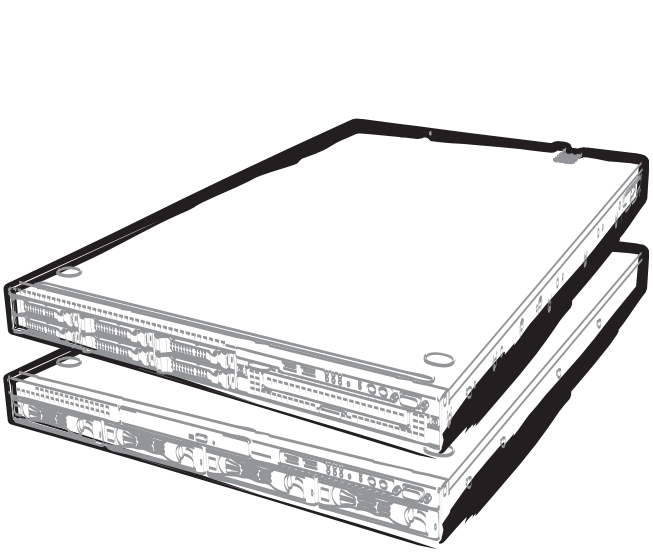
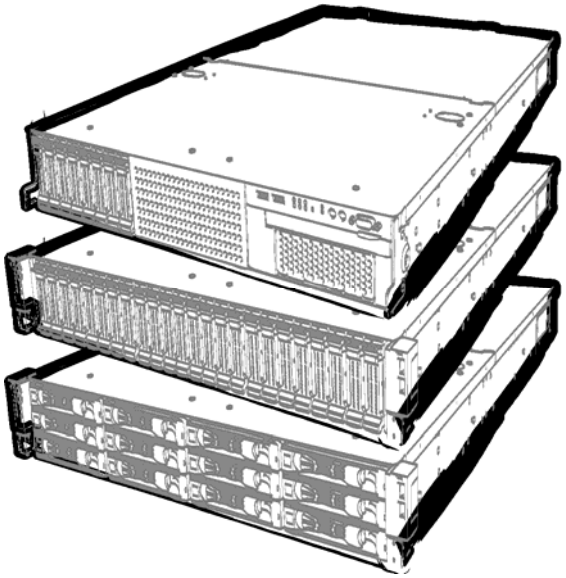
Express5800

NEC





NEC Express Server
Express5800 Series

Express5800/R120e-1E, R120e-2E EXP285A, EXP283A, EXP284A, EXP287A, EXP288A

Installation Guide (Windows)

Chapter 1 Installing Windows

Chapter 2 Installing Bundled Software

10.104.01-102.01
Dec. 2013, 1st Edition

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Documents for This Product

Documents for this product are provided as booklets (📖) or as electronic manuals (PDF) in the EXPRESSBUILDER disc (💿).

Precautions for Use	Describes points of caution to ensure the safe use of this server. **Read these cautions before using this server.**
Getting Started	Describes how to use this server, from unpacking to operations. See this guide at first and confirm an 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 peripheral devices, and proper 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	Installation of Windows and drivers, and important information for installation
Chapter 2: Installing Bundled Software	Installation of bundled software, such as NEC ESMPRO and Universal RAID Utility

Maintenance Guide

Chapter 1: Maintenance	Server maintenance and troubleshooting
Chapter 2: Useful Features	The details of system BIOS settings, RAID Configuration Utility, and EXPRESSBUILDER
Chapter 3: Appendix	Error messages and Windows Event Logs

Other documents

Provides the details of NEC ESMPRO, Universal RAID Utility, and the other features.

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Notations Used in This Document

Notations used in the text

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

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

Optical disk drive

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

- **DVD-ROM drive**
- **DVD Super MULTI drive**

Hard disk drive

Unless otherwise stated, *hard disk drive* (HDD) described in this document refers to the following.

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

Removable media

Unless otherwise stated, *removable media* described in this document refers 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 document	Official names of Windows
Windows Server 2012	Widnows Server 2012 Standard
	Widnows Server 2012 Datacenter
Windows Server 2008 R2	Windows Server 2008 R2 Standard
	Windows Server 2008 R2 Enterprise
Windows Server 2008 *	Windows Server 2008 Standard
	Windows Server 2008 Enterprise

* Includes 64-bit and 32-bit Editions unless otherwise stated.
The following appears on EXPRESSBUILDER.

- Windows Server 2008 64-bit Edition: Windows Server 2008 x64
- Windows Server 2008 32-bit Edition: Windows Server 2008 x86

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印刷线路板	×	○	○	○	○	○
HDD、DVD等	×	○	○	○	○	○
机箱、支架	○	○	○	○	○	○
电源	×	○	○	○	○	○
键盘	×	○	○	○	○	○
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http://www.nec.com/

NEC Express5800 Series
Express5800/R120e-1E, R120e-2E

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 with EXPRESSBUILDER.

2. **Setting Up the Operating System**
   Describes the flow chart of setting up the operating system.

3. **Setting Up Windows Server 2012**
   Describes how to set up Windows Server 2012.

4. **Setting Up Windows Server 2008 R2**
   Describes how to set up Windows Server 2008 R2.

5. **Setting Up Windows Server 2008**
   Describes how to set up Windows Server 2008.

6. **Setting Up for Solving Problems**
   Describes the features that must be set up in advance so that the server can recover from any trouble immediately and precisely.

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 the attached EXPRESSBUILDER to reconfigure the RAID system or re-install the OS.

Start EXPRESSBUILDER by either of the following two ways according to the media in which the EXPRESSBUILDER is stored. See *Chapter 2* (*5. Details of EXPRESSBUILDER*) in *Maintenance Guide* for more information.

EXPRESSBUILDER DVD

Insert the DVD to the optical disk drive of the server, and then restart the server by pressing <Ctrl> + <Alt> + <Delete> keys.

Internal Flash Memory (optional)

Remove a bootable disc from the optical disk drive of the server, and then press <F3> key when the following message appears on POST screen.

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

1.2 Supported Windows OS

EXPRESSBUILDER supports the following editions of Windows operating systems:

EB : Setup with EXPRESSBUILDER

OS : Setup with Windows Standard Installer

Name of Windows OS		Supported	
		EB	OS
Windows Server 2012	Windows Server 2012 Standard	✓	✓
	Windows Server 2012 Datacenter	✓	✓
Windows Server 2008 R2	Windows Server 2008 R2 Standard	✓	✓
	Windows Server 2008 R2 Enterprise	✓	✓
Windows Server 2008	Windows Server 2008 Standard	✓	✓
	Windows Server 2008 Enterprise	✓	✓

✓ : Supported – : Not Supported

1.3 Supported Service Pack

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

OS installation media	Service Pack	Supported
Windows Server 2012	NO Service Pack	✓
Windows Server 2008 R2	Service Pack 1 Included	✓
	NO Service Pack + Service Pack 1	✓
	NO Service Pack	✓
Windows Server 2008	Service Pack 2 Included	✓
	NO Service Pack + Service Pack 2	✓
	NO Service Pack	✓

✓ : Supported – : Not supported

Note You can install the Service Pack on the server. When the Service Pack is not attached to your system, prepare it by yourself.

1.4 Mass Storage Controllers Supported by EXPRESSBUILDER

The table below lists the controllers for this server, supported by the attached 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 (1.5 Using a Mass Storage Controller Not Supported by EXPRESSBUILDER*).

	Windows Server 2012	Windows Server 2008 R2	Windows Server 2008
RAID Controllers supporting OS installation by EXPRESSBUILDER			
Onboard RAID Controller (LSI Embedded MegaRAID)	✓	✓	✓
N8103-172 RAID Controller (512MB, RAID 0/1)	✓	✓	✓
N8103-173 RAID Controller (512MB, RAID 0/1/5/6)	✓	✓	✓
N8103-174 RAID Controller (1GB, RAID 0/1/5/6)	✓	✓	✓
N8103-168 RAID Controller (1GB, RAID 0/1/5/6)	✓	✓	✓
Other options			
N8103-142 SAS Controller	✓	✓	✓
N8103-161 RAID Controller (1GB, RAID 0/1/5/6)	✓	✓	✓
N8190-153 Fibre Channel Controller (1ch) (8Gbps/Optical)	✓	✓	✓
N8190-154 Fibre Channel Controller (2ch) (8Gbps/Optical)	✓	✓	✓

✓: Supported by EXPRESSBUILDER

1.5 Using a 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.

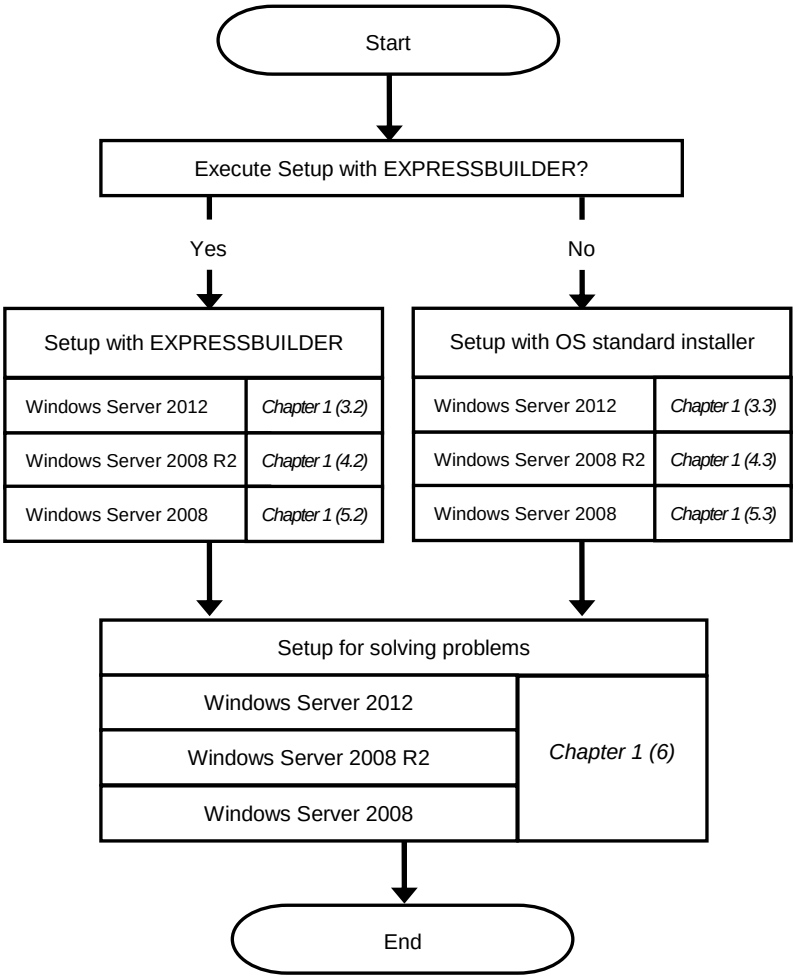
Note If the contents of this document differ from that of the mass storage controller, prioritize the contents of the controller's document.

2. If you use a RAID controller, follow the controller instructions to configure a RAID array.

3. See *Setup with Windows Standard Installer* of each Windows family in this guide.

2. Setting Up the Operating System

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



3. Setting Up Windows Server 2012

Set up Windows Server 2012.

3.1 Before Starting Setup

Read through the cautions explained here before starting setup.

EB : Confirm during Setup with EXPRESSBUILDER

OS : Confirm during Setup with Windows standard installer

Hardware configuration	
The following hardware configurations require special procedures.	
EB 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.
EB 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.
EB OS	**DAT, LTO, and similar media** Do not set media that is unnecessary to installation during setup.
EB OS	**Connecting to multiple hard disk drives (logical drives)** For details on installing operating systems to a system in which multiple logical drives exist, refer to *Chapter 1* (*3.8 Installation When Multiple Logical Drives Exist*).
EB OS	**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 OS

Setup when mass memory is installed

If mass memory is installed in your system, the large size of paging file is required at installation. Thus, the partition size for storing debug information (dump file) may not be secured.

If you fail to secure the dump file size, 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** → The paging file in drive D can be used for collecting memory dump because its size satisfies the requirement.

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

– **Specify a drive other than the system drive for "Dedicated Dump File".**

Create the registry shown below by using the Registry Editor and specify the name of Dedicated Dump File.

<When 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.
- 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

EB 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

Server with a GUI

Size required to install the OS	= 9,400MB
Paging file size (recommended)	= installed memory size × 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 × 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) and Server with a GUI is selected, the partition size is calculated as follows:

9,400MB + (1,024MB × 1.5) + 1,024MB+ 400MB+ application size

= 12,360MB + application size

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

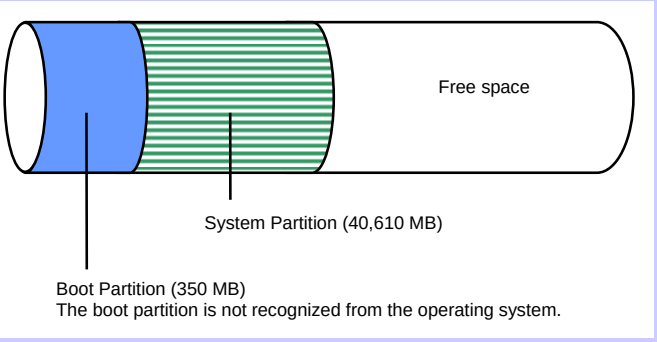
Note

- 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 new partition, Windows OS assigns an initial boot partition of 350 MB.
For example, when making a partition of 40,960 MB (40 GB), usable space will be 40,960 MB – 350 MB = 40,610 MB.



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

EB OS

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**
- **Initialization of trusted platform module (TPM)**
- **Change of BIOS setting**

- 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

EB 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 *3.9 Setup of Windows Server 2012 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**

  Backing up user data, as needed, 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.**

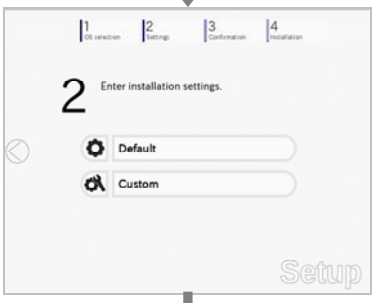
Note

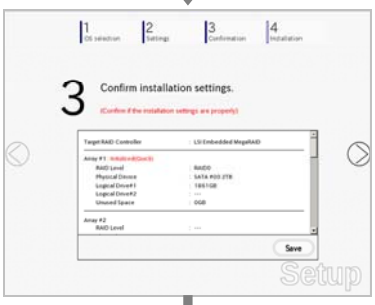
- The Scalable Networking Pack (SNP) function is disabled on systems that have been installed by using EXPRESSBUILDER.
  The setting of SNP function may affect the system performance.
  Contact your sales representative for details.
- When using an onboard RAID controller (LSI Embedded MegaRAID):
  Do not support the creation of RAID10 by using the onboard RAID controller. Refer to *Chapter 2 (4. RAID System Configuration)* in "*Maintenance Guide*" when creating RAID10.

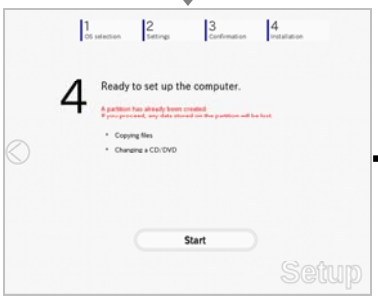
Tips

- 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 (if purchased optionally).
- For details on creating a parameter file, refer to *Chapter 1 (7. Windows OS Parameter File).*

3.2.1 Setup flow







Configure the RAID system

Set EXPRESSBUILDER in the optical disk drive

Copy the selected applications and setup modules

Insert the OS installation media into the optical disk drive

The OS is installed automatically

The Starter Pack and the selected applications are installed

Agree the license terms and sign in

Installation completes

	Process that requires input or selection
	Process that proceeds automatically

3.2.2 Requirements for Setup

Prepare the following media and instruction manuals before starting setup.

- Either of the following OS installation media
  - **NEC operating system installation media** (hereafter referred to as *Backup DVD-ROM*)
  - **Microsoft operating system installation media** (hereafter referred to as *Windows Server 2012 DVD-ROM*)

- Either of the following EXPRESSBUILDER
  - **EXPRESSBUILDER DVD**
  - **Internal Flash Memory** (optional)

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

Tips

- EXPRESSBUILDER may be distributed in Internal Flash Memory. EXPRESSBUILDER can be run from Internal Flash Memory if it is installed in the server.
- If you are using a server with Internal Flash Memory installed, you can install the OS without using EXPRESSBUILDER DVD.

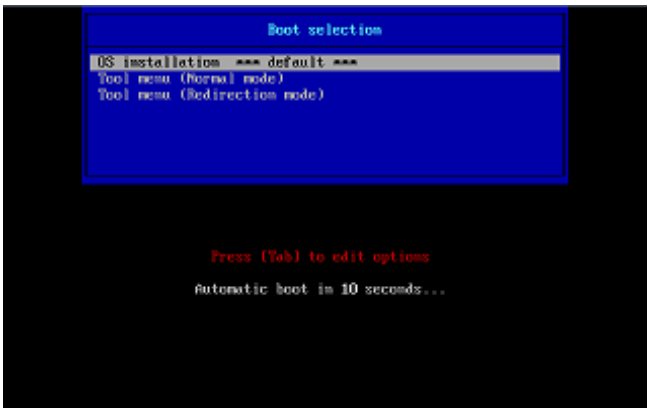
3.2.3 Setup procedure

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.

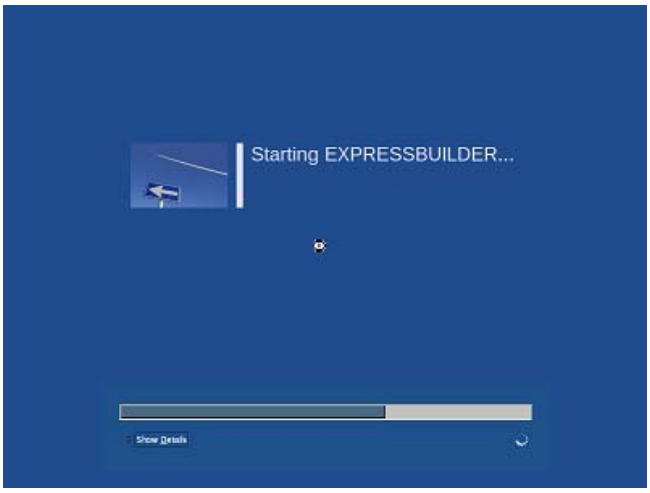
Note

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)*.
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.

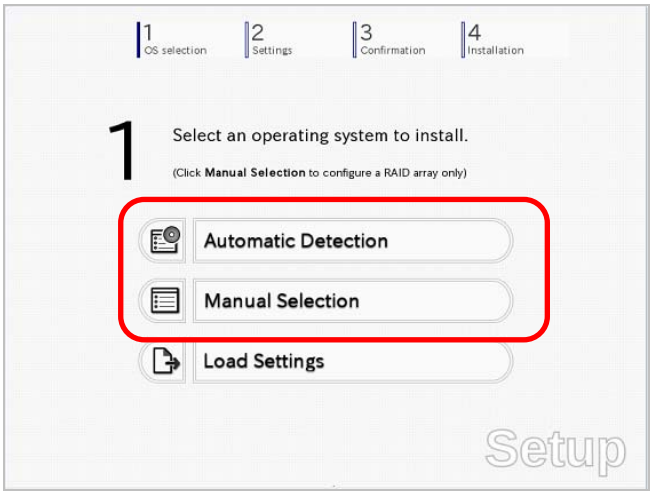
4. Select **English** on the language selection window, and then click **OK**.

5. Click **Setup**.

6. On the **OS selection** menu, select the OS to install or specify the parameter file.
   ☐ When not using parameter file : Go to Step 7.
   ☐ When using a parameter file : Go to Step 8.

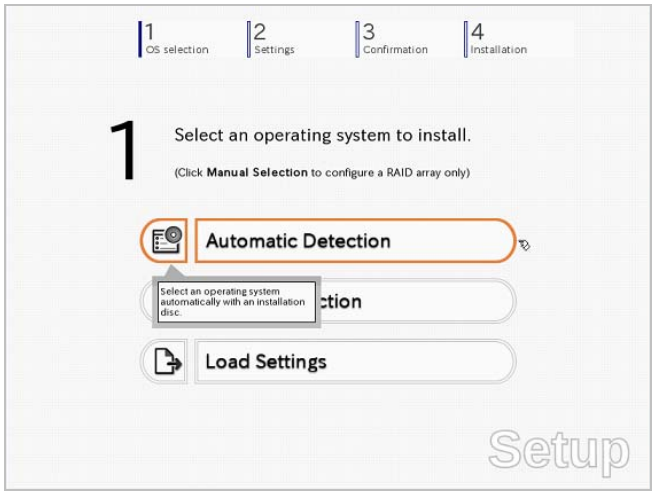
Note When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.

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

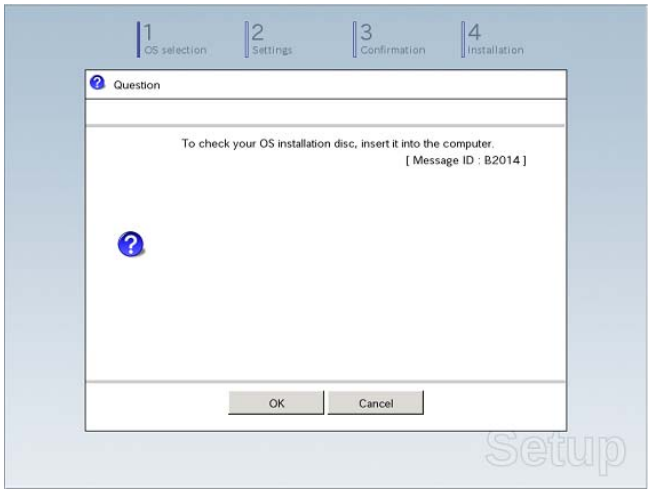


To automatically detect the OS on the OS installation media:

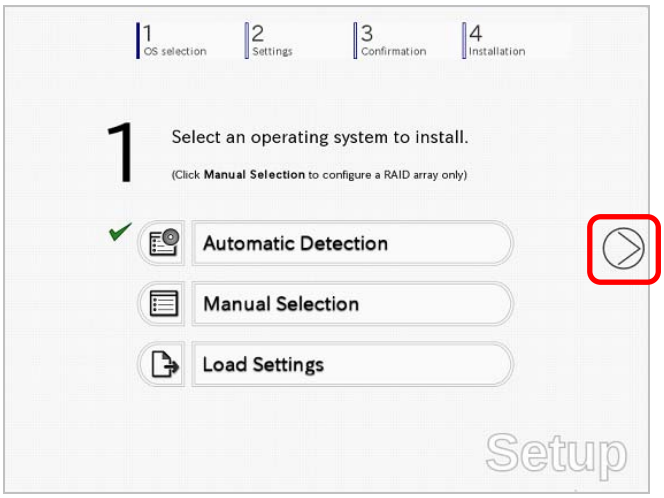
(1) Click **Automatic Detection**.



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

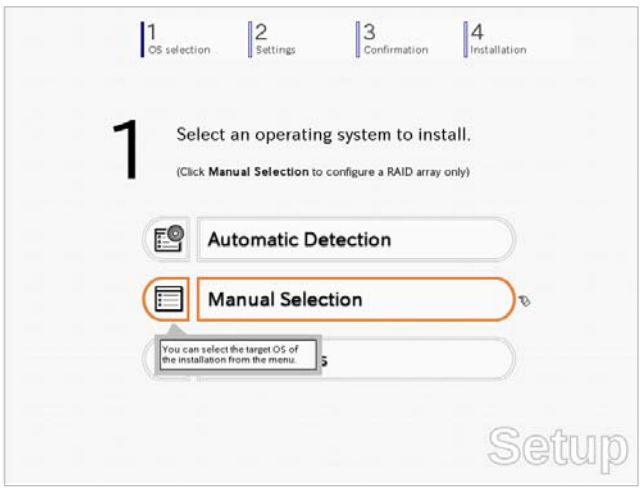


(2) Click ▷ on the right side of the screen.
→ Go to step 9.

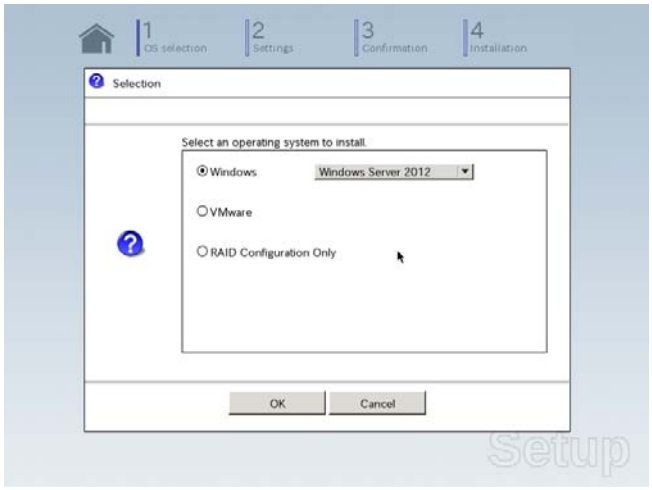


To select an OS from the menu:

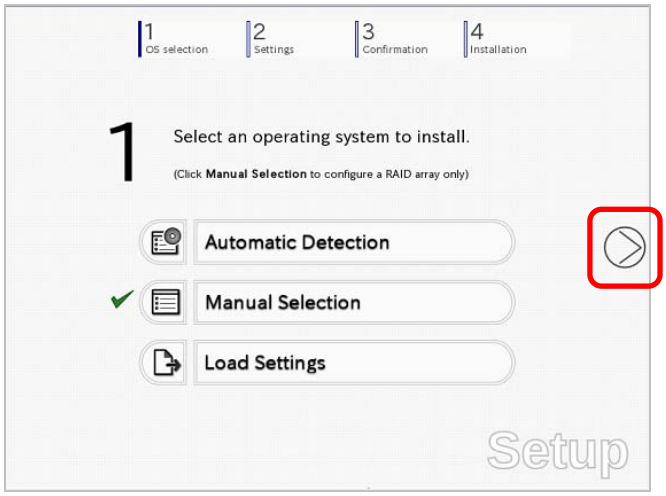
(1) Click **Manual Selection**.



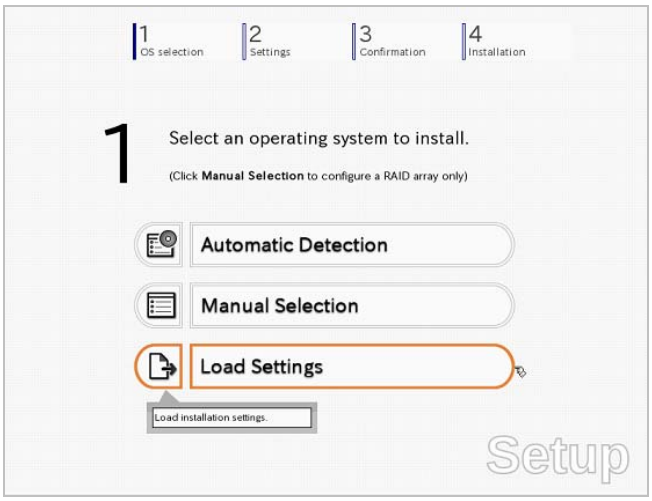
(2) From the **Windows** list, select **Windows Server 2012**, and then click **OK**.



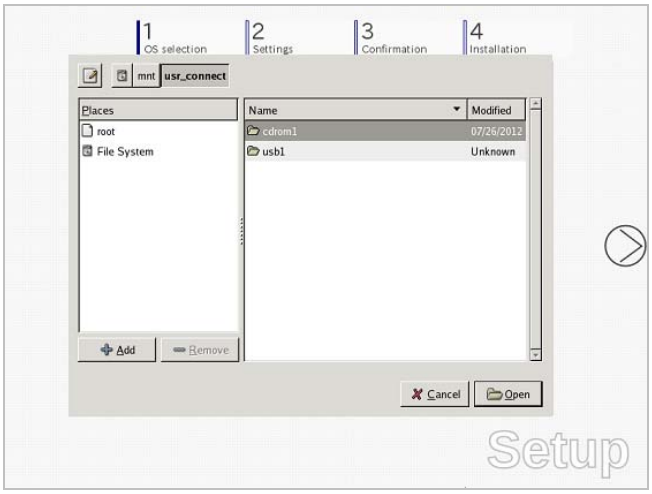
(3) Click ▷ on the right side of the screen.
→ Go to step 9.



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



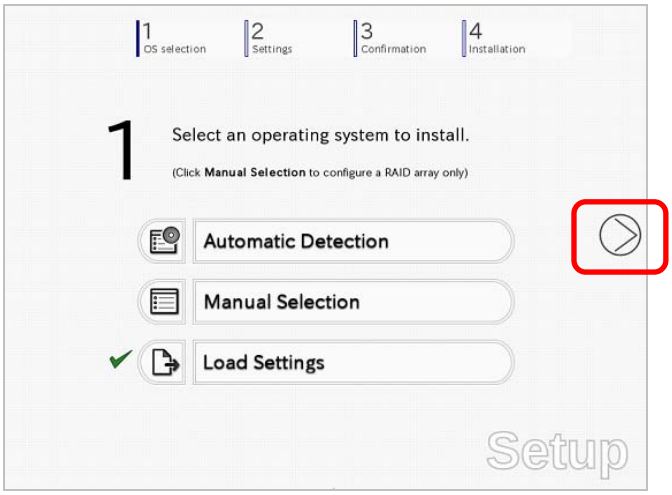
Follow the on-screen instruction to load the parameter file (*.tre).



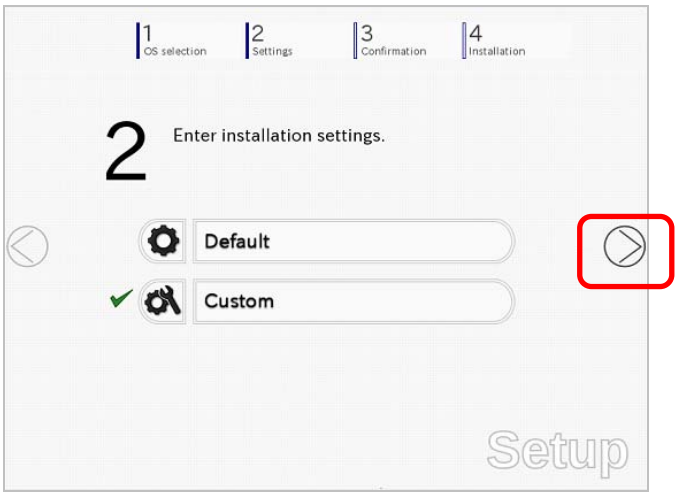
Tips

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

Click ▷ on the right side of the screen.



On the following screen, click ▷ on the right side of the screen.
Click **Custom** to check and modify the setting in the wizard.

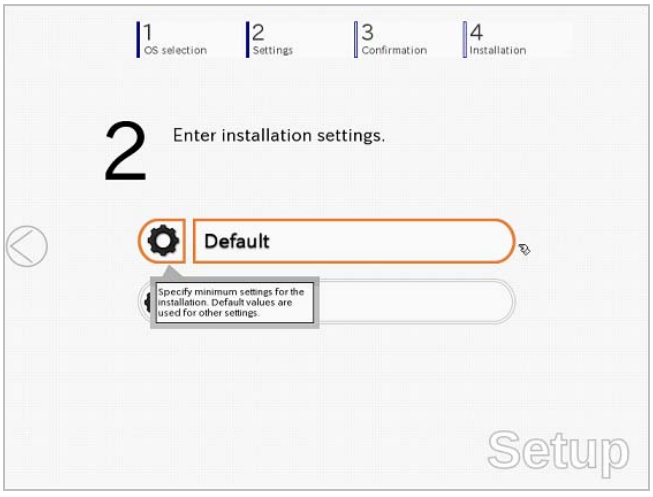


→ Go to step 10.

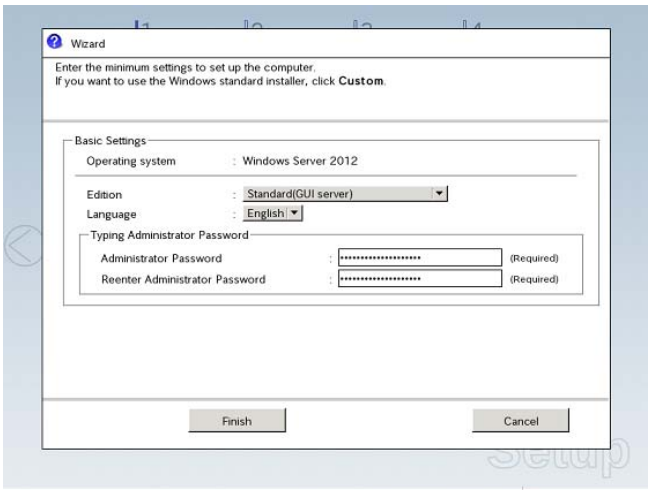
9. Specify the setup parameters by using either of the following methods:

Use **Default**:

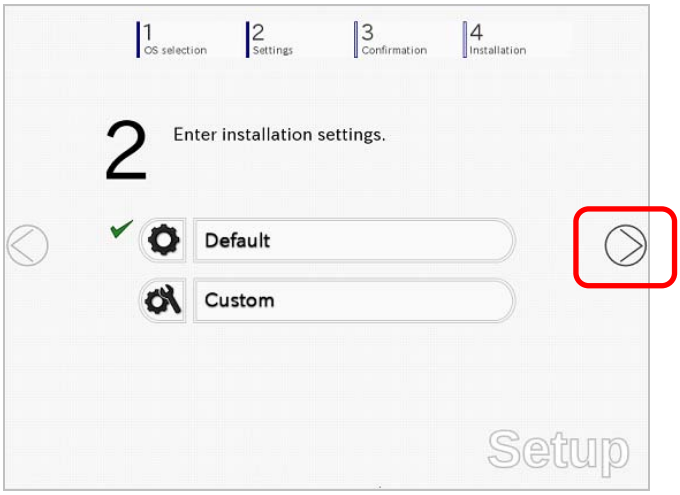
(1) Click **Default**.



(2) Select the edition of the OS to install from the **Edition** list.
Type the password, and then click **Finish**.



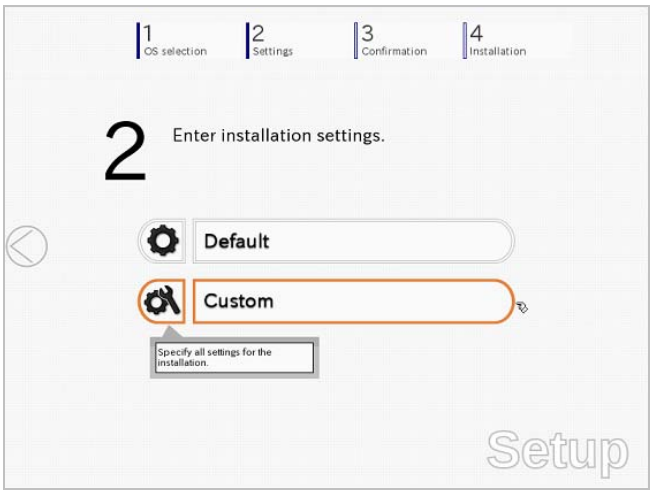
(3) Click ⊳ on the right side of the screen.



→ Go to step 10.

Use **Custom**:

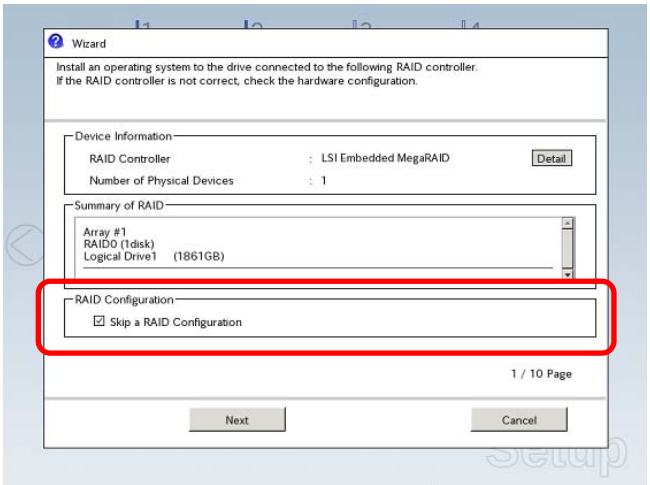
(1) Click **Custom**.



(2) Use this menu to configure the RAID system with the RAID controller detected automatically.

Note

When using an onboard RAID controller (LSI Embedded MegaRAID):
This function does not support the creation of RAID10 by using the onboard RAID controller. Refer to *Chapter 2 (4. RAID System Configuration)* in "*Maintenance Guide*" when creating RAID10.



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

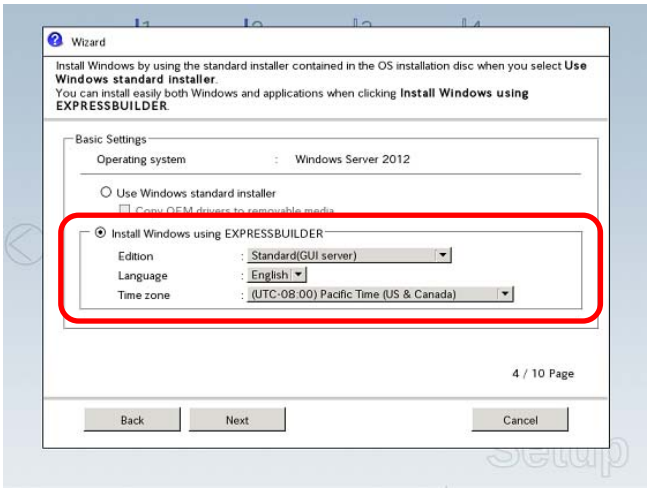
If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

When skipping the creation of new logical drives

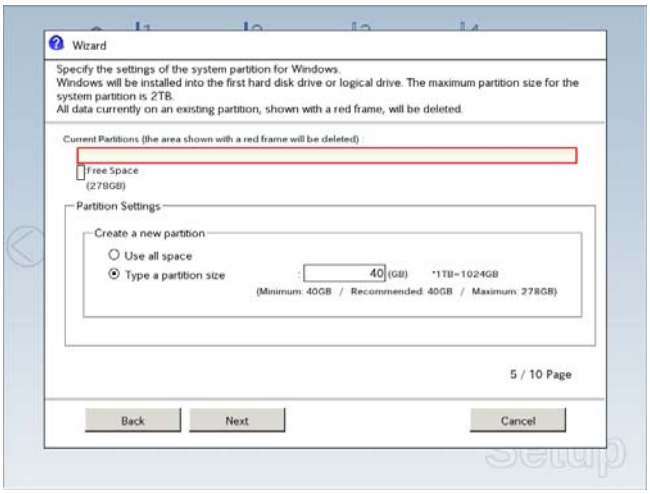
Select the **Skip a RAID Configuration** check box, and then click **Next**.

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

Choose **Install Windows using EXPRESSBUILDER**, modify the Edition, Language and Time zone settings as needed, and then click **Next**.



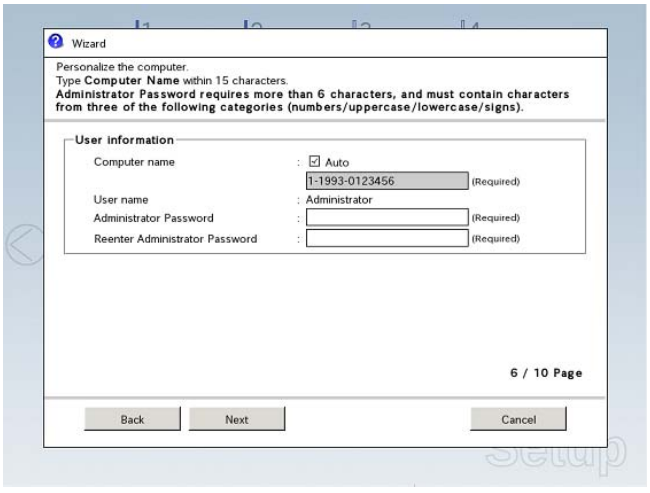
(4) Check the settings specified for **Partition Settings**.
Modify the settings as needed, and then click **Next**.



Important

- **Backing up user data, as needed, is recommended.**
- **Partition size**
  - **Specify a partition size larger than the minimum required for installing the operating system. (Refer to *Chapter 1 (3.1 Before Starting Setup)*.)**
  - **The maximum partition size is 2,097,152 MB.**
- **If you select "Create a new partition" under "Partition Settings", the entire contents of the hard disk drive will be deleted.**

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



Note

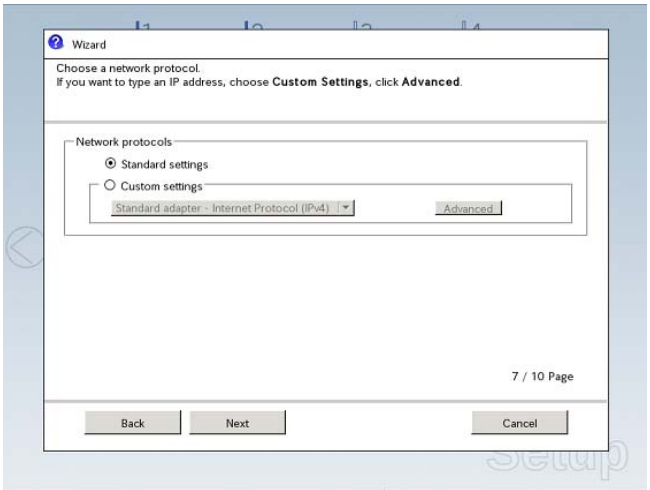
Computer name and Administrator Password are required parameters.
Enter Administrator Password that satisfies the following conditions:

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

(6) Check the settings specified for **Network Protocols**.
Modify the settings as needed, and then click **Next**.



Tips

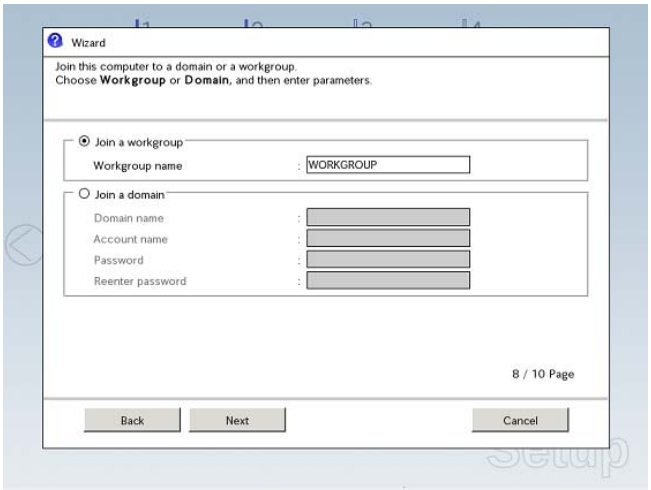
The order of entry in **Custom settings** may differ from the numbering of LAN ports.

Note

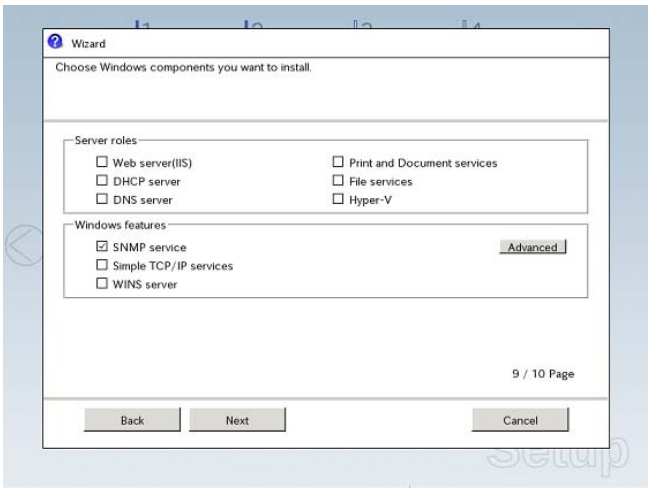
Even when an optional network board is connected, **Custom settings** only shows standard network boards.

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

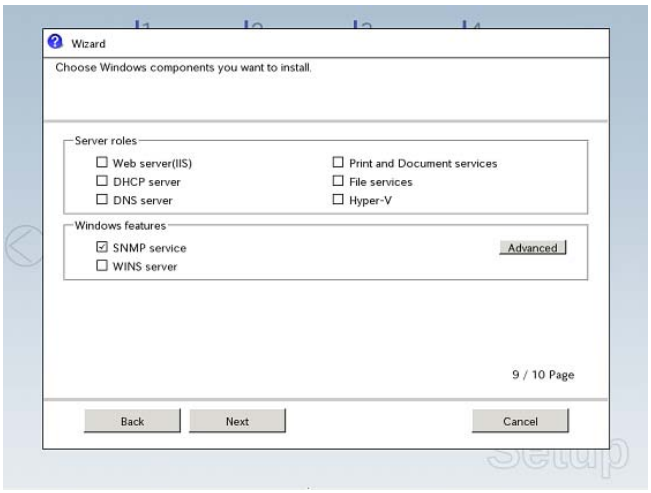
(7) Specify the domain or workgroup.
Check the settings, modify them as needed, and then click **Next**.



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

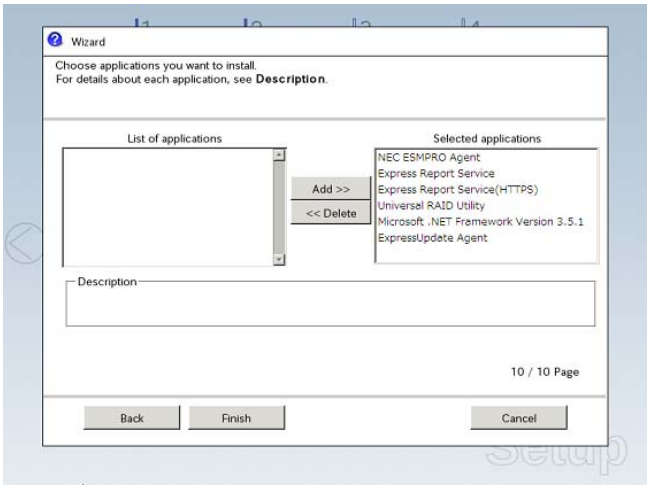


Server with a GUI

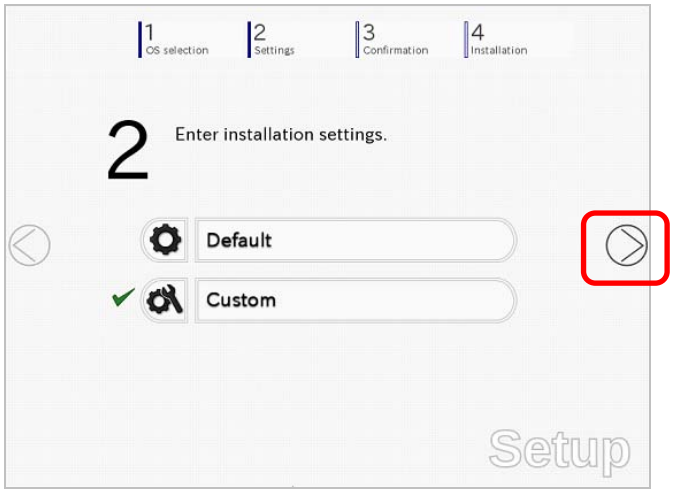


Server Core Installations

(9) Check the settings of applications.
Modify the settings as needed, and then click **Finish**.

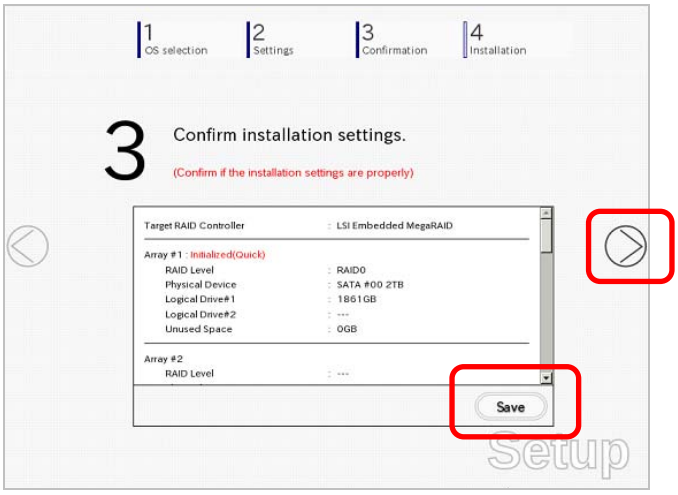


On the following screen, click ▷ on the right side of the screen.



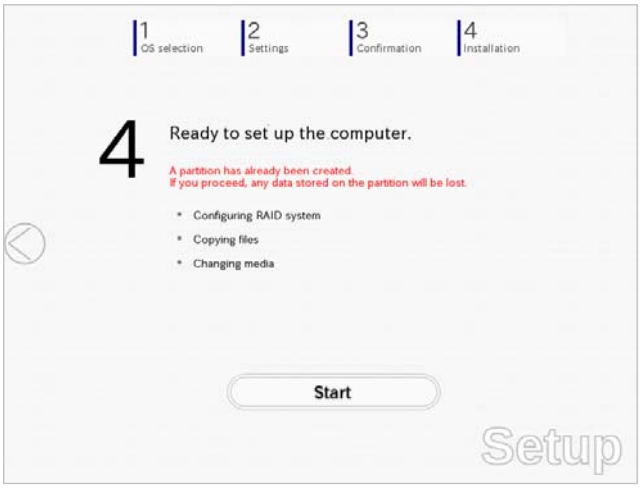
10. Check the parameter settings.

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



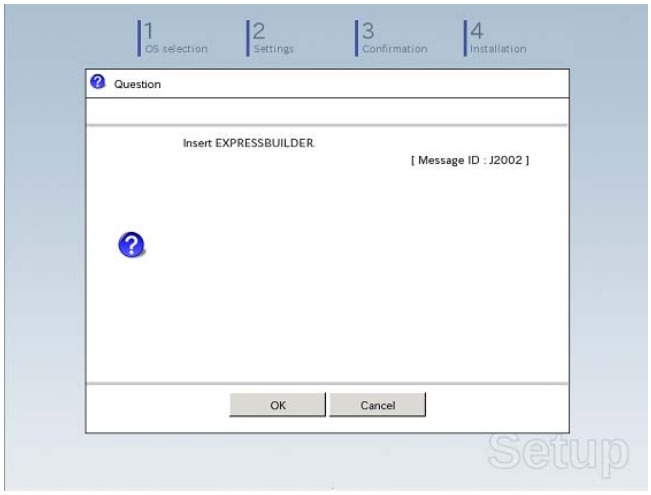
Click ▷ on the right side of the screen.

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

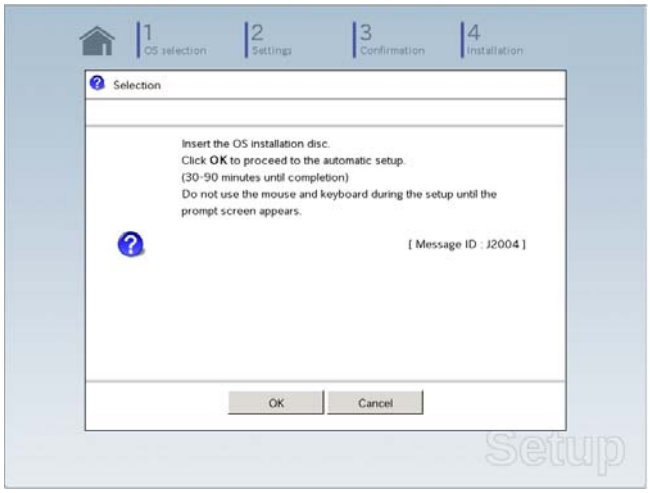


If you need to suspend setup due to reasons such as backing up data, restart the setup process from the beginning.

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

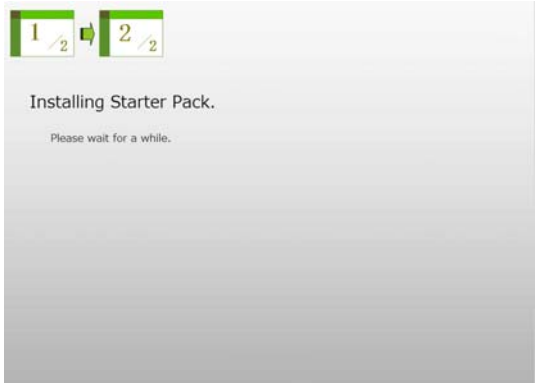


13. Insert the OS installation media into the optical disk drive, and then click **OK**.

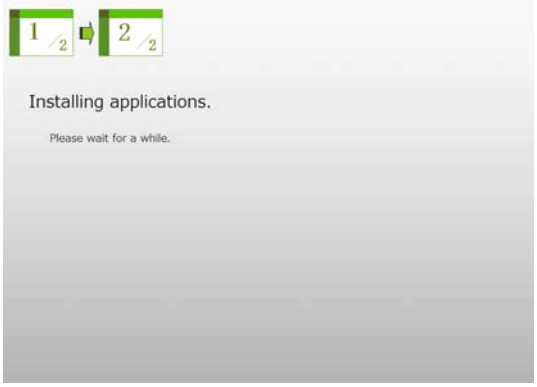


Windows Server 2012 is installed automatically.

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

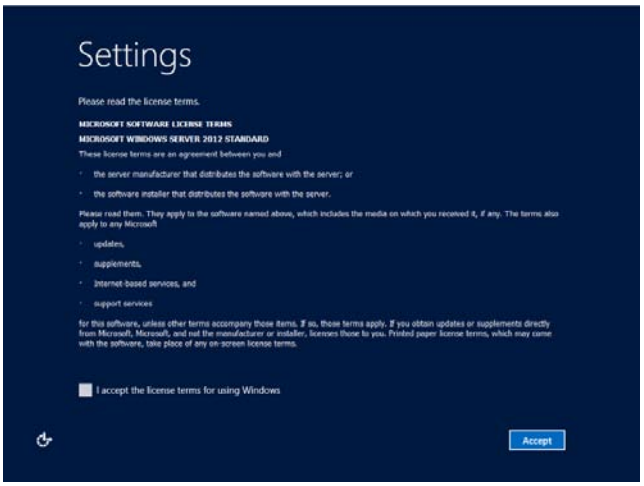


Screen displayed when Starter Pack is being installed

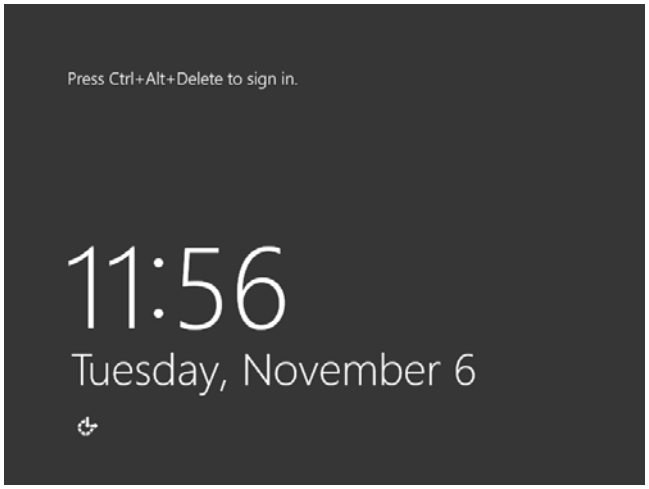


Screen displayed when an application is being installed

15. 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).

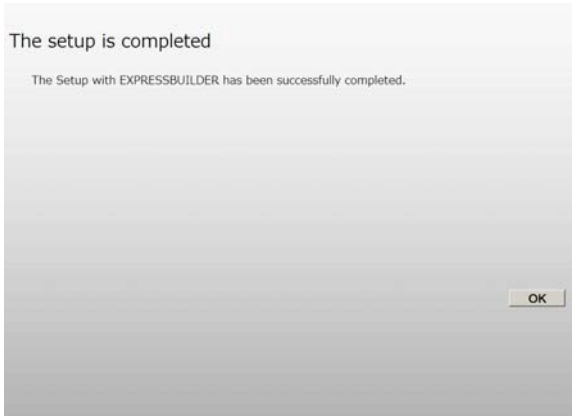


16. Press the CTRL+ALT+DEL keys to sign in.



On the following screen, type the password you have set.

17. Click **OK**.



18. Follow the instructions described in *Chapter 1 (3.5 Setting Up Device Drivers)* to set up the device drivers.
19. For optional devices whose driver has not been installed, install the device drivers according to the instructions supplied in the driver manual.
20. Execute setup by following the instructions described in *Chapter 1 (6. Setup for Solving Problems)*.

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

Backing up user data, as needed, is recommended.

Note

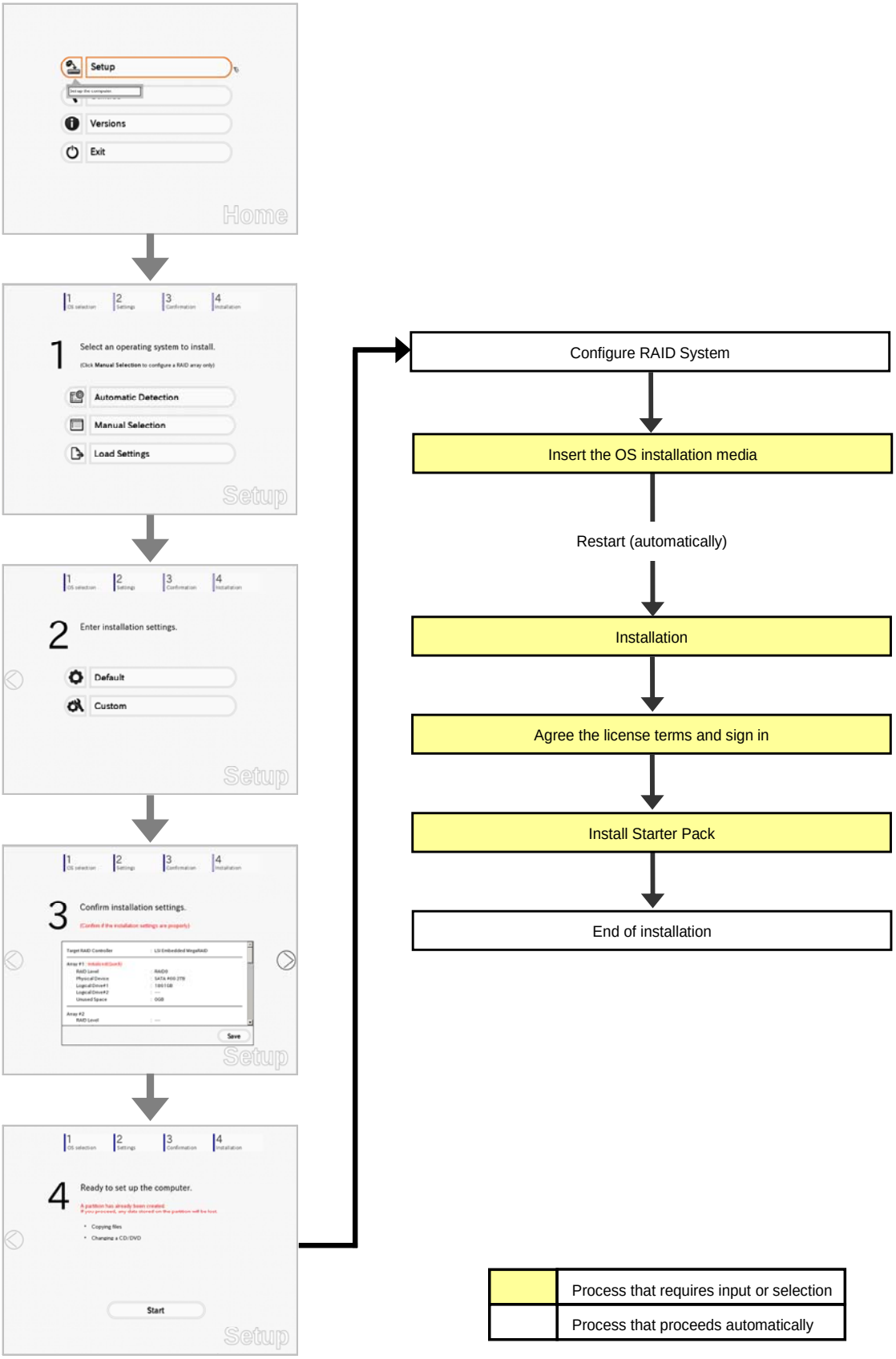
When using an onboard RAID controller (LSI Embedded MegaRAID):

Do not support the creation of RAID10 by using the onboard RAID controller. Refer to *Chapter 2* (*4. RAID System Configuration*) in "Maintenance Guide" when creating RAID10.

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 (if purchased optionally).
- 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 DVD-ROM*)

- Either of the following EXPRESSBUILDER
  - **EXPRESSBUILDER DVD**
  - **Internal Flash Memory** (optional)

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

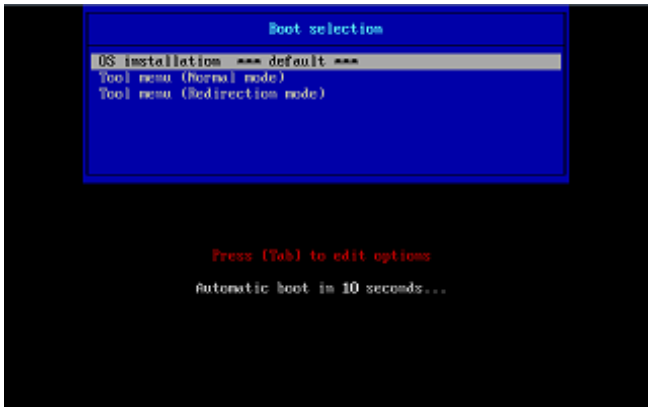
Tips

- EXPRESSBUILDER may be distributed in Internal Flash Memory. EXPRESSBUILDER can be run from Internal Flash Memory if it is installed in the server.
- If you are using a server with Internal Flash Memory installed, you can install the OS without using the EXPRESSBUILDER DVD.

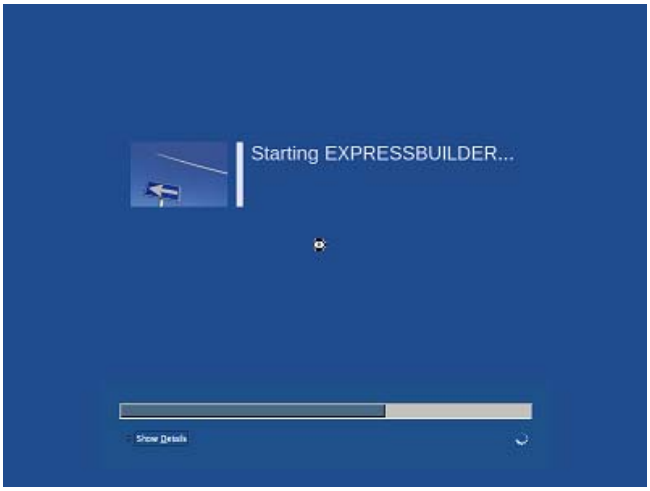
3.3.3 Setup procedure

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)*.
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.

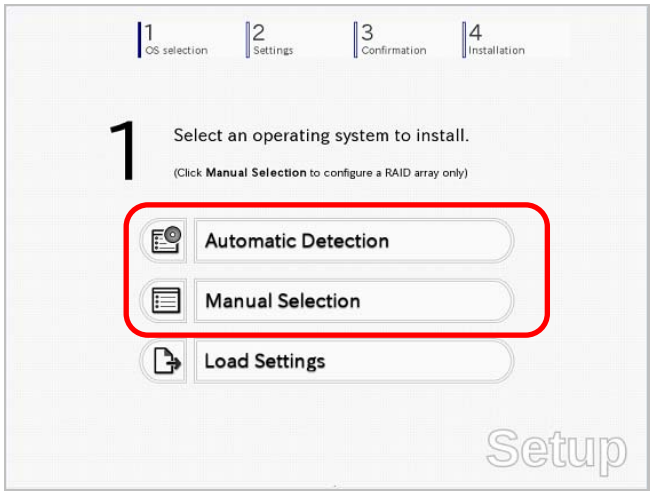
4. Select **English** on the language selection window, and then click **OK**.

5. Click **Setup**.

6. On the **OS selection** menu, select the OS to install or specify the parameter file.
   - ☐ When not using parameter file : Go to Step 7.
   - ☐ When using a parameter file : Go to Step 8.

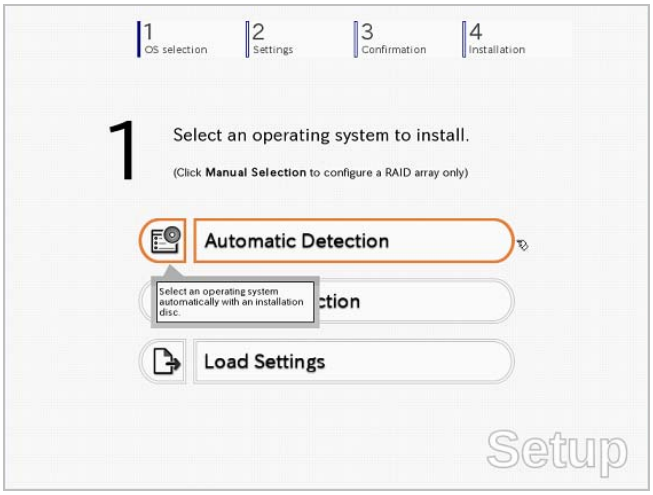
Note When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.

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

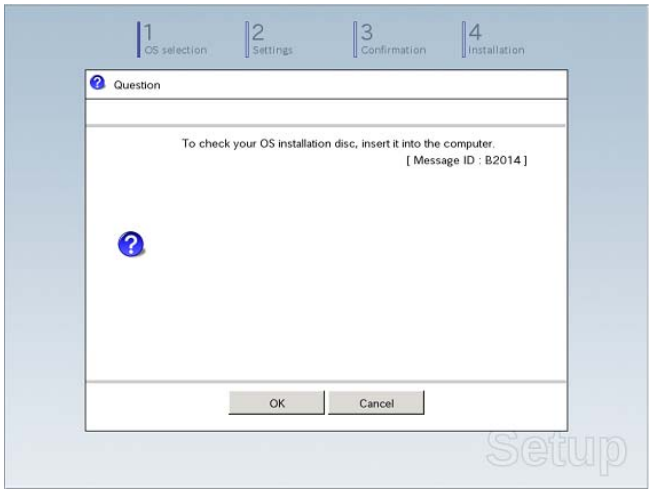


To automatically detect the OS on the OS installation media:

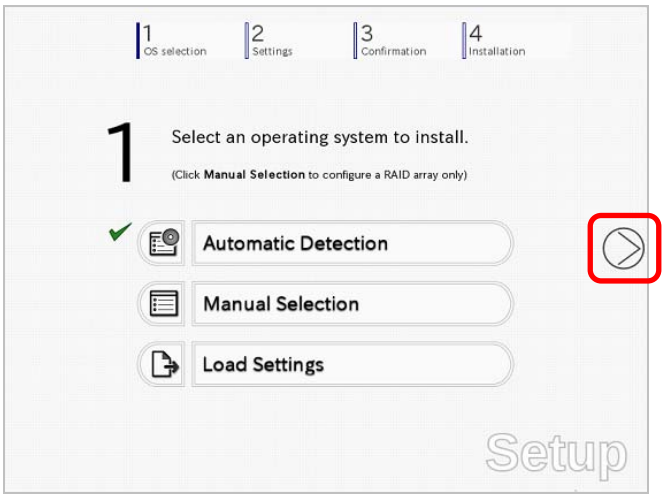
(1) Click **Automatic Detection**.



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

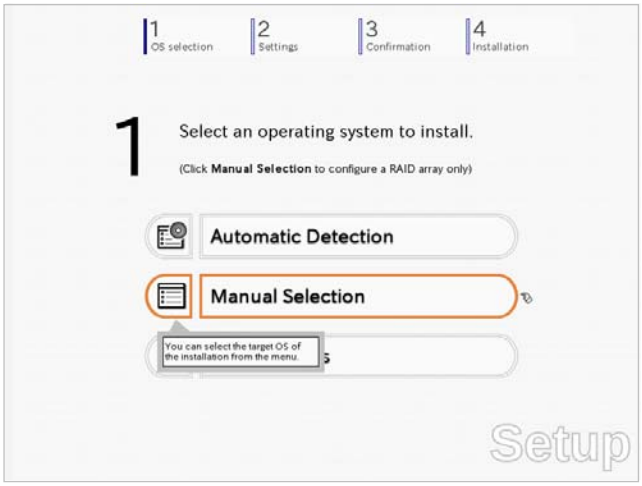


(2) Click ▷ on the right side of the screen.
→ Go to step 9.

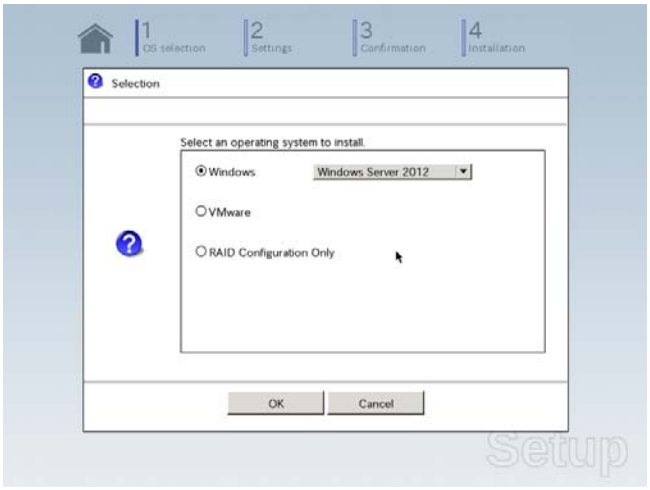


To select an OS from the menu:

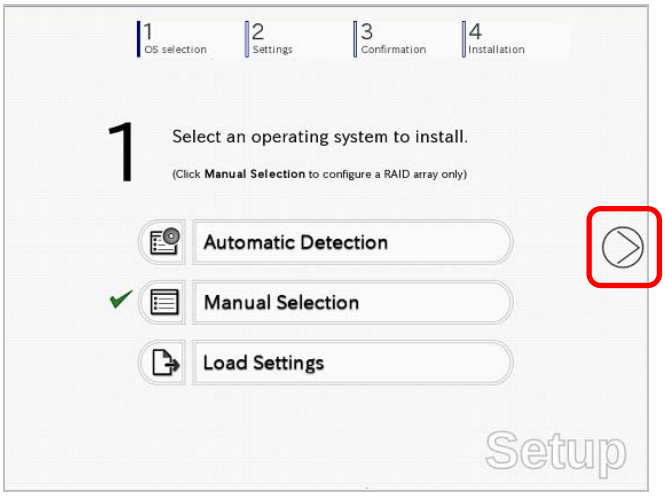
(1) Click **Manual Selection**.



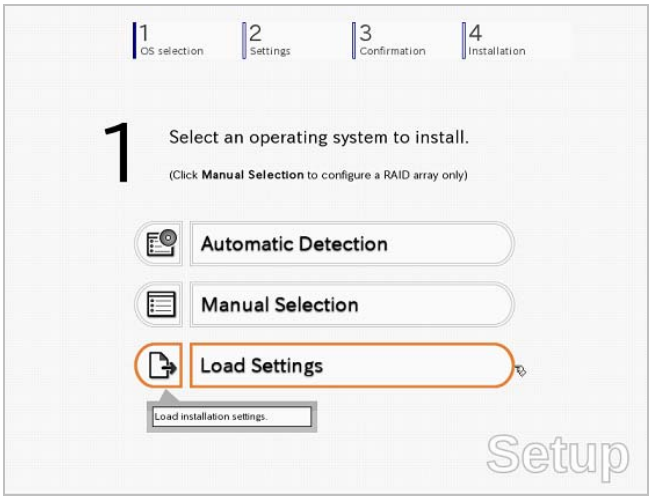
(2) From the **Windows** list, select **Windows Server 2012**, and then click **OK**.



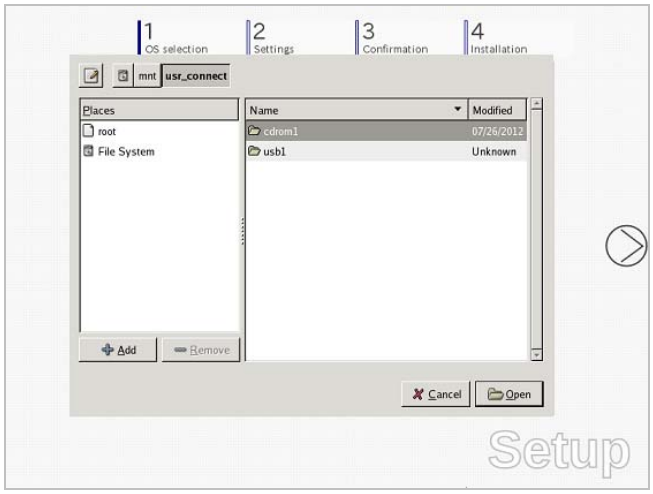
(3) Click ▷ on the right side of the screen.
→ Go to step 9.



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



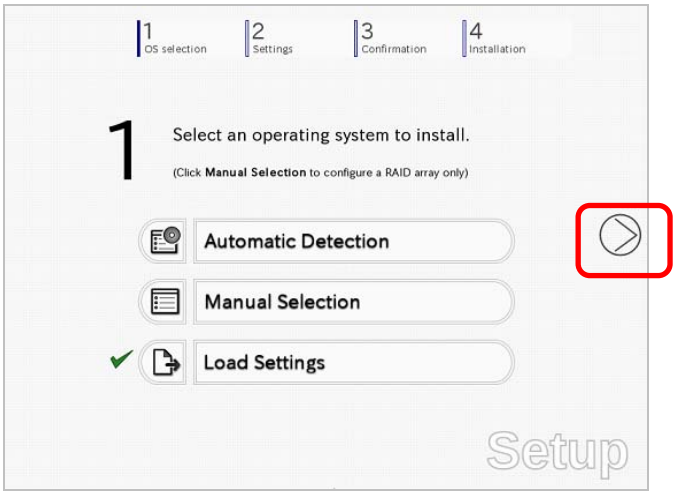
Follow the on-screen instruction to load the parameter file (*.tre).



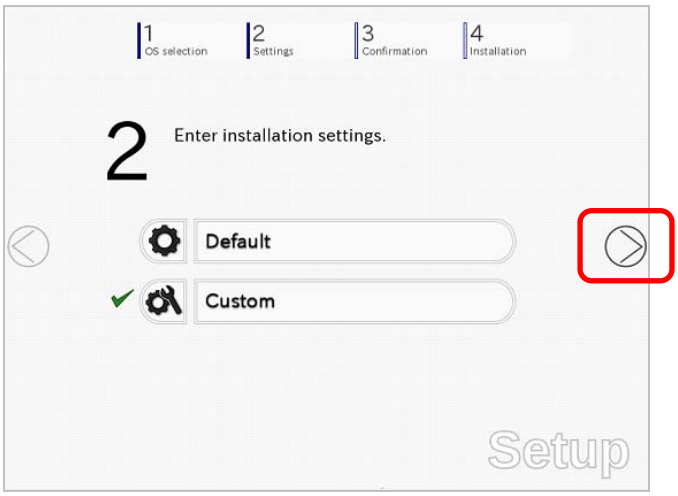
Tips

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

Click ⊘ on the right side of the screen.

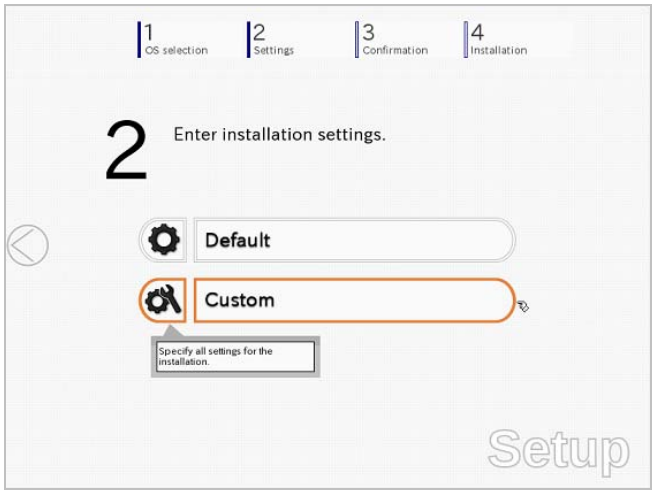


On the following screen, click ▷ on the right side of the screen.
Click **Custom** to check and modify the setting in the wizard.



→ Go to step 10.

9. Click **Custom**.



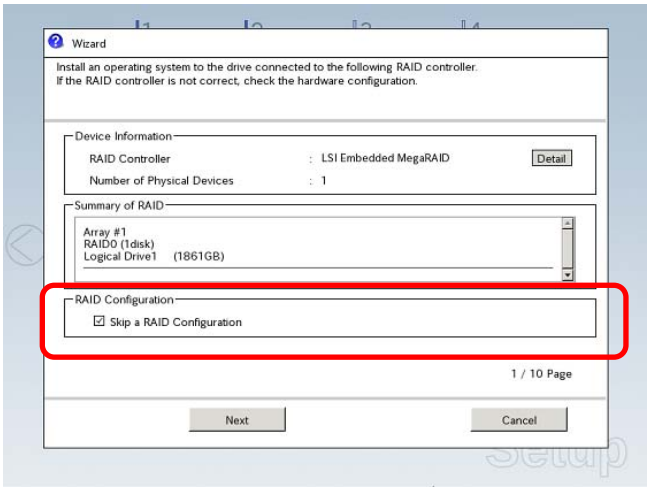
Note

If you click **Default**, setup with EXPRESSBUILDER is selected.
Click **Custom** to setup OS with Windows standard installer.

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

Note

When using an onboard RAID controller (LSI Embedded MegaRAID):
This function does not support the creation of RAID10 by using the onboard RAID controller. Refer to *Chapter 2 (4. RAID System Configuration)* in "*Maintenance Guide*" when creating RAID10.



When creating new logical drives

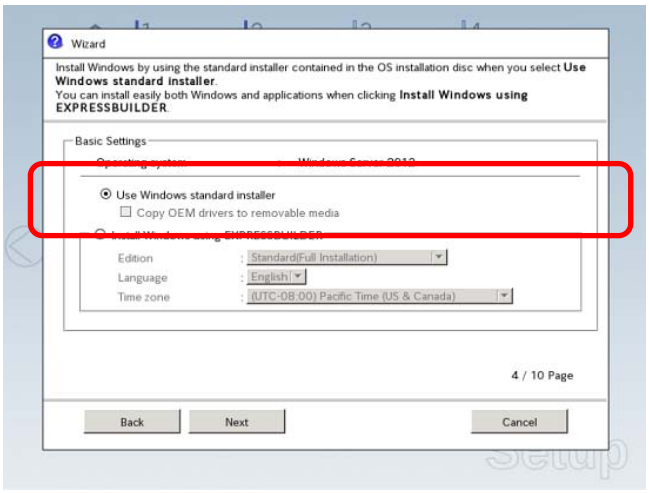
With the **Skip a RAID Configuration** check box cleared, click **Next**. Set up the logical drives according to the wizard.

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

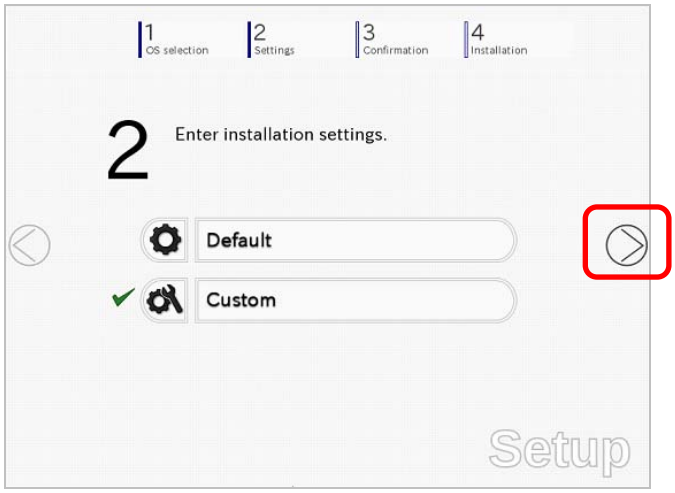
When skipping the creation of new logical drives

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

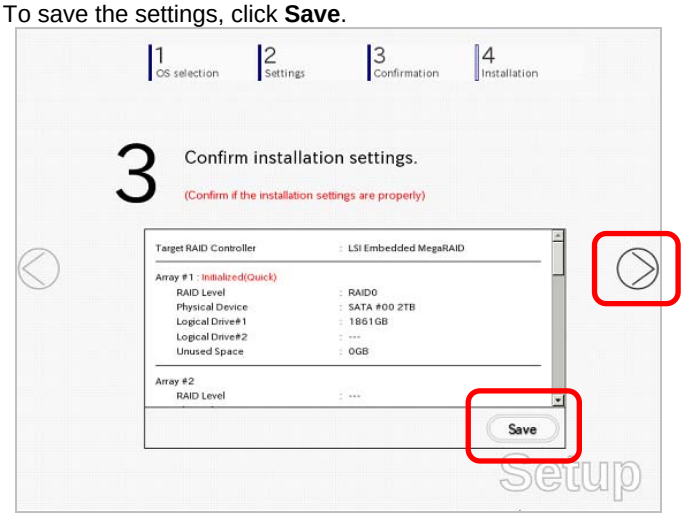
(2) Check the settings specified for **Basic Settings**.
Choose **Use Windows standard installer**, modify the settings as needed, and then click **Next**.



On the following screen, click ▷ on the right side of the screen.

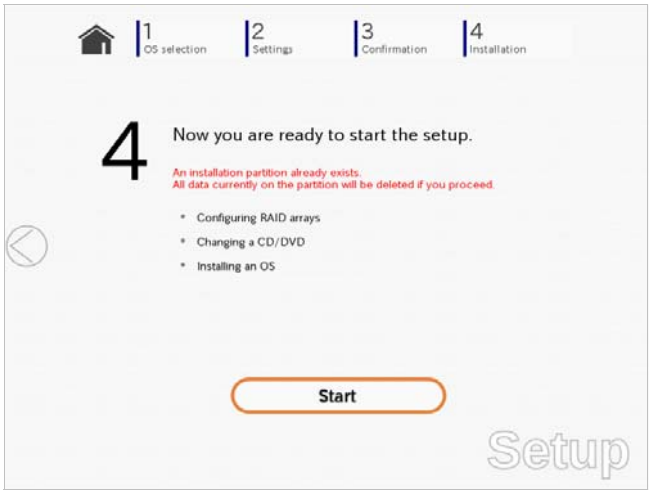


10. Check the parameter settings.
    To save the settings, click **Save**.



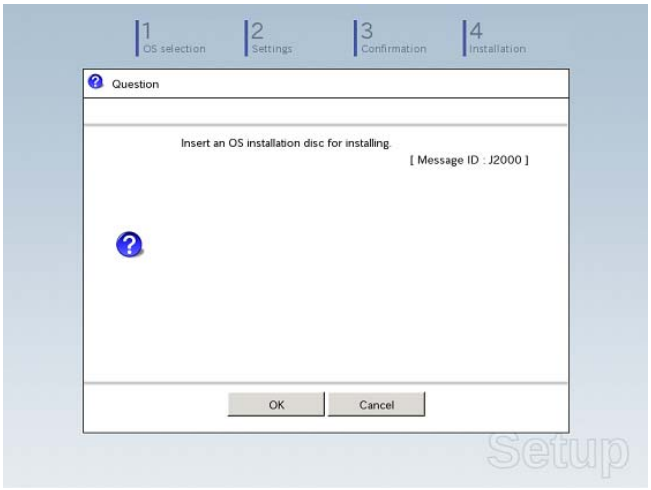
    Click ▷ on the right side of the screen.

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



If you need to suspend setup due to reasons such as backing up data, restart the setup process from the beginning.

12. When the following screen appears, insert the OS installation media into the disk drive, and then click **OK**.



13. The server reboots automatically.

14. Run from the OS installation media.
If a bootable operating system is already installed on the hard disk drive, press <Enter> key while the message “Press any key to boot from CD or DVD…” is displayed on the top of the screen.

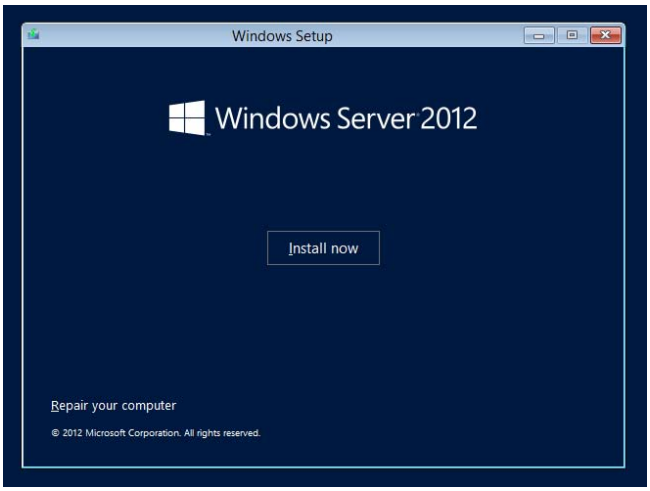
The boot sequence proceeds and the message “Windows is loading files…” appears.

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

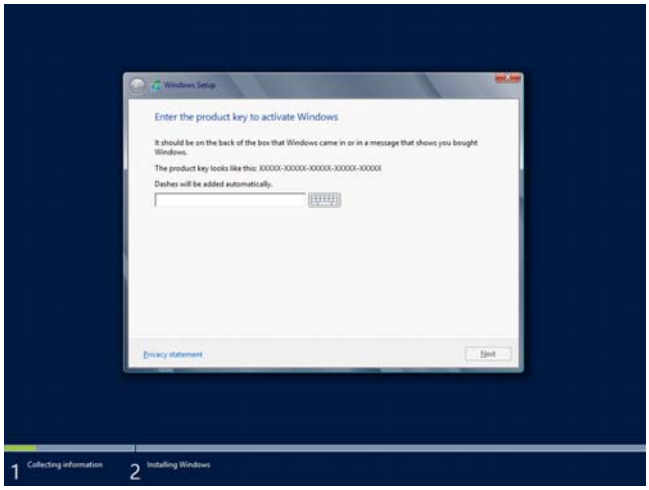
This step is unnecessary if no bootable operating system exists.

15. Click **Next**.

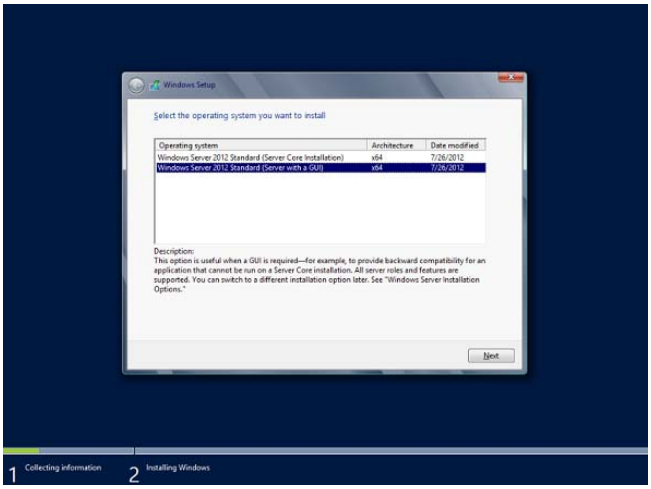
16. Click **Install now**.
    Windows setup starts.



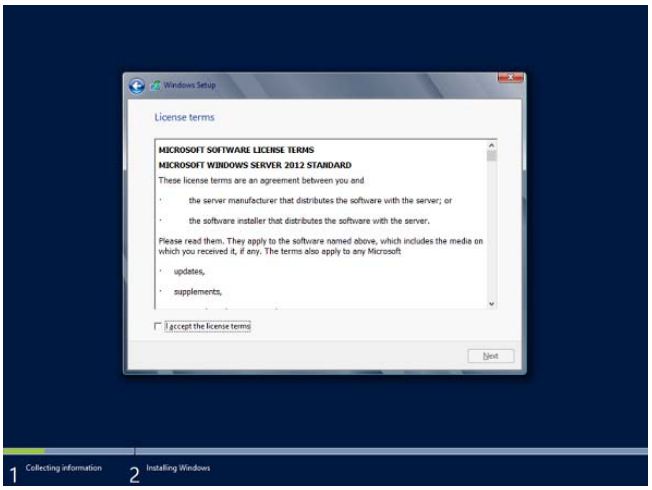
17. Enter the product key and click **Next**.
    If you are using the Backup DVD, this screen does not appear. Go straight to the next step.



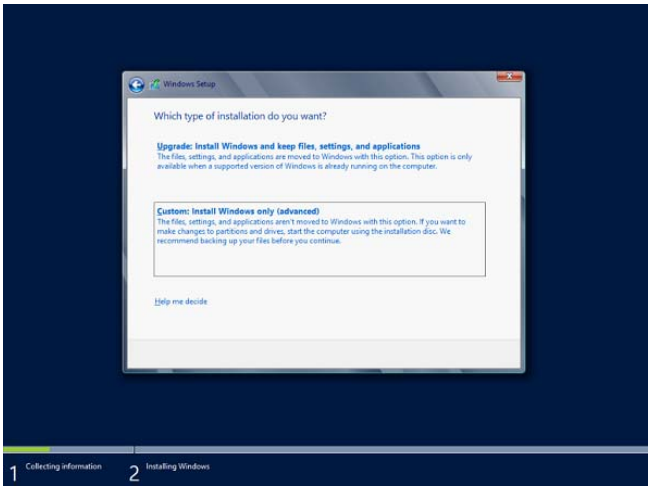
18. Select the operating system to install, and the click **Next**.
    The screen display differs depending on an OS installation media you are using.



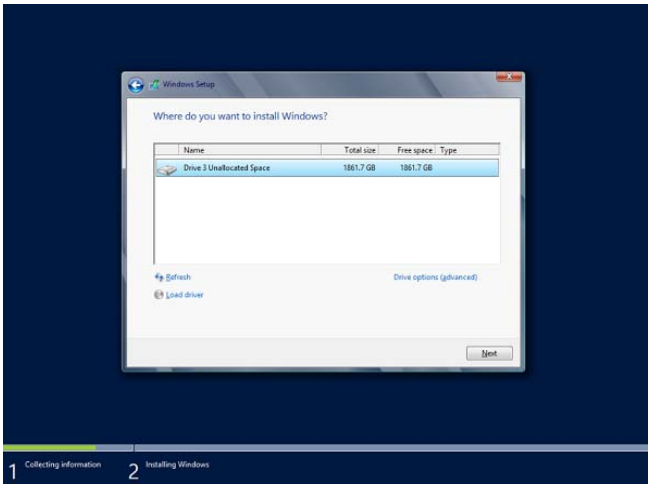
19. When the following window appears, confirm the content of the license agreement. If you agree, select **I accept the license terms** and then click **Next**.



20. When the following message appears, select the installation type.
Select **Custom: Install Windows only (advanced)** in this case.

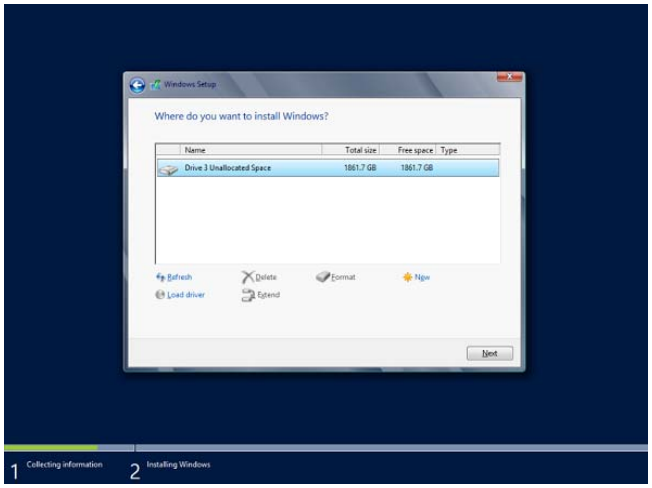


21. If the hard disk drive does not contain Windows, click **Drive options (advanced)**.

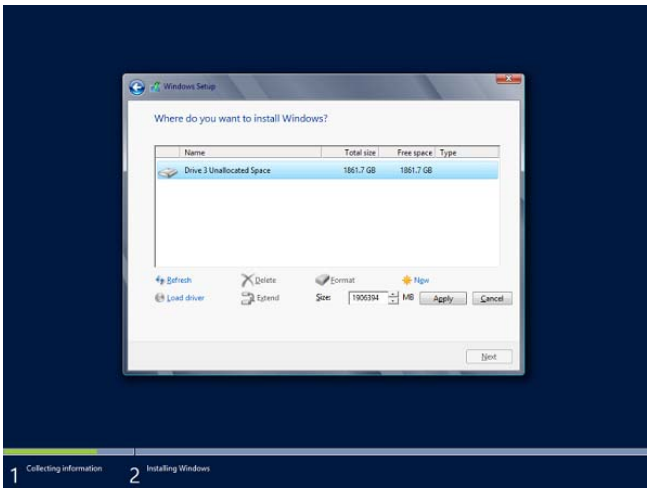


If the hard disk drive already contains an OS, go to the next step.
If a partition has already been created, go to step 25.

22. Click **Next**.



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

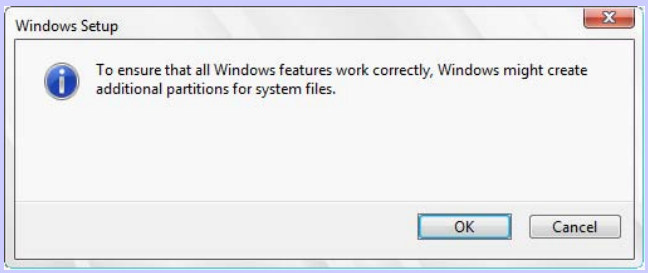


Note

When installing the OS to a disk of over 2,097,152 MB (2 TB), the partition size can only be set to 2,097,152 MB or less.

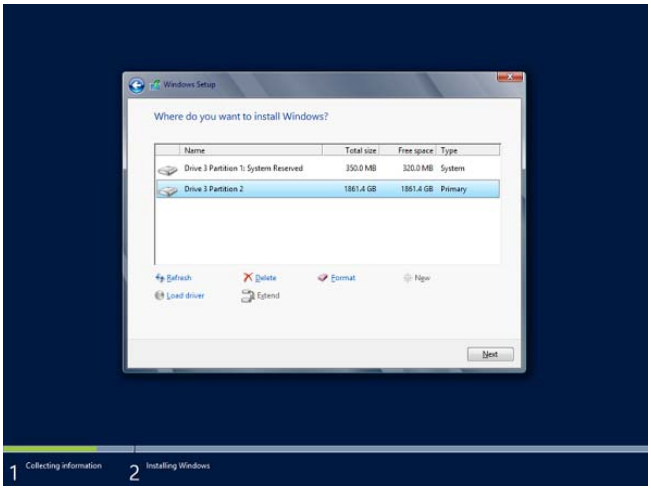
Tips

When creating a new partition and installing the OS, a 350 MB boot partition is created. When the following window appears, click **OK**.



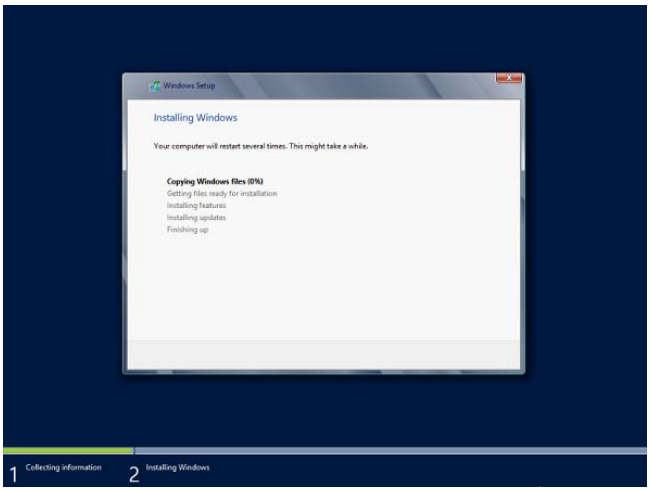
24. Select the partition created in step 23, and then click **Format**.

25. Select the created partition, and then click **Next**.

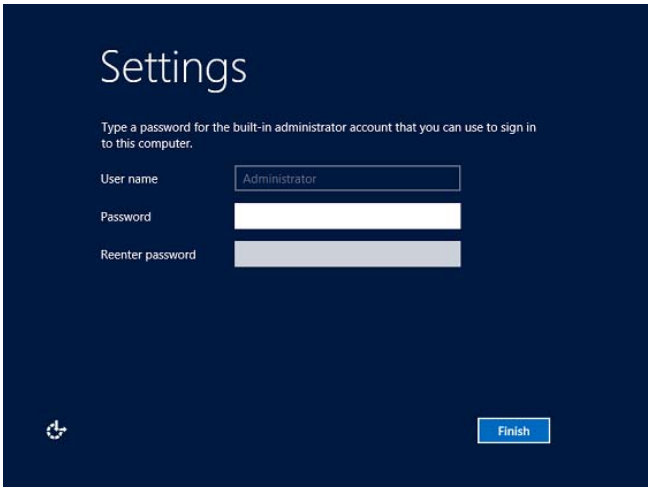


Tips The number of partitions displayed differs depending on the hardware configuration.

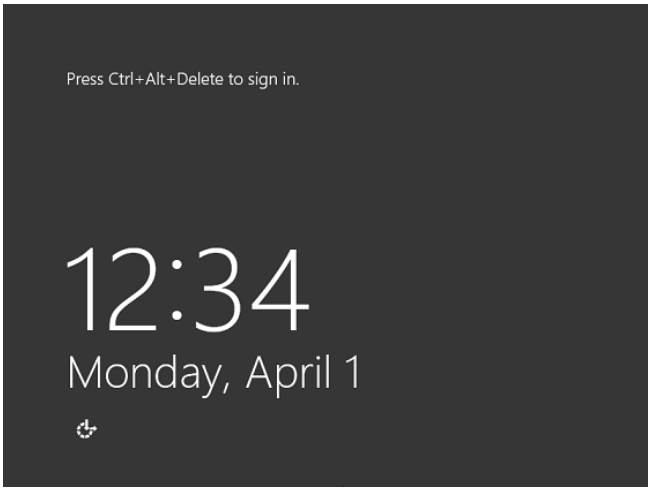
When the following message appears, Windows installation starts automatically.



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



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

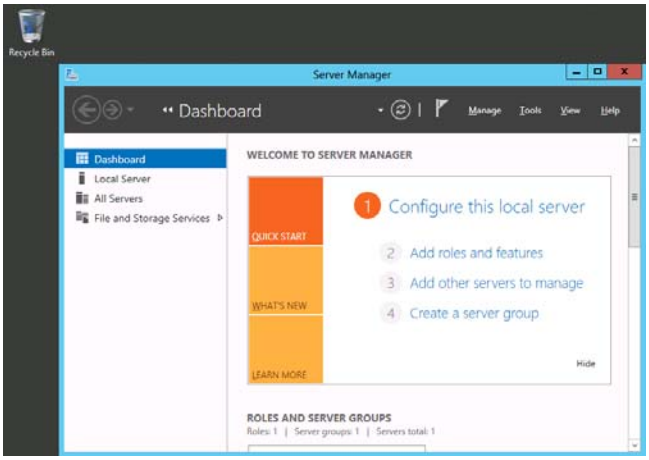


28. Type the password and press **Enter**.

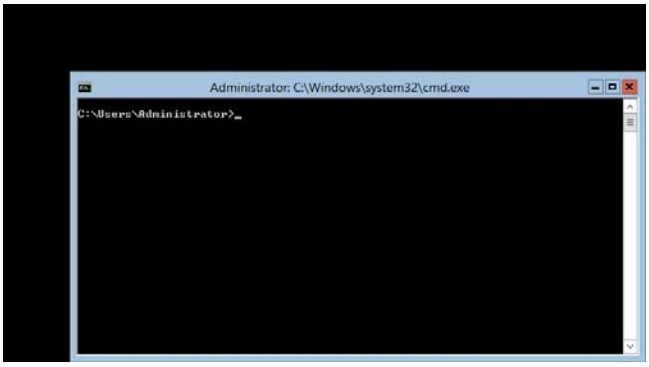
Windows Server 2012 starts.

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

Server with a GUI:



Server Core Installation:



Tips

Refer to Microsoft Website for more details.
Configure and Manage Server Core Installations
http://technet.microsoft.com/us-en/library/jj574091.aspx

30. Install Starter Pack by referring to *Chapter 1* (*3.4 Installing Starter Pack)*.
31. Install drivers and specify detailed settings by referring to *Chapter 1 (3.5 Setting Up Device Drivers)*.
32. For optional devices whose driver has not been installed, install the device drivers according to the instructions supplied in the driver manual.
33. Install the applications as needed by referring to *Chapter 1* (*3.7 Installing the Applications*).
34. Execute setup by following the instructions described in *Chapter 1 (6. Setup for Solving Problems).*

Setup with Windows standard installer is now complete.

3.4 Installing Starter Pack

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

Important

Also install Starter Pack in the following cases.

- **The hardware configurations have changed**
  (If an internal optional device is installed or removed, apply the Starter Pack. 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**

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

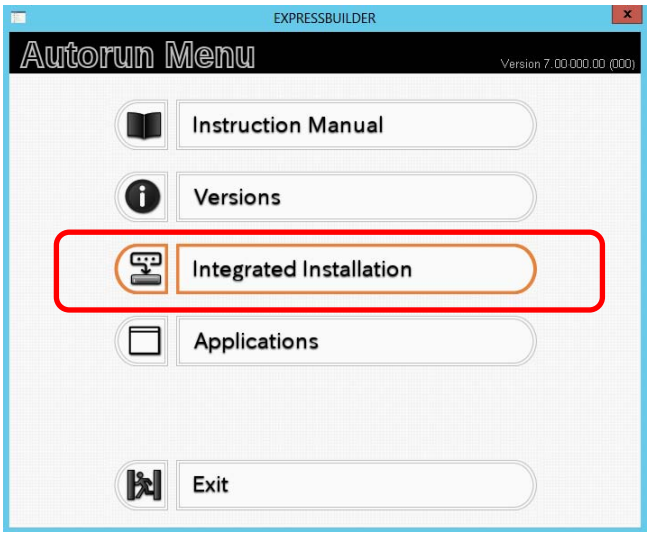
If the OS is installed by using EXPRESSBUILDER, Starter Pack is already applied. If the configuration is not changed, you do not need to apply Starter Pack again.

3.4.1 When using EXPRESSBUILDER DVD

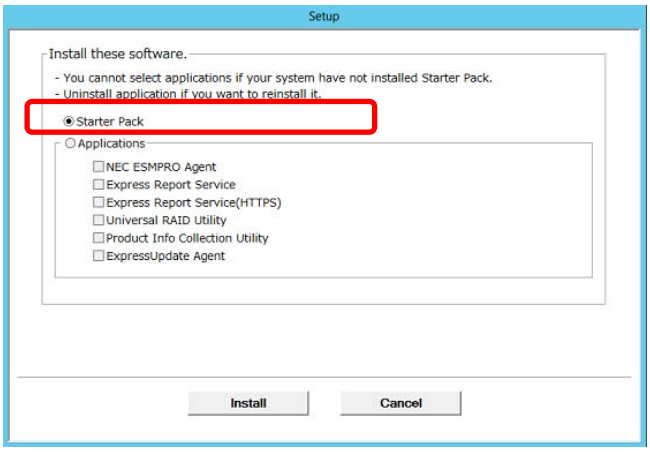
1. Sign-in to the system with the built-in administrator, which has administrative privileges.
2. Insert EXPRESSBUILDER DVD into the optical disk drive.
3. Start the installer of Starter Pack according to the installation type.

Server with a GUI:

Click **Integrated Installation** on the menu.



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



Tips If Starter Pack is already installed, the **Applications** option is selected by default. To install Starter Pack again, select the **Starter Pack** option.

Server Core installations:

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

```
Cd /d D:\004\win\winnt\bin
```

```
C:\Users\administrator>cd /d D:\004\win\winnt\bin
```

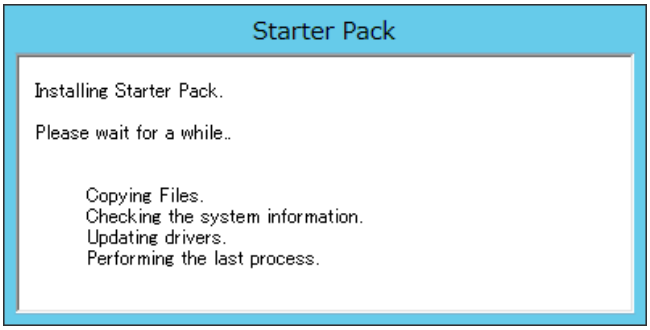
(2) Enter the following, and then press <Enter> key.

```
Pkgsetup.vbs
```

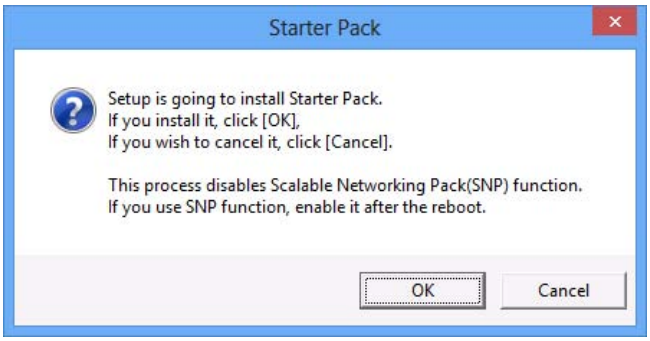
```
D:\004\win\winnt\bin>pkgsetup.vbs
```

Wait for several minutes without attempting any further operation until the following window appears.

On the server with a GUI, the following progress message appears while the Starter Pack is installed.



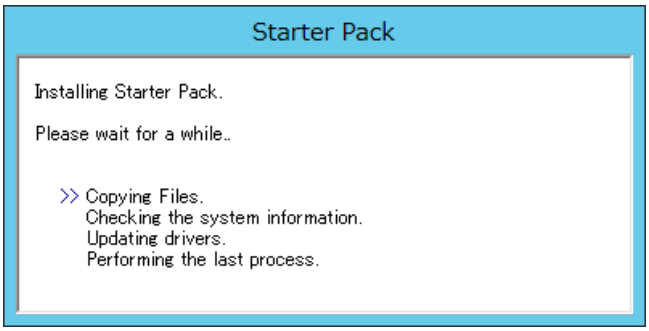
4. Read the message, and then click **OK**.
   Starter Pack installation starts.



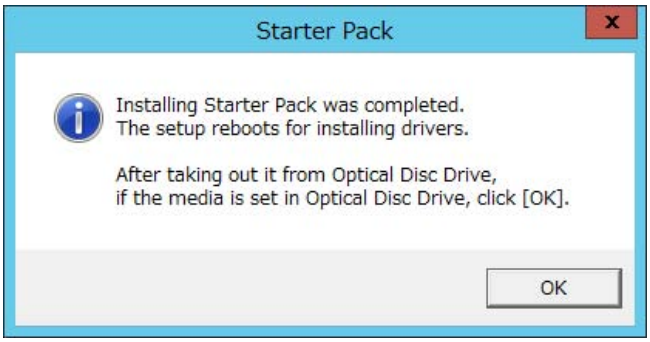
Wait until installation completes (about 3 to 5 minutes).

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

On the server with a GUI, the following progress message appears while the Starter Pack is installed.



5. When the following message appears, Starter Pack installation is complete.
   Follow the instructions in the message, and remove EXPRESSBUILDER DVD.



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

Installation of Starter Pack is now complete.

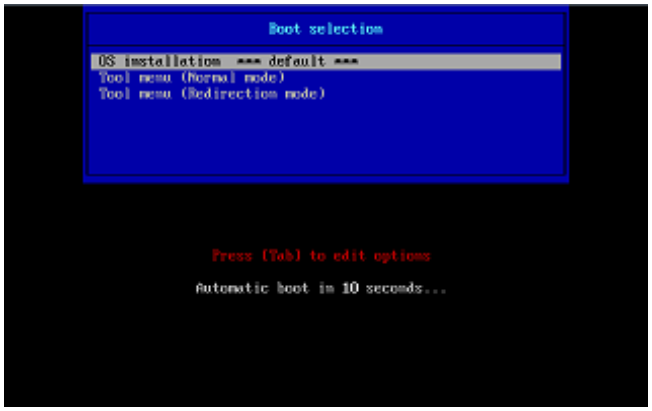
3.4.2 When using Internal Flash Memory

(Optional "Internal Flash Memory" is required)

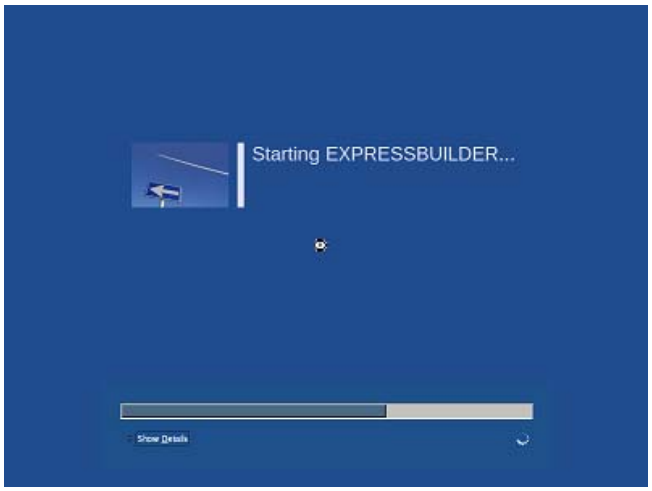
1. After installing the operating system, restart the server.
2. When "Press <F2> Setup, <F3> Internal Flash Memory, <F4> ROM Utility, <F12> Network" appears during POST, press <F3> key.

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.

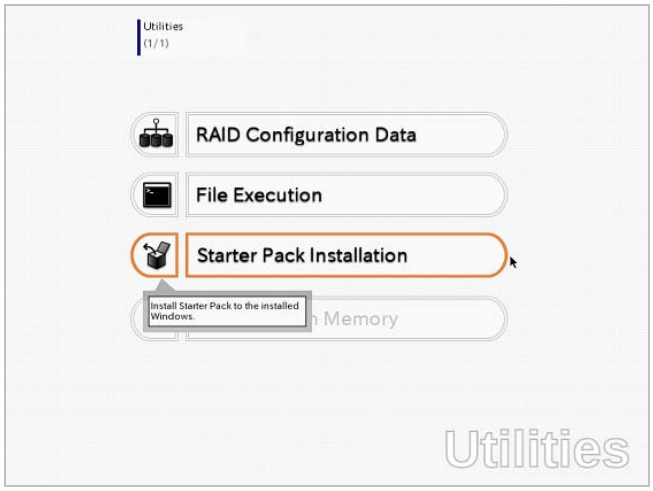


The server starts from EXPRESSBUILDER.

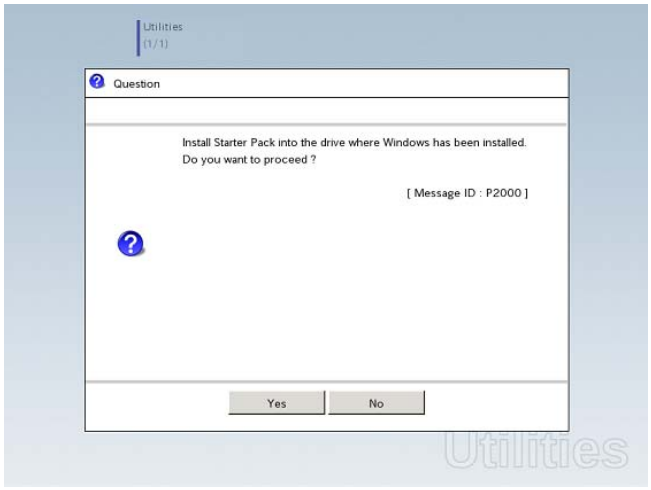
4. Select **English** on the language selection window, and then click **OK**.

5. Click **Utilities**.

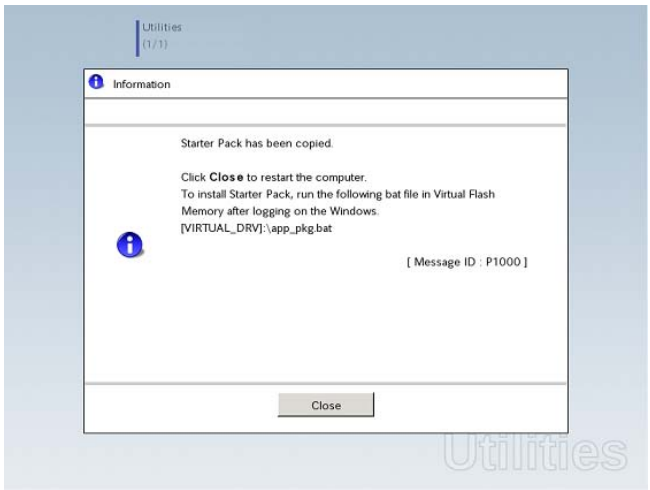
6. Click **Starter Pack Installation**.



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



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



The server then restarts.

Note You do not need to press <F3> key at this time.

9. Proceed application step according to the installation type.

Tips

During setup, a virtual floppy disk drive is temporarily connected. Follow the instructions below to reference the virtual floppy disk drive.

Server with a GUI

Click **app_pkg.bat** of Floppy disk drive (usually drive A).

Server Core installations

(1) Enter the following command at the command prompt, and then specify the drive letter of Floppy disk drive (usually drive A).

Cd /d A:

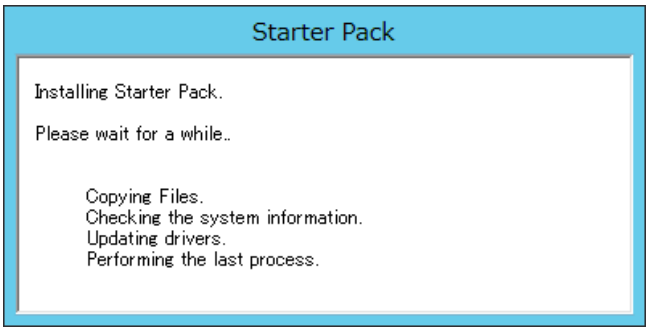
```
C:\Users\administrator>cd /d A:\
```

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

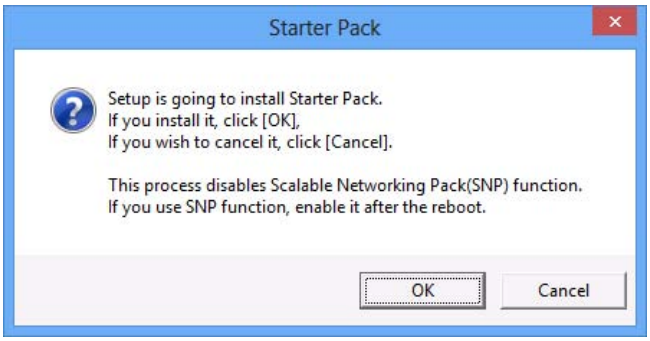
app_pkg.bat

```
A:\>app_pkg.bat
```

Wait until the file copy is complete. (About 1 to 3 minutes.)
On the server with a GUI, the following progress message appears while the Starter Pack is installed.



10. Read the message, and then click **OK**.
Starter Pack installation starts.

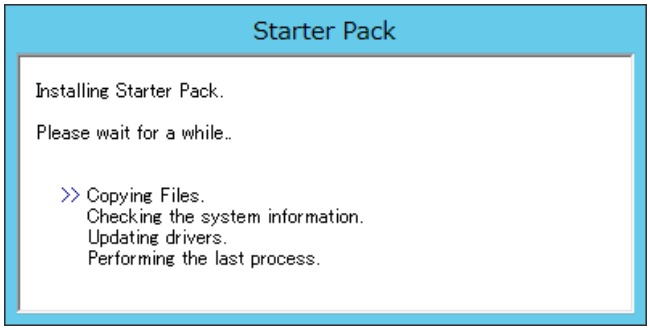


Wait until the installation of the Starter Pack is complete. (About 3 to 5 minutes)

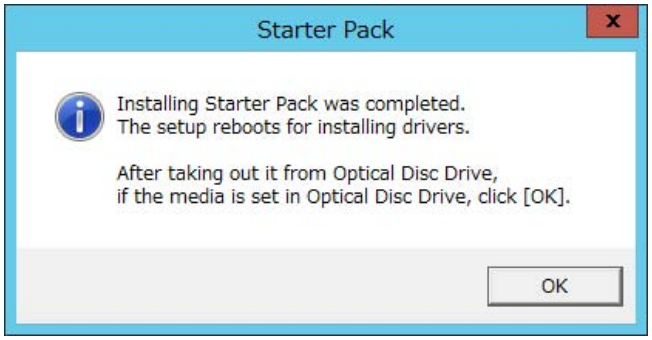
Note

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

On the server with a GUI, the following progress message appears while the Starter Pack is installed.



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



Installation of Starter Pack is now complete.

3.5 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.

3.5.1 Installing the LAN drivers

(1) LAN drivers

If EXPRESSBUILDER is used for setup, the LAN driver will automatically be installed.
If the Windows standard installer is used for setup, install Starter Pack to install the LAN driver.

Important

- **Teaming of network adapters by using BACS or PROSet is not supported.**
- **WOL is supported by the standard network adapters only.**
  However, Wake On LAN in the shutdown state is not supported in the following case:
  Select [Control Panel] - [System and Security] - [Power Options] - [Choose what the power button does], and if [Turn on fast startup] is selected in [Shutdown settings] on [System Settings] screen.
  When [Turn on fast startup] is not displayed, fast startup feature is disabled.

Note

- To change the LAN or BACS driver 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: N8104-128/132/133/138/145

The LAN driver is not installed if N8104-145 is not installed at the time of installation of the OS by using EXPRESSBUILDER or at installation of Starter Pack.

Perform the steps below to install the N8104-145 LAN driver manually.

1. Insert EXPRESSBUILDER DVD into the optical disk drive.
   If Autorun Menu appears, close the menu.

Tips

EXPRESSBUILDER DVD is unnecessary if Starter Pack was installed from Internal Flash Memory. Proceed to the next step.

2. Open Command Prompt, and execute `install.bat` in the following folder.

   When using EXPRESSBUILDER DVD:

   EXPRESSBUILDER DVD:`\004\win\winnt\ws2012\lan\intel`

   If Starter Pack was installed from Internal Flash Memory:

   System Drive:`\StartPKG\ws2012\lan\intel`

3. When Command Prompt returns to a wait status, remove the EXPRESSBUILDER DVD from the optical disk drive, and then restart the system.

Setup is now completed.

Note Using an optional LAN board, perform procedure "3.5.2 Setting up LAN drivers" for each optional LAN board.

(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

Broadcom NetXtreme Gigabit Ethernet #xx*

If connecting with an optional LAN board:

[N8104-128] Broadcom BCM57711 NetXtreme II 10 GigE (NDIS VBD Client) #xx*
[N8104-132/133/138] Broadcom NetXtreme Gigabit Ethernet #xx*
[N8104-145] Intel(R) Ethernet Server Adapter I340-T2 #xx*

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

Tips The ID for N8104-128 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.

3.5.2 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 Using N8104-128 default speed duplex (10Gb Full), there is no problem using switch with "Autonegotiation" speed duplex.

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) Using N8104-132/133/138

Using N8104-132/133/138 with the server, follow the procedure below to set it.

1. Insert EXPRESSBUILDER DVD into the optical disk drive.
   If Autorun Menu appears, close the menu.

Tips EXPRESSBUILDER DVD is unnecessary if Starter Pack was installed from Internal Flash Memory. Proceed to the next step.

2. Double-click `pgdyavd_disable.vbs` in the following folder.

   When using EXPRESSBUILDER DVD:

   EXPRESSBUILDER DVD:\004\win\winnt\ws2012\lan\bcom\ws2012x64\lan

   If Starter Pack was installed from Internal Flash Memory:

   System drive:\StartPKG\ws2012\lan\bcom\ws2012x64\lan

3. When the following message appears, click **OK**.

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

Tips The message “Action:Non” indicates that the LAN driver is already set.

4. Eject EXPRESSBUILDER DVD from the optical disk drive, and then restart the system.

Setup is now completed.

3.5.3 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.

To reinstall drivers separately, complete the following steps.

1. Insert EXPRESSBUILDER DVD into the optical disk drive.

   If Autorun Menu appears, close the menu.

   Tips You do not have to insert EXPRESSBUILDER DVD if Starter Pack was installed from Internal Flash Memory.

2. On the **Start** menu, point to **All programs**, **Accessories**, and then select **Explorer**.

3. Double-click the `install.bat` icon in the following folder.

   – When using EXPRESSBUILDER DVD:
   EXPRESSBUILDER DVD:\004\win\winnt\ws2012\video

   – If Starter Pack was installed from Internal Flash Memory:
   System drive:\StartPKG\ws2012\video

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

   Click the **ACCEPT** button to continue.

4. Eject EXPRESSBUILDER DVD from the optical disk drive, and then restart the system.

Graphic accelerator driver installation is now complete.

3.5.4 When using a SAS controller (N8103-142)

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

3.5.5 When using a RAID Controller (N8103-161)

The driver for RAID Controller N8103-161 is automatically installed by Windows Plug-and-Play.

3.5.6 When using a Fibre Channel controller (N8190-153/154)

The driver for Fibre Channel controller N8190-153/154 is automatically installed by Windows Plug-and-Play.

3.6 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.

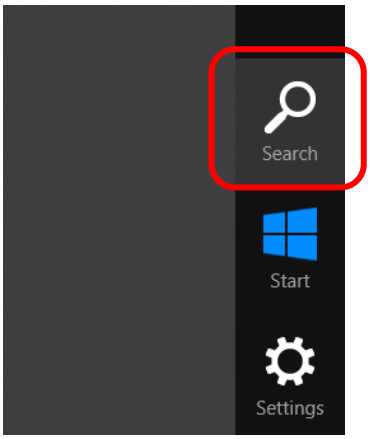
Connect to the Internet to perform the authentication procedure.

Or, use the telephone to perform the authentication procedure.

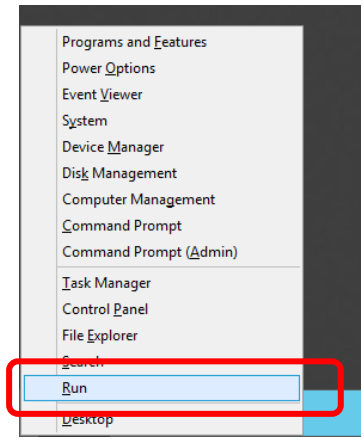
(1) Server with a GUI

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

Search

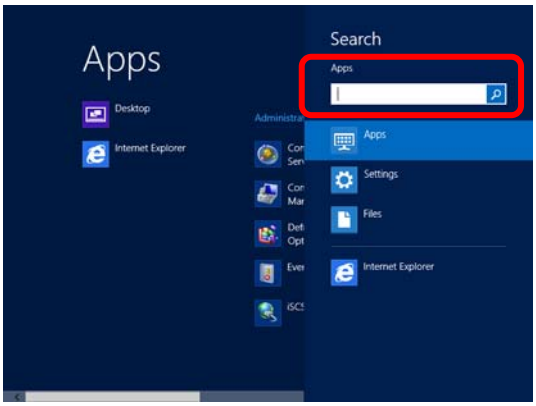


Run

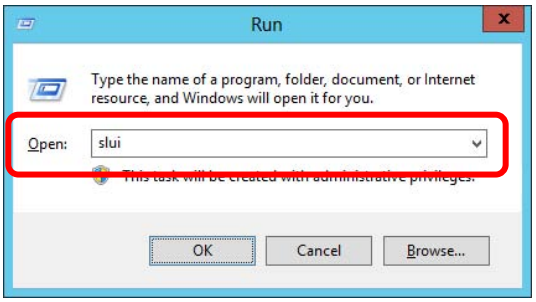


2. Enter "slui" in the **Search** box, and then press the <Enter> key.

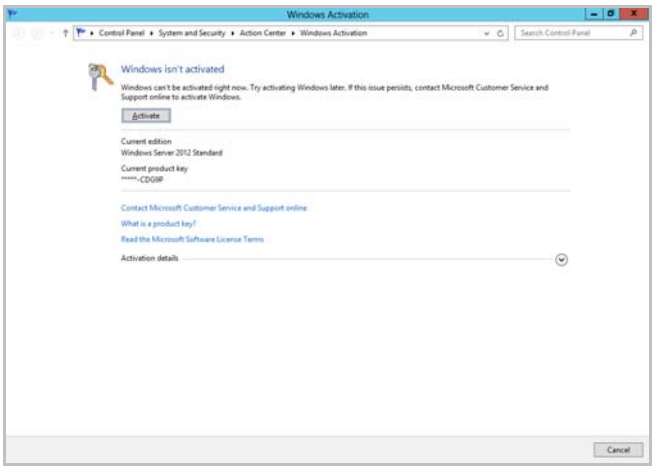
Search



Run



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

1. 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:

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:\Users\administrator>slmgr –ato
```

This completes authentication.

When not connected to the Internet:

Use telephone for license authentication.

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

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

Get an Install ID for license authentication.

Refer to the file %systemroot%\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, and then press the <Enter> key.

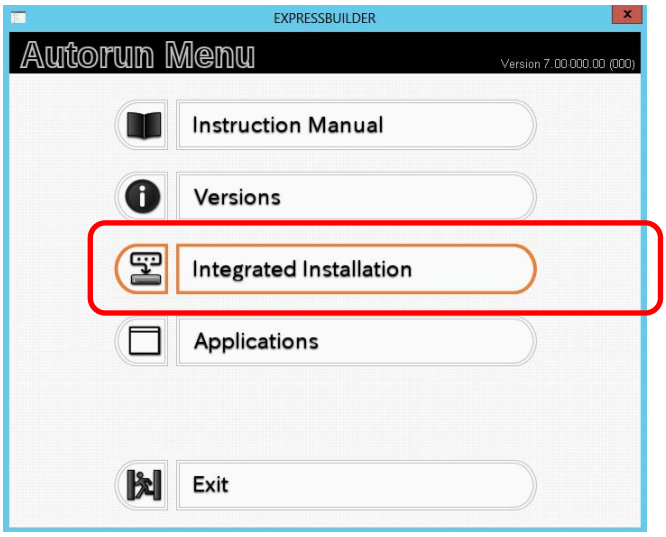
```
C:\Users\administrator>slmgr –atp <Confirmation ID>
```

This completes authentication.

3.7 Installing the Applications

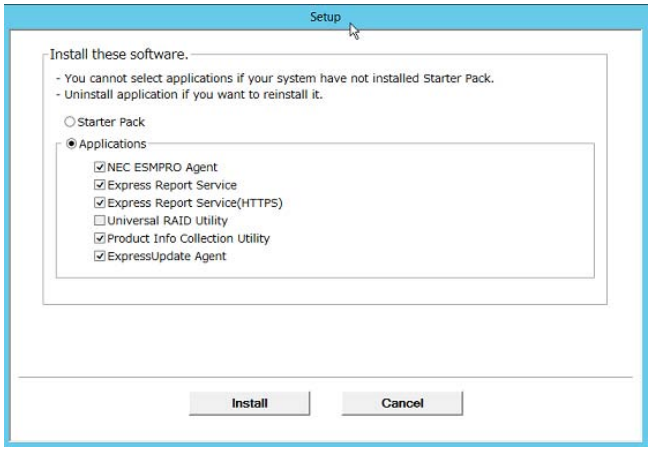
EXPRESSBUILDER contains applications including NEC ESMPRO Agent and NEC ESMPRO Manager. Some applications stored in EXPRESSBUILDER can be installed collectively by performing the procedures described below. When installing these applications individually, see *Chapter 2* (*Installing Bundled Software*).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

1. Sign-in to the system with the built-in administrator, which has administrative privileges.
2. Insert the EXPRESSBUILDER DVD into the optical disk drive.
3. Click **Integrated Installation** on the menu.



4. On the following screen, make sure that the **Applications** option is selected.

   Select the check boxes corresponding to the applications to install, and then click **Install**.



Note

- If Starter pack is already installed, the **Applications** option is selected by default.
- Applications available for installation are selected by default.
- An application that has been already installed need to be uninstalled before installing it again.
- If your system environment does not satisfy the prerequisite for an application, you cannot install it. (For details, refer to the on-screen information and the relevant page of each application.)

The selected applications are automatically installed.

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

Now installation of applications is completed.

3.8 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 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.**

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

1. Refer to *Chapter 1 (3.3 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.**

3. 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. But these steps cannot change drive letter assignments for the system volume or boot volume. If you want to change them, re-install the Windows.

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 **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.

3.9 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.

1. 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.
3. 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.

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 in the Hyper-V environment.

4. Setting Up Windows Server 2008 R2

Set up Windows Server 2008 R2.

4.1 Before Starting Setup

Read through the cautions explained here before starting setup.

EB : Confirm during Setup with EXPRESSBUILDER

OS : Confirm during Setup with Windows standard installer

Hardware configuration		
The following hardware configurations require special procedures.		
EB	OS	**Reinstalling to a mirrored volume** 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	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.
EB	OS	**DAT, LTO, and similar media** Do not set media that is unnecessary to installation during setup.
EB	OS	**Connecting to multiple hard disk drives (logical drives)** For details on installing operating systems to a system in which multiple logical drives exist, refer to *Chapter 1* (*4.9 Installation When Multiple Logical Drives Exist*).
EB	OS	**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 OS

Setup when mass memory is installed

If mass memory is installed in your system, the large size of paging file is required at installation. Thus, the partition size for storing debug information (dump file) may not be secured.

If you fail to secure the dump file size, 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 × 0.5" **D: Paging file whose size is "installed memory size × 0.5"** **E: Paging file whose size is 300 MB** → The total paging file size in all drives is "installed memory size + 300 MB", but collection may fail because only the paging file in drive C is used for collecting memory dump.
Example of incorrect setting 3
C: No paging file exists **D: Paging file whose size is "installed memory size + 300 MB" or more (in dynamic volume)** → 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

EB 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 × 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 × 1.5
Dump file size	= installed memory size + 300MB
Application size	= as required by the application

For example, if the installed memory size is 1 GB (1,024 MB) and Full installation**s** is selected, the partition size is calculated as follows:

8,000 MB + (1,024MB × 1.5) + 1,024MB+ 300MB+ application size

= 10,860MB + application size

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

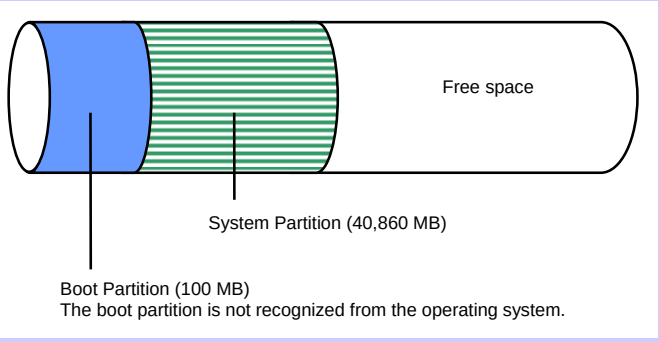
Note

- 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

EB OS

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**
- **Initialization of trusted platform module (TPM)**
- **Change of BIOS setting**

- 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	
EB OS	● 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	License authentication is required depending on the installation of Windows. For details, refer to *4.6 License Authentication*. **Note** • 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.

4.2 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**

  Backing up user data, as needed, 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.**

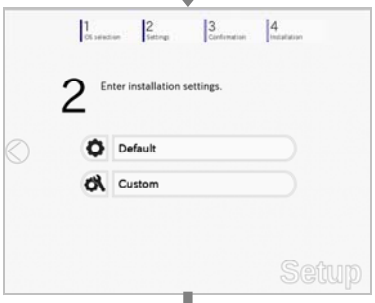
Note

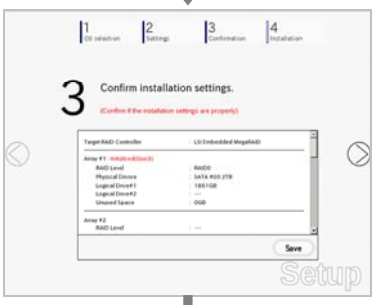
- The Scalable Networking Pack (SNP) function is disabled on systems that have been installed by using EXPRESSBUILDER.
  The setting of SNP function may affect the system performance.
  Contact your sales representative for details.
- When using an onboard RAID controller (LSI Embedded MegaRAID):
  Do not support the creation of RAID10 by using the onboard RAID controller. Refer to *Chapter 2 (4. RAID System Configuration)* in "*Maintenance Guide*" when creating RAID10.

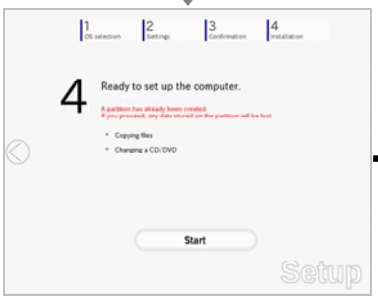
Tips

- 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 (if purchased optionally).
- For details on creating a parameter file, refer to *Chapter 1 (7. Windows OS Parameter File).*

4.2.1 Setup flow







Configure the RAID system

Set EXPRESSBUILDER in the optical disk drive

Copy the selected applications and setup modules

Insert the OS installation media into the optical disk drive

The OS is installed automatically

The Starter Pack and the selected applications are installed

Agree the license terms and log on

Installation completes

	Process that requires input or selection
	Process that proceeds automatically

4.2.2 Requirements for Setup

Prepare the following media and instruction manuals before starting setup.

- Either of the following OS installation media
  - **NEC operating system installation media** (hereafter referred to as *Backup DVD-ROM*)
  - **Microsoft operating system installation media** (hereafter referred to as *Windows Server 2008 R2 DVD-ROM*)
- **First Steps Guide**
- Either of the following EXPRESSBUILDER
  - **EXPRESSBUILDER DVD**
  - **Internal Flash Memory** (optional)
- Prepare if needed:
  - **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.)

Tips

- EXPRESSBUILDER may be distributed in Internal Flash Memory. EXPRESSBUILDER can be run from Internal Flash Memory if it is installed in the server.
- If you are using a server with Internal Flash Memory installed, you can install the OS without using EXPRESSBUILDER DVD.

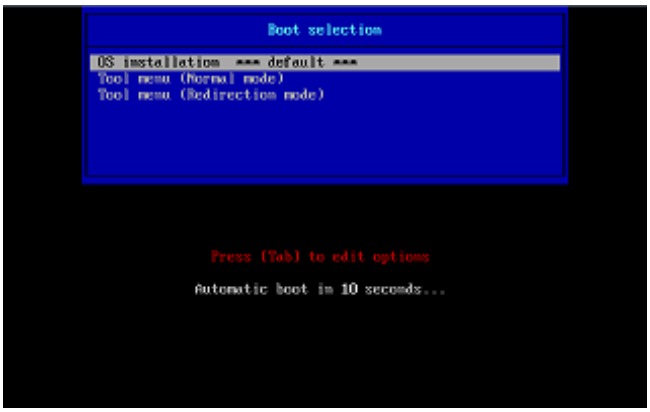
4.2.3 Setup procedure

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.

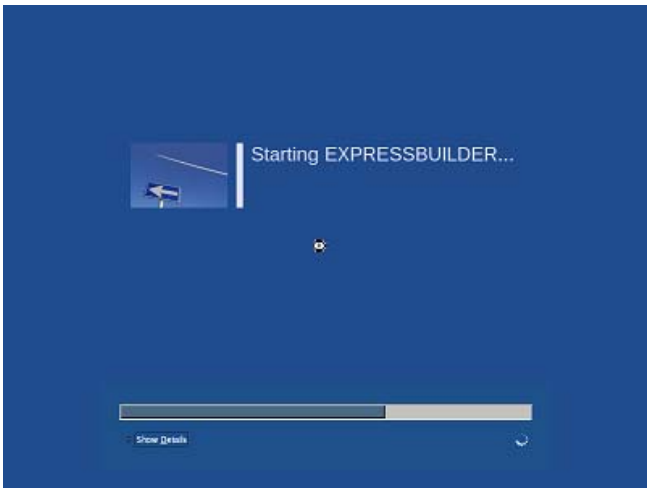
Note

Read through the items in *Chapter 1* (*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.



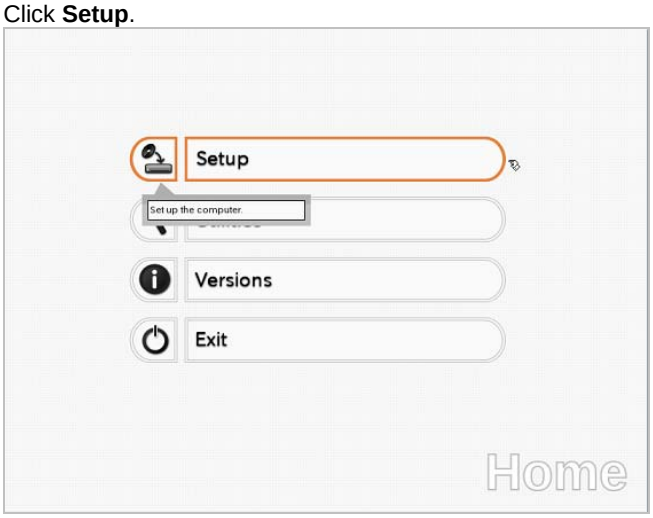
The following window appears.



The server starts from EXPRESSBUILDER.

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

5. Click **Setup**.

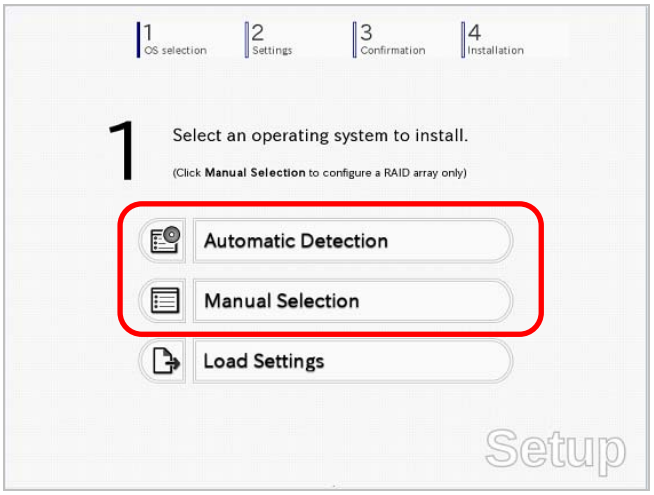


6. On the **OS selection** menu, select the OS to install or specify the parameter file.

☐ When not using parameter file : Go to Step 7.
☐ When using a parameter file : Go to Step 8.

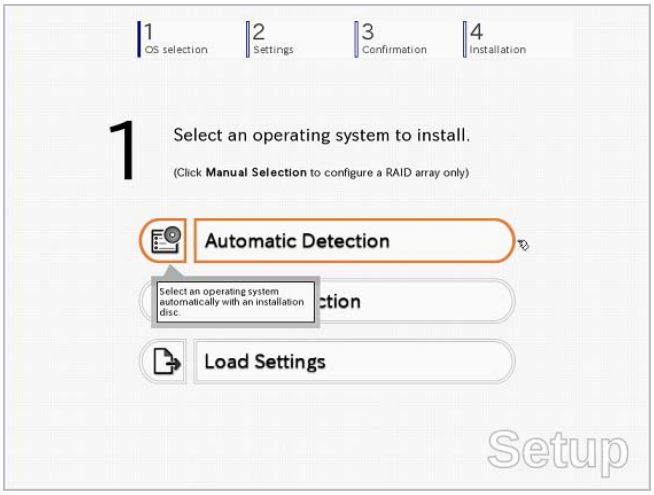
Note When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.

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

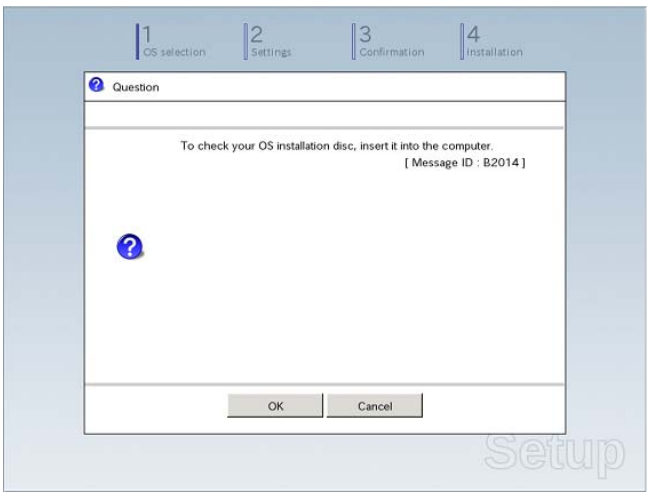


To automatically detect the OS on the OS installation media:

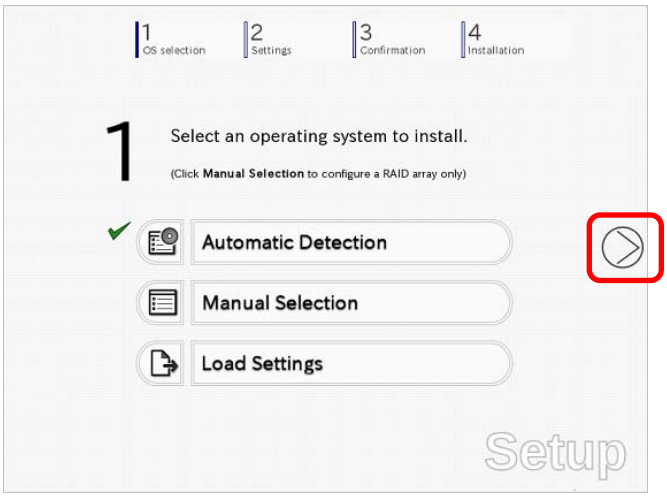
(1) Click **Automatic Detection**.



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

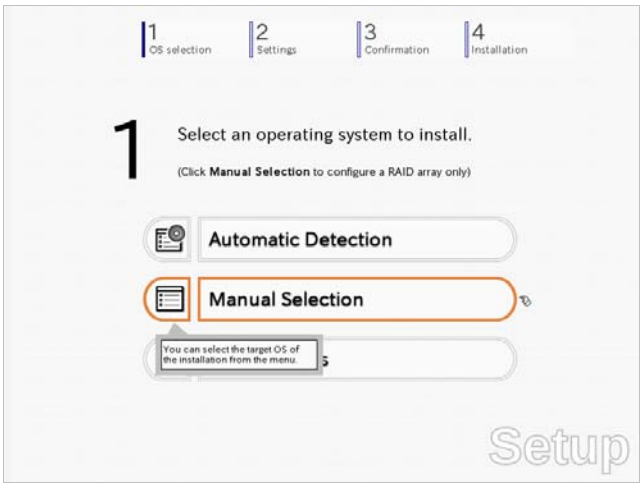


(2) Click ⊘ on the right side of the screen.
→ Go to step 9.

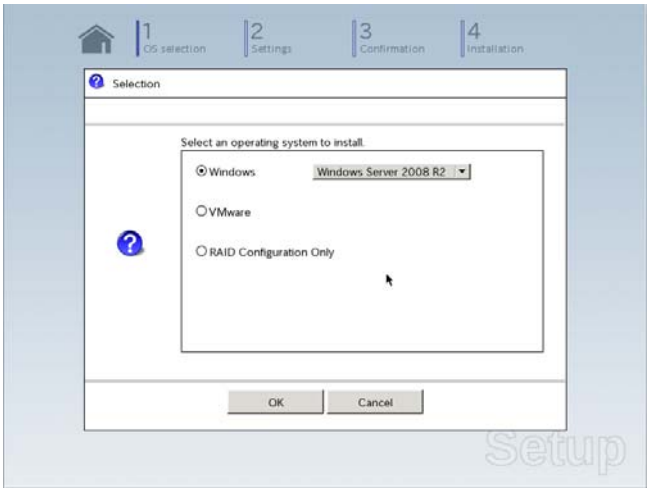


To select an OS from the menu:

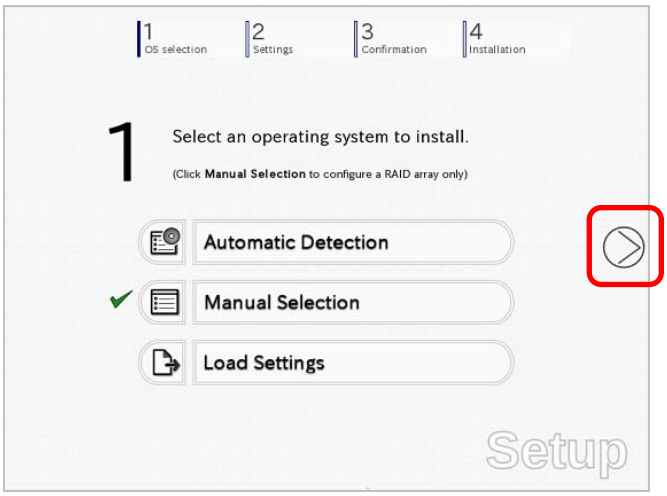
(1) Click **Manual Selection**.



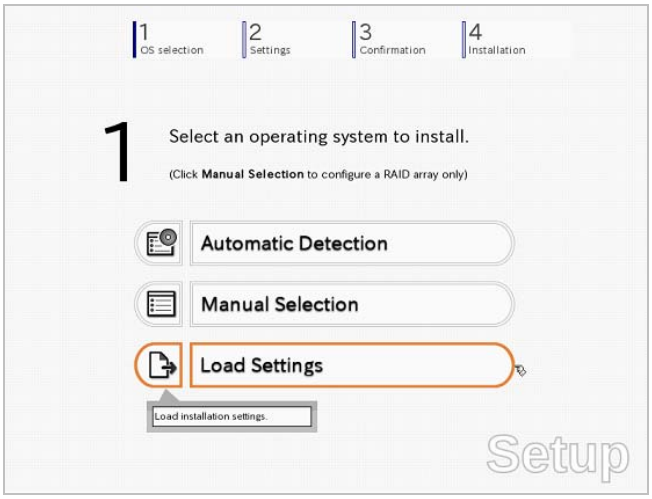
(2) From the **Windows** list, select **Windows Server 2008 R2**, and then click **OK**.



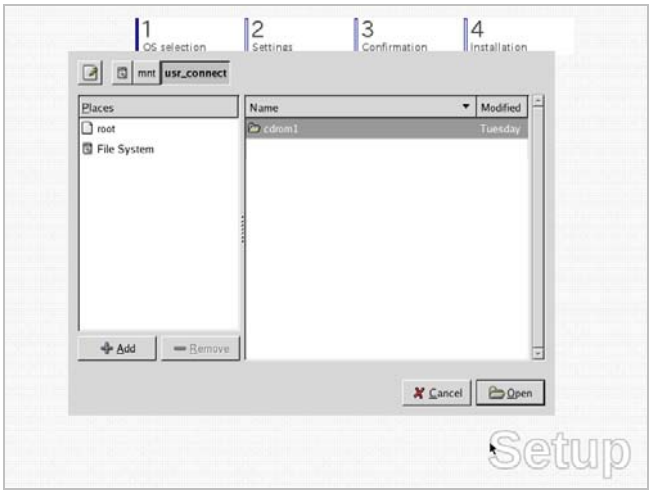
(3) Click ▷ on the right side of the screen.
→ Go to step 9.



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



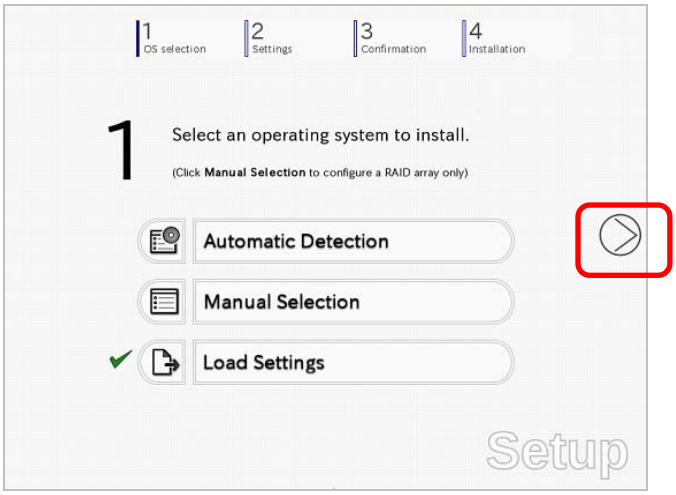
Follow the on-screen instruction to load the parameter file (*.tre).



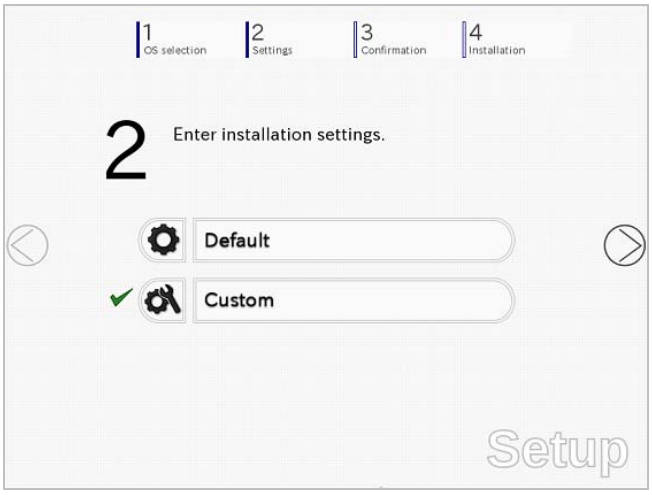
Tips

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

Click ▷ on the right side of the screen.

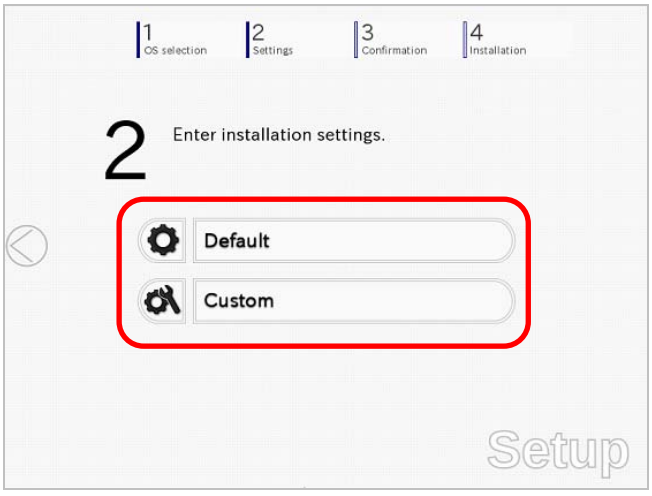


On the following screen, click ▷ on the right side of the screen.
Click **Custom** to check and modify the setting in the wizard.



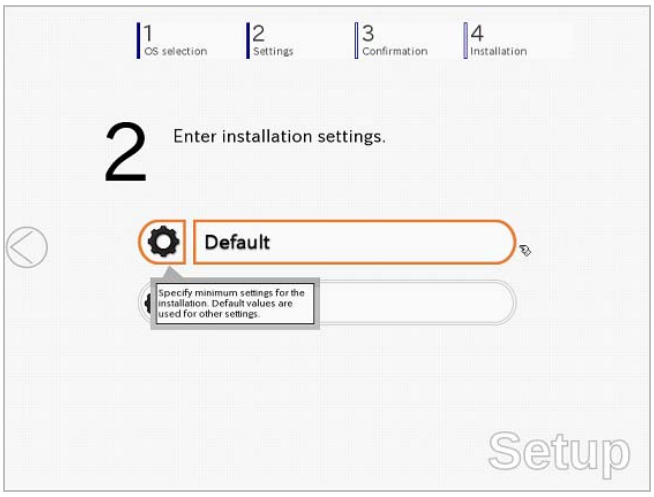
→ Go to step 10.

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

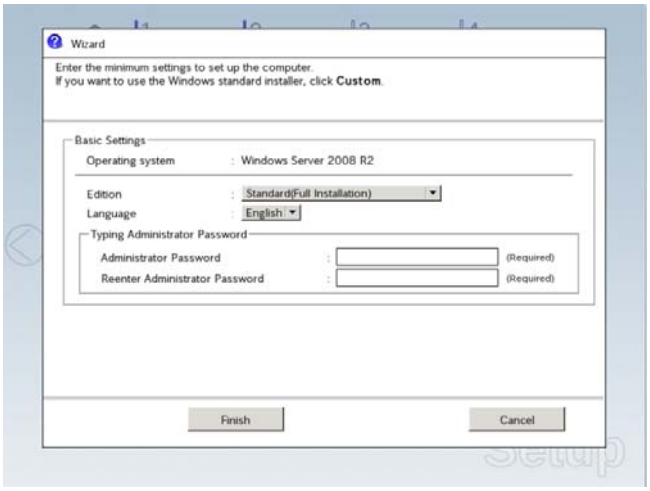


Use **Default**:

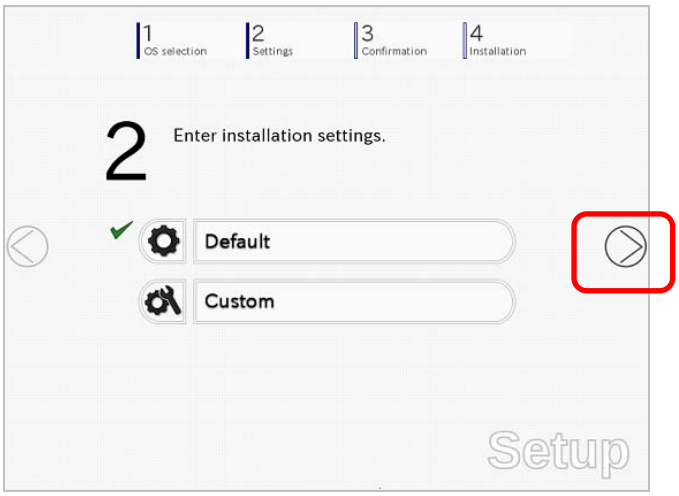
(1) Click **Default**.



(2) Select the edition of the OS to install from the **Edition** list. Type the password, and then click **Finish**.



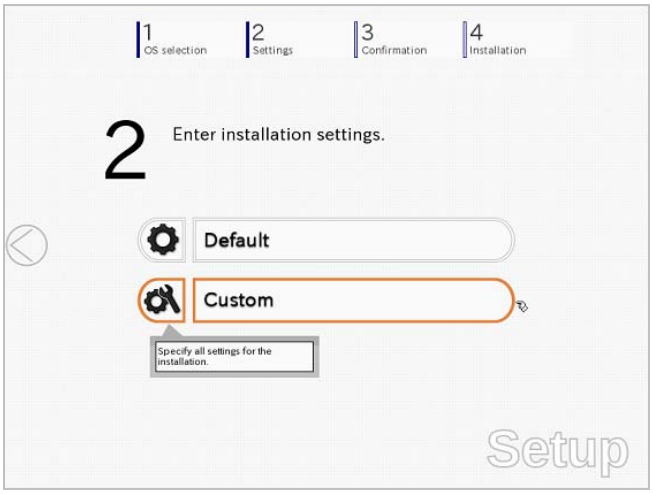
(3) Click ⓒ on the right side of the screen.



→ Go to step 10.

Use **Custom**:

(1) Click **Custom**.

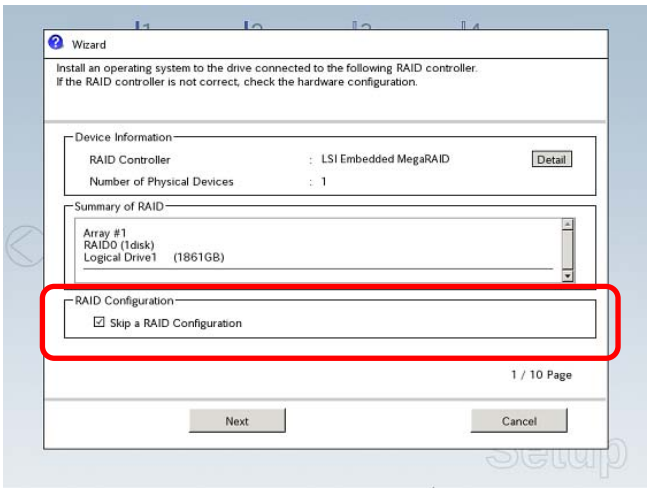


(2) Use this menu to configure the RAID system with the RAID controller detected automatically.

Note

When using an onboard RAID controller (LSI Embedded MegaRAID):

This function does not support the creation of RAID10 by using the onboard RAID controller. Refer to *Chapter 2 (4. RAID System Configuration)* in "*Maintenance Guide*" when creating RAID10.



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.

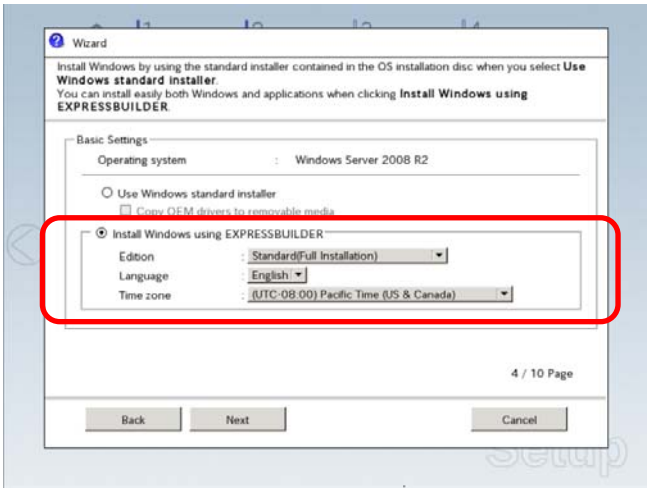
Important

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

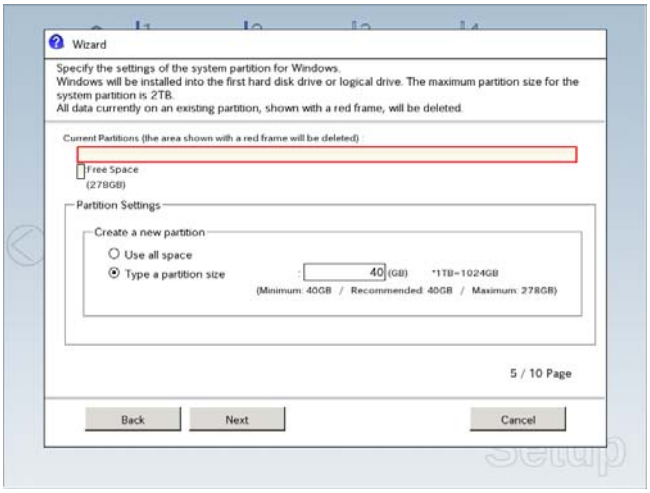
When skipping the creation of new logical drives

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

(3) Check the settings specified for **Basic Settings**.
Choose **Install Windows using EXPRESSBUILDER**, modify the Edition, Language and Time zone settings as needed, and then click **Next**.



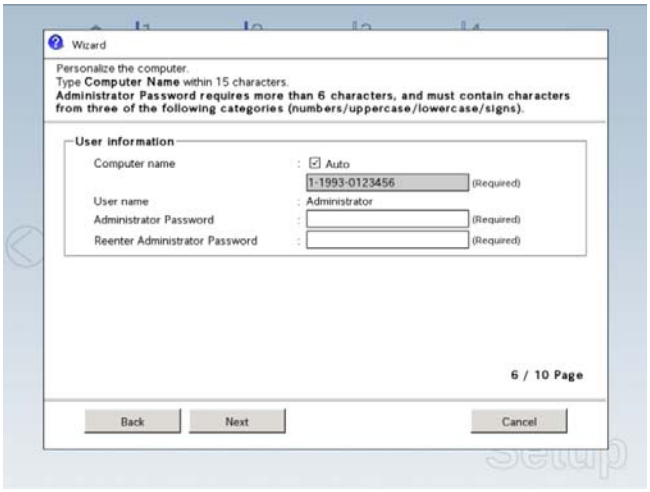
(4) Check the settings specified for **Partition Settings**.
Modify the settings as needed, and then click **Next**.



Important

- **Backing up user data, as needed, is recommended.**
- **Partition size**
  - **Specify a partition size larger than the minimum required for installing the operating system. (Refer to *Chapter 1 (4.1 Before Starting Setup)*.)**
  - **The maximum partition size is 2,097,152 MB.**
- **If you select "Create a new partition" under "Partition Settings", the entire contents of the hard disk drive will be deleted.**

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



Note

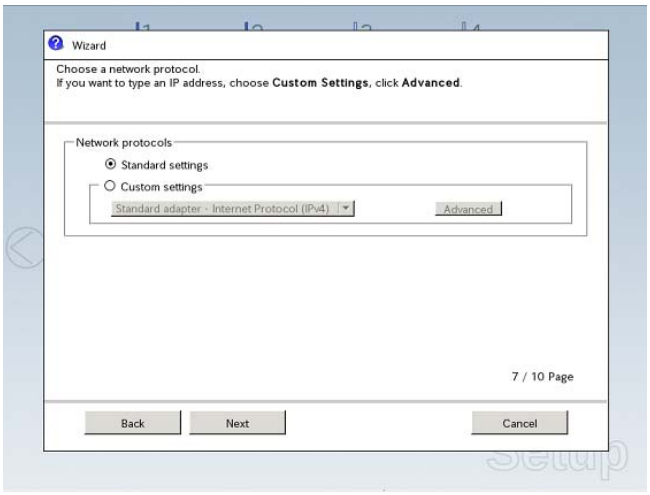
Computer name and Administrator Password are required parameters.
Enter Administrator Password that satisfies the following conditions:

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

(6) Check the settings specified for **Network Protocols**.
Modify the settings as needed, and then click **Next**.



Tips

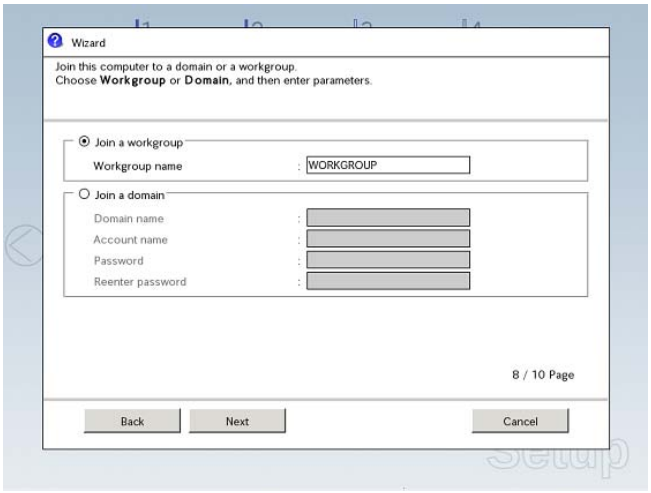
The order of entry in **Custom settings** may differ from the numbering of LAN ports.

Note

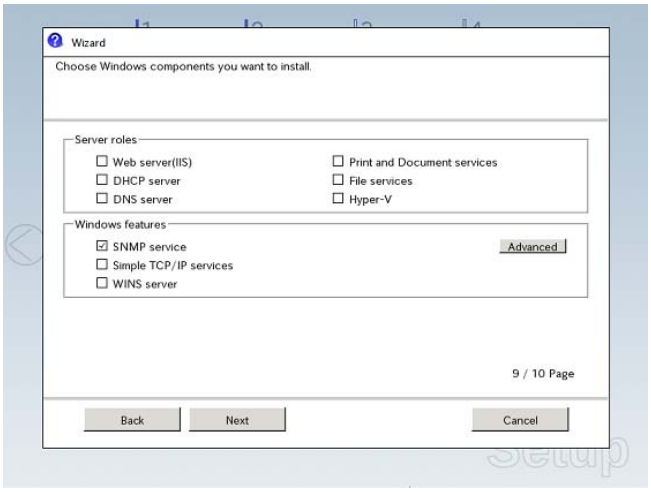
Even when an optional network board is connected, **Custom settings** only shows standard network boards.

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

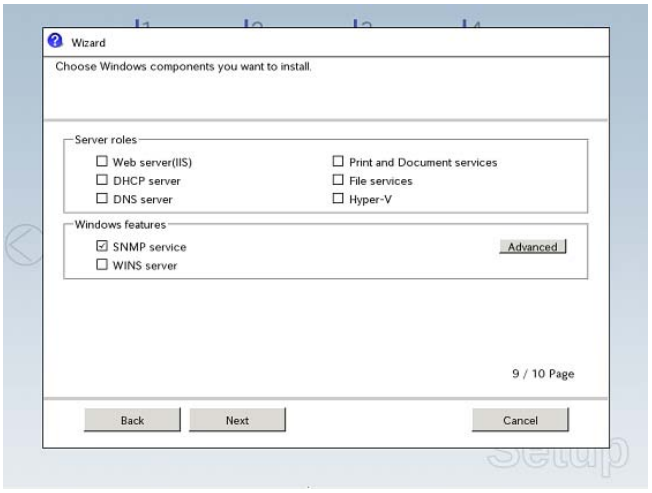
(7) Specify the domain or workgroup.
Check the settings, modify them as needed, and then click **Next**.



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

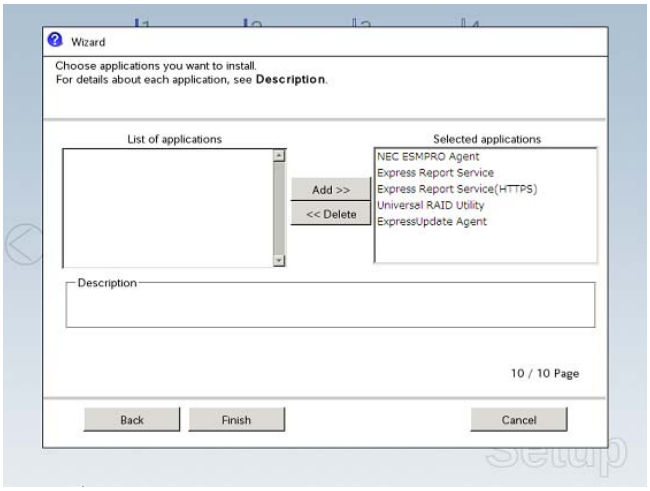


Full installations

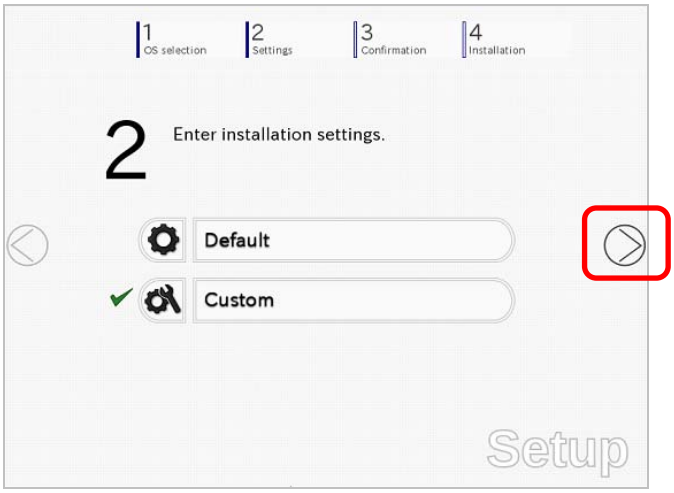


Server Core installations

(9) Check the settings of applications.
Modify the settings as needed, and then click **Finish**.

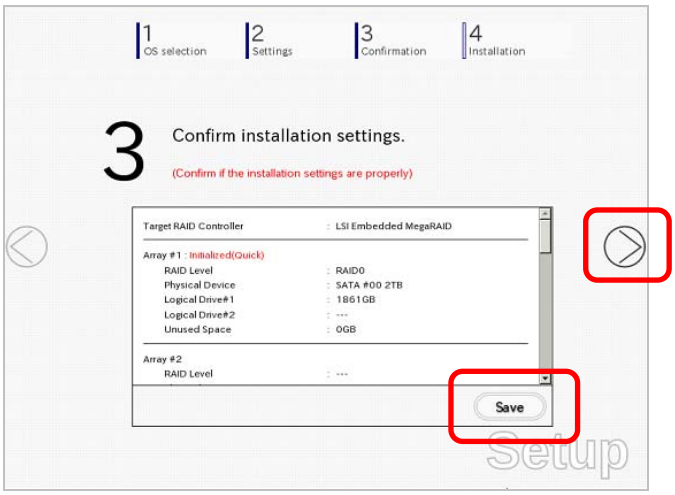


On the following screen, click ▷ on the right side of the screen.



10. Check the parameter settings.

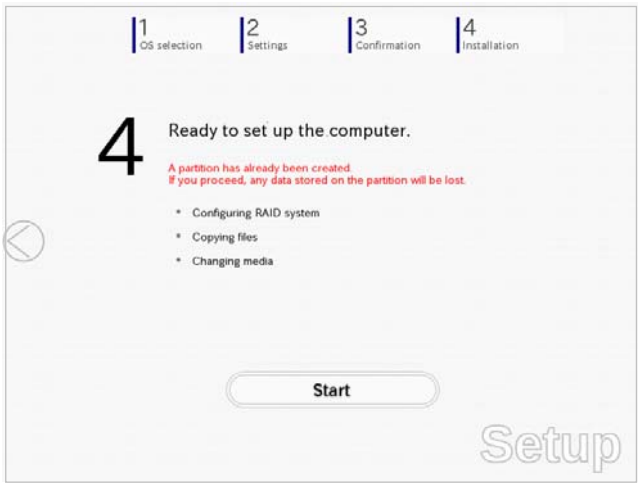
    To save the settings, click **Save**.



Click ⊳ on the right side of the screen.

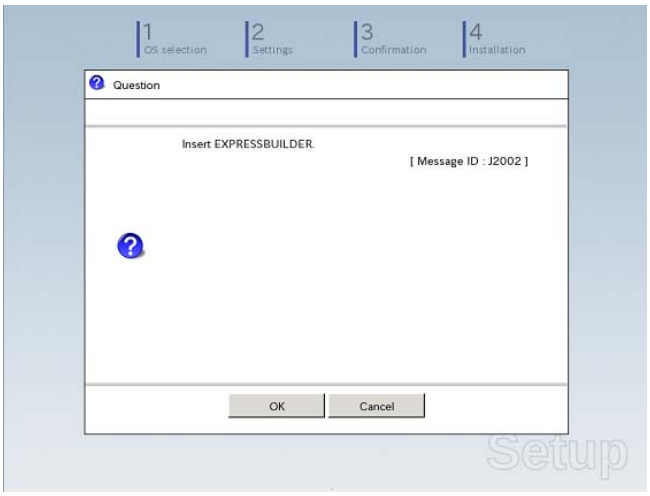
11. The setup process starts.

    Click **Start** to continue setup.

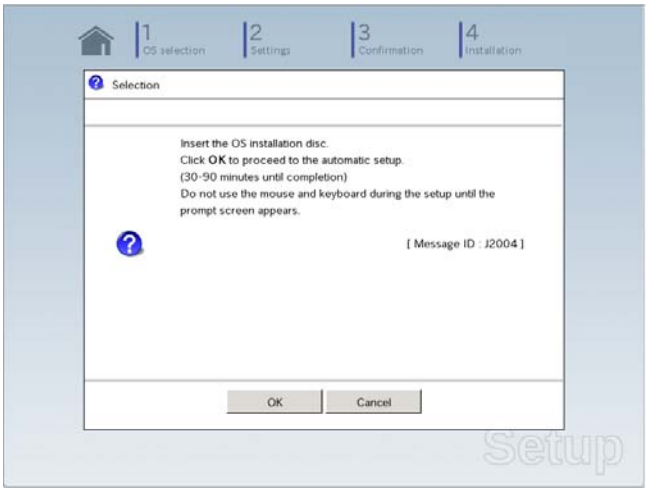


If you need to suspend setup due to reasons such as backing up data, restart the setup process from the beginning.

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

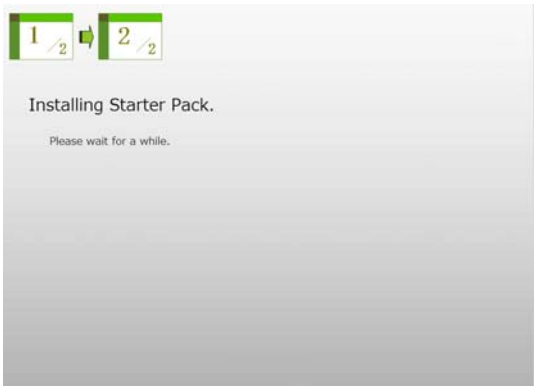


13. Insert the OS installation media into the optical disk drive, and then click **OK**.

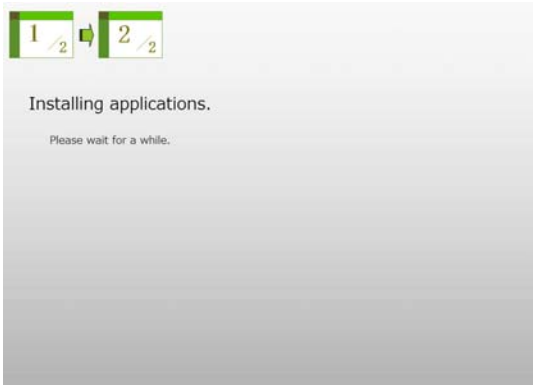


Windows Server 2008 R2 is installed automatically.

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

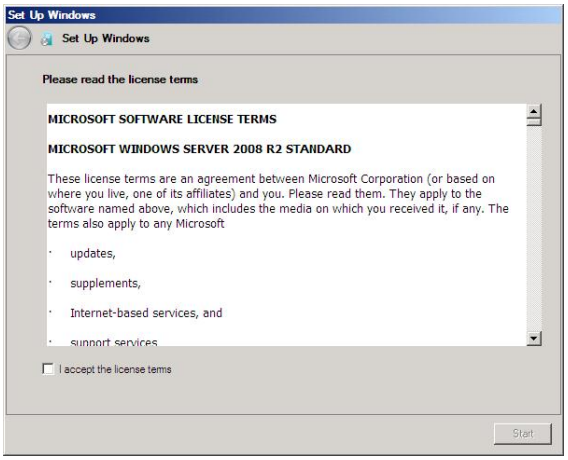


Screen displayed when Starter Pack is being installed



Screen displayed when an application is being installed

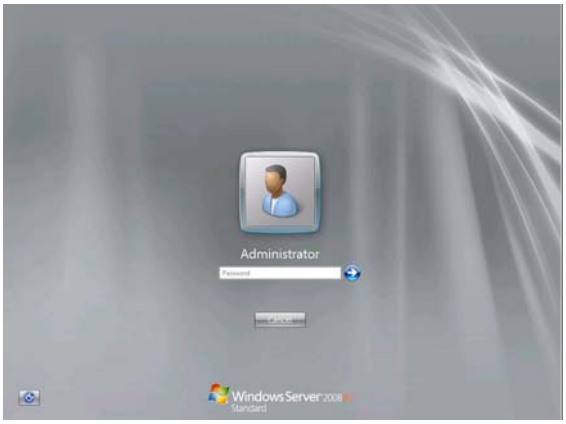
15. When the software license agreement window appears, select **I accept the license terms**, and then click **Start** (Full installation only).



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

Full installations:

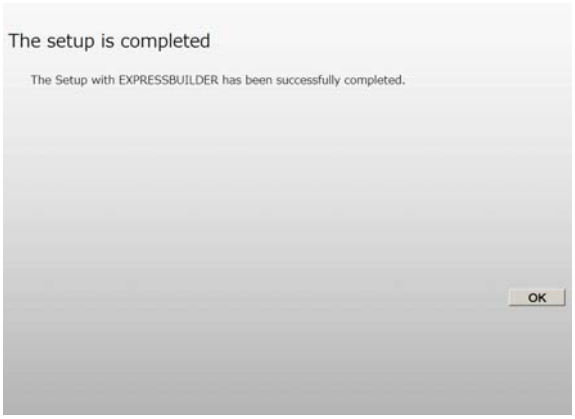
When the following screen appears, enter your password into the text box, and then click .



Server Core installations:

When the following screen appears, enter your password into the text box, and then click .

17. Click **OK**.



18. Follow the instructions described in *Chapter 1 (4.5 Setting Up Device Drivers)* to set up the device drivers.
19. For optional devices whose driver has not been installed, install the device drivers according to the instructions supplied in the driver manual.
20. Apply Service Pack as needed according to *Chapter 1 (*4.7 Applying Service Pack*)*.
21. Execute setup by following the instructions described in *Chapter 1 (6. Setup for Solving Problems)*.

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 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

Backing up user data, as needed, is recommended.

Note

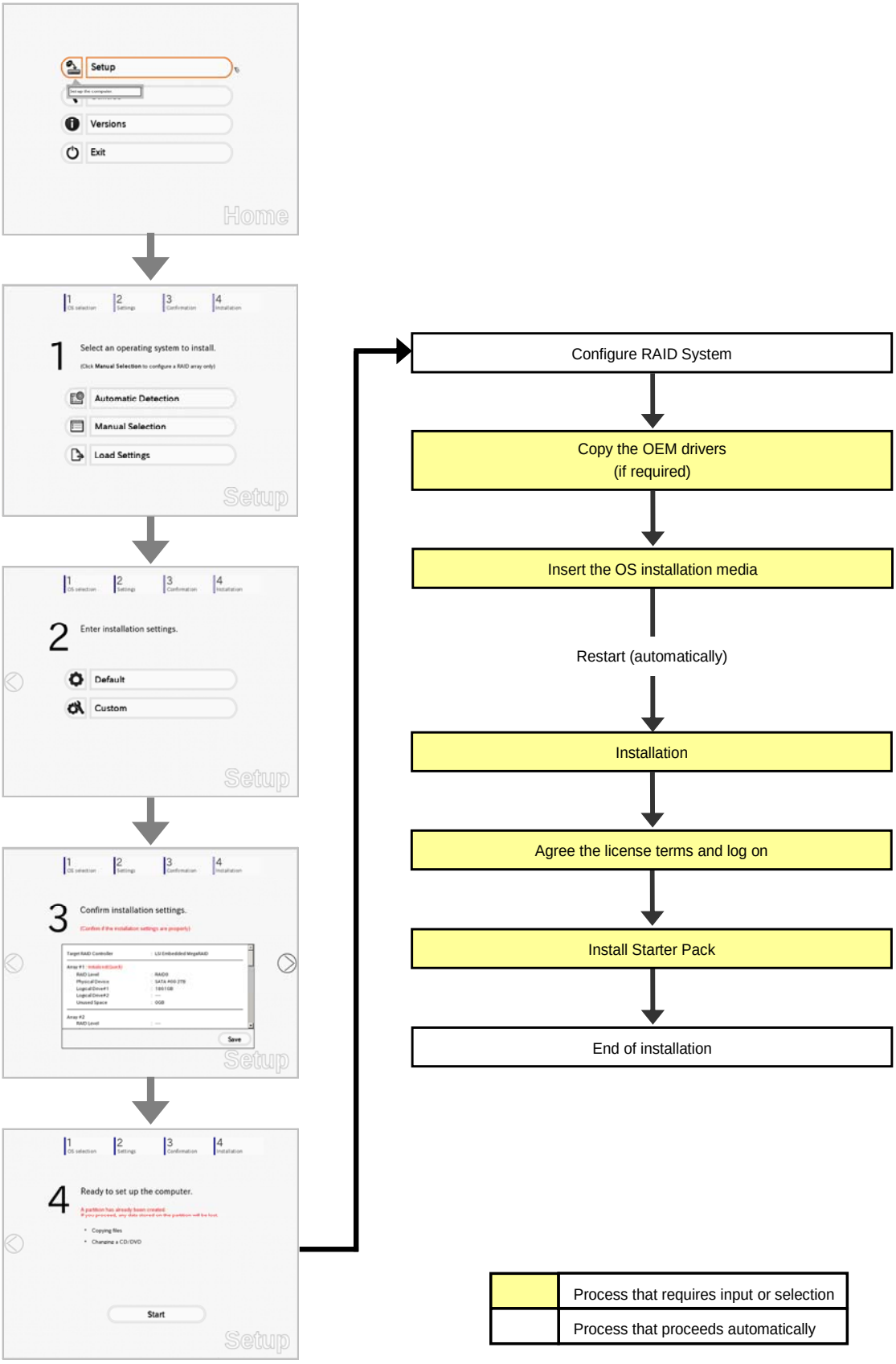
When using an onboard RAID controller (LSI Embedded MegaRAID):

Do not support the creation of RAID10 by using the onboard RAID controller. Refer to *Chapter 2* (*4. RAID System Configuration*) in "Maintenance Guide" when creating RAID10.

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 (if purchased optionally).
- For details on creating a parameter file, refer to *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 2008 R2 DVD-ROM*)

- **First Steps Guide**

- Either of the following EXPRESSBUILDER
  - **EXPRESSBUILDER DVD**
  - **Internal Flash Memory** (optional)

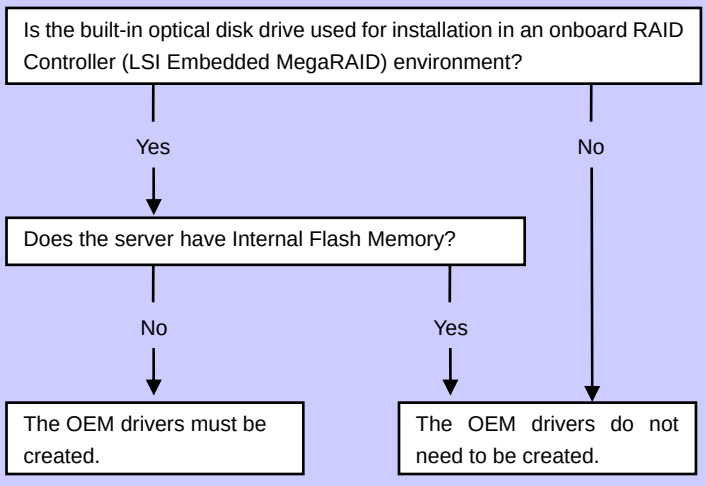
- Prepare if needed:
  - **Removable media for Windows OS parameter file**
  - **Removable media for creating OEM drivers** (Windows Server 2008 R2)
  - **Service Pack**
    (If the OS installation media contains Service Pack 1, you do not need to apply the service pack again.)

Note

OEM driver is required when using the onboard RAID controller (LSI Embedded MegaRAID) on the server equipped with internal optical disk drive.

Tips

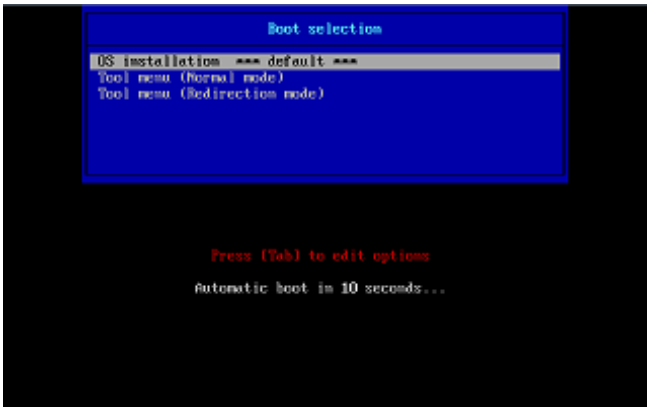
- EXPRESSBUILDER may be distributed in Internal Flash Memory. EXPRESSBUILDER can be run from Internal Flash Memory if it is installed in the server.
- If you are using a server with Internal Flash Memory installed, you can install the OS without using the EXPRESSBUILDER DVD.
- OEM drivers are required in the following cases. Prepare other removable media should these conditions apply.



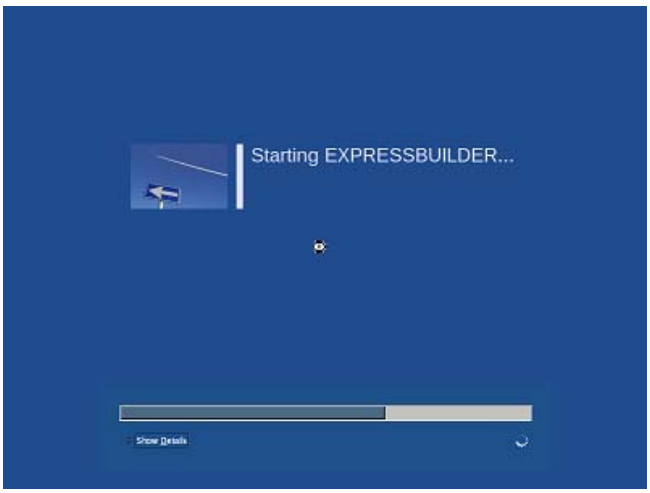
4.3.3 Setup procedure

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**.

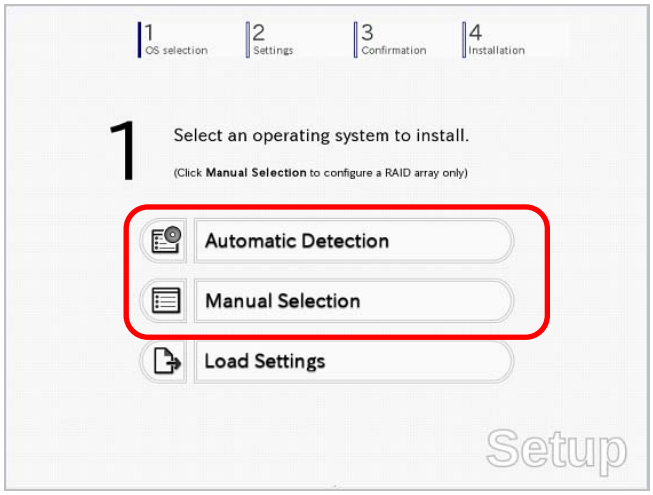
5. Click **Setup**.

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

☐ When not using parameter file : Go to Step 7.
☐ When using a parameter file : Go to Step 8.

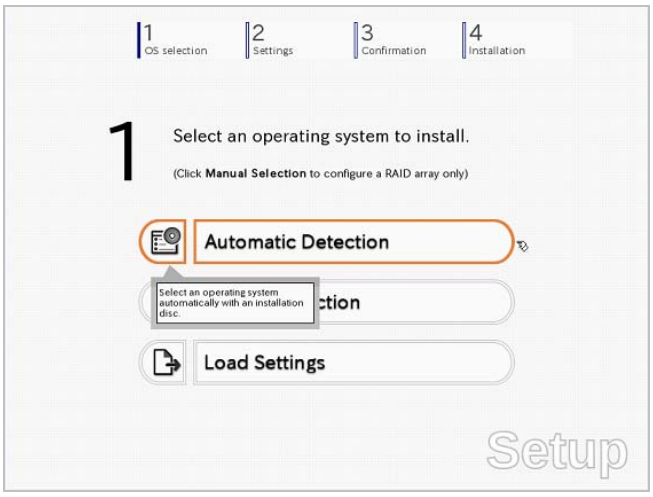
Note When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.

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

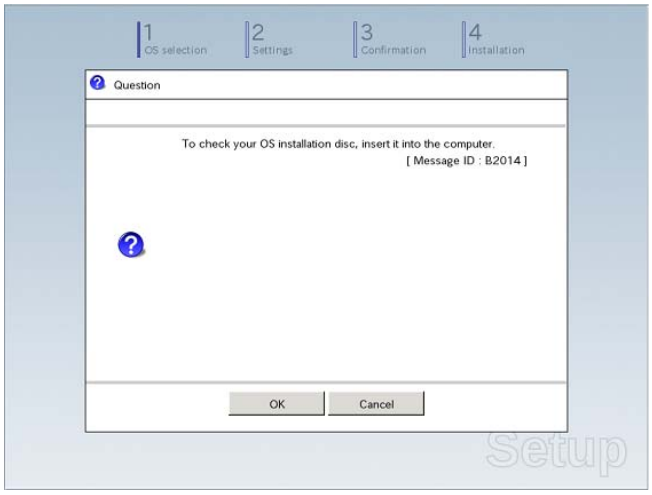


To automatically detect the OS on the OS installation media:

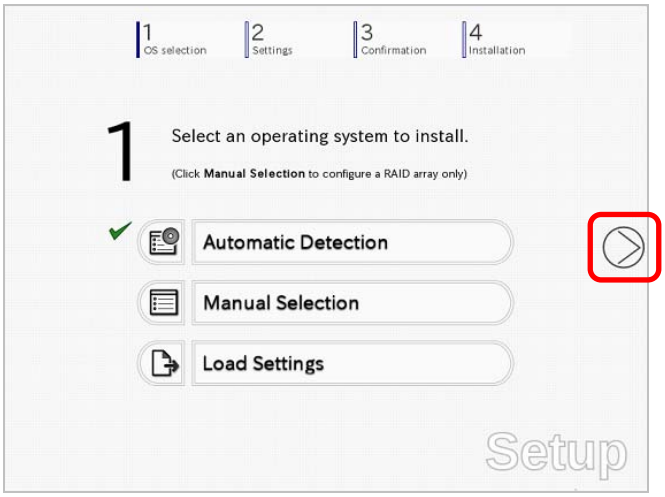
(1) Click **Automatic Detection**.



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

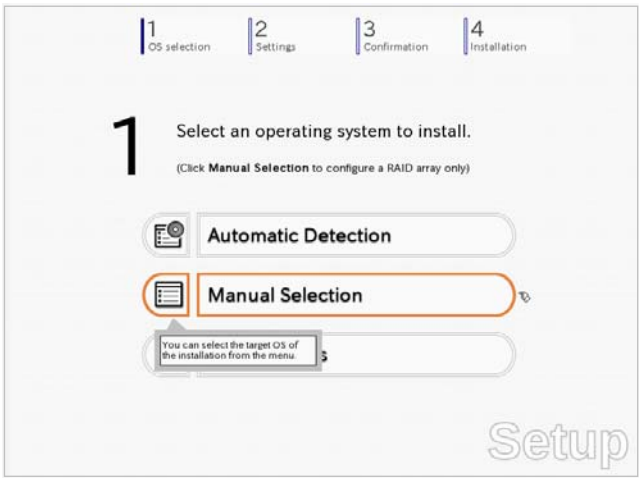


(2) Click ▷ on the right side of the screen.
→ Go to step 9.

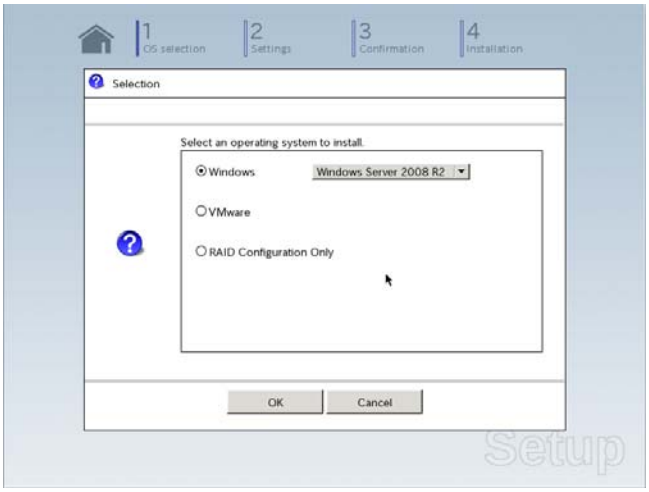


To select an OS from the menu:

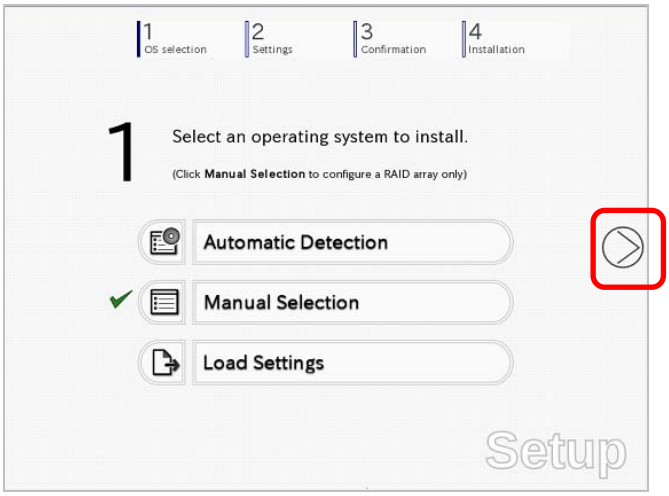
(1) Click **Manual Selection**.



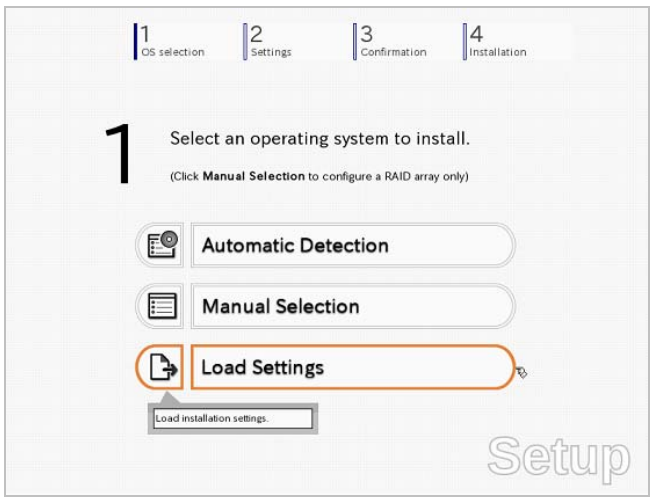
(2) From the **Windows** list, select **Windows Server 2008 R2**, and then click **OK**.



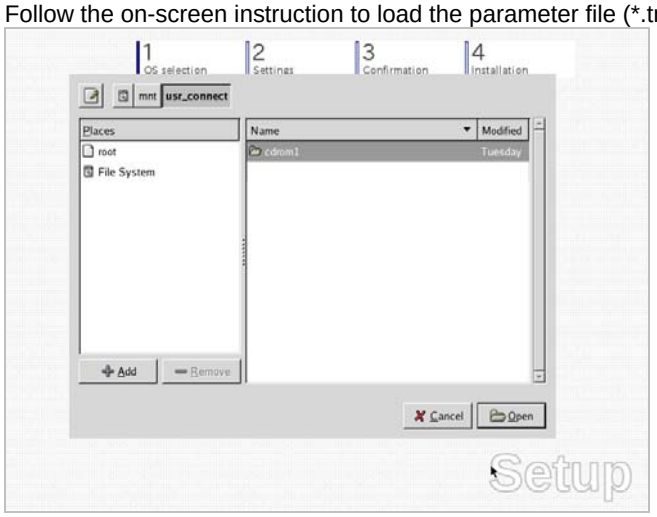
(3) Click ▷ on the right side of the screen.
→ Go to step 9.



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



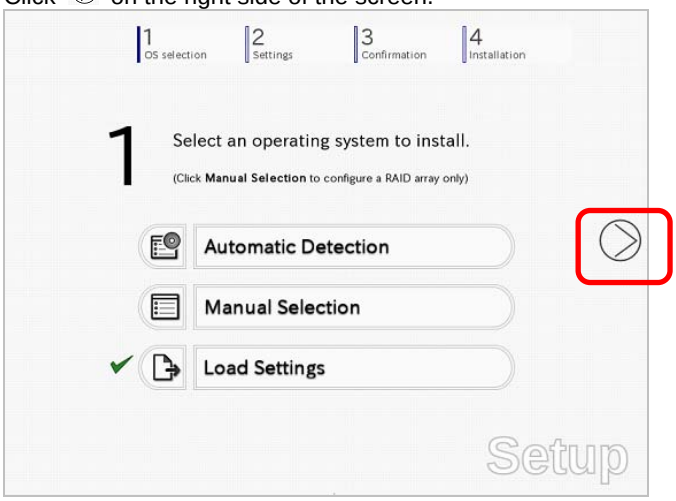
Follow the on-screen instruction to load the parameter file (*.tre).



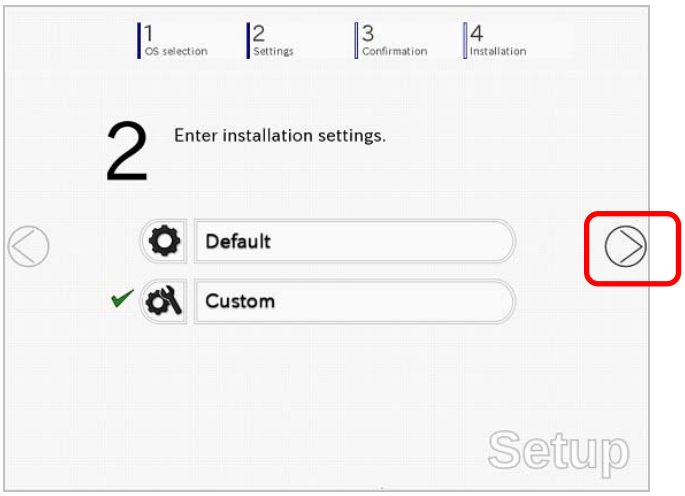
Tips

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

Click ▷ on the right side of the screen.

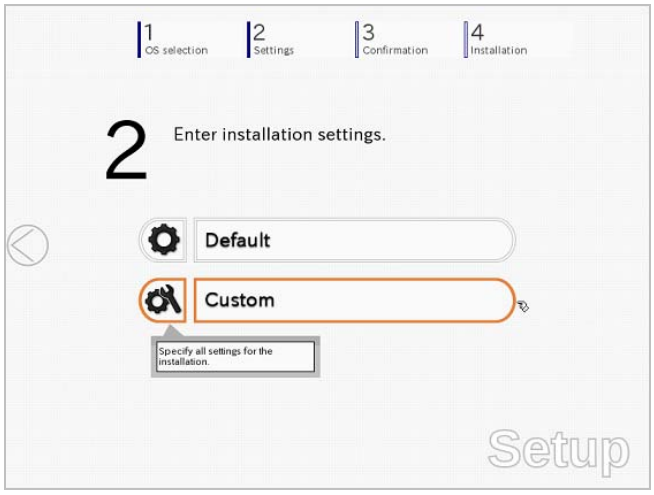


On the following screen, click ▷ on the right side of the screen.
Click **Custom** to check and modify the setting in the wizard.



→ Go to step 10.

9. Click **Custom**.



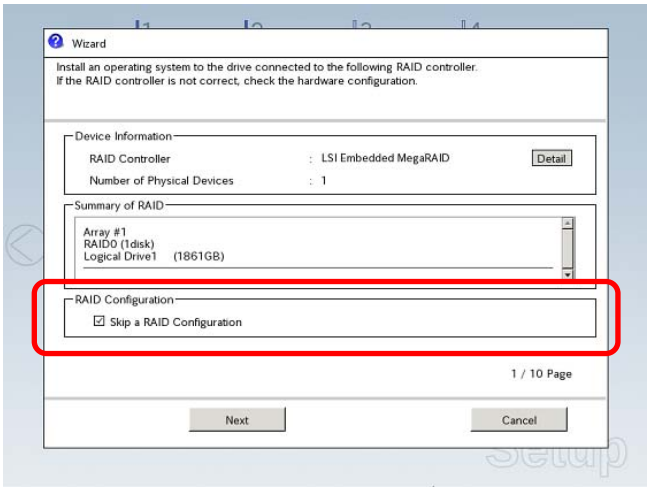
Note

If you click **Default**, setup with EXPRESSBUILDER is selected.
Click **Custom** to setup OS with Windows standard installer.

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

Note

When using an onboard RAID controller (LSI Embedded MegaRAID):
This function does not support the creation of RAID10 by using the onboard RAID controller. Refer to *Chapter 2 (4. RAID System Configuration)* in "*Maintenance Guide*" when creating RAID10.



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.

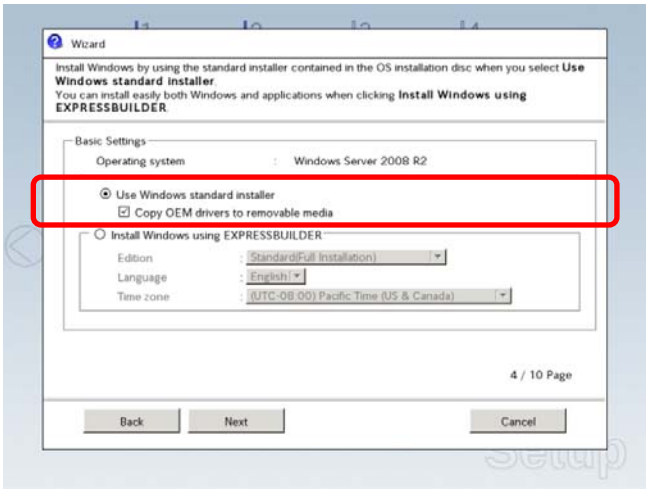
Important

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

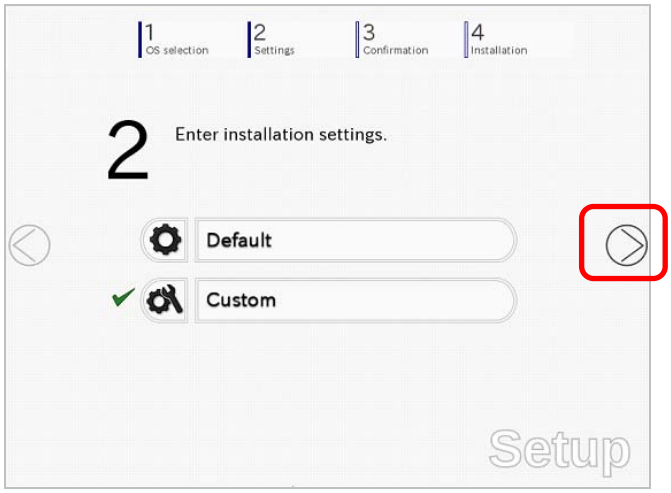
When skipping the creation of new logical drives:

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

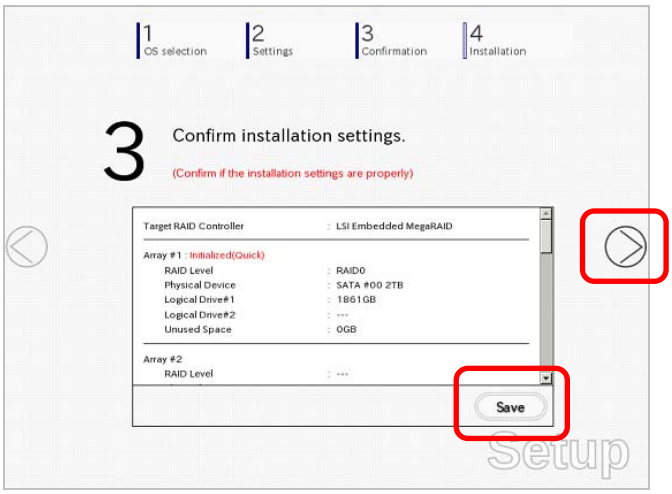
(2) Check the settings specified for **Basic Settings**.
Choose **Use Windows standard installer**, modify the settings as needed, and then click **Next**.
If you need to copy the OEM driver, select the **Copy OEM drivers to removable media** check box.



On the following screen, click ▷ on the right side of the screen.

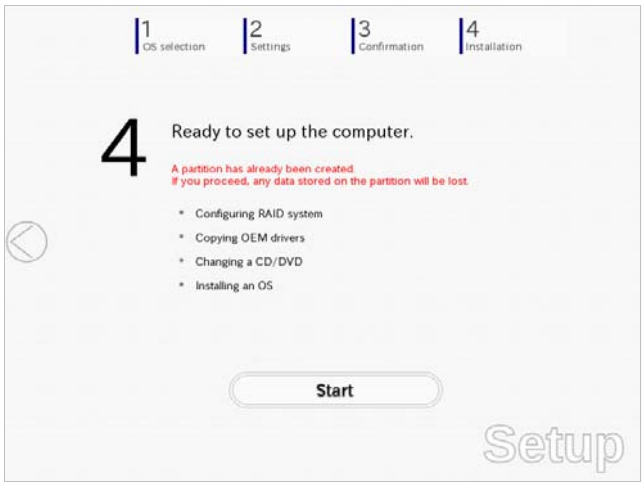


10. Check the parameter settings.
To save the settings, click **Save**.



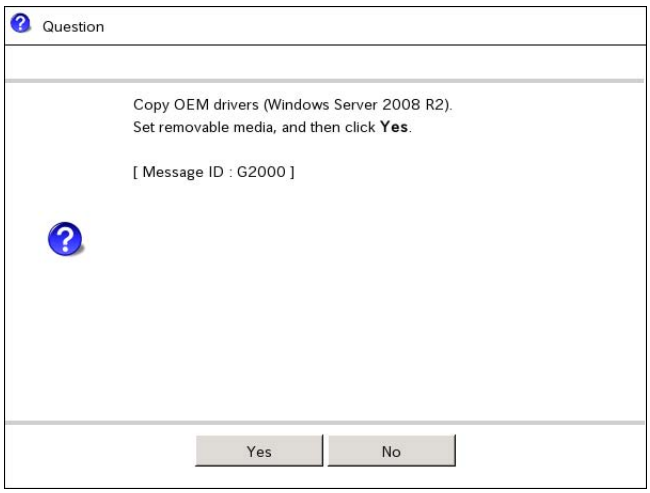
Click ▷ on the right side of the screen.

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

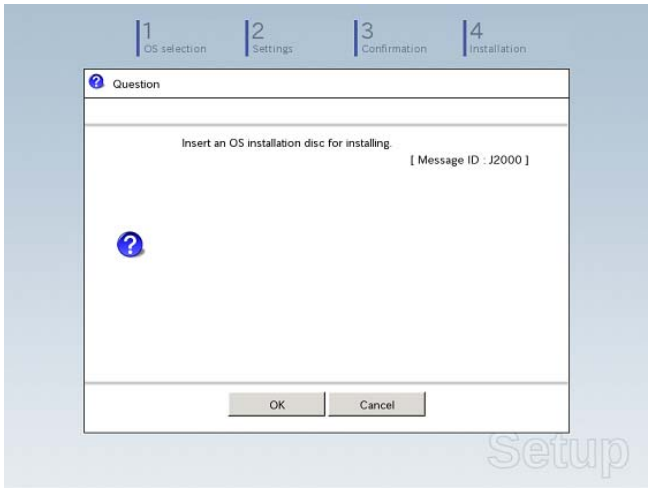


If you need to suspend setup due to reasons such as backing up data, restart the setup process from the beginning.

12. Continue setup according to the on-screen messages.
When copying the OEM driver, the following message appears.
Insert the removable media into the disk drive, and then click **Yes**.



When the following screen appears, insert the OS installation media into the disk drive, and then click **OK**.



13. 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
    ```

    Note Since the OS installation media is set in the optical disk drive in Step 12, boot the system from the optical disk drive having higher boot priority, not from Internal Flash Memory.

14. Run from the OS installation media.
    If a bootable operating system is already installed on the hard disk drive, press <Enter> key while the message “Press any key to boot from CD or DVD…” is displayed on the top of the screen.

    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 bootable operating system exists.

15. Click **Next** at default settings.

16. Click **Install Now**.
    Windows Server 2008 R2 installation starts.

– If the following message appears, go to step 17.

– If it does not, go to step 19.

Tips

- The above message appears if you are using an onboard RAID controller (LSI Embedded MegaRAID) in an environment equipped with an internal DVD drive.
- When this message appears, the message will say “CD, DVD, or USB flash drive”, but use Internal Flash Memory or removable media with the OEM drivers copied onto it.

17. Select the destination, and then click **OK**.

If using OEM drivers (made at step 12)

Removable media:\OEM_Driver\ws2008r2\megasr1

If using Internal Flash Memory

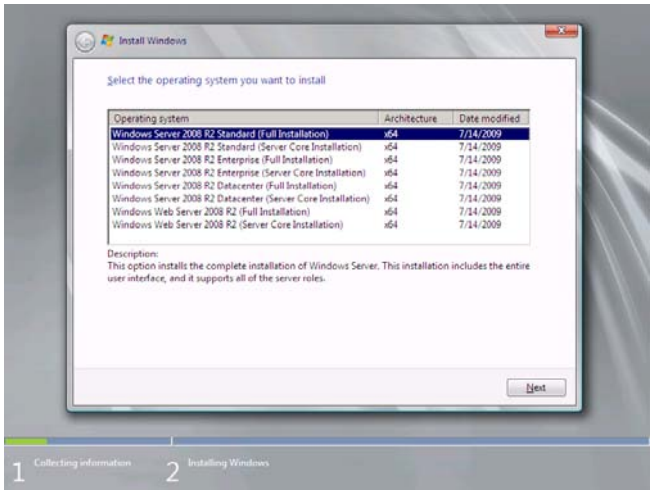
Internal Flash Memory:\004\win\winnt\oemfd\ws2008r2\megasr1

Tips

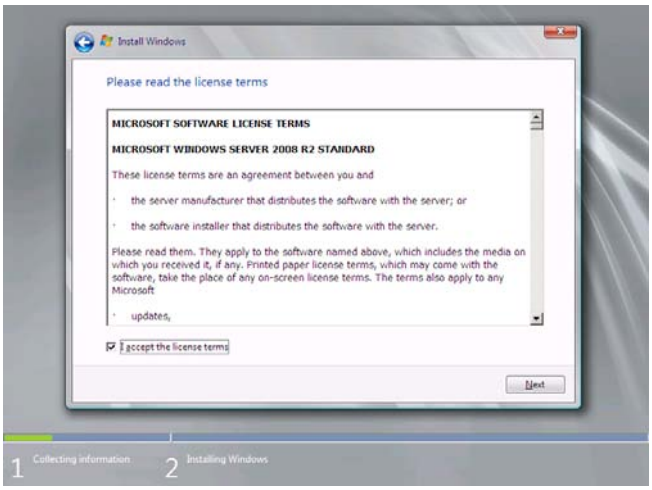
The volume label of Internal Flash Memory is INTER-FLASH.

18. Select **LSI Embedded MegaRAID**, and then click **Next**.

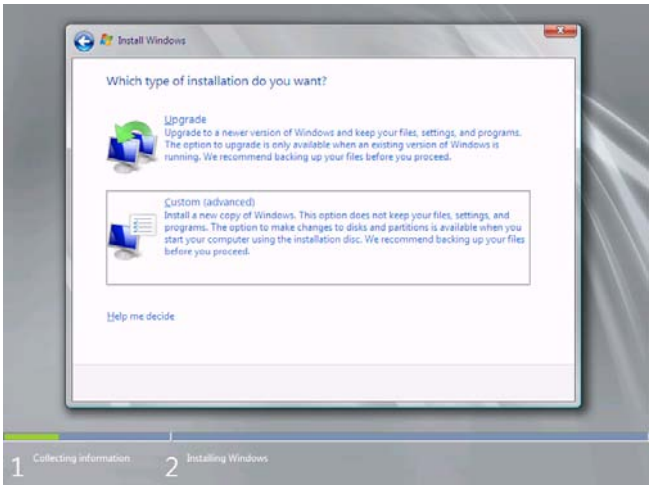
19. Select the edition of the Windows you purchased and the installation method.
The screen display differs depending on an OS installation media you are using.



20. 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**.



21. When the following message appears, select the installation type.
Select **Custom (advanced)** in this case.



22. "Where do you want to install Windows?" window appears.

Note If the driver was loaded in steps 16, 17 and 18, or if a RAID Controller is not used, go to step 26.

Click **Load Driver**.

If the following message appears, replace the OS installation media and EXPRESSBUILDER DVD in the optical disk drive, and then click **Browse**.

```
Load Driver
To install the driver needed to access your hard drive, insert
the installation media containing the driver files, and then
click OK.

Note: The installation media can be a floppy disk, CD, DVD, or
USB flash drive.

        Browse          OK          Cancel
```

Tips

- If using Internal Flash Memory, you do not need to remove the OS installation media.
- At this time, the message “The Installation media can be a floppy disk, CD, DVD, or USB flash drive.” appears on the screen, use the supplied EXPRESSBUILDER DVD or Internal Flash Memory.

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

When using the N8103-172/173/174 RAID Controller:
`\004\win\winnt\oemfd\ws2008r2\megasas2`

When using the N8103-168 RAID Controller
`\004\win\winnt\oemfd\ws2008r2\megasas2`

When using the onboard RAID Controller (LSI Embedded MegaRAID) and a USB-DVD drive:
`\004\win\winnt\oemfd\ws2008r2\megasr1`

24. Select the necessary driver from the driver list shown, and then click **Next**.

N8103-172/173/174 RAID Controller:
[**LSI MegaRAID SAS 9272-8i**]

N8103-168 RAID Controller:
[**LSI MegaRAID SAS 9265CV-8i**]

If using the onboard RAID Controller (LSI Embedded MegaRAID) and a USB-DVD drive
[**LSI Embedded MegaRAID**]

Tips

When N8103-168 is used, the name of the RAID Controller that appears on the screen differs from the one shown on WebBIOS and Universal RAID Utility. However, this is not a problem.

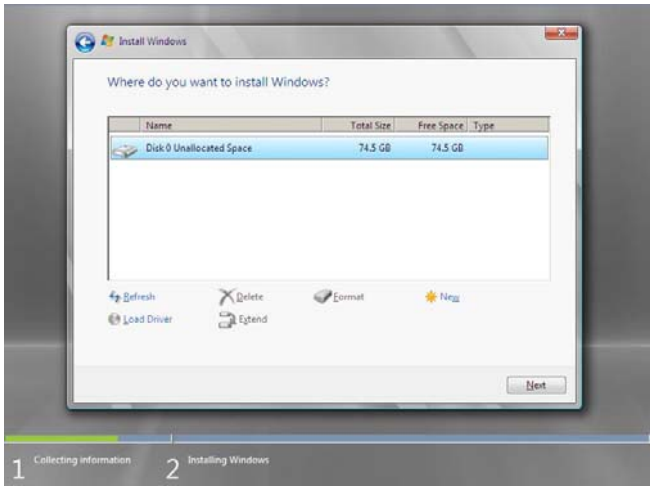
25. If you used EXPRESSBUILDER DVD, remove it and then insert the OS installation media.

Tips

If you have not replaced the OS installation media after loading the driver, the following message may appear.

If it appears, replace the OS installation media, and then click **Refresh**.

26. When the following window appears, 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 29.



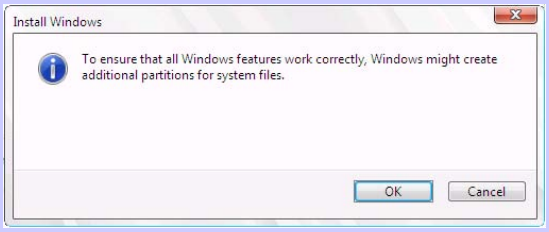
27. Click [New], enter the partition size into the size input box, and then click **Apply**.

Note

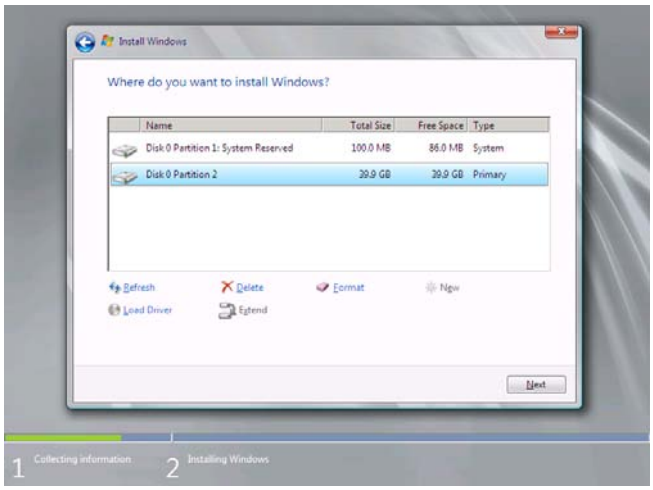
When installing the OS to a disk of over 2,097,152 MB (2 TB), the partition size can only be set to 2,097,152 MB or less.

Tips

When creating a new partition and installing the OS, a 100 MB boot partition is created. When the following window appears, click **OK**.



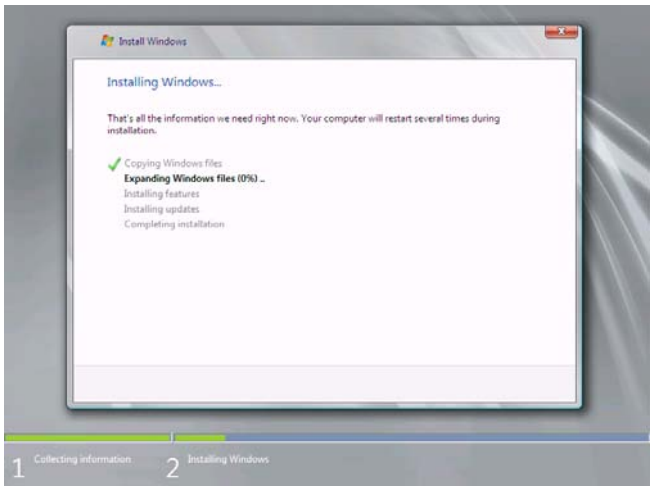
28. Select the partition created in step 27, and then click **Format**.
29. Select the created partition, and then click **Next**.



Tips

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

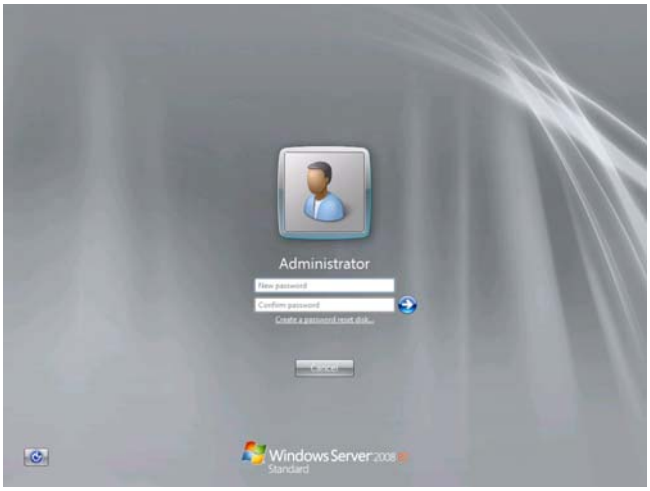
When the following message appears, Windows installation starts automatically.



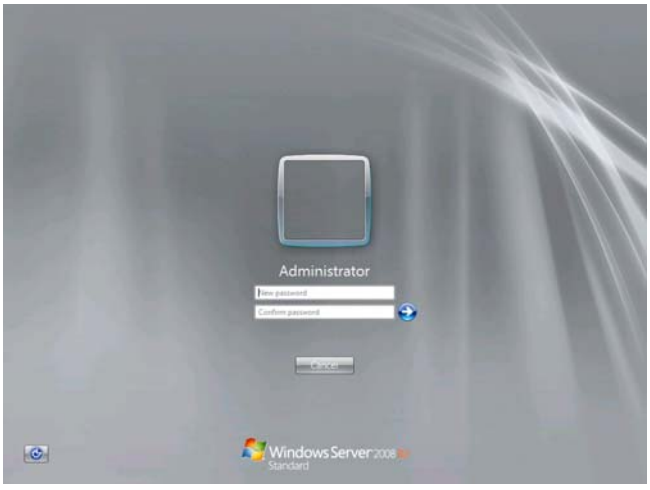
30. After a full installation of Windows Server 2008 R2 is completed, the following window appears, prompting you to change your password before logging on. Click **OK**.

31. Change your password, and then click the button.

Full installations:



Server Core installations:



Tips

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

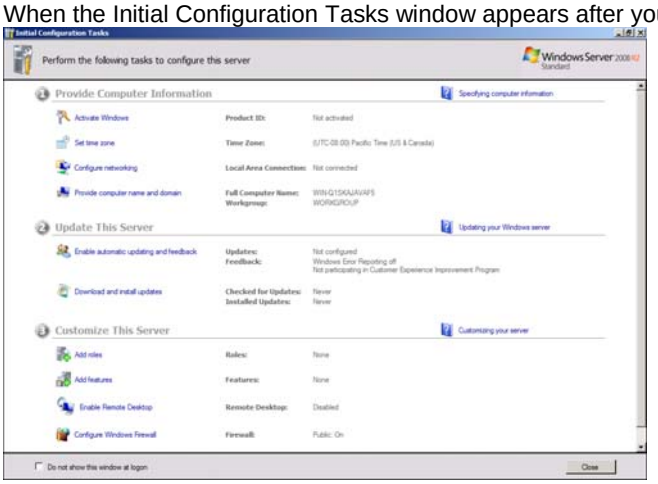
- Contains 6 or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters, lowercase letters, and symbols.

32. Click **OK**.

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

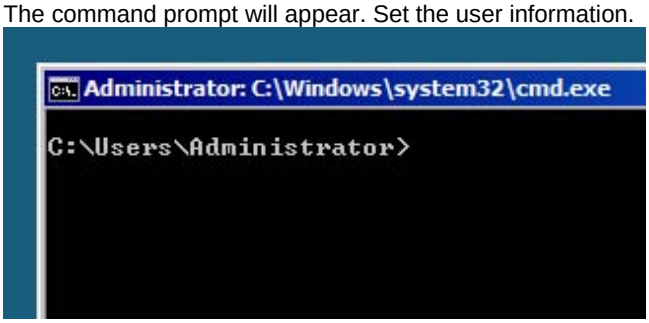
Full installations:

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*".

34. Install Starter Pack by referring to *Chapter 1* (*4.4 Installing Starter Pack)*.
35. Install drivers and specify detailed settings by referring to *Chapter 1 (4.5 Setting Up Device Drivers)*.
36. For optional devices whose driver has not been installed, install the device drivers according to the instructions supplied in the driver manual.
37. Apply Service Pack as needed according to *Chapter 1 (4.7 Applying Service Pack*).
38. Install the applications as needed by referring to *Chapter 1* (*4.8 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.

4.4 Installing Starter Pack

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

Important

Also install Starter Pack in the following cases.

- **The hardware configurations have changed**
  (If an internal optional device is installed or removed, apply the Starter Pack. 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**

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

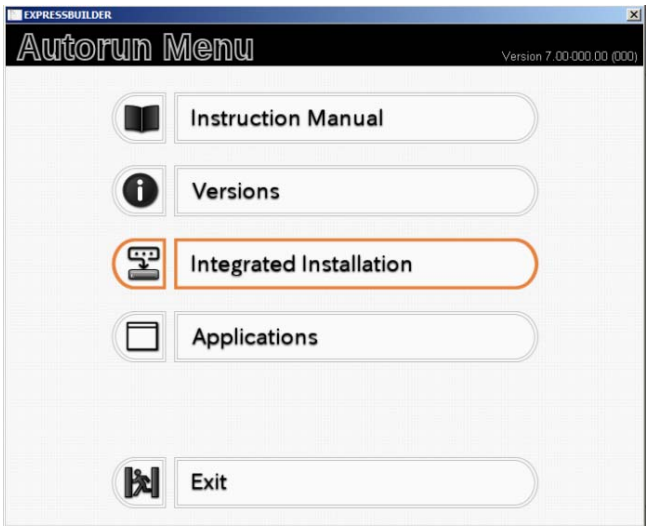
If the OS is installed by using EXPRESSBUILDER, Starter Pack is already applied. If the configuration is not changed, you do not need to apply Starter Pack again.

4.4.1 When using EXPRESSBUILDER DVD

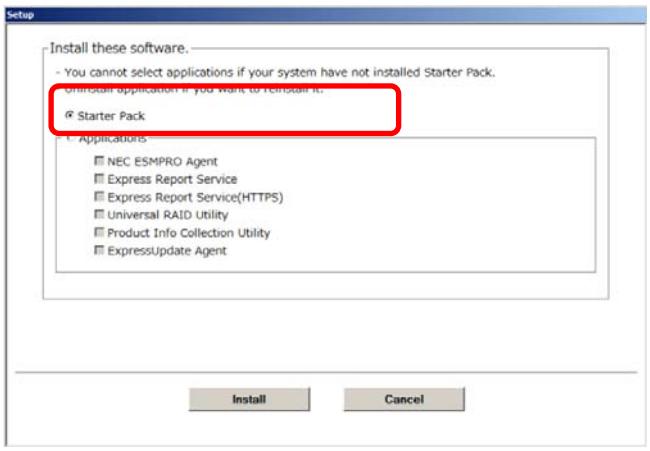
1. Log on to the system with the built-in administrator, which has administrative privileges.
2. Insert EXPRESSBUILDER DVD into the optical disk drive.
3. Start the installer of Starter Pack according to the installation type.

Full installations:

Click **Integrated Installation** on the menu.



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



Tips If Starter Pack is already installed, the **Applications** option is selected by default. To install Starter Pack again, select the **Starter Pack** option.

Server Core installations:

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

```
Cd /d D:\004\win\winnt\bin
```

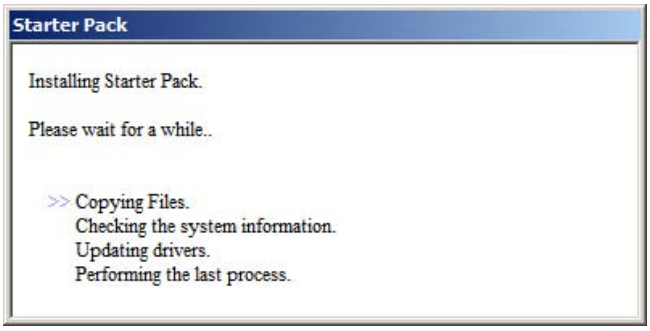
```
C:\Users\administrator>cd /d D:\004\win\winnt\bin
```

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

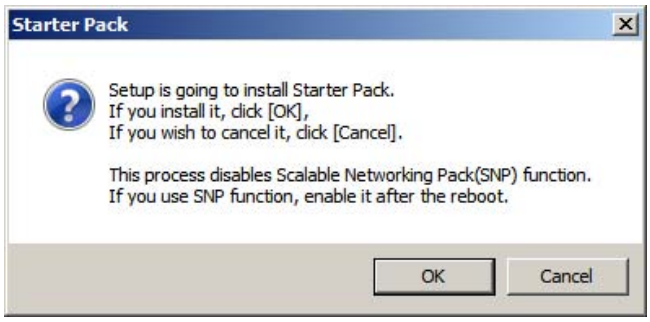
```
Pkgsetup.vbs
```

```
D:\004\win\winnt\bin>pkgsetup.vbs
```

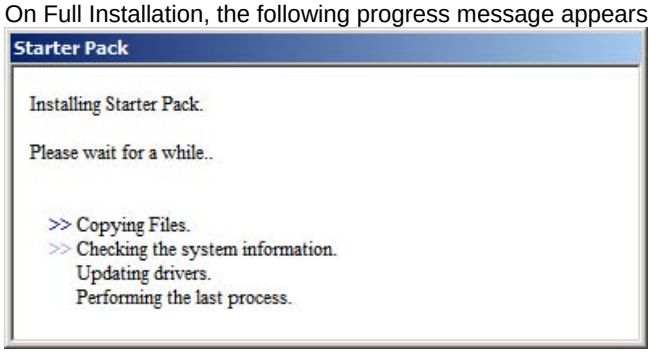
Wait for several minutes without attempting any further operation until the following window appears. On Full Installation, the following progress message appears while the Starter Pack is installed.



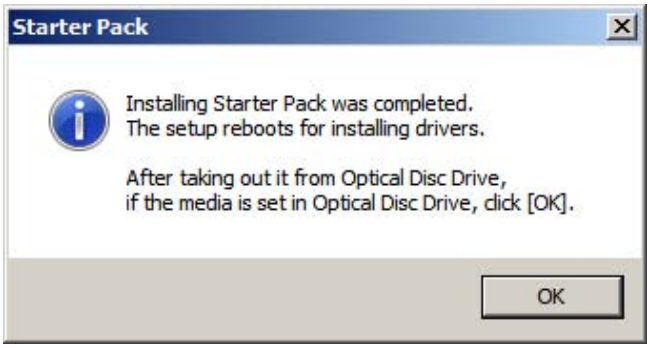
4. Read the message, and then click **OK**.
   Starter Pack installation starts.



   Wait until installation completes (about 3 or 4 minutes).
   On Full Installation, the following progress message appears while the Starter Pack is installed.



5. When the following message appears, Starter Pack installation is complete.
   Follow the instructions in the message, and remove EXPRESSBUILDER DVD.



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

Installation of Starter Pack is now complete.

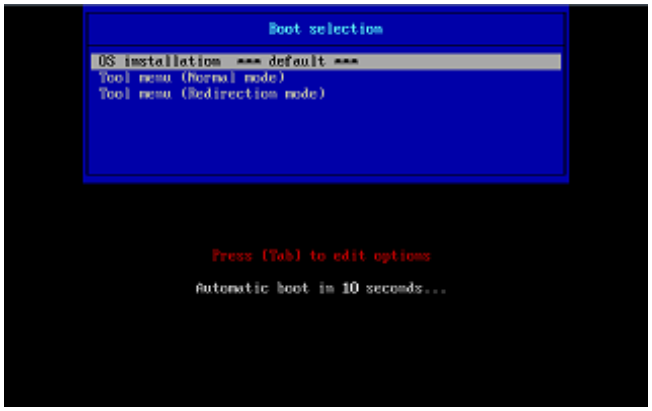
4.4.2 When using Internal Flash Memory

(Optional "Internal Flash Memory" is required)

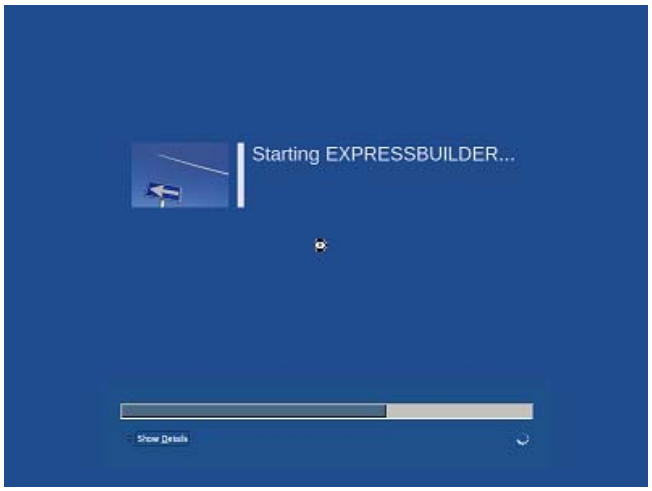
1. After installing the operating system, restart the server.
2. When “Press <F2> Setup, <F3> Internal Flash Memory, <F4> ROM Utility, <F12> Network” appears during POST, press <F3> key.

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.

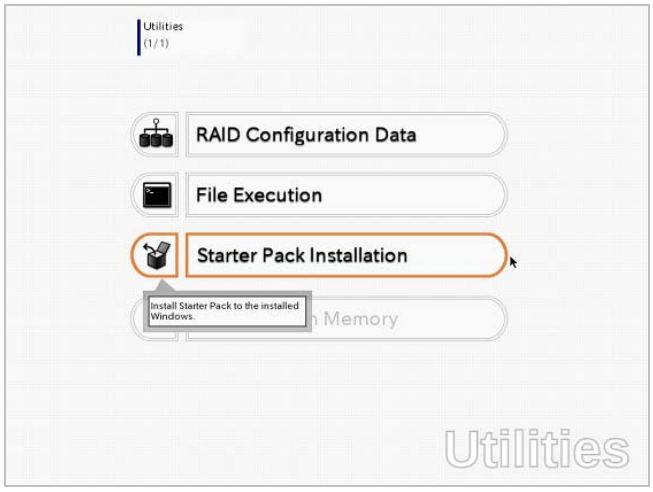


The server starts from EXPRESSBUILDER.

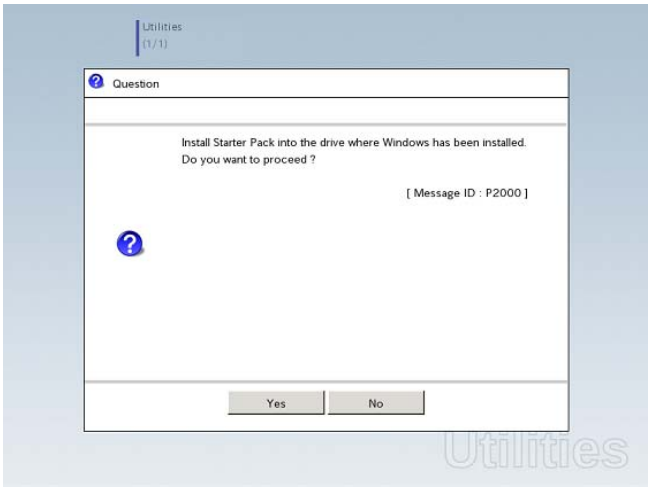
4. Select **English** on the language selection window, and then click **OK**.

5. Click **Utilities**.

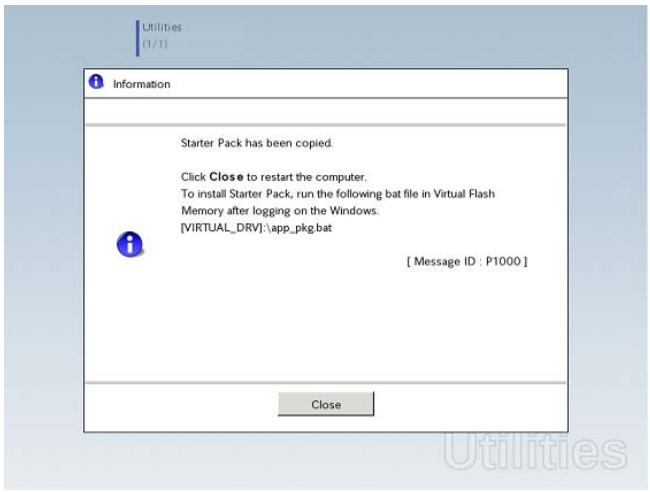
6. Click **Starter Pack Installation**.



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



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



The server then restarts.

Note You do not need to press <F3> key at this time.

9. Proceed application step according to the installation type.

Tips During setup, a virtual floppy disk drive is temporarily connected. Follow the instructions below to reference the virtual floppy disk drive.

Full installations:

Click **app_pkg.bat** of Floppy disk drive (usually drive A).

Server Core installations:

(1) Enter the following command at the command prompt, and then specify the drive letter of Floppy disk drive (usually drive A).

Cd /d A:

```
C:\Users\administrator>cd /d A:\
```

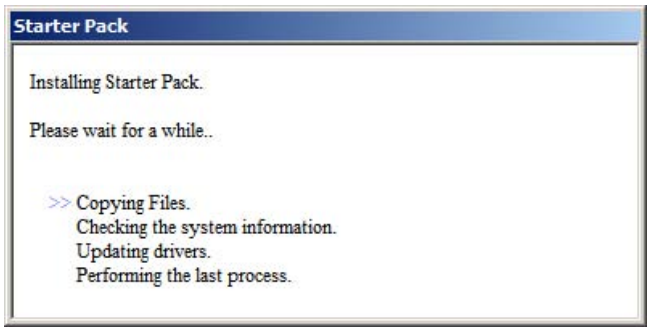
(2) Enter the following, and then press <Enter> key.

app_pkg.bat

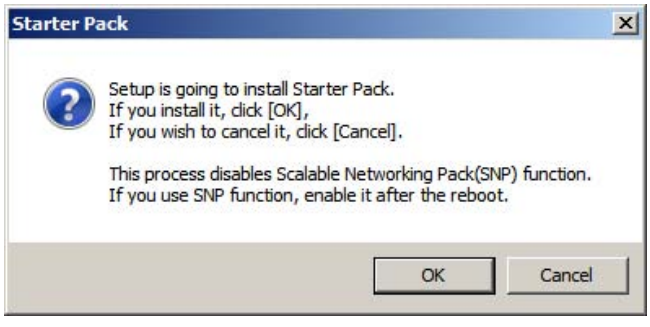
```
A:\>app_pkg.bat
```

Wait until the file copy is complete. (About 1 to 3 minutes.)

On Full Installation, the following progress message appears while the Starter Pack is installed.

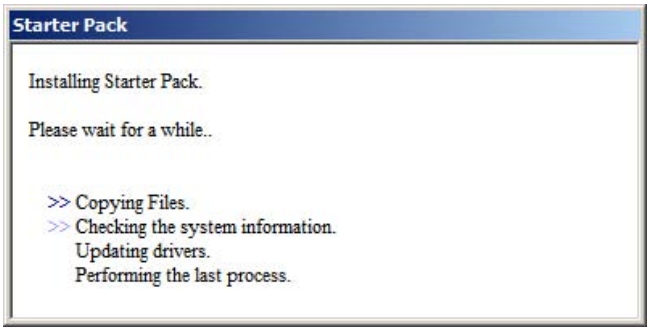


10. Read the message, and then click **OK**.
Starter Pack installation starts.

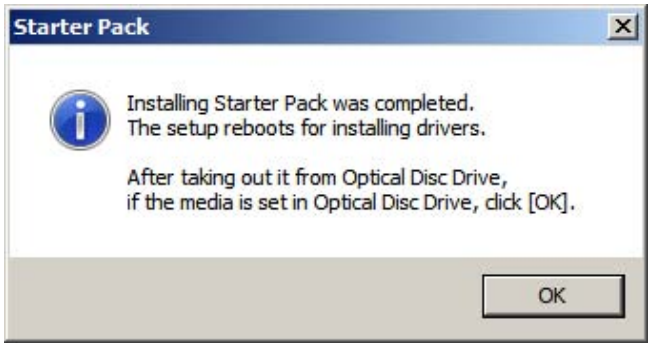


Wait until the installation of the Starter Pack is complete. (About 3 to 5 minutes)

On Full Installation, the following progress message appears while the Starter Pack is installed.



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



Installation of Starter Pack is now complete.

4.5 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.

4.5.1 Installing the LAN drivers and BACS (teaming utility)

(1) LAN drivers and BACS

If EXPRESSBUILDER is used for setup, the LAN drivers and BACS will automatically be installed.
If the Windows standard installer is used for setup, install Starter Pack to install the LAN driver and BACS.

Important **WOL is supported by the standard network adapters only.**

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: N8104-128/132/133/138/145

The LAN driver is not installed if N8104-145 is not installed at the time of installation of the OS by using EXPRESSBUILDER or at installation of Starter Pack, or on a pre-installation model.

Perform the steps below to install the N8104-145 LAN driver manually.

1. Insert EXPRESSBUILDER DVD into the optical disk drive.

   If Autorun Menu appears, close the menu.

   Tips EXPRESSBUILDER DVD is unnecessary if Starter Pack was installed from Internal Flash Memory. Proceed to the next step.

2. Open Command Prompt, and execute `install.bat` in the following folder.

   When using EXPRESSBUILDER DVD:

   EXPRESSBUILDER DVD`:\004\win\winnt\ws2008x64\r2\lan\intel`

   If Starter Pack was installed from Internal Flash Memory:

   System Drive:`\StartPKG\ws2008x64\r2\lan\intel`

3. When the following message appears, remove the EXPRESSBUILDER DVD from the optical disk drive, and then restart the system.

Installation Completed.

Setup is now completed.

Note

- If the LAN driver has been installed in N8104-145, PROSet (Teaming utility) is also installed.
- If an optional LAN board has been added, perform the procedure in "4.5.2 Setting up LAN drivers" for each optional LAN board.

(3) Network adapter name

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

Network adapters for the standard configuration
Broadcom NetXtreme Gigabit Ethernet #xx*

If connecting with an optional LAN board:
[N8104-128] Broadcom BCM57711 NetXtreme II 10 GigE (NDIS VBD Client) #xx*
[N8104-132/133/138] Broadcom NetXtreme Gigabit Ethernet #xx*
[N8104-145] Intel(R) Ethernet Server Adapter I340-T2 #xx*

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

Tips

The ID for N8104-128 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.

4.5.2 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

Using N8104-128 default speed duplex (10Gb Full), there is no problem using switch with "Autonegotiation" speed duplex.

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** 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) Using N8104-128

Using N8104-128 with the server, iSCSI Offload Engine must be disabled.

Follow the procedure below to set it.

1. Double-click the **Broadcom Control Suite** icon on the Control Panel window.
   Broadcom Advanced Control Suite starts.
2. Set **Filter** to **ALL VIEW**, select **Broadcom BCM57711 NetXtreme II 10 GigE # xx** under **Explorer View** the **Adapter xx (BCM57711 xx) - Port x**.
3. Tab on **Configurations** at the right side screen and then expand **Resource Reservations**.
4. Click the **Configure** button on the **Click the button to configure**.
   The Hardware and Resource Configuration Wizard appears.
5. Remove a checkmark from **iSCSI** under **Protocols**, if checked.
   Select **Next**, and then click the **Apply** button.
6. When the following message 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?

7. Complete steps 2 to 6 for each N8104-128 network adapter.
   Then, close the Broadcom Advanced Control Suite.
8. Insert EXPRESSBUILDER DVD into the optical disk drive.
   If the Autorun Menu appears, close the menu.

   Tips EXPRESSBUILDER DVD is unnecessary if Starter Pack was installed from Internal Flash Memory. Proceed to the next step.

9. Double-click `bhddisabled.vbs` in the following folder.

   When using EXPRESSBUILDER DVD:
   EXPRESSBUILDER DVD`:\004\win\winnt\ws2008x64\r2\lan\bcom\ws2008_r2\lan`

   If Starter Pack was installed from Internal Flash Memory:
   System drive`:\StartPKG\ws2008x64\r2\lan\bcom\ws2008_r2\lan`

10. When the following message appears, click OK.

    > Black Hole Router Detect Disable Completed, Reboot the system

11. Eject EXPRESSBUILDER DVD from the optical disk drive, and then restart the system.

Setup is now completed.

(3) Using N8104-132/133/138

Using N8104-132/133/138 with the server, follow the procedure below to set it.

1. Insert EXPRESSBUILDER DVD into the optical disk drive.
   If Autorun Menu appears, close the menu.

Tips EXPRESSBUILDER DVD is unnecessary if Starter Pack was installed from Internal Flash Memory. Proceed to the next step.

2. Double-click `pgdyavd_disable.vbs` in the following folder.

   When using EXPRESSBUILDER DVD:
   EXPRESSBUILDER DVD`:\004\win\winnt\ws2008x64\r2\lan\bcom\ws2008_r2\lan`

   If Starter Pack was installed from Internal Flash Memory:
   System drive`:\StartPKG\ws2008x64\r2\lan\bcom\ws2008_r2\lan`

3. When the following message appears, click **OK**.

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

Tips The message “Action:Non” indicates that the LAN driver is already set.

4. Eject EXPRESSBUILDER DVD from the optical disk drive, and then restart the system.

Setup is now completed.

4.5.3 Setting up team/LiveLink (BACS)

Note

- For how to delete an adapter team, refer to *Chapter 1* (*4.5.3 Setting up team/LiveLink (BACS) - (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.
- If you want to change the type of an existing team, delete the team, and then create a new team.

(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.

Important

FEC/GEC mode requires 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.

Important

- **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-Failback Disable) (with Standby Member) using two network adapters, setup for LiveLink is not essential.**

(3) Setting up team/LiveLink

Important

Possible combinations of network adapters that compose the team are as follows.

When the number of adapters that composes the team is up to four:

- **Between standard network adapters**
- **Between LAN cards excluding N8104-128**
- **A standard network adapter and LAN card N8104-128**

When the number of adapters that composes the team is up to two:

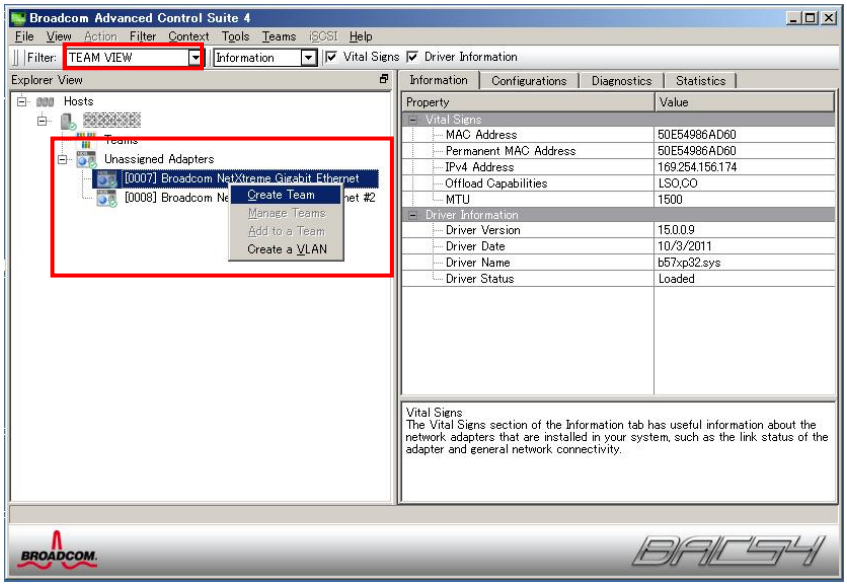
- **Between N8104-128 adapters.**

Teaming with another N8104-128 on different board is not supported.

Tips

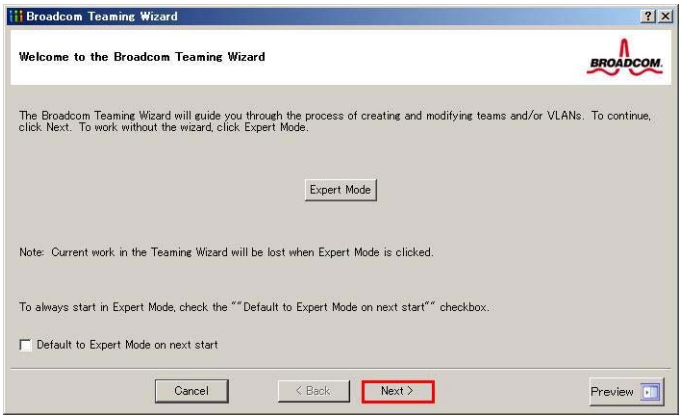
To edit a team, right-click on the BACS team, and then select **Edit Team**.
Then refer to step 3 and the subsequent steps to edit the team.

1. Double-click the **Broadcom Control Suite** icon on the Control Panel window.
   Broadcom Advanced Control Suite starts.
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.

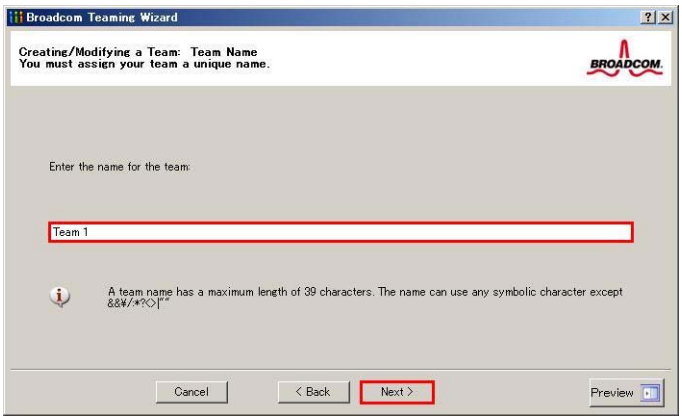
3. Click **Next**.



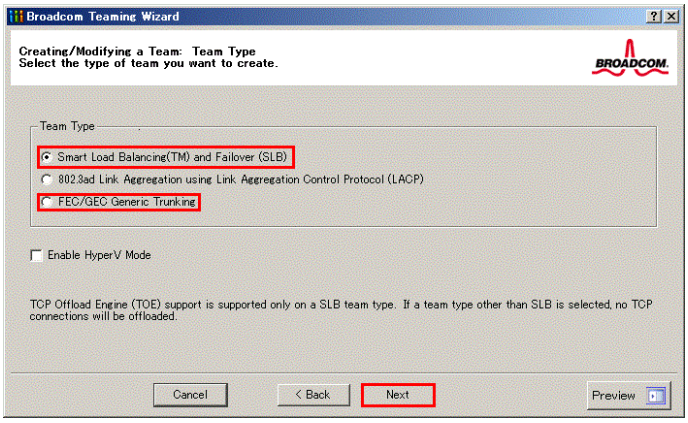
Note

Do not use **Expert Mode**.

4. Enter any name into the team name entry column, and then click **Next**.



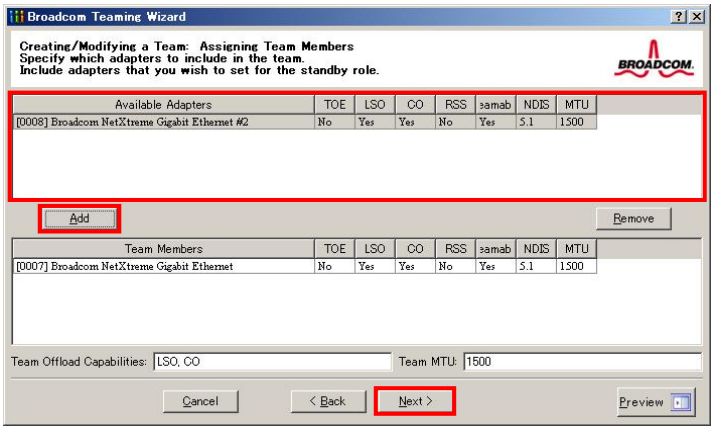
5. Under **Team Type**, select the type of team you want to create, and then click **Next**.



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. Select **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**.

6. Select the adapters that compose the team, click **Add** to add them to the **Team Members** area, and then click **Next**.



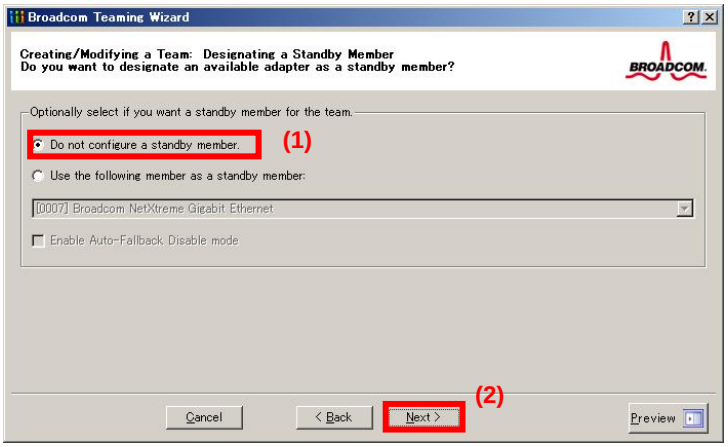
Note If **FEC/GEC Generic Trunking** is selected, go to step 15.

7. 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-Failback Disable) (with Standby Member)

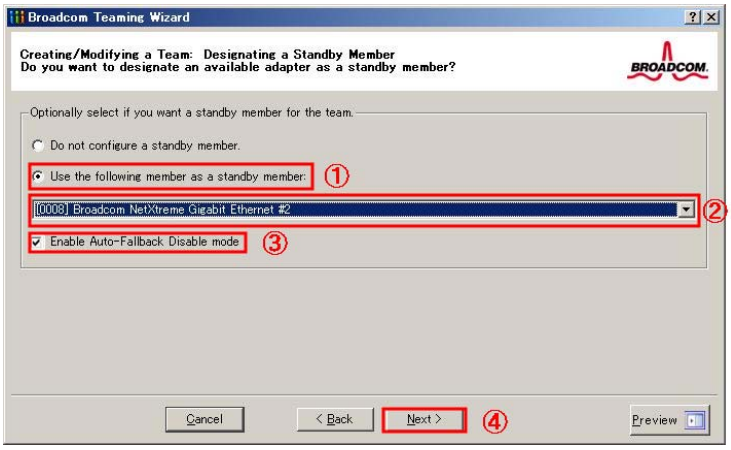
(1) Select **Use the following member as a standby member**.

(2) Select the adapter that is to be a standby member from the drop-down list.

(3) Select **Enable Auto-Failback Disable mode**.

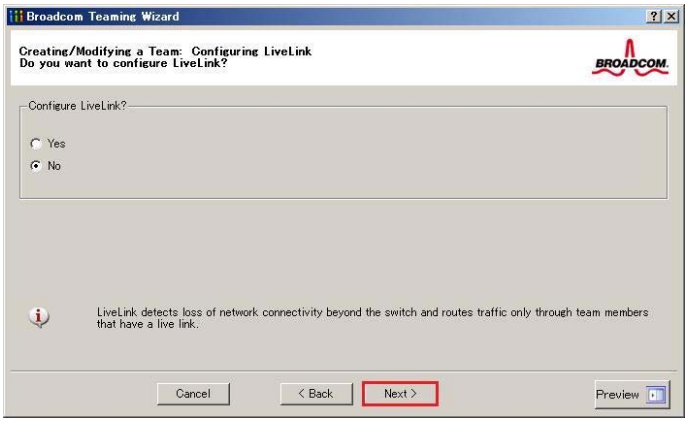
Important **Do not support the operation when not select the Enable Auto-Failback Disable mode.**

(4) Click **Next**.

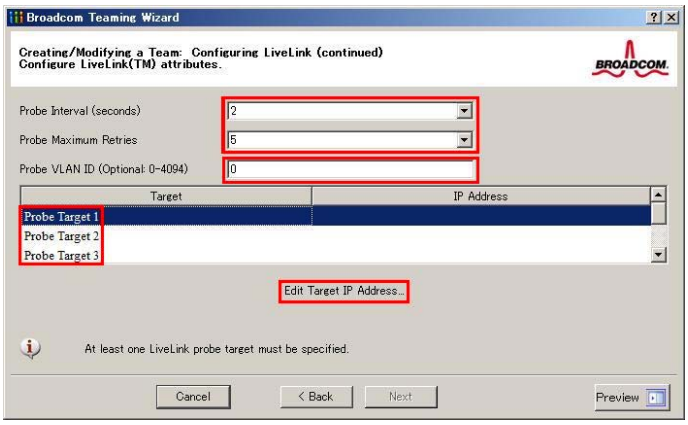


Note **Enable Auto-Failback Disable mode** is cleared while editing the team. Select it again.

8. 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.



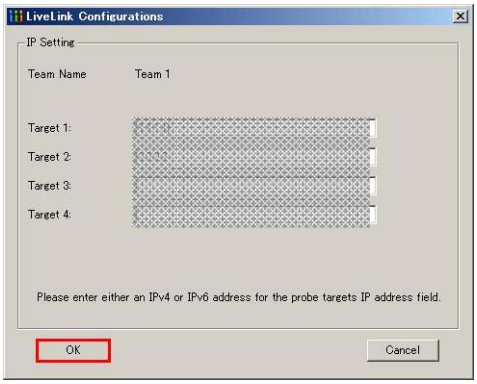
9. You can use the default setting for **Probe interval** and **Probe maximum retries**. If you change these values, select a value from each drop-down list, click the target probe (**Probe Target *xx***), and then click **Edit Target IP Address**.



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**.

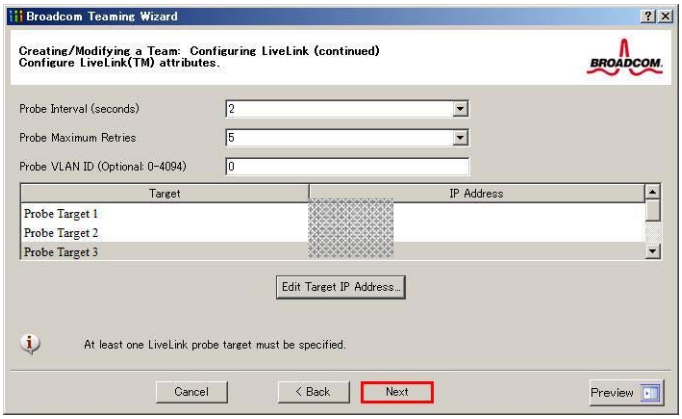
10. In the **Target *xx*** text box, enter the IP address of the alive monitoring server, and then click **OK**.



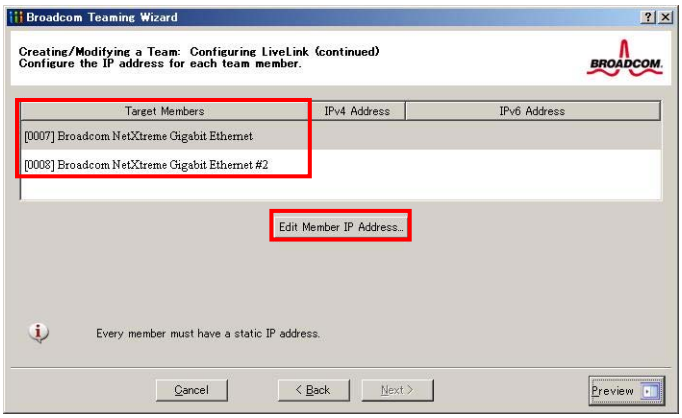
Note

- *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.

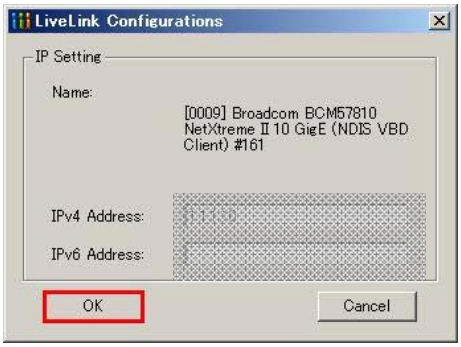
11. Click **Next**.



12. Select an adapter from the **Team Members** area, and then click **Edit Member IP Address**.



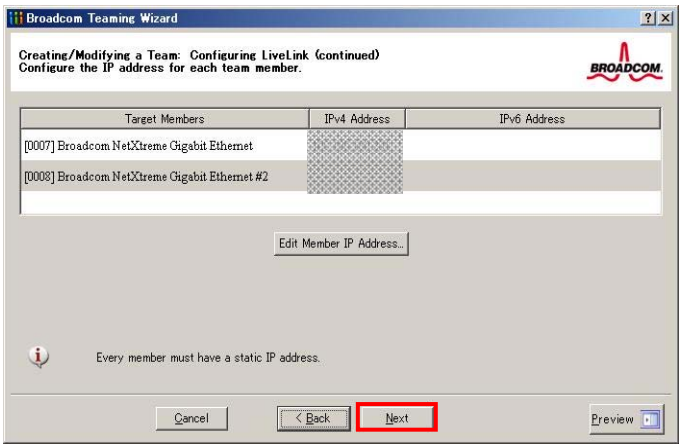
13. Enter the IP address used for LiveLink communication, and then click **OK**.



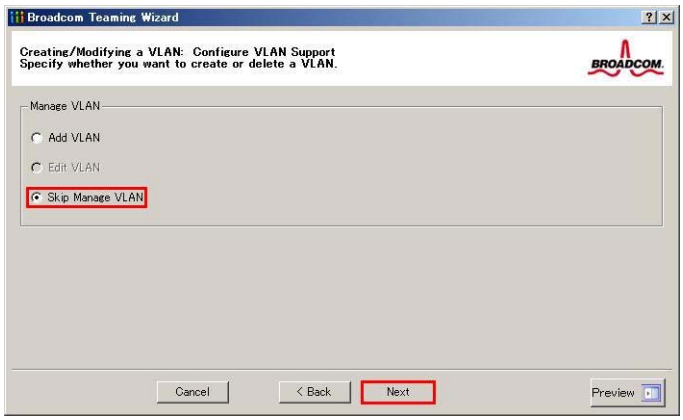
Note

- 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.

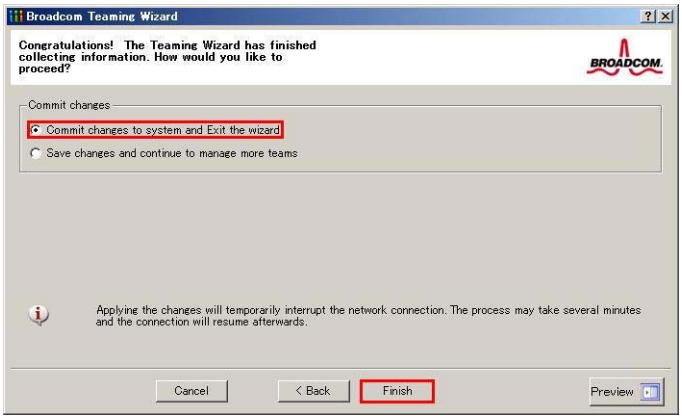
14. Click **Next**.



15. Make sure that **Skip manage VLAN** is selected under **Manage VLAN**, and then click **Next**.
It is an example of if 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

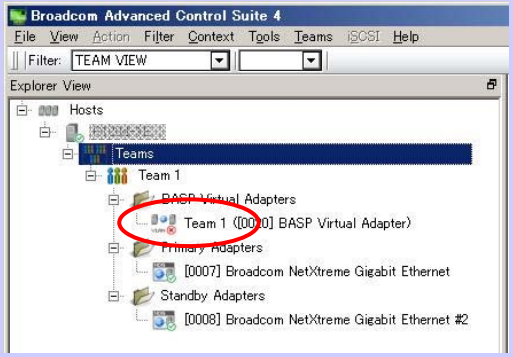
When the message below appears, select **Yes**.

"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

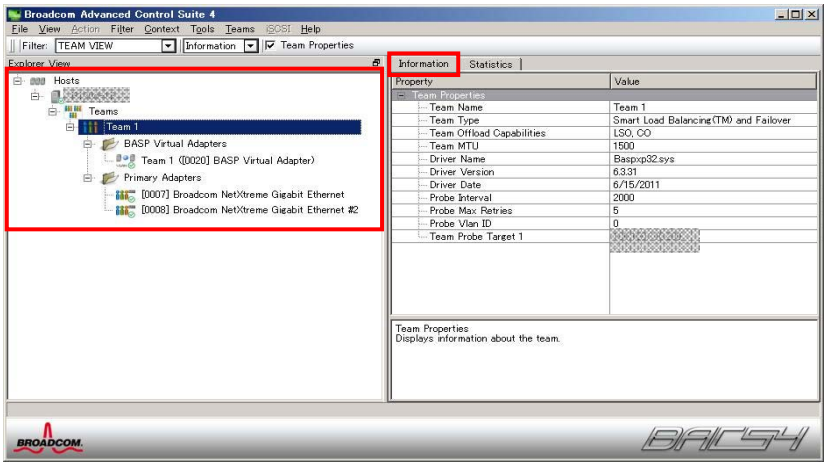
After creating a team, if the teaming adapter displays like the following image, perform steps 8 to 14 again and correct the LiveLink settings.

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.

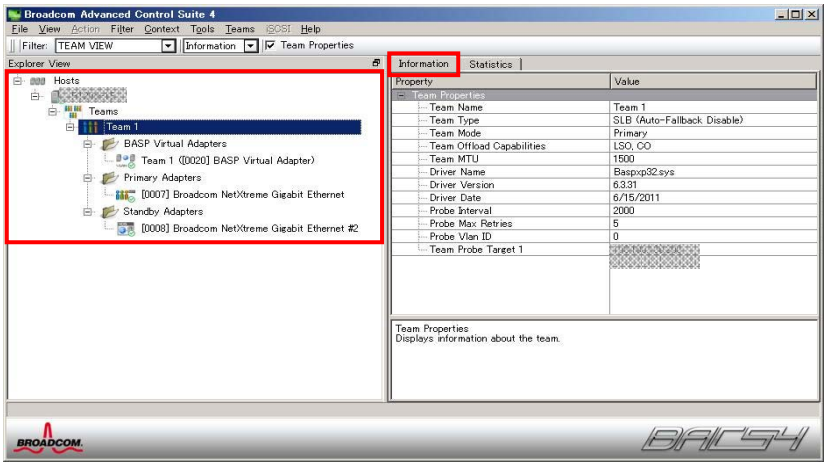


17. Restart the system.
18. After the system starts, start **Broadcom Control Suite** by clicking the **Broadcom Control Suite** icon in **Control Panel**, and confirm that a team has been created. Confirm the team settings on the **Information** window to the right.

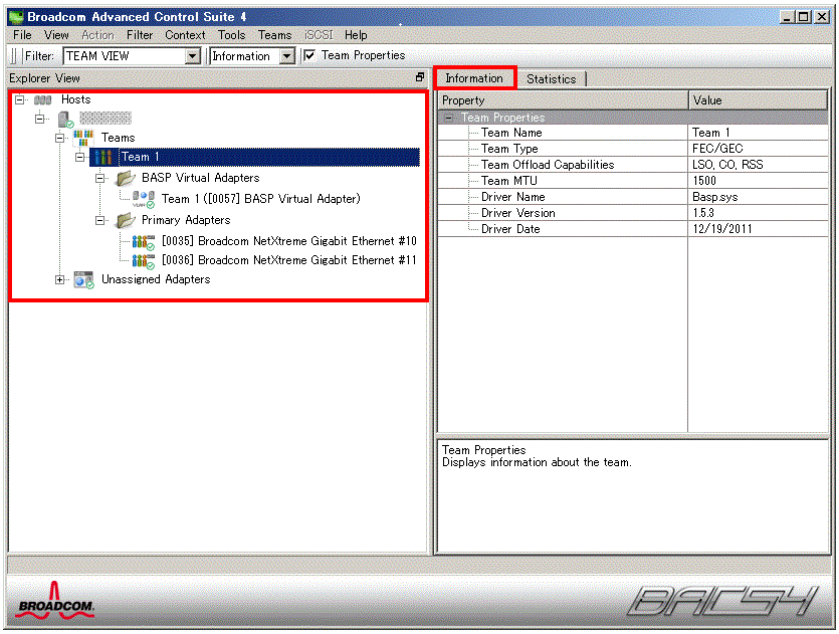
– Smart Load Balancing and Failover (without Standby Member)



– Smart Load Balancing (Auto-Failback Disable) (with Standby Member)



– FEC/GEC Generic Trunking



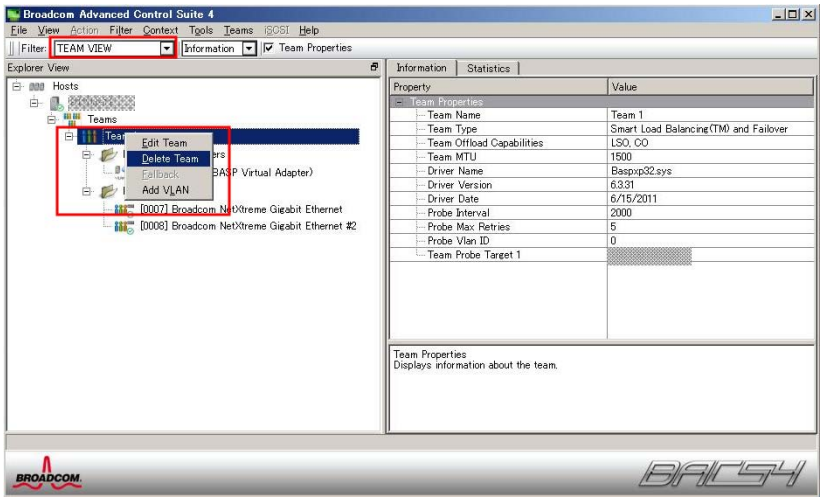
Team setup is now complete.

(4) Procedure for deleting team

Note

You must delete teams from Broadcom Control Suite.
You cannot delete the team from the team adapter displayed in the Device Manager.

1. Double-click the **Broadcom Control Suite** icon on the Control Panel window.
   Broadcom Advanced Control Suite starts.
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."
```

3. Insert EXPRESSBUILDER DVD into the optical disk drive.
   If Autorun Menu appears, close the menu.

Tips

You do not have to insert EXPRESSBUILDER DVD if Starter Pack was installed from Internal Flash Memory. Proceed to the next step.

4. Double-click `addlvlanstats.vbs` in the following folder.

   When using EXPRESSBUILDER DVD:

   EXPRESSBUILDER DVD`:\004\win\winnt\ws2008x64\r2\lan\bcom\ws2008_r2\lan`

   If Starter Pack was installed from Internal Flash Memory:

   System drive`:\StartPKG\ws2008x64\r2\lan\bcom\ws2008_r2\lan`

5. When the following message appears, click **OK**.

6. Eject EXPRESSBUILDER DVD from the optical disk drive, and then restart the system.

Team deletion is now complete.

4.5.4 Setting up team (PROSet)

(1) Team types

The following team types are supported.

- 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) 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.
- 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.
- 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.

Note

- Static Link Aggregation (SLA) requires switch support.
- The adapters specified as a group of Adaptive Load Balancing (ALB) can only be connected to the switching hub.
- Confirm that the setting of the switching hub (L2) port matches the setting of the server network adapter teaming mode.
- For how to delete an adapter team, refer to Chapter 1 (*4.5.4 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.

(2) Setting up team

Important

Possible combinations of network adapters that compose the team are as follows.

When the number of adapters that composes the team is up to four:

- **Between N8104-145 adapters**

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. Include the adapter to the team, and then click **Next**.
6. Select a team mode, and then click **Next**.
7. Click **Finish**.
8. Click **TEAM: "*Team name*"** from the Device Manager, and then open **Network adapters** to modify the team.
   On the **Settings** tab, click **Modify Team** button.

9. Refer to the following procedure to set the team member adapter priority status.

Note

Adapter priority config can be confirmed by the following procedure:

1. Click **TEAM: "*Team name*"** from Device manager, and then open **Network adapters**.
2. Click **Settings** and confirm the adapters 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.

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."

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.

11. Confirm the result in **Test results**.
12. Restart the system.

(3) Procedure for deleting team

1. Open the Device Manager.
2. Click **Network adapters**, and then open the **TEAM: "*Team name*"** properties.
3. Click the **Setting** tab.
4. Click **Remove Team** button.
5. Click **Yes** to the message.
6. Confirm that the **TEAM: "*Team name*"** adapter does not exist in the **Network adapters** tree, and then restart the system.

4.5.5 Graphics accelerator driver

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

Tips The graphics accelerator driver is only enabled in Full installations. Standard VGA is used in the case of Server Core installation.

To reinstall drivers separately, complete the following steps.

1. Insert EXPRESSBUILDER DVD into the optical disk drive.
   If Autorun Menu appears, close the menu.

Tips You do not have to insert EXPRESSBUILDER DVD if Starter Pack was installed from Internal Flash Memory.

2. On the **Start** menu, point to **All programs**, **Accessories**, and then select **Explorer**.
3. Double-click the `install.bat` icon in the following folder.
   - When using EXPRESSBUILDER DVD:
     EXPRESSBUILDER DVD`:\004\win\winnt\ws2008x64\video`
   - If Starter Pack was installed from Internal Flash Memory:
     System drive`:\StartPKG\ws2008x64\video`

   You will be prompted to confirm the End User License Agreement during this process.
   Click the **ACCEPT** button to continue.
4. Eject EXPRESSBUILDER DVD from the optical disk drive, and then restart the system.

Graphic accelerator driver installation is now complete.

4.5.6 When using a SAS controller (N8103-142)

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

4.5.7 When using a RAID Controller (N8103-161)

The driver for RAID Controller N8103-161 is automatically installed by Windows Plug-and-Play.

4.5.8 When using a Fibre Channel controller (N8190-153/154)

The driver for Fibre Channel controller N8190-153/154 is automatically installed by Windows Plug-and-Play.

4.6 License Authentication

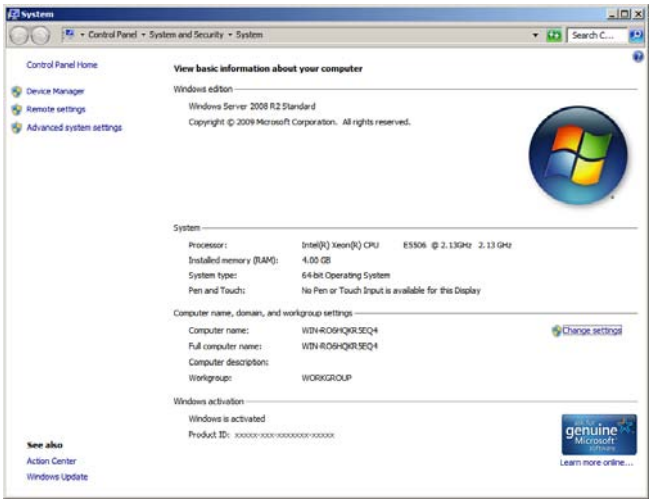
To use Windows Server 2008 R2, confirm whether the license has been authenticated, and if it has not, perform the license authentication procedure.

The following describes the license authentication procedure.

(1) Full installations

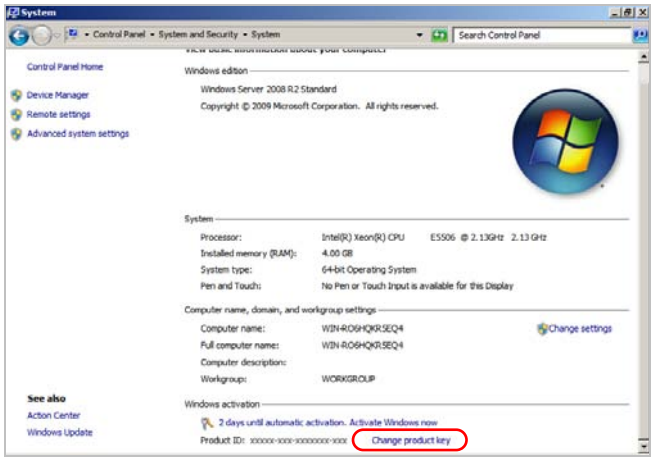
1. On the **Start** menu, click the **Control Panel**, **System and Security**, and then select **System**.

   If the following message appears, Windows has already been activated on your system. You do not need to complete this procedure.

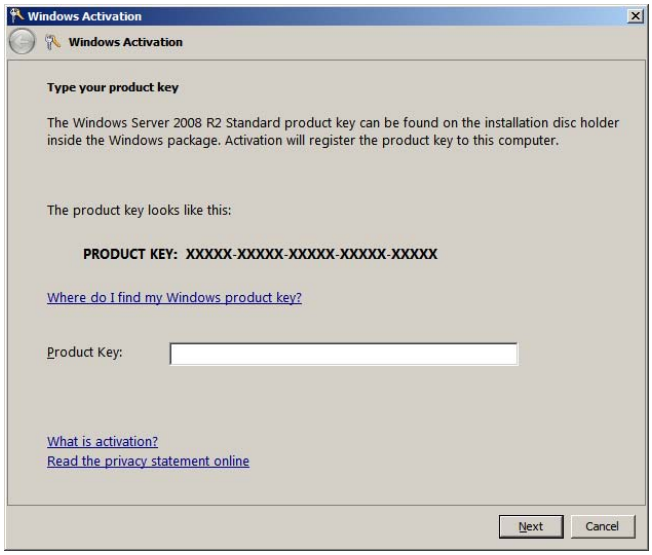


2. For installation from Backup DVD-ROM, replace the product key.

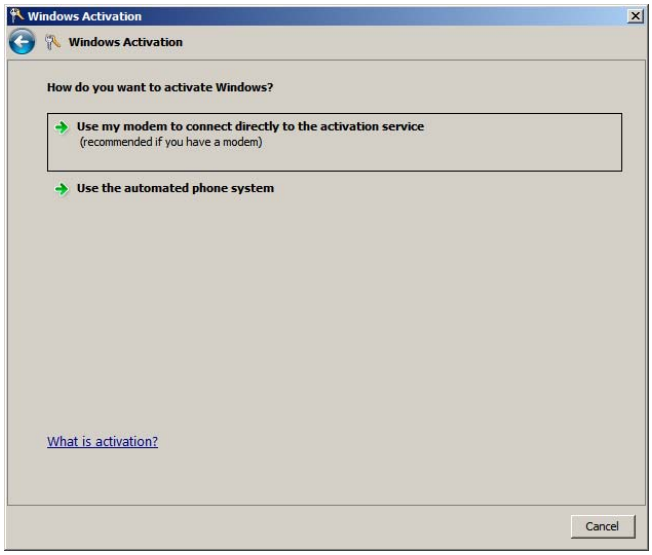
   When the following window appears, click **Change product key**.



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



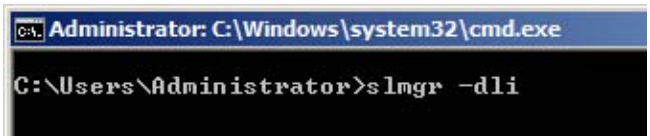
4. Follow the instructions in the following message to start the license authentication process.



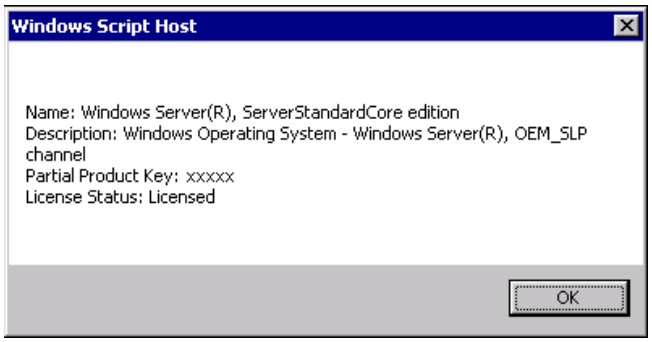
Windows activation is now complete.

(2) Server Core installations

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

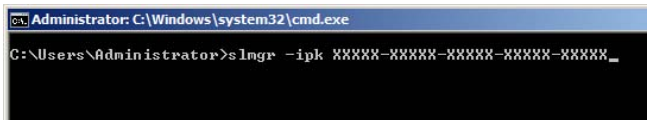


If the following message appears, Windows has already been activated on your system. You do not need to complete this procedure. Click **OK** to finish.



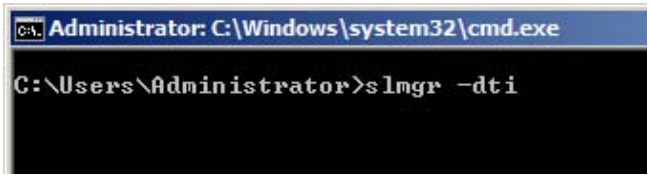
2. For installation from Backup DVD-ROM, replace the product key.

   At the command prompt, enter the following, and then press <Enter> key. Set the product key found on the COA label in *PID*.
   `slmgr –ipk PID`



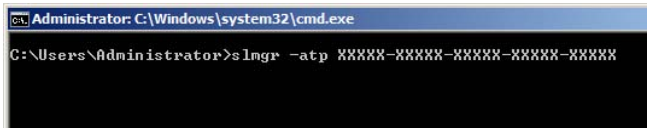
3. Obtain an installation ID for Windows activation.

   At the command prompt, enter the following, and then press <Enter> key.
   `slmgr –dti`



4. Reference `%systemroot%\system32\sppui\phone.inf` for 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. *CID* is the confirmation ID that you received from customer service.
   `slmgr –atp CID`



Windows activation is now complete.

4.7 Applying Service Pack

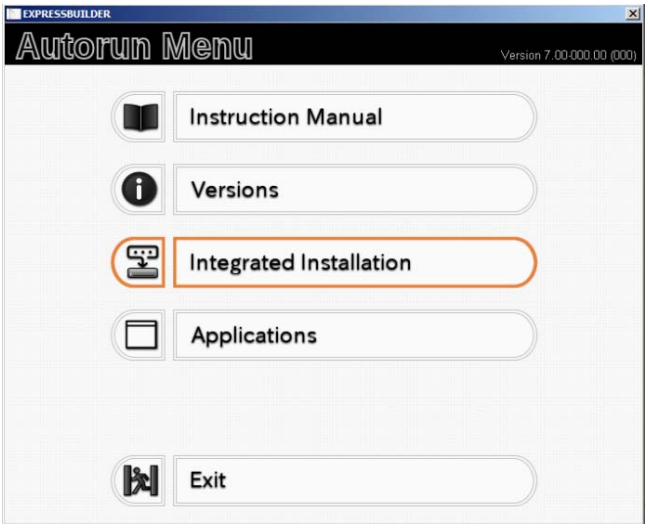
When applying Service Pack 1, refer to *"About Windows Server 2008 R2 and Windows 7 Service Pack 1"*.

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

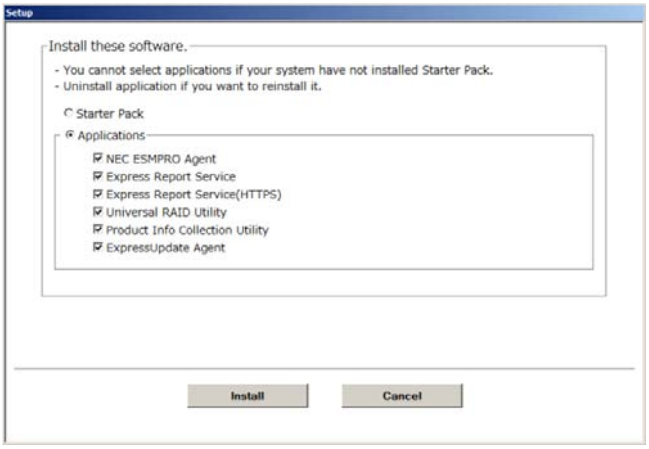
4.8 Installing the Applications

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

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



4. On the following screen, make sure that the **Applications** option is selected.
   Select the check boxes corresponding to the applications to install, and then click **Install**.



Note

- If Starter Pack is already installed, the **Applications** option is selected by default.
- Applications available for installation are selected by default.
- An application that has been already installed need to be uninstalled before installing it again.
- If your system environment does not satisfy the prerequisite for an application, you cannot install it. (For details, refer to the on-screen information and the relevant page of each application.)

The selected applications are automatically installed.

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

Now installation of applications is completed.

4.9 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 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.**

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

1. 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.**

3. Refer to *Chapter 1 (4.3 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. If you want to change them, re-install the Windows.

1. 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.

5. Setting Up Windows Server 2008

Set up Windows Server 2008.

5.1 Before Starting Setup

Read through the cautions explained here before starting setup.

EB : Confirm during Setup with EXPRESSBUILDER

OS : Confirm during Setup with Windows standard installer

Hardware configuration		
The following hardware configurations require special procedures.		
EB	OS	**Reinstalling to a mirrored volume** When you install Windows Server 2008 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	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.
EB	OS	**DAT, LTO, and similar media** Do not set media that is unnecessary to installation during setup.
EB	OS	**Connecting to multiple hard disk drives (logical drives)** For details on installing operating systems to a system in which multiple logical drives exist, refer to *Chapter 1* (*5.10 Installation When Multiple Logical Drives Exist*).
EB	OS	**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 OS

Setup when mass memory is installed

If mass memory is installed in your system, the large size of paging file is required at installation. Thus, the partition size for storing debug information (dump file) may not be secured.
If you fail to secure the dump file size, 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.

– **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 <Windows Server 2008 64-bit Edition>

EB 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	= 16,720 MB (Windows Server 2008 + Service Pack 2 DVD-ROM) = 12,300 MB (Windows Server 2008 with Service Pack 2) = 11,600 MB (Windows Server 2008)
Paging file size (recommended)	= installed memory size × 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	= 9,300 MB (Windows Server 2008 + Service Pack 2 DVD-ROM) = 12,300 MB (Windows Server 2008 with Service Pack 2) = 4,100 MB (Windows Server 2008)
Paging file size (recommended)	= installed memory size × 1.5
Dump file size	= installed memory size + 300MB
Application size	= as required by the application

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

11,600 MB + (1,024MB × 1.5) + 1,024MB+ 300MB+ application size
= 14,460MB + application size

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

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.

System partition size <Windows Server 2008 32-bit Edition >

EB 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	= 9,400 MB (Windows Server 2008 + Service Pack 2) = 9,300 MB (Windows Server 2008 with Service Pack 2) = 6,300 MB (Windows Server 2008)
Paging file size (recommended)	= installed memory size × 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	= 5,300 MB (Windows Server 2008 + Service Pack 2) = 9,300 MB (Windows Server 2008 with Service Pack 2) = 2,200 MB (Windows Server 2008)
Paging file size (recommended)	= installed memory size × 1.5
Dump file size	= installed memory size + 300MB
Application size	= as required by the application

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

6,300 MB + (1,024 MB × 1.5) + 1,024 MB + 300 MB + application size = 9,160 MB + application size

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

Note

- The above paging file sizes are recommended for collecting debug information (dump file). The initial size of the boot volume 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.
- A paging file size of 4096 MB or greater cannot be specified for one partition in some system configurations.
  If the message prompting you to specify a value smaller than 4096 MB appears, specify 4095 MB.
- If the mounted memory size is 2 GB or greater, the maximum size of the dump file is "2048 MB + 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.

Using BitLocker

EB OS

If using BitLocker, note the following.

- Before installing an OS, be sure to create the following two partitions in the hard disk drive:
  - System partition (to store the loader)
  - Boot partition (to store the OS)

Note

For details, refer to the following document provided in Microsoft TechNet:
BitLocker Drive Encryption Step-by-Step Guide

- 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**
- **Initialization of trusted platform module (TPM)**
- **Change of BIOS setting**

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

Installing Service Pack

EB OS

- If the OS installation media contains Service Pack 2, 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

License authentication is required depending on the installation of Windows.
For details, refer to *Chapter 1 (5.7 License Authentication)*.

Note

- 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

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**

  Backing up user data, as needed, 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.**

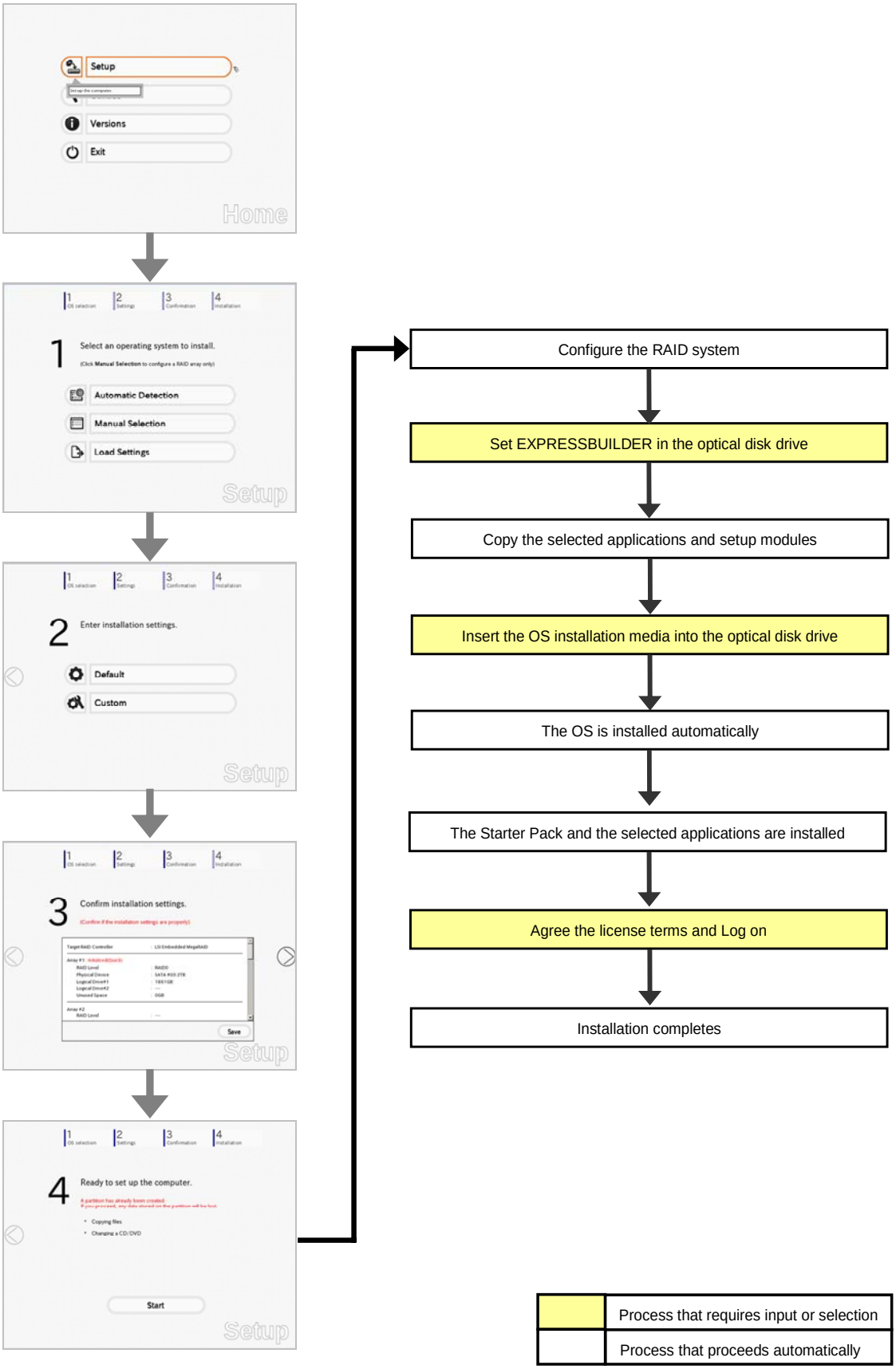
Note

- 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.
- When using an onboard RAID controller (LSI Embedded MegaRAID):
  Do not support the creation of RAID10 by using the onboard RAID controller.
  Refer to *Chapter 2* (*4. RAID System Configuration*) in "Maintenance Guide" when creating RAID10.

Tips

- Setup with EXPRESSBUILDER allows you to use a prespecified parameter file or save the parameters specified in setup as a parameter file on removable media or Internal Flash Memory (if purchased optionally).
- 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 DVD-ROM*)

- **First Steps Guide**

- Either of the following EXPRESSBUILDER
  - **EXPRESSBUILDER DVD**
  - **Internal Flash Memory** (optional)

- Prepare if needed:
  - **Removable media for Windows OS parameter file**
  - **Service Pack**
    (If the OS installation media contains Service Pack, you do not need to apply the service pack again.)

Tips

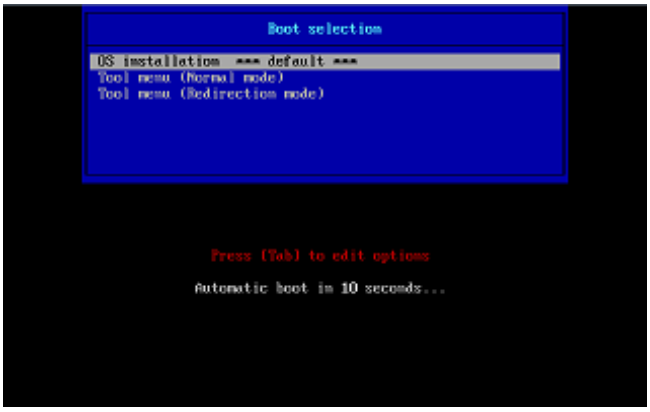
- EXPRESSBUILDER may be distributed in Internal Flash Memory. EXPRESSBUILDER can be run from Internal Flash Memory if it is installed in the server.
- If you are using a server with Internal Flash Memory installed, you can install the OS without using EXPRESSBUILDER DVD.

5.2.3 Setup procedure

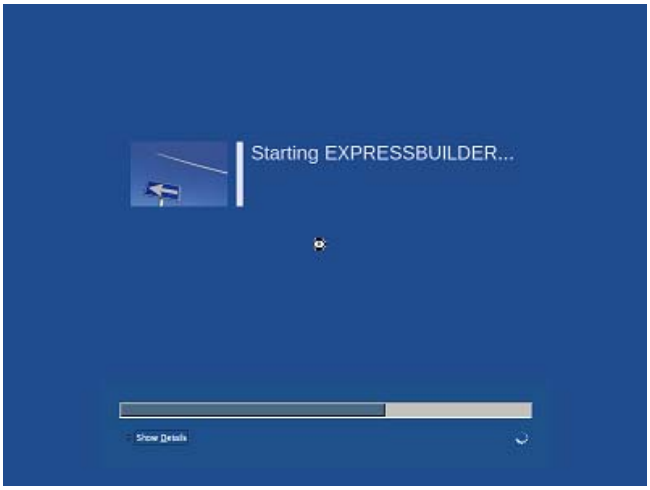
During Setup with EXPRESSBUILDER, parameters are specified through the wizard. You can also save the parameters as one file (a parameter file) to removable media.

Note Read through the items in *Chapter 1 (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**.

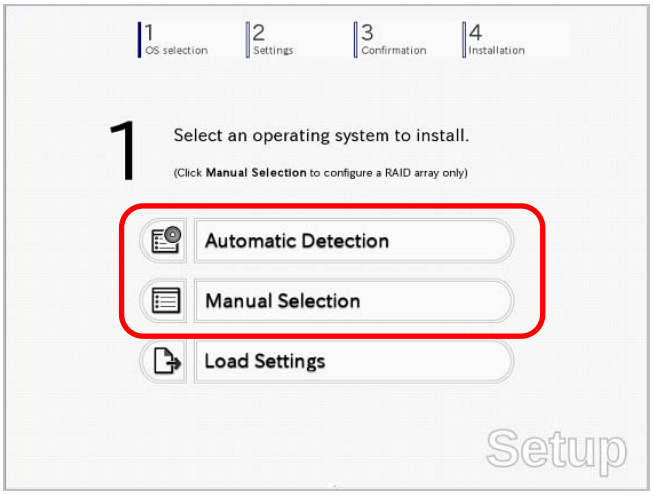
5. Click **Setup**.

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

☐ When not using parameter file : Go to Step 7.
☐ When using a parameter file : Go to Step 8.

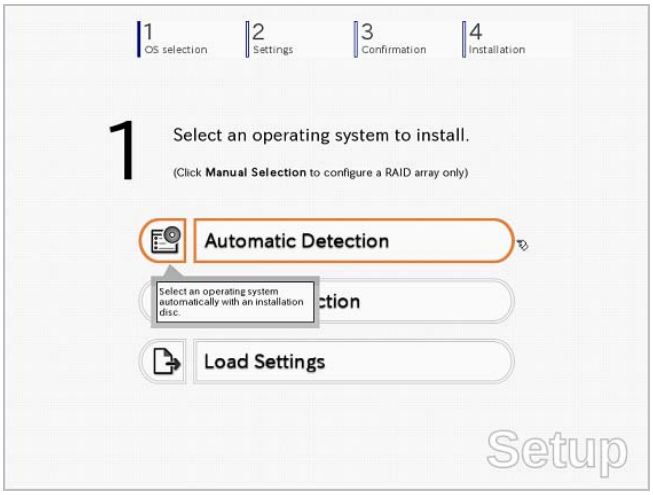
Note When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.

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

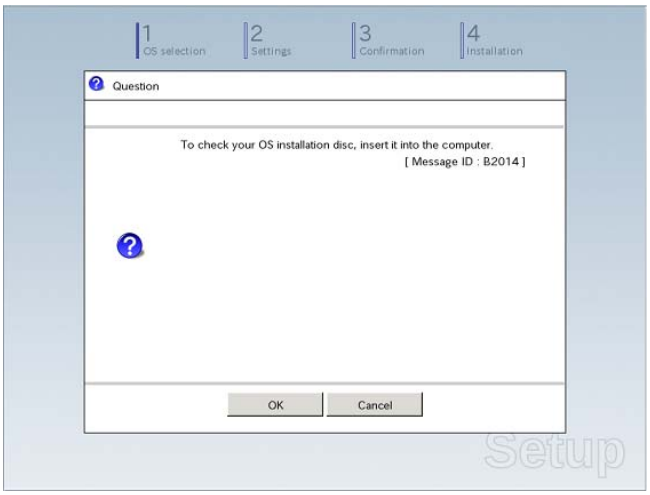


To automatically detect the OS on the OS installation media:

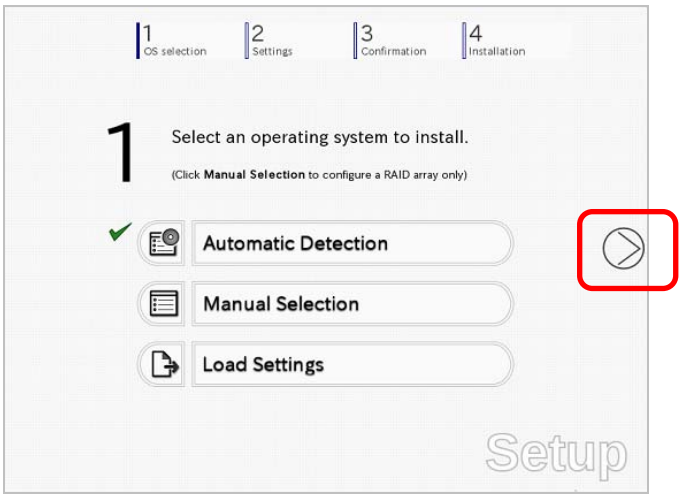
(1) Click **Automatic Detection**.



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

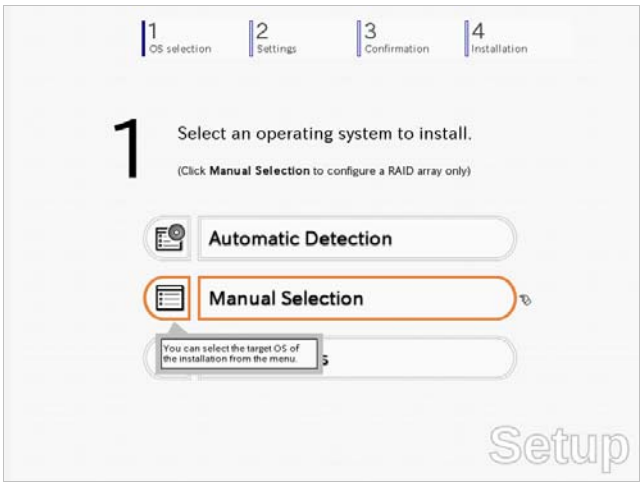


(2) Click ▷ on the right side of the screen.
→ Go to step 9.

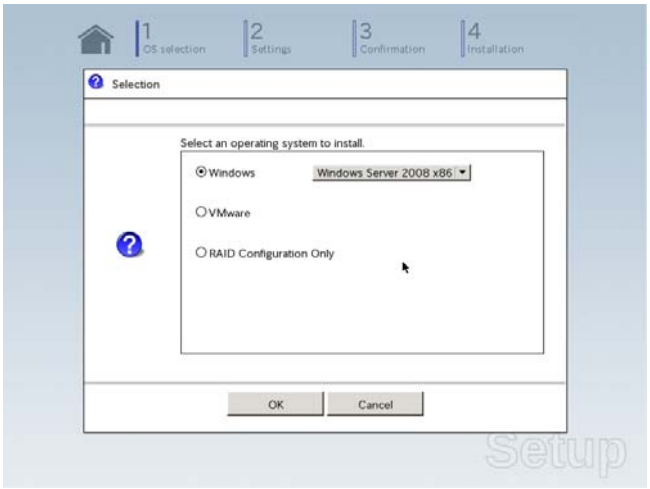


To select an OS from the menu:

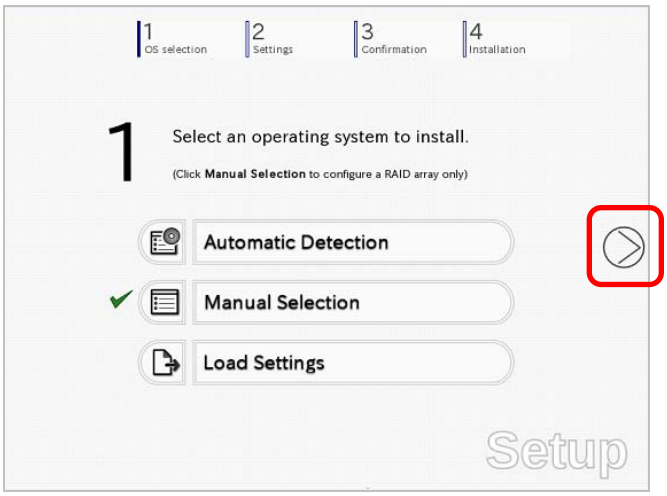
(1) Click **Manual Selection**.



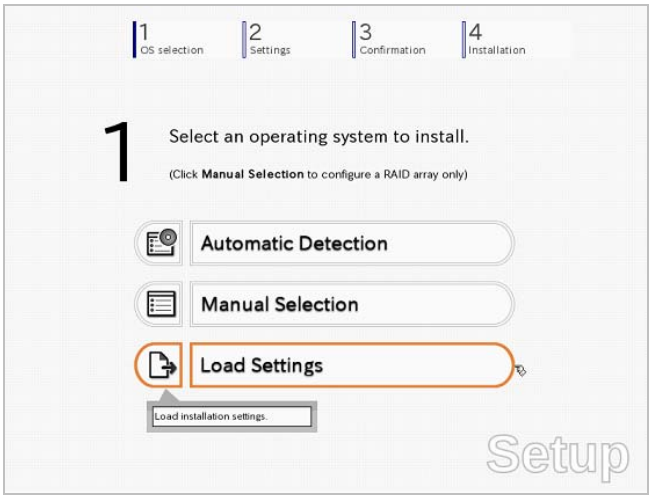
(2) From the **Windows** list, select the OS to install and then click **OK**.



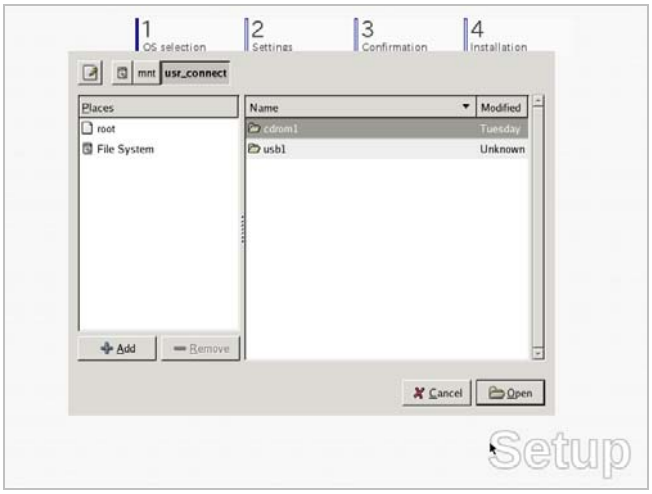
(3) Click ⊘ on the right side of the screen.
→ Go to step 9.



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



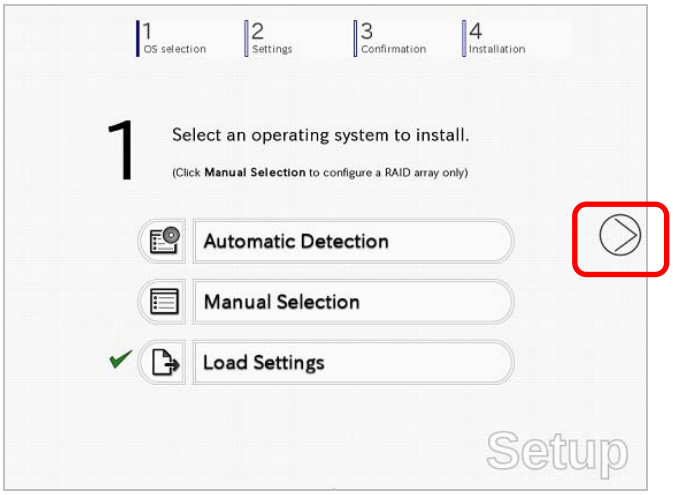
Follow the on-screen instruction to load the parameter file (*.tre).



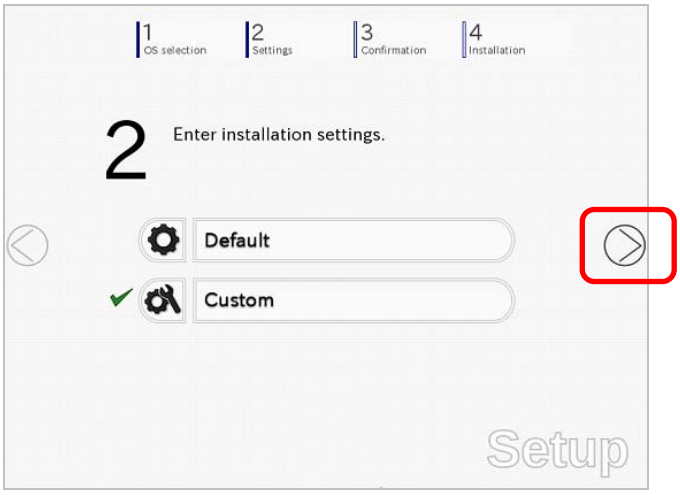
Tips

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

Click ▷ on the right side of the screen.

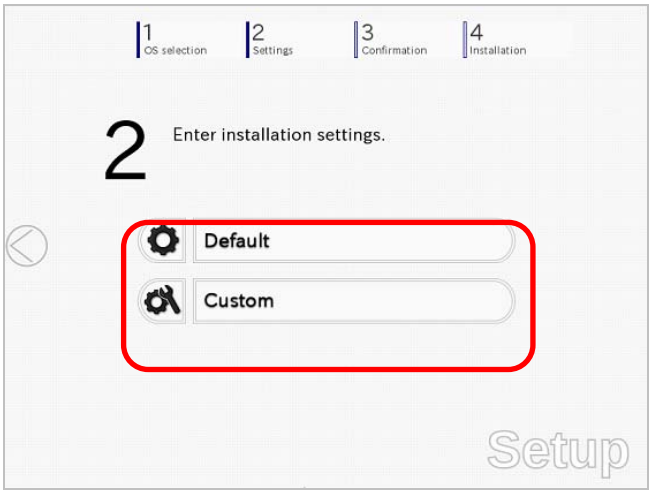


On the following screen, click ▷ on the right side of the screen.
Click **Custom** to check and modify the setting in the wizard.



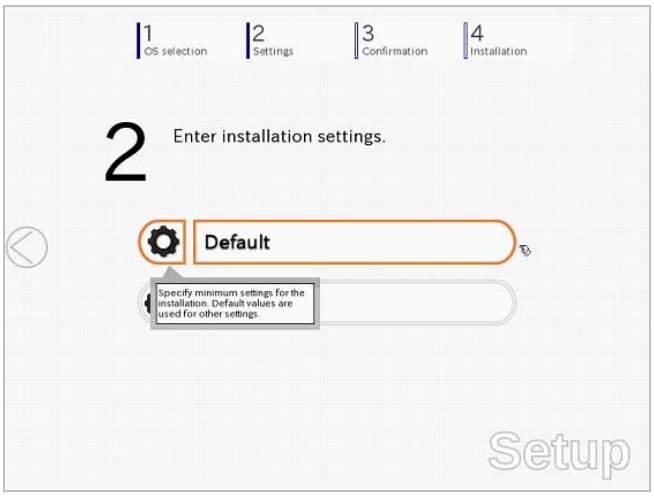
→ Go to step 10.

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

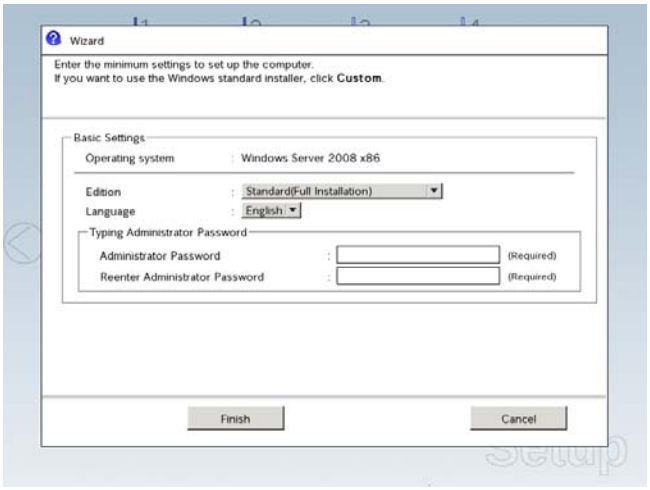


Use **Default**:

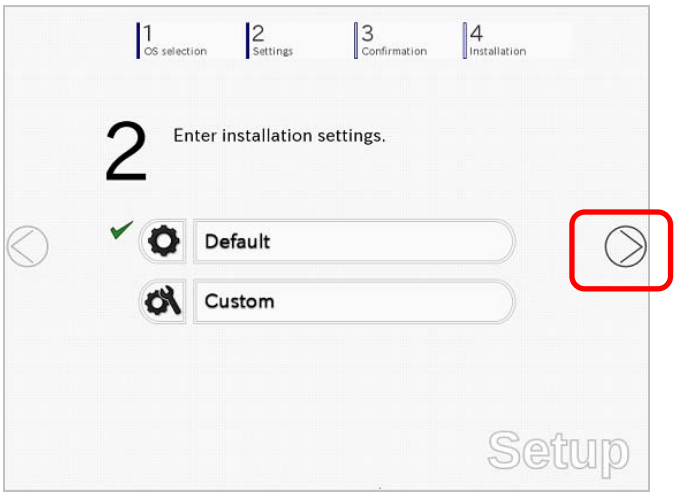
(1) Click **Default.**



(2) Select the edition of the OS to install from the **Edition** list. Type the password, and then click **Finish**.



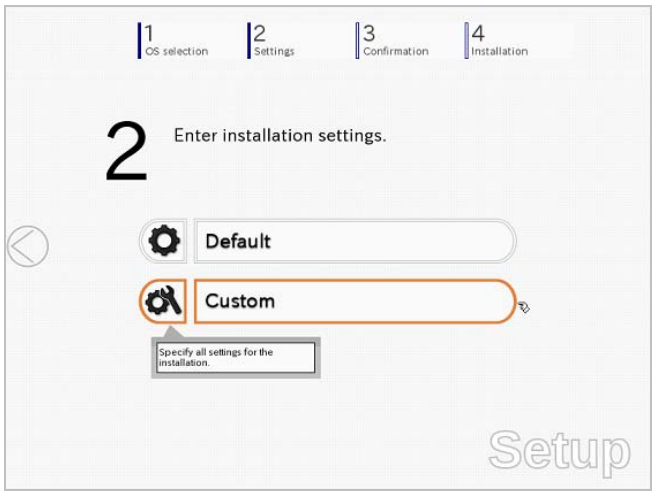
(3) Click ▷ on the right side of the screen.



→ Go to step 10.

Use **Custom**:

(1) Click **Custom**.

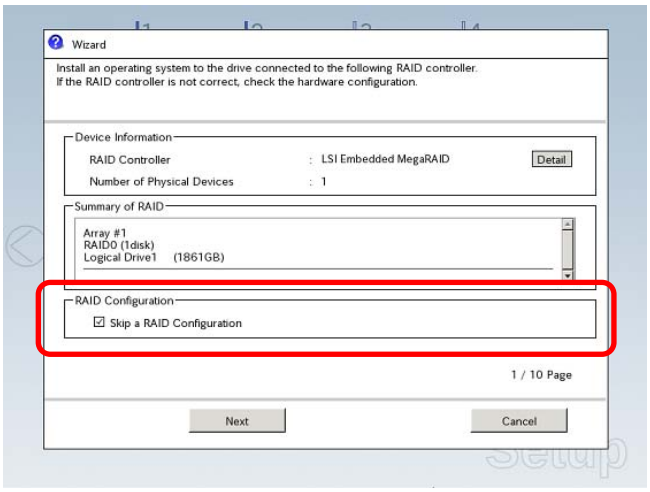


(2) Use this menu to configure the RAID system with the RAID controller detected automatically.

Note

When using an onboard RAID controller (LSI Embedded MegaRAID):

This function does not support the creation of RAID10 by using the onboard RAID controller. Refer to *Chapter 2 (4. RAID System Configuration)* in "*Maintenance Guide*" when creating RAID10.



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

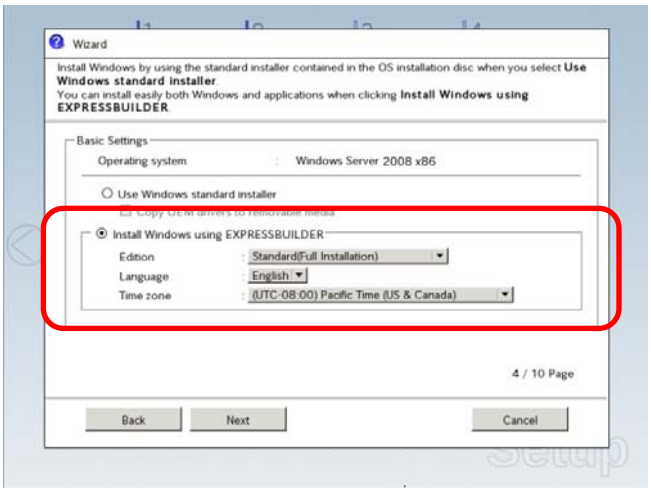
If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

When skipping the creation of new logical drives

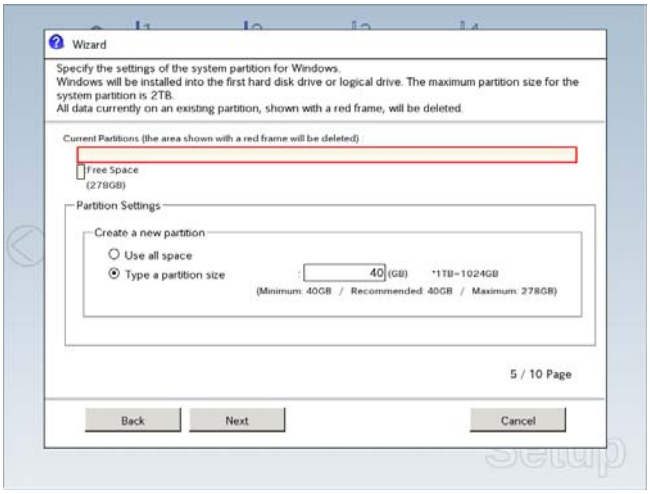
Select the **Skip a RAID Configuration** check box, and then click **Next**.

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

Choose **Install Windows using EXPRESSBUILDER**, modify the Edition, Language and Time zone settings as needed, and then click **Next**.



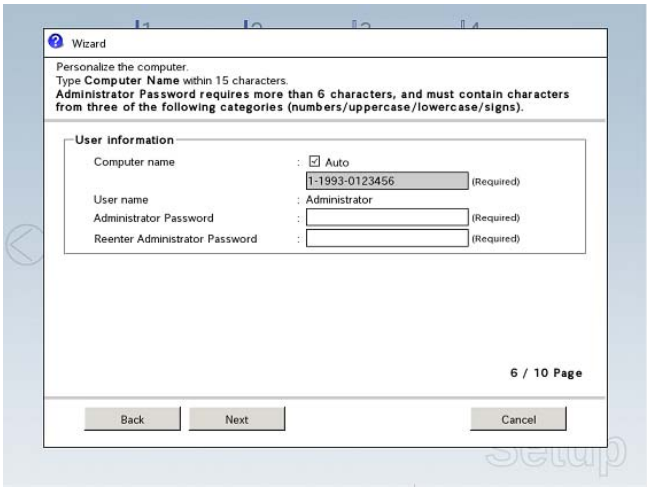
(4) Check the settings specified for **Partition Settings**.
Modify the settings as needed, and then click **Next**.



Important

- **Backing up user data, as needed, is recommended.**
- **Partition size**
  - **Specify a partition size larger than the minimum required for installing the operating system. (Refer to *Chapter 1 (5.1 Before Starting Setup)*.)**
  - **The maximum partition size is 2,097,152 MB.**
- **If you select “Create a new partition” under “Partition Settings”, the entire contents of the hard disk drive will be deleted.**

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



Note

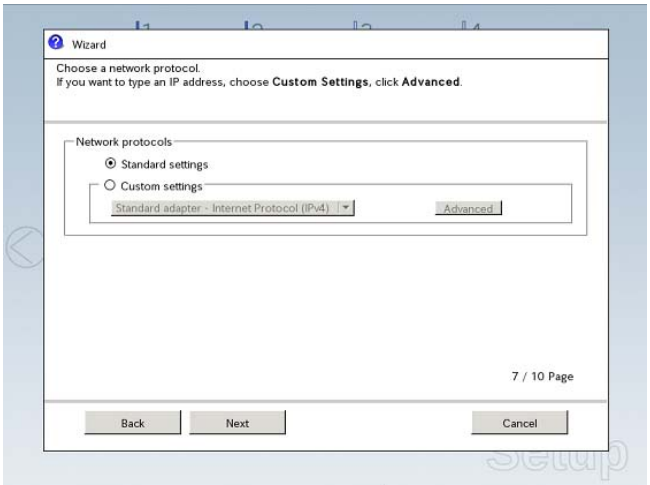
Computer name and Administrator Password are required parameters.
Enter Administrator Password that satisfies the following conditions:

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

(6) Check the settings specified for **Network Protocols**.
Modify the settings as needed, and then click **Next**.



Tips

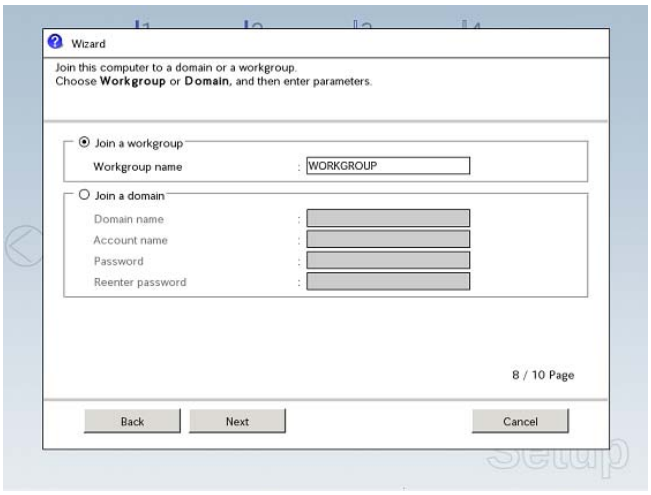
The order of entry in **Custom settings** may differ from the numbering of LAN ports.

Note

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

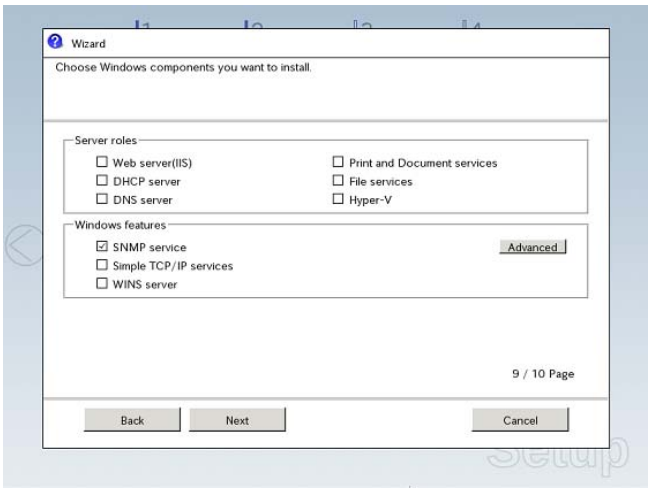
After finishing setup with EXPRESSBUILDER, specify the optional network settings again.

(7) Specify the domain or workgroup.
Check the settings, modify them as needed, and then click **Next**.

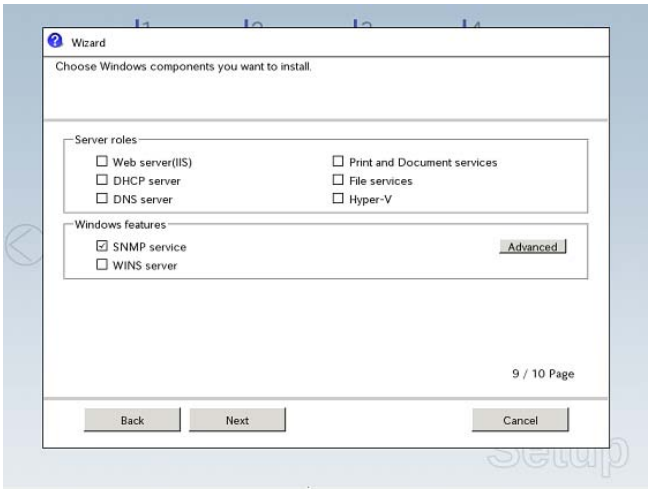


(8) Check the settings of Windows components.

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

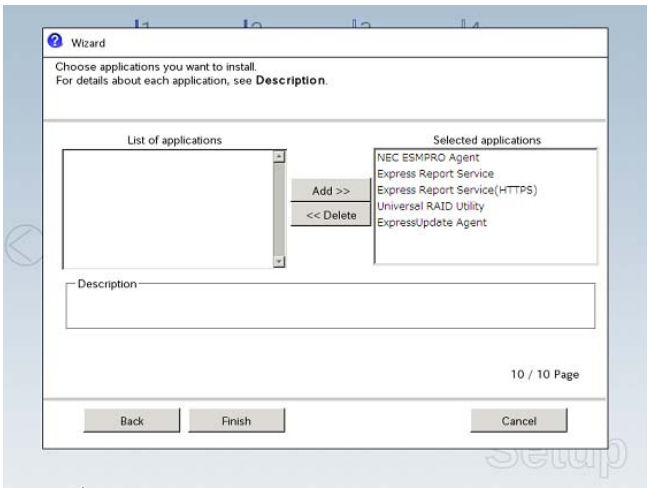


Full installations

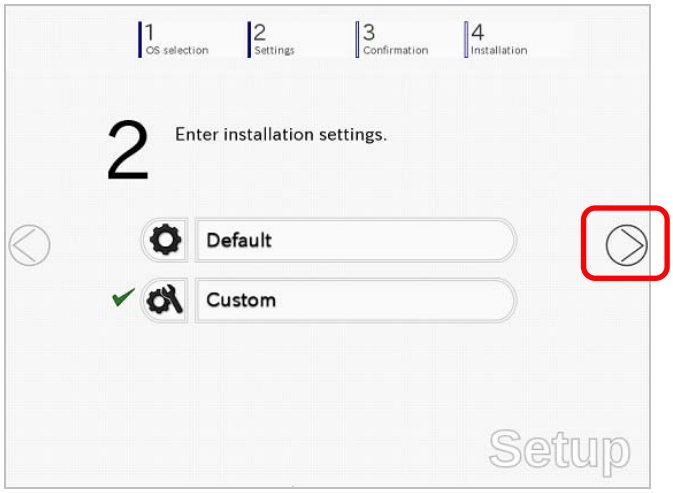


Server Core installations

(9) Check the settings of applications.
Modify the settings as needed, and then click **Finish**.

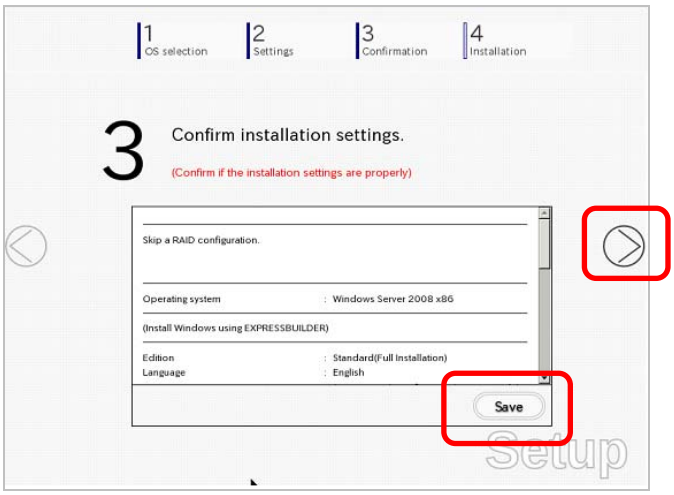


On the following screen, click ▷ on the right side of the screen.



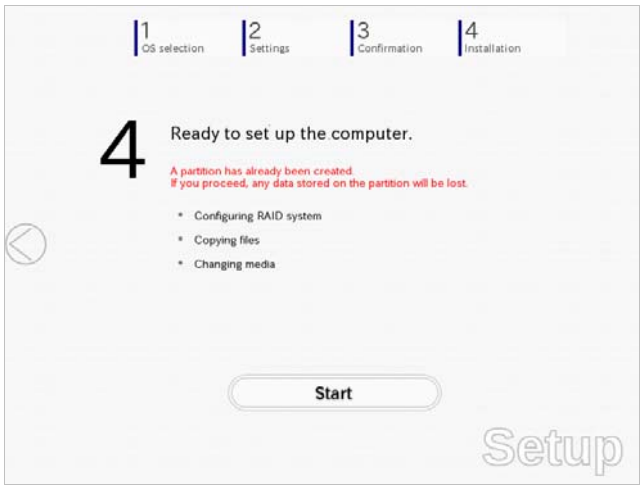
10. Check the parameter settings.

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



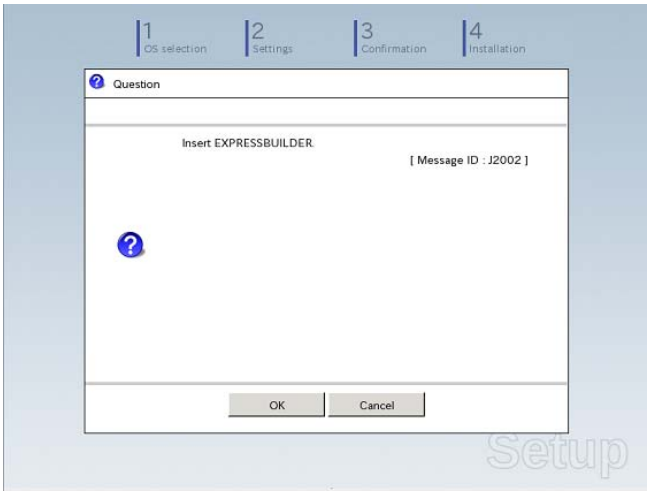
Click ▷ on the right side of the screen.

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

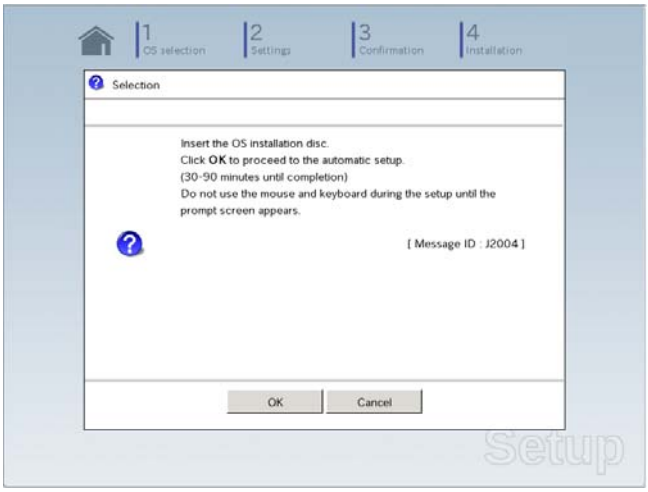


If you need to suspend setup due to reasons such as backing up data, restart the setup process from the beginning.

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

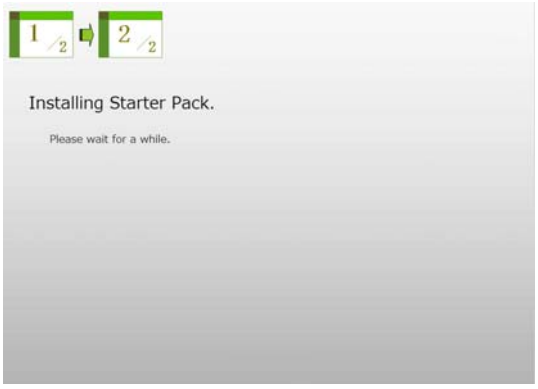


13. Insert the OS installation media into the optical disk drive, and then click **OK**.

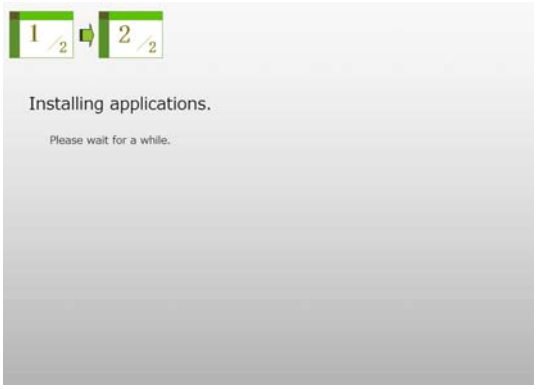


Windows Server 2008 is installed automatically.

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

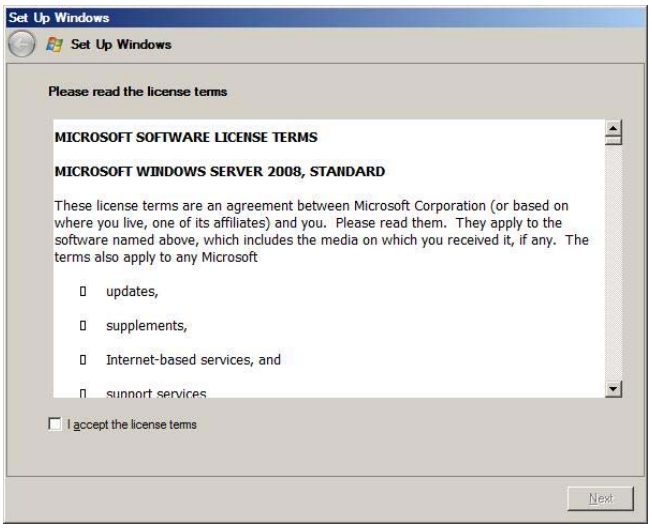


Screen displayed when Starter Pack is being installed



Screen displayed when an application is being installed

15. When the software license agreement window appears, select **I accept the license terms**, and then click **Next**.



16. When the message "Thank you" appears, click **Start**.

Tips It may take several minutes until the logon window appears. Wait until it appears, even though nothing changes on the screen.

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

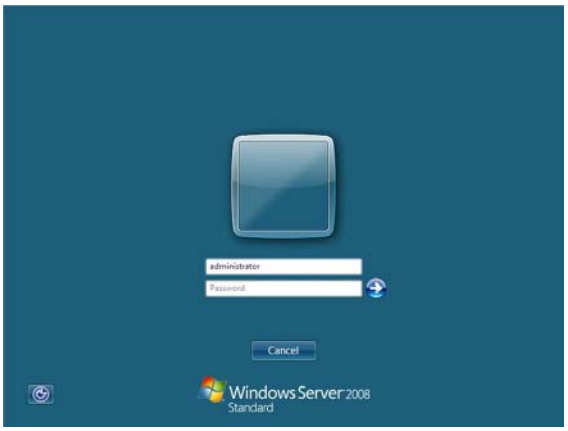
Full installations:

When the following screen appears, enter your password into the text box, and then click .

Server Core installations:

When the following screen appears, click **Other User**.

When the following screen appears, enter `administrator` into **User** text box and the specified password into **Password** text box, and then click .



18. Click **OK**.

19. Follow the instructions described in *Chapter 1 (5.5 Setting Up Device Drivers)* to set up the device drivers supplied with this server as standard.
20. For optional devices whose driver has not been installed, install the device drivers according to the instructions supplied in the driver manual.
21. Apply Service Pack as needed according to *Chapter 1 (5.8 Applying Service Pack)*.
22. Execute setup by following the instructions described in *Chapter 1 (6. Setup for Solving Problems)*.

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 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

Backing up user data, as needed, is recommended.

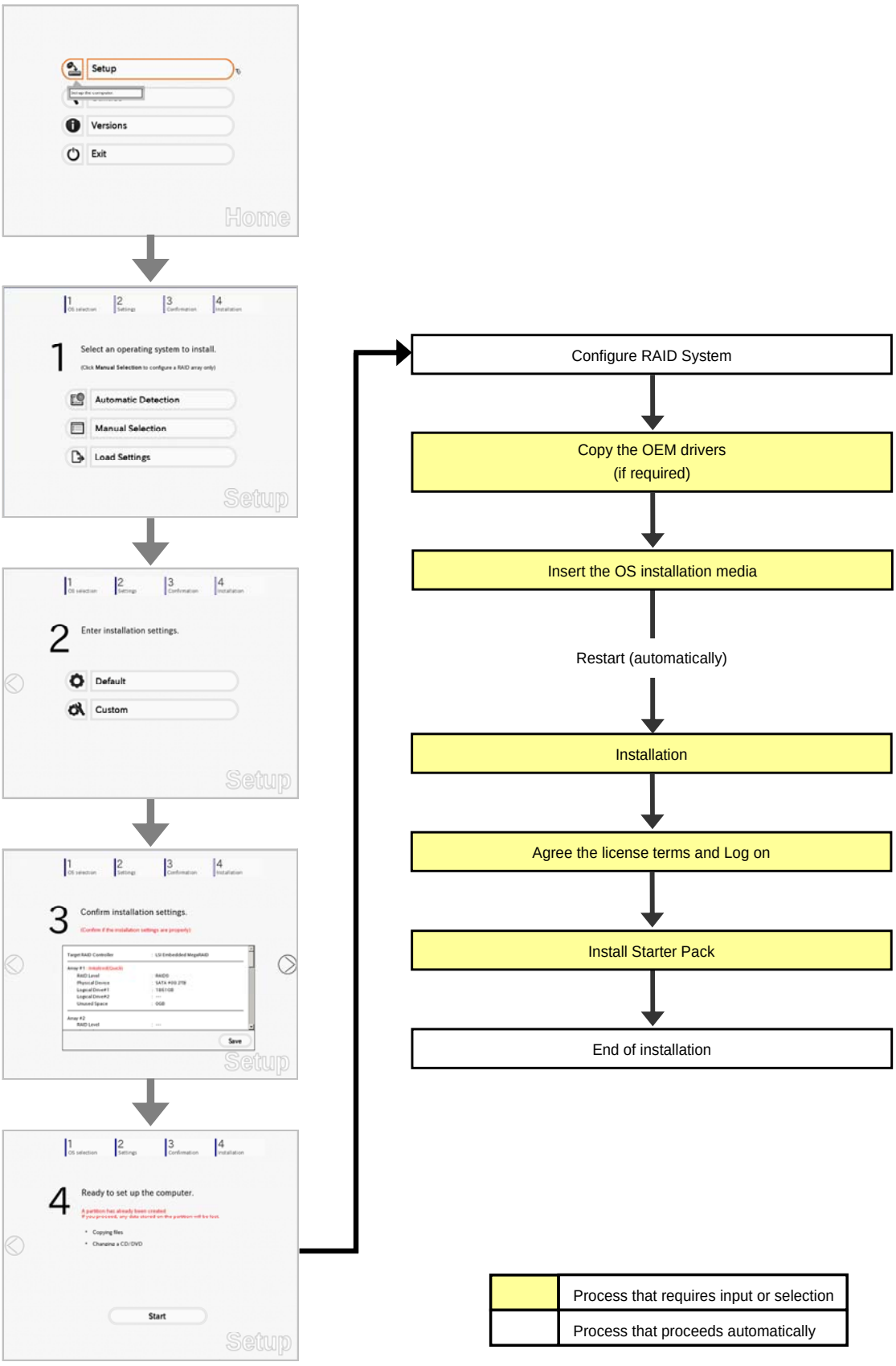
Note

When using an onboard RAID controller (LSI Embedded MegaRAID):
Do not support the creation of RAID10 by using the onboard RAID controller. Refer to *Chapter 2* (*4. RAID System Configuration*) in "Maintenance Guide" when creating RAID10.

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 (if purchased optionally).
- 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.

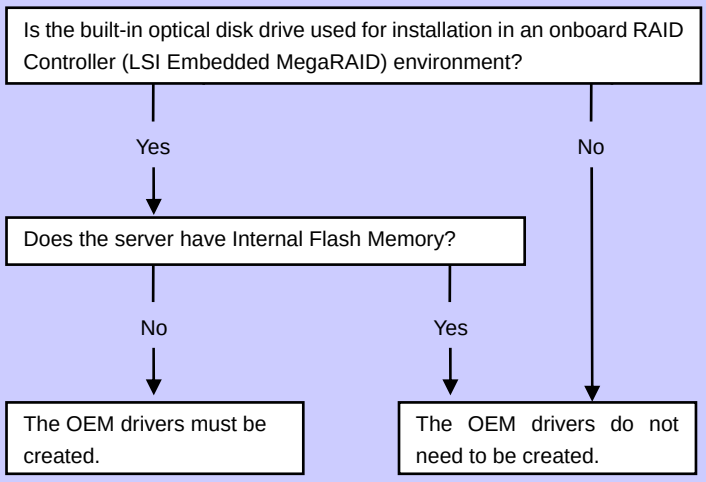
- Either of the following OS installation media
  - **NEC operating system installation media** (hereafter referred to as *Backup DVD-ROM*)
  - **Microsoft operating system installation media** (hereafter referred to as *Windows Server 2008 DVD-ROM*)
- **First Steps Guide**
- Either of the following EXPRESSBUILDER
  - **EXPRESSBUILDER DVD**
  - **Internal Flash Memory** (optional)
- Prepare if needed:
  - **Removable media for Windows OS parameter file**
  - **Removable media for creating OEM drivers** (Windows Server 2008)
  - **Service Pack**
    (If the OS installation media contains Service Pack, you do not need to apply the service pack again.)

Note

OEM driver is required when using the onboard RAID controller (LSI Embedded MegaRAID) on the server equipped with internal optical disk drive.

Tips

- EXPRESSBUILDER may be distributed in Internal Flash Memory. EXPRESSBUILDER can be run from Internal Flash Memory if it is installed in the server.
- If you are using a server with Internal Flash Memory installed, you can install the OS without using the EXPRESSBUILDER DVD.
- OEM drivers are required in the following cases. Prepare other removable media should these conditions apply.

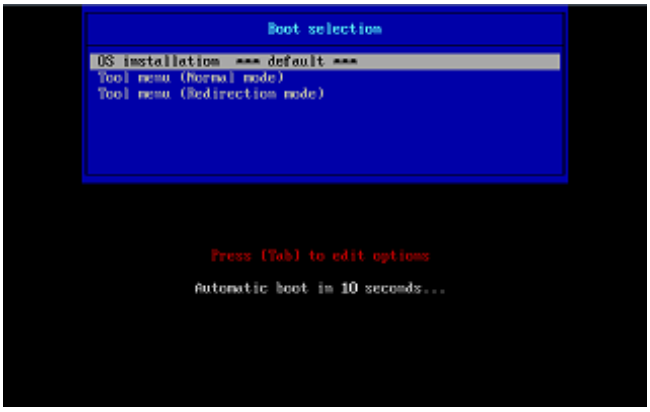


5.3.3 Setup procedure

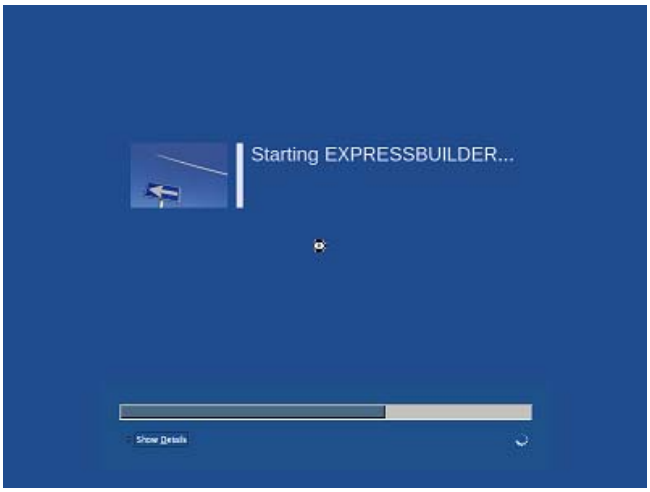
Note

Before starting setup, refer to *Chapter 1 (5.1 Before Starting Setup)*. It describes how to make partitions.

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.

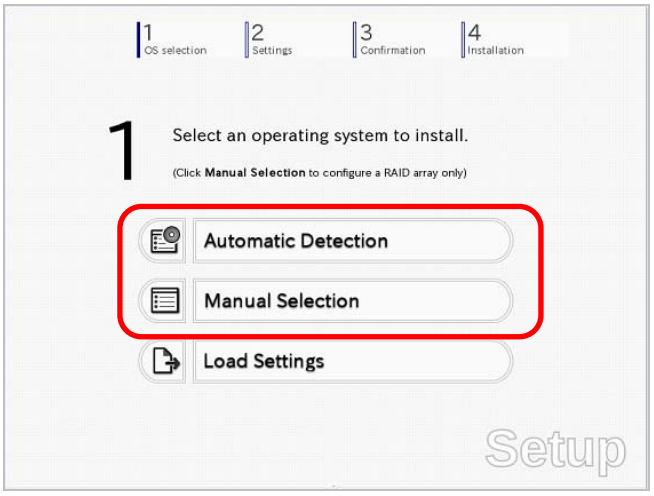
4. Select **English** on the language selection window, and then click **OK**.

5. Click **Setup**.

6. On the **OS selection** menu, select the OS to install or specify the parameter file.
   ☐ When not using parameter file : Go to Step 7.
   ☐ When using a parameter file : Go to Step 8.

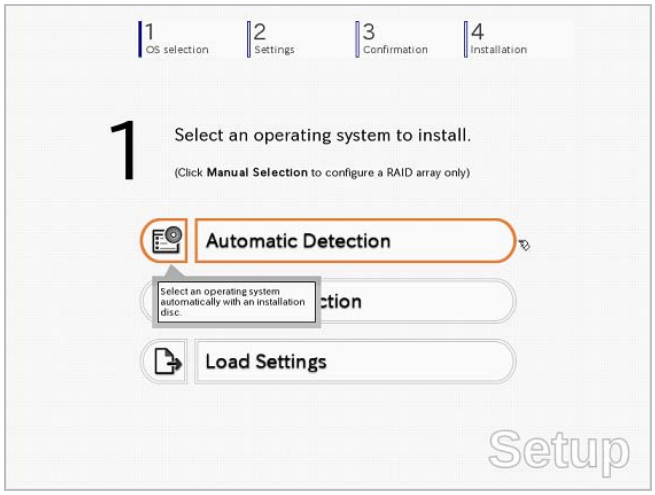
Note When setting up again, an already saved parameter file can be read, so that you can skip inputting parameters in the wizard.

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

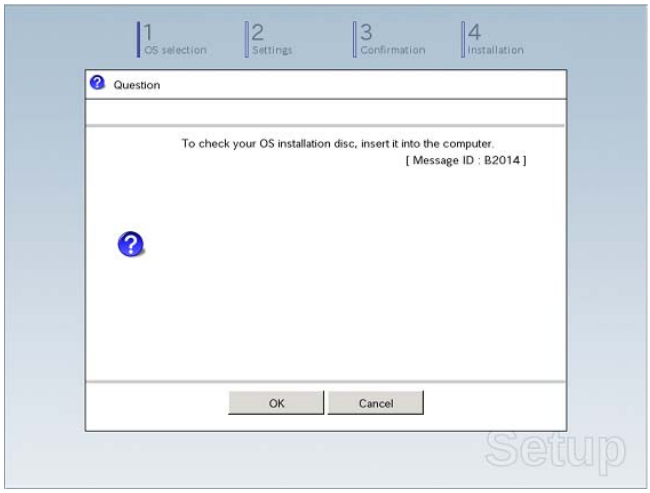


To automatically detect the OS on the OS installation media:

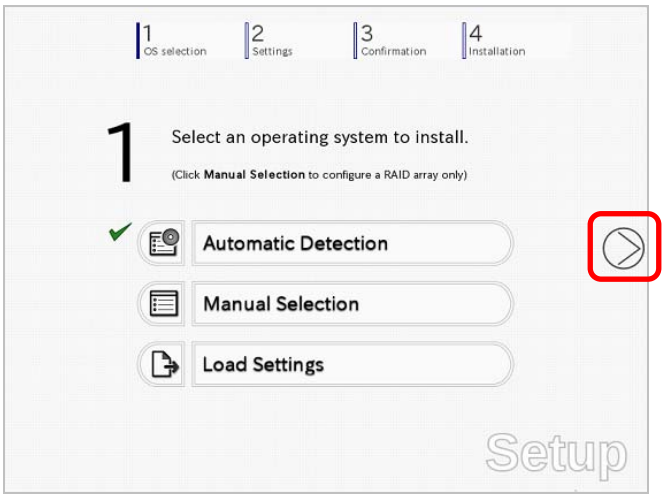
(1) Click **Automatic Detection**.



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

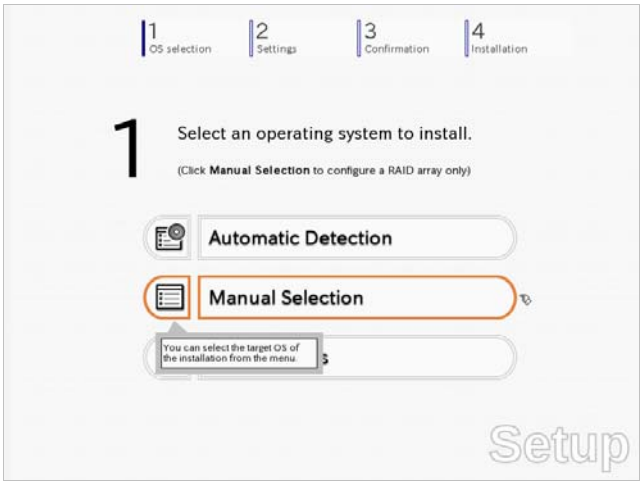


(2) Click ▷ on the right side of the screen.
→ Go to step 9.

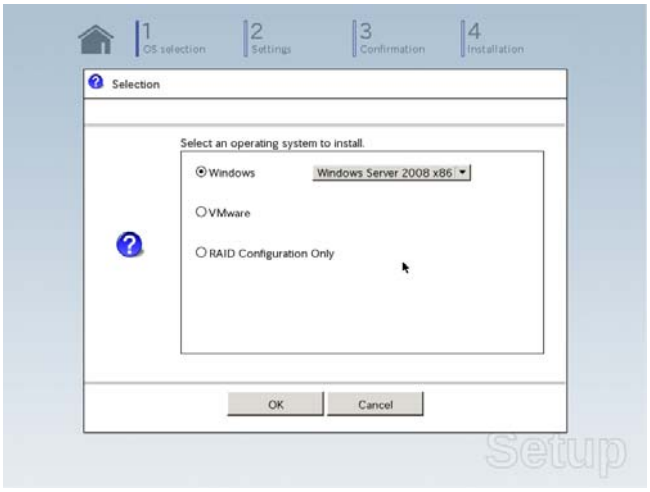


To select an OS from the menu:

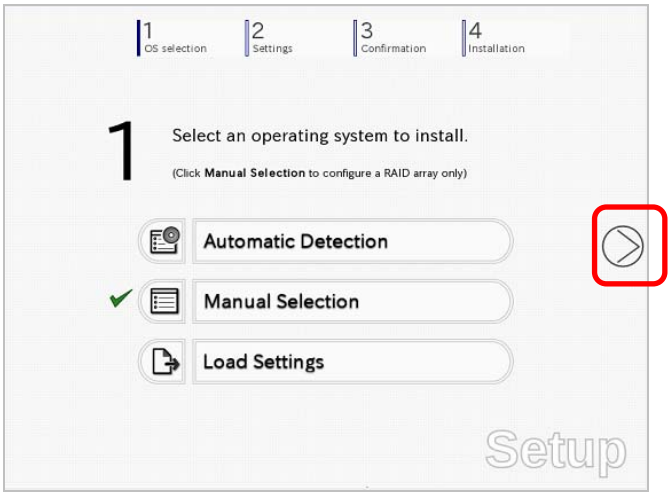
(1) Click **Manual Selection**.



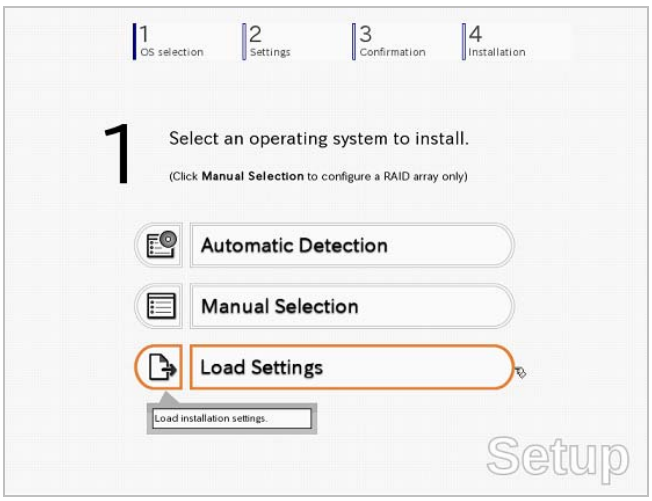
(2) From the **Windows** list, select the OS to install and then click **OK**.



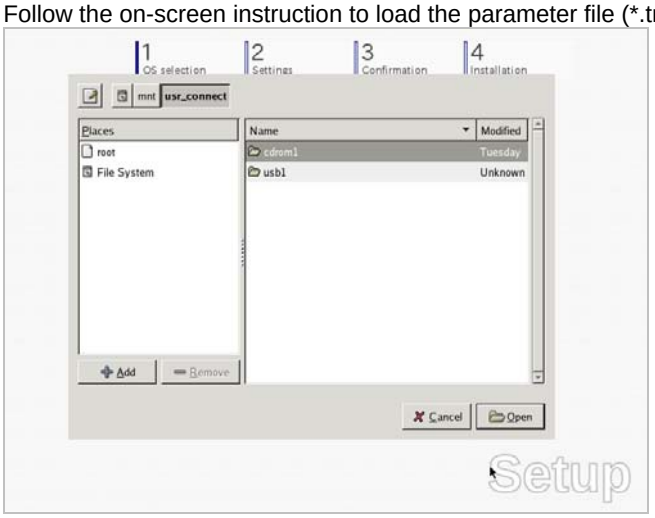
(3) Click ▷ on the right side of the screen.
→ Go to step 9.



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

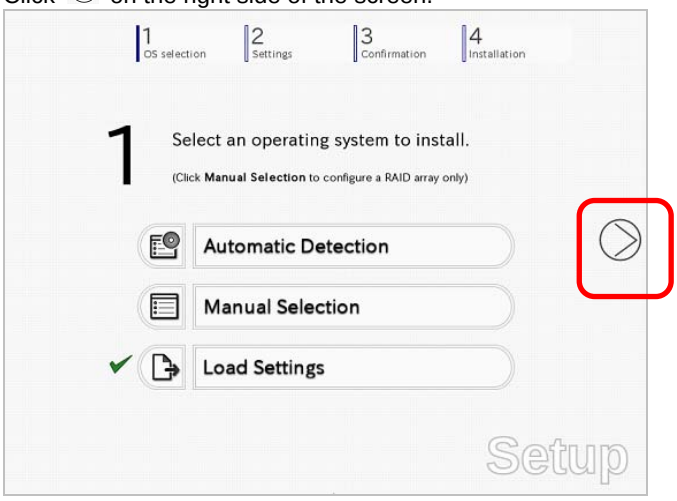


Follow the on-screen instruction to load the parameter file (*.tre).

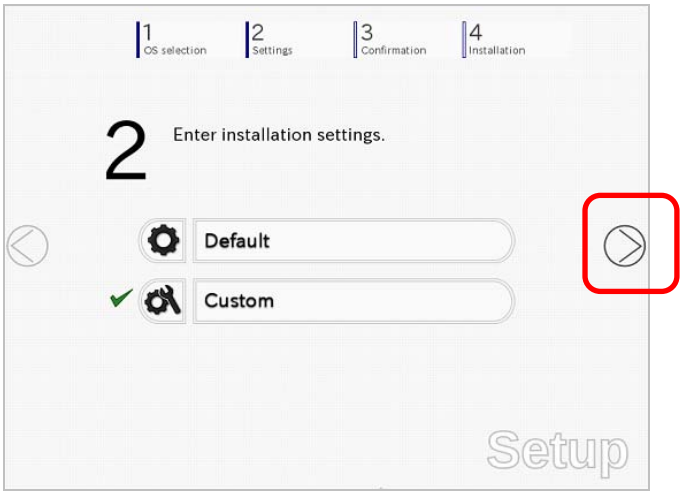


Tips For the removable media in which the parameter file is saved, see "**/mnt/usr_connect/usb***" (* indicates a number).

Click ▷ on the right side of the screen.

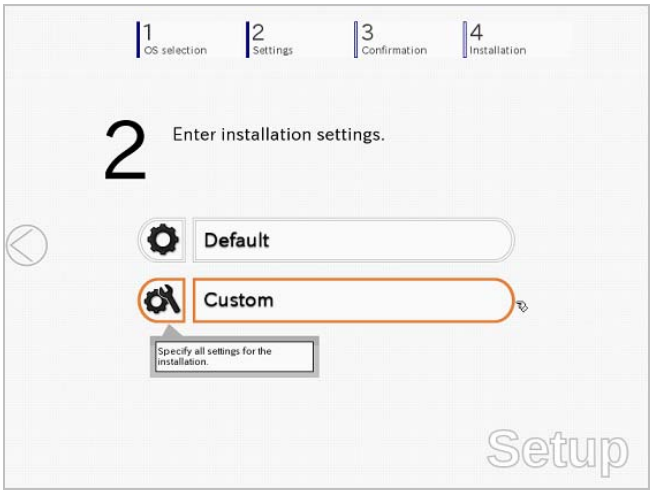


On the following screen, click ▷ on the right side of the screen.
Click **Custom** to check and modify the setting in the wizard.



→ Go to step 10.

9. Click **Custom**.



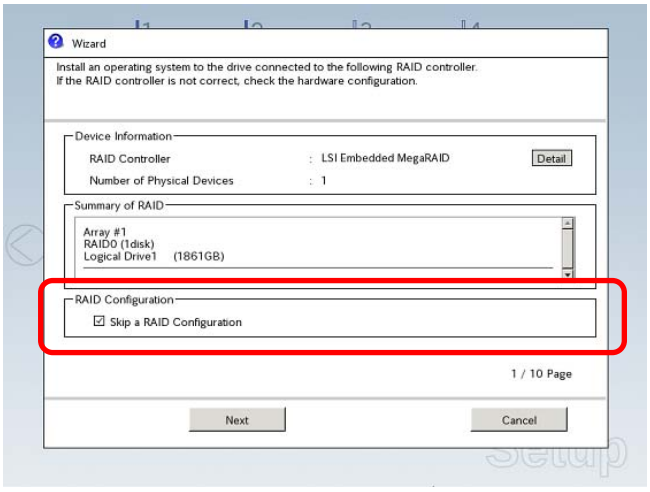
Note

If you click **Default**, setup with EXPRESSBUILDER is selected.
Click **Custom** to setup OS with Windows standard installer.

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

Note

When using an onboard RAID controller (LSI Embedded MegaRAID):
This function does not support the creation of RAID10 by using the onboard RAID controller. Refer to *Chapter 2 (4. RAID System Configuration)* in "*Maintenance Guide*" when creating RAID10.



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.

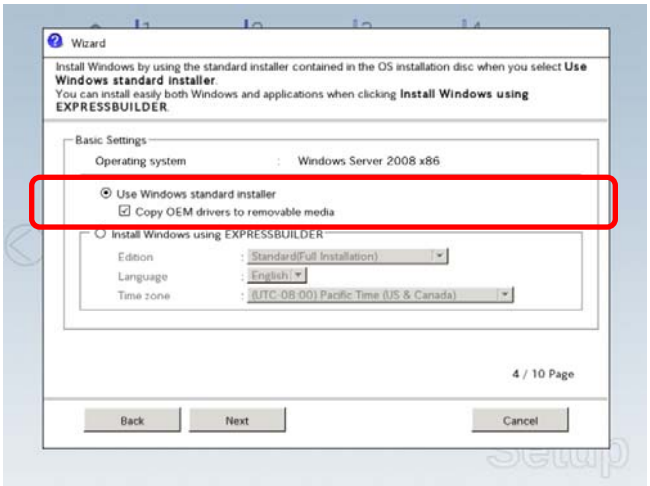
Important

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

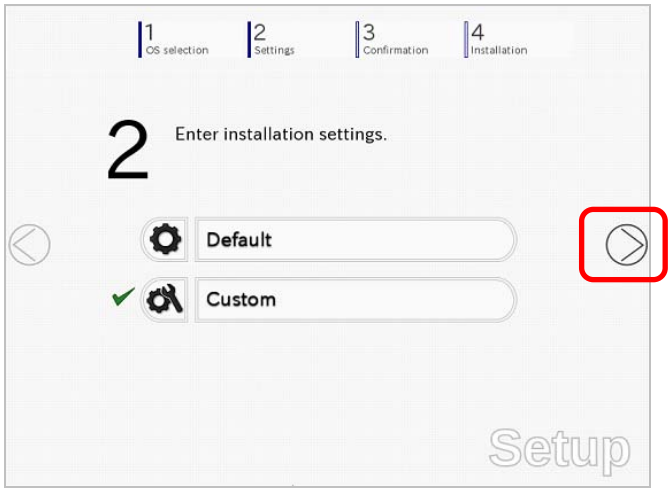
When skipping the creation of new logical drives

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

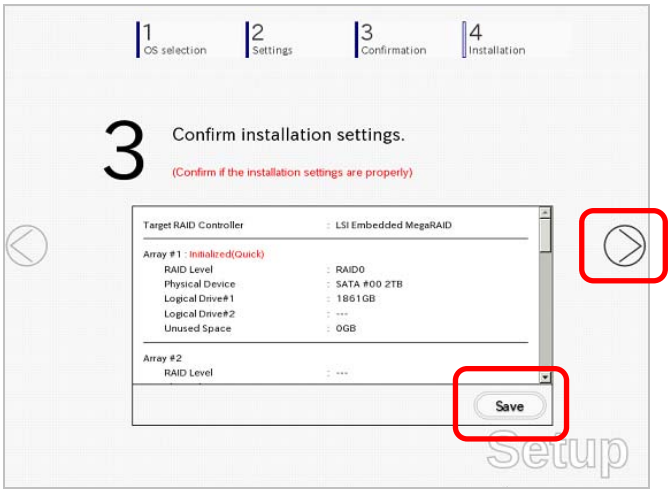
(2) Check the settings specified for **Basic Settings**.
Choose **Use Windows standard installer**, modify the settings as needed, and then click **Next**.
If you need to copy the OEM driver, select the **Copy OEM drivers to removable media** check box.



On the following screen, click ▷ on the right side of the screen.



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

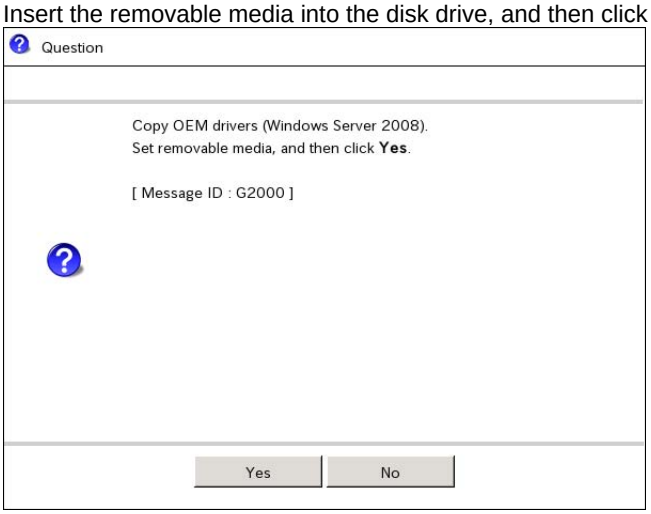


Click ▷ on the right side of the screen.

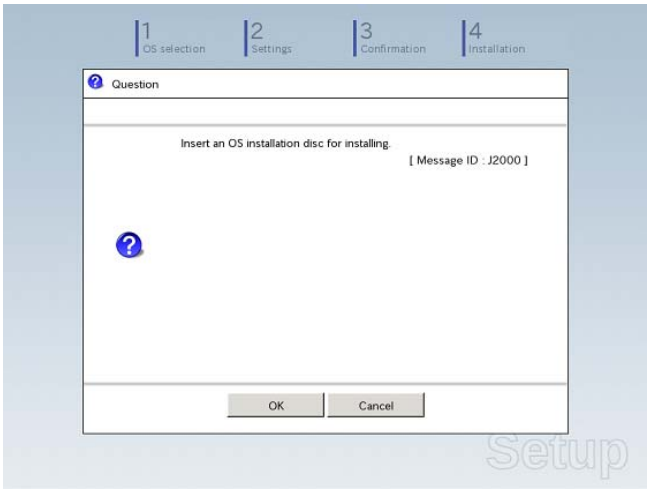
11. The setup process starts.
    Click **Start** to continue setup.

    If you need to suspend setup due to reasons such as backing up data, restart the setup process from the beginning.

12. Continue setup according to the on-screen messages.
    When copying the OEM driver, the following message appears.
    Insert the removable media into the disk drive, and then click **Yes**.



    When the following screen appears, insert the OS installation media into the disk drive, and then click **OK**.



13. 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
```

Note Since the OS installation media is set in the optical disk drive in Step 12, boot the system from the optical disk drive having higher boot priority, not from Internal Flash Memory.

14. Run from the OS installation media.
If a bootable operating system is already installed on the hard disk drive, press <Enter> key while the message "Press any key to boot from CD or DVD…" is displayed on the top of the screen.

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

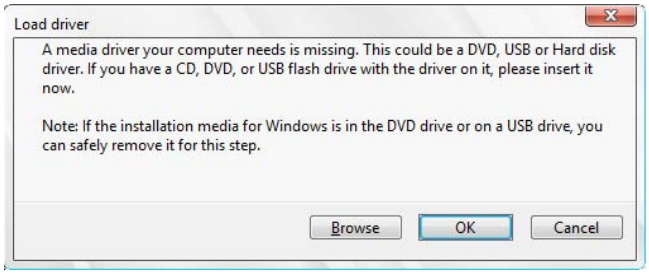
Note If “Windows is loading files...” message does not appear, <Enter> key was not pressed correctly. Reboot and retry.

This step is unnecessary if no bootable operating system exists.

15. When the following window appears, click **Next** at default settings.

16. Click **Install Now** .
Windows Server 2008 installation starts.

– If the following message appears, go to step 17.
– If it does not, go to step 19.



Tips

- The above message appears if you are using an onboard RAID Controller (LSI Embedded MegaRAID) in an environment equipped with an internal DVD drive.
- When this message appears, the message will say “CD, DVD, or USB flash drive”, but you must use Internal Flash Memory or removable media with the OEM drivers copied onto it.

17. Select the destination, and then click **OK**.

If using OEM drivers (made at step 12)

– Windows Server 2008 64-bit Edition
Removable media:\OEM_driver\ws2008x64\megasr1
– Windows Server 2008 32-bit Edition
Removable media:\OEM_driver\ws2008\megasr1

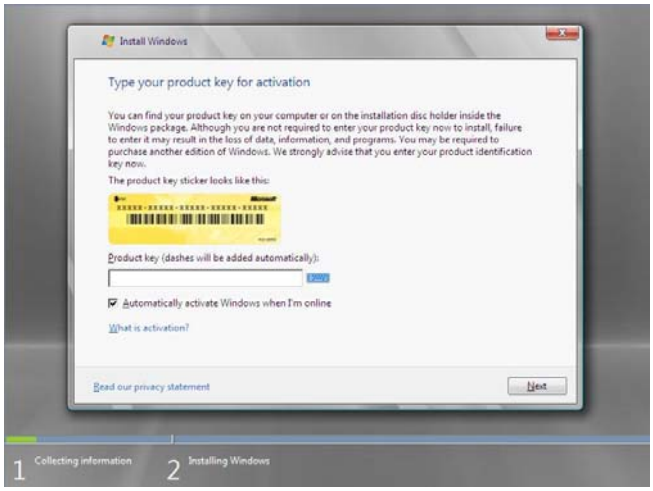
If using Internal Flash Memory

– Windows Server 2008 64-bit Edition
Internal Flash Memory:\004\win\winnt\oemfd\ws2008x64\megasr1
– Windows Server 2008 32-bit Edition
Internal Flash Memory:\004\win\winnt\oemfd\ws2008\megasr1

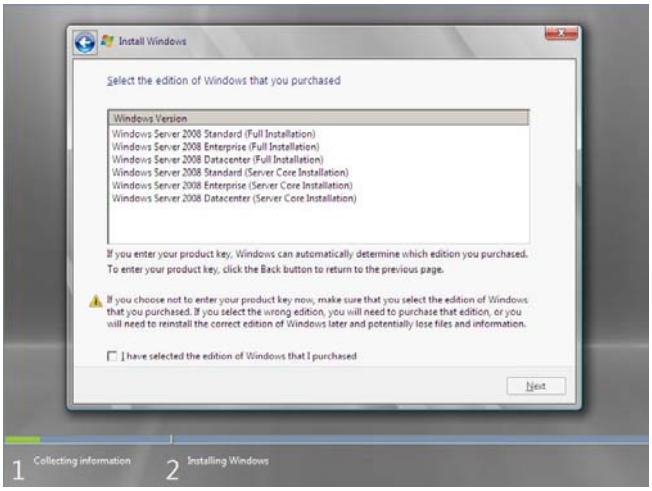
Tips

The volume label of Internal Flash Memory is INTER-FLASH.

18. Select **LSI Embedded MegaRAID**, and then click **Next**.
19. When the following window appears, enter the product key and then click **Next**.
Note that this window does not appear if you use Backup DVD-ROM for installation.

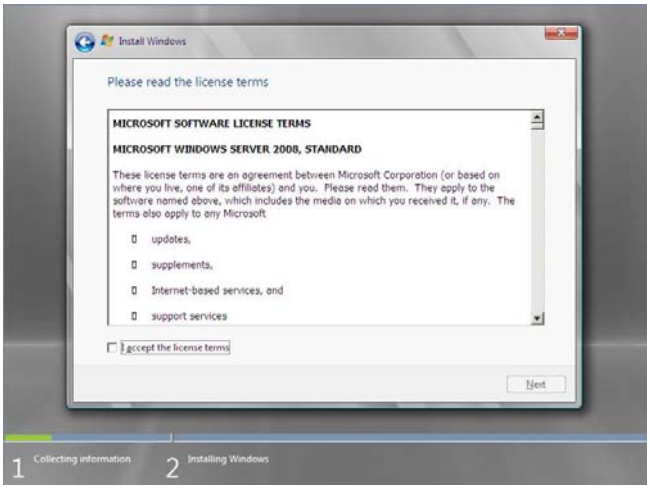


20. When the following window appears, select the Windows edition you have purchased.
Select **I have selected the edition of Windows that I purchased** check box, and then click **Next**.
If the product key was entered, only the corresponding editions are displayed.

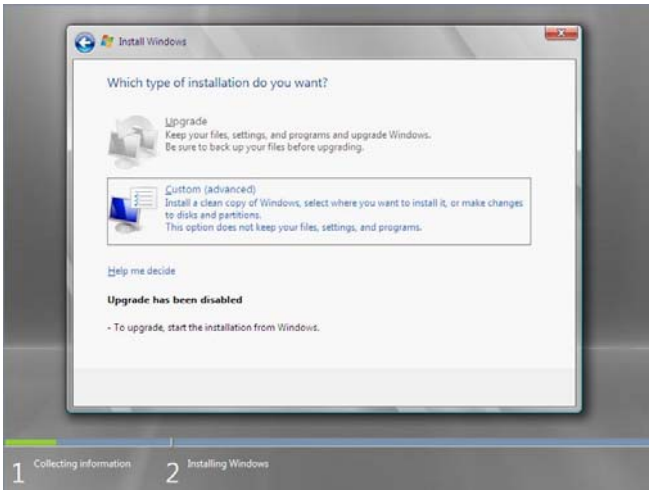


Tips The Windows versions that appear on the screen differ depending on the OS installation media used.

21. 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**.



22. When the following message appears, select the installation type.
Select **Custom (advanced)** in this case.



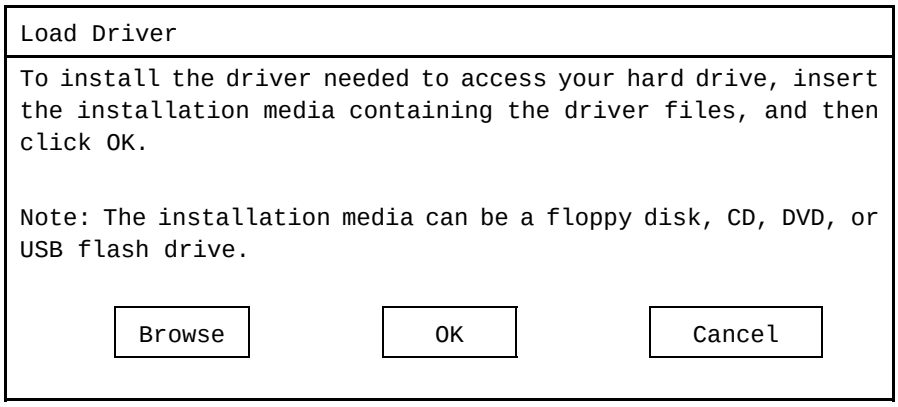
23. "Where do you want to install Windows?" window appears.

Note

If the driver was loaded in steps 16, 17 and 18, or if a RAID Controller is not used, go to step 27.

Click **Load Driver**.

If the following message appears, replace the OS installation media and EXPRESSBUILDER DVD in the optical disk drive, and then click **Browse**.



Tips

- If using Internal Flash Memory, you do not need to remove the OS installation media.
- At this time, the message "The Installation media can be a floppy disk, CD, DVD, or USB flash drive." appears on the screen, use the supplied EXPRESSBUILDER DVD or Internal Flash Memory.

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

When using the N8103-172/173/174 RAID Controller:

- Windows Server 2008 64-bit Edition
  `\004\win\winnt\oemfd\ws2008x64\megasas2`
- Windows Server 2008 32-bit Edition
  `\004\win\winnt\oemfd\ws2008\megasas2`

When using the N8103-168 RAID Controller:

- Windows Server 2008 64-bit Edition
  `\004\win\winnt\oemfd\ws2008x64\megasas2`
- Windows Server 2008 32-bit Edition
  `\004\win\winnt\oemfd\ws2008\megasas2`

When using the onboard RAID Controller (LSI Embedded MegaRAID) and a USB-DVD drive:

- Windows Server 2008 64-bit Edition
  `\004\win\winnt\oemfd\ws2008x64\megasr1`
- Windows Server 2008 32-bit Edition
  `\004\win\winnt\oemfd\ws2008\megasr1`

25. Select the necessary driver from the driver list shown, and then click **Next**.

    When using the N8103-172/173/174 RAID Controller:
    [LSI MegaRAID SAS 9272-8i]

    When using the N8103-168 RAID Controller:
    [LSI MegaRAID SAS 9265CV-8i]

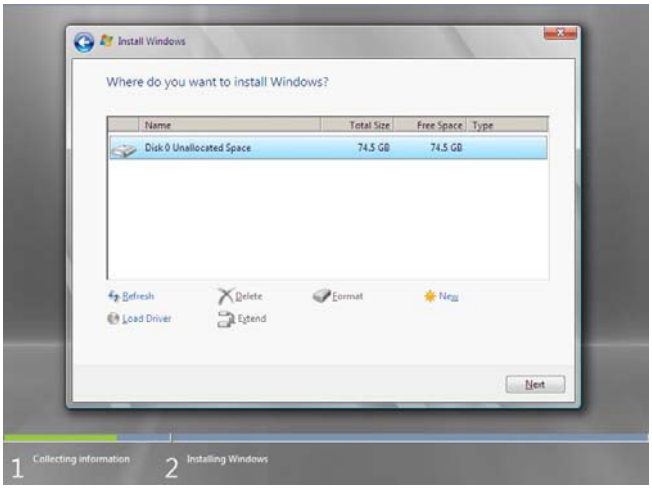
    When using the onboard RAID Controller (LSI Embedded MegaRAID) and a USB-DVD drive
    [LSI Embedded MegaRAID]

Tips When N8103-168 is used, the name of the RAID Controller that appears on the screen differs from the one shown on WebBIOS and Universal RAID Utility. However, this is not a problem.

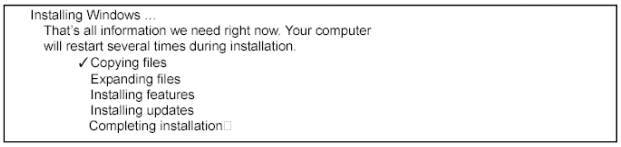
26. If you used EXPRESSBUILDER DVD, remove it and then insert the OS installation media.
27. Select the disk in which the partition will be created, and then click **Drive options (advanced)**
    If a partition has already been created, go to step 30.
28. Click **New**, enter the partition size into the size input box, and then click **Apply**.

Note When installing the OS to a disk of over 2,097,152 MB (2 TB), the partition size can only be set to 2,097,152 MB or less.

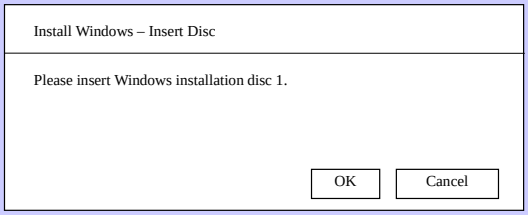
29. Select the partition created in step 27, and then click **Format**.
30. In the window below, select the created partition, and then click **Next**.



When the following message appears, Windows installation starts automatically.



Tips At this time, if EXPRESSBUILDER DVD is still in the optical disk drive, the message prompting you to replace it with an OS installation media appears. Remove EXPRESSBUILDER DVD and then insert the OS installation media.

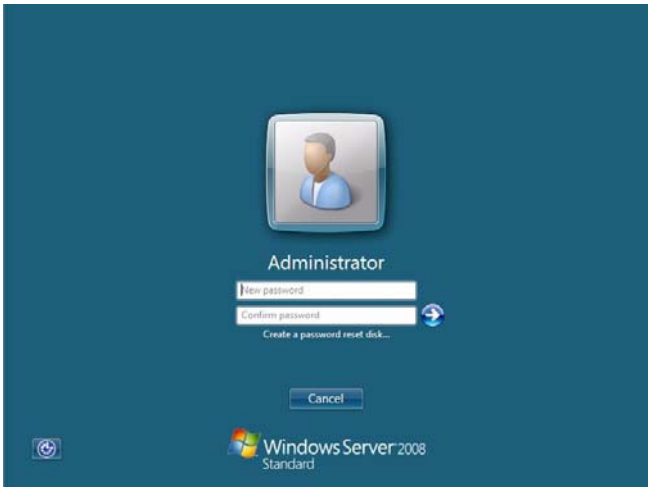


31. The content displayed differs depending on what you selected in step 20. Confirm the following, and then proceed.

Full installations:

(1) After setup of Windows Server 2008 is completed, the following window appears, prompting you to change your password before logging on. Click **OK**.

(2) Change your password, and then click the button.



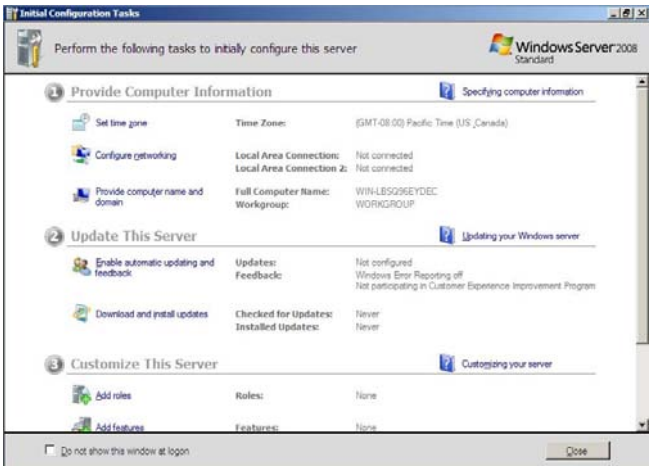
Tips

Passwords must fulfill the following requirements in Windows Server 2008.

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

(3) When the following message appears, click **OK**.

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

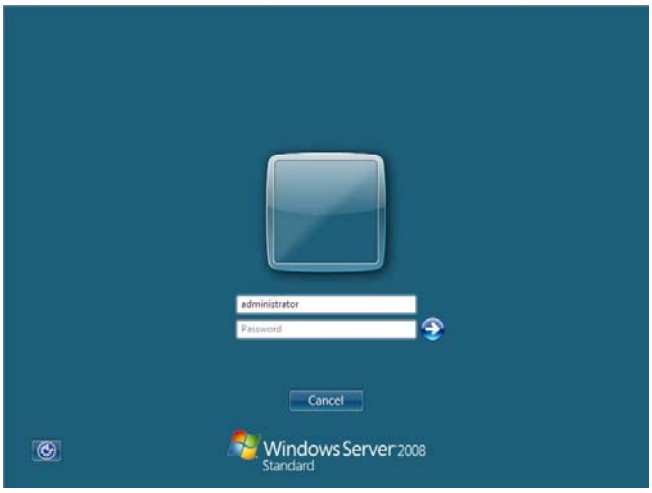


Server Core installations:

(1) If the following message appears after Windows Server 2008 setup has completed, press <Ctrl> + <Alt> + <Del> keys.

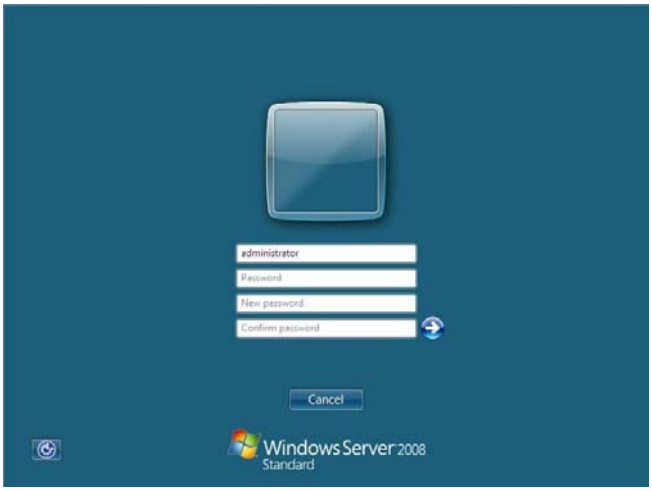
(2) When the following message appears, click **Other User**.

(3) When the following window appears, enter `administrator` into the **User** text box, and then click . Password entry is not required at this time.



(4) The following window appears, prompting you to change your password before logging on. Click **OK**.

(5) Change your password, and then click .



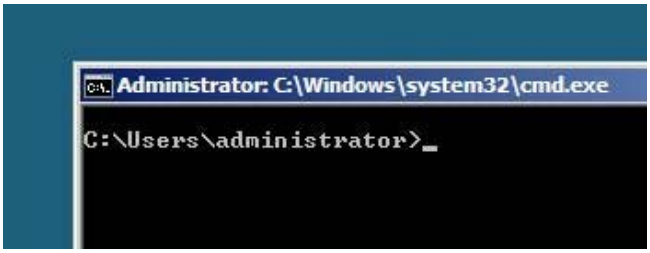
Tips

Passwords must fulfill the following requirements in Windows Server 2008.

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

(6) When the following message appears, click **OK**.

(7) The command prompt will appear. Set the user information.



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

32. Install Starter Pack by referring to *Chapter 1 (5.4 Installing Starter Pack)*.
33. Install drivers and specify detailed settings by referring to *Chapter 1 (5.5 Setting Up Device Drivers)*.
34. For optional devices whose driver has not been installed, install the device drivers according to the instructions supplied in the driver manual.
35. Apply Service Pack as needed according to *Chapter 1 (5.8 Applying Service Pack)*.
36. Install the applications as needed by referring to *Chapter 1* (*5.9 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.

5.4 Installing Starter Pack

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

Important

Also install Starter Pack in the following cases.

- **The hardware configurations have changed**
  (If an internal optional device is installed or removed, apply the Starter Pack. If a dialog box prompting system reboot is displayed, reboot the system according to 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**

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.
Contact your sales representative for details.

Tips

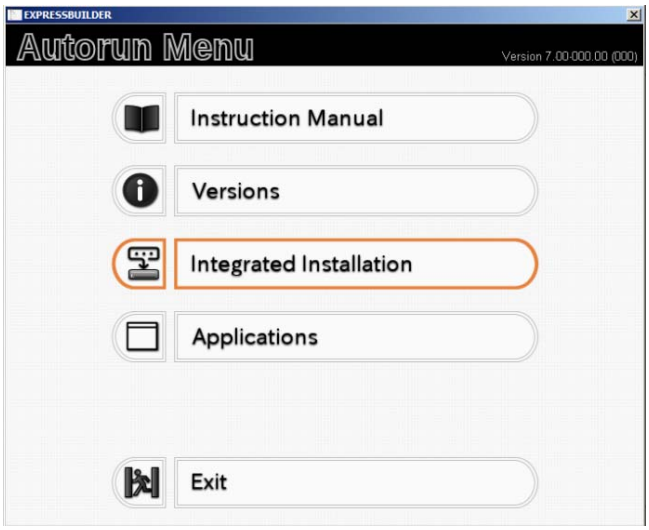
If the OS is installed by using EXPRESSBUILDER, Starter Pack is already applied. If the configuration is not changed, you do not need to apply Starter Pack again.

5.4.1 When using EXPRESSBUILDER DVD

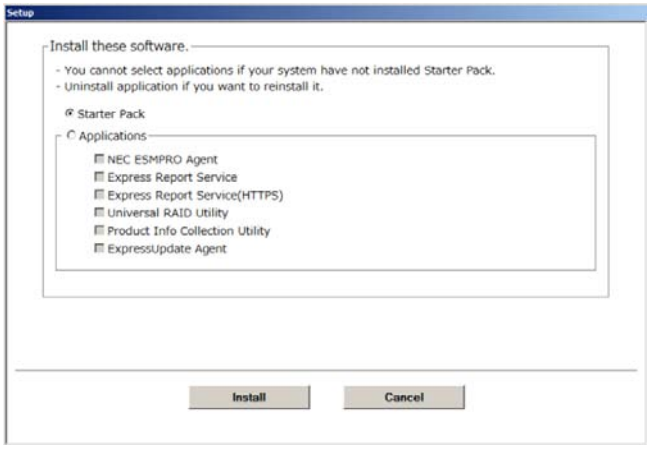
1. Log on to the system with the built-in administrator, which has administrative privileges.
2. Insert EXPRESSBUILDER DVD into the optical disk drive.
3. Start the installer of Starter Pack according to the installation type.

Full installations:

Click **Integrated Installation** on the menu.



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



Tips If Starter Pack is already installed, the **Applications** option is selected by default. To install Starter Pack again, select the **Starter Pack** option.

Server Core installations:

(1) Enter the following command at the command prompt, and then specify the optical disk drive letter (for example, D drive).

```
cd /d D:\004\win\winnt\bin
```

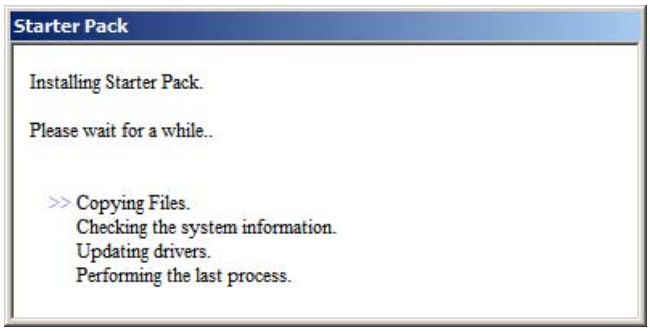
```
C:\Users\administrator>cd /d D:\004\win\winnt\bin
```

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

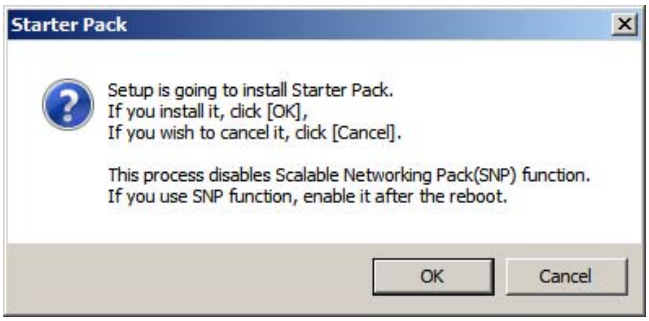
```
pkgsetup.vbs
```

```
D:\004\win\winnt\bin>pkgsetup.vbs
```

Wait for several minutes without attempting any further operation until the following window appears. On Full Installation, the following progress message appears while the Starter Pack is installed.

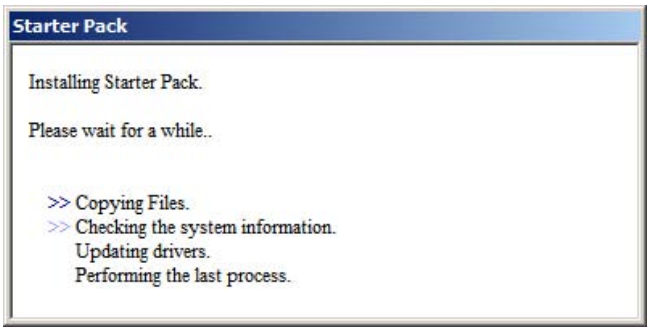


4. Read the message, and then click **OK**.
   Starter Pack installation starts.

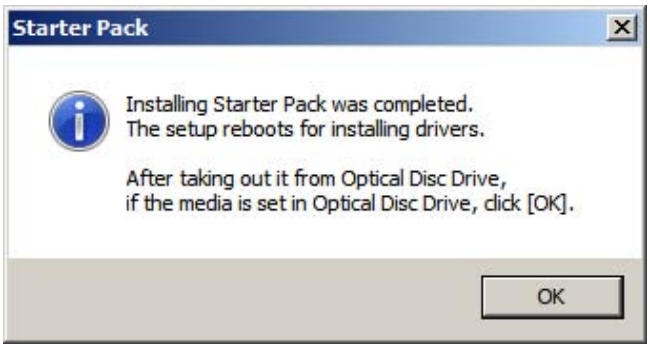


Wait until installation completes (about 3 or 4 minutes).

On Full Installation, the following progress message appears while the Starter Pack is installed.



5. When the following message appears, Starter Pack installation is complete. Follow the instructions in the message, and remove EXPRESSBUILDER DVD.



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

Installation of Starter Pack is now complete.

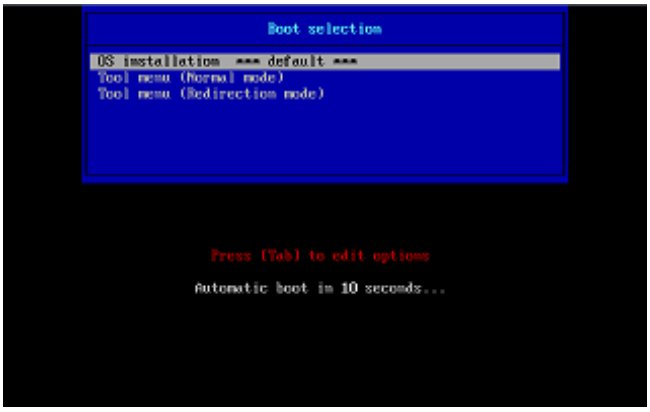
5.4.2 When using Internal Flash Memory

(Optional "Internal Flash Memory" is required)

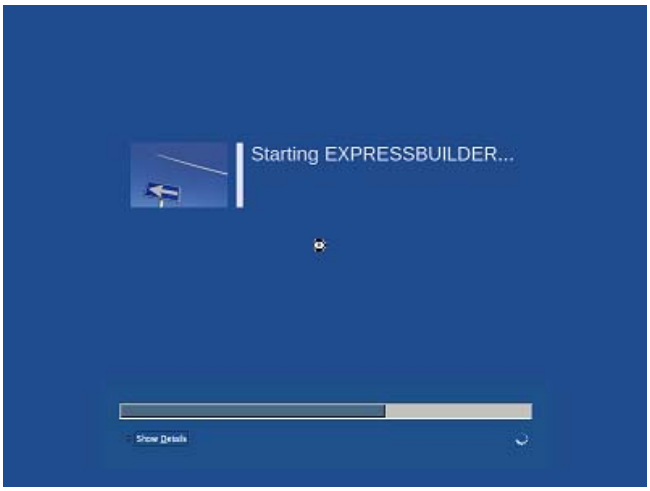
1. After installing the operating system, restart the server.
2. When "Press <F2> Setup, <F3> Internal Flash Memory, <F4> ROM Utility, <F12> Network" appears during POST, press <F3> key.

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



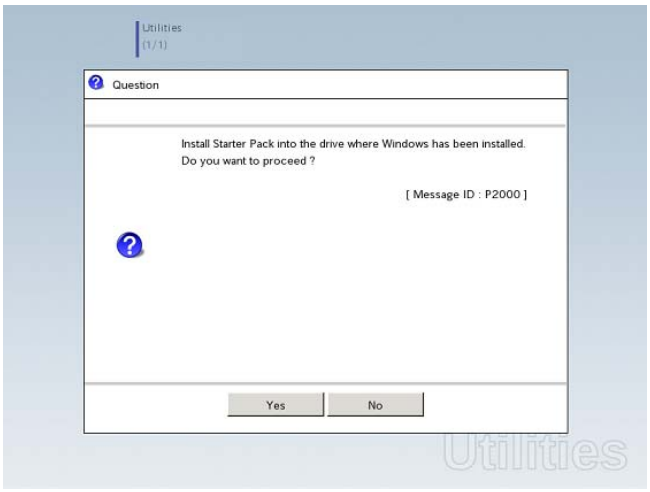
The server starts from EXPRESSBUILDER.

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

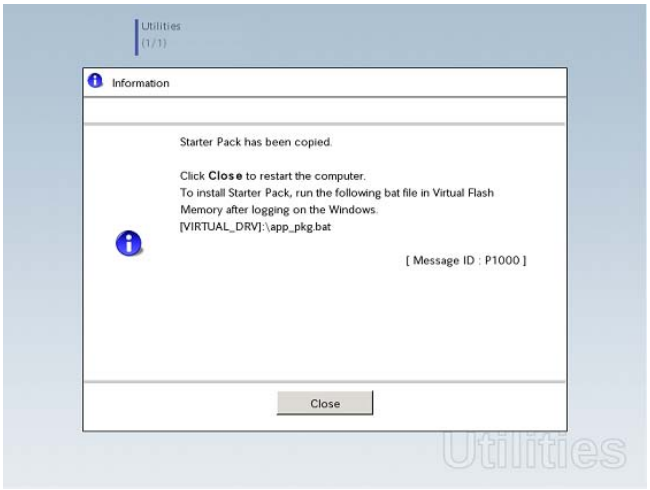
5. Click **Utilities**.

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.

Note You do not need to press <F3> key at this time.

9. Proceed application step according to the installation type.

Tips During setup, a virtual floppy disk drive is temporarily connected. Follow the instructions below to reference the virtual floppy disk drive.

Full installations

Click `app_pkg.bat` of Floppy disk drive (usually drive A).

Server Core installations

(1) Enter the following command at the command prompt, and then specify the drive letter of Floppy disk drive (usually drive A).

```
Cd /d A:\
```

```
C:\Users\administrator>cd /d A:\
```

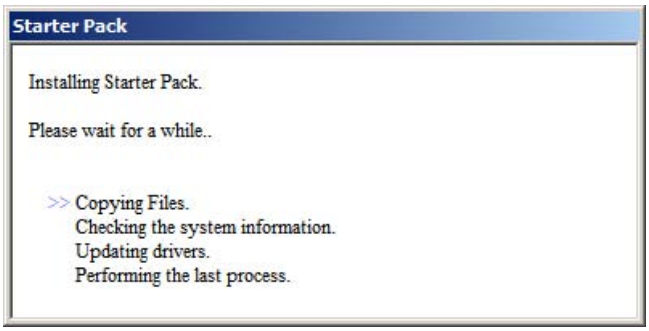
(2) Enter the following, and then press <Enter> key.

```
app_pkg.bat
```

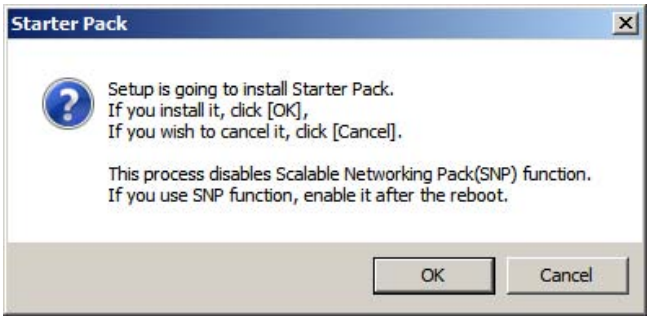
```
A:\>app_pkg.bat
```

Wait until the file copy is complete. (About 1 to 3 minutes.)

On Full Installation, the following progress message appears while the Starter Pack is installed.

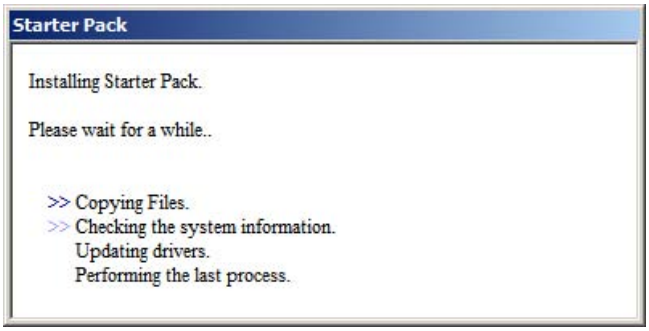


10. Read the message, and then click **OK**.
Starter Pack installation starts.

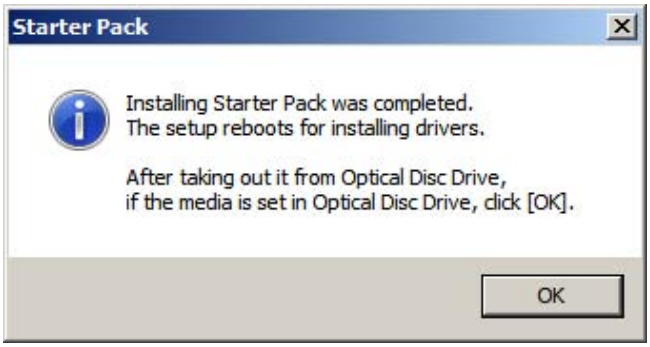


Wait until the installation of the Starter Pack is complete. (About 3 to 5 minutes)

On Full Installation, the following progress message appears while the Starter Pack is installed.



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



Installation of Starter Pack is now complete.

5.5 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 that is not described here, refer to the manual supplied with the driver.

5.5.1 Installing the LAN drivers and BACS (teaming utility)

(1) LAN drivers and BACS

If EXPRESSBUILDER is used for setup, the LAN driver and BACS will automatically be installed.
If the OS standard installer is used for setup, install Starter Pack to install the LAN driver and BACS.

Important **WOL is supported by the standard network adapters only.**

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: N8104-128/132/133/138/145

The LAN driver is not installed if N8104-145 is not installed at the time of installation of the OS by using EXPRESSBUILDER or at installation of Starter Pack.

Perform the steps below to install the N8104-145 LAN driver manually.

1. Insert EXPRESSBUILDER DVD into the optical disk drive.
   If the Autorun Menu appears, close the menu.

   Tips EXPRESSBUILDER DVD is unnecessary if Starter Pack was installed from Internal Flash Memory. Proceed to the next step.

2. Open Command Prompt, and execute `install.bat` in the following folder.

   When using EXPRESSBUILDER DVD:

   <Windows Server 2008 64-bit Edition>
   EXPRESSBUILDER DVD:\004\win\winnt\ws2008x64\r1\lan\intel

   <Windows Server 2008 32-bit Edition>
   EXPRESSBUILDER DVD:\004\win\winnt\ws2008\lan\intel

   If Starter Pack was installed from Internal Flash Memory:

   <Windows Server 2008 64-bit Edition>
   System Drive:\StartPKG\ws2008x64\r1\lan\intel

   <Windows Server 2008 32-bit Edition>
   System Drive:\StartPKG\ws2008\lan\intel

3. When the following message appears, remove the EXPRESSBUILDER DVD from the optical disk drive, and then restart the system.

Installation Completed

Setup is now completed.

Note

- If the LAN driver has been installed in N8104-145, PROSet (Teaming utility) is also installed.
- If an optional LAN board has been added, perform the procedure in "5.5.2 Setting up LAN drivers" for each optional LAN board.

(3) Network adapter name

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

Network adapters for the standard configuration
Broadcom NetXtreme Gigabit Ethernet #xx*

If connecting with an optional LAN board:
[N8104-128] Broadcom BCM57711 NetXtreme II 10 GigE (NDIS VBD Client) #xx*
[N8104-132/133/138] Broadcom NetXtreme Gigabit Ethernet #xx *
[N8104-145] Intel(R) Ethernet Server Adapter I340-T2 #xx*

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

Tips

The ID for N8104-128 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.

5.5.2 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

Using N8104-128 default speed duplex (10Gb Full), there is no problem using switch with "Autonegotiation" speed duplex.

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** 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) Using N8104-128

Using N8104-128 with the server, **iSCSI Offload Engine** and **EnablePMTUBHDetect** must be disabled.

Follow the procedure below to set it.

1. Double-click the **Broadcom Control Suite** icon on the Control Panel window.
   Broadcom Advanced Control Suite starts.
2. Set **Filter** to **ALL VIEW**, select **Broadcom BCM57711 NetXtreme II 10 GigE # xx** under **Explorer View** the **Adapter xx (BCM57711 xx) - Port x**.
3. Tab on **Configurations** at the right side screen and then expand **Resource Reservations**.
4. Click the **Configure** button on the **Click the button to configure**.
   The Hardware and Resource Configuration Wizard appears.
5. Remove a checkmark from **iSCSI** under **Protocols**, if checked.
   Select **Next**, and then click the **Apply** button.
6. When the following message 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?

7. Complete steps 2 to 6 for each N8104-128 network adapter.
   Then, close the Broadcom Advanced Control Suite.
8. Insert EXPRESSBUILDER DVD into the optical disk drive.
   If the Autorun Menu appears, close the menu.

Tips EXPRESSBUILDER DVD is unnecessary if Starter Pack was installed from Internal Flash Memory. Proceed to the next step.

9. Double-click `bhddisabled.vbs` in the following folder.

   When using EXPRESSBUILDER DVD:

   <Windows Server 2008 64-bit Edition>
   EXPRESSBUILDER DVD`:\004\win\winnt\ws2008x64\r1\lan\bcom\ws2008x64\lan`

   <Windows Server 2008 32-bit Edition>
   EXPRESSBUILDER DVD`:\004\win\winnt\ws2008\lan\bcom\ws2008x86\lan`

   If Starter Pack was installed from Internal Flash Memory:

   <Windows Server 2008 64-bit Edition>
   System Drive:`\StartPKG\ws2008x64\r1\lan\bcom\ws2008x64\lan`

   <Windows Server 2008 32-bit Edition>
   System Drive:`\StartPKG\ws2008\lan\bcom\ws2008x86\lan`

10. When the following message appears, click **OK**.

    > Black Hole Router Detect Disable Completed, Reboot the system

11. Eject EXPRESSBUILDER DVD from the optical disk drive, and then restart the system.

Setup is now complete.

(3) Using N8104-132/133/138

Using N8104-132/133/138 with the server, follow the procedure below to set it.

1. Insert EXPRESSBUILDER DVD into the optical disk drive.
   If the Autorun Menu appears, close the menu.

Tips EXPRESSBUILDER DVD is unnecessary if Starter Pack was installed from Internal Flash Memory. Proceed to the next step.

2. Double-click `pgdyavd_disable.vbs` in the following folder.

   When using EXPRESSBUILDER DVD:

   <Windows Server 2008 64-bit Edition>
   EXPRESSBUILDER DVD:\004\win\winnt\ws2008x64\r1\lan\bcom\ws2008x64\lan

   <Windows Server 2008 32-bit Edition>
   EXPRESSBUILDER DVD:\004\win\winnt\ws2008\lan\bcom\ws2008x86\lan

   If Starter Pack was installed from Internal Flash Memory:

   <Windows Server 2008 64-bit Edition>
   *System Drive:**StartPKG**ws2008x64**r1**lan**bcom**ws2008x64**lan*

   <Windows Server 2008 32-bit Edition>
   *System Drive:**StartPKG**ws2008**lan**bcom**ws2008x86**lan*

3. When the following message appears, click **OK**.

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

Tips The message “Action:Non” indicates that the LAN driver is already set.

4. Eject EXPRESSBUILDER DVD from the optical disk drive, and then restart the system.

Setup is now completed.

5.5.3 Setting up team/LiveLink (BACS)

Note

- For how to delete an adapter team, refer to *Chapter 1* (*5.5.3 Setting up team/LiveLink (BACS) - (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.
- If you want to change the type of an existing team, delete the team, and then create a new team.

(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.

Important

FEC/GEC mode requires 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.

Important

- **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-Failback Disable) (with Standby Member) using two network adapters, setup for LiveLink is not essential.**

(3) Setting up team/LiveLink

Important

Possible combinations of network adapters that compose the team are as follows.

When the number of adapters that composes the team is up to four:

- **Between standard network adapters**
- **Between LAN cards excluding N8104-128**
- **A standard network adapter and LAN card N8104-128**

When the number of adapters that composes the team is up to two:

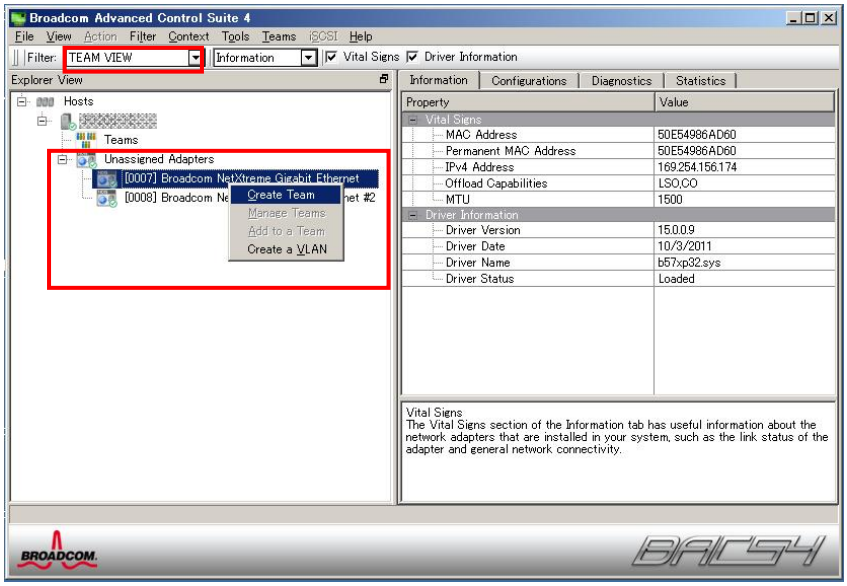
- **Between N8104-128 adapters.**

Teaming with another N8104-128 on different board is not supported.

Tips

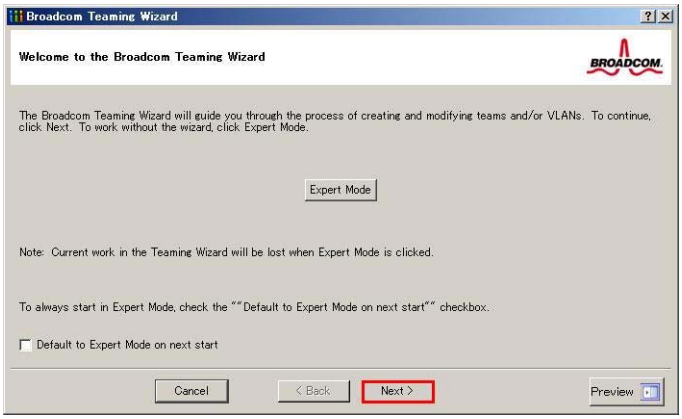
To edit a team, right-click on the BACS team, and then select **Edit Team**.
Then refer to step 3 and the subsequent steps to edit the team.

1. Double-click the Broadcom Control Suite icon on the Control Panel window.
   Broadcom Advanced Control Suite starts.
2. Set **Filter** to **TEAM VIEW**, right-click the adapter to be used for the team, and then select **Create a Team** from the short-cut menu.



The Broadcom Teaming wizard appears.

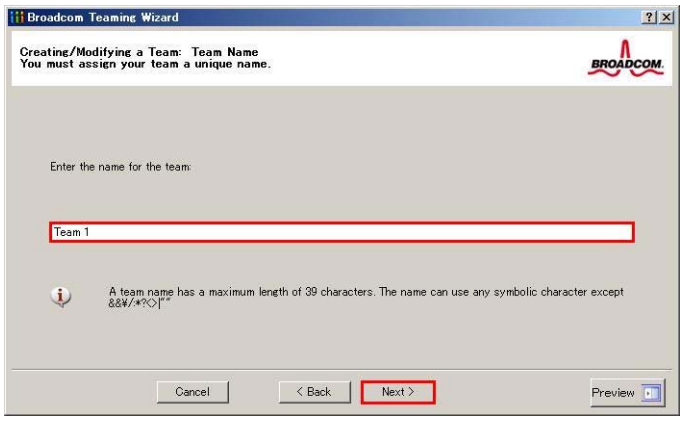
3. Click **Next**.



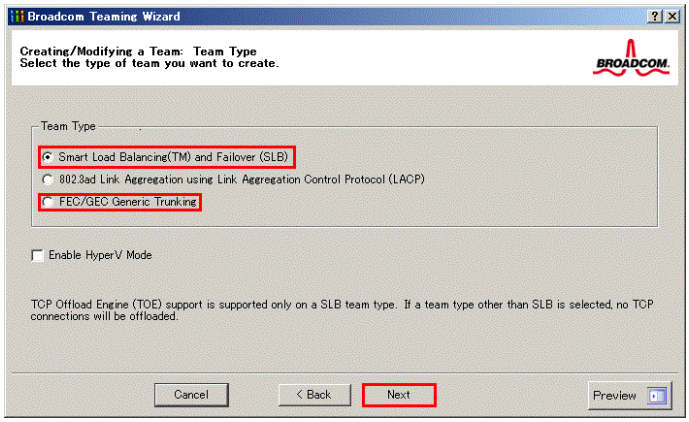
Note

Do not use **Expert Mode.**

4. Enter any name into the team name entry column, and then click **Next**.



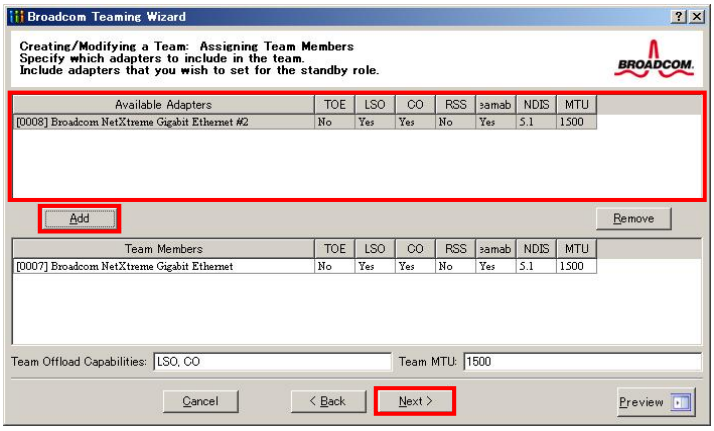
5. Under **Team Type**, select the type of team you want to create, and then click **Next**.



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. Select **OK**.
  "Verify that the network switch connected to the team members is configured correctly for the team type."

6. Select the adapters that compose the team, click **Add** to add them to the **Team Members** area, and then click **Next**.



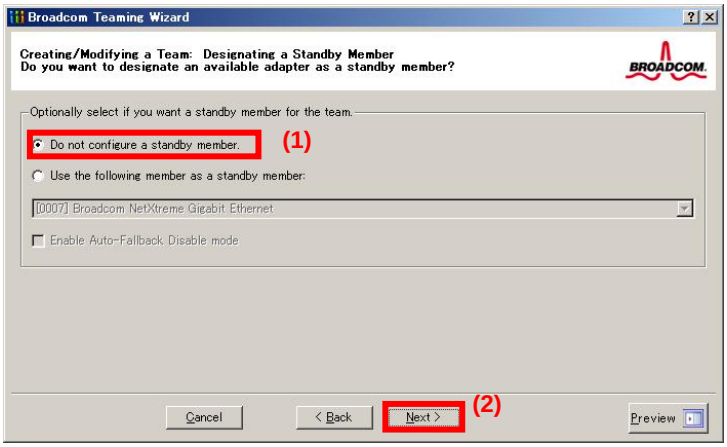
Note If **FEC/GEC Generic Trunking** is selected, go to step 15.

7. 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-Failback Disable) (with Standby Member)

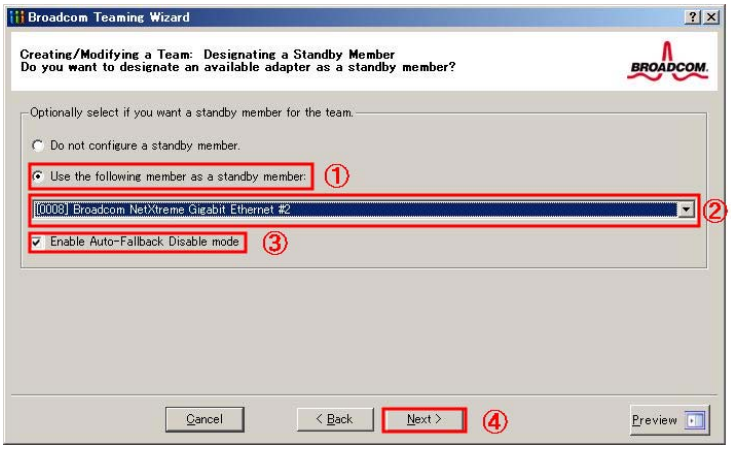
(1) Select **Use the following member as a standby member**.

(2) Select the adapter that is to be a standby member from the drop-down list.

(3) Select **Enable Auto-Failback Disable mode**.

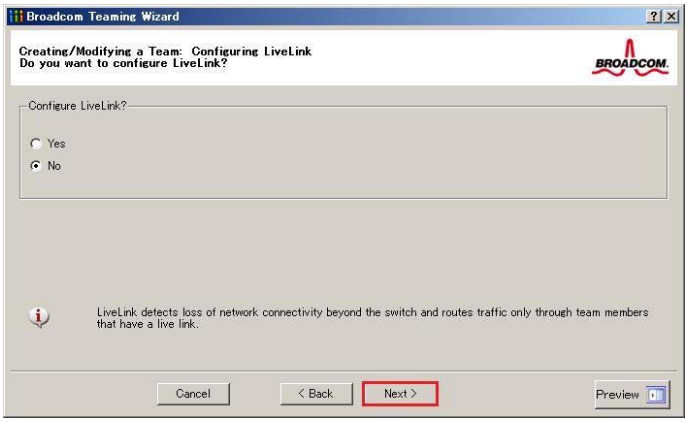
Important **Do not support the operation when not select the Enable Auto-Failback Disable mode.**

(4) Click **Next**.

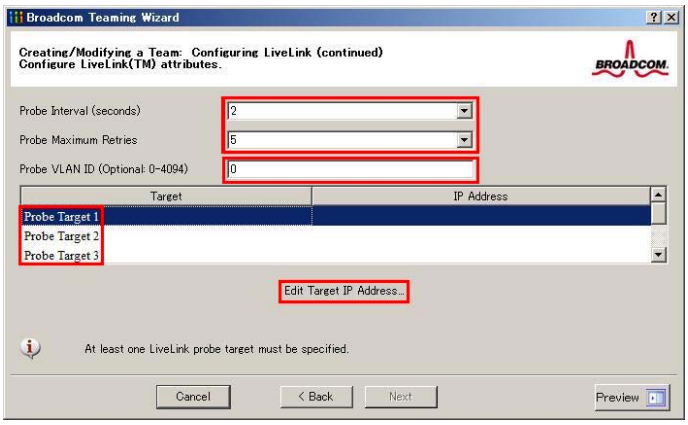


Note **Enable Auto-Failback Disable mode** is cleared while editing the team. Select it again.

8. 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.



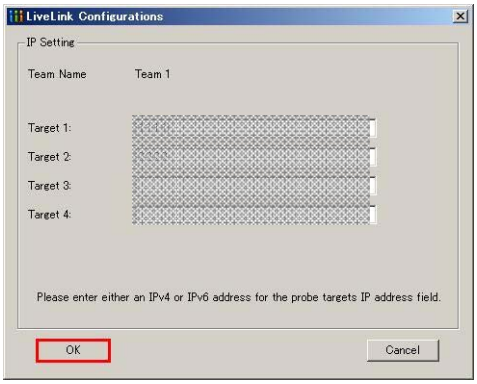
9. You can use the default setting for **Probe interval** and **Probe maximum retries**. If you change these values, select a value from each drop-down list, click the target probe (**Probe Target *xx***), and then click **Edit Target IP Address**.



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**.

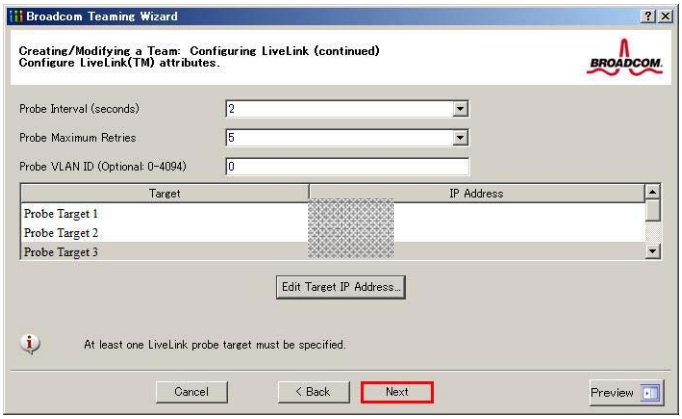
10. In the **Target *xx*** text box, enter the IP address of the alive monitoring server, and then click **OK**.



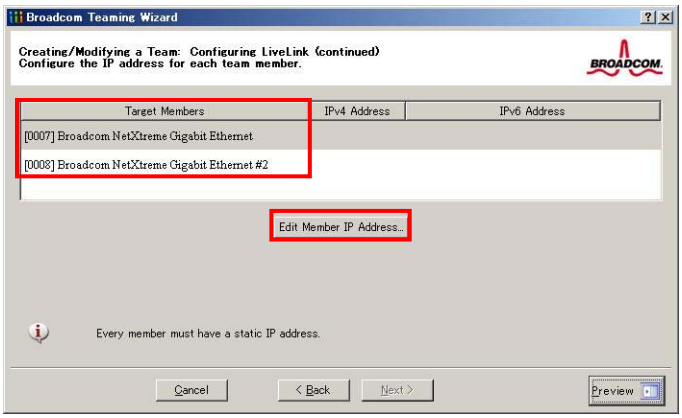
Note

- *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.

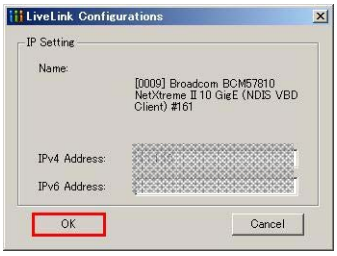
11. Click **Next**.



12. Select an adapter from the **Team Members** area, and then click **Edit Member IP Address**.



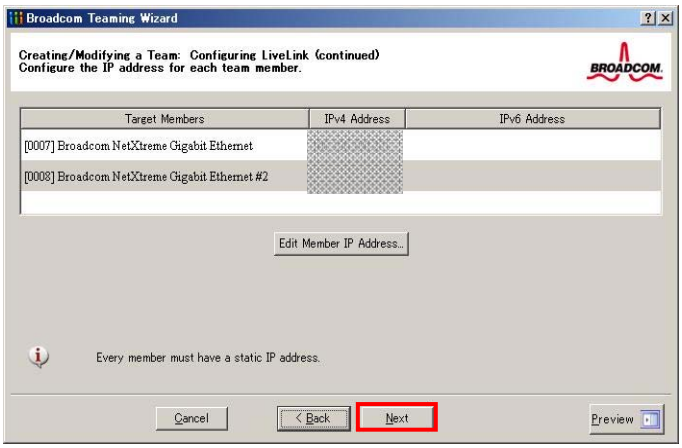
13. Enter the IP address used for LiveLink communication, and then click **OK**.



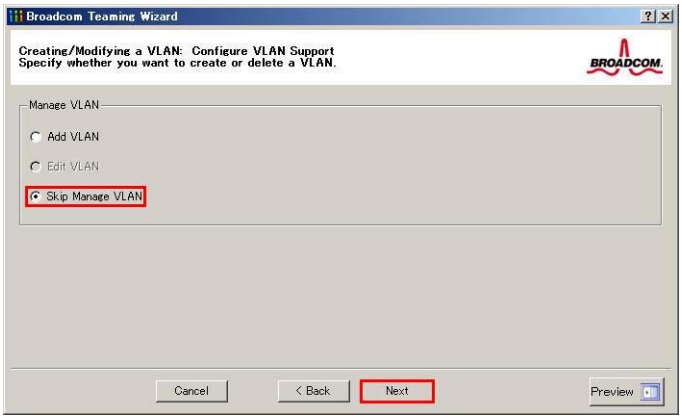
Note

- 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.

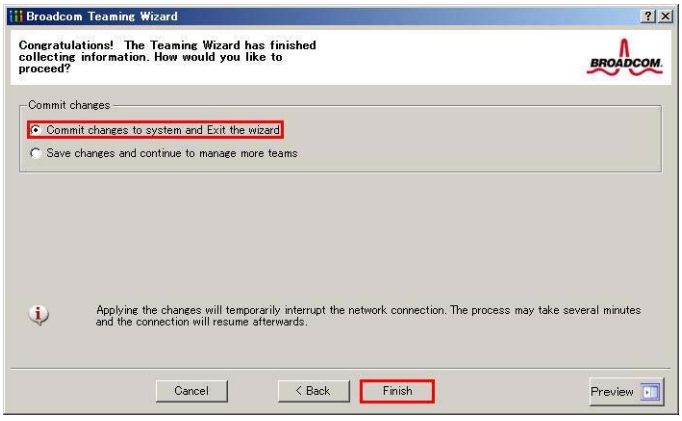
14. Click **Next**.



15. Make sure that **Skip manage VLAN** is selected under **Manage VLAN**, and then click **Next**.
It is an example of if 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

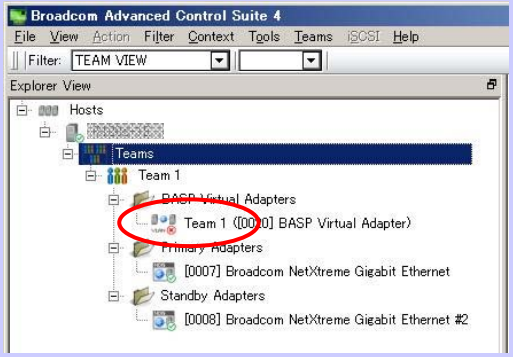
When the message below appears, select **Yes**.

"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

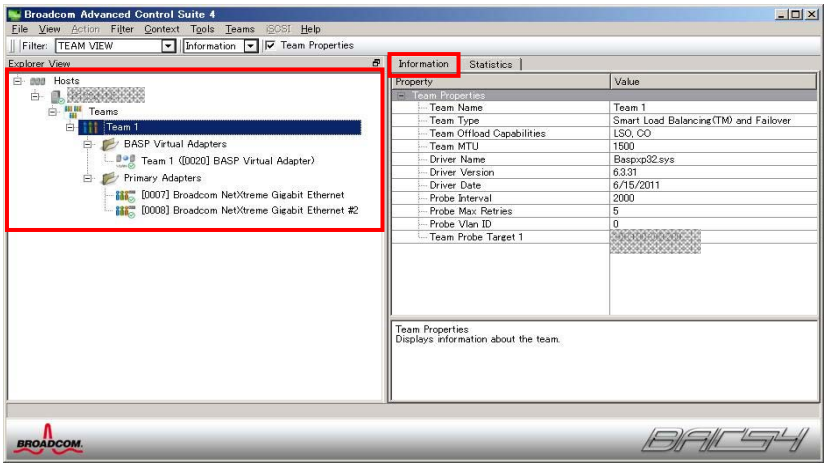
After creating a team, if the teaming adapter displays like the following image, perform steps 8 to 14 again and correct the LiveLink settings.

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.

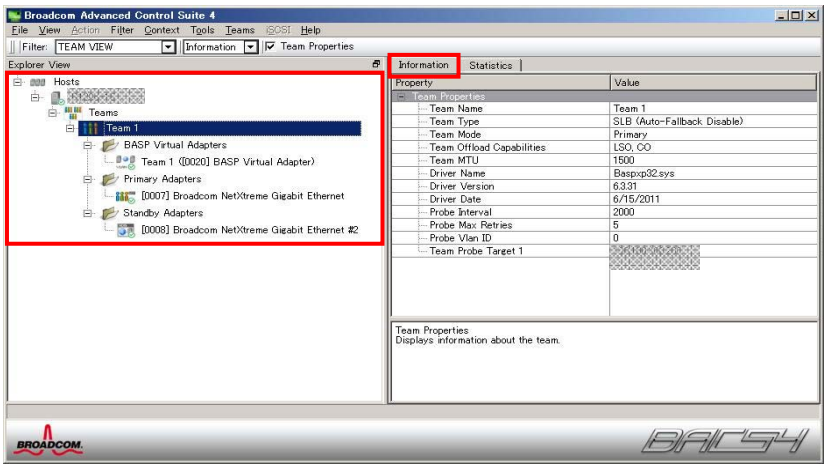


17. Restart the system.
18. After the system starts, start Broadcom Control Suite by clicking the **Broadcom Control Suite** icon in **Control Panel**, and confirm that a team has been created. Confirm the team settings on the **Information** window to the right.

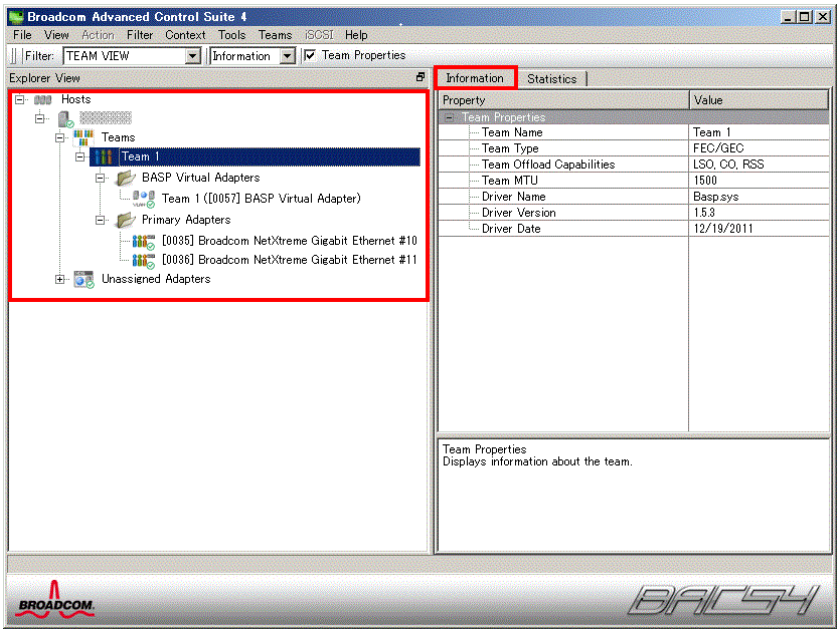
– Smart Load Balancing and Failover (without Standby Member)



– Smart Load Balancing (Auto-Failback Disable) (with Standby Member)



– FEC/GEC Generic Trunking



Team setup is now complete.

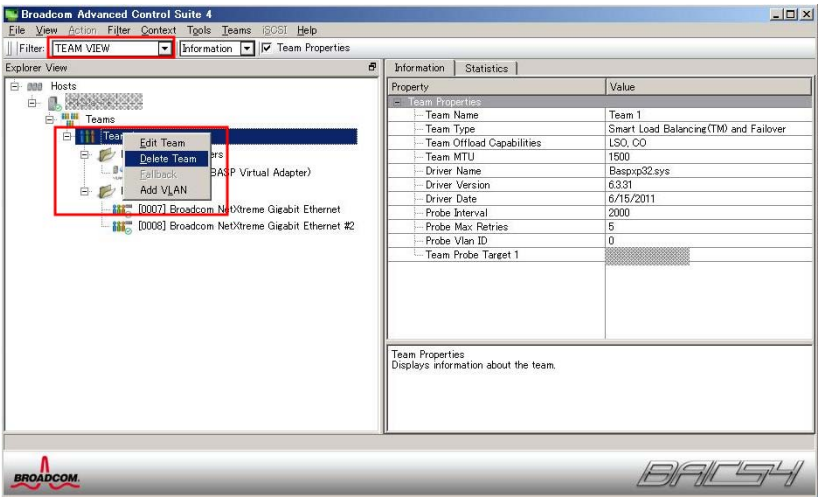
(4) Procedure for deleting team

Note

You must delete teams from Broadcom Control Suite.

You cannot delete the team from the team adapter displayed in the Device Manager.

1. Double-click Broadcom Control Suite in the Control Panel window.
   Broadcom Advanced Control Suite starts.
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."
```

3. Insert EXPRESSBUILDER DVD into the optical disk drive.
   If the Autorun Menu appears, close the menu.

Tips

You do not have to insert EXPRESSBUILDER DVD if Starter Pack was installed from Internal Flash Memory. Proceed to the next step.

4. Double-click `addlvlanstats.vbs` in the following folder.

   When using EXPRESSBUILDER DVD:

   <Windows Server 2008 64-bit Edition>
   EXPRESSBUILDER DVD:\004\win\winnt\ws2008x64\r1\lan\bcom\ws2008x64\lan

   <Windows Server 2008 32-bit Edition>
   EXPRESSBUILDER DVD:\004\win\winnt\ws2008\lan\bcom\ws2008x86\lan

   If Starter Pack was installed from Internal Flash Memory:

   <Windows Server 2008 64-bit Edition>
   System Drive:\StartPKG\ws2008x64\r1\lan\bcom\ws2008x64\lan

   <Windows Server 2008 32-bit Edition>
   System Drive:\StartPKG\ws2008\lan\bcom\ws2008x86\lan

5. When the following message appears, click **OK**.

6. Eject EXPRESSBUILDER DVD from the optical disk drive, and then restart the system.

Team deletion is now complete.

5.5.4 Setting up team (PROSet)

(1) Team types

The following team types are supported.

- 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) 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.
- 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.
- 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.

Note

- Static Link Aggregation (SLA) requires switch support.
- The adapters specified as a group of Adaptive Load Balancing (ALB) can only be connected to the switching hub.
- Confirm that the setting of the switching hub (L2) port matches the setting of the server network adapter teaming mode.
- For how to delete an adapter team, refer to *Chapter 1* (*5.5.4 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.

(2) Setting up team

Important

Possible combinations of network adapters that compose the team are as follows.

When the number of adapters that composes the team is up to four:

- **Between N8104-145 adapters**

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 then click **Next**.
5. Include the adapter to the team, and then click **Next**.
6. Select a team mode, and then click **Next**.
7. Click **Finish**.
8. Click **TEAM: "*Team name*"** from the Device Manager, and then **Network adapters** to modify the team.
   On the **Settings** tab, click the **Modify Team** button.

9. Refer to the following procedure to set the team member adapter priority status.

Note

Adapter priority config can be confirmed by the following procedure:

1. Click **TEAM: "*Team name*"** from Device manager, and then open **Network adapters**.
2. On the **Settings** tab, confirm the adapters 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.

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."

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.

11. Confirm the result in **Test results**.
12. Restart the system.

(3) Procedure for deleting team

1. Open the **Device Manager**.
2. Click **Network adapters**, and then open **TEAM: "*Team name*" properties**.
3. Click the **Settings** tab.
4. Click the **Remove Team** button.
5. Click **Yes** to the message.
6. Confirm that the **TEAM: "*Team name*"** adapter does not exist in the **Network adapters** tree, and then restart the system.

5.5.5 Graphics accelerator driver

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

If you completed setup with EXPRESSBUILDER, then the graphics accelerator driver has been automatically installed.

Tips The graphics accelerator driver is only enabled in Full installations. Standard VGA is used in the case of Server Core installation.

To reinstall drivers separately, complete the following steps.

1. Insert EXPRESSBUILDER DVD into the optical disk drive.
   If Autorun Menu appears, close the menu.

   Tips You do not have to insert EXPRESSBUILDER DVD if Starter Pack was installed from Internal Flash Memory.

2. From the **Start** menu, point to **All programs**, **Accessories**, and then select **Explorer**.
3. Double-click the `install.bat` icon in the following folder.

   When using EXPRESSBUILDER DVD:

   Windows Server 2008 64-bit Edition
   EXPRESSBUILDER DVD:\004\win\winnt\ws2008x64\video
   Windows Server 2008 32-bit Edition
   EXPRESSBUILDER DVD:\004\win\winnt\ws2008\video

   If Starter Pack was installed from Internal Flash Memory:

   Windows Server 2008 64-bit Edition
   System drive:\StartPKG\ws2008x64\video
   Windows Server 2008 32-bit Edition
   System drive:\StartPKG\ws2008\video

   Continue installation according to the onscreen messages.
   You will be prompted to confirm the End User License Agreement during this process.
   Click the **ACCEPT** button to continue.

4. Eject EXPRESSBUILDER DVD from the optical disk drive, and then restart the system.

Graphic accelerator driver installation is now complete.

5.5.6 When using a SAS controller (N8103-142)

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

5.5.7 When using a RAID Controller (N8103-161)

The driver for RAID Controller N8103-161 is automatically installed by Windows Plug-and-Play.

5.5.8 When using a Fibre Channel controller (N8190-153/154)

The driver for Fibre Channel controller N8190-153/154 is automatically installed by Windows Plug-and-Play.

5.6 Specifying PAE Option

If the server can mount a memory of more than 4 GB in a 32-bit system, specify the PAE option settings to use that memory.

Important **The PAE option is not supported by Windows Server 2008 Standard.**

For Windows Server 2008, the PAE option can be specified by using the `Bcdedit.exe` file. Follow the procedure below to specify the PAE option.

1. Select **Run** from the **Start** menu.
2. Enter `cmd.exe` in the **Open** text box, and then click **OK** to start the command prompt.
3. Execute the following command at the command prompt:
   `bcdedit /set pae forceenable`
4. Restart the system.
   The above setting is applied after restart.
5. Execute the following command at the command prompt:
   `bcdedit`
   Make sure that `pae ForceEnable` is added to **Windows Boot Loader**.

Specification of the PAE option settings is now complete.
For details about `Bcdedit.exe`, refer to the following:

Boot Configuration Data Editor Frequently Asked Questions

http://technet.microsoft.com/en-us/library/cc721886(WS.10).aspx

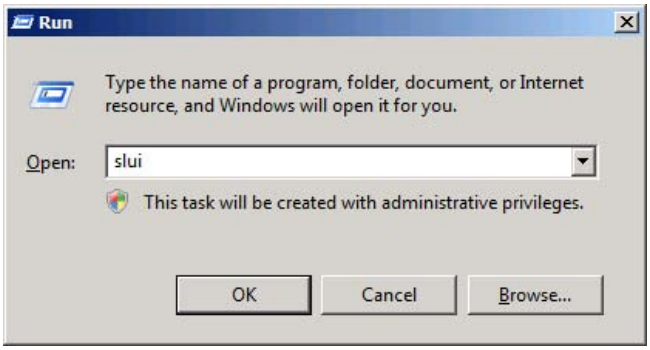
5.7 License Authentication

To use Windows Server 2008, confirm whether the license has been authenticated, and if it has not, perform the license authentication procedure.

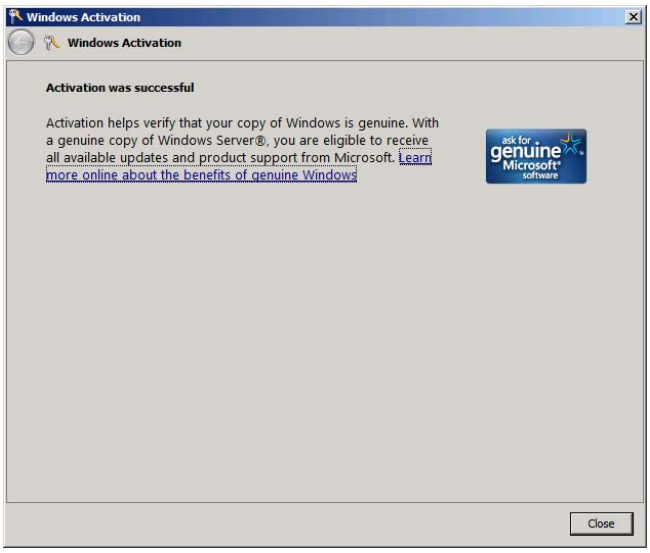
The following describes the license authentication procedure.

(1) Full installations

1. Select **Run** from the **Start** menu.
   Enter the following, and then press <Enter> key.
   `slui`

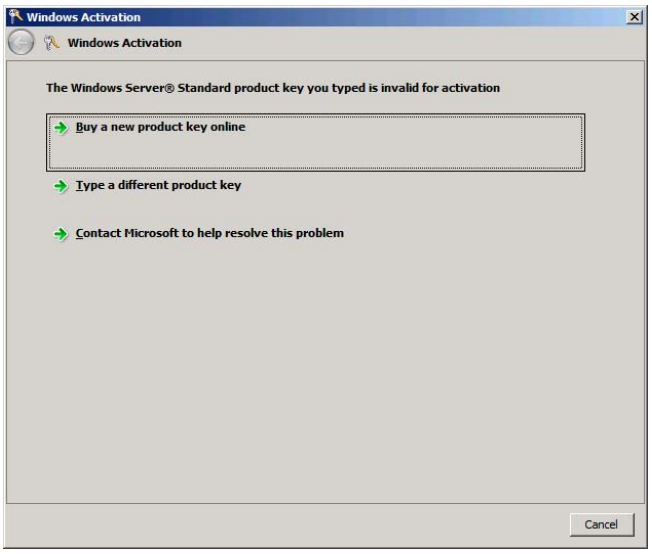


If the following message appears, Windows has already been activated on your system. You do not need to complete this procedure. Click **Close** to exit.

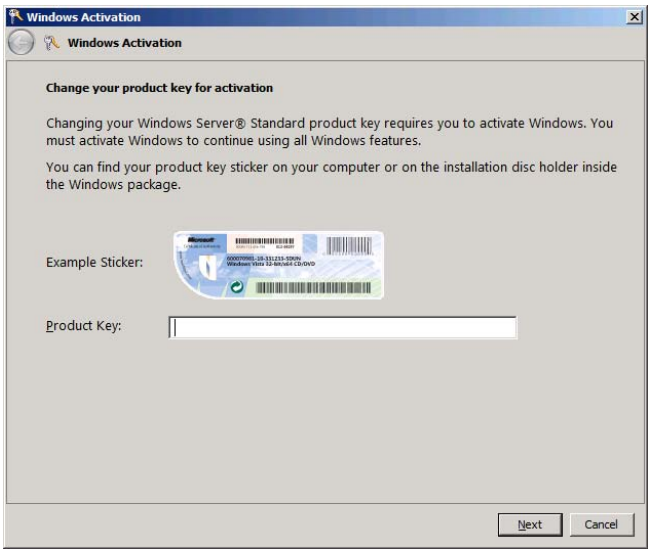


2. For installation from Backup DVD-ROM, replace the product key.

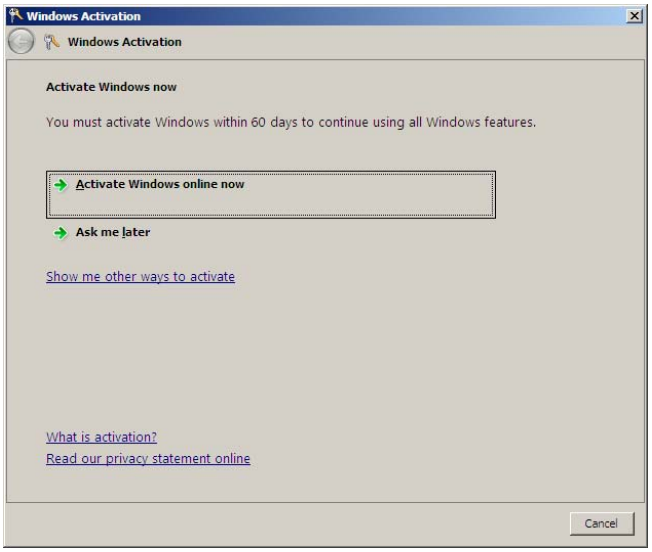
   When the following window appears, click **Change product key**.



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



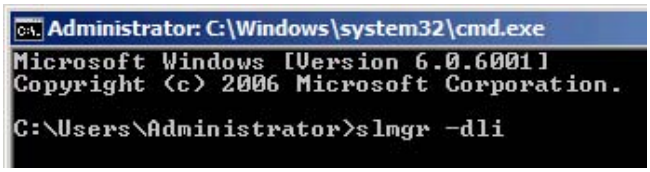
4. Follow the instructions in the following message to start the license authentication process.



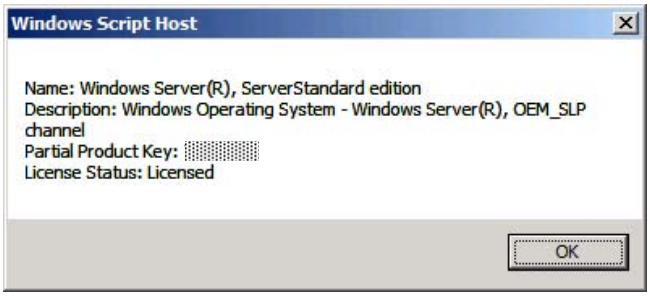
Windows activation is now complete.

(2) Server Core installations

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

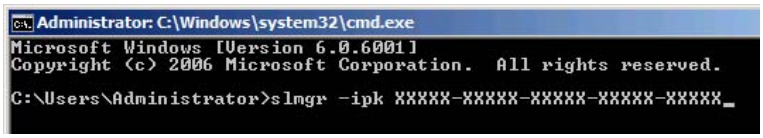


If the following message appears, Windows has already been activated on your system. You do not need to complete this procedure. Click **OK** to finish.



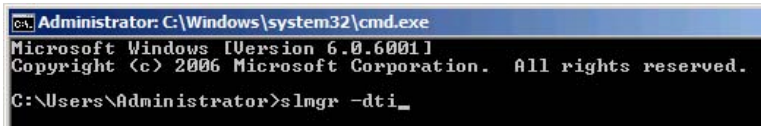
2. For installation from Backup DVD-ROM, replace the product key.

   At the command prompt, enter the following, and then press <Enter> key. Set the product key found on the COA label in *PID*.
   `slmgr -ipk PID`



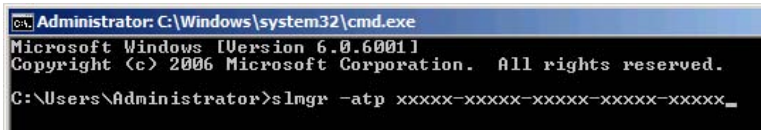
3. Obtain an installation ID for Windows activation.

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



4. Reference `%systemroot%\system32\slui\phone.inf` for 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. *`CID`* is the confirmation ID that you received from customer service.
   `slmgr -atp CID`



Windows activation is now complete.

5.8 Applying Service Pack

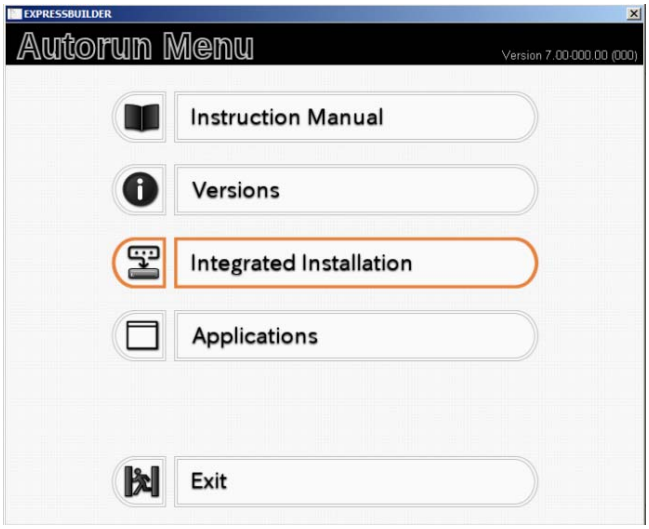
When applying Service Pack 2, refer to the following Microsoft website:
http://support.microsoft.com/kb/948465/en-us

5.9 Installing the Applications

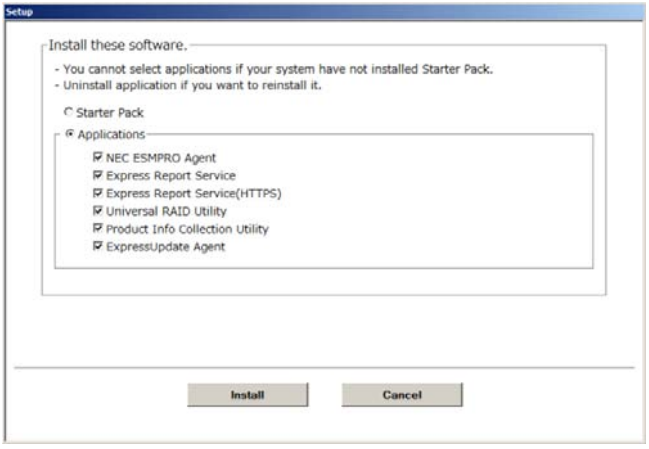
EXPRESSBUILDER contains applications including NEC ESMPRO Agent and NEC ESMPRO Manager. Some applications stored in EXPRESSBUILDER can be installed collectively by performing the procedures described below. When installing these applications individually, see *Chapter 2* (*Installing Bundled Software*).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

1. Log on to the system with the built-in administrator, which has administrative privileges.
2. Insert the EXPRESSBUILDER DVD into the optical disk drive.

3. Click **Integrated Installation** on the menu.



4. On the following screen, make sure that the **Applications** option is selected.
   Select the check boxes corresponding to the applications to install, and then click **Install**.



Note

- If Starter Pack is already installed, the **Applications** option is selected by default.
- Applications available for installation are selected by default.
- An application that has been already installed need to be uninstalled before installing it again.
- If your system environment does not satisfy the prerequisite for an application, you cannot install it. (For details, refer to the on-screen information and the relevant page of each application.)

The selected applications are automatically installed.

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

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) Installation process

– Setup with EXPRESSBUILDER

Important

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.

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

1. 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 set up 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.**

3. Refer to *Chapter 1 (5.3 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. If you want to change them, re-install the Windows.

1. From 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 **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.

6. Setup for Solving Problems

We recommend installing the following features for solving the server failure quickly.

6.1 Specifying Memory Dump Settings (Debug Information)

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

Important

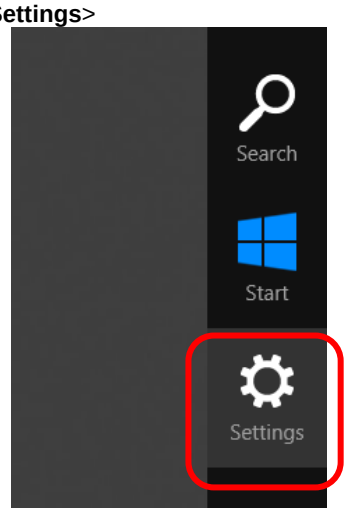
- **Memory dumps must be collected by a serviceman. You only specify the settings for the memory dump.**
- **When you restart the system to save the memory dump, a message informing you that the system is short of virtual memory might appear. Ignore this message and proceed with the restart. If you reset or restart the system again, the memory dump might not be saved normally.**

6.1.1 For Windows Server 2012

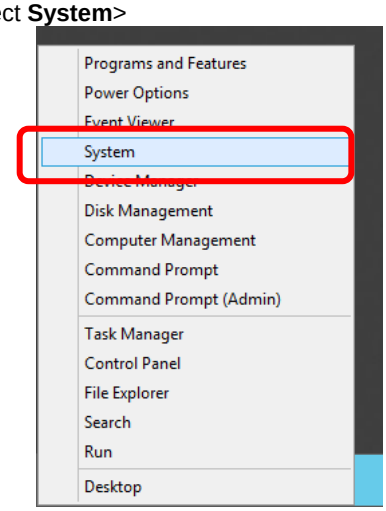
Follow the procedure below to specify the memory dump settings.

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

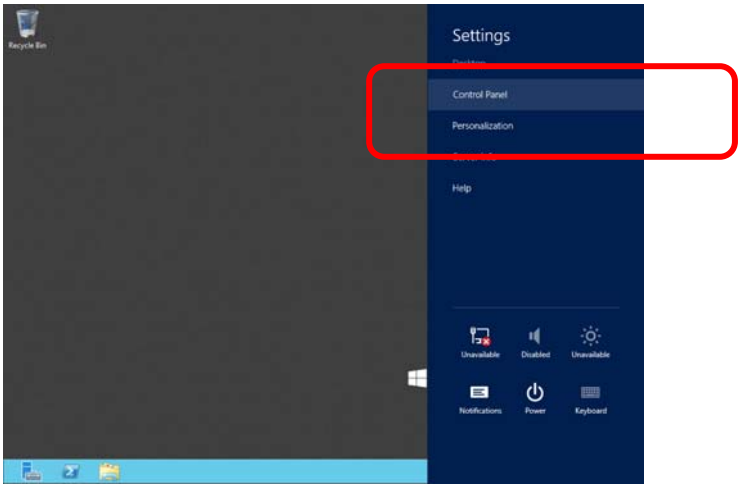
<Select **Settings**>



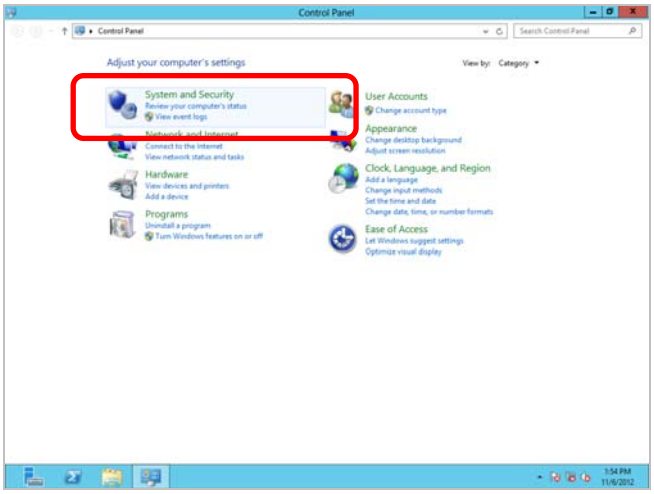
<Select **System**>



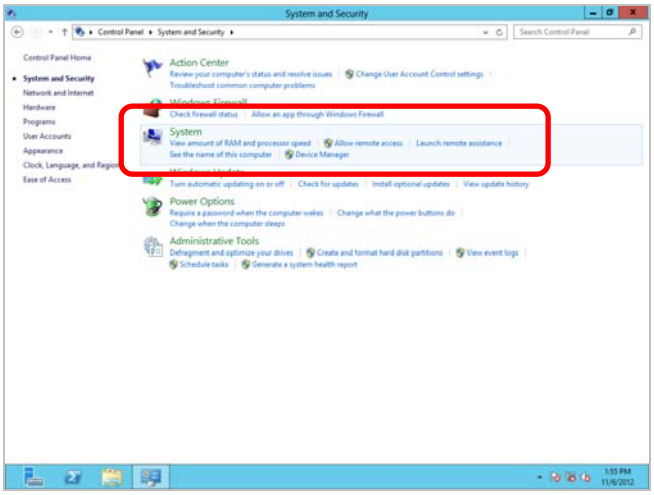
2. In **Settings**, click **Control Panel**.



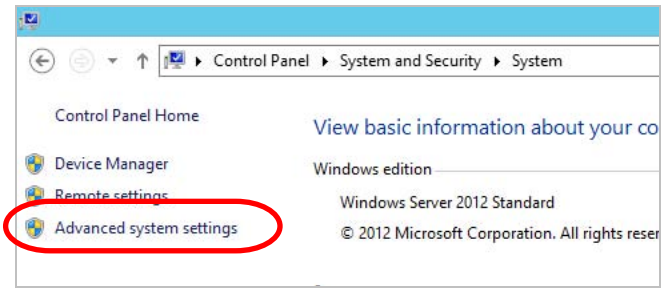
3. In **Control Panel**, click **System and Security**.



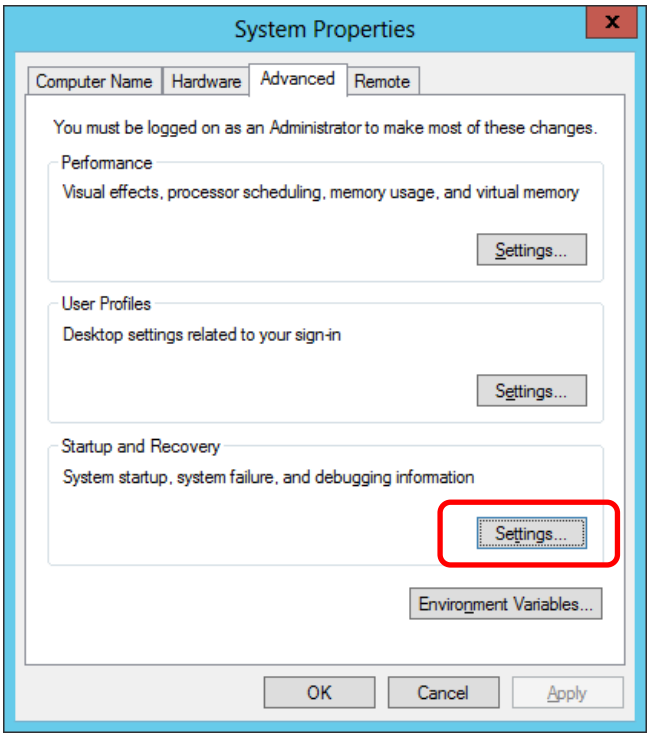
4. In **System and Security**, click **System**.



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



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



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

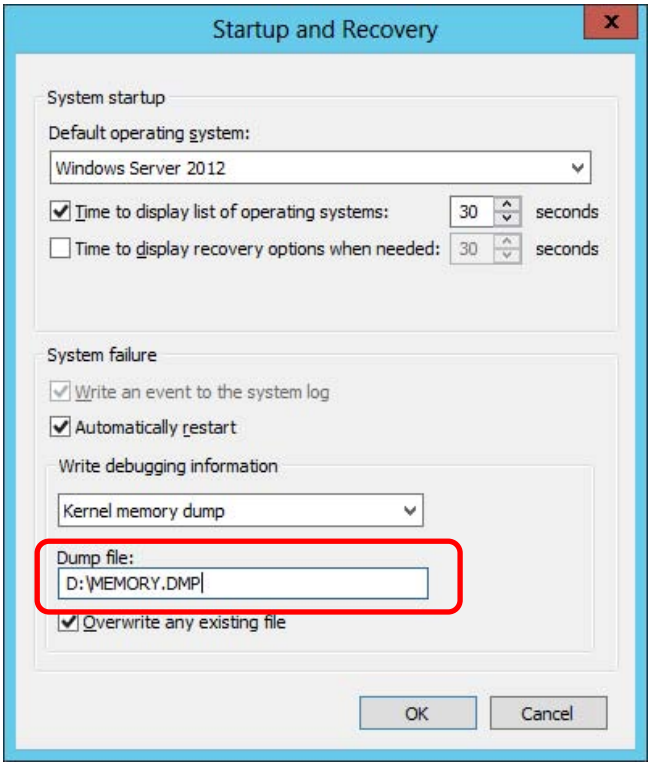
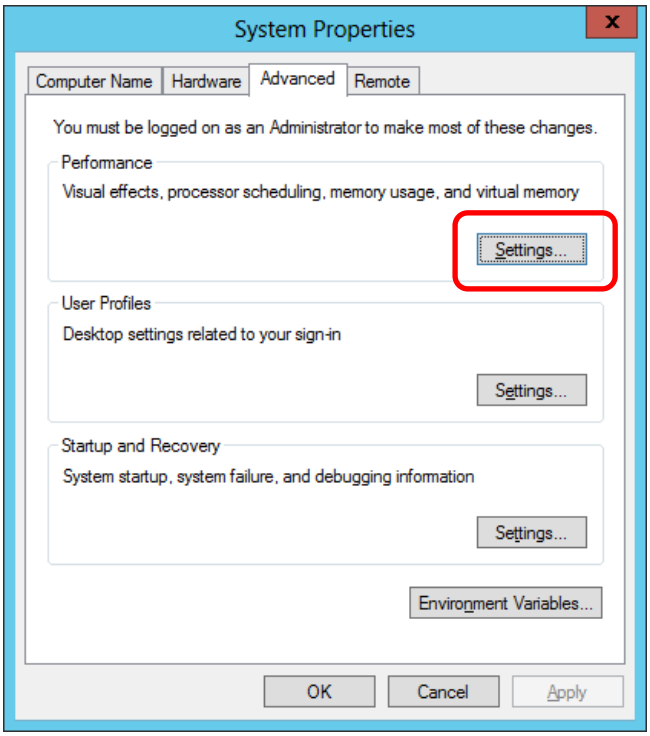


Fig. For example: <Save information in drive D: with the file name "MEMORY.DMP">

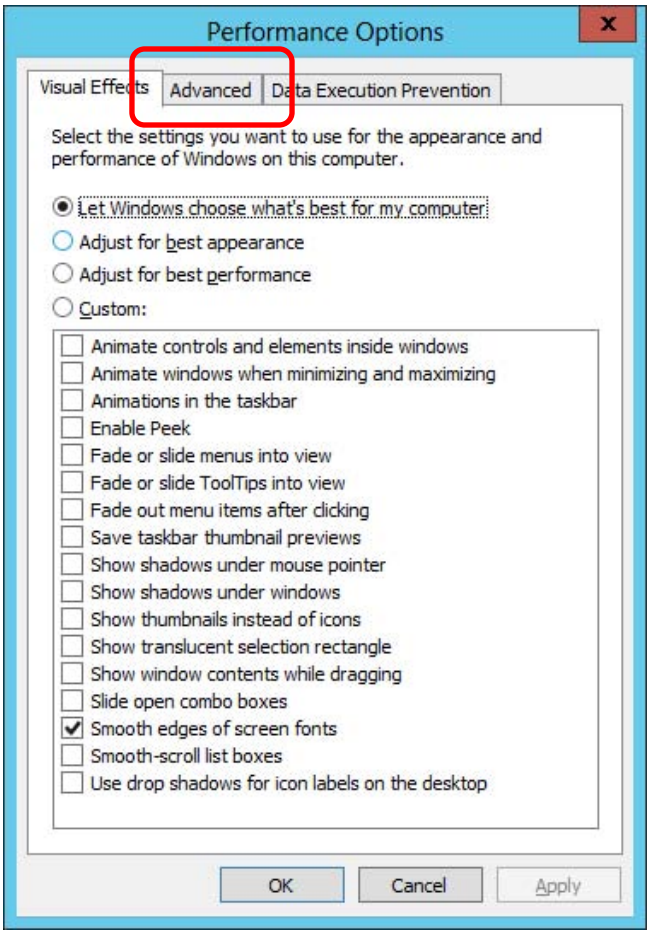
Note the following when specifying a dump file:

- We recommend specifying **Kernel memory dump** of **Write debugging information**.
- Specify a drive that has a free space of at least "the memory capacity mounted on the server + 400 MB".
- The size of the debug information (memory dump) changes if DIMM is added. Make sure that the free space of the drive to store the debug information (memory dump) is sufficient.

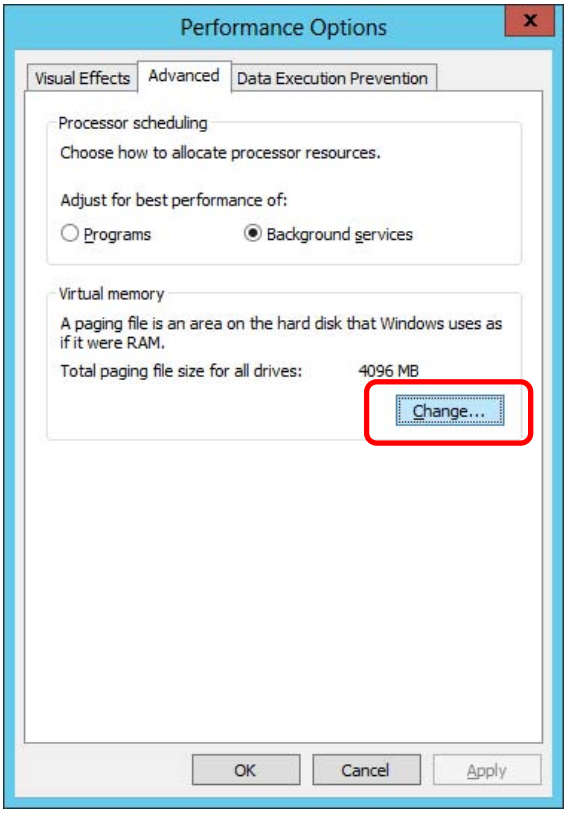
8. In **Performance**, click **Settings**.
   The **Performance Options** window appears.



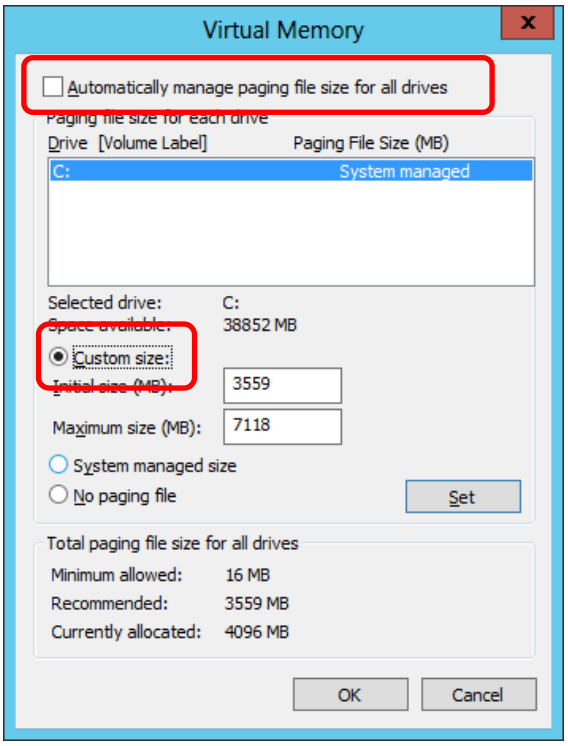
9. Click the **Advanced** tab on the **Performance Options** window.



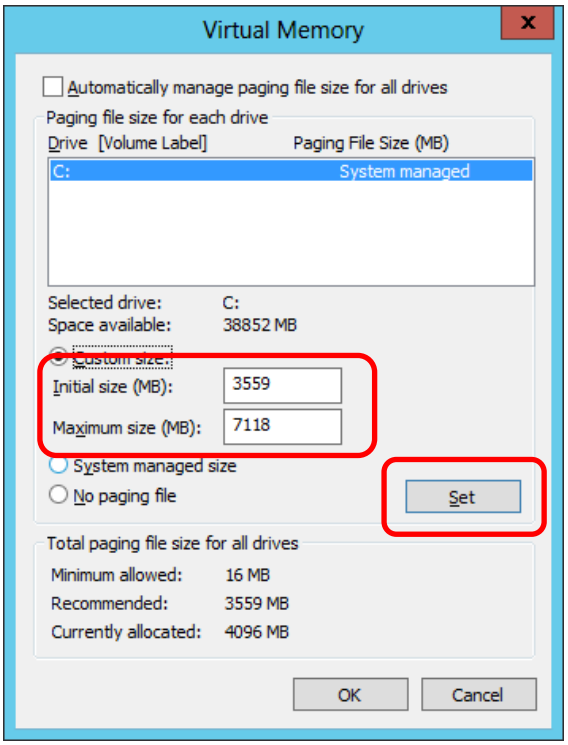
10. In **Virtual memory**, click **Change...**.



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



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



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 mounted + 400MB or larger) is enough to store the dump file. If the paging file size is insufficient, correct debug information cannot be collected due to a shortage of virtual memory. Make sure to set a sufficient paging file size (recommended size: Total capacity of physical memory mounted * 1.5 or more).
- See "System Partition" in *Chapter 1* (*3.1 Before Starting Setup*) for recommended value.
- When DIMM is added, re-specify the paging file according to the increased memory size.

13. Click **OK**.
    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

Follow the procedure below to specify the memory dump settings.

1. 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 the Write debugging information drop-down list, we recommend specifying Complete memory dump. If the mounted memory size is greater than 2 GB, Complete memory dump cannot be specified because it is not displayed on the drop-down list. In this case, specify Kernel memory dump instead.
   - Specify a drive that has a free space of at least "the memory capacity mounted on the server + 300 MB".
   - The size of the debug information (memory dump) 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**.
10. 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 value equal to or greater than the **Recommended** value shown in **Total paging file size for all drives**.

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

    After specifying the above values, click **Set**.

    Note the following when specifying a paging file size.

    - The above paging file sizes are recommended for collecting debug information (dump file). The initial size of the Windows partition paging file must be large enough to store dump files. Make sure to set a sufficient paging file size. If the paging file size is insufficient, correct debug information cannot be collected due to a shortage of virtual memory.
    - For details about the Recommended value in the Total paging file size for all drives area, see System partition size in 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.

6.1.3 For Windows Server 2008

Follow the procedure below to specify the memory dump settings.

1. On the **Start** menu, click **Control Panel**, and then click **System**.
   The System dialog box appears.
2. Click **Advanced system settings**.
   The **System Properties** dialog box appears.
3. On the **Advanced** tab, click **Settings** in **Startup and Recovery**.
4. 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 Windows Server 2008 64-bit (x64) Edition

   - For the Write debugging information drop-down list, we recommend specifying Complete memory dump. If the mounted memory size is greater than 2GB, Complete memory dump cannot be specified because it is not displayed on the drop-down list. In this case, specify Kernel memory dump instead.
   - Specify a drive that has a free space of at least "the memory capacity mounted on the server + 300MB or more".
   - 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.

   For Windows Server 2008 32-bit (x86) Edition

   - For the Write debugging information drop-down list, we recommend specifying Complete memory dump. If the mounted memory size is greater than 2 GB, Complete memory dump cannot be specified because it is not displayed on the drop-down list. In this case, specify Kernel memory dump instead.
   - Specify a drive that has a free space of at least "the memory capacity mounted on the server + 300 MB" (or 2048 MB + 300 MB if the memory size exceeds 2 GB).
   - 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.
5. In **Performance**, click **Settings**.
   The **Performance Options** dialog box appears.
6. On the **Performance Options** dialog box, click the **Advanced** tab.
7. 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**, specify as follows:

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

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

   After specifying the above values, click **Set**.

   Note the following when specifying a paging file size.

   - The above paging file sizes are recommended for collecting debug information (dump file). The initial size of the boot volume 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 value in the Total paging file size for all drives area, see System partition size in Before Starting Setup.
   - When DIMM is added, re-specify the paging file according to the increased memory size.

10. 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

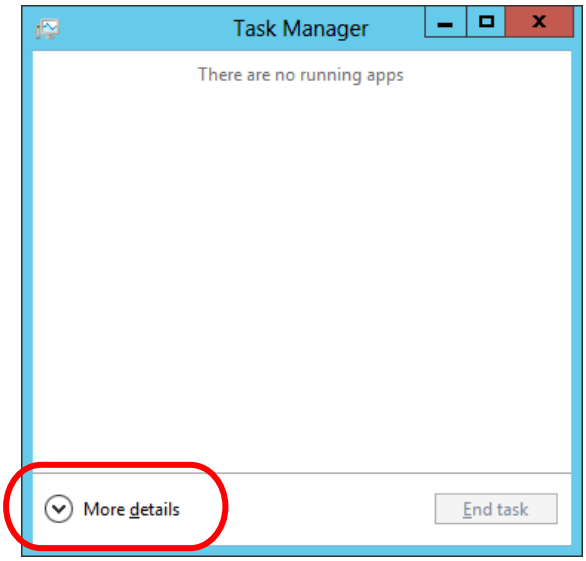
The user-mode process dump file records information when an application error occurs.

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

1. Right-click an empty area of the taskbar and then click **Task Manager** or press <Ctrl> + <Shift> + <Esc> keys to start **Task Manager**.

2. Click **More details**.



3. Click the **Processes** tab.

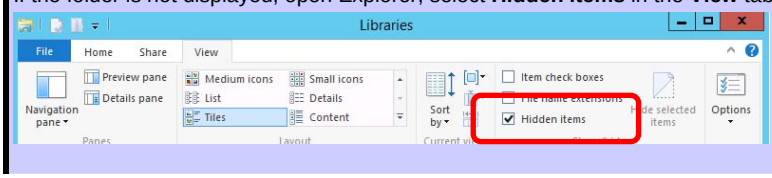
4. Right-click the name of the process that you want to get dump information for, and then click **Create Dump File**.

5. A dump file for the process is created in the following folder:

   `C:\Users\`*`user name`*`\AppData\Local\Temp`

Tips

If the folder is not displayed, open Explorer, select **Hidden items** in the **View** tab.



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

6.2.2 For Windows Server 2008 R2 and Windows Server 2008

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

Tips

If the folder is not displayed, perform the following:

- For Windows Server 2008 R2:
  Open Explorer, click **Organize** and then **Folder and search options**. Click the **View** tab and then select **Show hidden files, folders, and drives**.
- For Windows Server 2008:
  Open Explorer, click **Folder and search options** on the **Tools** menu. Click the **View** tab and then select **Show hidden files and folders**.

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

For details about how to create a user-mode process dump file, refer to the following Microsoft Support web page:
How to create a user-mode process dump file in Windows Server 2008
http://support.microsoft.com/kb/949180/en-us

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

Tips

Windows Server 2008 R2 and Windows Server 2008 do not provide Network Monitor.

To capture network traces on Windows Server 2008 R2 or Windows Server 2008, Microsoft Network Monitor must be installed using the procedure described below.

1. Download Network Monitor from the following Microsoft web page:
   http://support.microsoft.com/kb/933741/en-us
2. Run the downloaded file to start the installer.
   Follow the onscreen instructions to install Network Monitor.

Tips

If the Security Alert message appears, click **Run**.
In the setup format selection window, select **Complete**.

Network Monitor installation is now complete.

Tips

To uninstall Network Monitor, use **Programs and Features**.

(2) Capturing network traces

1. On the **Start** menu, click **Microsoft Network Monitor** to start Network Monitor.
2. Click **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

This section describes a parameter file for Windows OS.

7.1 Creating Windows OS Parameter File

If a parameter file is used when performing Setup with EXPRESSBUILDER, a series of setup procedures from installing of the OS to installing several utilities can be executed automatically just by pressing keys for confirmation.

The settings from the previous installation can also be used when re-installing the system.

It is therefore recommended to use a parameter file to set up the server.

7.1.1 How to create a parameter file

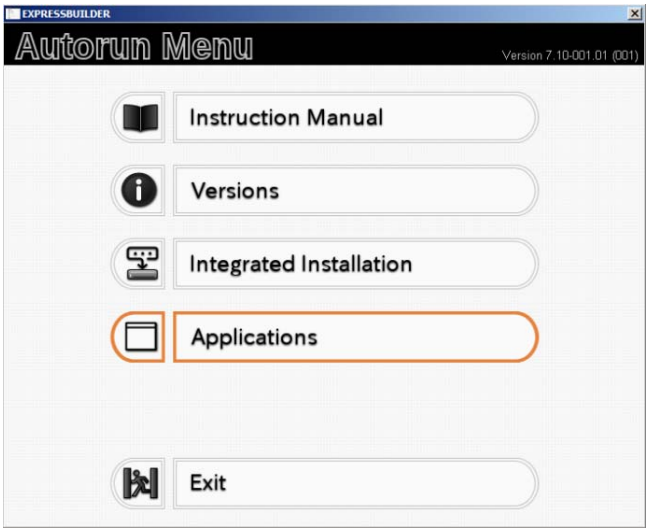
This section describes how to specify the setup information necessary for OS installation and how to create a parameter file.

Follow the procedure described below.

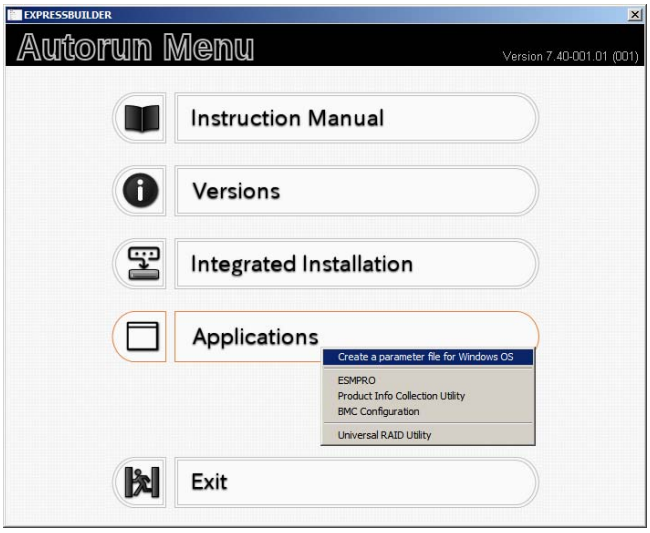
Important **Do not remove EXPRESSBUILDER DVD from the drive while creating a parameter file.**

Tips You can create a parameter file on Internet Explorer 7 or later.

1. Start Windows.
2. Insert the supplied EXPRESSBUILDER DVD into the optical disk drive.
3. Click **Applications**.



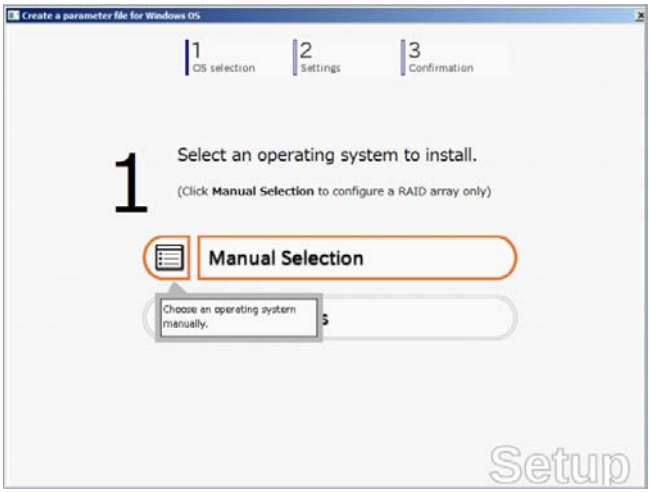
4. Click **Create a parameter file for Windows OS**.



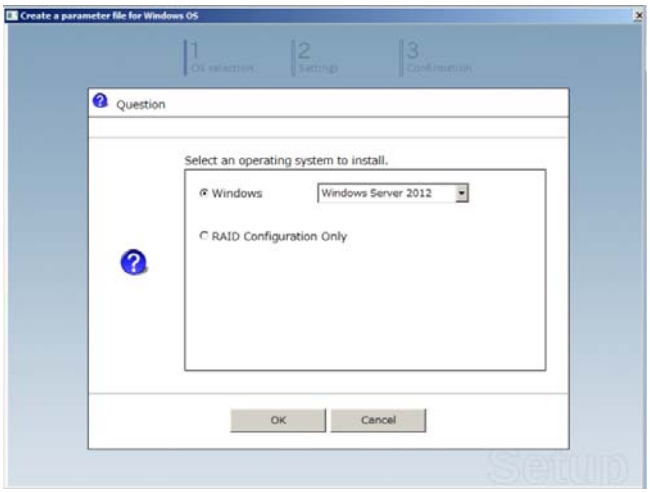
The following window appears.

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. Click **Manual Selection**.



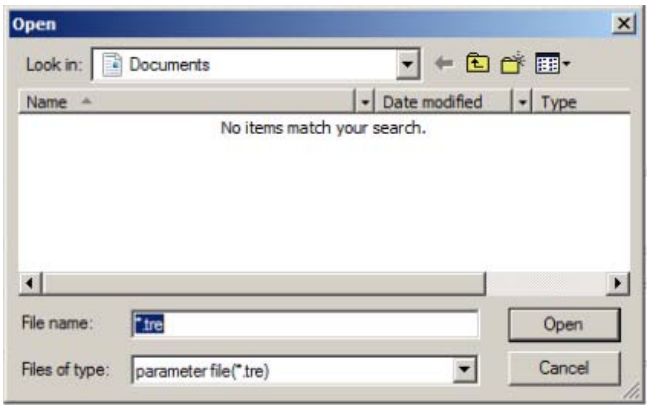
From the **Windows** list, select **OS**, and then click **OK**.



Click ▷ on the right side of the screen.
→ Go to step 8.

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

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



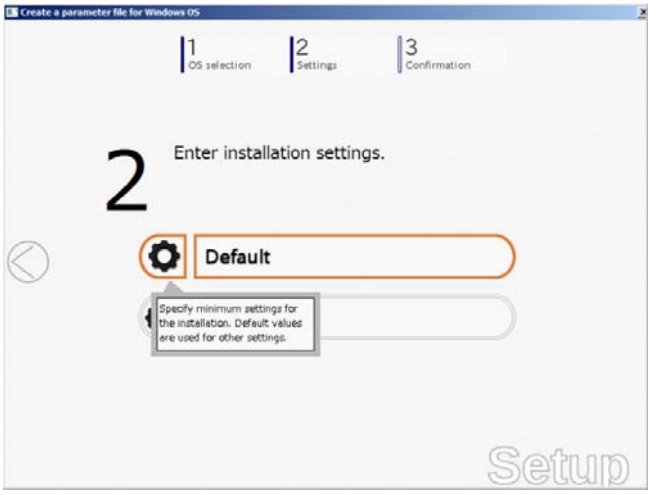
Click ▷ on the right side of the screen.

→ Go to step 9.

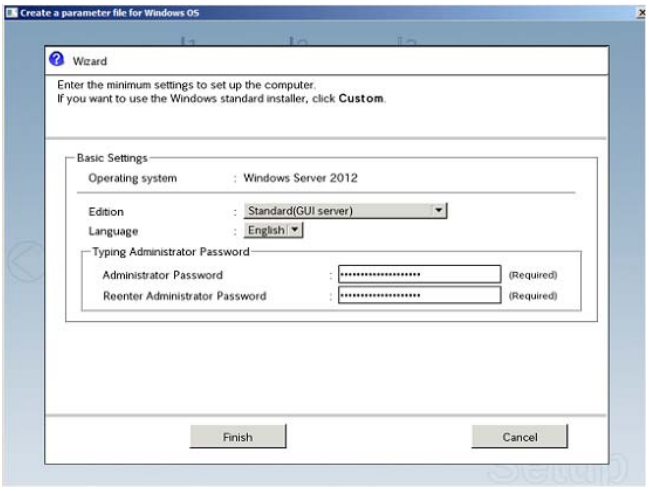
8. Specify the setup parameters by using either of the following methods:

Use **Default**:

(1) Click **Default**.

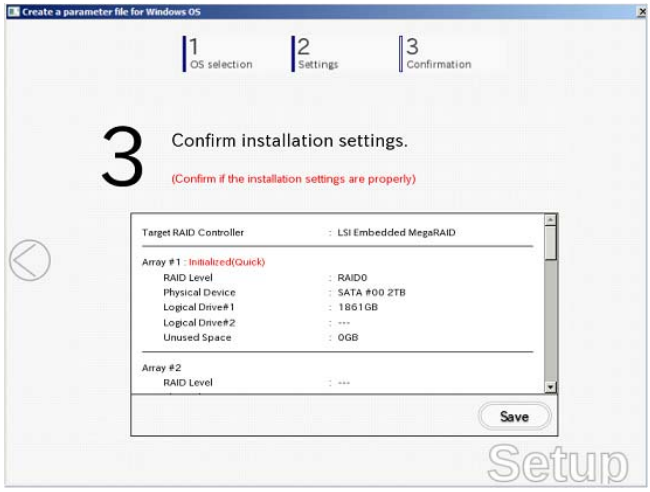


(2) Select an edition of the OS in the **Edition** list.
Type the password, and then click **Finish**.



(3) Click ▷ on the right side of the screen.

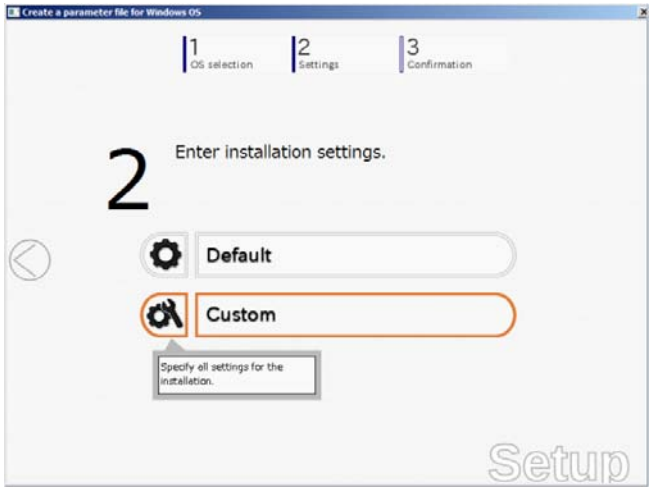
(4) Check the settings, and then click **Save**.
Save the file according to the on-screen instructions.



→ Go to step 10.

Use **Custom**:

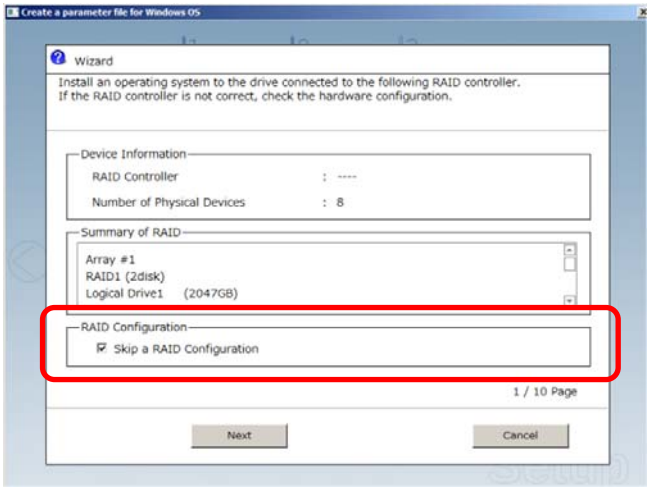
(1) Click **Custom**.



(2) Use this menu to configure the RAID system with the RAID controller detected automatically.

Note

When using an onboard RAID controller (LSI Embedded MegaRAID):
This function does not support the creation of RAID10 by using the onboard RAID controller. Refer to *Chapter 2 (4. RAID System Configuration)* in "*Maintenance Guide*" when creating RAID10.



When creating new logical drives

With the **Skip a RAID Configuration** check box cleared, click **Next**. Set up the logical drives in accordance with the wizard.

Important

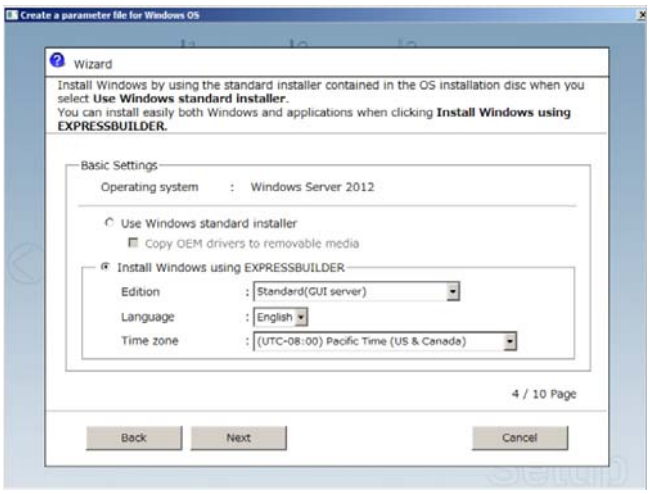
If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

When skipping the creation of new logical drives

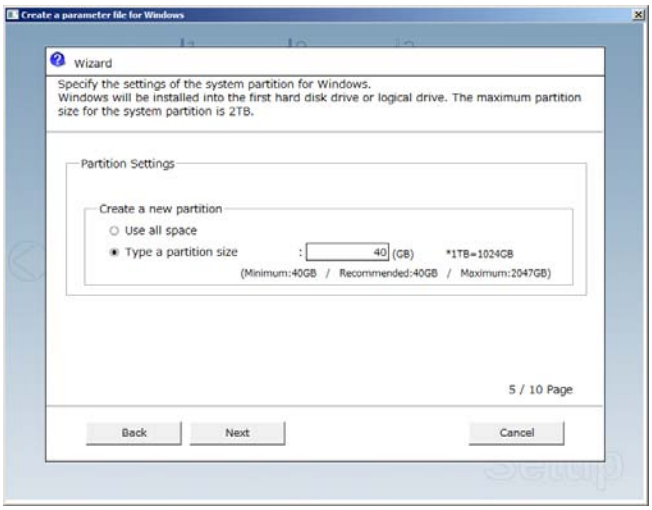
Select the **Skip a RAID Configuration** check box, and then click **Next**.

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

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



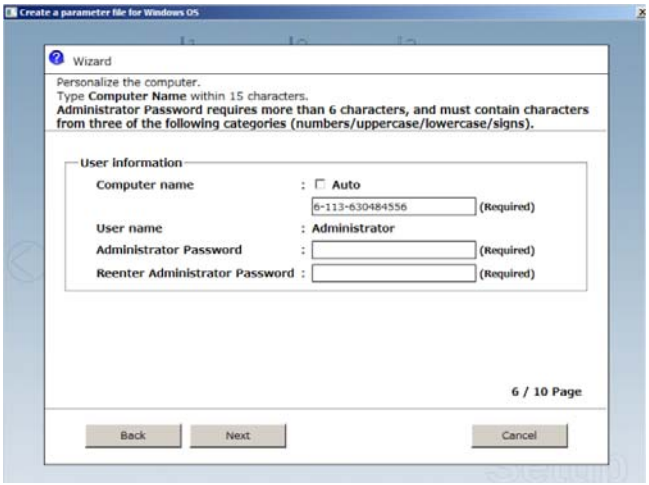
(4) Check the settings specified for **Partition Settings**.
Modify the settings as needed, and then click **Next**.



Important

- **Backing up user data, as needed, is recommended.**
- **Partition size**
  - **Specify a partition size larger than the minimum required for installing the operating system. (Refer to *Chapter 1 (Before Starting Setup)*.)**
  - **The maximum partition size is 2,097,152 MB.**
- **If you select "Create a new partition" under "Partition Settings", the entire contents of the hard disk drive will be deleted.**

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



Note

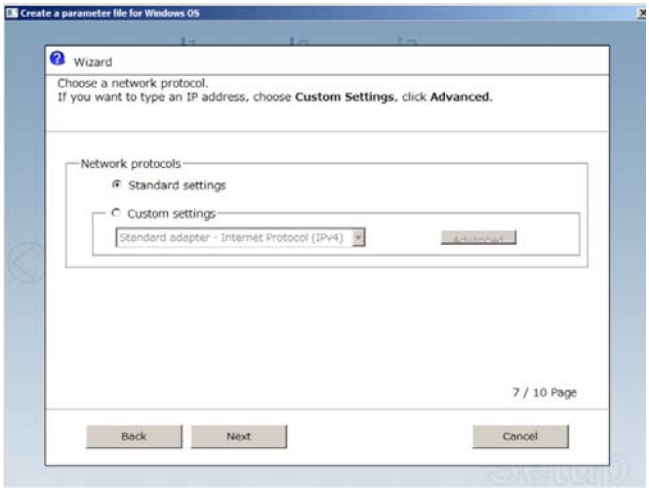
Computer name and Administrator Password are required parameters.
Enter Administrator Password that satisfies the following conditions:

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

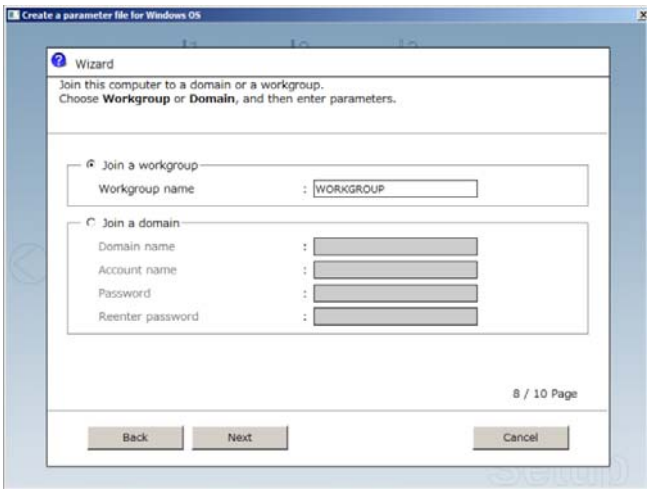
(6) Check the settings specified for **Network Protocols**.
Modify the settings as needed, and then click **Next**.



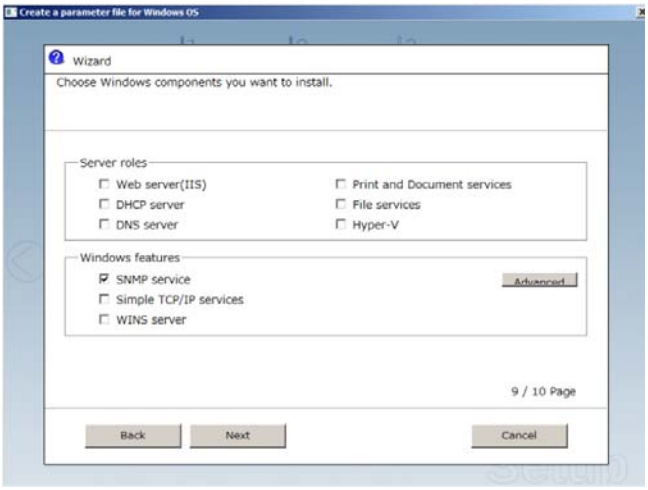
Tips

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

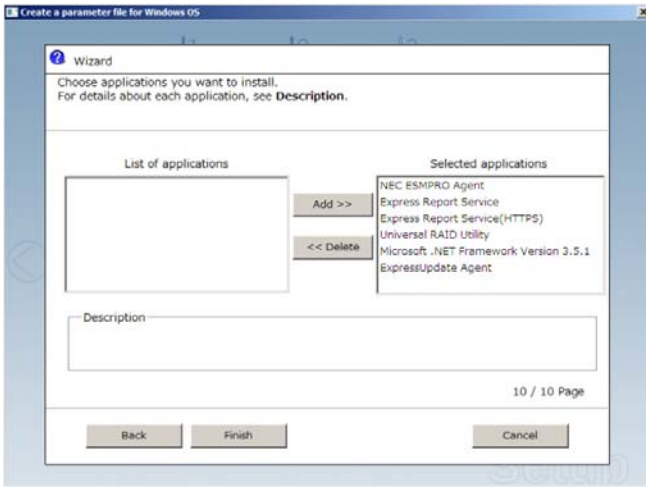
(7) Specify the domain or workgroup.
Check the settings, modify them as needed, and then click **Next**.



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

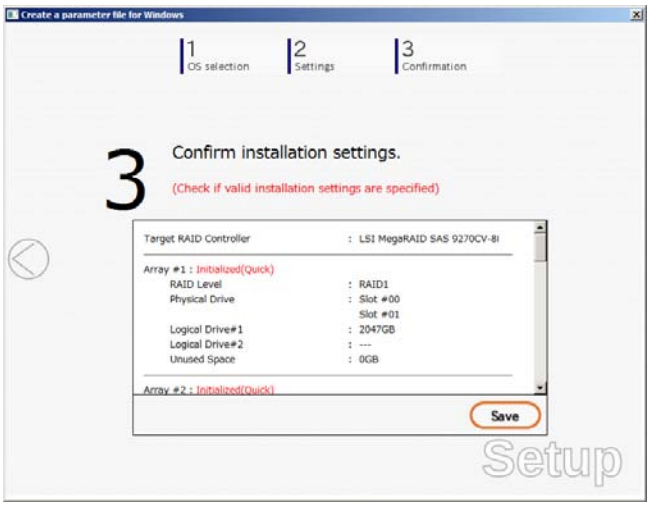


(9) Check the settings of applications.
Modify the settings as needed, and then click **Finish**.

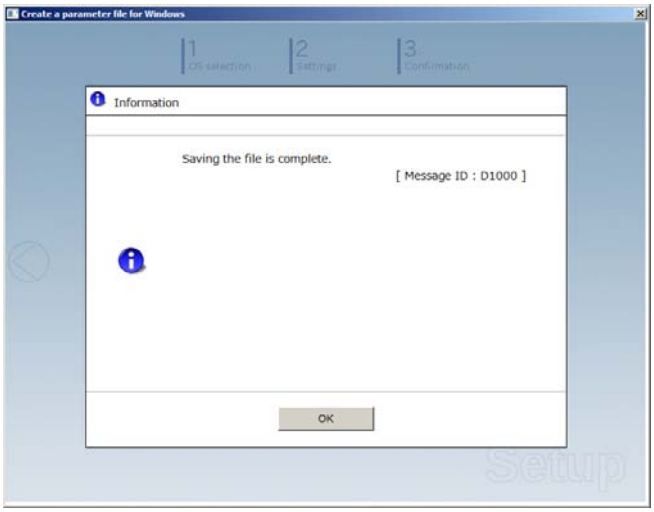


On the following screen, click ▷ on the right side of the screen.

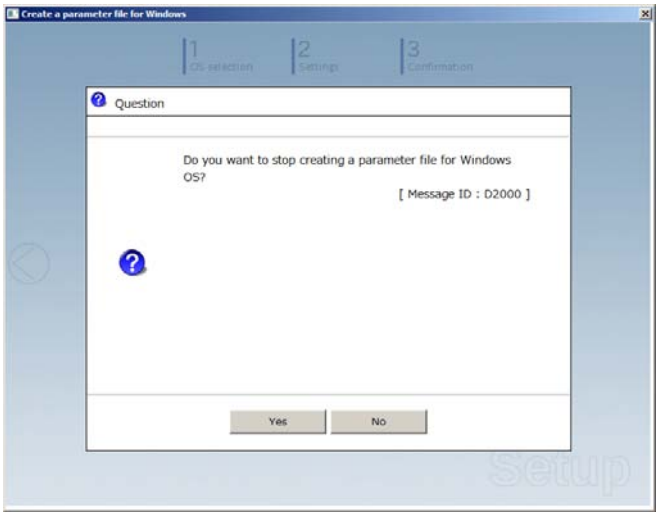
9. Check the settings, and then click **Save**.
   Save the file according to the on-screen instructions.



10. Click **OK**.



11. When the following message appears, click **Yes** to complete parameter file creation.



Parameter file creation is now complete.

NEC Express5800 Series
Express5800/R120e-1E, R120e-2E

2

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.

1. Bundled Software for the Server

This section explains the software bundled in the server.

1.1 NEC ESMPRO Agent (for Windows)

NEC ESMPRO Agent (for Windows) is an application used to monitor the server.

You can install it automatically when Windows OS is installed by using EXPRESSBUILDER.

When installing NEC ESMPRO Agent (for Windows) individually, see "*NEC ESMPRO Agent 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 BMC Configuration

You can specify configuration data to the BMC of the server by using BMC Configuration.

For details about BMC Configuration, see "*BMC Configuration 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:

- Onboard RAID Controller (LSI Embedded MegaRAID)
- N8103-172 RAID Controller (512MB, RAID 0/1)
- N8103-173 RAID Controller (512MB, RAID 0/1/5/6)
- N8103-174 RAID Controller (1GB, RAID 0/1/5/6)
- N8103-168 RAID Controller (1GB, RAID 0/1/5/6)

For details about how to install and operate Universal RAID Utility, see "*Universal RAID Utility User's Guide*" on the attached EXPRESSBUILDER DVD.

If the requirements, such as the operating system, for Universal RAID Utility described in "*Universal RAID Utility User's Guide*" differs from the one described in the user's guide of this product, follow the requirements in the user's guide of this product.

1.5.1 Installing and setting up Universal RAID Utility

(1) Setup for BTO (Built To Order) models

If you purchased a BTO model configured with a RAID system, Universal RAID Utility is already installed. You do not need to install Universal RAID Utility for such models.

(2) Setup with EXPRESSBUILDER

When you use EXPRESSBUILDER, Universal RAID Utility can be easily installed along with Windows. Choose **Setup** in EXPRESSBUILDER and follow the displayed instructions.

(3) Setup using Universal RAID Utility installer

The Universal RAID Utility installer can be launched from the autorun menu of EXPRESSBUILDER.

Choose **Integrated Installation** from the autorun menu and follow the displayed instructions.

Download **.NET Framework Versions 2.0 to 3.5** from the following web site and install it when you use Universal RAID Utility on Windows Server 2012.

http://msdn.microsoft.com/en-us/library/vstudio/hh506443.aspx

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. Updating to the latest NEC ESMPRO Manager is recommended because some functions are not supported depending on the version of NEC ESMPRO Manager. For details, see "Universal RAID Utility User's Guide".

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 or modem. If you want to use this service, contact your sales representative and install NEC ESMPRO Agent before using this service.

You can install this service with Windows OS installation when using EXPRESSBUILDER.

For details about Express Report Service / Express Report Service(HTTPS), see "*Express Report Service / Express Report Service(HTTPS) Installation Guide"* in EXPRESSBUILDER.

1.7 NEC Product Info Collection Utility

NEC Product Info Collection Utility can collect various data or 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.

1. Log on to Windows, and then insert EXPRESSBUILDER into the optical disk drive. Autorun Menu appears automatically.
2. Click **Applications** from the menu and then click **Product Info Collection Utility**.

   The installation starts. Follow the instructions in the dialog boxes until installation is complete.

   This utility is usually installed to the `C:\ezclct` folder.

Tips

- Log on to Windows with an account that has administrator privilege.
- 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 :**

  Choose **Add/Remove Programs** from **Control Panel** and then click **Product Info Collection Utility (Vx.x.x)**. Follow the instructions in the dialog boxes until uninstallation is complete.

- **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.

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 bundle software for the server such as NEC ESMPRO Agent.

For details about NEC ESMPRO Manager, see *NEC ESMPRO Manager Installation Guide* or online help.

2.2 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 or Modem.

To use this feature, NEC ESMPRO Agent is required because Express Report Service usually works with it.

If NEC ESMPRO Agent cannot be installed to the server, you can install Express Report Service(MG) into NEC ESMPRO Manager instead of Express Report Service.

For details about Express Report Service(MG), see "*Express Report Service(MG) Installation Guide*" in EXPRESSBUILDER.