216815226 will be used	21:36:27 Networ	kinterface SYS24
menge oystem	P2P Adapter: TEAM : Team #0 - Stratus emb-EB···	21:36:27 Networ	kinterface SYS24
Commit Upgrade	P2P Team: TEAM : Team #0	21:36:27 Networ	kinterface SYS24
Abort Upgrade	Verify 192.168.15.226 is not in use Address is	not in use 21:36:28 Networ	kInterface SYS24
Finish	Prepare the ftServer system for being split	21:36:42 SplitPu	blisher SYS24
1 11 1211	Enter software upgrade state, production side is 11.	21:36:36 IOMana	aper SYS24
nks	Disabling upgrade side network adapters.	21:36:42 Networ	kInterface SYS24
Remote Desktop	🕀 💙 Check disk status.	21:36:36 Disk.Ma	mager SYS24
riomoto poortiop	Check disk and volume configuration.	21:36:36 Disk.Ma	mager SYS24
	O Preparing P2P connection	21:36:42 Networ	kInterface SYS24
	Split the ftServer system	21:36:43 SplitPu	blisher SYS24
	Enter hardware upgrade state on Production side.	21:36:46 JOMana	ager SYS24
	Verifying network adapters after Split.	21:36:50 Networ	kinterface SYS24 (Produc
	Establish network connection with Upgrade side	21:36:50 P2PBri	dge SYS24 (Produc
			•
	Retry Merce	Abort	Reset
configuration file	Production Side Split	Busy	Partner: OS Up

Main Window: Activity Log

Tips

For more information on viewing and interpreting items in the activity log, see *Chapter 2* (1.5.4 (9) *Viewing Active Upgrade Process Status*).

(d) Status Bar

The status bar (shown below), which is located at the bottom of the Active Upgrade Console window, reports a quick summary of the status of the upgrade.

Hot	ix Config	Production Side	Split		🖉 Ready	Partner: OS Up 🎢	
	1	2		 3	 4	5	
			Sta	tus Ba	r		
1 2 3	Configuration file name Hardware State Upgrade State		4 5	Opera Partne	itional State er State		
	Tips For r View	nore information ing Active Upgra	about i de Proc	nterpreti ess Stat	ing items in the <i>us)</i> .	status bar, see Chapte	er 2 (1.5.4 (9)

1.5.3 Configuring the Active Upgrade Process

Configuring the Active Upgrade process involves the following tasks:

- 1. Creating and managing configuration files
- 2. Configuring the IP address for the Upgrade Side
- 3. Selecting disks to upgrade
- 4. Selecting other configuration files to include
- 5. Selecting application services to control
- 6. Selecting Event Viewer log files to back up
- 7. Configuring custom actions
- 8. Creating custom actions
- 9. Providing a description for a configuration file

(1) Creating and Managing Configuration Files

You can save settings for Active Upgrade process in configuration file.

If you frequently upgrade your system, you can create a configuration file to preserve your settings so you can perform similar upgrades as often as necessary. If applicable, you can create multiple configuration files.

In addition, you can call one or more existing configuration files from the configuration file you are currently editing, so that the settings from the called files will also apply to the file you are editing. This is called *nesting*.

You can save a configuration file in any folder.

Tips

The default location for Active Upgrade configuration files is: c:\Program Files\ftsys\ActiveUpgrade\User Configurations

Active Upgrade Console accesses the folder which the user specified last when opening the file browser at the next time.

Important You can save a configuration file to any disk – system or data, internal or external. The Active Upgrade Console automatically copies configuration files to a staging area before beginning the upgrade to ensure that they are available throughout the upgrade process.

(a) Creating a Configuration File

You can save settings for Active Upgrade process in configuration file.

To create a configuration file

- 1. On the Configuration page, click Create Configuration File.
- 2. In the Create Configuration File dialog box, specify a file name for the new file.

When you save the file, a .config extension is automatically appended to the file name.

- Select a directory to save the configuration file. You can specify any directory on the system. By default, \Program Files\ftsys\ActiveUpgrade\User Configurations is specified. When a new configuration directory is selected, the Active Upgrade console uses the new directory when a user creates or opens a file next time.
- 4. Determine the destination to save the configuration file and start editing the configuration file.

After you create a configuration file, the configuration process opens on the Network Settings page.

(b) Loading a Configuration File

Loading a configuration file allows you to open an existing configuration file for use. After you load a configuration file, you can view the **Upgrade Summary**, and, if applicable, proceed with the upgrade as configured, but you cannot modify the configuration.

Important • To modify a configuration file, use the Edit Configuration File option.

• The disk number might be changed in the ft server when CPU/IO module is switched. If the disk number differs from that assigned at creation of configuration file, the disk for the upgrade might be recognized incorrectly. Therefore, do not perform Active Upgrade with the loaded configuration file.

To load a configuration file

- 1. On the Configuration page, click Load Configuration File.
- 2. Do one of the following to select the configuration file:
 - Enter the full path name and file name of the configuration file in the Configuration File field of the Locate Configuration File dialog box. (The .config file extension must be included).
 - Click Browse to specify the configuration file and click Open.
- 3. In the Locate Configuration File dialog box, click Load to open the configuration file. When you load a configuration file, the file opens on the Upgrade Summary page.

Tips

You can also drag a configuration file onto the **Configuration** page of the Active Upgrade Console window to load it.

(c) Editing an Existing Configuration File

You can open and edit a configuration file that you have previously saved. After you edit the configuration file, you can view the **Upgrade Summary**, and, if applicable, proceed with the upgrade as configured.

Important The disk number might be changed in the ft server when CPU/IO module is switched. If the disk number differs from that assigned at creation of configuration file, the disk for the upgrade might be recognized incorrectly. Therefore, select a disk appropriately on Disk Selection window before performing Active Upgrade.

To edit a configuration file

- 1. On the Configuration page, click Edit Configuration File.
- 2. Do one of the following to select the configuration file:
 - Enter the full path name and file name of the configuration file in the Configuration File field of the Locate Configuration File dialog box. (The .config file extension must be included).
 - Click Browse to specify the configuration file and click Open.
- In the Locate Configuration File dialog box, click Load to open the configuration file. When you select a configuration file, the file opens on the Network Settings page.

(d) Performing an Upgrade with No Configuration File

If the upgrade you want to perform does not require any special settings, you can proceed without a configuration file.

Important When you execute the Active Upgrade for the first time, you need to use the configuration file to update. You can upgrade without the configuration file only when you have executed the Active Upgrade with the configuration file before.

For example, if you have only one system disk, and you just want to split the system briefly to test how an upgrade would affect the operating system without committing the changes, you might not need a configuration file.

To proceed without a configuration file

- 1. Open Configuration page.
- Click No Configuration File on the Configuration page. The Active Upgrade Console immediately displays the Active Upgrade page and runs a readiness test.

Tips

If your system meets the prerequisites for the Active Upgrade process, you can split the system at this time.

(e) Saving a Configuration File

The Active Upgrade Console automatically prompts you to save your configuration file if you leave the Configuration section of the application, or exit the application.

To save the configuration file, click Yes,

Otherwise click No or Cancel.

You can also optionally click **Save** or **Save As** on the **Upgrade Summary** page, as described in the following procedure.

To save the current configuration file

- 1. Click Upgrade Summary in the navigation bar.
- 2. On the Upgrade Summary page, do one of the following:
 - Click Save to save the configuration file with the name and path name you previously specified.
 Your file is saved.
 - Click Save As to save the configuration file with a new file name or path name. Continue to step 3.
- 3. In the **Save Configuration File** dialog box, specify a name for the new file. When you save the file, a .Config extension is automatically appended to the file name.
- 4. Select the directory in which to save the configuration file, and save the file.

(2) System IP Configuration on the Upgrade Side

Assign an IP address for Upgrade side of the system in split mode.

1. Open Network Settings page.

Verify the configuration by checking the dual LAN configuration, status and the allocated IP address that appear on **Network Settings** screen.

2. In Upgrade-side IP address field in Network Settings page, enter the IP address for the Upgrade Side.



(3) Selecting Disks to Upgrade

In split mode, specify the disk that contains software you want to upgrade.

Use the **Disk Selection** page to select the disks that contain the software you want to upgrade with the Active Upgrade process.

On **Disk Selection** page, only disks mirrored with RDR are displayed.

Important	•	You cannot use a system disk for storing persistent data (for example, database files) related to your applications. Any new data written to the original system disk by the Production Side while the system is in split mode is overwritten when you commit the upgrade.
	•	You cannot upgrade software on a data disk.
	•	All external storage devices are automatically considered data disks.

• System disk

A disk that contains the system or application software you want to upgrade. Only disks marked as **System** will be available to the Upgrade Side while the system is split.

Mandatory system disks

The Active Upgrade Console automatically marks some disks as system disks. These mandatory system disks contain either boot files or paging files (virtual memory files) that are currently in use by the running operating system.

Data disk

A disk that contains persistent data for your applications. Any disk marked as **Data** will be available only to the Production Side while the system is split.

See Chapter 2 (1.5.2 (2) Prerequisites) for the Active Upgrade process for additional restrictions.

Volumes on the **Disk Selection** page are color-coded as described in the table below.

Hard Disk Color Coding

Color	Description
Black	Unassigned disk space
Blue	Data disk
Light Green	System disk
Dark Green	Mandatory system disk
Red	Disk is currently simplexed because it is being resynchronized with RDR

For more information about any volume, move your cursor over the volume to display ToolTip help.

(a) To select system and data disks

- For any disk you want to mark as a system disk, click the **System** radio button.
- For any disk you want to mark as a data disk, click the Data radio button.
- When you are finished selecting disks, you can click **Next** to proceed with the next configuration step.

Tips

Volumes can span multiple physical disks, and physical disks can contain multiple volumes. If a volume spans two or more disks, and you mark one of the disks that contains that volume as a system disk, any disk that contains a part of that volume automatically becomes a system disk.

(4) Selecting Other Configurations to Include

Use the **Other Configurations** page to optionally call one or more existing configuration files into the configuration file you are currently editing, so that the settings from the called files will also apply to the file you are editing. This is known as nesting files, or creating nest files.

The configuration files that you call into the current configuration file are *child configurations*, and the file from which you call the child configurations is the *parent configuration*.

(a) Potential uses for the nest files include:

- You create separate configuration files, each for upgrading a different application, which you can enable or disable as necessary in your parent configuration.
- You create a configuration file for an application that runs on several of your systems and call that file into a
 parent configuration file that is specific to each system.

The following restrictions apply to the nest files:

- Child configuration files must be located in the same directory as the call target files.
 When you select configuration files in the Active Upgrade Console, only the files in the current working directory are displayed.
- If a call-target configuration files have more than one child configuration files, they also become a part of your configuration.
- If a setting in a child configuration conflicts with a setting in the parent configuration, the Active Upgrade Console uses the setting in the parent configuration; the parent configuration always ignores IP address setting and disk selections from child configurations.
- If you call a configuration created on a different system, configuration items (such as application services and custom actions) must be present and applicable on the current system; otherwise, the parent configuration will fail the readiness test.

(b) To call a child configuration file into the current file

- 1. On the **Other Configurations** page, select the check box next to the configuration file(s) you want to call into the current file.
- 2. Check the setting at the bottom of the page and verify that you have selected the correct configuration files.
- 3. When you are finished editing the current configuration, save the configuration file.

To remove a child configuration file from the current configuration, clear the check box next to that configuration file. (If you need to remove a child configuration from another configuration file, you must edit that configuration file separately.)

When you have finished specifying child configuration files, you can click **Next** to proceed with the next configuration step.

(5) Selecting Application Services to Control

Im

Use the **Application Services** page to select the application services you want the Active Upgrade Console to automatically stop and restart during the upgrade process.

If you select a service on the **Application Services** page, the Active Upgrade Console controls the service as follows:

- When the system is split, the console stops the service on the Upgrade Side, saves its current **StartupType**, and changes the **Startup Type** to **Disabled**. This helps to prevent application errors associated with the Upgrade Side losing access to data disks and the network while the system is split.
- When the system is merged, the console stops the service on the Production Side, restores the previous Startup Type for the service on the Upgrade Side, and starts the service on the Upgrade Side. This ensures continuous availability of the service, enables comprehensive testing on the Upgrade Side, and prevents any conflicts associated with two instances of a service running at the same time.
- When an upgrade is aborted, and if the system is in merge mode, the console shuts down the Upgrade Side to stop the service automatically. The console automatically restarts the Production Side based on its default **Startup Type**. This restores the system to its previous, fault-tolerant state.

portant	•	Standard operating system services do not require control during the Active Upgrade process. Select only services that are related to your applications (such as Exchange Server or SQL Server).
	•	The Active Upgrade Consol never changes the default Startup Type for a service on the Production Side. Maintaining the default Startup Type on the Production Side ensures that a service will always be able to restart on the Production Side if the upgrade process is aborted or failed.

Each service on Application Services page has a checkbox to indicate three states as shown below:

Selection of Application Services

Check Box State	Description
Cleared	Not selected.
Checked	Selected in the current configuration file.
Checked (Gray)	Selected in a child configuration file. If applicable, you can edit the child configuration to deselect it.

(a) To select a service for the Active Upgrade Console to control

- 1. On the Application Services page, find a service you want to stop and start.
- 2. Click the check box to the left of the service name.
- 3. Repeat these steps for each service you want to stop and restart.

To deselect a service, clear the check box to the left of the service name.

(By default, the services on the **Application Services** page are listed alphabetically. If you prefer to sort them by other criteria, click on one of the column headings. For example, if you want to group services by those you have selected and not selected, click the heading above the check boxes.)

When you have finished selecting services to control, or if you have no services to control, you can click **Next** to proceed with the next configuration step.

(6) Selecting Event Log Files to Back Up

Use the **Log File Backup** page to optionally preserve Windows Event log files from the Production Side of your system before committing an upgrade.

When you commit an upgrade, the system reestablishes the RDR mirrors of any system disks by overwriting the Production Side disks (which contain the old version of your software) with the newer Upgrade Side disks (which contain your newly-upgraded software). Because the event log files on the Production Side are lost during this process, you might want to preserve them for future reference. These log files will contain the only record of log messages your live applications generated while the system was split.

The Log File Backup page allows you to select from all event logs available in the Windows Event Viewer.

Tips

For information about creating a Custom Action that preserves other files from the Production Side system disk, see *Chapter 2 (1.5.3 (7) Configuring Custom Actions)*.

(a) Saving Event log files

- 1. Specify a directory in which to save the files by doing one of the following:
 - In the **Staging Directory** dialog box, type the full path name of the directory.
 - Click Browse. Click the folder to save the file and click OK.

Important

 You must save the files to a disk that is available to the Production Side while the system is split — either a data disk or an external disk. Do not save the files to a system disk or network disk.

- There is no default directory. You must specify a directory, otherwise, the Active Upgrade Console displays a warning message.
- 2. Click the check box to the left of the log name to preserve the file.

When you have finished selecting Event log files to preserve, or if you have no event log file to save, you can click **Next** to proceed with the next configuration step.

(7) Configuring Custom Actions

Use the **Custom Actions** page to customize the way that the Active Upgrade process will run in your environment. You can create custom actions to perform the following types of tasks:

• Start or stop the application by using special executables during the Active Upgrade process.

If you use special executables to start and stop your applications, you can use the controls on Custom Actions page to specify when these executables will run during the upgrade process.

If you have several executables, you can specify the order to run.

Check if a certain condition exists before starting the Active Upgrade process.

You can verify if the critical backup has completed, or if the system load on the system is acceptable.

• Backup files during the upgrade process.

I

Any files that are modified on the Production Side system disks while the system is in split mode are lost during the commit process, when the RDR mirrors are resynchronized. If applicable, you can write a program to save copies of important files before you commit an upgrade. For example, you can save a copy of an application-specific log file that does not appear in the system Event Viewer. (For information about saving Event Viewer logs, see *Chapter 2 (1.5.3 (6) Selecting Event Log Files to Back Up)*.

By default, the **Custom Actions** page supports executables that are batch files (.bat) or application files (.exe). If you want to use a Visual Basic script (.vbs), see *Chapter 2 (1.5.3 (8) Programming Notes for Custom Actions)* for special instructions.

mportant	•	Custom actions run consecutively when called. If one action fails to terminate, it might prevent the next action from executing, and, ultimately, prevent the upgrade process from continuing. When you specify an executable for a custom action, verify that it runs successfully outside of the Active Upgrade process, and ensure that it completes in a timely manner.
	•	Executables for custom actions must be located on a system disk. If an executable is located on an external or network disk, the Upgrade Side will lose access to the executable while the system is in split mode.
		For information about writing your own programs for custom actions, see

Chapter 2 (1.5.3 (8) Programming Notes for Custom Actions).

(a) To configure a custom action

- 1. On the **Custom Actions** page, do one of the following:
 - In the File field, type the full path name and file name of the executable file you want to run. (The file must already exist on the system disk.)
 Example: C:\bin\mybatchfile.bat
 - Click Browse to select the executable file, and click Open.
- Next to Arguments, type any arguments that you need to run with your executable. See Chapter 2 (1.5.3 (8) Programming Notes for Custom Actions) for information about passing optional Active Upgrade environment variables to your executable.
- 3. In the drop-down list for **Control type**, select the option that best describes when the Active Upgrade Console will execute your custom action, as discussed in the below table.

Control Type	Purpose	
Start Application	Executes the custom action whenever the Active Upgrade Console needs to start applications. For example, the console needs to restart applications on the Upgrade Side when you merge the system.	
Stop Application	Executes the custom action whenever the Active Upgrade Console needs to stop applications. For example, the console needs to stop applications on the Upgrade Side when you split the system. It also stops applications on the Production Side when you merge the system.	
Readiness Check	Executes the custom action once during the readiness check, before you initiate the Active Upgrade process. This control type allows you to build your own verifications into the readiness check.	
Advanced	 Executes the custom action during every step of the Active Upgrade process, including interim steps such as PrepareSplit and PrepareMerge, which occur prior to the Split and Merge operations. This control type allows you to have more precise control over a custom action. Your executable will run each time the Active Upgrade process switches states, but you can write a program with conditional statements based on Active Upgrade environment variables to specify exactly when and where particular tasks should be executed. For example, you can write a conditional statement that will trigger only on the Upgrade Side if the system is in merge mode. See <i>Chapter 2 (1.5.3 (8) (b) Using Active Upgrade Environment Variables</i>). If you have more than one custom action, the Advanced control type also allows you to control the order in which the custom actions are executed (Timing drop-downn list). 	
Backup	Executes the custom action when the system is merged, allowing you to back up files that were modified on the Production Side system disk while the system was in split mode (before these files are lost during the commit process).	

Control Types for Custom Actions

If you selected the **Advanced** control type, optionally select an item from the **Timing** drop-down list which best describes the order in which you want this custom action to run with your other custom actions. The below table, "Timing for the Advanced Control Type", describes the timing options. If the timing does not matter, keep the **Default** setting.

Important The Timing will not affect the order in which custom actions run with other Active Upgrade tasks. Use this option only if you want to ensure that one custom action runs before or after another custom action.

Timing for the Advanced Control Type

Timing	Purpose
Default	Executes the custom action in the default, consecutive order.
Before	Executes the custom action early in the list of custom actions, before items marked as Default or After.
After	Executes the custom action early in the list of custom actions, after items marked as Before or Default.

TipsYour custom actions will run consecutively according to their timing options. Subsequent
custom actions will not start until the current custom action terminates.

4. Click Add to determine the custom action.

If the Add button is inactive, ensure that you typed the File path name and executable name correctly.

You can view the custom actions you have created at the bottom of the **Custom Actions** page. If you want to remove a custom action from the list, select it and click **Remove**.

When you have finished specifying custom actions to run, or if you have no custom actions to specify, you can click **Next** to proceed with the next configuration step.

(8) Programming Notes for Custom Actions

The following topics describe some of the features available for programming and monitoring custom actions:

- Starting and stopping applications ((8) (a))
- Using Active Upgrade Environment Variables ((8) (b))
- Generating Exit Values ((8) (c)
- Viewing Standard Output and Error Stream ((8) (d))
- Executing Visual Basic Scripts ((8) (e))

(a) Starting and stopping applications

If you need to start or stop an application during the upgrade process, write a batch program to control a application.

If necessary, change the **Startup Type** setting to Disabled, or restore the default **Startup Type** setting. If you do not disable the default startup type for an application, it might interfere with or override your custom action.

During the upgrade process, ensure that your program not only stops and starts the application at the appropriate times, but also **disables** and **enables** the default startup mechanism for the application (for example, the default **Startup Type** setting in the Services Control Manager or a startup item in the system registry).

Tips

See *Chapter 2* (1.5.3 (5) Selecting Application Services to Control) for information about how the Active Upgrade Console changes the **Startup Type** for application services.

(b) Using Active Upgrade Environment Variables

You can optionally use the environment variables specified in the below table in any executable that you write for a custom action. These environment variables are useful if you want to write a conditional statement in your executable that, for example, runs only on a particular side of the system or only during a particular stage of the Active Upgrade process.

Environment Variable	Description
ACTIVE_UPGRADE_SIDE	Describes the side of the system on which the program is running. Values: Production, Upgrade
ACTIVE_UPGRADE_STATE	Describes the current upgrade state. Values: Idle, PrepareSplit, Split, PrepareMerge, Merge, Commit, Abort
ACTIVE_UPGRADE_REQUEST	Describes the next upgrade task that the Active Upgrade Console will execute. Values: Idle, CheckReadiness, PrepareSplit, ExecuteSplit, PrepareMerge, ExecuteMerge, Commit, Abort, Start, Stop, Backup
ACTIVE_UPGRADE_HW_SPLIT	Describes whether or not the ft series system is running in split mode. Values: Yes, No

If you want these environment variables to be available to your executables, you must pass the variables to each executable in which you will use them.

For example, to pass only the ACTIVE_UPGRADE_SIDE variable to an executable, append the following string to the **Arguments** for the custom action on the **Custom Actions** page:

%ACTIVE_UPGRADE_SIDE%

To pass multiple variables, add a space between each variable, as follows:

%ACTIVE_UPGRADE_SIDE% %ACTIVE_UPGRADE_REQUEST%

(c) Generating Exit Values

An exit value of 0 indicates that the executable exited normally.

Any other exit value indicates that there was an error, which will prevent the Active Upgrade process from continuing with the current upgrade request. If this happens, you must correct the problem and click **Retry** in the Active Upgrade Console to retry the current upgrade request (which also runs the custom action again). The Active Upgrade process will not continue until the executable for your custom action runs successfully.

(d) Viewing Standard Output and Error Stream

After your program executes, you can view standard output and error output from the program in the Active Upgrade Console, as follows:

1. In the activity log, expand an Execute custom actions node.

There can be more than one **Execute custom actions** node, depending on the types of custom actions you have created. Find the node for the upgrade stage in which your custom action was set to run.

- 2. Double-click a specific custom action to display more information about it.
- 3. In the detail window, view the output for your program under Status.

If necessary, scroll down in the **Status** box to see the full output. Or move your cursor over the **Status** box to view the output as **ToolTip** help.

Tips

If you save the activity log to a file, you can also view the output in that file. Refer to *Chapter 1 (8.11 (1) Saving the Activity Log to a File)* in *Maintenance Guide* for more information.

(e) Executing Visual Basic Scripts

By default, the **File** field on the **Custom Actions** page accepts only batch files (.bat) and application files (.exe). If you want to use a Visual Basic script (.vbs) on the **Custom Actions** page, you need to specify the command-line based script host (cscript.exe) in which the executable will run.

When performing the procedure in *Chapter 2 (1.5.3 (7) Configuring Custom Actions)*, do the following:

• Next to **File**, type:

%SystemRoot%\system32\cscript.exe

(%SystemRoot% is an environment variable that automatically inserts your system root directory, typically C:\WINDOWS.)

• Next to Arguments, type the full path name and file name of the executable. For instance:

C:\bin\myvbscript.vbs

If applicable, you can type additional arguments that are specific to your script file or options that are specific to the cscript session.

For example, you might want to specify the //T option for the cscript session to control the maximum amount of time your executable is allowed to run:

C:\bin\myvbscript.vbs //T:30

The preceding example would terminate the executable and cscript session after 30 seconds. Setting this type of time limit is a useful way of ensuring that your executable will not delay the upgrade process.

For more information about the cscript command, open a Command Prompt session and enter cscript /?

(9) Providing a Description for a Configuration File

Use the **Description** page to specify a title and comments for your configuration file.

These items appear on the **Other Configurations** page, the **Upgrade Summary** page, and in the **Locate Configuration File** dialog box when you are selecting a configuration file to load or edit.

Type a brief summary next to **Title**, and type additional details next to **Comments**.

When you have finished providing a description for the configuration file, you can click **Next** to proceed with the next configuration step.

(a) Displaying the Upgrade Summary

When you finish creating a new configuration file, or when you load or edit an existing configuration file, you can display a summary of the upgrade configuration that the file contains.

To display the upgrade summary, click **Upgrade Summary** in the navigation bar of the Active Upgrade Console. The summary window displays information including:

- Configuration file name, title and description
- The IP address to add to the upgrading system
- Disks you selected for the upgrade
- Other configuration files called by the current file
- Application services to launch and exit
- Custom actions to run
- Event log files to back up

If applicable, you can also save the current configuration file from the Upgrade Summary page.

When you are finished viewing the Upgrade Summary, and, if necessary, saving the configuration file, you can click **Next** to proceed with the Active Upgrade process.

If you have changed your configuration file since you last saved it, the Active Upgrade Console displays a message indicating that you should save the file. To save the file, click **Yes**, otherwise click **No** or **Cancel**.

In the next step, the Active Upgrade Console runs a readiness check to verify that your system meets the prerequisites for upgrade. If necessary, you can abort the process before you split the system (or at the split mode or the merge mode until you commit the upgrade).

1.5.4 Performing the Upgrade

Performing the Active Upgrade process can involve the following tasks:

- 1. Performing a Readiness Check
- 2. Splitting the System
- 3. Verifying the Upgrade Side Before Merging the System
- 4. Merging the System
- 5. Verifying the Upgrade Side Before Committing the Upgrade
- 6. Committing the Upgrade
- 7. Finishing the Upgrade
- 8. Aborting the Upgrade (if necessary)
- 9. Viewing Active Upgrade Process Status

(1) Performing a Readiness Check

Before you can initiate split mode on a system, the system must pass a readiness check.

(a) Check items

The readiness check verifies that your system meets the prerequisites for the Active Upgrade process. For example, the readiness check ensures that:

- The system is currently running in the duplex mode.
- The disks you selected as the system disks are present and are mirrored with RDR.
- The embedded LAN in your system are duplexed.
- The IP address configured to the system of the Upgrade Side must be an unused one, and this IP address is the same network address as the one duplexed LAN.
- The application services you specified for control are currently running, and can be exited when necessary.
- The executables for any custom action are present on the system disk and are ready to run.

(b) Checking method

To perform a readiness test, choose to do one of the following:

- Click Next on the Upgrade Summary page (if you are using a configuration file).
- Click **Active Upgrade** on the navigation bar (the readiness test starts automatically if you have recently opened or changed your configuration).
- Click No Configuration File on the Configuration page.

The activity log reports the overall results of the readiness check as well as the results for each individual test. The below list describes the general meaning of the activity log entries.

Activity Log Entries

lcon	Text Color	Severity	Description
0	Green	Success	Task completed without error
X	Black	Pending	Task is in progress
Ę.	Black	Information	Task information, no action necessary
\mathbb{A}	Black	Warning	A problem that should be addressed, but will not block an upgrade
\odot	Red	Error	A problem that must be corrected before continuing with upgrade

The status bar at the bottom of the window will indicate one of the following states for the current operation:

Status bar indication

lcon	State	Description
X	Busy	A readiness check is in progress. Allow time for the task to complete.
0	Ready	The system meets the prerequisites for the Active Upgrade process. You can proceed with the upgrade process by splitting the system.
8	Broken	One or more components in the system does not meet the prerequisites for the Active Upgrade process. You must resolve the problem before you can continue with the upgrade.

For more information about interpreting Active Upgrade status, see *Chapter 2 (1.5.4 (9) Viewing Active Upgrade Process Status)*.

Countermeasure

• When readiness check finishes successfully

If the check is successful, you can click **Split** to proceed with splitting the system. See *Chapter 2 (1.5.4 (2) Splitting the System)*.

When readiness check fails

If one of the readiness tests fails, you must resolve the problem, then click **Retry** to run the readiness test again. When the problem is resolved, you can click **Split** to proceed with splitting the system.

(2) Splitting the System

Splitting an Express5800/ft series system divides it into two independently-functioning systems: the Production Side, which continues to run your applications, and the Upgrade Side, which you can safely upgrade.

Splitting the system:

- Disables RDR mirroring between the internal disks in each CPU/IO module enclosure
- Detach the Upgrade Side from system resources such as the network, any user-specific application data disks, and any external PCI resources (such as an external storage).
- Disables any user-specified applications and services on the Upgrade Side so they cannot restart if you
 restart the operating system on the Upgrade Side.

You can split a system only if it meets the prerequisites for the Active Upgrade process and has passed the readiness check.

(a) Notes on Splitting the System

- If you need a network resource to obtain any software installation packages you intend to run, put the software on one of the system disks **before** you initiate split mode.
 When in split mode, the Upgrade Side has no access to the network; the Upgrade Side can only access to the system disk.
- Do not stop DHCP Client service.
 Splitting the System fails if DHCP Client service stops.
- Split the system only when you are sitting at the Active Upgrade console.
- To start the Active Upgrade Console, disable remote connections, and then perform. The Active Upgrade Console is not supported over remote connections.
- Do not perform any hardware maintenance, including the removal of either CPU/IO module, after you have initiated the Active Upgrade process.

(b) To split the system

- 1. Ensure that you have addressed any errors or warnings that were indicated by the readiness check.
- 2. Exit any non-essential applications.
- 3. Click Split on the Active Upgrade page.

Important	Do not select Abort to interrupt the Active Upgrade process. The interruption could fail and the duplex may not complete. If the interruption failed, finish the interruption normally according to the following procedures.
	1. Select the Upgrade Side's PCI module on the ft server utility.
	2. Verify if Status of the Upgrade Side's PCI module is Terminate.
	3. Select Boot to start the Upgrade Side's PCI module.
	4. Select Retry on the Active Upgrade console to finish the interruption process.

When the system successfully enters split mode:

- Active Upgrade Console continues to run on the Production Side of the system.
- The Active Upgrade Console switches to the **Split System** page.
- The upgrade state, reported in the status bar, is Production Side\Split\Ready, indicating that the system is currently split and ready to be merged after your software installation.
- · Manage upgrade tasks on the Upgrade Side.
- Verify the Upgrade Side before merging the system.

Important	•	Throughout the upgrade process, icons will appear and disappear in the system tray as PCI devices, such as LAN card, are reconfigured or disabled for the current upgrade operation. This is normal. Do not attempt to enable or reconfigure any of these PCI devices while the upgrade session is in progress.
	•	If your system is running EMC® PowerPath® software for an external storage system, you might experience a brief delay (10-15 seconds) when the system splits, as PowerPath reroutes storage operations through the Production Side.
	•	If the Firewall setting is not appropriate, the split process could fail. If this occurs, select Abort to terminate Active Update. After the Active Upgrade is finished, automatic duplex processing is executed. When this duplex processing is completed, execute the Active Upgrade again.

When the system fails to enter split mode:

- If the split process fails the first time, you can click **Retry** to try again.
- If the problem persists, you can click **Abort** to abort the upgrade process Refer to *Chapter 1 (8. Troubleshooting)* in *Maintenance Guide* for information about resolving the problem.

To perform upgrade tasks, you must establish a remote connection to the Upgrade Side, as explained in *Chapter 2 (1.5.4 (2) (c) Managing Upgrade Tasks on the Upgrade Side).*

Tips After you establish a connection to the Upgrade Side, you can check the status of your application services on the Upgrade Side, to verify that they have been stopped by the Active Upgrade Console. Refer to *Chapter 1 (8.11 (2) Verifying the Status of Application Services)* in *Maintenance Guide*.

(c) Managing Upgrade Tasks on the Upgrade Side

While the system is in split mode, you can perform any of the following upgrade tasks on the Upgrade Side:

- Run software installers and updaters (see Chapter 2 (1.5.4 (2) (g) Running Software Installers) and Chapter 2 (1.5.2 (1) Software Upgrade Support) for restrictions).
- Restart the operating system, if necessary (see Chapter 2 (1.5.4 (2) (h) Restarting the Upgrade Side)).
- Perform limited testing of the installed updates (see Chapter 2 (1.5.4 (3) Verifying the Upgrade Side Before Merging the System)).

Because the Active Upgrade Console itself runs on the Production Side of the system, you need to establish a remote connection to the desktop on the Upgrade Side before you can complete any of these upgrade tasks, as explained in *Chapter 2 (1.5.4 (2) (d) Connecting to the Desktop on the Upgrade Side)*.

If necessary, you can also abort the upgrade process from the Active Upgrade Console on the Production Side.

(d) Connecting to the Desktop on the Upgrade Side

While the system is in split mode, the Active Upgrade Console runs on the Production Side of the system. To perform upgrade tasks, you must establish a remote connection to the Upgrade Side.

You can access the Upgrade Side using one of two methods:

Remote KVM

Allows you to transfer the Upgrade Side's console to the Production Side's browser with BMC remote KVM console. Allows you the complete access from the Production Side to the Upgrade Side using the video, keyboard and mouse.

Remote Desktop

Allows you to control the keyboard, video and mouse of the Upgrade Side through the Windows Remote Desktop component. You might prefer this option if you are more familiar with it, or if it runs faster in your environment.

Tips	See the following topics for more information.		
	• 1.5.4 (2) (e) Connecting to the Upgrade Side with Remote KVM		
	• 1.5.4 (2) (f) Connecting to the Upgrade Side with Remote Desktop		
Important	 Before connecting to the Upgrade Side from the Production Side by using Remote Desktop or Remote KVM, you need to complete the Split operation appropriately and check no error is output on the activity log. If Remote Desktop or Remote KVM is used during the Split operation, the connection may fail. If this occurs, retry the connection after the Split. 		
	 Active Upgrade Console that appears on the Upgrade Side is just for monitoring the status such as Remote Activity Log under Active Upgrade Operation Check – Activity Log in many cases. However, the Active Upgrade Console looks like the console of the Production Side in some cases. In such a case, you need to care following issues. Never select any buttons (such as Abort or Merge) or any links (such as Remote Desktop) on the Active Upgrade Console of the Upgrade Side when in split mode. If you inappropriately select any of them, you may face an error or will not be able to refer to the data drive after the merge is completed. When this kind of trouble occurs, you need to take following procedures. 		
	 When operation is unavailable because of the error, execute the same operation again from the Active Upgrade Console of the Production Side. 		
	 When the data drive cannot be referred to the merge status, select Retry button and execute merge operation again. If you can't refer data drive after retrying the merge, select Abort button to exit the Active Upgrade, then again execute the Active Upgrade. 		

(e) Connecting to the Upgrade Side with Remote KVM

Connecting to the Upgrade Side with Remote KVM allows you to control the keyboard, video, and mouse of the Upgrade Side using the BMC remote console feature.

To initiate a Remote KVM session with the Upgrade Side

Important When you use Remote KVM session, you need to prepare the setting of the Remote KVM before starting the Active Upgrade. Refer to *Chapter 3 (3. EXPRESSSCOPE Engine 3)* in *User's Guide* for the Remote KVM settings.

1. Click **Remote KVM** on the navigation bar of the Active Upgrade console on the Production Side.

Links		
<u>Remote</u>	Desktop	
<u>Remote</u>	<u>KVM</u>	

- 2. If a warning indicating that the Web site is being blocked is displayed, click **Add**. In the **Trusted Sites** dialog box, add the Web site to the Trusted Sites. If a warning is displayed when adding to the trusted sites, click **Close** or **OK** to close the warning.
- 3. After logging in, select **Remote Device** and select **Remote KVM**.
- 4. When the login screen for the Upgrade Side system is displayed, click the **Ctrl-Alt-Del** button on the Remote KVM Console window and log in to the system.

To terminate a Remote KVM session with the Upgrade Side

- 1. Verify that the install processing is completed as well as the install program is all finished.
- 2. Select X on the upper right-hand side of the Remote KVM console to close the window.
- 3. Select Logout on the upper right of the main window and log out from the main window.
- 4. Close the browser window with login page.

Tips

Terminating the Remote KVM is not mandatory. You can merge the system while maintaining the Remote KVM connection.

(f) Connecting to the Upgrade Side with Remote Desktop

Remote Desktop allows you to control the keyboard, video and mouse of the Upgrade Side through the Windows Remote Desktop component.

To establish a Remote Desktop Connection to the Upgrade Side

1. Click **Remote Desktop** in the navigation bar of the Active Upgrade Console on the Production Side. The system opens a **Remote Desktop Connection** window.

Links <u>Remote Desktop</u> <u>Remote KVM</u>

2. When the window displays the login screen for the remote system, enter your administrative username and password and click **OK**.

The Upgrade Side desktop is displayed.

For more information on what you can do, such as on the Upgrade Side after establishing the remote connection, and how to merge the system after completing the upgrade process, each connection, see the related topics.

If you maximize the Remote Desktop connection window, its title bar (which displays the IP address of the Upgrade Side as well as minimize, maximize and exit buttons), might disappear from view. Only the Upgrade Side desktop will be displayed, as if it is your local desktop.

Tips

The Remote Desktop title bar is a helpful reminder that you are using the Upgrade Side desktop. If you have maximized the window for Remote Desktop and you want the title bar to be displayed for the duration of your connection, click the pin button (pushpin) on the left side of the title bar. (The pin button is displayed only when the window is maximized.)

For more information about managing a Remote Desktop session, refer to the Windows online Help.

To terminate a Remote Desktop Connection to the Upgrade Side

- 1. Verify that all your software upgrades are complete.
- 2. From the Start menu of your remote session, select Disconnect.

Tips

If you are about to merge the system, you can remain logged on to maintain the current desktop session. After the merge, you will be using the Upgrade Side desktop.

(g) Running Software Installers

The following topics describe how to run software installers on the Upgrade Side while the system is split:

Important	Before installing any software, ensure that you are working on the Upgrade Side desktop (through a remote connection). Do not install software on the Production Side.			
Tips	To review the types of upgrades that Active Upgrade technology supports, see <i>Chapter 2</i> (1.5.2 (1) Software Upgrade Support).			

Windows Automatic Updates

If you are using Windows Automatic Updates, and you previously downloaded all of the required software updates, the Automatic Updates icon should be present in the system tray, and it should report that updates are ready for your computer.

To apply the downloaded updates

- 1. Click on the Automatic Updates icon in the Upgrade Side system tray to display the **Automatic Updates** dialog box.
- Select the radio button for Custom Install and click Next. The next page displays a list of the updates you downloaded and allows you to select which ones will be installed at this time.
- 3. Select only the updates that you previously checked for compatibility with your Express5800/ft series system, then click **Install**.

During the installation process, the **Automatic Updates** dialog box minimizes to the system tray. When the installation is complete, you can display the dialog box again. It should report that all updates were successfully installed.

Some updates might require you to restart the operating system on the Upgrade Side.

You can restart the Upgrade Side as many times as necessary to complete the installation; however, you might want to avoid restarting until you have run additional installers to reduce the total number of times you need to restart.

Other Installation Packages

If you previously downloaded individual software installers to a system disk, open the Upgrade Side folder that contains those installer files. Run each installer one at a time.

Some installers might require you to restart the operating system on the Upgrade Side. You can allow these installers to restart the Upgrade Side automatically, or you can manually restart later.
(h) Restarting the Upgrade Side

When the system is running in split mode, if necessary, you can restart the operating system on the Upgrade Side at any time. You can either allow a software installer to restart the system automatically or you can perform the following procedure to restart the system manually.

Important Before you restart the system, ensure that you are working on the Upgrade Side desktop (through a remote connection). Do not restart the Production Side.

To manually restart the Upgrade Side

1. On the Upgrade Side, click Shut Down in the Start menu.

possible.

2. In the Shut Down Windows dialog box, select Restart from the drop-down menu and click OK.

When using Remote KVM

If you are using **Remote KVM**, the session will remain connected while the Upgrade Side is restarting; however, you must log on again when the Upgrade Side is finished restarting.

To send the Ctrl-Alt-Del key sequence necessary for login, use a virtual keyboard.

When using Remote Desktop

If you are using **Remote Desktop Connection**, the connection to the Upgrade Side is terminated, and the Production Side desktop is displayed. While the Upgrade Side is restarting, you can view its status in the activity log and the status bar of the Active Upgrade Console. When the console displays the message **Partner: OS Up**, you can click **Remote Desktop** to log on to the Upgrade Side again.

Important	When you restart the Upgrade Side, the following activity log may be displayed on the Active Upgrade Console:
	📀 Partner (Upgrade) state is now Hung: Unknown.
	O Unexpected state transition in Split state.
	There may be an output of these activity logs even when the Upgrade Side's restart
	completed normally.
	If the following activity logs are displayed after about five minutes, select Retry to
	retry the split process so that you can continue the Active Upgrade.
	Partner (Upgrade) state is now Running OS.
	Reestablished network connection with Upgrade side.
	If there is no output of those activity logs, select Abort to interrupt the Active
	Upgrade.
	The web the Astive Unerede Concells reports that the Unerede Cide encerting evolution is up
Tips	inough the Active Opgrade Console reports that the Opgrade Side operating system is up, it might take another minute or two for all services to finish loading and for login to be

(i) Resetting the Upgrade Side Hardware

If the Upgrade Side system hangs up while the system is operating with the Split mode, you can reset the Upgrade Side hardware by clicking **Reset** button.

By resetting the Upgrade Side hardware, the system recovers.

Important	Do not reset the Upgrade Side hardware on the following cases:			
	 When the Upgrade Side does not reboot properly. 			
	 When the remote connection from Production Side to the Upgrade Side does not set up properly. 			
	 When the Upgrade Side hangs up. 			
	 If you reset the hardware while the Upgrade Side is working properly, the Upgrade side may not launch properly. If this occurs after resetting the hardware, press Abort button to interrupt the Active Upgrade, then retry the Active Activate from the start. 			
	 Do not reset the hardware while split. If the hardware is reset while split, the spilt may fail. If this occurs, select Abort button to interrupt the Active Upgrade, then retry the Active Upgrade. 			

(j) Managing Your Applications on the Production Side

• While the system is split, you can continue to access and use your applications on the Production Side

Important	•	You must avoid doing any of the following on the Production Side desktop:
		 Installing or upgrading software.
		 Creating or modifying any files on the system disk, including the system registry.
		- Restarting the operating system.
	•	Any changes you make to files on the Production Side system disks will be lost during the commit process, because the system overwrites these system disks (which contain the old version of your software) with the newer Upgrade Side disks to complete the upgrade. If you need to preserve files from the original system disks, you can save them to a data disk.
	•	Be careful when switching between the Production Side desktop and the remote connection to the Upgrade Side desktop. When you resume software installation or restart the system, always ensure that you are on the Upgrade Side.

(3) Verifying the Upgrade Side Before Merging the System

After you have upgraded or installed software on the Upgrade Side, you can perform limited testing on the Upgrade Side system disks.

Important	Before merging system, the following resources are unavailable on Upgrade Side.
	You can perform limited testing on the Upgrade Side system disks, as long as your
	activities do not require access to the following resources, which are currently
	unavailable:
	– Network
	– External storage
	– Data disks

Verification before merging system

- Verify the presence and version number of each software package (Refer to *Chapter 1 (8.11 (3) Verifying the Status of Installed Software*) in *Maintenance Guide*.
- If possible, verify that you can start the applications you installed or upgraded.
- If possible, configure the settings for any applications you installed or upgraded.

If you are satisfied:

• You can merge the system to stop your applications on the Production Side and restart them on the Upgrade Side for final verification.

If there are any problems:

 You can abort the upgrade to return the system to its original state. Aborting the upgrade while the system is in split mode will not incur downtime, because your applications are still running on the Production Side.

(4) Merging the System

After finishing to perform the upgrade tasks on the Upgrade Side of the system, you can merge the system to verify your changes before you permanently commit them.

Merging the system:

- Stops your applications and services on the Production Side.
- Merges system resources so that the network, external storage, and data disks become available to the Upgrade Side.
- Restarts your applications (including the Active Upgrade Console) from the Upgrade Side.

Important If you are using Backup Exec, perform merge process after the system is split and the OS restarts.

If you do not restart the OS on the Upgrade Side, merge process may fail. If it failed, press Abort to finish the Active Upgrade. After the Active Upgrade, the duplex process will be done automatically; after the duplex process is done, retry the Active Upgrade.

(a) To merge the system

- 1. Verify that all upgrade processes are complete, and that you have exited any installer programs.
- 2. Optionally, terminate any Remote KVM or Remote Desktop sessions.

Important	•	If you terminate the Remote Desktop, "Disconnect" instead of "Logoff". If you exit the remote desktop connection to the Upgrade Side with logoff, or if you exit the remote KVM connection to the Upgrade Side, the following error message might appear on the Active Upgrade Console of the Production Side while merging the system. A user must be logged into the upgrade-side console for this operation to complete. When this error message appears, complete the merge by following the below procedure:
		1. Click the Remote Desktop link and login to the Upgrade Side.
		2. Select Retry button on the Active Upgrade Console of the Production Side and retry the merge operation.
	•	You can remain logged on to the Upgrade Side if you want to maintain the current desktop session. After the merge, you will be using the Upgrade Side desktop.

- Verify that the upgrade state, as reported in the status bar, is Production Side\Split\Ready. If the status is Busy, you must wait until the current task to complete and the status to become Ready. If it is Broken, you might need to abort the upgrade.
- 4. Click Merge.

Important	• Your screen might flicker and you might briefly lose control of your keyboard and mouse as the system is merged.
	 Do not select Abort button to interrupt the Active Upgrade during the merge. The disk may not be recognized from the OS. When the disk isn't recognized from the OS, go to Disc Management then execute Disk Rescan. If the disk status becomes missing or offline, right click the disk and select Disk Reactivation to verify the disk status becomes online.
	 If you select Abort to abort the Active Upgrade process after merge process is finished, the abort process will be performed after restart of OS. If this abort process fails, select Retry to perform abort process.
	• Do not shut down or restart the server when the merge process is completed. If you shut down or restart the server under the merged status, the system may hang during the shutdown process. If the hang occurs due to shutdown or restart, do the following:
	1 Press and hold the power button to stop the power
	2. Press the power button to start the server.
	The suspension process of the Active Upgrade process is performed
	3 Start over the Active Ungrade

Depending on the complexity of your applications and the upgrade you performed, it may take a certain time period before the application restarts or becomes ready for access.

After the merge process completes, the upgrade state is **Fault Tolerant\Merge\Ready**, indicating that the system is currently merged and the upgrade is ready to be committed. You can test your applications to verify that the upgrade was successful.

If the merge process fails the first time, you can click **Retry** to try again. If the problem persists, you can click **Abort** to abort the upgrade process, or refer to *Chapter 1 (8. Troubleshooting)* in *Maintenance Guide* for information about resolving the problem.

(5) Verifying the Upgrade Side Before Committing the Upgrade

After you have merged the system, your applications (including the Active Upgrade Console) are running from the software on the Upgrade Side system disks. At this point, you can test the software you installed and verify the general health of the system with full access to the system's resources.

Tips	he following resources are available after the system is merged:			
	Network resources			
	External storage			
	Data disks			

For example, you might want to perform the following tasks before you commit the upgrade:

- Verify that all of your applications have restarted on the Upgrade Side (refer to *Chapter 1 (8.11 (2) Verifying the Status of Application Services)* in *Maintenance Guide*).
- Verify that you have access to your network, external storage, and data disks.
- Verify that client systems can reach all of the services that you Express5800/ft series system provides.
- Verify that the presence and the version number of each software package (refer to *Chapter 1 (8.11 (3) Verifying the Status of Installed Software*) in *Maintenance Guide*.
- Verify that you can launch and run any applications that you have installed or upgraded.
- Verify the configurations for your applications and the operating system, which could have been altered by software installation.

If you are satisfied that everything is working correctly, you can commit the upgrade to make the changes permanent.

If there are any problems, you can abort the upgrade to return the system to its original state. However, **aborting the upgrade while the system is in merge mode will incur downtime**, because the Active Upgrade Console must stop your applications on the Upgrade Side before it can restart them on the Production Side.

(6) Committing the Upgrade

When you are finished testing your applications on the merged system, and you are satisfied that everything is working correctly, you can commit the upgrade to make it permanent.

Committing the upgrade

- Rebuild the mirror of any internal RDR system disk by overwriting the original partner disk with its newer, upgraded partner disk.
- Rebuild the mirror of any internal RDR data disk by overwriting the stale partner disk with its newer, activated disk.
- The primary LED on Production Side goes off, and the primary LED on Upgrade Side goes on.
- Does not restart your applications, as they are already running on the upgraded system. There is no additional downtime.

Important You cannot abort the upgrade process after you commit an upgrade because the original state of the system is lost (overwritten) as a result of completing the upgrade process. Ensure that your system is working as expected before clicking Commit.

(a) How to commit the upgrade

- 1. Close all non-essential applications.
- 2. Verify that the upgrade state, as reported in the status bar, is Fault Tolerant\Merge\Ready.
- 3. Click Commit.

Important Your screen might flicker and you might briefly lose control of your keyboard and mouse as the system commits the upgrade.

After the commit process completes, the upgrade state is **Fault Tolerant\Commit\Ready**. You can click **Finish** to clean up ft series resources, as described in *Chapter 2 (1.5.4 (7) Finishing the Upgrade)*.

If the commit process fails the first time, you can click **Retry** to try again. If the problem persists, refer to *Chapter 1* (8. *Troubleshooting*) in *Maintenance Guide* for information about resolving the problem.

(7) Finishing the Upgrade

To complete the Active Upgrade process and clean up ftServer system resources after committing or aborting an upgrade, click **Finish** on the **Commit Upgrade** page or **Abort Upgrade** page.

When the process completes, the upgrade state is Fault Tolerant\ldle\Ready.

If the finish process fails the first time, you can click **Retry** to try again. If the problem persists, refer to *Chapter 1* (8. *Troubleshooting*) in *Maintenance Guide* for information about resolving the problem.

On the Finish page, upon successful completion of the Active Upgrade process, you can:

- Click Exit to close the Active Upgrade Console.
- Click Save Log to save the activity log to a file.
- Click **Active Upgrade** in the navigation bar to initiate another readiness test and upgrade with the same configuration.
- Click Configuration in the navigation bar to create, edit, or load another configuration file.

Important Though the Active Upgrade process is complete, your RDR disks continue to resynchronize in the background. If you intend to initiate another upgrade process, you must wait for the resynchronization to complete before you do so. Refer to *Chapter 1 (8.11 (4) Verifying If RDR Disks Are Resynchronizing*) in *Maintenance Guide* for more information.

(8) Aborting the Upgrade

If necessary, you can abort the Active Upgrade process and restore the system to its original state at the split mode or the merge mode of the upgrade process prior to committing the upgrade.

Important You cannot abort the upgrade process after you commit an upgrade because the original state of the system is lost (overwritten) as a result of completing the upgrade process.

When you abort an upgrade, the Active Upgrade Console:

- Cancels the current Active Upgrade operation.
- If your system is in the merge state, shuts down the Upgrade Side and restarts the system from the Production Side, which automatically restarts your applications from your Production side system disks.
- Reestablishes the mirror of any internal RDR system disk by overwriting the upgraded partner disk with the
 original partner disk.

To abort an upgrade, click the **Abort** button on the **Active Upgrade** page, the **Split System** page, or the **Merge System** page.

Important Your screen might flicker and you might briefly lose control of your keyboard and mouse as the system recovers its original state.

When the process completes, the upgrade state is **Fault Tolerant\Abort\Ready**. You can click **Finish** to clean up ftServer resources, as described in Chapter 2 (*1.5.4* (7) *Finishing the Upgrade*).

If the abort process fails the first time, you can click **Retry** to try again. If the problem persists, refer to *Chapter 1* (8. *Troubleshooting*) in *Maintenance Guide* for information about resolving the problem.

(9) Viewing Active Upgrade Process Status

You can view the status of the Active Upgrade process at any point during the upgrade.

The Active Upgrade Console indicates status in two ways:

- Activity Log
- Status Bar

(a) Activity Log

The activity log shown below, reports details about each upgrade operation.

Activity Log

The activity log is displayed in the main window of the Active Upgrade Console after you have initiated a readiness test or upgrade session.



Activity Log (in Active Upgrade Console)

Remote Activity Log

If you want to check the status of the upgrade process when you are logged on to the Upgrade Side of the system (while in split mode), you can also double-click the Active Upgrade icon (1) in the system tray to open the remote activity log shown below.

		-	-
UpgradeSide (Split - Ready) Partner, DsUp			
Description	Statur	Time	
🗷 😨 Prepare the ItS erver cycleni for being opil		11:29:59	
Enter soltware upgrade state, product.		11:29.51	
Enter Production VTM oplit mode on		11:29:58	
B 🖉 Spik N Cr		11:29:53	
B 🙆 Direck disk statue		11:29:52	
O Deeck dok and volume configuration.		11:29:52	
Enter Upgrade VTM splk mode on 11/4		11:29:59	
🗃 🕝 Spit fre kServer system		11:30:24	
Enter hardware upgrade stale on Upg.		11:30:04	
C Establish network connection with Pr.	Production bidge IP is 192.	11:30:10.	
B 🙆 Stop applications		11:30:13_	
B O Execute custom actions		11:30:13	
Solk NICo		11:30:13.	
B 🥥 Wait for PCI devices.		11:30:21 -	
Check disk and volume configuration.		11:30:13_	
B Q Unnount al data volumes:		11:30:19	-
			-12

Remote Activity Log

Tips

You can only view status in this window. To control the remaining steps of the Active Upgrade process, you must use the Active Upgrade Console on the Production Side.

Activity Log Detail

Table below describes the general meaning of activity log entries that appear in the local and remote activity logs.

lcon	Text Color	Severity	Description
\mathbf{O}	Green	Success	Task completed without error
	Black	Pending	Task is in progress
÷,	Black	Information	Task information, no action necessary
٤	Black	Warning	A problem that should be addressed, but will not block an upgrade
\odot	Red	Error	A problem that must be corrected before continuing with upgrade

Activity Log Entries

Some upgrade items are collapsed into a single line. To display all of the associated items, click on the expand (+) button to the left of the item. To collapse them again, click on the collapse (-) button to the left of the item.

Double-click on any item in the activity log to open a detail window with more information about that item.

🕱 Error event at 1/6/2006 7:27:44 PM	<u>? ×</u>
1/6/2006 7:27:44 FM	
Description	
Custom Action CNProgram Files/STRATUS/ActiveUpgrade/User Contigurations/Star/App.bat	
Status:	
The executable CrVProgram Files/STRATUS (ActiveUpgrade/User Conligurations/Star(App.bat does not exist	
Additional information:	
Show severity: Error	
Erevicus Next	

Activity Log Detail

In the detail window, you can click the **Previous** and **Next** buttons to review other items of the same severity. For example, if you are viewing an error, you can click **Next** to see the next error item. To change the severity level of the items you want to review, select an option from the **Show severity** pulldown menu. (A severity type will be unavailable if there are currently no items of that severity in the activity log).

Saving Activity Log

If necessary, you can save the items from the activity log in the Active Upgrade Console to a file.

(b) Status Bar

The status bar (below figure), which is located at the bottom of the Active Upgrade Console window, reports a quick summary of the status of the upgrade.

Hottix Config	Producti	ion Side Split		Ready	Partner: OS Up 🥼
1		2	3	4	5

Status Bar

- 1 Configuration file name
- 2 Hardware State
- 3 Upgrade State
- 4 Operational State
- 5 Partner State

Configuration file name

Shows configuration file name to be upgraded.

Hardware State

The Hardware State reports hardware state and where your applications are running.

Status: Hardware State

Hardware State	Description
Fault-tolerant	The system is duplexed.
Production Side	The system is currently running in split mode, and your applications are running from the Production Side (the original copy of your software). The Upgrade Side is available for upgrade tasks.

Upgrade State

The Upgrade State reports the progress of upgrade process.

Status: Upgrade State

Upgrade State	Description
Idle	The current upgrade session is idle. The Active Upgrade process has just finished, or it has not been initiated yet.
Prepare Split	The Active Upgrade Console is preparing to split the system.
Split	If the operational state is Ready , the system is running in split mode. Otherwise, the Active Upgrade Console is in the process of initiating split mode.
Prepare Merge	The Active Upgrade Console is preparing to merge the system.
Merge	If the operational state is Ready , the system is merged. Otherwise, the Active Upgrade Console is in the process of merging the system.
Commit	The Active Upgrade Console is in the process of committing your changes (making them permanent).
Abort	The upgrade process has been aborted, and the Active Upgrade Console is in the process of restoring the system to its previous state.

Operational State

The Operational State reports the status of the last operation that was performed.

Status: Operational State

Operational State	Description
Ready	The previous operation has been completed successfully. The Active Upgrade process is ready to enter the next upgrade state.
Busy	The current operation is still in progress. Allow time for the operation to complete.
Broken	The Active Upgrade Console could not complete the current operation. Check the activity log for errors. You must correct the errors and click Retry to complete the operation, or click Abort to abort the current upgrade session.

Partner State

The Partner State reports the status of the partner system. For example, while the system is in split mode, the Active Upgrade Console is running on the Production Side, this field reports the status of the Upgrade Side of the system.

Partner State	Description
DC On	The partner system operating system is shutdown, but the system still has standby (housekeeping) power.
DC Off	The partner system operating system is shutdown and standby power is off.
BIOS POST	The partner system is performing a BIOS Power On Self Test (POST).
Hung: BIOS POST	The partner system hung in the BIOS POST.
OS Booting	The partner operating system is booting.
Hung: OS Booting	The partner system hung in the boot process.
OS Up	The partner operating system is up. (However, the system might not be available for use until other system resources finish loading.)
Hung: OS Up	The partner operating system is hung.
OS Rebooting	The partner operating system is rebooting.
Hung: OS Rebooting	The partner system hung while rebooting.
OS Shutting Down	The partner operating system is shutting down.
Hung: OS Shutting Down	The partner system hung while it was shutting down.
OS Crashed	The partner operating system crashed.
OS Shut Down	The partner operating system finished shutting down, but the system is still powered on.

Status: Partner State

1.6 ExpressUpdate Agent

NEC ExpressUpdate Agent enables you to manage and update the versions of the firmware and software installed in this server.

By using NEC ExpressUpdate, you can install the downloaded packages easily.

For details about how to install NEC ExpressUpdate Agent, refer to "NEC ExpressUpdate Agent Installation Guide" in EXPRESSBUILDER.

Tips

Updates are available for some firmware and software that do not support NEC ExpressUpdate. Refer to the following website to install these packages:

http://www.nec.com/global/prod/express/index.html

1.7 Express Report Service / Express Report Service (HTTPS)

To avoid system failures or to maintain the server quickly, Express Report Service / Express Report Service (HTTPS) informs the support center of the failure information, preventive maintenance information by E-Mail or modem. If you want to use this service, contact your sales representative and install NEC ESMPRO Agent before using this service.

You can install Express Report Service / Express Report Service (HTTPS) with Windows OS installation when using EXPRESSBUILDER.

For details about Express Report Service / Express Report Service (HTTPS), refer to "Express Report Service / Express Report Service (HTTPS) Installation Guide" in EXPRESSBUILDER.

1.8 NEC Product Info Collection Utility

NEC Product Info Collection Utility can collect various logs related to the server all at once.

This utility allows you to collect server information (Product Info) for maintenance.

You can install this utility from EXPRESSBUILDER in the following procedure.

1.8.1 Installation

You can install this utility by using the following steps.

- Log on to Windows, and then insert EXPRESSBUILDER into the optical disk drive. Run <EXPRESSBUILDER>:\autorun\dispatcher_x64.exe.
- From the autorun menu, select Set up Software and then Product Info Collection Utility. Installation of this utility starts. After this, follow the instructions in the dialog boxes until installation is complete. (By default, this utility is installed in the C:\ezclct folder.)

Tips

- Log on to the system with an account that has administrator privilege.
- The installation drive requires a free space of at least 2.5 GB.

1.8.2 Uninstallation

From **Control Panel**, select **Add/Remove Programs** and then **Product Info Collection Utility (Vx.x.x)**. After this, follow the instructions in the dialog boxes until uninstallation is complete.

2. Bundled Software for "PC for Management"

This section describes the bundled software required to configure "PC for Management" used to manage the server system.

2.1 NEC ESMPRO Manager

NEC ESMPRO Manager remotely controls and monitors the server hardware.

To use these features, install the bundled software such as NEC ESMPRO Agent on the server.

For details about the system requirements of NEC ESMPRO Manager and how to install it, refer to "NEC ESMPRO Manager Installation Guide" in EXPRESSBUILDER.