

Installation Guide (Windows)

NEC Express Server Express5800 Series

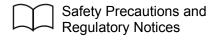
Express5800/R120g-1M, R120g-2M EXP801, EXP802

Chapter 1 Installing Windows

Chapter 2 Installing Bundled Software

Manuals

Manuals for this product are provided as booklets (\bigcirc) and electronic manuals ($\stackrel{\square}{\cong}$) in EXPRESSBUILDER (\bigcirc).



Getting Started

Describes points of caution to ensure the safe use of this server. Read these cautions before using this server.

Describes how to use this server, from unpacking to operations. See this guide first and read the outline of this product.



EXPRESSBUILDER



User's Guide

Chapter 1: General Description

Overviews, names, and functions of the server's parts

Chapter 2: Preparations

Installation of additional options, connection of perip

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 and other information



Installation Guide (Windows)

Chapter 1: Installing Windows

Chapter 2: Installing Bundled
Software

Chapter 2: Installing Bundled
Software

Chapter 3: Installing Bundled
Software

Installation of Windows and drivers, and precautions for installation
of NEC ESMPRO, Universal RAID Utility, and other
bundled software



Maintenance Guide

Chapter 1: Maintenance | Server maintenance and troubleshooting

Chapter 2: Useful Features Useful features and the detail of system BIOS settings, RAID Configuration Utility, and EXPRESSBUILDER

Chapter 3: Appendix | Error messages and Windows Event Logs



Other manuals

The detail of NEC ESMPRO, Universal RAID Utility, and the other features.

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Conventions 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 manual. These notations have the following meanings.

Important	Indicates critical items that must be followed when handling 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 hardware or operating software.
Tips	Indicates information that is helpful to keep in mind when using this server.

Optical disk drives

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

- DVD-ROM drive
- DVD Super MULTI drive

Hard Disk Drive

Unless otherwise stated, hard disk drive described in this manual refer to the following.

- Hard disk drive (HDD)
- Solid state drive (SSD)

Removable media

Unless otherwise stated, removable media described in this manual refer to the following.

- USB flash drive
- Flash FDD

Abbreviations of Operating Systems (Windows)

Windows Operating Systems are referred to as follows.

See Chapter 1 (1.2 Supported Windows OS) for detailed information.

Notations in this manual	Official names of Windows
Windows Server 2012 R2	Widnows Server 2012 R2 Standard
Willdows Server 2012 R2	Widnows Server 2012 R2 Datacenter
Mindows Conver 2012	Widnows Server 2012 Standard
Windows Server 2012	Widnows Server 2012 Datacenter
Windows Server 2008 R2	Windows Server 2008 R2 Standard
Williams Server 2000 R2	Windows Server 2008 R2 Enterprise

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UEFI NETWORK STACK 2

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NEC Express5800 Series Express5800/R120g-1M, R120g-2M

1

Installing Windows

This chapter describes how to install Windows. Read through this chapter to set up the Windows correctly.

1. Before Starting Setup

Describes Service Packs and mass storage controllers which is supported by EXPRESSBUILDER.

2. Setting Up the Operating System

Describes the flow chart of setting up the operating system.

3. Setting Up Windows Server 2012 R2

Describes how to set up Windows Server 2012 R2.

4. Setting Up Windows Server 2012

Describes how to set up Windows Server 2012.

5. Setting Up Windows Server 2008 R2

Describes how to set up Windows Server 2008 R2.

6. Setup for Solving Problems

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

7. Windows OS Parameter File

Describes how to create the parameter file.

1. Before Starting Setup

This section describes the points of using EXPRESSBUILDER to set up Windows operating systems.

1.1 Starting EXPRESSBUILDER

Use EXPRESSBUILDER to reconfigure RAID arrays or re-install the OS.

See Chapter 2 (5. Details of EXPRESSBUILDER) in Maintenance Guide for more information.

<u>Usage</u>

Remove a CD/DVD and removable media from the server, restart the server and press <F3> key during POST.

If you use an optional EXPRESSBUILDER DVD or a DVD that created by ISO image file downloaded from our website, insert the DVD to the server and restart it.

1.2 Supported Windows OS

EXPRESSBUILDER supports the following editions of Windows operating systems.

EB : Setup with EXPRESSBUILDER

08 : Setup with Windows Standard Installer

Name of Windows OS		Boot mode		Installation method	
		UEFI	Legacy	ЕВ	08
Windows Server 2012 R2	Standard	✓	-	✓	✓
Willdows Server 2012 R2	Datacenter	✓	-	✓	✓
Windows Server 2012	Standard	√	-	✓	✓
Willdows Server 2012	Datacenter	√	-	✓	✓
Windows Conver 2009 D2	Standard	-	✓	✓	✓
Windows Server 2008 R2	Enterprise	_	✓	✓	✓

✓ : Supported

1.3 Supported Service Pack

The following installation media and the Service Pack installations are supported by EXPRESSBUILDER.

OS installation media	No Service Pack installation	Service Pack 1 installation
Windows Server 2012 R2	✓	N/A
Windows Server 2012	✓	N/A
Windows Server 2008 R2 with Service Pack 1	✓ (*)	N/A
Windows Server 2008 R2	✓	✓

✓ : Supported

^{*} Service Pack included is also installed when the Windows is installed. The installed Windows system is always installed Service Pack.

1.4 Mass Storage Controllers Supported by EXPRESSBUILDER

The table below lists the controllers for this server, supported by EXPRESSBUILDER.

If an optional board not mentioned below is connected, set it up while referring to the instructions supplied with the board and *Chapter 1 (1.7 Using Mass Storage Controller Not Supported by EXPRESSBUILDER*).

	Windows Server 2012 R2	Windows Server 2012	Windows Server 2008 R2
RAID Controllers supporting OS i	nstallation by EXPRE	SSBUILDER	
N8103-176 RAID Controller (1GB, RAID 0/1)	✓	✓	✓
N8103-177 RAID Controller (1GB, RAID 0/1/5/6)	✓	✓	✓
N8103-178 RAID Controller (2GB, RAID 0/1/5/6)	✓	✓	✓
Other options			
N8103-142 SAS Controller	✓	✓	✓
N8103-184 SAS Controller	✓	√	_
N8103-179 RAID Controller (2GB, RAID 0/1/5/6)	✓	✓	✓
N8190-157A Fibre Channel Controller(1ch)	✓	✓	✓
N8190-158A Fibre Channel Controller(2ch)	✓	✓	✓
N8190-159 Fibre Channel Controller(1ch)	✓	✓	✓
N8190-160 Fibre Channel Controller(2ch)	✓	✓	✓

✓: Supported

1.5 Supported Optional LAN board

The table below lists the optional LAN boards for this server, supported by EXPRESSBUILDER.

	Windows Server 2012 R2	Windows Server 2012	Windows Server 2008 R2		
LAN board supporting OS installation by EXPRESSBUILDER					
None	_	-	-		
Other options					
N8104-154F Quad Port 1000BASE-T LOM Card	✓	✓	✓		
N8104-155F Dual Port 10GBASE-T LOM Card	✓	✓	-		
N8104-156F Dual Port 10G-SFP + Dual Port 1000BASE-T LOM Card	√	✓	✓		
N8104-160F Dual Port 10GBASE-T LOM Card	✓	✓	-		
N8104-145 Dual Port 1000BASE-T Adapter	-	-	✓		
N8104-149 10GBASE Adapter (SFP+/2ch)	✓	✓	✓		
N8104-150 1000BASE-T Adapter	√	√	✓		
N8104-151 Dual Port 1000BASE-T Adapter	√	√	✓		
N8104-152 Quad Port 1000BASE-T Adapter	√	√	√		
N8104-153 Dual Port 10GBASE-T Adapter	√	√	-		
N8104-157 Dual Port 10GBASE-T Adapter	✓	✓	-		

✓: Supported

1.6 InfiniBand Adapters Supported by EXPRESSBUILDER

EXPRESSBUILDER supports the following InfiniBand adapters.

	Windows Server 2012 R2	Windows Server 2012	Windows Server 2008 R2
N8104-146 InfiniBand Host Channel Adapter(1ch)	✓	√	_
N8104-147 InfiniBand Host Channel Adapter(2ch)	✓	√	_

✓: Supported

1.7 Using Mass Storage Controller Not Supported by EXPRESSBUILDER

To install the Windows when using a mass storage controller not supported by EXPRESSBUILDER such as the newest RAID controller, follow the steps below.

You do not need to perform the following instructions usually.

1. Have the instructions for the mass storage controller ready.

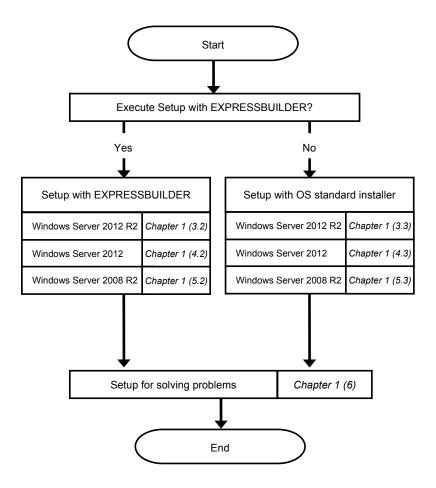
Note

If the contents of this document differ from that of the mass storage controller, prioritize the contents of the controller's document.

- 2. If you use a RAID controller, follow the controller instructions to configure a RAID system.
- 3. See Setup with Windows Standard Installer of each Windows family in this guide.

Setting Up the Operating System

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



3. Setting Up Windows Server 2012 R2

Set up Windows Server 2012 R2.

3.1 Before Starting Setup

Read through the cautions explained here before starting setup.

EB : Confirm during Setup with EXPRESSBUILDER

08 : Confirm during Setup with Windows standard installer

BIOS	BIOS setting				
ЕВ	os	Change Boot Mode to UEFI Mode. See Chapter 2 (1. System BIOS) in Maintenance Guide for details. Boot → Boot Mode → UEFI			
ЕВ	OS	Select Enabled for x2APIC feature of processor. See <i>Chapter 2 (1. System BIOS)</i> in <i>Maintenance Guide</i> for details. Advanced → Processor Configuration → x2APIC→ Enabled			
ЕВ	OS	At re-installation, open Boot Option Priorities in BIOS SETUP to make sure that the higher boot priority than Windows Boot Manager is specified for optical disk drive. Example of correct setting			
		 Before opening BIOS SETUP, be sure to insert OS installation media into optical disk drive. If Windows Boot Manager is not displayed in Boot Option Priorities, you need not to confirm the boot priority. 			

Hardware configuration	
The following hardware configurations require special procedures.	
EB OS	Reinstalling to a mirrored volume When you install Windows Server 2012 R2 in an environment with a mirrored volume created using Windows, disable mirroring before installing the operating system and enable it again after the installation. Use [Computer Management] – [Disk Management] to create, disable, or remove the mirrored volume.
EB 08	Peripheral devices such as RDX/MO Remove an MO device before installing an OS. Some peripheral devices need to be halted before installation. Refer to the manual provided with the peripheral devices for how to set a device appropriate to installation.
EB OS	DAT, LTO, and similar media Do not set media that is unnecessary to installation during setup.
EB OS	Installing in internal or external multiple hard disk drives (logical drives) For details on installing operating systems to a system in which two or more RAID Controller exist, or to an external disk drive* that is not subject to setup, refer to Chapter 1 (3.10 Installation When Multiple Logical Drives Exist). * Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit.
EB 08	Reinstalling to hard disk drives that have been upgraded to dynamic disks If the hard disk drive has been upgraded to a dynamic disk, the operating system cannot be reinstalled to it with the existing partitions. Set up the operating system with the Windows standard installer.

EB

08

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, the partition size for storing debug information (dump file) may not be secured.

If you fail to secure the dump file size, use Windows standard installer for setup, and allocate the required file space to multiple disks by performing the following steps.

- 1. Set the system partition size to a size sufficient to install the OS and paging file.
- 2. Specify another disk as the destination to store the debug information (required dump file size) by referring to *Chapter 1* (6. Setup for Solving Problems).

If the hard disk drive does not have enough space to write the debug information, set the partition size to a size 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 recommended size, expand the partition size or add another hard disk drive.

If sufficient space cannot be secured for the paging file, perform either of the following after setting up using Windows Standard Installer is complete.

 Specify a hard disk drive other than the system drive as the location to store the paging file for collecting memory dump

Create a paging file of the installed memory size + 400 MB or more in a drive other than the system drive.

The paging file that exists in the first drive (in the order of drive letter C, D, E, ...) is used as the temporary memory dump location. Therefore, the size of the paging file must be "installed memory size + 400 MB" or more. Paging files in dynamic volumes are not used for dumping memory. The setting is applied after restarting the system.

Example of correct setting

- C: No paging file exists
- D: Paging file whose size is "installed memory size + 400 MB" or more $\,$
- \rightarrow 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
- ightarrow 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 \times 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)
- ightarrow 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 specifying the file named "dedicateddumpfile.sys" in drive D>

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.
- 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 partition size





The system partition size can be calculated by using the following formula.

Size required to install the OS + paging file size + dump file size + application size

Server with a GUI

Size required to install the OS = 9,200MB

Paging file size (recommended) = installed memory size \times 1.5

Dump file size = installed memory size + 400MB

Application size = as required by the application

Server Core installations

Size required to install the OS = 6,400MB

Paging file size (recommended) = installed memory size \times 1.5

Dump file size = installed memory size + 400MB

Application size = as required by the application

For example, if the installed memory size is 1 GB (1,024 MB), application size is 100MB, and Server with a GUI is selected, the partition size is calculated as follows:

$$9,200MB + (1,024MB \times 1.5) + 1,024MB + 400MB + 100MB$$

= 12,260MB

The above mentioned partition size is the minimum partition size required for system installation. Ensure that the partition size is sufficient for system operations.

The following partition sizes are recommended.

Server with a GUI : 32,768MB (32GB) or more Server Core installations : 32,768MB (32GB) or more

*1 GB = 1,024 MB

Note

 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 you set a sufficient paging file size. If the paging file is insufficient, there will be a virtual memory shortage that may result in an inability to collect correct debug information.

- Regardless of the sizes of internal memory and write debug information, the maximum size of the dump file is "size of internal memory + 400 MB".
- When installing other applications or other items, add the amount of space needed by the application to the partition.

If the partition size for installing Windows is smaller than the recommended size, expand the partition size or add another hard disk drive.

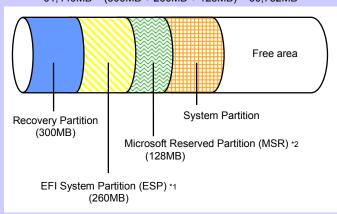
Tips

When creating a partition, Windows OS creates the following partitions at the top of hard disk drive.

Recovery Partition: 300MB
 EFI System Partition (ESP): 260MB *1
 Microsoft Reserved Partition (MSR): 128MB *2

528MB is allocated for these three partitions out of the specified partition size. For example, when 61,440MB is specified for partition size, the area available free area is calculated as follows:

61,440MB - (300MB + 260MB + 128MB) = 60,752MB



- *1 May be 100MB in size depending on hard disk drive type.
- *2 MSR is not displayed on Disk Management.

Windows Server 2012 R2 Hyper-V support





Refer to the following web site for information related to Windows Server 2012 R2 Hyper-V. http://www.58support.nec.co.jp/global/download/w2012r2/hyper-v/hyper-v-ws2012r2.html

Using BitLocker

If using BitLocker, note the following.

Be sure to keep the recovery password secure. Do not keep it near a server running BitLocker.

Important

If the recovery password is not entered, the OS cannot be started, and the content of the partition encrypted by BitLocker cannot be referenced any more. The recovery password might be required at startup of the OS after the following:

- EB OS
- Change of BIOS setting

Replacement of motherboard

- Initialization of trusted platform module (TPM) *
 - * Depending on your system, it may not be supported.

 Refer to the document about hardware.
- To reinstall the operating system into a partition that is encrypted with BitLocker, delete the BitLocker-encrypted partition prior to reinstallation.

Support for NIC teaming in Windows Server 2012 R2



08

The NIC teaming feature, which used to be provided by network interface card (NIC) vendors, is built into Windows Server 2012 R2. In Windows Server 2012 R2, this feature is also called "load balancing and failover (LBFO)".

Refer to 3.8 Setup of Windows Server 2012 R2 NIC Teaming (LBFO) and specify any required settings.

3.2 Setup with EXPRESSBUILDER

This section describes how to install Windows with EXPRESSBUILDER.

This feature automatically recognizes the RAID controller connected to the server and configures the RAID system. Therefore the hardware installation of the server needs to be finished by following "*User's Guide*".

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:
 - RAID settings
 - Partition Settings

When re-installing windows, backing up user data is recommended.

 Before starting setup, be sure to disconnect hard disk drives from the RAID Controller that is not to be setup. Install those hard disk drives after setup has completed. Conducting setup with hard disk drives being connected with RAID Controller may cause existing data to be erased unintentionally. It is recommended to make backup copy of user data before starting setup.

Note

The Scalable Networking Pack (SNP) function is disabled on systems that have been installed by using EXPRESSBUILDER.

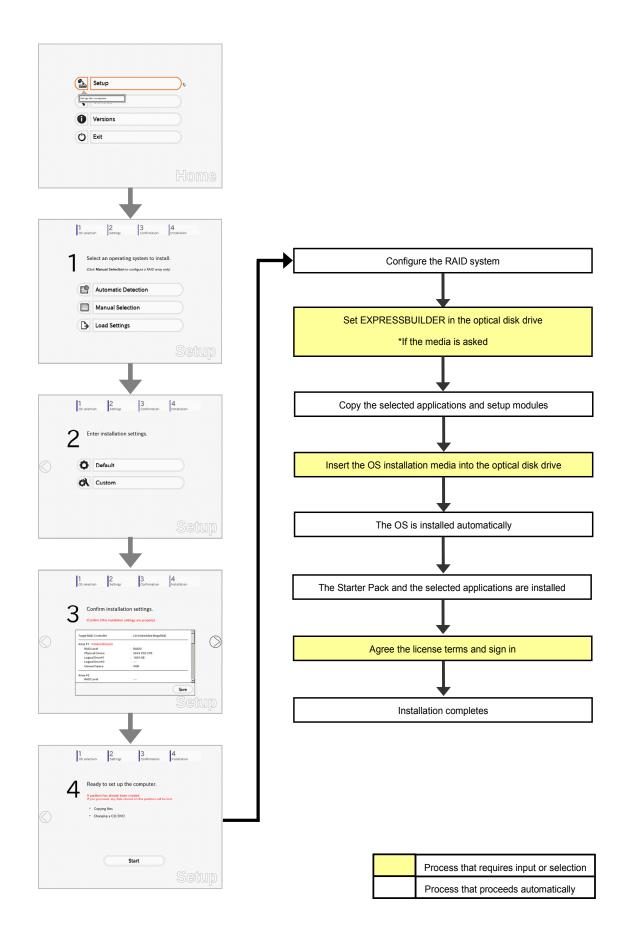
The setting of SNP function may affect the system performance.

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 removable media or Internal Flash Memory.
- For details on creating a parameter file, refer to *Chapter 1 (7. Windows OS Parameter File)*.

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 R2 DVD-ROM)
- > Either of the following EXPRESSBUILDER
 - Internal Flash Memory
 - EXPRESSBUILDER DVD (Option)
- > Prepare if needed:
 - Removable media for Windows OS parameter file

3.2.3 Setup procedure

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

Note

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

- 1. Turn peripheral device (such as a display) power on, and then turn the server power on.
- 2. Start EXPRESSBUILDER according to Chapter 1 (1.1 Starting EXPRESSBUILDER).
- Select OS installation *** default ***.

You will automatically advance to step 4, with no need for further input.



The following window appears.



The server starts from EXPRESSBUILDER.



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



5. Click Setup.



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



☐ When *not using* a parameter file: Select **Automatic Detection**, and then go to Step 7.

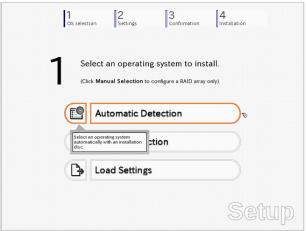
Select Manual Selection, and then go to Step 8.

☐ When *using* a parameter file : Select **Load Settings**, and then go to Step 9.

Note

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

- 7. When *not using* a parameter file, let the OS on the installation media be recognized by using the following procedure.
 - 7-(1) Click Automatic Detection.



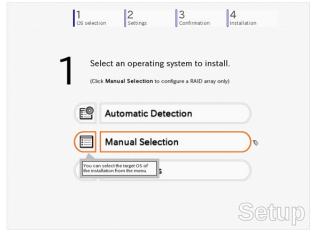
7-(2) Insert the OS installation media, and then click **OK**.



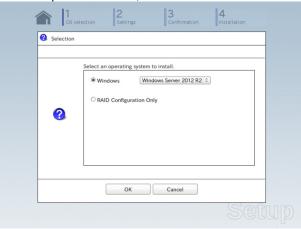
7-(3) Click \bigcirc on the right side of the screen. \rightarrow Go to step 10.



- 8. When not using a parameter file, select an OS by using the following procedure.
 - 8-(1) Click Manual Selection.



8-(2) From the pull-down menu, select Windows Server 2012 R2, and then click OK.



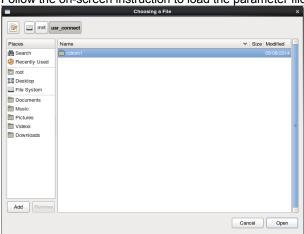
8-(3) Click \bigcirc on the right side of the screen. \rightarrow Go to step 10.



- 9. When using the parameter file, load the parameter file by using the following procedure.
 - 9-(1) Click Load Settings.



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



Tips

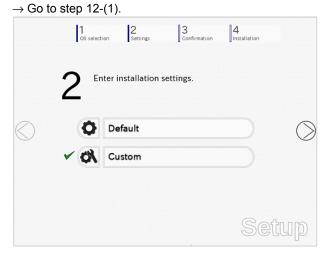
For the removable media in which the parameter file is saved, see "/mnt/usr_connect/usb*" (* indicates a number).

9-(3) Click on the right side of the screen.



9-(4) When the parameter file is correctly loaded, click ○ on the right side of the screen. → Go to step 13.

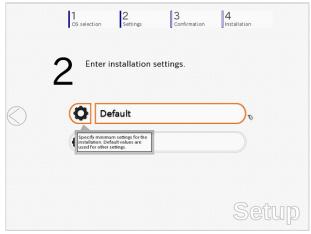
Click **Custom** to check and modify the setting in the wizard.



- 10. Specify the setup parameters by using either of the following methods:
 - \square When selecting **Default** : Go to Step 11.

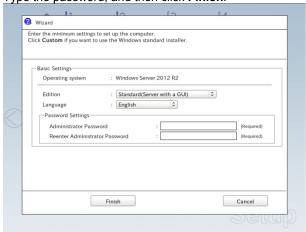


11. Click Default.



11-(1) Select the edition of the OS to install from the Edition list.

Type the password, and then click Finish.



Note

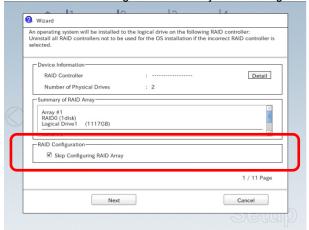
Computer name and Administrator Password are required parameters. Enter Administrator Password that satisfies the following conditions:

- Contains 6 or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z), and symbols.
- 11-(2) Click \bigcirc on the right side of the screen. \rightarrow Go to step 13.



12. Click Custom.





12-(1) Use this menu to configure the RAID system and logical drives as needed.

When creating new logical drives

With the Skip a RAID Configuration check box cleared, click Next.

Set up the logical drives according to the wizard.

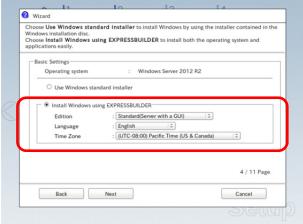
Important If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

When skipping the creation of new logical drives

Select the Skip a RAID Configuration check box, and then click Next.

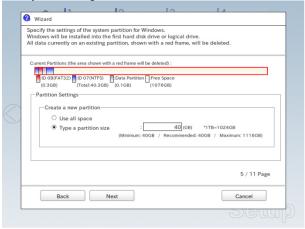
12-(2) Check the settings specified for Basic Settings.

Choose Install Windows using EXPRESSBUILDER, and then click Next.



12-(3) Check the settings specified for Partition Settings.

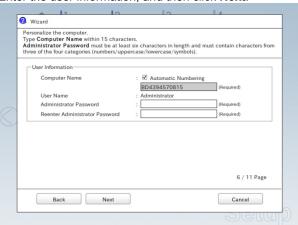
Modify the settings as needed, and then click Next.



Important

- Partition size
 - Specify a partition size larger than the minimum required for installing the operating system. (Refer to Chapter 1 (3.1 Before Starting Setup).)
- The entire contents of the destination hard disk drive will be deleted.

12-(4) Enter the user information, and then click Next.



Note

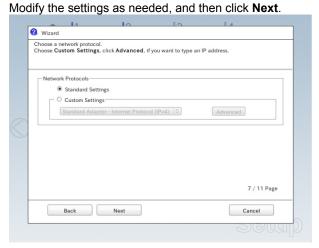
Computer name and Administrator Password are required parameters. Enter Administrator Password that satisfies the following conditions:

- Contains 6 or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z), 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 "Auto", 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 Reenter Administrator password text boxes.

12-(5) Check the settings specified for **Network Protocols**.



Tips

The order of entry in **Custom settings** may differ from the numbering of LAN ports.

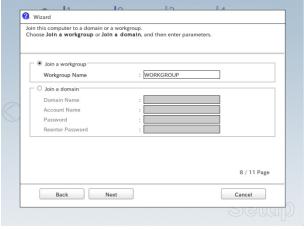
Note

Even when an optional network board is connected, **Custom settings** only shows standard network boards.

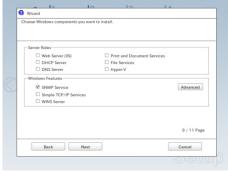
After finishing Setup with EXPRESSBUILDER, specify the optional network settings again.

12-(6) Specify the domain or workgroup.

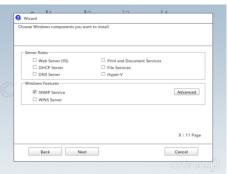
Check the settings, modify them as needed, and then click Next.



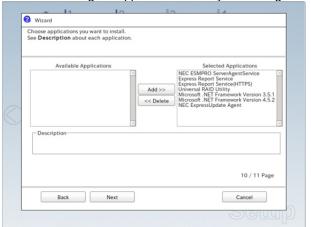
12-(7) Check the settings of Windows components. Modify the settings as needed, and then click **Next**.





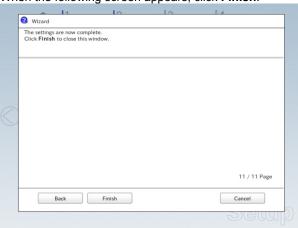


Server Core Installations



12-(8) Check the settings of applications. Modify the settings as needed, and then click Next.

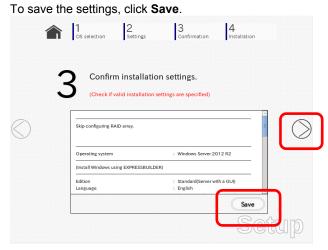
When the following screen appears, click Finish.



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

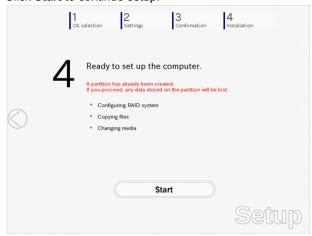


13. Check the parameter settings.



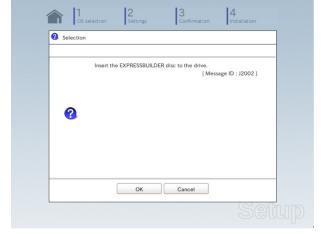
Click On the right side of the screen.

14. The setup process starts.
Click **Start** to continue setup.



15. If the server has started from the EXPRESSBUILDER DVD, insert the EXPRESSBUILDER disk into the optical disk drive, and then click **OK**.

If EXPRESSBUILDER DVD is already set, this message will not appear.





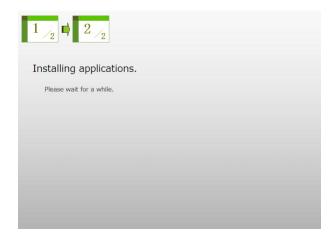
16. Insert the OS installation media into the optical disk drive, and then click **OK**.

Windows Server 2012 R2 is installed automatically.

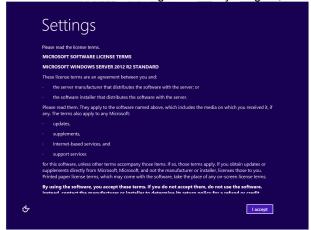
Wait for completion (about 40 minutes) without performing any operation.

17. The Starter Pack and the selected applications are automatically installed. Some Dialog boxes or other messages may appear, but wait for completion without performing any operation.





18. Read the terms of License Agreement. If you agree, click I Accept (only in the server with a GUI).



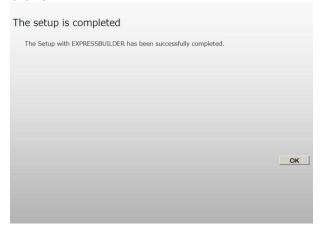
19. Press the CTRL+ALT+DEL keys to sign in.



Type the password you have specified in step 11-(1) or 12-(4).



20. Click **OK**.



- 21. See "Chapter 1 (3.5 Checking installation of EXPRESSBUILDER)" to confirm that EXPRESSBUILDER has been installed in Windows.
- 22. Follow the instructions described in *Chapter 1 (3.6 Setting Up Device Drivers*) to set up the device drivers.
- 23. Confirm if Windows is activated according to Chapter 1 (3.7 License Authentication).
- 24. See Chapter 1 (3.8 Setup of Windows Server 2012 R2 NIC Teaming (LBFO)) to setup a team as needed.
- 25. Execute setup by following the instructions described in Chapter 1 (6. Setup for Solving Problems).
- 26. See *Chapter 2 Installing Bundled Software* to install the bundled software or confirm that the software is appropriate to your operating environment.

Setup with EXPRESSBUILDER is now complete.

3.3 Setup with Windows Standard Installer

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

This feature automatically recognizes the RAID controller connected to the server and configures the RAID system. Therefore the hardware installation of the server needs to be finished by following "*User's Guide*".

Important

Setup with Windows standard Installer 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:

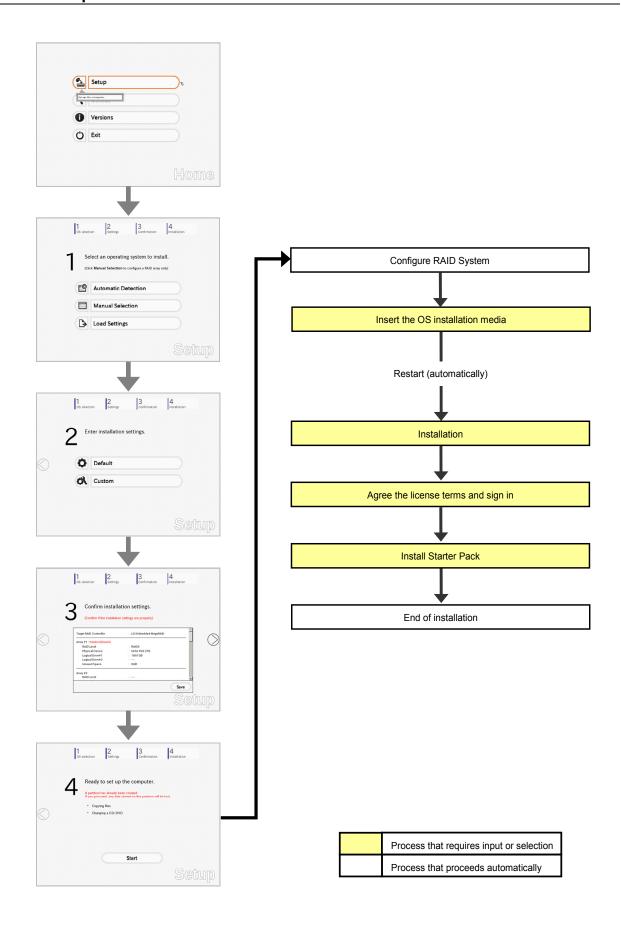
- RAID settings

When re-installing an OS, backing up user data, as needed, is recommended.

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 removable media or Internal Flash Memory.
- For details on creating a parameter file, refer to *Chapter 1 (7. Windows OS Parameter File*).

3.3.1 Setup flow



3.3.2 Requirements for Setup

Prepare the following media and instruction manuals before starting setup.

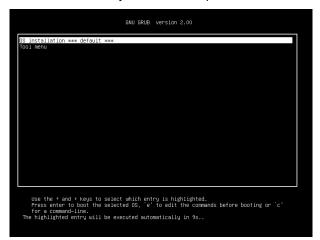
- > Either of the following OS installation media
 - NEC operating system installation media (hereafter referred to as Backup DVD-ROM)
 - Microsoft operating system installation media (hereafter referred to as Windows Server 2012 R2 DVD-ROM)
- > Either of the following EXPRESSBUILDER
 - Internal Flash Memory
 - EXPRESSBUILDER DVD (Option)
- > Prepare if needed:
 - Removable media for Windows OS parameter file

3.3.3 Setup procedure

Note

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

- 1. Turn peripheral device (such as a display) power on, and then turn the server power on.
- 2. Start EXPRESSBUILDER according to Chapter 1 (1.1 Starting EXPRESSBUILDER).
- Select OS installation *** default ***.
 You will automatically advance to step 4, with no need for further input.



The following window appears.



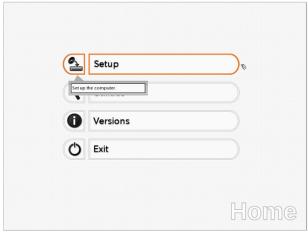
The server starts from EXPRESSBUILDER.



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



5. Click Setup.



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



 \square When *not using* a parameter file : Select **Automatic Detection**, and then go to Step 7.

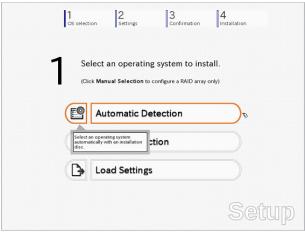
: Select Manual Selection, and then go to Step 8.

☐ When *using* a parameter file : Select **Load Settings**, and then go to Step 9.

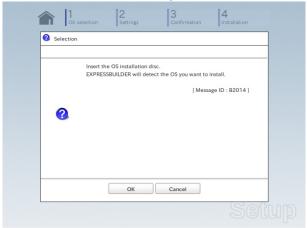
Note

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

- 7. When *not using* a parameter file, let the OS on the installation media be recognized by using the following procedure.
 - 7-(1) Click Automatic Detection.



7-(2) Insert the OS installation media, and then click **OK**.



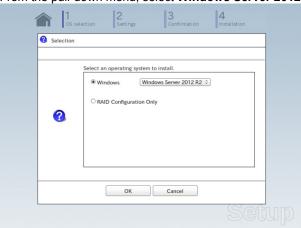
7-(3) Click \bigcirc on the right side of the screen. \rightarrow Go to step 9.



8. When *not using* a parameter file, select an OS by using the following procedure.



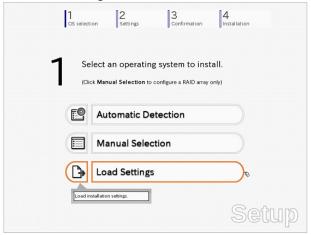
8-(2) From the pull-down menu, select Windows Server 2012 R2, and then click OK.



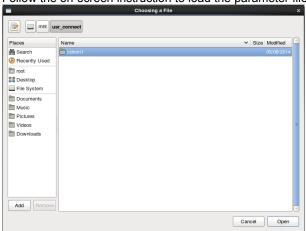
8-(3) Click \bigcirc on the right side of the screen. \rightarrow Go to step 9.



- 9. When using the parameter file, load the parameter file by using the following procedure.
 - 9-(1) Click Load Settings.



9-(2) 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).

9-(3) Click On the right side of the screen.



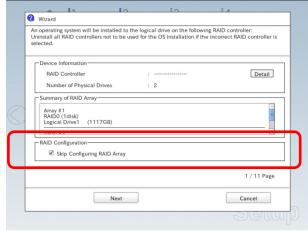
9-(4) When the parameter file is correctly loaded, click ○ on the right side of the screen. → Go to step 11.

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

10. Click Custom.



10-(1) Use this menu to configure the RAID system with the RAID controller detected automatically.



When creating new logical drives

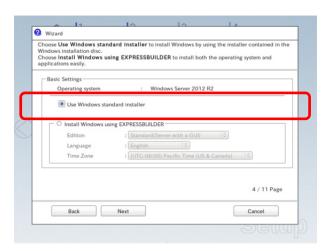
With the **Skip a RAID Configuration** check box cleared, click **Next**. Set up the logical drives according to the wizard.

Important If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

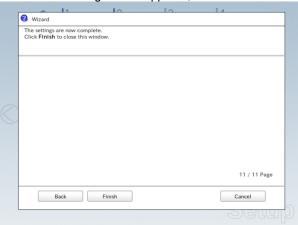
When skipping the creation of new logical drives

Select the Skip a RAID Configuration check box, and then click Next.

10-(2) Check the settings specified for Basic Settings.
Choose Use Windows standard installer, and then click Next.



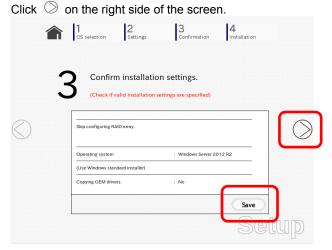
When the following screen appears, click **Finish**.



10-(3) Click on the right side of the screen.

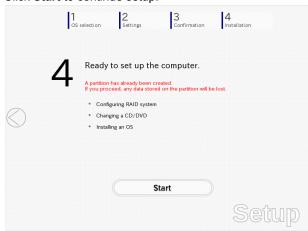


11. Check the parameter settings.To save the settings, click Save.

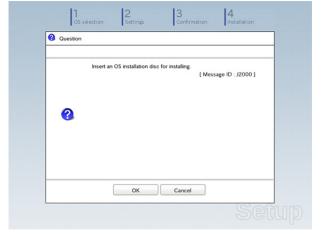


12. The setup process starts.

Click Start to continue setup.



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



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

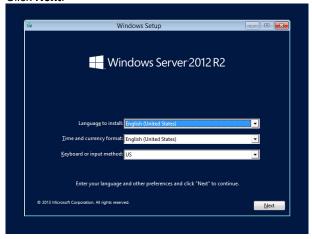
The message "Press any key to boot from CD or DVD..." is displayed on the top of the screen. Press <Enter> key to start the system from the installation media.

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

Note

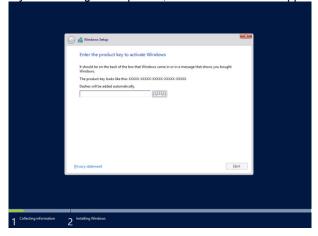
If "Windows is loading files..." message does not appear, <Enter> key was not pressed correctly. Reboot and retry.

16. Click Next.

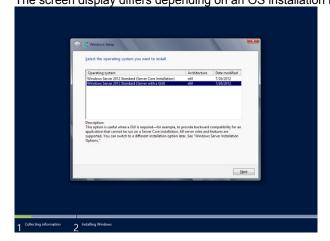


17. Type the product key, and then click Next.

If you are using Backup DVD, this screen does not appear. Go to the next step.



Select the operating system to install, and the click **Next**.
 The screen display differs depending on an OS installation media you are using.

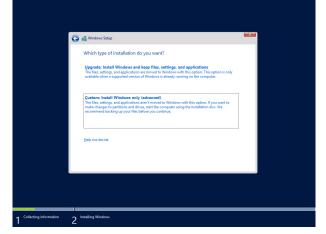


19. When the following window appears, confirm the content of the license agreement. If you agree, select **I accept the license terms** and then click **Next**.



20. Select the installation type.

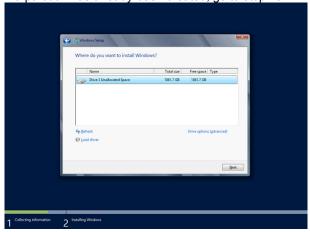
Select Custom: Install Windows only (advanced) in this case.



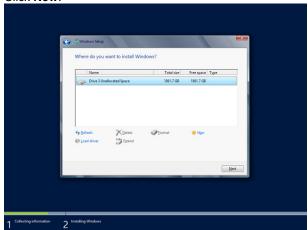
21. Create a partition to install an OS.

To create a partition, click **Drive options (advanced)**.

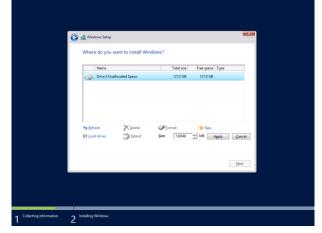
If a partition has already been created, go to step 25.



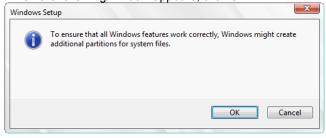
22. Click New.



23. Specify the partition size in the text box, and the click Apply.



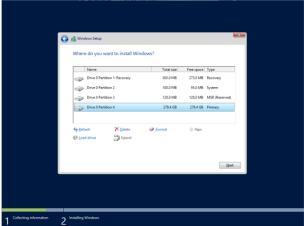
When the following window appears, click **OK**.



Tips

When creating a partition, the OS creates the following partitions at top of the hard disk drive.

- EFI System Partition (ESP)
- Microsoft Reserved Partition (MSR)
- 24. Select the partition created in step 23, and then click Format.
- 25. Select the created partition, and then click Next.



Important

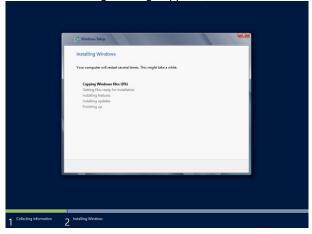
If the four partition types Recovery, System, MSR (Reserved), and Primary have not been created in the created partition, it means that you failed to create the partition. Delete the partition you attempted to create, and then create a new partition.

If you have connected a data disk to a partition, be careful not to delete that partition.

Tips

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

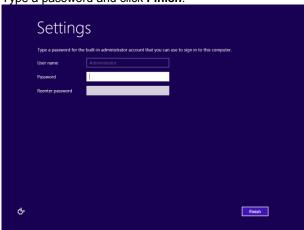
When the following message appears, Windows installation starts automatically.



26. The following screen appears according to the operating system selected in Step 18.

Server with a GUI

Type a password and click Finish.



Press <Ctrl>+<Alt>+ to sign-in.



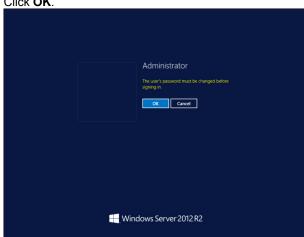
Type the password and press <Enter>.



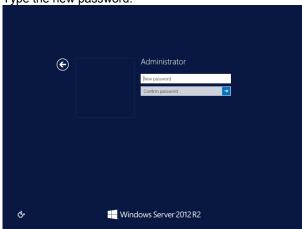


Server Core Installations

Click OK.

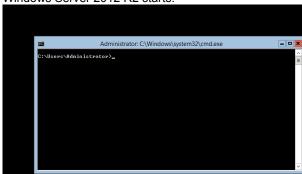


Type the new password.





Windows Server 2012 R2 starts.



Tips

Refer to Microsoft Website for more details.

Configure and Manage Server Core Installations

http://technet.microsoft.com/us-en/library/jj574091.aspx

27. Install Starter Pack by referring to Chapter 1 (3.4 Installing Starter Pack).

Start EXPRESSBUILDER by either of the following two ways:

- Internal Flash Memory : 3.4.1 Installing Starter Pack after POST

- EXPRESSBUILDER DVD : 3.4.2 Installing Starter Pack using Windows Application

- 28. See "Chapter 1 (3.5 Checking installation of EXPRESSBUILDER)" to confirm that EXPRESSBUILDER has been installed in Windows.
- 29. Install drivers and specify detailed settings by referring to Chapter 1 (3.6 Setting Up Device Drivers).
- 30. Confirm if Windows is activated according to Chapter 1 (3.7 License Authentication).
- 31. See Chapter 1 (3.8 Setup of Windows Server 2012 R2 NIC Teaming (LBFO)) to setup a team as needed.
- 32. Install the applications as needed by referring to Chapter 1 (3.9 Installing the Applications).
- 33. Execute setup by following the instructions described in Chapter 1 (6. Setup for Solving Problems).

Setup with Windows standard installer is now complete.

Installing Starter Pack *3.4*

Starter Pack contains drivers customized for this server.

When Starter Pack is not installed on the server, in the case such as the server is set up using Windows Standard installer, be sure to apply Starter Pack before running the system.

- Important

 Also install Starter Pack in the following cases.
 - The motherboard of the server has been replaced (If a dialog box prompting you to reboot the system is displayed, reboot the system according to the on-screen instructions, and then apply the Starter Pack.)
 - If the system was restored using a restore process
 - If a system has been restored using the backup tool
 - After installing build-in options, you may need to install Starter Pack. For detail, refer to Chapter 1(3.6 Setting Up Device Drivers).

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.

3.4.1 Installing Starter Pack after POST

- 1. After installing the operating system, restart the server.
- 2. When "Press <F2> Setup, <F3> Internal Flash Memory, <F4> ROM Utility, <F12> Network" appears during POST, press <F3> key.

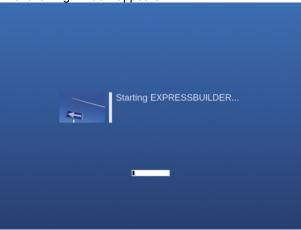
Note

At this time, be sure to remove the DVD from the optical disk drive.

3. When the following message appears, select OS installation *** default ***. You will automatically advance to the next window, with no need for further input.



The following window appears.



The server starts from EXPRESSBUILDER.



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



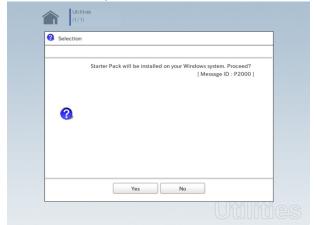
5. Click Utilities.



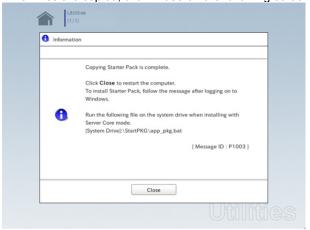
6. Click Starter Pack Installation.



7. Read the contents, and then click **Yes**.



8. When files are copied, click Close on the following screen.



The server then restarts. Do not press <F3> key and allow OS to start.

- On Server Core installations, install Starter Pack following steps as below.On the server with a GUI, go to step 11.
 - (1) Enter the following command at the command prompt, and then open the folder under the system drive (drive C).

Cd /d C:\StartPKG

C:\Users\administrator>cd /d C:\StartPKG

(2) Enter the following, and then press <Enter> key.

app pkg.bat

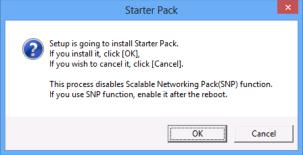
C:\StartPKG>app_pkg.bat

10. The following screen appears.

Starter Pack is in preparation for application. Wait for a while (about 1 to 3 minutes.)

Applying Starter Pack is in preparation. Please wait for a while.

11. Read the message, and then click **OK**.

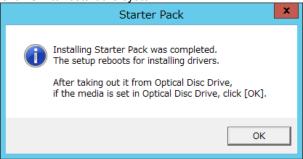


Wait until the installation of the Starter Pack is complete. (About 3 to 5 minutes)

Note

The screen may black out instantaneously or resolution may change while Starter Pack is installed, but it is not a failure.

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

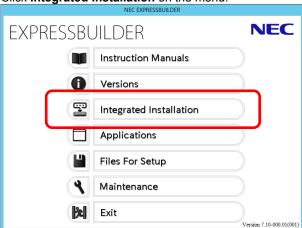


Installation of Starter Pack is now complete.

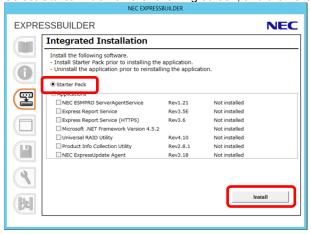
3.4.2 Installing Starter Pack using Windows Application

When EXPRESSBUILDER is installed on Windows, you can launch it as a Windows application. See Chapter 2 (5. Details of EXPRESSBUILDER) in Maintenance Guide.

- 1. Sign-in to the system with the administrator account.
- 2. Click the shortcut on your desktop screen or choose NEC EXPRESSBUILDER from the Start screen.
- 3. Click Integrated Installation on the menu.



4. Select Starter Pack on the following screen, and then click Install.



5. See Step 11 and the subsequent steps in Chapter 1 (3.4.1 Installing Starter Pack after POST) for further procedure.

3.4.3 Using EXPRESSBUILDER DVD(Option)

When you use EXPRESSBUILDER DVD (option), follow the steps below.

Installation from Windows (with GUI)

- Sign-in to the system with the administrator account.
- 2. Insert EXPRESSBUILDER DVD into the optical disk drive.
- 3. See Step 3 and the subsequent steps in Chapter 1 (3.4.2 Installing Starter Pack using Windows Application) for further procedure.

Installation from Windows (Server Core)

- From the command prompt, type the following command.
 In the example below, the optical disk drive is the D drive.
 - Cd /d D:\012\win\winnt\bin

C:\Users\administrator>cd /d D:\012\win\winnt\bin

2. Enter the following, and then press the <Enter> key.

Pkgsetup.vbs

D:\012\win\winnt\bin>pkgsetup.vbs

Wait until installation completes (about 1 to 3 minutes).

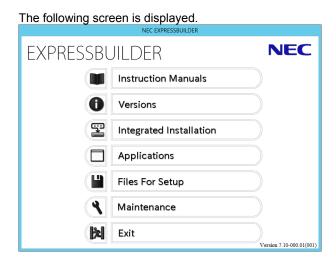
Installation of Starter Pack is now complete.

3.5 Checking installation EXPRESSBUILDER

Confirm that EXPRESSBUILDER has been installed in Windows.

(1) Server using GUI

 Click the shortcut on the desktop or select "NEC EXPRESSBUILDER" from the Windows start screen.



2. Click "Exit" to guit the menu.

There is no more to it.

(2) Server Core Installation

1. Enter the following from the command prompt and press the <Enter> key.

```
eb_cli.exe 'show /repository'
```

The following steps are not required when a folder path is displayed after "RepositoryPath=". Go to step 2 when the following message is displayed.

The repository has not been created. After creating the repository by "load /repository", please run again.

Enter the following from the command prompt and press the <Enter> key.

Wait for a while until the command is completed.

eb_cli.exe 'load /repository'

Check is now complete.

3.6 Setting Up Device Drivers

Install and set up device drivers provided for the standard configuration.

For details regarding the installation and setup of a driver for an optional device, refer to the manual supplied with the optional device.

3.6.1 Installing the LAN drivers

(1) LAN drivers

For the system that network adapter is connected, if it is setup with EXPRESSBUILDER, the LAN driver will automatically be installed.

For the system that network adapter is connected, if it is setup with Windows standard installer, apply StarterPack to install the LAN driver.

Important

Wake On LAN (WOL) is supported by the standard network adapters (N8104-154F/155F/156F/160F) only.

Wake On LAN of N8104-154F/156F will be able to be used in the state after the installation of the LAN Driver.

For Wake On LAN of N8104-155F/160F, refer to Chapter 1(3.6.2 Setting up LAN drivers - (3) Setting up Wake on LAN with N8104-155F/160F).

BIOS settings, check the "User's Guide".

Note

- To change the LAN driver settings, sign in to the system from a local console
 using an administrator's account. Remotely changing the settings by using the
 operating system's remote desktop feature is not supported.
- Be sure to select the **Internet Protocol (TCP/IP)** check box when specifying an IP address.

(2) Optional LAN board

This server supports the following optional LAN boards.

Optional LAN boards: N8104-149/150/151/152/153/157

The drivers for LAN boards are automatically installed using the OS plug-and-play function.

The LAN driver is not installed if N8104-149/150/151/152/153/157 is not connected to the server before setup with EXPRESSBUILDER or setup with Windows Standard Installer.

Perform the steps below to install the N8104-149/150/151/152/153/157 LAN driver manually.

N8104-149

Note

When **QLogic Driver Installer** is shown to **Programs and Features**, this step is unnecessary.

1. Start command prompt and then open the folder under the system drive (drive C), enter the following file, and run the file.

 $\label{lem:condition} C:\Program Files(x86) \EXPRESSBUILDER\repository\012\win\winnt\drivers\\ \02_network\1_as_02\install_ws2012r2.bat$

If using EXPRESSBUILDER, run the following file.

\012\win\winnt\drivers\02_network\1_as_02\install_ws2012r2.bat

2. When the following message appears, restart the system.

QLOGIC Driver Installation Completed!

When LAN board is new addition, setting each LAN board by referring to Chapter 1(3.6.2 Setting up LAN drivers).

Setup is now completed.

N8104-150/151/152

Note

When **Broadcom Gigabit Integrated Controller** is shown to **Programs and Features**, this step is unnecessary.

1. Start command prompt and then open the folder under the system drive (drive C), enter the following file, and run the file.

```
\label{lem:c:program} $$C:\Program Files(x86) \times PRESSBUILDER\repository\012\win\winnt\drivers \02\_network\1\_ah\_02\install\_ws2012r2.bat
```

If using EXPRESSBUILDER, run the following file.

```
\012\win\winnt\drivers\02_network\1_ah_02\install_ws2012r2.bat
```

2. When the following message appears, restart the system.

BCOM Driver Installation Completed!

When LAN board is new addition, setting each LAN board by referring to Chapter 1(3.6.2 Setting up LAN drivers).

Setup is now completed.

N8104-153/157

Note

When Intel(R) Network Connections 20.7.67.0 is shown to Programs and Features, this step is unnecessary.

1. Start command prompt and then open the folder under the system drive (drive C), enter the following file, and run the file.

```
\label{lem:c:program} $$C:\Program\ Files(x86) \EXPRESSBUILDER\repository\012\win\winnt\drivers \02\_network\1\_ag\_02\install\_ws2012r2.bat
```

If using EXPRESSBUILDER, run the following file.

```
\012\win\winnt\drivers\02_network\1_ag_02\install_ws2012r2.bat
```

2. When the following message appears, restart the system.

Intel Driver Installation Completed!

 When LAN board is new addition, setting each LAN board by referring to Chapter 1(3.6.2 Setting up LAN drivers).

Setup is now completed.

(3) Network adapter name

After installing the LAN drivers, the following network adapter names will be displayed on the Device Manager.

Network adapters for the standard configuration

[N8104-154F]: Broadcom NetXtreme Gigabit Ethernet #xx(*1)
[N8104-155F]: Intel(R) Ethernet Controller X540-AT2 #xx (*1)

[N8104-156F]: 10GBASE-SFP+: QLogic BCM57800 10 Gigabit Ethernet (NDIS VBD Client) #xx (*1)

1000BASE-T: QLogic BCM57800 Gigabit Ethernet (NDIS VBD Client) #xx (*1)

[N8104-160F]: Intel(R) Ethernet Controller X550 #xx(*1)

If connecting with an optional LAN board:

[N8104-149]: QLogic BCM57810 10 Gigabit Ethernet (NDIS VBD Client) #xx (*1)

[N8104-150/151/152]: Broadcom NetXtreme Gigabit Ethernet #xx (*1)

[N8104-153]: Intel(R) Ethernet Controller X540-AT2 #xx (*1)

[N8104-157]: Intel(R) Ethernet Controller X550 #xx (*1)

Tips

The ID for N8104-156F or N8104-149 might be a number of two or more digits. This is due to the LAN driver specifications and not an error.

This number cannot be changed.

^{*} If there are adapters with the same name, a different identification number will be assigned to xx.

3.6.2 Setting up LAN drivers

(1) Setting link speed

The transfer rate and duplex mode of the network adapter must be the same as those of the switching hub. Follow the procedure below to specify the transfer rate and duplex mode.

Tips

When using standard network adapter (N8104-156F 10GBASE-SFP+) or N8104-149, you can specify "10 Gb Full" for network adapter and "Auto Negotiation" to switching hub.

- Open the Device Manager.
- Expand Network Adapters, and then double-click the name of the network adapter you want to configure.
 The properties of the network adapter will be displayed.
- 3. On the Advanced tab, set the Speed & Duplex values to the same as those of the switching hub.
- 4. Click OK in the Network Adapter Properties dialog box.
- 5. Restart the system.

The link speed setting is now complete.

(2) When using N8104-150/151/152

When using N8104-150/151/152 with the server, follow the procedure below to set it.

1. Run the following file on the system drive (drive C).

```
C:\Program Files(x86)\EXPRESSBUILDER\repository\012\win\winnt\drivers
\02_network\1_ah_02\pgdyavd_disable.vbs
```

If using EXPRESSBUILDER, run the following file.

\012\win\winnt\drivers\02_network\1_ah_02\pgdyavd_disable.vbs

2. When the following message appears, click OK.

Configuration Completed
[Option:PopUp RLV Disabled(Action:<u>Done</u>)]
Reboot the system

Tips

The message "Action:Non indicates that the LAN driver is already set...

3. Restart the system.

Setup is now completed.

(3) Setting up Wake on LAN with N8104-155F/160F

Using Wake on LAN with N8104-155F/160F, follow the procedure below to set it.

- 1. Open the **Device Manager**.
- 2. Expand **Network Adapters**, and then double-click the name of the network adapter you want to set. The properties of the network adapter will be displayed.
- 3. Open Advanced tab, click Enable PME to show Value.
- 4. Change the value to **Enable** by the down-arrow button.
- 5. Click OK in the Network Adapter Properties dialog box.

3.6.3 Using InfiniBand board (N8104-146/147)

If it is setup with EXPRESSBUILDER, the N8104-146/147 driver has been installed already.

If it is setup with Windows Standard Installer, the N8104-146/147 driver is installed automatically when Starter Pack is applied.

Furthermore, if the InfiniBand Adapter is newly connected the above system, the N8104-146/147 driver is installed automatically.

Important

For the system that InfiniBand Adapter is connected, if Starter Pack is reapplied, the following system device may be disabled.

In that case, please enable the system device in Device Manager.

Mellanox ConnectX-3 VPI (MT04099) Network Adapter

3.6.4 Graphics accelerator driver

The graphics accelerator driver for standard configurations is installed when Starter Pack is installed from EXPRESSBUILDER.

The graphic accelerator driver is automatically installed on setup with EXPRESSBUILDER.

Tips

In Server Core environment, the graphics accelerator driver is not installed automatically. Install it by the procedures described below.

To install drivers separately, take the following steps.

- 1. Double-click the install.bat icon in the following folder.
 - If Starter Pack was installed from Internal Flash Memory: C:\Program Files(x86)\EXPRESSBUILDER\repository\012\win\winnt\drivers \03 Graphic\1 aj 02\install.bat
 - When using EXPRESSBUILDER DVD: \winnt\drivers\03_Graphic\1_aj_02\install.bat

You will be prompted to confirm the End User License Agreement during this process.

Click the **ACCEPT** button to continue.

Graphic accelerator driver installation is now complete.

3.6.5 When using a SAS controller (N8103-142/184)

The driver for SAS controller N8103-142/184 is automatically installed by Windows Plug-and-Play.

3.6.6 When using a RAID Controller (N8103-176/177/178/179)

The driver for RAID Controller N8103-176/177/178/179 is automatically installed by Windows Plug-and-Play.

3.6.7 When using a Fibre Channel controller (N8190-157A/158A/159/160)

The driver for Fibre Channel controller N8190-157A/158A/159/160 is automatically installed by Windows Plug-and-Play.

If Fibre Channel controller (N8190-157A/158A/159/160) is additionally installed after the OS has been installed, you need install Starter Pack again.

3.7 License Authentication

To use Windows Server 2012 R2, you need finish the license authentication procedure.

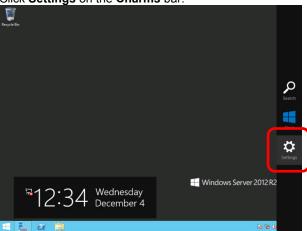
Confirm if your license is authenticated. If not, perform the following procedures to have your license authenticated.

Connect to the Internet to perform the authentication procedure.

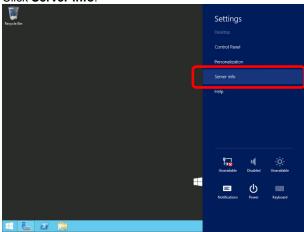
Or, use the telephone to perform the authentication procedure.

(1) Server with a GUI

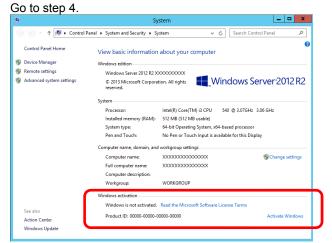
1. Click Settings on the Charms bar.



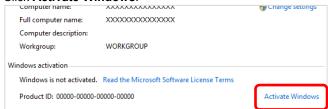
2. Click Server info.



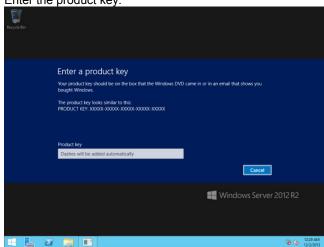
- 3. Check Windows license authentication.
 - ☐ If "Windows is activated" is displayed:
 You do not need to perform this procedure.
 - $\hfill \square$ If "Windows is not activated" is displayed:



4. Click Activate Windows.



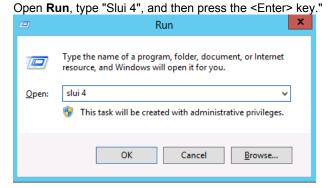
5. Enter the product key.



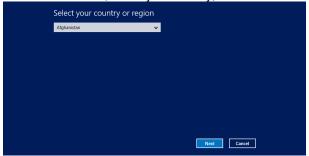
- ☐ When the server is connected to Internet:

 Complete license authentication process according to the message.
- ☐ When the server is not connected to Internet: Go to step 6.

Activate your license by phone.



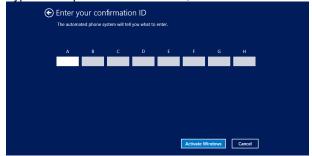
7. On the next screen, select your country, and then click Next.



Acquire the installation ID required for license activation.



8. Call the Microsoft license activation hotline and then tell your installation ID. Type the acquired confirmation ID, and then click **Activate Windows**.



(2) Server Core installations

1. Confirm if your license is activated.

At the command prompt, enter the following, and then press <Enter> key.

C:\Users\administrator>slmgr -dli

If license authentication is required, go to the next step.

If your license is already authenticated, you can skip the next and the subsequent steps.

2. Change the product key.

When using Backup DVD-ROM:

Type the following command, and then press the <Enter> key.

When using Windows Server 2012 R2 DVD-ROM:

You do not need to change the product key.

Go to the next step.

3. Perform license authentication.

When connected to the Internet:

License authentication is performed via the Internet.

Type the following command, and then press the <Enter> key.

C:\Users\administrator>slmgr -ato

This completes authentication.

When not connected to the Internet:

Use telephone for license authentication.

Type the following command to get an Install ID for authentication, and then press the <Enter> key.

C:\Users\administrator>slmgr -dti

Acquire the installation ID required for license activation.

Refer to the file systemroots system32\sppui\phone.inf to confirm the telephone number of Microsoft Licensing Center.

Call Microsoft Licensing Center and tell them your Install ID.

Type the confirmation ID you have received in the following command line, and then press the <Enter> key.

C:\Users\administrator>slmgr -atp <Confirmation ID>

This completes authentication.

3.8 Setup of Windows Server 2012 R2 NIC Teaming (LBFO)

Set up the network adapter teaming feature as shown below.

(1) Launching the NIC teaming setup tool

- 1. Launch Server Manager.
- 2. Select Local Server.
- 3. In the Properties window, click Enable or Disable for NIC teaming.

The NIC teaming setup tool will launch.

Tips

The NIC teaming setup tool can also be launched by opening the **Run** dialog box, typing lbfoadmin, and then pressing the <Enter> key.

(2) Creating a team

Create a team by using the NIC teaming setup tool.

- In the Servers section, select the name of the server to set up.
 If there is only one server connected, the name of the server is selected automatically.
- 2. In the Teams section, under Tasks, select New Team. The New Team wizard then starts.
- Type the name of the team to create, and then select the network adapter to include in the team from the Member adapters list.
- 4. Click Additional properties.
- 5. Specify the required settings, and then click **OK**.

Teaming mode

Static Teaming	Configures static aggregation between the NIC and switches.
Switch Independent	Configures teaming on the NIC side without depending on the switch settings.
LACP	Configures dynamic aggregation between the NIC and switches.

Load balancing mode

Address Hash	Distributes the load based on IP addresses and port numbers.	
Hyper-V Port	Distributes the load to each of the virtual switch ports used by the virtual machines.	
Dynamic	 Distributes the load based on IP addresses and port numbers in sending. Distributes the load same to "Hyper-V Port" in receiving. 	

Standby adapter

Select one adapter to be set to standby mode from the adapters in the team.

Setting all adapters to active mode is also possible.

Primary team interface

Any VLAN ID can be specified for the primary team interface.

(3) Notes and restrictions

- NIC teaming on a guest OS is not supported.
- Teaming of virtual NICs on the host OS is not supported in the Hyper-V environment.
- When STP (Spanning Tree Protocol) is enabled on network switch ports to which network adapters of the team are connected, network communications may be disrupted. Disable STP, or configure "PortFast" or "EdgePort" to the ports.
 - * About setting the network switch of the connection destination, see the manual of the network switch.
- All NICs in the team must be connected to the same subnet.
- · Teaming of different speed NICs is not supported.
- · Teaming of different vendor's NICs is not supported.

Refer to the following website for the latest information.

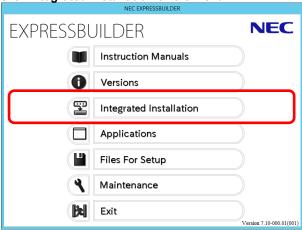
http://www.58support.nec.co.jp/global/download/w2012r2/index.html

- [Technical Information] - [NIC Teaming (LBFO)]

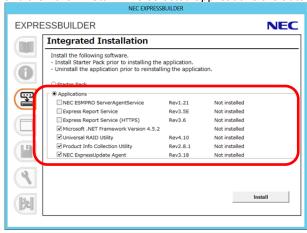
3.9 Installing the Applications

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 *only available on the server with a GUI*.

- 1. Sign-in to the system with the built-in administrator, which has administrative privileges.
- 2. Click the shortcut on your desktop screen or choose NEC EXPRESSBUILDER from the Start screen. Or, Insert the EXPRESSBUILDER DVD (option) into the optical disk drive.
- 3. Click Integrated Installation on the menu.



4. On the following screen, select the check boxes corresponding to the applications you want to install, and then click **Install**. The selected applications are automatically installed.



Note

- Applications available for installation are selected by default.
- 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.*)
- 5. When a message indicating reboot appears, click **OK** to reboot the server.
- See Chapter 2 Installing Bundled Software to install the bundled software or confirm that the software is appropriate to your operating environment.

Now installation of applications is completed.

3.10 Installation When Multiple Logical Drives Exist

Before starting installation, backup data for future use in case of data loss.

(1) Installation process

Setup with EXPRESSBUILDER

- Important Before starting setup, be sure to disconnect hard disk drives from the RAID Controller that is not used for setup, if the server has two or more RAID Controllers installed.
 - Disconnect an external disk (*) from the server by turning the power of it off or disconnecting cables. Install those hard disk drives and cables after setup has completed. Conducting setup with those being connected with the server may cause existing data to be erased unintentionally.
 - * Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit

Refer to Chapter 1 (3.2 Setup with EXPRESSBUILDER), and proceed with setup.

In this case, EXPRESSBUILDER installs the Windows on the first detected hard disk drive or logical drive.

- Setup with Windows standard installer
 - Refer to Chapter 1 (3.3 Setup with Windows Standard Installer), and start setup.
 - When the following message appears, select the partition to which you want to install the operating system.

Select the location to which Windows will be installed

The order and numbers of the disks displayed on the screen might not match the server's slot of the hard disk drives. Distinguish between the hard disk drives by viewing the hard disk drive capacity and partition size displayed on the screen, and then select a drive to install the Windows system. Selecting an improper drive might cause an unintentional corruption of the existing data. Be careful when selecting a hard disk drive on which to install the system.

- Important For details, refer to the following Microsoft website: http://support.microsoft.com/kb/937251/en-us
 - · You cannot edit the drive letters for the system volume or boot volume after setup is complete. Make sure that the drive letters assigned in this window are correct, and then proceed with setup.
- Refer to Chapter 1 (3.3 Setup with Windows Standard Installer), and proceed to setup Windows with Windows standard installer and the instructions.

Tips

The drive letter might change after installation. If you want to change the drive letter, use the procedure shown in

Changing drive letter assignments below.

(2) Changing drive letter assignments

To change the drive letter, follow the steps below. However, these steps cannot change drive letter assignments for the system volume or boot volume.

- 1. On the **Start** menu, right-click **Computer**, and then select **Management**. Next, launch **Server Manager**.
- 2. From the window on the left, select **Storage**, and then **Disk Management**.
- 3. Right-click the volume whose drive letter you want to change, and then select **Change drive letter and path**.
- 4. Click Assign next drive letter, and then select the drive letter you want to assign.
- 5. Click OK.
- 6. Close the Server Manager.

OS

4. Setting Up Windows Server 2012

Set up Windows Server 2012.

4.1 Before Starting Setup

Read through the cautions explained here before starting setup.

EB : Confirm during Setup with EXPRESSBUILDER

: Confirm during Setup with Windows standard installer

BIOS setting				
ЕВ	08	Change Boot Mode to UEFI Mode . See <i>Chapter 2 (1. System BIOS)</i> in <i>Maintenance Guide</i> for details. Boot → Boot Mode → UEFI		
ЕВ	OS	Select Enabled for x2APIC feature of processor. See <i>Chapter 2 (1. System BIOS)</i> in <i>Maintenance Guide</i> for details. Advanced → Processor Configuration → x2APIC→ Enabled		
ЕВ	08	At re-installation, open Boot Option Priorities in BIOS SETUP to make sure that the higher boot priority than Windows Boot Manager is specified for optical disk drive. Example of correct setting		
		 If Windows Boot Manager is not displayed in Boot Option Priorities, you need not to confirm the boot priority. 		

Hardware configuration			
The following hardware configurations require special procedures.			
ЕВ	OS.	Reinstalling to a mirrored volume When you install Windows Server 2012 in an environment with a mirrored volume created using Windows, disable mirroring before installing the operating system and enable it again after the installation. Use [Computer Management] – [Disk Management] to create, disable, or remove the mirrored volume.	
ЕВ	OS	Peripheral devices such as RDX/MO Remove an MO device before installing an OS. Some peripheral devices need to be halted before installation. Refer to the manual provided with the peripheral devices for how to set a device appropriate to installation.	
ЕВ	OS	DAT, LTO, or similar media Do not set any media such as DAT or LTO during setup.	
ЕВ	os	Installing in internal or external multiple logical drives For details on installing operating systems to a system in which two or more RAID Controller exist, or to an external disk drive* that is not subject to setup, refer to Chapter 1 (4.10 Installation When Multiple Logical Drives Exist). * Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit.	
ЕВ	08	Reinstalling to hard disk drives that have been upgraded to dynamic disks If the hard disk drive has been upgraded to a dynamic disk, the operating system cannot be reinstalled to it with the existing partitions. Set up the operating system with the Windows standard installer.	

ЕВ



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, the partition size for storing debug information (dump file) may not be secured.

If you fail to secure the dump file size, use Windows standard installer for setup, and allocate the required file space to multiple disks by performing the following steps.

- 1. Set the system partition size to a size sufficient to install the OS and paging file.
- 2. Specify another disk as the destination to store the debug information (required dump file size) by referring to *Chapter 1* (6. Setup for Solving Problems).

If the hard disk drive does not have enough space to write the debug information, set the partition size to a size 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 recommended size, expand the partition size or add another hard disk drive.

If sufficient space cannot be secured for the paging file, perform either of the following after setting up using Windows Standard Installer is complete.

 Specify a hard disk drive other than the system drive as the location to store the paging file for collecting memory dump

Create a paging file of the installed memory size + 400 MB or more in a drive other than the system drive.

The paging file that exists in the first drive (in the order of drive letter C, D, E, ...) is used as the temporary memory dump location. Therefore, the size of the paging file must be "installed memory size + 400 MB" or more. Paging files in dynamic volumes are not used for dumping memory. The setting is applied after restarting the system.

Example of correct setting

- C: No paging file exists
- D: Paging file whose size is "installed memory size + 400 MB" or more
- \rightarrow 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
- ightarrow 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 \times 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)
- ightarrow 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 specifying the file named "dedicateddumpfile.sys" in drive D>

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.
- 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 partition size





The system partition size can be calculated by using the following formula.

Size required to install the OS + paging file size + dump file size + application size

Server with a GUI

Size required to install the OS = 9,400MB

Paging file size (recommended) = installed memory size \times 1.5

Dump file size = installed memory size + 400MB

Application size = as required by the application

Server Core installations

Size required to install the OS = 6,300MB

Paging file size (recommended) = installed memory size \times 1.5

Dump file size = installed memory size + 400MB

Application size = as required by the application

For example, if the installed memory size is 1 GB (1,024 MB), application size is 100MB, and Server with a GUI is selected, the partition size is calculated as follows:

 $9,400 \text{MB} + (1,024 \text{MB} \times 1.5) + 1,024 \text{MB} + 400 \text{MB} + 100 \text{MB}$

= 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.

The following partition sizes are recommended.

Server with a GUI : 32,768MB(32GB) or more Server Core installations : 32,768MB(32GB) or more

*1 GB = 1,024 MB

Note

 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 you set a sufficient paging file size. If the paging file is insufficient, there will be a virtual memory shortage that may result in an inability to collect correct debug information.

- Regardless of the sizes of internal memory and write debug information, the maximum size of the dump file is "size of internal memory + 400 MB".
- When installing other applications or other items, add the amount of space needed by the application to the partition.

If the partition size for installing Windows is smaller than the recommended size, expand the partition size or add another hard disk drive.

Tips

When creating a partition, Windows OS creates the following partitions at the top of hard disk drive.

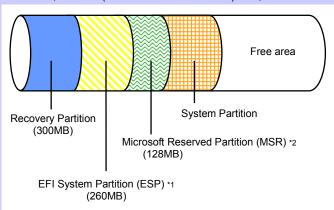
Recovery Partition : 300MBEFI System Partition (ESP) : 260MB *1

Microsoft Reserved Partition (MSR) :128MB *2

528MB is allocated for these three partitions out of the specified partition size.

For example, when 61,440MB is specified for partition size, the area available free area is calculated as follows:

61,440MB - (300MB + 260MB + 128MB) = 60,752MB



- *1 May be 100MB in size depending on hard disk drive type.
- *2 MSR is not displayed on Disk Management.

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

Using BitLocker

If using BitLocker, note the following.

• Be sure to keep the recovery password secure. Do not keep it near a server running BitLocker.

Important

If the recovery password is not entered, the OS cannot be started, and the content of the partition encrypted by BitLocker cannot be referenced any more. The recovery password might be required at startup of the OS after the following:

- os Replacement of motherboard
 - Change of BIOS setting
 - Initialization of trusted platform module (TPM) *
 - * Depending on your system, it may not be supported. Refer to the document about hardware.
 - To reinstall the operating system into a partition that is encrypted with BitLocker, delete the BitLocker-encrypted partition prior to reinstallation.

Support for NIC teaming in Windows Server 2012



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)".

Refer to 4.8 Setup of Windows Server 2012 NIC Teaming (LBFO) and specify any required settings.

4.2 Setup with EXPRESSBUILDER

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

This feature automatically recognizes the RAID controller connected to the server and configures the RAID system. Therefore the hardware installation of the server needs to be finished by following "*User's Guide*".

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:
 - RAID settings
 - Partition Settings

When re-installing windows, backing up user data is recommended.

 Before starting setup, be sure to disconnect hard disk drives from the RAID Controller that is not to be setup. Install those hard disk drives after setup has completed. Conducting setup with hard disk drives being connected with RAID Controller may cause existing data to be erased unintentionally. It is recommended to make backup copy of user data before starting setup.

Note

The Scalable Networking Pack (SNP) function is disabled on systems that have been installed by using EXPRESSBUILDER.

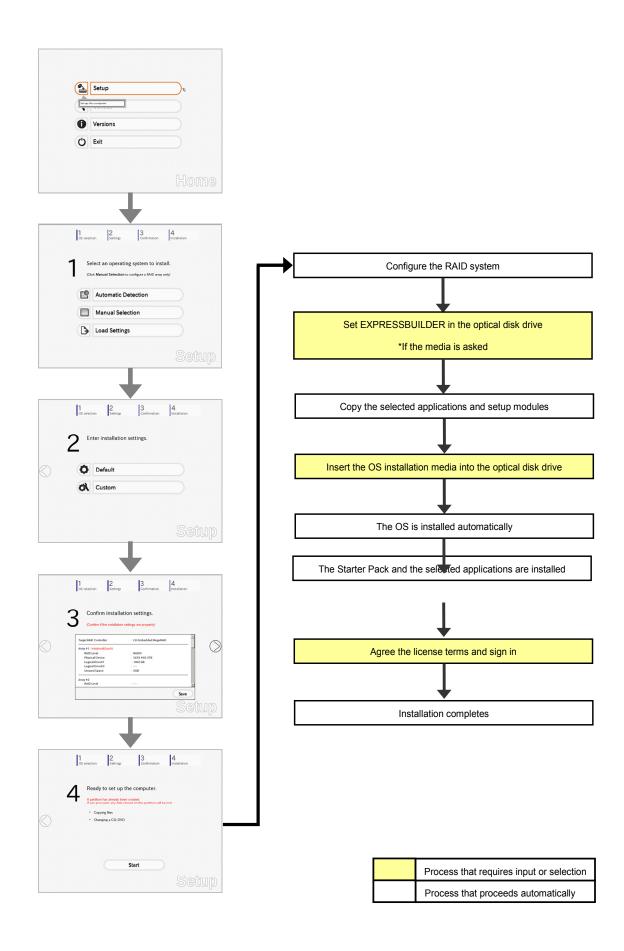
The setting of SNP function may affect the system performance.

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 removable media or Internal Flash Memory.
- For details on creating a parameter file, refer to Chapter 1 (7. Windows OS Parameter File).

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 2012 DVD-ROM)
- > Either of the following EXPRESSBUILDER
 - Internal Flash Memory
 - EXPRESSBUILDER DVD (Option)
- > Prepare if needed:
 - Removable media for Windows OS parameter file

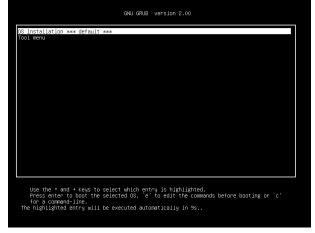
4.2.3 Setup procedure

Note

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

- 1. Turn peripheral device (such as a display) power on, and then turn the server power on.
- 2. Start EXPRESSBUILDER according to Chapter 1 (1.1 Starting EXPRESSBUILDER).
- 3. Select OS installation *** default ***.

You will automatically advance to step 4, with no need for further input.



The following window appears.



The server starts from EXPRESSBUILDER.



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



Click Setup.



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



- \square When *not using* a parameter file : Select **Automatic Detection**, and then go to Step 7.
 - Select Manual Selection, and then go to Step 8.
- ☐ When *using* a parameter file : Select **Load Settings**, and then go to Step 9.

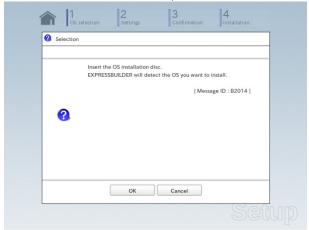
Note

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

- When not using a parameter file, let the OS on the installation media be recognized by using the following procedure.
 - 7-(1) Click Automatic Detection.



7-(2) Insert the OS installation media, and then click **OK**.

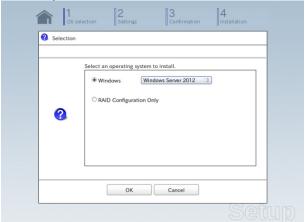


7-(3) Click \bigcirc on the right side of the screen. \rightarrow Go to step 10.



- 8. When not using a parameter file, select an OS by using the following procedure.
 - 8-(1) Click Manual Selection.





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

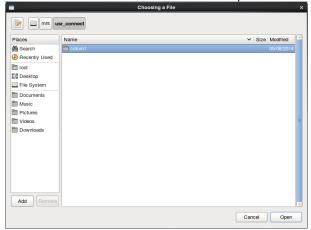
8-(3) Click \bigcirc on the right side of the screen. \rightarrow Go to step 10.



- 9. When *using* the parameter file, load the parameter file by using the following procedure.
 - 9-(1) Click Load Settings.



9-(2) 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).

9-(3) Click on the right side of the screen.



- 9-(4) When the parameter file is correctly loaded, click on the right side of the screen. → Go to step 13.
 - Click **Custom** to check and modify the setting in the wizard.
 - \rightarrow Go to step 12-(1).



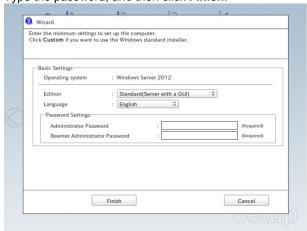
- 10. Specify the setup parameters by using either of the following methods:
 - ☐ When selecting **Default** : Go to Step 11. ☐ When selecting **Custom** : Go to Step 12.



11. Click Default.



11-(1) Select the edition of the OS to install from the pull-down menu. Type the password, and then click **Finish**.



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 letters (A - Z), lowercase letters (a - z), and symbols.

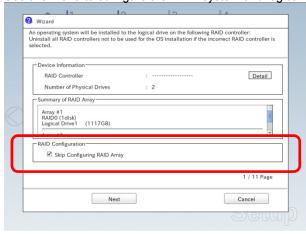
11-(2) Click \bigcirc on the right side of the screen. \rightarrow Go to step 13.



12. Click Custom.



12-(1) Use this menu to configure the RAID system and logical drives as needed.



When creating new logical drives

With the **Skip a RAID Configuration** check box cleared, click **Next**. Set up the logical drives according to the wizard.

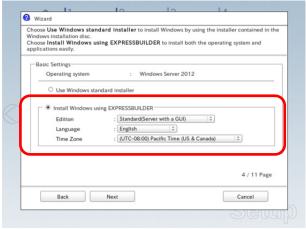
Important If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

When skipping the creation of new logical drives

Select the Skip a RAID Configuration check box, and then click Next.

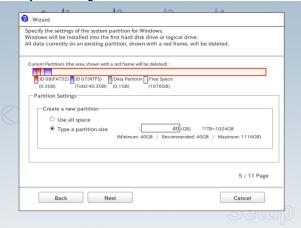
12-(2) Check the settings specified for Basic Settings.

Choose Install Windows using EXPRESSBUILDER, and then click Next.



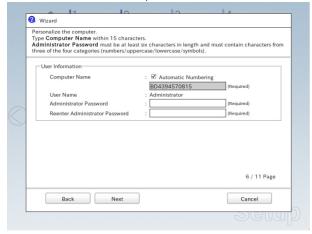
12-(3) Check the settings specified for Partition Settings.

Modify the settings as needed, and then click Next.



Important

- Partition size
 - Specify a partition size larger than the minimum required for installing the operating system. (Refer to *Chapter 1 (4.1 Before Starting Setup)*.)
- The entire contents of the hard disk drive will be deleted.
- 12-(4) Enter the user information, and then click Next.



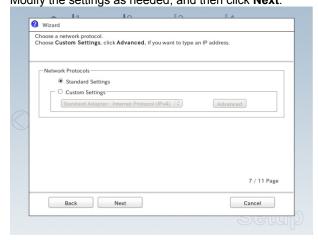
Note

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 letters (A - Z), lowercase letters (a - z), 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 "Auto", 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 Reenter Administrator password text boxes.
- 12-(5) Check the settings specified for **Network Protocols**. Modify the settings as needed, and then click **Next**.



Note

Even when an optional network board is connected, **Custom settings** only shows standard network boards.

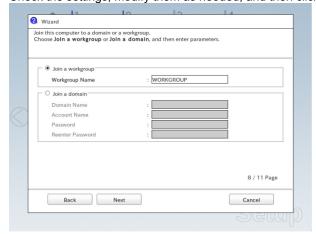
After finishing Setup with EXPRESSBUILDER, specify the optional network settings again.

Tips

The order of entry in **Custom settings** may differ from the numbering of LAN ports.

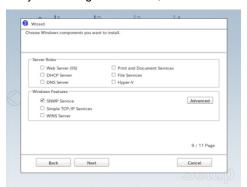
12-(6) Specify the domain or workgroup.

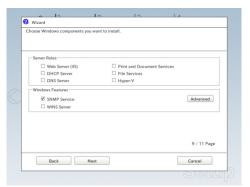
Check the settings, modify them as needed, and then click Next.



12-(7) Check the settings of Windows components.

Modify the settings as needed, and then click **Next**.

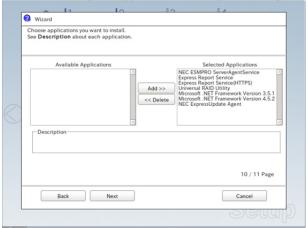




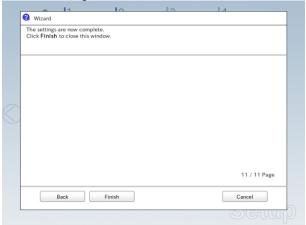
Server with a GUI

Server Core Installations

12-(8) Check the settings of applications. Modify the settings as needed, and then click Next.



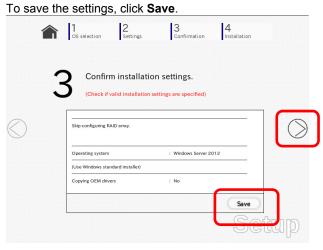
On the following screen, click Finish.



Enter installation settings. Default Custom

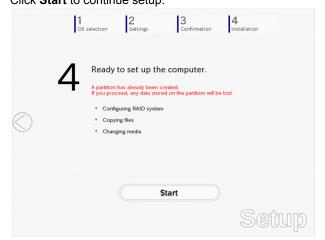
On the following screen, click \bigcirc on the right side of the screen.

13. Check the parameter settings.



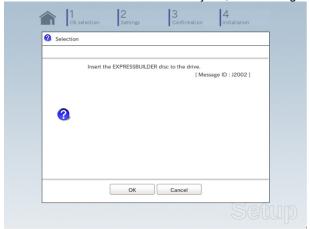
Click \bigcirc on the right side of the screen.

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



15. If the server has started from the EXPRESSBUILDER DVD, insert the EXPRESSBUILDER disk into the optical disk drive, and then click **OK**.

If EXPRESSBUILDER DVD is already set, this message will not appear.



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

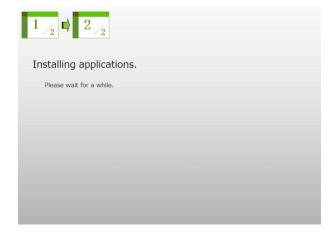


Windows Server 2012 is installed automatically.

Wait for completion (about 40 minutes) without performing any operation.

17. The Starter Pack and the selected applications are automatically installed. Some Dialog boxes or other messages may appear, but wait for completion without performing any operation.

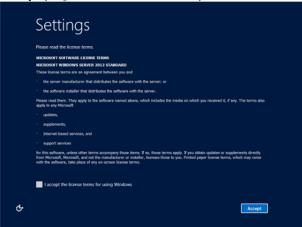




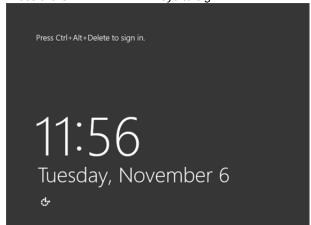
18. Read the terms of License Agreement.

If you agree, select the I accept the license terms for using Windows. check box, and then click

Accept (only in the server with a GUI).



19. Press the CTRL+ALT+DEL keys to sign in.

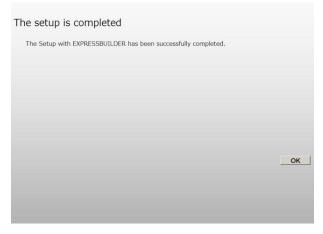


Administrator
Password

Windows Server 2012

On the following screen, type the password you have set in Step 11-(1) or12-(4).

20. Click **OK**.



- 21. See "Chapter 1 (4.5 Checking installation of EXPRESSBUILDER)" to confirm that EXPRESSBUILDER has been installed in Windows.
- 22. Follow the instructions described in *Chapter 1 (4.6 Setting Up Device Drivers)* to set up the device drivers.
- 23. Confirm if Windows is activated according to Chapter 1 (4.7 License Authentication).
- 24. See Chapter 1 (4.8 Setup of Windows Server 2012 NIC Teaming (LBFO)) to setup a team as needed.
- 25. Execute setup by following the instructions described in Chapter 1 (6. Setup for Solving Problems).
- 26. See *Chapter 2 Installing Bundled Software* to install the bundled software or confirm that the software is appropriate to your operating environment.

Setup with EXPRESSBUILDER is now complete.

4.3 Setup with Windows Standard Installer

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

This feature automatically recognizes the RAID controller connected to the server and configures the RAID system. Therefore the hardware installation of the server needs to be finished by following "*User's Guide*".

Important

Setup with Windows standard Installer 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:

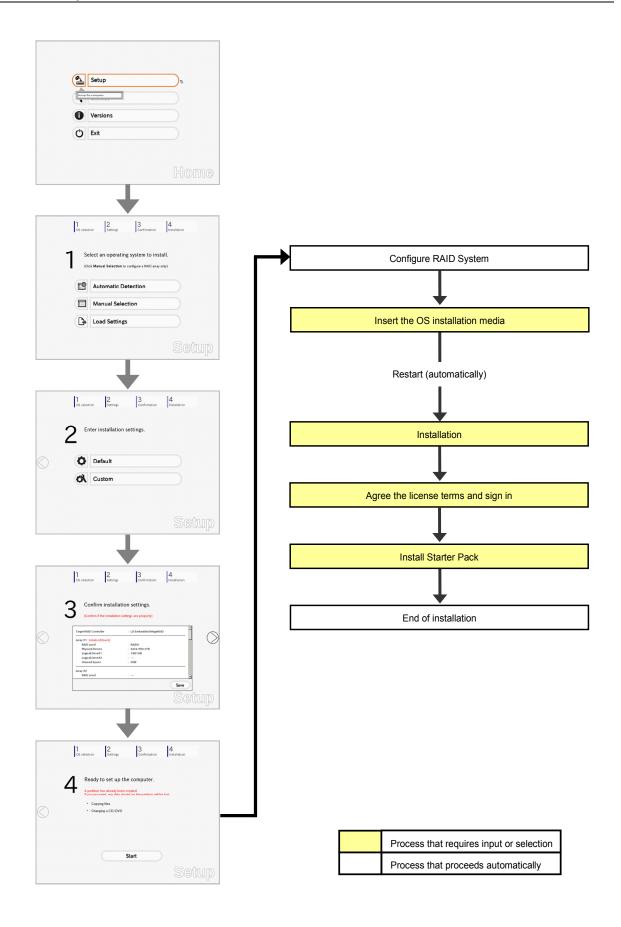
- RAID settings

When re-installing windows, backing up user data is recommended.

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 removable media or Internal Flash Memory.
- For details on creating a parameter file, refer to *Chapter 1 (7. Windows OS Parameter File*).

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 2012 DVD-ROM)
- > Either of the following EXPRESSBUILDER
 - Internal Flash Memory
 - EXPRESSBUILDER DVD (Option)
- > Prepare if needed:
 - . Removable media for Windows OS parameter file

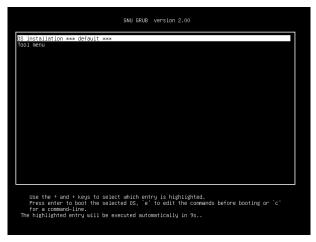
4.3.3 Setup procedure

Note

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

- 1. Turn peripheral device (such as a display) power on, and then turn the server power on.
- 2. Start EXPRESSBUILDER according to Chapter 1 (1.1 Starting EXPRESSBUILDER).
- 3. Select OS installation *** default ***.

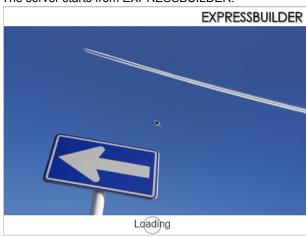
You will automatically advance to step 4, with no need for further input.



The following window appears.



The server starts from EXPRESSBUILDER.



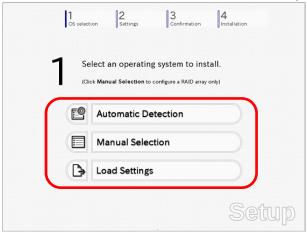
4. Select **English** on the language selection window, and then click **OK**.



Click Setup.



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

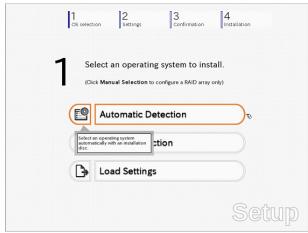


- \square When *not using* a parameter file: Select **Automatic Detection**, and then go to Step 7.
 - : Select Manual Selection, and then go to Step 8.
- ☐ When *using* a parameter file : Select **Load Settings**, and then go to Step 9.

Note

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

- 7. When *not using* a parameter file, let the OS on the installation media be recognized by using the following procedure.
 - 7-(1) Click Automatic Detection.



7-(2) Insert the OS installation media, and then click **OK**.

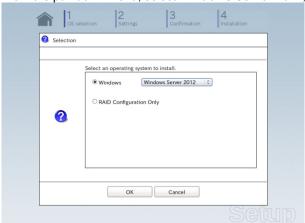


7-(3) Click \bigcirc on the right side of the screen. \rightarrow Go to step 9.



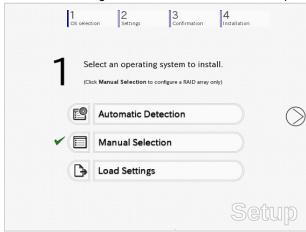
- 8. When not using a parameter file, select an OS by using the following procedure.
 - 8-(1) Click Manual Selection.



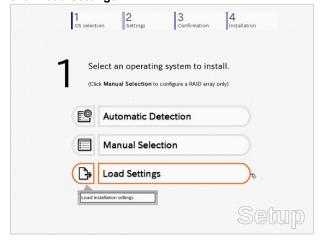


8-(2) From the pull-down menu, select Windows Server 2012, and then click OK.

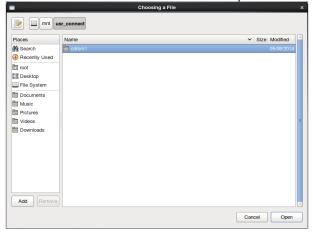
8-(3) Click \bigcirc on the right side of the screen. \rightarrow Go to step 9.



- 9. When *using* the parameter file, load the parameter file by using the following procedure.
 - 9-(1) Click Load Settings.



9-(2) 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).

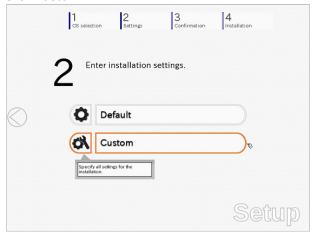
9-(3) Click on the right side of the screen.



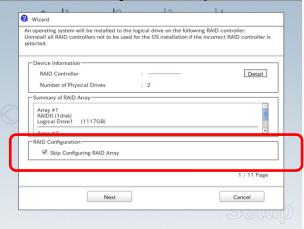
- 9-(4) When the parameter file is correctly loaded, click on the right side of the screen. → Go to step 11.
 - Click **Custom** to check and modify the setting in the wizard.
 - \rightarrow Go to step 10-(1).



10. Click Custom.



10-(1) Use this menu to configure the RAID system with the RAID controller detected automatically.



When creating new logical drives

With the Skip a RAID Configuration check box cleared, click Next.

Set up the logical drives according to the wizard.

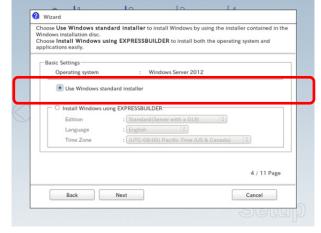
Important If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

When skipping the creation of new logical drives

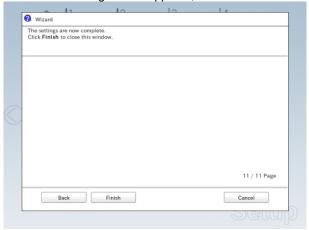
Select the Skip a RAID Configuration check box, and then click Next.

10-(2) Check the settings specified for **Basic Settings**.

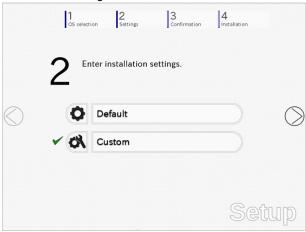
Choose Use Windows standard installer, and then click Next.



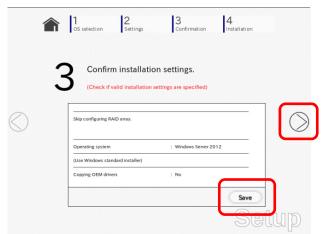
When the following screen appears, click Finish.



10-(3) Click on the right side of the screen.



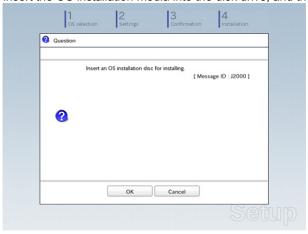
11. Check the parameter settings. To save the settings, click **Save**. Click \bigcirc on the right side of the screen.



12. The setup process starts.



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



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

The message "Press any key to boot from CD or DVD..." is displayed on the top of the screen. Press <Enter> key to start the system from the installation media.

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

Note

If "Windows is loading files..." message does not appear, <Enter> key was not pressed correctly. Reboot and retry.

16. Click Next.

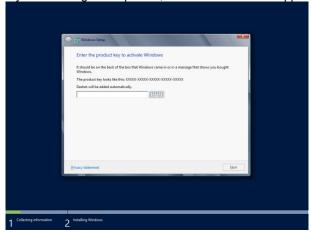


17. Click **Install now**. Windows setup starts.



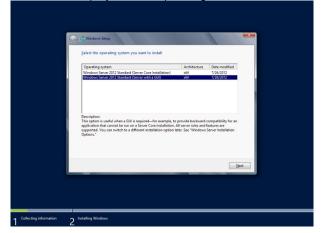
18. Type the product key, and then click **Next.**

If you are using Backup DVD, this screen does not appear. Go to the next step.



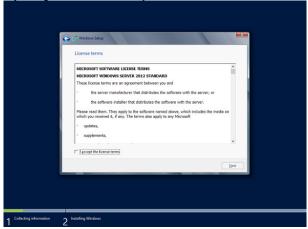
19. Select the operating system to install, and the click Next.

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



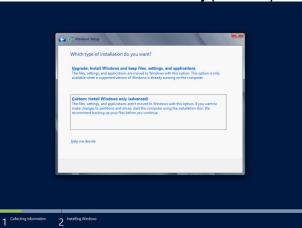
20. Confirm the content of the license agreement.

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



21. Select the installation type.

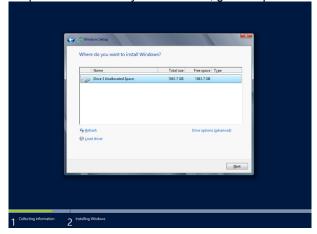
Select Custom: Install Windows only (advanced) in this case.



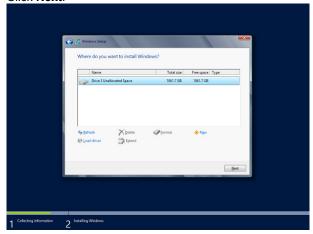
22. Create a partition to install an OS.

Click Drive options (advanced).

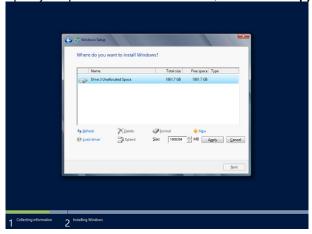
If a partition has already been created, go to step 26.



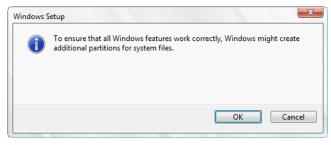
23. Click Next.



24. Specify the partition size in the text box, and the click **Apply**.



When the following window appears, click **OK**.



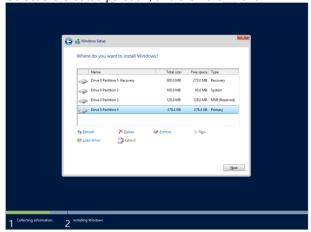
Tips

When creating a partition, the OS creates the following partitions at top of the hard disk drive.

- EFI System Partition (ESP)
- Microsoft Reserved Partition (MSR)

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

26. Select the created partition, and then click Next.



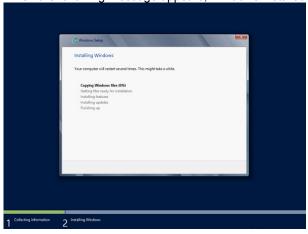
Important

If the four partition types Recovery, System, MSR (Reserved), and Primary have not been created in the created partition, it means that you failed to create the partition. Delete the partition you attempted to create, and then create a new partition. If you have connected a data disk to a partition, be careful not to delete that partition.

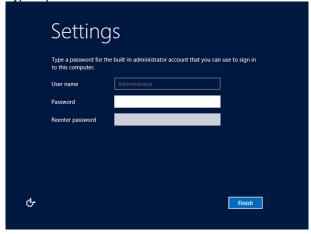
Tips

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

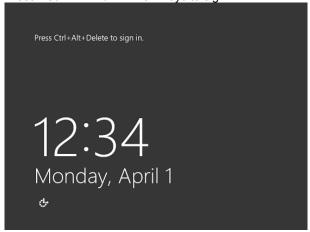
When the following message appears, Windows installation starts automatically.



27. Type a password and click Finish.



28. Press <Ctrl> + <Alt> + keys to sign in.



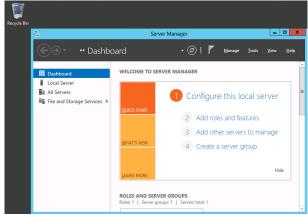
29. Type the password and press Enter.



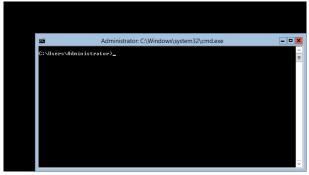
Windows Server 2012 starts.

30. The following screen appears according to the contents selected (or displayed) in Step 18.





Server Core Installation



Tips

Refer to Microsoft Website for more details.

Configure and Manage Server Core Installations

http://technet.microsoft.com/us-en/library/ij574091.aspx

31. Install Starter Pack by referring to Chapter 1 (4.4 Installing Starter Pack).

Start EXPRESSBUILDER by either of the following two ways:

☐ Internal Flash Memory : 4.4.1 Installing Starter Pack after POST

☐ EXPRESSBUILDER DVD: 4.4.2 Installing Starter Pack using Windows Application

- 32. See "Chapter 1 (4.5 Checking installation of EXPRESSBUILDER)" to confirm that EXPRESSBUILDER has been installed in Windows.
- 33. Install drivers and specify detailed settings by referring to Chapter 1 (4.6 Setting Up Device Drivers).
- 34. Confirm if Windows is activated according to Chapter 1 (4.7 License Authentication).
- 35. See Chapter 1 (4.8 Setup of Windows Server 2012 NIC Teaming (LBFO)) to setup a team as needed.
- 36. Install the applications as needed by referring to Chapter 1 (4.9 Installing the Applications).
- 37. Execute setup by following the instructions described in Chapter 1 (6. Setup for Solving Problems).

Setup with Windows standard installer is now complete.

4.4 Installing Starter Pack

Starter Pack contains drivers customized for this server. When Starter Pack is not installed on the server, in the case such as the server is set up using Windows Standard installer, be sure to apply Starter Pack before running the system.

Important

- Also install Starter Pack in the following cases.
 - The motherboard of the server has been replaced (If a dialog box prompting system reboot is displayed, reboot the system according to the on-screen instructions, and then apply the Starter Pack.)
 - If the system was restored using a restore process
 - If a system has been restored using the backup tool
- After installing build-in options, you may need installing Starter Pack.
 For detail, refer to Chapter 1(4.6 Setting Up Device Drivers).

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.

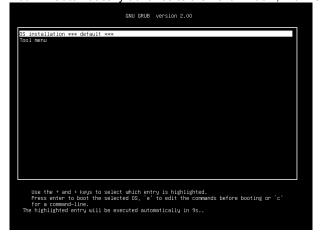
4.4.1 Installing Starter Pack after POST

- 1. After installing the operating system, restart the server.
- 2. When "Press <F2> Setup, <F3> Internal Flash Memory, <F4> ROM Utility, <F12> Network" appears during POST, press <F3> key.

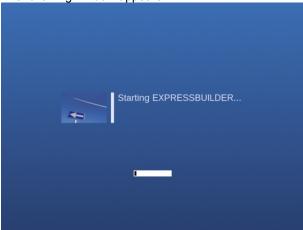
Note

Before pressing <F3> key, be sure to remove the DVD from the optical disk drive.

When the following message appears, select OS installation *** default ***.
 You will automatically advance to the next window, with no need for further input.



The following window appears.



The server starts from EXPRESSBUILDER.



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



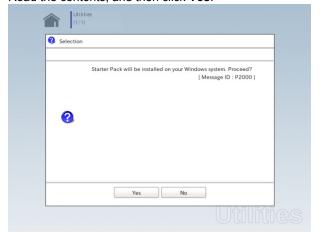
5. Click Utilities.



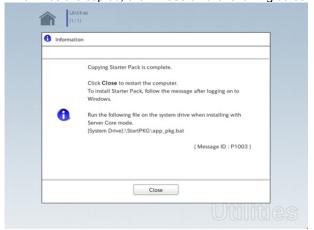
6. Click Starter Pack Installation.



7. Read the contents, and then click Yes.



8. When files are copied, click **Close** on the following screen.



The server then restarts. Do not press <F3> key and allow OS to start.

- 9. On Server Core installations, install Starter Pack following steps as below. On the server with a GUI, go to step 11.
 - (1) Enter the following command at the command prompt, and then open the folder under the system drive (drive C).

Cd /d C:\StartPKG

C:\Users\administrator>cd /d C:\StartPKG

(2) Enter the following, and then press <Enter> key.

app pkg.bat

```
C:\StartPKG>app_pkg.bat
```

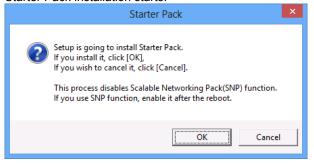
10. The following screen appears.

Starter Pack is in preparation for application. Wait for a while (about 1 to 3 minutes.)

Applying Starter Pack is in preparation. Please wait for a while.

11. Read the message, and then click **OK**.

Starter Pack installation starts.

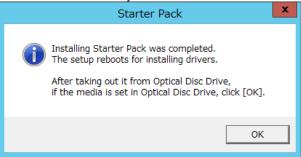


Wait until the installation of the Starter Pack is complete. (About 3 to 5 minutes)

Note

The screen may black out instantaneously or resolution may change while Starter Pack is installed, but it is not a failure.

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



Installation of Starter Pack is now complete.

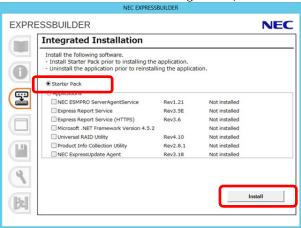
4.4.2 Installing Starter Pack using Windows Application

When EXPRESSBUILDER is installed on Windows, you can launch it as a Windows application. See Chapter 2 (5. Details of EXPRESSBUILDER) in Maintenance Guide.

- 1. Sign-in to the system with the built-in administrator, which has administrative privileges.
- 2. Click the shortcut on your desktop screen or choose NEC EXPRESSBUILDER from the Start screen.
- 3. Click **Integrated Installation** on the menu.



4. Select Starter Pack on the following screen, and then click Install.



5. See Step 11 and the subsequent steps in Chapter 1 (4.4.1 Installing Starter Pack after POST) for further procedure.

4.4.3 Using EXPRESSBUILDER installed in Windows

When you use EXPRESSBUILDER DVD (option), follow the steps below.

Installation from Windows (with GUI)

- 1. Sign-in to the system with the administrator account.
- 2. Insert EXPRESSBUILDER DVD into the optical disk drive.
- 3. See Step 3 and the subsequent steps in Chapter 1 (4.4.2 Installing Starter Pack using Windows Application) for further procedure.

Installation from Windows (Server Core)

From the command prompt, type the following command.
 In the example below, the optical disk drive is the D drive.

Cd /d D:\012\win\winnt\bin

C:\Users\administrator>cd /d D:\012\win\winnt\bin

2. Enter the following, and then press the <Enter> key.

Pkgsetup.vbs

D:\012\win\winnt\bin>pkgsetup.vbs

Wait until installation completes (about 1 to 3 minutes).

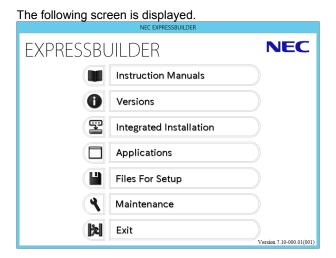
Installation of Starter Pack is now complete.

4.5 Checking installation EXPRESSBUILDER

Confirm that EXPRESSBUILDER has been installed in Windows.

(1) Server using GUI

 Click the shortcut on the desktop or select "NEC EXPRESSBUILDER" from the Windows start screen.



2. Click "Exit" to guit the menu.

There is no more to it.

(2) Server Core Installation

1. Enter the following from the command prompt and press the <Enter> key.

```
eb_cli.exe 'show /repository'
```

The following steps are not required when a folder path is displayed after "RepositoryPath=". Go to step 2 when the following message is displayed.

The repository has not been created. After creating the repository by "load /repository", please run again.

Enter the following from the command prompt and press the <Enter> key.

Wait for a while until the command is completed.

```
eb_cli.exe 'load /repository'
```

Check is now complete.

4.6 Setting Up Device Drivers

Install and set up device drivers provided for the standard configuration.

For details regarding the installation and setup of a driver for an optional device, refer to the manual supplied with the optional device.

4.6.1 Installing the LAN drivers

(1) LAN drivers

For the system that network adapter is connected, if it is setup with EXPRESSBUILDER, the LAN driver will automatically be installed. For the system that network adapter is connected, if it is setup with Windows standard installer, apply Starter Pack to install the LAN driver.

Important

Wake On LAN (WOL) is supported by the standard network adapters (N8104-154F/155F/156F/160F) only.

Wake On LAN of N8104-154F/156F will be able to be used in the state after the installation of the LAN Driver.

For Wake On LAN of N8104-155F/160F, refer to Chapter 1(4.6.2 Setting up LAN drivers - (3) Setting up Wake on LAN with N8104-155F/160F).

For details of BIOS settings, check the "User's Guide".

Note

- To change the LAN driver settings, sign in to the system from a local console using an administrator's account. Remotely changing the settings by using the operating system's remote desktop feature is not supported.
- Be sure to select the Internet Protocol (TCP/IP) check box when specifying an IP address.

(2) Optional LAN board

This server supports the following optional LAN boards.

Optional LAN boards: N8104-149/150/151/152/153/157

The drivers for LAN boards are automatically installed using the OS plug-and-play function.

The LAN driver is not installed if N8104-149/150/151/152/153/157 is not connected to the server before setup with EXPRESSBUILDER or setup with Windows Standard Installer.

Perform the steps below to install the N8104-149/150/151/152/153/157 LAN driver manually.

N8104-149

Note

When **QLogic Driver Installer** is shown to **Programs and Features**, this step is unnecessary.

 Start command prompt and then open the folder under the system drive (drive C), enter the following file, and run the file.

C:\Program Files(x86)\EXPRESSBUILDER\repository\012\win\winnt\drivers \02_network\1_as_02\install_ws2012.bat

If using EXPRESSBUILDER, run the following file.

\012\win\winnt\drivers\02 network\1 as 02\install ws2012.bat

2. When the following message appears, restart the system.

QLOGIC Driver Installation Completed!

3. When LAN board is new addition, setting each LAN board by referring to Chapter 1(4.6.2 Setting up LAN drivers).

Setup is now completed.

N8104-150/151/152

Note

When **Broadcom Gigabit Integrated Controller** is shown to **Programs and Features**, this step is unnecessary.

1. Start command prompt and then open the folder under the system drive (drive C), enter the following file, and run the file.

```
\label{lem:c:program} $$C:\Program\ Files(x86)\EXPRESSBUILDER\repository\012\win\winnt\drivers\02\_network\1\_ah\_02\install\_ws2012.bat
```

If using EXPRESSBUILDER, run the following file.

```
\012\win\winnt\drivers\02_network\1_ah_02\install_ws2012.bat
```

2. When the following message appears, restart the system.

```
BCOM Driver Installation Completed!
```

3. When LAN board is new addition, setting each LAN board by referring to Chapter 1(4.6.2 Setting up LAN drivers).

Setup is now completed.

N8104-153/157

Note

When Intel(R) Network Connections 20.7.67.0 is shown to Programs and Features, this step is unnecessary.

1. Start command prompt and then open the folder under the system drive (drive C), enter the following file, and run the file.

```
\label{lem:c:program} $$C:\Program Files(x86) \EXPRESSBUILDER\repository\012\win\winnt\drivers \02\_network\1\_ag\_02\install\_ws2012.bat
```

If using EXPRESSBUILDER, run the following file.

```
\012\win\winnt\drivers\02_network\1_ag_02\install_ws2012.bat
```

2. When the following message appears, restart the system.

```
Intel Driver Installation Completed!
```

When LAN board is new addition, setting each LAN board by referring to Chapter 1(4.6.2 Setting up LAN drivers).

Setup is now completed.

(3) Network adapter name

After installing the LAN drivers, the following network adapter names will be displayed by the Device Manager.

Network adapters for the standard configuration

[N8104-154F]: Broadcom NetXtreme Gigabit Ethernet #xx(*1)
[N8104-155F]: Intel(R) Ethernet Controller X540-AT2 #xx (*1)

[N8104-156F]: 10GBASE-SFP+: QLogic BCM57800 10 Gigabit Ethernet (NDIS VBD Client) #xx (*1)

1000BASE-T: QLogic BCM57800 Gigabit Ethernet (NDIS VBD Client) #xx (*1)

[N8104-160F]: Intel(R) Ethernet Controller X550 #xx(*1)

If connecting with an optional LAN board:

[N8104-149]: QLogic BCM57810 10 Gigabit Ethernet (NDIS VBD Client) #xx (*1)

[N8104-150/151/152]: Broadcom NetXtreme Gigabit Ethernet #xx (*1)

[N8104-153]: Intel(R) Ethernet Controller X540-AT2 #xx (*1)

[N8104-157]: Intel(R) Ethernet Controller X550 #xx (*1)

Tips

The ID for N8104-156F or N8104-149 might be a number of two or more digits. This is due to the LAN driver specifications and not an error. This number cannot be changed.

^{*1} If there are adapters with the same name, a different identification number will be assigned to xx.

4.6.2 Setting up LAN drivers

(1) Setting link speed

The transfer rate and duplex mode of the network adapter must be the same as those of the switching hub. Follow the procedure below to specify the transfer rate and duplex mode.

Tips

When using standard network adapter (N8104-156F 10GBASE-SFP+) or N8104-149, you can specify "10 Gb Full" for network adapter and "Auto Negotiation" to switching hub.

- 1. Open the **Device Manager**.
- 2. Expand **Network Adapters**, and then double-click the name of the network adapter you want to set. The properties of the network adapter will be displayed.
- 3. On the Advanced tab, set the Speed & Duplex values to the same as those of the switching hub.
- 4. Click OK in the Network Adapter Properties dialog box.
- 5. Restart the system.

The link speed setting is now complete.

(2) When using N8104-150/151/152

When using N8104-150/151/152 with the server, follow the procedure below to set it.

1. Run the following file on the system drive (drive C).

If using EXPRESSBUILDER, run the following file.

 $\verb|\012\win\winnt\drivers\02_network\1_ah_02\pgdyavd_disable.vbs|$

When the following message appears, click OK.

Configuration Completed [Option:PopUp RLV Disabled(Action:Done)] Reboot the system

3. Restart the system.

Setup is now completed.

(3) Setting up Wake on LAN with N8104-155F/160F

Using Wake on LAN with N8104-155F/160F, follow the procedure below to set it.

- 1. Open the **Device Manager**.
- 2. Expand **Network Adapters**, and then double-click the name of the network adapter you want to set. The properties of the network adapter will be displayed.
- 3. Open Advanced tab, click Enable PME to show Value.
- 4. Change the value to **Enable** by the down-arrow button.
- 5. Click **OK** in the Network Adapter Properties dialog box.

4.6.3 Using InfiniBand board (N8104-146/147)

If it is setup with EXPRESSBUILDER, the N8104-146/147 driver has been installed already.

If it is setup with Windows Standard Installer, the N8104-146/147 driver is installed automatically when Starter Pack is applied.

Furthermore, if the InfiniBand Adapter is newly connected the above system, the N8104-146/147 driver is installed automatically.

Important For the system that InfiniBand Adapter is connected, if Starter Pack is reapplied, the following system device may be disabled.

In that case, please enable the system device in Device Manager.

Mellanox ConnectX-3 VPI (MT04099) Network Adapter

4.6.4 **Graphics accelerator driver**

The graphics accelerator driver for standard configurations is installed when Starter Pack is installed from EXPRESSBUILDER.

The graphic accelerator driver is automatically installed on setup with EXPRESSBUILDER.

Tips

In Server Core environment, the graphics accelerator driver is not installed automatically. Install it by the procedures described below.

To install drivers separately, complete the following steps.

- 1. Double-click the install.bat icon in the following folder.
 - If Starter Pack was installed from Internal Flash Memory: C:\Program Files(x86)\EXPRESSBUILDER\repository\012\win\winnt\drivers \03_Graphic\1_aj_02\install.bat
 - When using EXPRESSBUILDER DVD: \winnt\drivers\03_Graphic\1_aj_02\install.bat

You will be prompted to confirm the End User License Agreement during this process.

Click the ACCEPT button to continue.

Graphic accelerator driver installation is now complete.

When using a SAS controller (N8103-142/184) 4.6.5

The driver for SAS controller N8103-142/184 is automatically installed by Windows Plug-and-Play.

4.6.6 When using a RAID Controller (N8103-176/177/178/179)

The driver for RAID Controller N8103-176/177/178/179 is automatically installed by Windows Plug-and-Play.

4.6.7 When using a Fibre Channel controller (N8190-157A/158A/159/160)

The driver for Fibre Channel controller N8190-157A/158A/159/160 is automatically installed by Windows Plug-and-Play.

If Fibre Channel controller (N8190-157A/158A/159/160) is additionally installed after the OS has been installed, you need install Starter Pack again.

4.7 License Authentication

To use Windows Server 2012, you need finish the license authentication procedure.

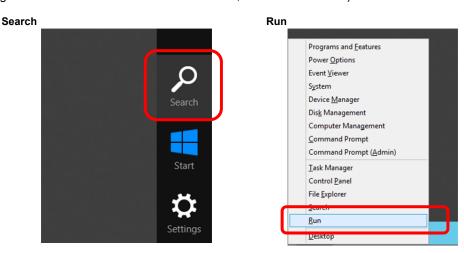
Confirm if your license is authenticated. If not, perform the following procedures to have your license authenticated.

Connect to the Internet to perform the authentication procedure.

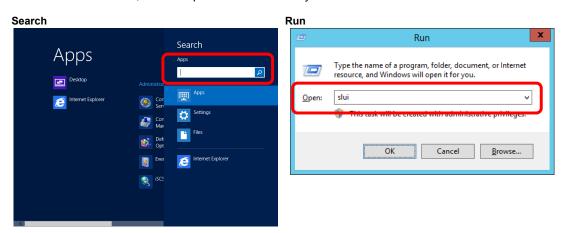
Or, use the telephone to perform the authentication procedure.

(1) Server with a GUI

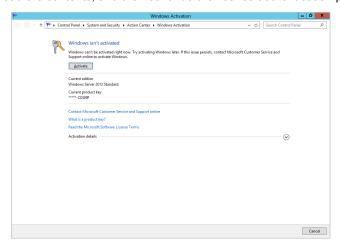
Click Search on the Charms bar.
 (Or, right-click the bottom left corner on the screen, and then click Run.)



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



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



Tips

If your license is already authenticated, you do not need to perform this procedure.

Windows activation is now complete.

(2) Server Core installations

 At the command prompt, enter the following, and then press <Enter> key. slmgr -dli

```
C:\Users\administrator>slmgr -dli
```

If license authentication is required, go to the next step.

If your license is already authenticated, you can skip the next and the subsequent steps.

2. Change the product key.

When using Backup DVD-ROM:

Type the following command, and then press the <Enter> key.

C:\Users\administrator>slmgr -ipk <Product key on COA label>

When using Windows Server 2012 DVD-ROM:

You do not need to change the product key.

Go to the next step.

3. Perform license authentication.

When connected to the Internet:

License authentication is performed via the Internet.

Type the following command, and then press the <Enter> key.

 $C: \backslash \textit{Users} \backslash \textit{administrator} {>} \textbf{slmgr -ato}$

This completes authentication.

When not connected to the Internet:

Use telephone for license authentication.

Type the following command to get an Install ID for license authentication, and then press the <Enter> key.

C:\Users\administrator>slmgr -dti

Acquire the installation ID required for license activation.

Refer to the file $system72\spmi\phone.inf$ to confirm the telephone number of Microsoft Licensing Center.

Call Microsoft Licensing Center and tell them your Install ID.

Type the confirmation ID you have received in the following command, and then press the <Enter> key.

C:\Users\administrator>slmgr -atp <Confirmation ID>

This completes authentication.

4.8 Setup of Windows Server 2012 NIC Teaming (LBFO)

Set up the network adapter teaming feature as shown below.

(1) Launching the NIC teaming setup tool

- 1. Launch Server Manager.
- 2. Select Local Server.
- 3. In the Properties window, click Enable or Disable for NIC teaming.

The NIC teaming setup tool will launch.

Tips

The NIC teaming setup tool can also be launched by opening the **Run** dialog box, typing lbfoadmin, and then pressing the <Enter> key.

(2) Creating a team

Create a team by using the NIC teaming setup tool.

- In the Servers section, select the name of the server to set up.
 If there is only one server connected, the name of the server is selected automatically.
- 2. In the Teams section, under Tasks, select New Team. The New Team wizard then starts.
- Type the name of the team to create, and then select the network adapter to include in the team from the Member adapters list.
- 4. Click Additional properties.
- 5. Specify the required settings, and then click **OK**.

Teaming mode

 January mode				
Static Teaming	Configures static aggregation between the NIC and switches.			
Switch Independent	Configures teaming on the NIC side without depending on the switch settings.			
LACP	Configures dynamic aggregation between the NIC and switches.			

Load balancing mode

Address Hash	Distributes the load based on IP addresses and port numbers.
Hyper-V Port	Distributes the load to each of the virtual switch ports used by the virtual machines.

Standby adapter

Select one adapter to be set to standby mode from the adapters in the team.

Setting all adapters to active mode is also possible.

Primary team interface

Any VLAN ID can be specified for the primary team interface.

(3) Notes and restrictions

- · NIC teaming on a guest OS is not supported.
- Teaming of virtual NICs on the host OS is not supported in the Hyper-V environment.
- When STP (Spanning Tree Protocol) is enabled on network switch ports to which network adapters of the team are connected, network communications may be disrupted. Disable STP, or configure "PortFast" or "EdgePort" to the ports.
 - * About setting the network switch of the connection destination, see the manual of the network switch.
- All NICs in the team must be connected to the same subnet.
- · Teaming of different speed NICs is not supported.
- Teaming of different vendor's NICs is not supported.

Refer to the following website for the latest information.

http://www.58support.nec.co.jp/global/download/w2012/index.html

4.9 Installing the Applications

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 *only available on the server with a GUI*.

1. Sign-in to the system with the built-in administrator, which has administrative privileges.

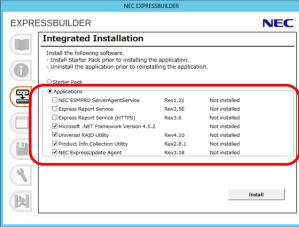
Select NEC from Windows Start menu to launch NEC EXPRESSBUILDER.

- Click the shortcut on your desktop screen or choose NEC EXPRESSBUILDER from the Start screen.
 Or, Insert the EXPRESSBUILDER DVD (option) into the optical disk drive.
 Or, if EXPRESSBUILDER has been installed in Windows, you can use it as a Windows application.
- 3. Click Integrated Installation on the menu.



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

The selected applications are automatically installed.



Note

- Applications available for installation are selected by default.
- 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.*)
- 5. When a message appears, click **OK**, and then remove the EXPRESSBUILDER disk from the optical disk drive.
- 6. See *Chapter 2 Installing Bundled Software* to install the bundled software or confirm that the software is appropriate to your operating environment.

Now installation of applications is completed.

4.10 Installation When Multiple Logical Drives Exist

Before starting installation, backup data for future use in case of data loss.

(1) Installation process

Setup with EXPRESSBUILDER

Important

- . Before starting setup, be sure to disconnect hard disk drives from the RAID Controller that is not used for setup, if the server has two or more RAID Controllers installed.
- Disconnect an external disk (*) from the server by turning the power of it off or disconnecting cables. Install those hard disk drives and cables after setup has completed. Conducting setup with those being connected with the server may cause existing data to be erased unintentionally.
 - * Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit

Refer to Chapter 1 (4.2 Setup with EXPRESSBUILDER), and proceed with setup.

In this case, EXPRESSBUILDER installs the Windows on the first detected hard disk drive or logical drive.

- Setup with Windows standard installer
 - Refer to Chapter 1 (4.3 Setup with Windows Standard Installer), and start setup.
 - 2. When the following message appears, select the partition to which you want to install the operating system.

Select the location to which Windows will be installed

The order and numbers of the disks displayed on the screen might not match the server's slot of the hard disk drives. Distinguish between the hard disk drives by viewing the hard disk drive capacity and partition size displayed on the screen, and then select a drive to install the Windows system. Selecting an improper drive might cause an unintentional corruption of the existing data. Be careful when selecting a hard disk drive on which to install the system.

- Important For details, refer to the following Microsoft website: http://support.microsoft.com/kb/937251/en-us
 - You cannot edit the drive letters for the system volume or boot volume after setup is complete. Make sure that the drive letters assigned in this window are correct, and then proceed with setup.
- Refer to Chapter 1 (4.3 Setup with Windows Standard Installer), and proceed to setup Windows with Windows standard installer and the instructions.

Tips

The drive letter might change after installation. If you want to change the drive letter, use the procedure shown in

Changing drive letter assignments below.

(2) Changing drive letter assignments

To change the drive letter, follow the steps below. But these steps cannot change drive letter assignments for the system volume or boot volume.

- 1. On the **Start** menu, right-click **Computer**, and then select **Management**. Next, launch **Server Manager**.
- 2. From the window on the left, select **Storage**, and then **Disk Management**.
- 3. Right-click the volume whose drive letter you want to change, and then select **Change drive letter and path**.
- 4. Click Assign next drive letter, and then select the drive letter you want to assign.
- 5. Click OK.
- 6. Close the Server Manager.

5. Setting Up Windows Server 2008 R2

Set up Windows Server 2008 R2.

5.1 Before Starting Setup

Read through the cautions explained here before starting setup.

EB : Confirm during Setup with EXPRESSBUILDER

0S : Confirm during Setup with Windows standard installer

BIOS setti	ng
EB OS	Change Boot Mode to Legacy Mode. See Chapter 2 (1. System BIOS) in Maintenance Guide for details.
	Boot → Boot Mode → Legacy
	Select Disabled for x2APIC feature of processor.
EB	See Chapter 2 (1. System BIOS) in Maintenance Guide for details.
	$\textbf{Advanced} \rightarrow \textbf{Processor Configuration} \rightarrow \textbf{x2APIC} \rightarrow \textbf{Disabled}$
Hardware	configuration
	The following hardware configurations require special procedures.
1 1 1 1 1 1 1 1	Reinstalling to a mirrored volume
EB OS	When you install Windows Server 2008 R2 in an environment with a mirrored volume created using Windows, disable mirroring before installing the operating system and enable it again after the installation. Use [Computer Management] – [Disk Management] to create, disable, or remove the mirrored volume.
EB 08	Peripheral devices such as RDX/MO Remove an MO device before installing an OS. Some peripheral devices need to be halted before installation. Refer to the manual provided with the peripheral devices for how to set a device appropriate to installation.
EB OS	DAT, LTO, or similar media Do not set any media such as DAT or LTO while installing an OS.
	Installing in internal or external multiple logical drives
	For details on installing operating systems to a system in which two or more RAID Controller exist, or
EB	to an external disk drive* that is not subject to setup, refer to Chapter 1 (5.10 Installation When
	Multiple Logical Drives Exist).
	* Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit.
EB 08	Reinstalling to hard disk drives that have been upgraded to dynamic disks If the hard disk drive has been upgraded to a dynamic disk, the operating system cannot be reinstalled to it with the existing partitions. Set up the operating system with the Windows standard installer.

EB

08

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, the partition size for storing debug information (dump file) may not be secured.

If you fail to secure the dump file size, use Windows standard installer for setup, and allocate the required file space to multiple disks by performing the following steps.

- 1. Set the system partition size to a size sufficient to install the OS and paging file.
- 2. Specify another disk as the destination to store the debug information (required dump file size) by referring to *Chapter 1 (6. Setup for Solving Problems*).

If the hard disk drive does not have enough space to write the debug information, set the partition size to a size 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 recommended size, expand the partition size or add another hard disk drive.

If sufficient space cannot be secured for the paging file, perform either of the following after setting up using Windows Standard Installer is complete.

 Specify a hard disk drive other than the system drive as the location to store the paging file for collecting memory dump

Create a paging file of the installed memory size + 300 MB or more in a drive other than the system drive.

The paging file that exists in the first drive (in the order of drive letter C, D, E, ...) is used as the temporary memory dump location. Therefore, the size of the paging file must be "installed memory size + 300 MB" or more. Paging files in dynamic volumes are not used for dumping memory. The setting is applied after restarting the system.

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 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 + 300 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 \times 0.5"
- D: Paging file whose size is "installed memory size \times 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)
- ightarrow 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 specifying the file named "dedicateddumpfile.sys" in drive D>

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 + 300 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 partition size



OS

The system partition size can be calculated by using the following formula.

Size required to install the OS + paging file size + dump file size + application size

Full installations

Size required to install the OS = 15,600 MB

(Windows Server 2008 R2 + Service Pack 1)

= 8.400 MB

(Windows Server 2008 R2 with Service Pack 1)

= 8,000 MB

(Windows Server 2008 R2)

Paging file size (recommended) = installed memory size \times 1.5 Dump file size = installed memory size + 300MB Application size = as required by the application

Server Core installations

Size required to install the OS = 11,100 MB

(Windows Server 2008 R2 + Service Pack 1)

= 3.700 MB

(Windows Server 2008 R2 with Service Pack 1)

= 3,500 MB

(Windows Server 2008 R2)

Paging file size (recommended) = installed memory size \times 1.5 Dump file size = installed memory size \times 300MB Application size = as required by the application

For example, if the installed memory size is 1 GB (1,024 MB), application size is 100MB, and Full installations is selected, the partition size is calculated as follows:

8,000 MB + (1,024MB × 1.5) + 1,024MB+ 300MB+ 100MB = 10,960MB

The above mentioned partition size is the minimum partition size required for system installation. Ensure that the partition size is sufficient for system operations.

The following partition sizes are recommended.

Full installations : 32,768MB (32GB) or more Server Core installations : 10,240MB (10GB) or more

*1 GB = 1,024 MB

Note

 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 you set a sufficient paging file size. If the paging file is insufficient, there will be a virtual memory shortage that may result in an inability to collect correct debug information.

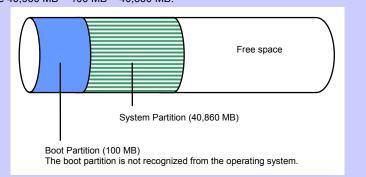
- Regardless of the sizes of internal memory and write debug information, the maximum size of the dump file is "size of internal memory + 300 MB".
- When installing other applications or other items, add the amount of space needed by the application to the partition.

If the partition size for installing Windows is smaller than the recommended size, expand the partition size or add another hard disk drive.

Tips

When creating a new partition, Windows OS assigns an initial boot partition of 100 MB.

For example, when making a partition of 40,960 MB (40 GB), usable space will be 40,960 MB - 100 MB = 40,860 MB.



Hyper-V 2.0 support



EB

os



Refer to the following web site for information related to Hyper-V 2.0.

http://www.58support.nec.co.jp/global/download/w2k8r2/hyper-v/hyper-v-v2.html

Using BitLocker

If using BitLocker, note the following.

Be sure to keep the recovery password secure. Do not keep it near a server running BitLocker.

Important

If the recovery password is not entered, the OS cannot be started, and the content of the partition encrypted by BitLocker cannot be referenced any more.

The recovery password might be required at startup of the OS after the following:

- Replacement of motherboard
- Change of BIOS setting
- Initialization of trusted platform module (TPM) *
- * Depending on your system, it may not be supported. Refer to the document about hardware.
- To reinstall the operating system into a partition that is encrypted with BitLocker, delete the BitLocker-encrypted partition prior to reinstallation.
- Microsoft releases software updates for BitLocker encryption. If using BitLocker, it is important
 that you read through the information provided by Microsoft. Also read through the checklist
 published by Microsoft.

For details, visit http://support.microsoft.com/kb/975496/en-us.

Installing Service Pack





- If the OS installation media contains Service Pack 1, you do not need to 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 authentication		
EB OS		 thentication is required depending on the installation of Windows. refer to 5.7 License Authentication. 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.

5.2 Setup with EXPRESSBUILDER

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

This feature automatically recognizes the RAID controller connected to the server and configures the RAID system. Therefore the hardware installation of the server needs to be finished by following "*User's Guide*".

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:
 - RAID settings
 - Partition Settings

When re-installing windows, backing up user data is recommended.

 Before starting setup, be sure to disconnect hard disk drives from the RAID Controller that is not to be setup. Install those hard disk drives after setup has completed. Conducting setup with hard disk drives being connected with RAID Controller may cause existing data to be erased unintentionally. It is recommended to make backup copy of user data before starting setup.

Note

The Scalable Networking Pack (SNP) function is disabled on systems that have been installed by using EXPRESSBUILDER.

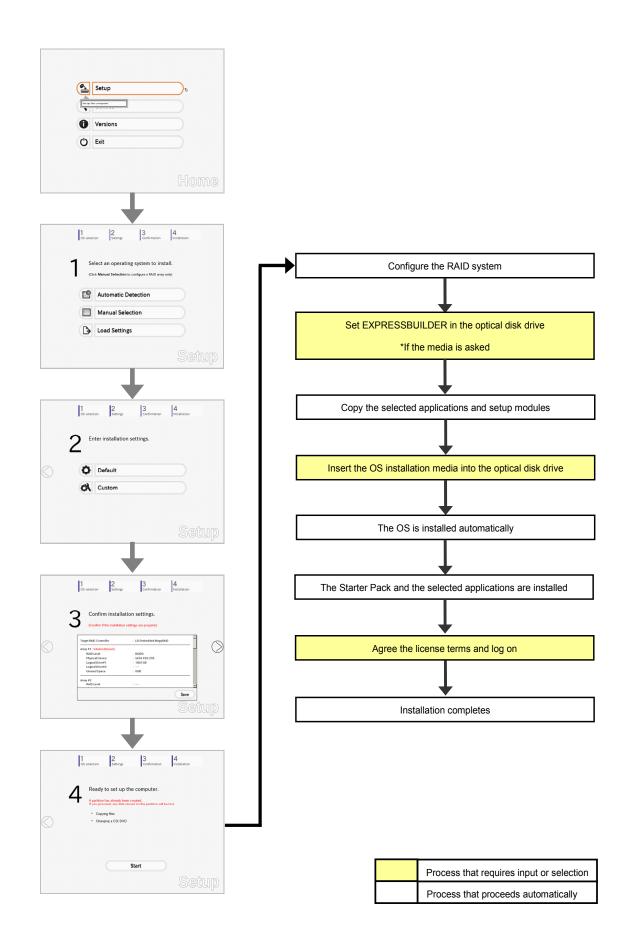
The setting of SNP function may affect the system performance.

Contact your sales representative for details.

Tips

- Microsoft .NET Framework Version 3.5.1 is enabled when Starter Pack is applied in full-installation environment.
- Setup with EXPRESSBUILDER allows you to use a pre-specified parameter file or save the parameters specified in setup as a parameter file on removable media or Internal Flash Memory.
- For details on creating a parameter file, refer to *Chapter 1 (7. Windows OS Parameter File)*.

5.2.1 Setup flow



5.2.2 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)
- > Either of the following EXPRESSBUILDER
 - Internal Flash Memory
 - EXPRESSBUILDER DVD (Option)
- > Prepare if needed:
 - First Steps Guide
 - Removable media for Windows OS parameter file
 - Service Pack
 (If the OS installation media contains Service Pack 1, you do not need to apply the service pack again.)

5.2.3 Setup procedure

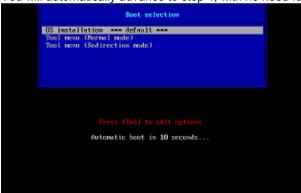
Setup with EXPRESSBUILDER uses wizard to configure parameters and allows you to save the parameters specified in setup on removable media as a parameter file.

Note

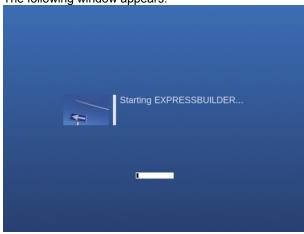
Read through the items in *Chapter 1* (5.1 Before Starting Setup) prior to installing Windows.

- 1. Turn peripheral device (such as a display) power on, and then turn the server power on.
- 2. Start EXPRESSBUILDER according to Chapter 1 (1.1 Starting EXPRESSBUILDER).
- 3. Select OS installation *** default ***.

You will automatically advance to step 4, with no need for further input.



The following window appears.



The server starts from EXPRESSBUILDER.



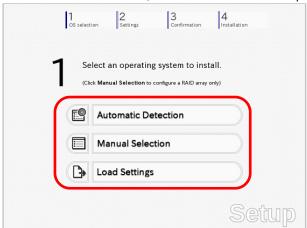
4. Select English on the language selection window, and then click OK.



5. Click Setup.



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



☐ When *not using* a parameter file: Select **Automatic Detection**, and then go to Step 7.

: Select Manual Selection, and then go to Step 8.

☐ When *using* a parameter file : Select **Load Settings**, and then go to Step 9.

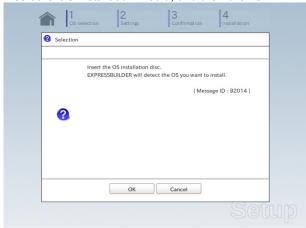
Note

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

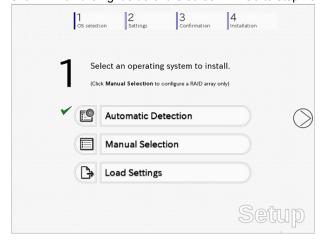
- 7. When *not using* a parameter file, let the OS on the installation media be recognized by using the following procedure.
 - 7-(1) Click Automatic Detection.



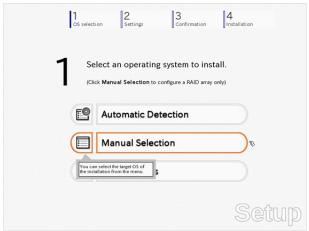
7-(2) Insert the OS installation media, and then click **OK**.



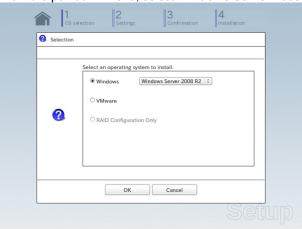
7-(3) Click \bigcirc on the right side of the screen. \rightarrow Go to step 10.



- 8. When not using a parameter file, select an OS by using the following procedure.
 - 8-(1) Click Manual Selection.



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



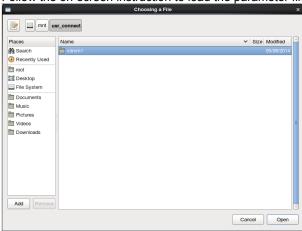
8-(3) Click \bigcirc on the right side of the screen. \rightarrow Go to step 10.



- 9. When *using* the parameter file, load the parameter file by using the following procedure.
 - 9-(1) Click Load Settings.



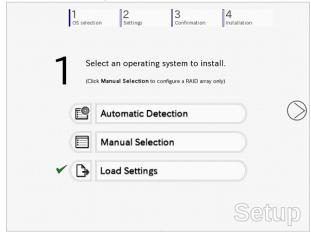
9-(2) Follow the on-screen instruction to load the parameter file (*.tre).



Tips

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

9-(3) Click On the right side of the screen.



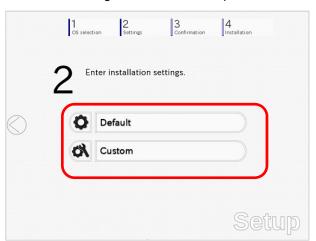
9-(4) When the parameter file is correctly loaded, click \bigcirc on the right side of the screen. \rightarrow Go to step 13.

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

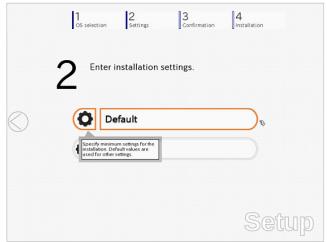
 \rightarrow Go to step 12-(1).



- 10. Specify the setup parameters by using either of the following methods:
 - ☐ When selecting **Default**: Go to Step 11.
 - ☐ When selecting **Custom**: Go to Step 12.



11. Click Default.



11-(1) Select the edition of the OS to install from the pull-down menu. Type the password, and then click **Finish**.



Note

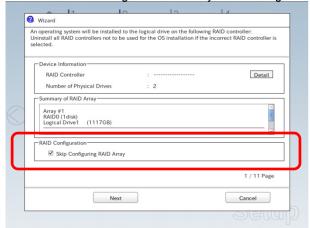
Computer name and Administrator Password are required parameters. Enter Administrator Password that satisfies the following conditions:

- Contains 6 or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z), and symbols.
- 11-(2) Click \bigcirc on the right side of the screen. \rightarrow Go to step 13.



12. Click Custom.





12-(1) Use this menu to configure the RAID system and logical drives as needed.

When creating new logical drives

With the Skip a RAID Configuration check box cleared, click Next.

Set up the logical drives according to the wizard.

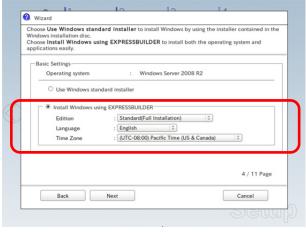
Important If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

When skipping the creation of new logical drives

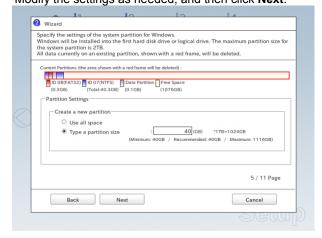
Select the Skip a RAID Configuration check box, and then click Next.

12-(2) Check the settings specified for **Basic Settings**.

Choose Install Windows using EXPRESSBUILDER, and then click Next.



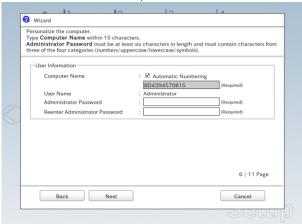
12-(3) Check the settings specified for Partition Settings. Modify the settings as needed, and then click Next.



Important

- Partition size
 - Specify a partition size larger than the minimum required for installing the operating system. (Refer to Chapter 1 (5.1 Before Starting Setup).)
 - The maximum partition size is 2,097,152 MB.
- All the contents stored in the disk on which to install the OS are cleared.

12-(4) Enter the user information, and then click Next.



Note

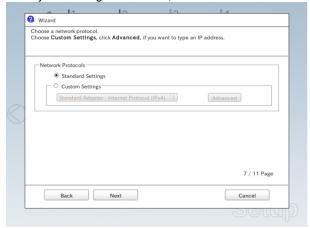
Computer name and Administrator Password are required parameters.

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 letters (A - Z), lowercase letters (a - z), 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 "Auto", 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 Reenter Administrator password text boxes.
- 12-(5) Check the settings specified for **Network Protocols**. Modify the settings as needed, and then click **Next**.



Note

Even when an optional network board is connected, **Custom settings** only shows standard network boards.

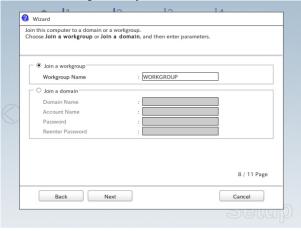
After finishing Setup with EXPRESSBUILDER, specify the optional network settings again.

Tips

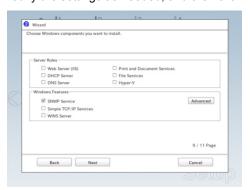
The order of entry in **Custom settings** may differ from the numbering of LAN ports.

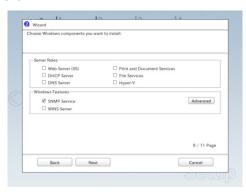
12-(6) Specify the domain or workgroup.

Check the settings, modify them as needed, and then click Next.



12-(7) Check the settings of Windows components. Modify the settings as needed, and then click **Next**.

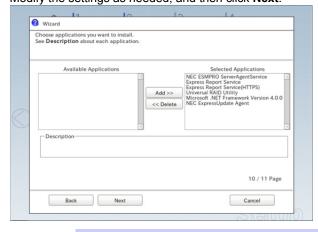




Full installations

Server Core installations

12-(8) Check the settings of applications.
Modify the settings as needed, and then click **Next**.

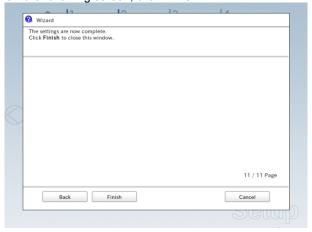


Tips

The applications listed below are supported only in full installations.

- NEC ESMPRO ServerAgentService
- Express Report Service
- Express Report Service (HTTPS)
- Microsoft .NET Framework Version 4.0.0

On the following screen, click Finish.

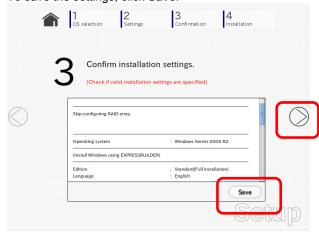


On the following screen, click \bigcirc on the right side of the screen.



13. Check the parameter settings.

To save the settings, click Save.



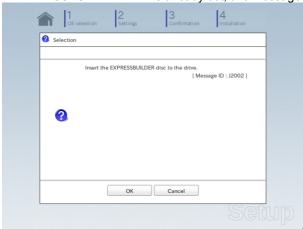
Click \bigcirc on the right side of the screen.

14. The setup process starts.



15. If the server has started from the EXPRESSBUILDER DVD, insert the EXPRESSBUILDER disk into the optical disk drive, and then click **OK**.

If EXPRESSBUILDER DVD is already set, this message will not appear.



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

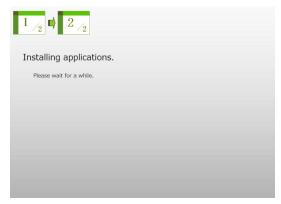


Windows Server 2008 R2 is installed automatically.

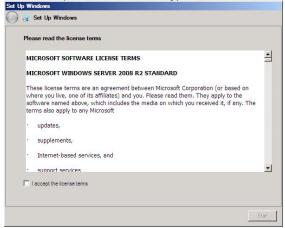
Wait for completion (about 40 minutes) without performing any operation.

17. The Starter Pack and the selected applications are automatically installed. Some Dialog boxes or other messages may appear, but wait for completion without performing any operation.





18. When the software license agreement window appears, select **I accept the license terms**, and then click **Start** (Full installations only).



19. When the following message appears, press <Ctrl> + <Alt> + keys to log on.

Press CTRL + ALT + DELETE to log on

20. Enter your password you have set in step 11-(1) or 12-(4), and then click 😜

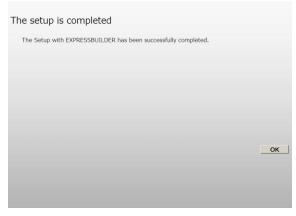
Full installations:



Server Core installations:



21. Click **OK**.



- 22. See "Chapter 1 (5.5 Checking installation of EXPRESSBUILDER)" to confirm that EXPRESSBUILDER has been installed in Windows.
- 23. Follow the instructions described in *Chapter 1 (5.6 Setting Up Device Drivers)* to set up the device drivers.
- 24. Confirm if Windows is activated according to Chapter 1 (5.7 License Authentication).
- 25. Apply Service Pack as needed according to Chapter 1 (5.8 Applying Service Pack).

- 26. Execute setup by following the instructions described in Chapter 1 (6. Setup for Solving Problems).
- 27. See *Chapter 2 Installing Bundled Software* to install the bundled software or confirm that the software is appropriate to your operating environment.

Setup with EXPRESSBUILDER is now complete.

5.3 Setup with Windows Standard Installer

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

This feature automatically recognizes the RAID controller connected to the server and configures the RAID system. Therefore the hardware installation of the server needs to be finished by following "*User's Guide*".

Important

Setup with OS standard Installer 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:

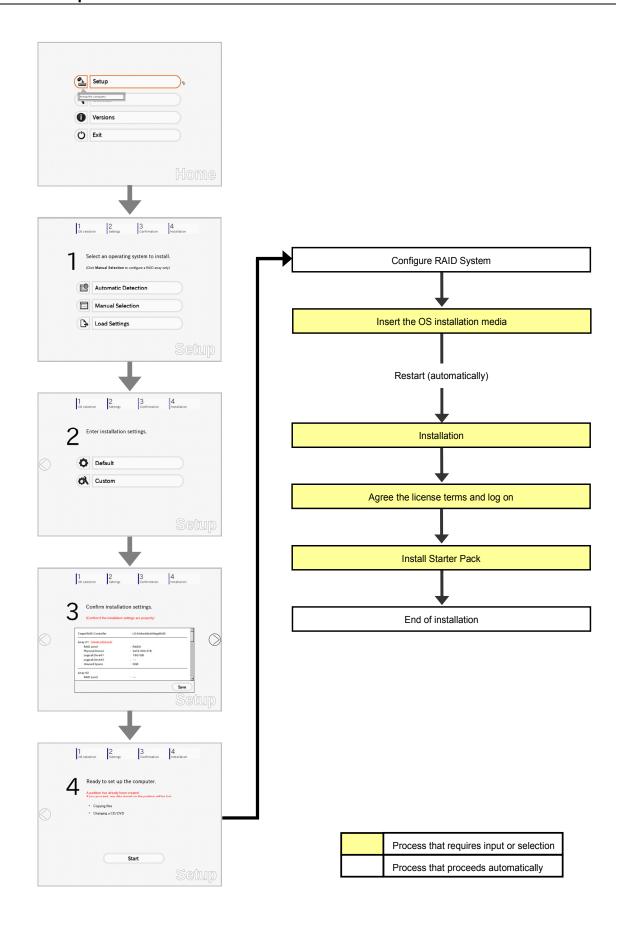
- RAID settings

When re-installing windows, backing up user data, is recommended.

Tips

- Setup with OS Standard Installer allows you to use a pre-specified parameter file or save the parameters specified in setup as a parameter file on removable media or Internal Flash Memory.
- For details on creating a parameter file, refer to *Chapter 1* (7. *Windows OS Parameter File*).

5.3.1 Setup flow



5.3.2 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)
- > Either of the following EXPRESSBUILDER
 - Internal Flash Memory
 - EXPRESSBUILDER DVD (Option)
- Prepare if needed:
 - First Steps Guide
 - Removable media for Windows OS parameter file
 - Service Pack
 (If the OS installation media contains Service Pack 1, you do not need to apply the service pack again.)

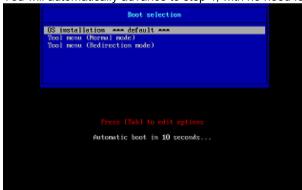
5.3.3 Setup procedure

Note

Read through the items in Chapter 1 (5.1 Before Starting Setup) prior to installing Windows.

- Turn peripheral device (such as a display) power on, and then turn the server power on.
- Start EXPRESSBUILDER according to Chapter 1 (1.1 Starting EXPRESSBUILDER).
- Select OS installation *** default ***.

You will automatically advance to step 4, with no need for further input.



The following window appears.



The server starts from EXPRESSBUILDER.



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



5. Click Setup.



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



☐ When *not using* a parameter file: Select **Automatic Detection**, and then go to Step 7.

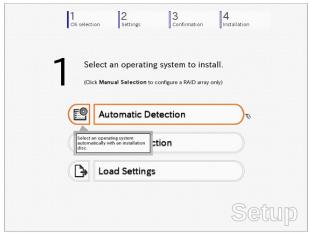
: Select Manual Selection, and then go to Step 8.

☐ When *using* a parameter file : Select **Load Settings**, and then go to Step 9.

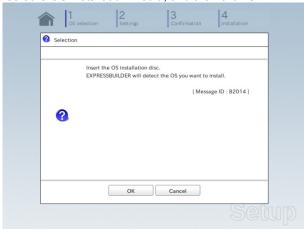
Note

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

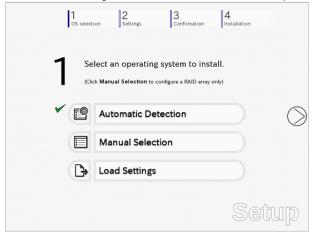
- 7. When *not using* a parameter file, let the OS on the installation media be recognized by using the following procedure.
 - 7-(1) Click Automatic Detection.



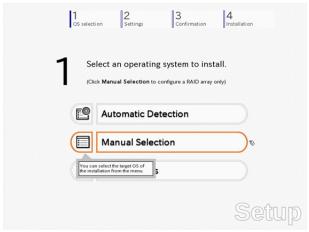
7-(2) Insert the OS installation media, and then click **OK**.



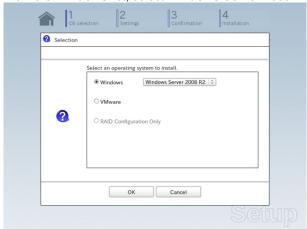
7-(3) Click \bigcirc on the right side of the screen. \rightarrow Go to step 10.



- 8. When not using a parameter file, select an OS by using the following procedure.
 - 8-(1) Click Manual Selection.



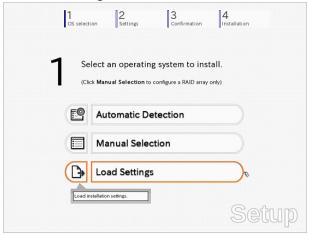
8-(2) From the Windows list, select Windows Server 2008 R2, and then click OK.



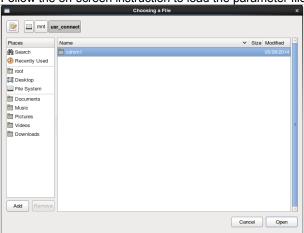
8-(3) Click \bigcirc on the right side of the screen. \rightarrow Go to step 9.



- 9. When *using* the parameter file, load the parameter file by using the following procedure.
 - 9-(1) Click Load Settings.



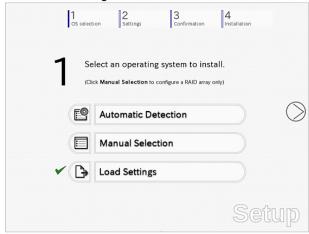
9-(2) Follow the on-screen instruction to load the parameter file (*.tre)



Tips

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

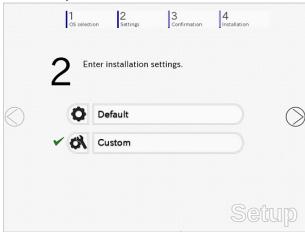
9-(3) Click On the right side of the screen.



When the parameter file is correctly loaded, click \bigcirc on the right side of the screen. 9-(4) \rightarrow Go to step 11.

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

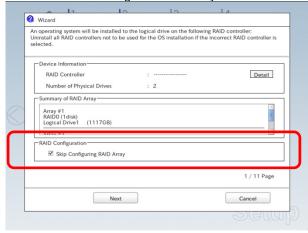
 \rightarrow Go to step 10.



10. Click Custom.



10-(1) Use this menu to configure the RAID system with the RAID controller detected automatically.



When creating new logical drives

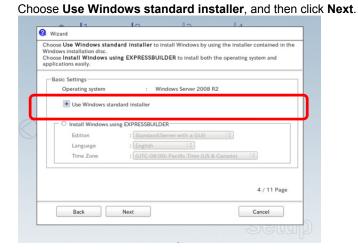
With the Skip a RAID Configuration check box cleared, click Next. Set up the logical drives according to the wizard.

Important If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

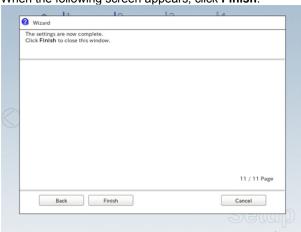
When skipping the creation of new logical drives

Select the Skip a RAID Configuration check box, and then click Next.

10-(2) Check the settings specified for **Basic Settings**.



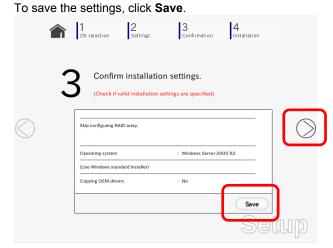
When the following screen appears, click Finish.



10-(3) Click O on the right side of the screen.



11. Check the parameter settings.



Click On the right side of the screen.

12. The setup process starts.
Click **Start** to continue setup.



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



14. The server reboots automatically.

If you use Internal Flash Memory, press <F3> key when the following message appears during POST.

Press <F2> Setup, <F3> Internal Flash Memory, <F4> ROM Utility, <F12> Network

15. Run from the OS installation media.

If OS has already been installed, the message "Press any key to boot from CD or DVD..." is displayed on the top of the screen. Press <Enter> key to boot the system from media.

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

Note

If "Windows is loading files..." message does not appear, <Enter> key was not pressed correctly. Reboot and retry.

This step is unnecessary if no operating system is installed.

16. Click **Next** at default settings.

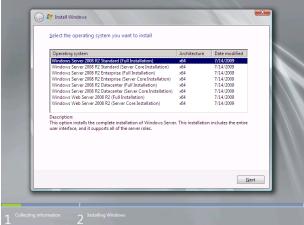


17. Click Install Now 😜.

Windows Server 2008 R2 installation starts.



18. Select the edition of the Windows you are going to install and the installation method.

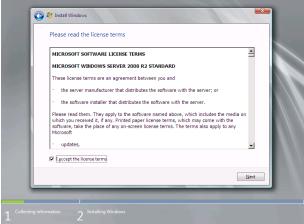


Tips

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

19. Read the content of the license agreement.

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



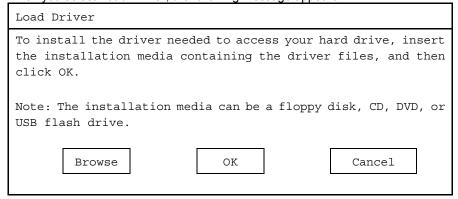
20. Select the installation type.

Select Custom (advanced) in this case.



21. "Where do you want to install Windows?" window appears. If you are not using RAID Controller, go to Step 25.

When you select Load Driver, the following message appears.



When loading the driver from EXPRESSBUILDER DVD, replace the OS installation media with EXPRESSBUILDER DVD in the optical disk drive.

Specify the following locations, and then click OK.
 When using Internal Flash Memory, select the volume of INTER-FLASH.
 (When using EXPRESSBUILDER DVD, select the optical disk drive.)

N8103-176/177/178 RAID Controller: \012\win\winnt\drivers\01_storage\1_an_01

23. Select the necessary driver from the driver list, and then click Next.

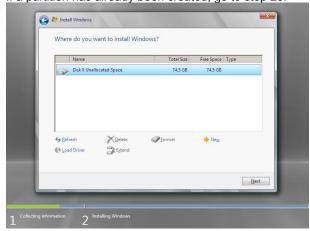
LSI MegaRAID SAS 9362-8i

24. If you used EXPRESSBUILDER DVD in step 21, remove it and then insert the OS installation media.

Tips



25. Select the disk in which the partition will be created, and then click **Drive options (advanced)**. If a partition has already been created, go to step 28.



26. Click New.

Enter the partition size into the size text box, and then click Apply.

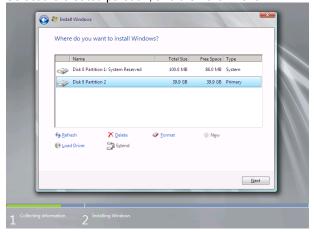
Note The partition size can only be set to 2TB (2,097,152 MB) or less.

Tips



27. Select the partition created in step 26, and then click Format.

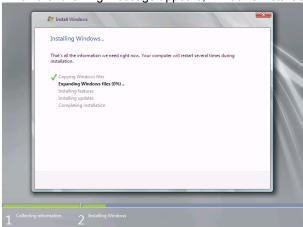
28. Select the created partition, and then click Next.



Tips

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

When the following message appears, Windows installation starts automatically.



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



30. Change your password, and then click the S button.



Server Core installations:



Tips

Passwords must fulfill the following requirements in Windows Server 2008 R2.

- Contains 6 or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z), and symbols.

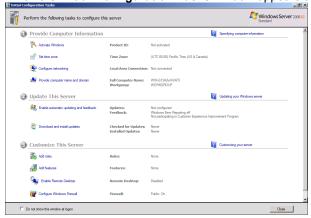
31. Click **OK**.



32. Confirm the following according to the settings selected (displayed) in Step 18.

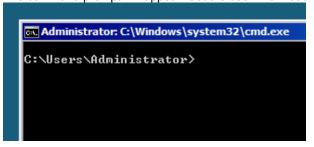
Full installations:

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



Server Core installations:

The command prompt will appear. Set the user information.



Tips For detailed setup procedures, refer to the Microsoft "Step by Step Guide".

33. Install Starter Pack by referring to Chapter 1 (5.4 Installing Starter Pack).

Start EXPRESSBUILDER by either of the following two ways:

☐ Internal Flash Memory: 5.4.1 Installing Starter Pack after POST

☐ EXPRESSBUILDER DVD: 5.4.2 Installing Starter Pack using Windows Application

- 34. See "Chapter 1 (5.5 Checking installation of EXPRESSBUILDER)" to confirm that EXPRESSBUILDER has been installed in Windows.
- 35. Install drivers and specify detailed settings by referring to Chapter 1 (5.6 Setting Up Device Drivers).
- 36. Confirm if Windows is activated according to Chapter 1 (5.7 License Authentication).
- 37. Apply Service Pack as needed according to Chapter 1 (5.8 Applying Service Pack).
- 38. Install the applications as needed by referring to Chapter 1 (5.9 Installing the Applications).
- 39. Execute setup by following the instructions described in Chapter 1 (6. Setup for Solving Problems).

Setup with Windows standard installer is now complete.

5.4 Installing Starter Pack

Starter Pack contains drivers customized for this server. When Starter Pack is not installed on the server, in the case such as the server is set up using Windows Standard installer, be sure to apply Starter Pack before running the system.

Important

- Also install Starter Pack in the following cases.
 - The motherboard of the server has been replaced (If a dialog box prompting system reboot is displayed, reboot the system according to the on-screen instructions, and then apply the Starter Pack.)
 - If the system was restored using a restore process
 - If a system has been restored using the backup tool
- After installing build-in options, you may need installing Starter Pack.
 For detail, refer to Chapter 1(5.6 Setting Up Device Drivers).

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

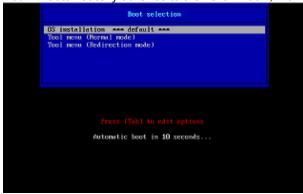
- Microsoft .NET Framework Version 3.5.1 is enabled when Starter Pack is applied in full-installation environment.
- If the OS is installed by using EXPRESSBUILDER, Starter Pack is already applied. If the configuration is not changed, you do not need to apply Starter Pack again.

Installing Starter Pack after POST *5.4.1*

- 1. After installing the operating system, restart the server.
- 2. When "Press <F2> Setup, <F3> Internal Flash Memory, <F4> ROM Utility, <F12> Network" appears during POST, press <F3> key.

Before pressing <F3> key, be sure to remove the DVD from the optical disk drive.

3. When the following message appears, select OS installation *** default ***. You will automatically advance to the next window, with no need for further input.



The following window appears.



The server starts from EXPRESSBUILDER.



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



5. Click Utilities.



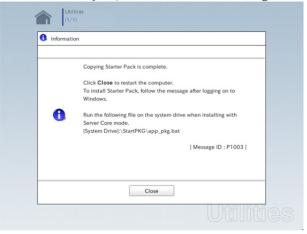
6. Click Starter Pack Installation.



7. Read the contents, and then click Yes.



8. When files are copied, click **Close** on the following screen.



The server then restarts. Do not press <F3> key and allow OS to start.

- 9. On Server Core installations, install Starter Pack following steps as below. On Full installation, go to step 11.
 - (1) Enter the following command at the command prompt, and then open the folder under the system drive (drive C).

Cd /d C:\StartPKG

C:\Users\administrator>cd /d C:\StartPKG

(2) Enter the following, and then press <Enter> key.

app_pkg.bat

C:\StartPKG>app_pkg.bat

10. The following screen appears.

Starter Pack is in preparation for application. Wait for a while (about 1 to 3 minutes.)

Applying Starter Pack is in preparation. Please wait for a while.

Note

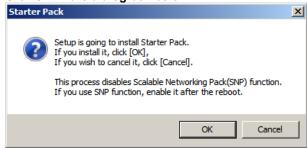
On Full Installation, this message below may appear at lower right of the screen.

There is no problem in system operation.

This message will disappear automatically.

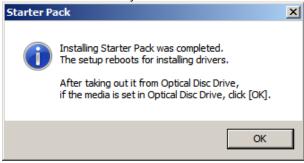
"Device driver software was not successfully installed"

11. Click OK in the dialog box below.



Wait until the installation of the Starter Pack is complete. (About 3 to 5 minutes)

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



Installation of Starter Pack is now complete.

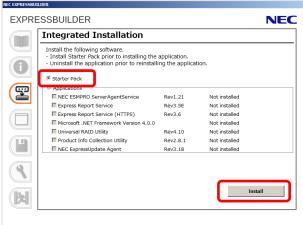
5.4.2 Installing Starter Pack using Windows Application

When EXPRESSBUILDER is installed on Windows, you can launch it as a Windows application. See Chapter 2 (5. Details of EXPRESSBUILDER) in Maintenance Guide

- 1. Log on to the system with the built-in administrator, which has administrative privileges.
- 2. Click the shortcut on your desktop screen or choose NEC EXPRESSBUILDER from the Start screen.
- 3. Click Integrated Installation on the menu.



4. Select Starter Pack on the following screen, and then click Install.



5. See Step 11 and the subsequent steps in *Chapter 1 (5.4.1 Installing Starter Pack after POST)* for further procedure.

5.4.3 Using EXPRESSBUILDER DVD(Option)

When you use EXPRESSBUILDER DVD (option), follow the steps below.

Installation from Windows (Full Installation)

- 1. Sign-in to the system with the administrator account.
- 2. Insert EXPRESSBUILDER DVD into the optical disk drive.
- 3. See Step 3 and the subsequent steps in *Chapter 1 (5.4.2 Installing Starter Pack using Windows Application)* for further procedure.

Installation from Windows (Server Core)

- From the command prompt, type the following command.
 In the example below, the optical disk drive is the D drive.
 - Cd /d D:\012\win\winnt\bin

C:\Users\administrator>cd /d D:\012\win\winnt\bin

2. Enter the following, and then press the <Enter> key.

Pkgsetup.vbs

D:\012\win\winnt\bin>pkgsetup.vbs

Wait until installation completes (about 1 to 3 minutes).

Installation of Starter Pack is now complete.

5.5 **Checking installation EXPRESSBUILDER**

Confirm that EXPRESSBUILDER has been installed in Windows.

(1) Full Installation

1. Click the shortcut on the desktop or select "NEC EXPRESSBUILDER" from the Windows start screen.





Click "Exit" to guit the menu.

There is no more to it.

(2) Server Core Installation

Enter the following from the command prompt and press the <Enter> key.

```
eb_cli.exe 'show /repository'
```

The following steps are not required when a folder path is displayed after "RepositoryPath=". Go to step 2 when the following message is displayed.

The repository has not been created. After creating the repository by "load /repository", please run again.

Enter the following from the command prompt and press the <Enter> key.

Wait for a while until the command is completed.

```
eb_cli.exe 'load /repository'
```

Check is now complete

5.6 Setting Up Device Drivers

Install and set up device drivers provided for the standard configuration.

For details regarding the installation and setup of a driver for an optional device, refer to the manual supplied with the optional device.

5.6.1 Installing the LAN drivers and teaming utility (PROSet / BACS / QCS)

(1) LAN drivers and teaming utility

For the system that network adapter is connected, if it is setup with EXPRESSBUILDER, the LAN driver and teaming utility will automatically be installed.

For the system that network adapter is connected, if it is setup with Windows standard installer, apply Starter Pack to install the LAN driver and teaming utility.

Important

Wake On LAN (WOL) is supported by the standard network adapters (N8104-154F/156F) only.

Wake On LAN will be able to be used in the state after the installation of the LAN Driver.

BIOS settings, check the "User's Guide".

Note

- To change the LAN driver and BACS settings, log on to the system from a local console using an administrator's account. Remotely changing the settings by using the operating system's remote desktop feature is not supported.
- Be sure to select the Internet Protocol (TCP/IP) check box when specifying an IP address.

(2) Optional LAN board

This server supports the following optional LAN boards.

Optional LAN boards: N8104-145/149/150/151/152

The drivers for LAN boards are automatically installed using the OS plug-and-play function.

The LAN driver is not installed if N8104-145/149/150/151/152 is not connected to the server before setup with EXPRESSBUILDER or applying Starter Pack.

Perform the steps below to install the N8104-145/149/150/151/152 LAN driver manually.

N8104-145

Note

- When Intel(R) Network Connections 19.1.51.0 is shown to Programs and Features, this step is unnecessary.
- If the LAN driver has been installed in N8104-145, PROSet is also installed.
- Start command prompt and then open the folder under the system drive (drive C), enter the following file, and run the file.

```
\label{lem:c:program} $$C:\Program\ Files(x86)\EXPRESSBUILDER\repository\012\win\winnt\drivers\02\_network\1\_ag\_02\install\_ws2008r2.bat
```

If using EXPRESSBUILDER DVD (option), run the following file.

\012\win\winnt\drivers\02_network\1_ag_02\install_ws2008r2.bat

2. When the following message appears, restart the system.

Intel Driver Installation Completed!

When LAN board is new addition, setting each LAN board by referring to Chapter 1(5.6.2 Setting up LAN drivers).

Setup is now completed.

N8104-149

Note

- When QLogic Driver Installer is shown to Programs and Features, this step is unnecessary.
- If the LAN driver has been installed in N8104-149, QCS is also installed.
- Start command prompt and then open the folder under the system drive (drive C), enter the following file, and run the file.

```
\label{lem:c:program} C:\Program\ Files(x86) \EXPRESSBUILDER\repository\\ 012\win\winnt\drivers\\ 02\_network\\ 1\_as\_02\install\_ws2008r2.bat
```

If using EXPRESSBUILDER DVD (option), run the following file.

```
\012\win\winnt\drivers\02 network\1 as 02\install ws2008r2.bat
```

2. When the following message appears, restart the system.

```
QLOGIC Driver Installation Completed!
```

3. When LAN board is new addition, setting each LAN board by referring to Chapter 1(5.6.2 Setting up LAN drivers).

Setup is now completed.

N8104-150/151/152

Note

- When Broadcom Gigabit Integrated Controller is shown to Programs and Features, this step is unnecessary.
- If the LAN driver has been installed in N8104-150/151/152, BACS is also installed.
- Start command prompt and then open the folder under the system drive (drive C), enter the following file, and run the file.

```
C:\Program Files(x86)\EXPRESSBUILDER\repository\012\win\winnt\drivers \02 network\1 ah 02\install ws2008r2.bat
```

If using EXPRESSBUILDER, run the following file.

```
\012\win\winnt\drivers\02_network\1_ah_02\install_ws2008r2.bat
```

2. When the following message appears, restart the system.

```
BCOM Driver Installation Completed!
```

When LAN board is new addition, setting each LAN board by referring to Chapter 1(5.6.2 Setting up LAN drivers).

Setup is now completed.

(3) Network adapter name

After installing the LAN drivers, the following network adapter names will be displayed by the Device Manager or teaming utility.

Network adapters for the standard configuration

[N8104-154F]: Broadcom NetXtreme Gigabit Ethernet #xx (*1)

[N8104-156F]: 10GBASE-SFP+: QLogic BCM57800 10 Gigabit Ethernet (NDIS VBD Client) #xx (*1)

1000BASE-T: QLogic BCM57800 Gigabit Ethernet (NDIS VBD Client) #xx (*1)

If connecting with an optional LAN board:

[N8104-145]: Intel(R) Ethernet Server Adapter I340-T2 #xx (*1)

[N8104-149]: QLogic BCM57810 10 Gigabit Ethernet (NDIS VBD Client) #xx (*1)

[N8104-150/151/152]: Broadcom NetXtreme Gigabit Ethernet #xx (*1)

Tips

The ID for N8104-156F or N8104-149 might be a number of two or more digits. This is due to the LAN driver specifications and not an error. This number cannot be changed.

^{*1} If there are adapters with the same name, a different identification number will be assigned to xx.

5.6.2 Setting up LAN drivers

(1) Setting link speed

The transfer rate and duplex mode of the network adapter must be the same as those of the switching hub. Follow the procedure below to specify the transfer rate and duplex mode.

Tips

When using standard network adapter (N8104-156F 10GBASE-SFP +) or N8104-149, you can specify "10 Gb Full" for network adapter and "Auto Negotiation" to switching hub.

- 1. Open the Device Manager.
- 2. Expand **Network Adapters**, and then double-click the name of the network adapter you want to set. The properties of the network adapter will be displayed.
- Select Advanced or Link Speed tab, set the Speed & Duplex values to the same as those of the switching hub.
- 4. Click OK in the Network Adapter Properties dialog box.
- 5. Restart the system.

The link speed setting is now complete.

(2) When using N8104-150/151/152

When using N8104-150/151/152 with the server, follow the procedure below to set it.

1. Run the following file on the system drive (drive C).

```
 C: \label{local_continuous} $$C: \Pr{gram Files(x86) \ EXPRESSBUILDER \ volume} \ 02 \ network\ 1 \ ah \ 02 \ gdyavd \ disable.vbs $$
```

If using EXPRESSBUILDER DVD (option), run the following file.

```
\012\win\winnt\drivers\02 network\1 ah 02\pgdyavd disable.vbs
```

2. When the following message appears, click **OK**.

Configuration Completed
[Option:PopUp RLV Disabled(Action:<u>Done)</u>]
Reboot the system

Tips

Action: Non indicates the settings are done

3. Restart the system.

Setup is now completed.

5.6.3 Setting up team/LiveLink (BACS/QCS)

This section describes procedures for creating and deleting team, and for configuring LiveLink.

The supported network adapters are as follows:

BACS teaming

Network adapters for the standard configuration : N8104-154F

Optional LAN boards: N8104-150/151/152

QCS teaming

Network adapters for the standard configuration: N8104-156F

Optional LAN boards: N8104-149

Note

For how to delete an adapter team, refer to Chapter 1 (5.6.3 Setting upteam/LiveLink (BACS / QCS) - (4) Procedure for deleting team).
 Check the following points when deleting an adapter team.

- When replacing the motherboard or optional LAN boards after an adapter team is configured, delete the adapter team first.
- If a team exists, delete the team first. If the team is bound to a Hyper-V virtual adapter, unbind the Hyper-V adapter before deleting the team.
- Be sure to specify the same Jumbo Mtu (Jumbo Packet) setting to all the adapters that compose a team.
- Do not configure the teams with adapters that use the iSCSI function.

(1) Team types

The following team types are supported.

• Smart Load Balancing and Failover (without Standby Member)

All adapters that compose the team perform communication. If a communication failure occurs on an adapter, other adapters that compose the team continue the communication. When the adapter on which the communication failure occurred recovers, it joins the team again and resumes the communication.

• Smart Load Balancing (Auto-Failback Disable) (with Standby Member)

Among the adapters that compose the team, primary adapters except the standby member perform communication. If a communication failure occurs, the standby member continues the communication. When the adapter on which the communication failure occurred recovers, it joints the team again and the standby adapter returns to the standby state.

• FEC/GEC Generic Trunking

The combination of multiple adapters into a single channel to provide greater bandwidth.

Note

FEC and GEC modes require switch support.

(2) LiveLink

LiveLink is a function that detects communication route failures of adapters.

It periodically investigates the communication status of specified destinations (IP address).

Link packets are sent from each adapter within a team.

If a response to the transmission of a link packet within the specified range is not detected, it is identified as a communication route failure and adapter communication is stopped.

When a response to the submission of a link packet is detected, communication LiveLink identifies communication as having been recovered, and communication using that adapter automatically resumes.

Note

- When using Smart Load Balancing and Failover (without Standby Member), be sure to set up LiveLink at creation of a team.
- When using Smart Load Balancing (Auto-Fallback Disable) (with Standby Member) by three or more network adapters be sure to set up LiveLink at creation of a team.

Tips

- When using Smart Load Balancing (Auto-Fallback Disable) (with Standby Member), setup for LiveLink is not essential.
- LiveLink is not supported with FEC/GEC mode.

(3) Setting up team/LiveLink

Tips

To edit a team, right-click on the BACS team, and then select Edit Team. Then refer to step 3 and the subsequent steps to edit the team.

1. Start the teaming utility on the Control Panel window.

In case of **BACS**, **Broadcom Control Suite** is double-clicked. In case of **QCS**, **QLogic Control Suite** is double-clicked.

Tips

Use icon view on Control Panel.

2. Set **Filter** to **TEAM VIEW**, right-click the adapter to be used for the team, and then select **Create Team** from the short-cut menu.

The Broadcom Teaming wizard appears.

Click Next.

Note

Do not use Expert Mode. It is not supported.

4. Enter any name into the team name entry column, and then click **Next**.

Under Team Type, select the type of team you want to create, and then click Next.

Note

- 802.3ad Link Aggregation using Link Aggregation Control Protocol (LACP) is not supported.
- When FEC/GEC Generic Trunking is selected, the following message will appear. Confirm the settings on switching hub, and click OK. "Verify that the network switch connected to the team members is configured correctly for the team type."
- When using Hyper-V, select Enable HyperV Mode.
- Select the adapters that compose the team, click **Add** to add them to the **Team Members** area, and then click Next.

Note

If FEC/GEC Generic Trunking is selected, go to step 15.

- Proceed according to your desired team type.
 - Smart Load Balancing and Failover (without Standby Member)
 - (1) Select Do not configure a standby member.
 - (2) Click Next.
 - Smart Load Balancing (Auto-Fallback Disable) (with Standby Member)
 - (1) Select Use the following member as a standby member.
 - (2) Select the adapter that is to be a standby member from the drop-down list.
 - (3) Select Enable Auto-Failback Disable mode.

Important The operation when Auto-Fallback Disable mode is unchecked is not supported.

(4) Click Next.

Note

Enable Auto-Failback Disable mode is cleared while editing the team. Select it again.

- When configuring LiveLink, select Yes, click Next, and then go to step 9. When configuring LiveLink is unnecessary, select No, click Next, and then go to step 15.
- 9. You can use the default setting for Probe interval and Probe maximum retries. If you change these values, select a value from each drop-down list, click the target probe (Probe Target xx), and then click Edit Target IP Address.

Tips

- The setting range of Probe interval (link packet transmission interval) is 1 to 60 (units: seconds).
- The setting range of Probe maximum retries (link packet retry count) is 1 to 10 (times).
- Switching a path upon detection of a communication path error by LiveLink takes (Probe maximum retries + 1) x Probe interval (seconds) at maximum. If a link down is detected, failover occurs immediately after the link goes down. It takes the time specified for Probe interval (seconds) to recover from the link going down.
- When using Tagged VLAN, input the VLAN ID for Probe VLAN ID.

10. In the Target xx text box, enter the IP address of the alive monitoring server, and then click OK.

Note

- Target xx must be the same broadcast domain as that specified for the data communication IP and LiveLink communication IP (described in step 13).
 Specify an IP address that exists on the network and with which communication is possible.
- If communication with the IP address specified in *Target xx* is not possible, the team will also be unable to communicate. It is therefore recommended that you specify multiple IP addresses using *Probe Target*. Up to four IP addresses can be specified.
- 11. Click Next.
- 12. Select an adapter from the **Team Members** area, and then click **Edit Member IP Address**.
- 13. Enter the IP address used for LiveLink communication, and then click OK.

Note

- Be sure to specify an IP address for LiveLink communication for all the adapters that compose the team. The address specified here is the IP address for LiveLink communication. Specify a different IP address for data communication.
- For *Target xx*, specify an IP address that is unique on the network and with which communication is possible.
- 14. Click Next.
- 15. Make sure that **Skip manage VLAN** is selected under **Manage VLAN**, and then click **Next**. Below is an example when you do not want to use the VLAN.
- 16. Make sure that **Commit changes to system and Exit the wizard** is selected under **Commit changes**, and then click **Finish**.

Note

When the message below appears, select Yes.

"Applying the changes will temporarily interrupt the network connection. The process may take several minutes and the connection will resume afterwards. Do you want to continue?"

Tips

After creating a team, if the link status of the teaming adapter on BACS or QCS is "down", perform steps 8 to 14 again and correct the LiveLink settings.

When all network adapters that configure the team are in the link down status, this is indicated as shown in the window below. Check the LiveLink settings while all adapters are linked up.

17. Restart the system.

Team setup is now complete.

(4) Procedure for deleting team

Note

You must delete teams from BACS or QCS.

You cannot delete the team from the team adapter displayed in the Device Manager.

1. Start the teaming utility on the Control Panel window.

In case of **BACS**, **Broadcom Control Suite** is double-clicked. In case of **QCS**, **QLogic Control Suite** is double-clicked.

Tips

Use icon view on Control Panel.

2. Set **Filter** to **TEAM VIEW**, right-click the adapter to be used for the team, and then select **Delete Team** from the short-cut menu.

Note

• When the message below appears, select Yes.

"The selected team will be deleted from system, do you want to proceed?

NOTE: Applying the changes will temporarily interrupt the network connection. The process may take several minutes and the connection will resume afterwards."

- When deleting team from QCS, go to step 5.
- 3. Run the following file on the system drive (drive C).

 $\label{local_continuous} C: \Program Files (x86) \EXPRESSBUILDER \repository \012 \win \winnt \drivers \02_network \1_ah_02 \addlv \nstats.vbs$

If using EXPRESSBUILDER, run the following file.

\012\win\winnt\drivers\02_network\1_ah_02\addlvlanstats.vbs

When the following message appears, click OK.

Registry Addition Completed, Reboot the system.

5. Eject EXPRESSBUILDER DVD from the optical disk drive, and then restart the system.

Team deletion is now complete.

5.6.4 Setting up team (PROSet)

This section describes procedures for creating, deleting, and configuring a team by network adapter.

The optional LAN board N8104-145 only is supported.

(1) Team types

The following team types are supported.

Adapter Fault Tolerance (AFT)

Adapter Fault Tolerance (AFT) is a feature that creates a group containing and automatically converts the process of the working adapter to the other adapter in the group when any trouble occurred on that adapter.

Adaptive Load Balancing (ALB)

Adaptive Load Balancing (ALB) is a feature that creates a group containing more than one adapter and enhances the throughput by operating packet transmission from the server by all the adapters. This feature includes AFT feature.

• Static Link Aggregation (SLA)

Static Link Aggregation (SLA) accounts for the GEC and 802.3ad static protocols. SLA is a switch-assisted teaming mode and requires configuring ports at both ends of the link: server interfaces and switch ports.

• Switch Fault Tolerance (SFT)

Switch Fault Tolerance (SFT) is a feature that provides a failover relationship between two ports when each port is connected to a separate switch.

SFT supports two ports per team.

Note

• For how to delete an adapter team, refer to Chapter 1 (5.6.4 Setting up team (PROSet) - (3) Procedure for deleting team).

Check the following points when deleting an adapter team.

- When replacing the motherboard or optional LAN boards after an adapter team is configured, delete the adapter team first.
- If a team exists, delete the team first. If the team is bound to a Hyper-V virtual adapter, unbind the Hyper-V adapter before deleting the team.
- Do not configure a team with network adapter that is using iSCSI feature.
- Be sure to set up LiveLink when creating a team in the following cases.
 - Smart Load Balancing and Failover (without Standby Member).
 - Smart Load Balancing (Auto-Failback Disable) (with Standby Member) using more than two network adapters
- When using Smart Load Balancing (Auto-Fallback Disable) (with Standby Member) using two network adapters, setup for LiveLink is not essential.
- When configuring Created AFT or ALB by using two network adapters, disable probes by referring to the following procedure.
 - 1. Open the Device Manager.
 - 2. Expand **Network adapters** and double-click the team adapter. The properties of network adapter are displayed.
 - 3. Select the Advanced tab.
 - 4. Select **Probes**, and then click **Properties**. The Probe is displayed.
 - 5. Clear Send probes, and then click OK.
 - 6. Click **OK**, and then restart the system.

(2) Setting up team

- 1. Open the Device Manager.
- 2. Open Network adapters, and then the Intel(R) xxx properties.
- 3. On the **Teaming** tab, select the **Team this adapter with other adapters** check box. Click New Team.
- 4. Type the name of the team in Specify a name for the team and click Next.
- 5. Select an adapter to be included in the team, and then click Next.
- Select a team type, and then click Next.
- 7. Click Finish.

The properties of the selected team appears.

- 8. On the **Settings** tab, click **Modify Team** button.
- 9. Perform the following procedure to set the team member adapter priority status.
 - Set Primary Select the adapter and click Set Primary.
 - Set Secondary Select the adapter and click Set Secondary.

When primary and secondary adapters are specified, click **OK** to close the window.

Tips

Adapter priority can be confirmed by the following procedure:

- 1) Click **Settings** tab in team adapter properties.
- 2) Confirm Primary/Secondary specified for each adapter in Team list.
- 10. On the Settings tab, click Test Switch. Click Run test on the Test Switch screen.

Test completes when a message indicating successful operation is displayed.

If you are using SFT (Switch Fault Tolerance), go to Step 11 because Test Switch is not supported.

Note

Before running the test, confirm whether the adapter status is "Active" or "Standby" on the Settings tab. If any error is displayed, read the message and change the setting of the switching hub.

Also make sure that all adapters in team are linked up.

Important

Even if the test result is correct, the message below may appear.

Check the setting of the switching hub (L2) port. If no problem is found, ignore the message.

"The switch is configured with aggregated ports, but the team type does not support port aggregation. The switch is configured with VLAN tagging, but the team has no VLANs."

"Reconfigure the switch for link aggregation, or disable VLAN tagging on the switch."

11. Restart the system.

Setting up is now complete.

(3) Procedure for deleting team

Note

You must delete teams by performing the following steps.

You cannot delete the team from the team adapter displayed in the Device Manager.

- 1. Open the Device Manager.
- 2. Expand **Network adapters** and double-click the team adapter. The properties of network adapter in team is displayed.
- 3. Click the **Setting** tab. Click **Remove Team** button.
- 4. Click **Yes** to the popup message.
- 5. Confirm that the TEAM: "Team name" adapter does not exist in the Network adapters tree.
- 6. Restart the system.

Deletion is now complete.

5.6.5 Graphics accelerator driver

The graphics accelerator driver for standard configurations is installed when Starter Pack is installed from EXPRESSBUILDER.

Zips

The graphics accelerator driver is only enabled in Full installations. Standard VGA is used in the case of Server Core installation.

To install drivers separately, complete the following steps.

- 1. Double-click the install.bat icon in the following folder.
 - If Starter Pack was installed from Internal Flash Memory: C:\Program Files(x86)\EXPRESSBUILDER\repository\012\win\winnt\drivers \03_Graphic\1_aj_01\install.bat
 - When using EXPRESSBUILDER DVD: \winnt\drivers\03_Graphic\1_aj_01\install.bat

You will be prompted to confirm the End User License Agreement during this process. Click the **ACCEPT** button to continue.

Graphic accelerator driver installation is now complete.

5.6.6 When using a SAS controller (N8103-142)

The driver for SAS controller N8103-142 is automatically installed by Windows Plug-and-Play.

5.6.7 When using a RAID Controller (N8103-179)

The driver for RAID Controller N8103-179 is automatically installed by Windows Plug-and-Play.

5.6.8 When using a Fibre Channel controller (N8190-157A/158A/159/160)

The driver for Fibre Channel controller N8190-157A/158A/159/160 is automatically installed by Windows Plug-and-Play.

If Fibre Channel controller (N8190-157A/158A/159/160) is additionally installed after the OS has been installed, you need install Starter Pack again.

5.7 License Authentication

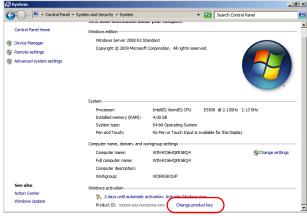
License Authentication is required to use Windows Server 2008 R2. Confirm if your license is authenticated. If not, perform the following procedures to have your license authenticated.

(1) Full installations

On the Start menu, click the Control Panel, 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.



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



3. Enter the product key found on the COA label, and then click Next.





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

Windows activation is now complete.

(2) Server Core installations

1. At the command prompt, enter the following, and then press <Enter> key. slmqr -dli



If the following message appears, Windows has already been activated on your system. You do not need to complete this procedure. Click **OK** to finish.



2. If Windows is installed from Backup DVD-ROM, replace the product key.

At the command prompt, enter the following, and then press <Enter> key. Specify the product key found on the COA label in PID.

slmgr -ipk PID



3. Obtain an installation ID for Windows activation.

At the command prompt, enter the following, and then press <Enter> key. slmgr -dti

```
G. Administrator: C:\Windows\system32\cmd.exe
C:\Users\Administrator>slmgr -dti
```

- 4. Open %systemroot%\system32\sppui\phone.inf to confirm the telephone number of the license authentication customer service.
- 5. Call the above number, inform the representative of the installation ID which you obtained in step 3, and receive a confirmation ID.
- 6. Type the confirmation ID you received in step 5.

At the command prompt, enter the following, and then press <Enter> key. ${\it CID}$ is the confirmation ID that you received from customer service. slmgr -atp ${\it CID}$

```
    Administrator: C:\Windows\system32\cmd.exe
C:\Users\Administrator>slmgr −atp XXXXX−XXXXX−XXXXX−XXXXXX
```

Windows activation is now complete.

5.8 Applying Service Pack

When applying Service Pack 1, refer to "About Windows Server 2008 R2 and Windows 7 Service Pack 1". http://www.58support.nec.co.jp/global/download/w2008r2/sp1.html

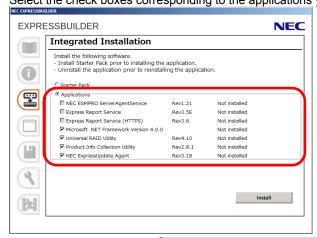
5.9 Installing the Applications

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 only available for Full installations.

- 1. Log on to the system with the built-in administrator, which has administrative privileges.
- 2. Click the shortcut on your desktop screen or choose NEC EXPRESSBUILDER from the Start screen. Or, Insert the EXPRESSBUILDER DVD (option) into the optical disk drive.
- 3. Click Integrated Installation on the menu.



On the following screen, select **Applications** option.
 Select the check boxes corresponding to the applications you want to install, and then click **Install**.



Note

- Applications available for installation are selected by default.
- 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 the relevant page of each application.)

The selected applications are automatically installed.

- When a message appears, click **OK**, and then remove the EXPRESSBUILDER disk from the optical disk drive.
- 6. See *Chapter 2 Installing Bundled Software* to install the bundled software or confirm that the software is appropriate to your operating environment.

Now installation of applications is completed.

5.10 Installation When Multiple Logical Drives Exist

Before starting installation, backup data for future use in case of data loss.

(1) Setup procedure

Setup with EXPRESSBUILDER

Important •

- Before starting setup, be sure to disconnect hard disk drives from the RAID Controller that is not used for setup, if the server has two or more RAID Controllers installed.
- Disconnect an external disk (*) from the server by turning the power of it off or disconnecting cables. Install those hard disk drives and cables after setup has completed. Conducting setup with those being connected with the server may cause existing data to be erased unintentionally.
 - Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit

Refer to Chapter 1 (5.2 Setup with EXPRESSBUILDER), and proceed with setup.

In this case, EXPRESSBUILDER installs the Windows on the first detected hard disk drive or logical drive.

- Setup with Windows standard installer
 - Refer to Chapter 1 (5.3 Setup with Windows Standard Installer), and start setup.
 - 2. When the following message appears, select the partition to which you want to install the operating system.

Select the location to which Windows will be installed

The order and numbers of the disks displayed on the screen might not match the server's slot of the hard disk drives. Distinguish between the hard disk drives by viewing the hard disk drive capacity and partition size displayed on the screen, and then select a drive to install the Windows system.

Selecting an improper drive might cause an unintentional corruption of the existing data. Be careful when selecting a hard disk drive on which to install the system.

- Important For details, refer to the following Microsoft website: http://support.microsoft.com/kb/937251/en-us
 - · You cannot edit the drive letters for the system volume or boot volume after setup is complete. Make sure that the drive letters assigned in this window are correct, and then proceed with setup.
- Refer to Chapter1 (5.3 Setup with Windows Standard Installer) and proceed to setup Windows with OS standard installer and the instructions.

Tips

The drive letter might change after installation. If you want to change the drive letter, use the procedure shown in

Changing drive letter assignments below.

(2) Changing drive letter assignments

To change the drive letter, follow the steps below. But these steps cannot change drive letter assignments for the system volume or boot volume.

- On the **Start** menu, right-click **Computer** and then select **Management**. Next, launch the Server Manager.
- 2. From the window on the left, select **Storage**, and then **Disk Management**.
- 3. Right-click the volume whose drive letter you want to change, and then select **Change drive letter and path**.
- 4. Click Change.
- 5. Click **Assign next drive letter**, and then select the drive letter you want to assign.
- 6. Click OK.
- 7. When the following message appears, read the contents and then click **OK**.

```
Some programs are dependent on drive letters, and may not run properly. Continue?
```

8. Close the Server Manager.

Now changing drive letter is completed.

Setup for Solving Problems

We recommend installing the following features for solving the server failure quickly.

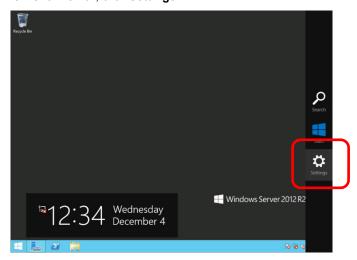
Specifying Memory Dump Settings (Debug Information)

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

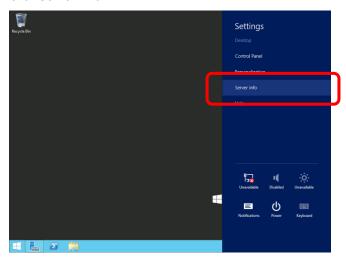
- Important Memory dumps must be collected by a serviceman. You only specify the settings for the memory dump.
 - If you restart the system to save the memory dump, a message informing you that the system is short of virtual memory might appear. Ignore this message and proceed with the restart. If you reset or restart the system again, the memory dump might not be saved normally.

6.1.1 For Windows Server 2012 R2 / Windows Server 2012

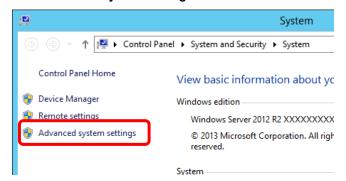
1. On Charms Bar, click Settings.



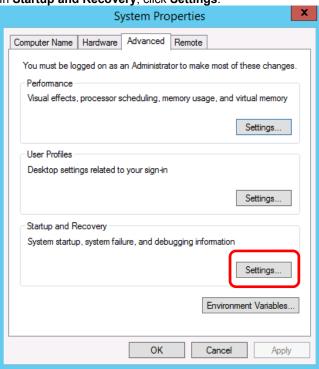
2. Click Server info.



3. Click Advanced system settings.

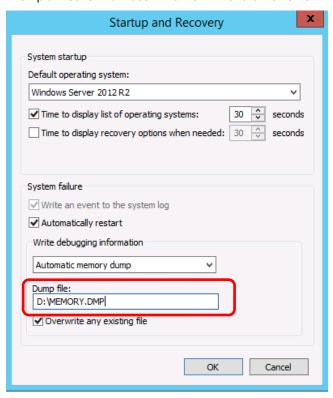


4. In Startup and Recovery, click Settings.



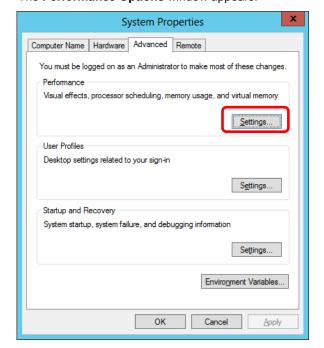
5. Type a file name to store the debug information in the **Dump file** text box, and then click **OK**.

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

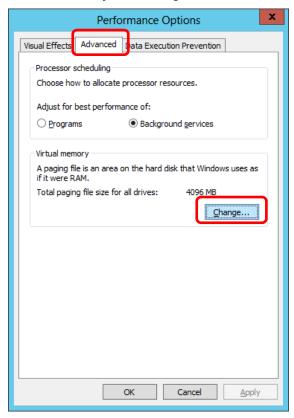


Note the following when specifying a dump file:

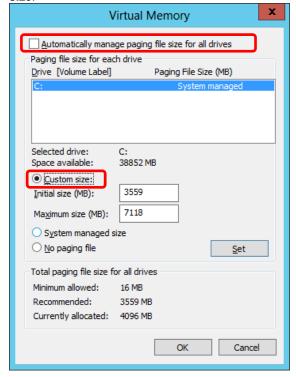
- We recommend specifying Kernel memory dump for Write debugging information.
- Specify a drive that has a free space of at least "the memory capacity mounted on the server + 400 MB".
- The size of the debug information (memory dump) changes when DIMM is added. Make sure that the free space of the drive to store the debug information (memory dump) is sufficient.
- 6. In **Performance**, click **Settings**.
 The **Performance Options** window appears.



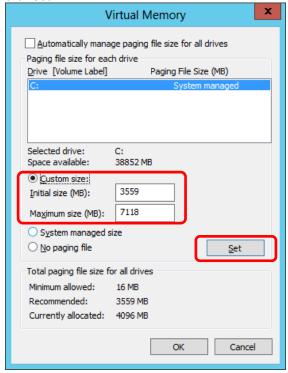
7. Click the **Advanced** tab on the **Performance Options** window. In **Virtual memory**, click **Change**.



8. Clear the **Automatically manage paging file size for all drives** check box, and then click **Custom size**.



9. In **Paging file size for each drive**, click **Custom size**, type a size equal or larger than the recommended size in **Initial size**, and the size larger than **Initial size** in **Maximum size**, and then click **Set**.



Note the following when specifying a paging file size:

- The paging file is used to collect debug information (dump file). The boot volume must have a paging file of its initial size ("total capacity of physical memory" + 400MB or more) is enough to store the dump file.
- Make sure to specify a sufficient paging file size (recommended size: 1.5x "total capacity of physical memory" or more).
- See "System Partition" in Chapter 1 (3.1 / 4.1 Before Starting Setup) for recommended value.
- When DIMM is added, re-specify the paging file according to the increased memory size.

10. Click **OK**.

If a message to restart Windows appears, restart the system according to on-screen message.

Specification of the memory dump settings is now complete.

6.1.2 For Windows Server 2008 R2

On the Start menu, click Control Panel.
 The Control Panel window appears.

2. On the Control Panel window, click System and Security.

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

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

The System Properties dialog box appears.

- 5. Click the Advanced tab, and then click Settings in Startup and Recovery.
- 6. Type a file name to store the debug information in the **Dump file** text box.

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

Note the following when specifying a dump file.

- For Write debugging information, we recommend specifying Complete memory dump.
 If the mounted memory size is greater than 2 GB, specify Kernel memory dump instead of Complete memory dump.
- 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) changes when DIMM is added. Make sure that the free space of the drive to store the debug information is sufficient. If the mounted memory exceeds 2GB, specify **Kernel memory dump**.
- 7. In Performance, click Settings.

The Performance Options dialog box appears.

- 8. Click the **Advanced** tab in the Performance Options dialog box.
- 9. In Virtual memory, click Change.
- Clear the Automatically manage paging file size for all drives check box, and then click Custom size.
- 11. In Paging file size for each drive, specify as follows:

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

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

After specifying the above sizes, 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 cannot be collected due to a shortage of virtual memory.
- For details about the Recommended size in the Total paging file size for all drives, see System partition size in Before Starting Setup.
- When DIMM is added, re-specify the paging file according to the increased memory size.

12. Click **OK**.

The message to restart the system appears depending on the modifications made. In this case, restart the system.

Specification of the memory dump settings is now complete.

6.2 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, get user-mode process dump information using the following procedures without closing the pop-up window that reported the error:

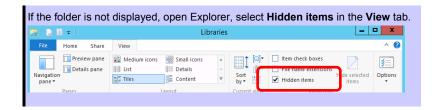
6.2.1 For Windows Server 2012 R2 / Windows Server 2012

- 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 More details.



- 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 will be created in the following folder:
 - C:\Users\user name\AppData\Local\Temp





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

6.2.2 For Windows Server 2008 R2

- 1. Right-click an empty area of the taskbar and then click **Start 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 get dump information for, and then click **Create Dump File**.
- 4. A dump file will be created in the following folder: C:\Users\user name\AppData\Local\Temp

Tips

If the folder is not displayed, open Explorer, click **Organize**, and **Folder and search options**, click the **View** tab and then select **Show hidden files, folders, and drives**.

Get the user-mode process dump file from the folder shown in step 4.

User-mode process dump file creation is now complete.

6.3 Installing Network Monitor

Utilizing Network Monitor helps you investigate and manage network troubles.

This feature is not supported in Windows Server 2012 or later operating systems.

(1) Setting up Network Monitor

- Download Network Monitor from the following website: http://support.microsoft.com/kb/933741/en-us
- 2. Run the downloaded file to start the installer.
- 3. 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

- 1. On the Start menu, click Microsoft Network Monitor to start Network Monitor.
- Click the Create a new capture tab on the Start Page tab or click New on the File menu, and then click Capture.

A new tab for capturing network traces is created.

- 3. In **Select Networks**, select the network whose traces are to be captured.
- 4. On the **Capture** menu, click **Start** to start capturing the network traces.
- 5. On the Capture menu, click Stop to stop capturing the network traces.
- 6. On the File menu, click Save As.

The **Save As** dialog box appears. In **Frame selection**, click **All captured frames**, and then type a folder and file names.

Tips

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.

7. Windows OS Parameter File

If a parameter file is used when performing Setup with EXPRESSBUILDER, you can re-install an OS with settings used at the previous installation.

7.1 Creating Windows OS Parameter File

Note

Do not remove EXPRESSBUILDER DVD from the drive while creating a parameter file.

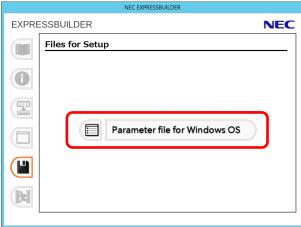
Tips

Create a parameter file on Internet Explorer 7 or later.

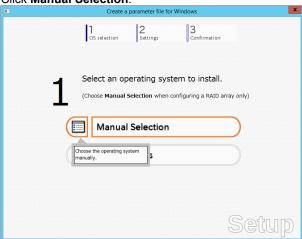
- 1. Start Windows on the server or another computer.
- 2. Run **NEC EXPRESSBUILDER** from the shortcut of the desktop on the server, or insert the EXPRESSBUILDER DVD (an option or created from the downloaded image) into the optical disk drive. Autorun menu will appear automatically.
- 3. Click Files for Setup on the menu.



4. Click Parameter file for Windows OS.



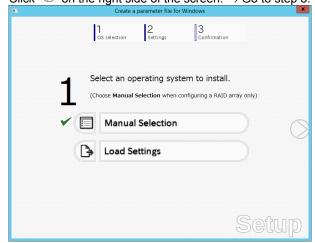
- 5. On the **OS selection** menu, select the OS to install or specify the parameter file.
 - ☐ When not using parameter file : Go to Step 6.
 - ☐ When using a parameter file : Go to Step 7.
- 6. To create a parameter file, select an OS from the menu by using the following procedure.
 - 6-(1) Click Manual Selection.



6-(2) From the **Windows** list, select **OS**, and then click **OK**.

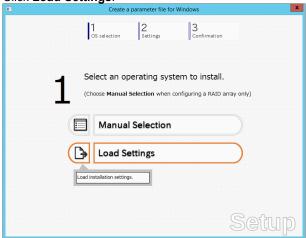


6-(3) Click \bigcirc on the right side of the screen. \rightarrow Go to step 8.

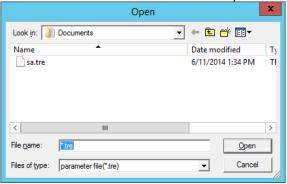


7. To modify a parameter file, load the parameter file by using the following procedure.

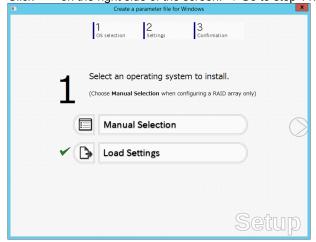
7-(1) Click Load Settings.



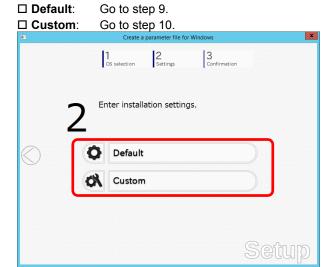
7-(2) Follow the on-screen instruction to load the parameter file (*.tre).



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



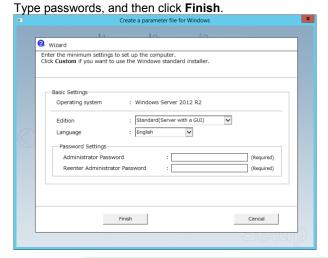
8. Specify the setup parameters by using either of the following methods:



Click Default.



9-(1) Select an edition of the OS in the **Edition** list.

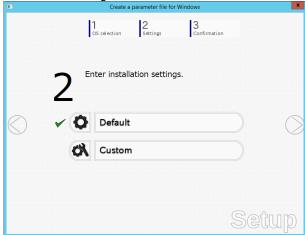


Note

Computer name and Administrator Password are required parameters. Enter Administrator Password that satisfies the following conditions:

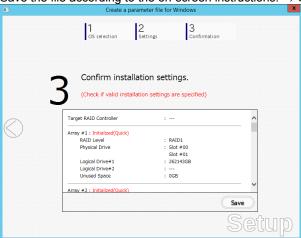
- Contains six or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z), and symbols.

9-(2) Click on the right side of the screen.



9-(3) Check the settings, and then click **Save**.

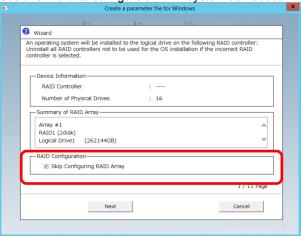
Save the file according to the on-screen instructions. \rightarrow Go to step 12.



10. Click Custom.



10-(1) Use this menu to configure a RAID system as needed.



When creating new logical drives:

Clear the Skip a RAID Configuration check box, and then click Next. Logical drives will be configured in accordance with the wizard.

Important If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

When skipping the creation of new logical drives:

Select the Skip a RAID Configuration check box, and then click Next.

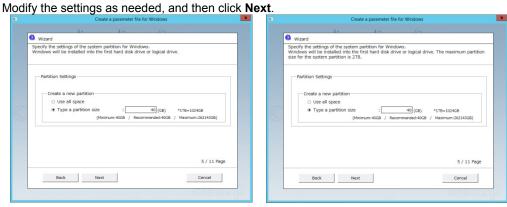
10-(2) Check the settings specified for Basic Settings.

Modify the settings as needed, and then click Next. Wizard Choose **Use Windows standard installer** to install Windows by using the installer contained in the Windows installation disc.

Choose **Install Windows using EXPRESSBUILDER** to install both the operating system and amplications each. Operating system : Windows Server 2012 R2 O Use Windows standard installer Install Windows using EXPRESSBUILDER : Standard(Server with a GUI) Edition Language 4 / 11 Page Back Next Cancel

10-(3) Check the settings specified for Partition Settings.

Specify the settings of the system partition for Windows.
Windows will be installed into the first hard disk drive or logical drive. 5 / 11 Page Back Next



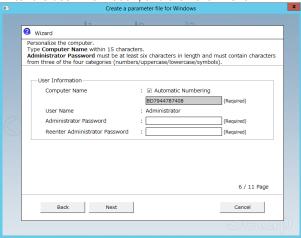
Windows Server 2012 R2/ Windows Server 2012

Windows Server 2008 R2

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 (Before Starting Setup).
 - The maximum partition size is 2,097,152 MB for Windows Server 2008
 R2
- If you select "Create a new partition" under "Partition Settings", the entire contents of the hard disk drive will be deleted.

10-(4) Enter the user information, and then click Next.



Note

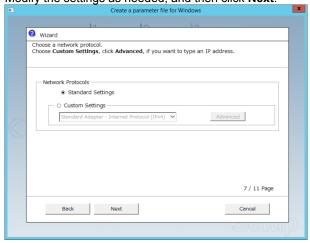
Computer name and Administrator Password are required parameters. Enter Administrator Password that satisfies the following conditions:

- Contains six or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z), 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 "Auto", 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 Reenter Administrator
 password text boxes.
- 10-(5) Check the settings specified for **Network Protocols**.

Modify the settings as needed, and then click Next.

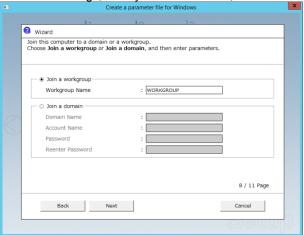


Tips

The order of entry in **Custom settings** may differ from the numbering of LAN ports.

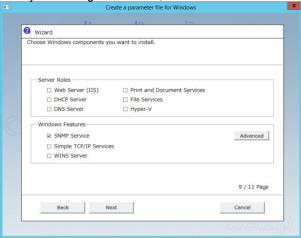
10-(6) Specify the domain or workgroup.

Check the settings, modify them as needed, and then click Next.



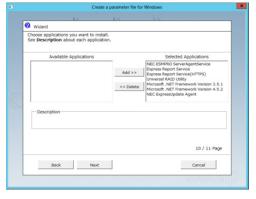
10-(7) Check the settings of Windows components.

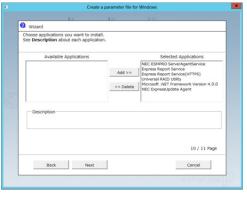
Modify the settings as needed, and then click **Next**.



10-(8) Check the settings of applications.

Modify the settings as needed, and then click Next.





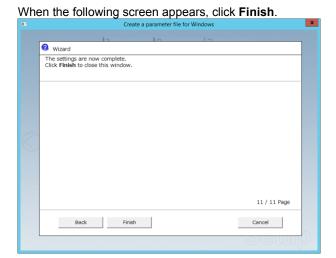
Windows Server 2012 R2/ Windows Server 2012

Windows Server 2008 R2

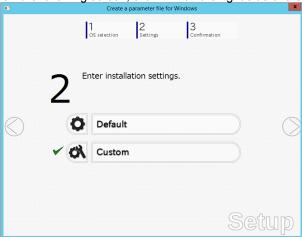
Tips

When using Windows Server 2008 R2, the applications listed below are supported only in full installations.

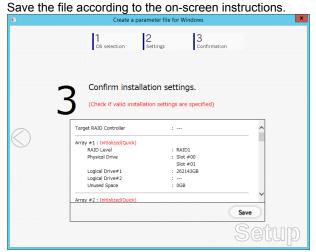
- NEC ESMPRO ServerAgentService
- Express Report Service
- Express Report Service (HTTPS)
- Microsoft .NET Framework Version 4.0.0



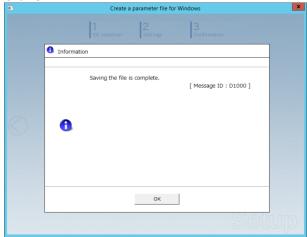
10-(9) On the following screen, click On the right side of the screen.



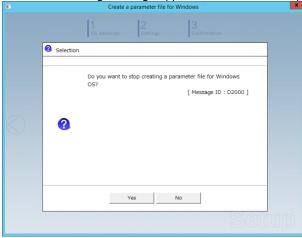
11. Check the settings, and then click **Save**.



12. Click **OK**.



13. When the following message appears, click Yes to complete parameter file creation.



Parameter file creation is now complete.

NEC Express5800 Series Express5800/R120g-1M, R120g-2M

Installing Bundled Software

This chapter explains the bundled software and how to install them.

1. Bundled Software for the Server

Describes the bundled software to be installed in the server.

2. 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.

Bundled Software for the Server

This section explains the software bundled in the server. Refer to the documentation that comes with software for details.

1.1 NEC ESMPRO ServerAgentService (for Windows)

NEC ESMPRO ServerAgentService (for Windows) is an application used to monitor the server.

You can install it automatically when Windows OS is installed with EXPRESSBUILDER.

When installing NEC ESMPRO ServerAgentService (for Windows) individually, see *NEC ESMPRO ServerAgentService Installation Guide (Windows)* in EXPRESSBUILDER.

1.2 NEC ESMPRO Agent Extension

You can manage the server remotely by using NEC ESMPRO Agent Extension with NEC ESMPRO Manager monitoring the server's BMC.

For details about NEC ESMPRO Agent Extension, see "NEC ESMPRO Agent Extension Installation Guide" in EXPRESSBUILDER.

1.3 Server Configuration Utility

You can specify configuration data to the BMC of the server by using this utility.

For details about this utility, see "Server Configuration Utility User's Guide" in EXPRESSBUILDER.

1.4 NEC ExpressUpdate Agent

You can easily download, manage and update the firmware or the software installed in this server by using NEC ExpressUpdate Agent.

For details about NEC ExpressUpdate Agent, see "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

1.5 Universal RAID Utility

Universal RAID Utility is an application used to manage and monitor the following RAID Controllers:

- N8103-176 RAID Controller (1GB, RAID 0/1)
- N8103-177 RAID Controller (1GB, RAID 0/1/5/6)
- N8103-178 RAID Controller (2GB, RAID 0/1/5/6)
- N8103-179 RAID Controller (2GB, RAID 0/1/5/6)

For details about Universal RAID Utility, see "Universal RAID Utility User's Guide" in EXPRESSBUILDER.

If the system requirements for Universal RAID Utility described in *Universal RAID Utility User's Guide* differ from *User's Guide* of the server, follow *User's Guide* of the server.

1.5.1 Setup of Universal RAID Utility

This section describes setup of Universal RAID Utility.

(1) Setup with EXPRESSBUILDER

You can easily install Universal RAID Utility by using EXPRESSBUILDER. Universal RAID Utility is installed along with Windows when using EXPRESSBUILDER. Select **Applications** on Autorun Menu.

(2) Setup using Universal RAID Utility installer

The Universal RAID Utility installer can be launched from Autorun Menu of EXPRESSBUILDER. Choose **Integrated Installation** and then follow the dialog box.

Microsoft .NET Framework

Install "Microsoft .NET Framework Versions 2.0 to 3.5" from the following web site when using Universal RAID Utility on Windows Server 2012 and Windows 2012 R2.

http://msdn.microsoft.com/en-us/library/vstudio/hh506443.aspx

(The web site explains for Windows 8, but the modules can be used for Windows 2012 Server)

1.5.2 Management by NEC ESMPRO Manager

NEC ESMPRO Manager Ver. 5.5 or later is used to remotely reference and monitor the RAID System that is managed by Universal RAID Utility.

For details about NEC ESMPRO Manager, see "NEC ESMPRO Manager Installation Guide".

1.6 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, modem, or HTTPS. If you want to use this service, contact your sales representative and install NEC ESMPRO ServerAgentService before using this service.

You can install it automatically when Windows OS is installed with EXPRESSBUILDER.

For details about Express Report Service / Express Report Service (HTTPS), see Express Report Service / Express Report Service (HTTPS) Installation Guide (Windows) stored in EXPRESSBUILDER.

1.7 NEC Product Info Collection Utility

NEC Product Info Collection Utility can collect various data and logs related to the server all at once. You can collect the server information (Product Info) for maintenance by using this utility.

1.7.1 Installation

Follow the steps below to install this utility.

- Log on to Windows on the server with an administrator privilege, and then click NEC EXPRESSBUILDER on the desktop or Start Menu. Autorun Menu will automatically appear.
- 2. Click **Applications** from the menu and then click **Product Info Collection Utility**.

 The installation will start. Follow the instructions in the dialog boxes until installation is complete.

 This utility is usually installed to the C:\ezclct folder. (where C: is system drive that contains Windows OS)

Tips

The installation drive requires a free space of at least 2.5 GB.

1.7.2 Uninstallation

Uninstall the utility depending on the Windows installation type:

• Full installation (server with a GUI):

Choose Add/Remove Programs from Control Panel and then click Product Info Collection Utility (Vx.x.x). Follow the instructions in the dialog boxes.

• Server Core installation:

Run the following command at the command prompt:

Wmic product where name="Product Info Collection Utility" call uninstall

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 via network.

2.1 NEC ESMPRO Manager

NEC ESMPRO Manager can remotely control and monitor the hardware and the RAID system of the server. To use these features, install the bundled software for the server such as NEC ESMPRO ServerAgentService.

For details about NEC ESMPRO Manager, see *NEC ESMPRO Manager Installation Guide* stored in EXPRESSBUILDER.

2.2 Express Report Service (MG)

Express Report Service (MG)

To avoid system failures or to maintain the server quickly, Express Report Service (MG) informs the support center of the failure information or preventive maintenance information by E-Mail, modem, or HTTPS.

To use this feature, NEC ESMPRO ServerAgentService is required because Express Report Service usually works with it.

If NEC ESMPRO ServerAgentService cannot be installed to the server, you can install Express Report Service (MG) into NEC ESMPRO Manager instead of it.

For details about Express Report Service (MG), see Express Report Service (MG) Installation Guide (Windows) in EXPRESSBUILDER.

Glossary

Terms	Description		
BIOS Setup Utility (SETUP)	Software for setting BIOS. You can run this software by pressing <f2> key during POST</f2>		
BMC	Baseboard Management Controller (BMC) is a built-in controller that supports the IPM version 2.0 protocol. BMC can manage the server hardware.		
BMC RESET Switch	A switch for resetting the BMC of the server. This resets the BMC without clearing the BMC settings. Use the switch if the problem on the BMC occurs.		
DUMP Switch	A switch that is used for collecting the memory dump if an error occurs. You can specify the destination of the dump by using the OS function.		
EXPRESSBUILDER	Standard software for setting up the server easily. This also includes several useful applications and instruction manuals.		
EXPRESSSCOPE ENGINE 3	A name of BMC for NEC Express5800 series.		
EXPRESSSCOPE Profile Key	A removable flash memory that stored the settings of BIOS and BMC. If the motherboard of the server is replaced, you can use former settings when moving this flash memory from the former motherboard.		
Express Report Service	Software that can report the server failure to the contact center by E-mail or modem. This software is installed with NEC ESMPRO ServerAgentService to the server.		
Express Report Service (HTTPS)	Software that can report the server failure to the contact center by HTTPS. This software is installed with NEC ESMPRO ServerAgentService to the server.		
Express Report Service (MG)	Software that can report the server failure to the contact center by E-mail, modem o HTTPS without NEC ESMPRO ServerAgentService. This software is installed with NEC ESMPRO Manager to "PC for Management".		
ExpressUpdate	A feature for updating BIOS, firmware, driver, or software of the server. This feature is available when NEC ESMPRO Manager cooperates with EXPRESSSCOPE ENGINE 3 and ExpressUpdate Agent.		
ExpressUpdate Agent	Software for performing ExpressUpdate. This is installed to the server.		
Flash FDD	An optional USB device that can use as a floppy disk drive.		
Internal Flash Memory	A built-in flash memory that stored EXPRESSBUILDER as standard. You can start EXPRESSBUILDER from it without DVD when pressing <f3> key during POST.</f3>		
NEC ESMPRO	Standard software for the server management. This consists of several applications for managing or monitoring.		
NEC ESMPRO Agent Extension	Software for performing the scheduled operations. This works with NEC ESMPRC Manager.		
NEC ESMPRO Manager	Software for managing plural servers on network.		
NEC ESMPRO ServerAgentService	Software for monitoring the server. This works with NEC ESMPRO Manager. You can choose Service Mode or Non-Service Mode when installing this software. Service Mode resides as the OS service and Non-Service Mode does not use the OS service to reduce memory, CPU power, and other OS resources.		
OEM driver	A Windows driver for the mass storage device.		
OS standard installer	An installer that stored in Windows installation disc. Use this installer if you want to install the OS manually.		
Offline tools	Software that can confirm or change SEL, SDR, FRU, and other IPMI data. You can start Offline tools when pressing <f4> key during POST.</f4>		
PC for Management	A computer for managing the server on network. A general Windows/Linux computer can be used as "PC for Management".		
Product Info Collection Utility	Software for collecting several hardware/software statuses or event logs. You can easily collect the data for the server maintenance by using this software.		
RAID Configuration Utility	Software for configuring RAID arrays. You can run this software during POST.		
Server Configuration Utility	Software for setting BIOS or BMC. You can use as Windows application or run this software when pressing <f4> key during POST. This software is the same as BMC Configuration of former models.</f4>		
Starter Pack	Software package for the server. This software includes the customized drivers for Windows. This must be installed before using Windows on the server.		
TPM Kit	An optional product of Trusted Platform Module for the server.		
Universal RAID Utility	Software for setting RAID arrays on Windws/Linux. This software is operated on "PC for Management" with NEC ESMPRO Manager.		
Windows OS parameter file	A file that saved settings for installing Windows. You can install with the saved settings in this file when setting Windows with EXPRESSBUILDER.		

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NEC Express Server

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