Windows Server® 2012 R2

Installation Guide

Express5800/A1080a-S, A1080a-D, A1080a-E

This manual is for Windows Server 2012 R2.

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Latest editions

This document was created based on the information available at the time of its creation. The screen images, messages and procedures **may differ from the actual screens, messages and procedures.** Substitute as appropriate when content has been modified.

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

http://www.nec.com/

Notations used in the text

The symbols used in this document include the following:

Important	Indicates required actions when handling hardware or operating software. If you do not follow the procedures indicated, **serious issues such as hardware faults and data loss may occur.**
Note	Indicates points to be checked before handling hardware or operating software.
Tips	Indicates useful information.

Optical disk drives

Throughout this document, optical disk drives mean:

1. DVD-ROM drive
2. DVD Super MULTI drive

Supported drives differ depending on the server model.

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1. Introduction

This document provides step-by-step guidance for installing Windows Server 2012 R2 on the Express5800 Series servers.

Before you install Windows Server 2012 R2, read this document carefully.

1.1 Supported Models

The following models are supported by this document.

Model Names	Express5800/A1080a-S, A1080a-D, A1080a-E

1.2 Scope of OS Editions

You can install the following Windows operating systems (editions) with this guide.
Windows Server 2012 R2 is 64-bit(x64) only.

Expression in this document	Edition name
Windows Server 2012 R2	Windows Server 2012 R2 Standard
	Windows Server 2012 R2 Datacenter

1.3 In-place Upgrade to Windows Server 2012 R2

Performing an in-place upgrade from Windows Server 2012 or Windows Server 2008 R2 to Windows Server 2012 R2 **is not recommended** because this may adversely affect files and the registry. If you want to use Windows Server 2012 R2, please read this document and back-up necessary user files prior to installation.

Tips

- An In-place Upgrade refers to upgrading the operating system to Windows Server 2012 R2 by overwriting the existing operating system, Windows Server 2012 or Windows Server 2008 R2, on the same server hardware.
- Performing upgrade from evaluation version to release version is not recommended since this may unexpectedly affect to system or applications.

1.4 Install Options

Converting one install option (Server Core Installation, Server with a GUI, or Minimal Server Interface) to another after installing Windows Server 2012 R2 **is not recommended** because this may adversely affect drivers and applications.

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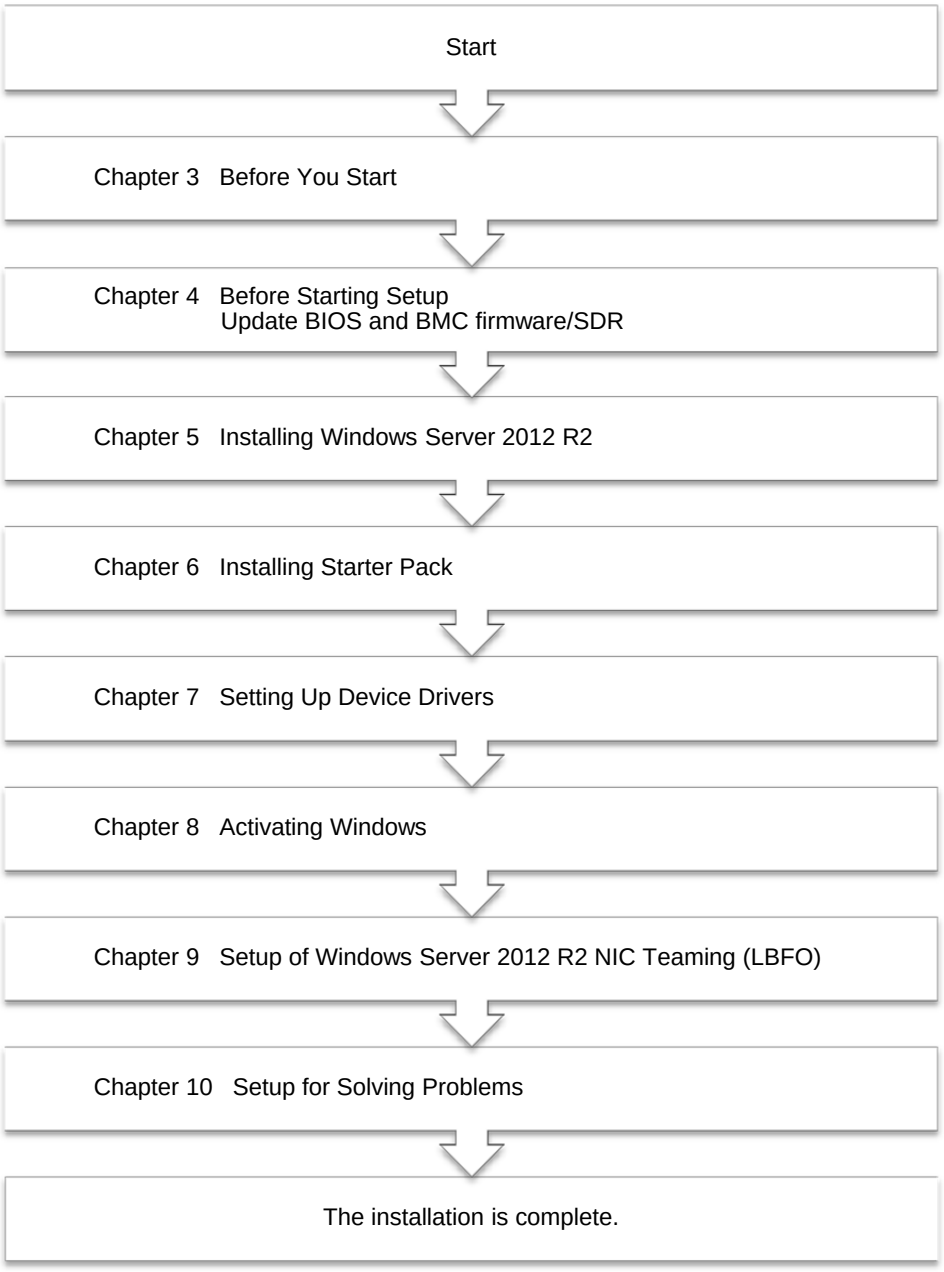
2. Setting Up the Operating System

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



If you need to install applications after installing the operating system, refer to the application installation guides.

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3. Before You Start

Before installing Windows Server 2012 R2, check the hardware environment (disk array configuration, etc.) referring to the User's Guide and other documents included on the EXPRESSBUILDER DVD.

3.1 Preparation for Operating System Installation

Make sure that you have all the following modules and documents.

- **Starter Pack for Windows Server 2012 R2** ("Starter Pack")

Module Name	**WS2012R2.80-001.01.zip**
Supported Models	Express5800/A1080a-S, A1080a-D, A1080a-E

- Either of the following OS installation media
  - **NEC operating system installation media** ("Backup DVD")
  - **Microsoft operating system installation media**
    ("Windows Server 2012 R2 DVD-ROM")

- **Windows Server® 2012 R2 Installation Guide** (this document)

- Accessories for Express5800 Series Servers
  - **EXPRESSBUILDER DVD** ("EXPRESSBUILDER")

Important

After you have installed Windows Server 2012 R2, do not apply Starter Pack for Windows Server 2012 attached to EXPRESSBUILDER or that has released in our Web site.
Starter Pack for Windows Server 2012 is not available on Windows Server 2012 R2.
Be sure to apply Starter Pack for Windows Server 2012 R2 that suitable to purchased system.

Tips

- For the details about the Starter Pack, see "3.4 Downloads" section. For copying the Starter Pack, prepare an optical disk.
- You can find the document in EXPRESSBUILDER. To open the document, select "Instruction Manual" on the menu.

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3.2 Supported Mass Storage Controllers

The Starter Pack supports the following mass storage controllers.

	A1080a-S	A1080a-D	A1080a-E
Operating system installation supports the following mass storage controllers			
NE3104-001/003 RAID Controller (6Gbps/256MB)	–	–	–
NE3104-004 RAID Controller (6Gbps/1GB)	✓	✓	✓
Other Options			
NE3108-103 Fibre Channel Controller (1ch)	✓	✓	✓
NE3108-104 Fibre Channel Controller (2ch)	✓	✓	✓

✓ : Supported – : Not Supported

3.3 Supported LAN Controllers

The Starter Pack supports the following LAN controllers.

The standard network adapter is not supported.

	A1080a-S	A1080a-D	A1080a-E
Standard network adapter * LAN on Motherboard (LOM)	–	–	–
NE3108-004 10GBASE Adapter(SFP+/2ch)	✓	✓	✓
NE3108-007 1000BASE-T Adapter(2ch)	✓	✓	✓
NE3108-008 1000BASE-T Adapter(4ch)	✓	✓	✓

✓ : Supported – : Not Supported

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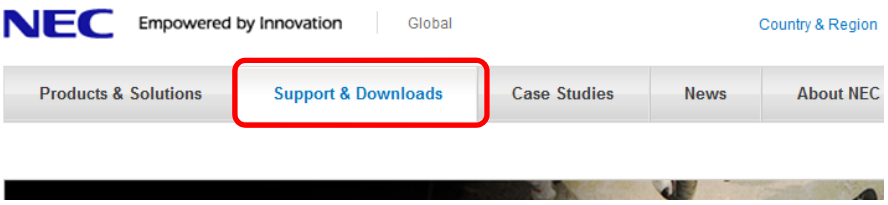
3.4 Downloads

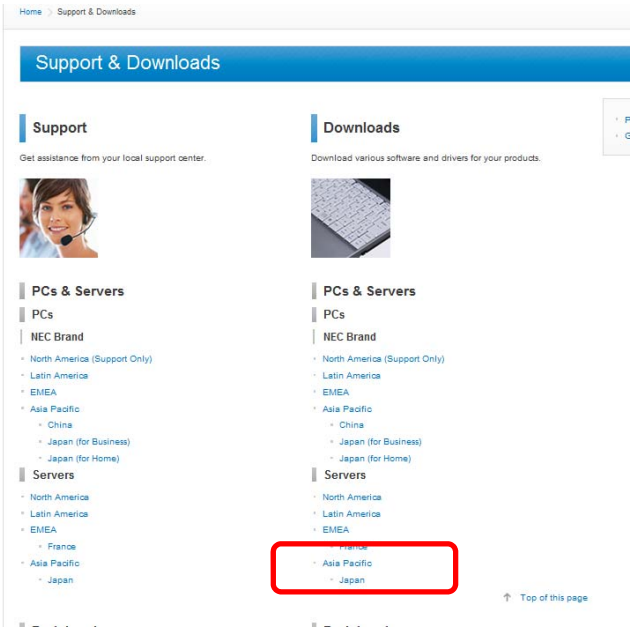
Before you start installing Windows Server 2012 R2, download the Starter Pack applicable to your system following the steps below.

1. The Starter Pack is downloaded.

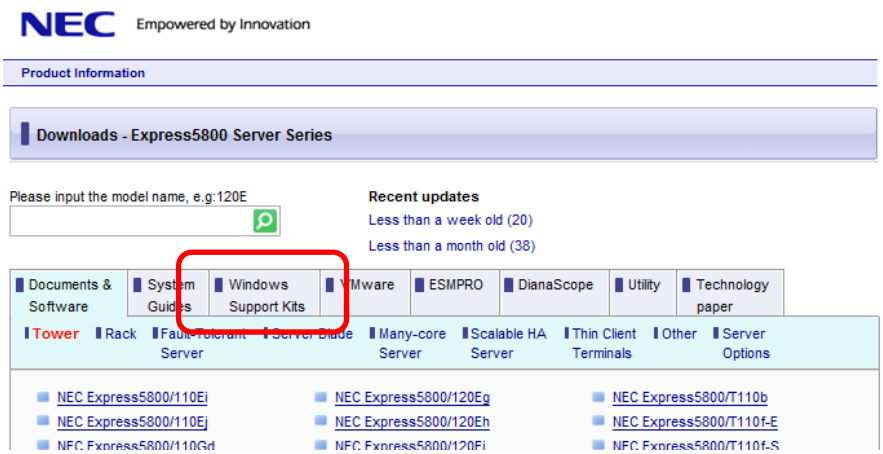
   (1) Go to NEC Corporation Web site at http://www.nec.com/.
   Click **Support & Downloads**.



   (2) Under “Downloads,” find “Service” and click **Asia Pacific**.



   (3) On “Downloads - Express5800 Server Series” page, click **Windows Support Kits** tab.



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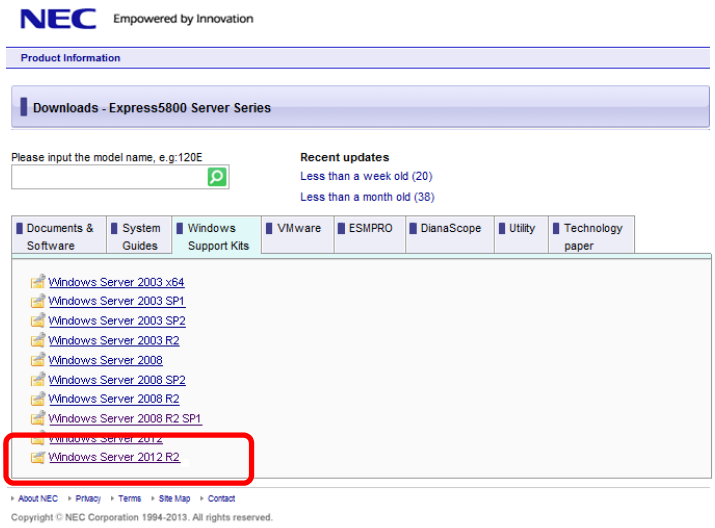
(4) Select **Windows Server 2012 R2**.



(5) On “NEC Express5800 Server Series Microsoft® Windows Server® 2012 R2 Support Kit” page, select the appropriate model name on the list of supported models.

(6) Scroll down to **Windows Server 2012 R2 Support Kit** section and download the module.

Important

Starter Pack for Windows Server 2012 is not available.
Be sure to refer to Windows Server 2012 R2 support information.

2. After downloading the Starter Pack, unzip the file in any folder (*e.g. C:\TEMP*) on the hardware. Folders which include double-byte characters or spaces in their names cannot be specified.
   If you copy the Starter Pack to an optical disk such as a DVD, copy all the files and folders without changing the structure.

Tips

- If folder hierarchy is too deep, extraction of setup programs may not be performed correctly.
- If you use a DVD, write the data in a format compatible with Windows operating system.

3. After copying the modules, delete all the files and unzipped folders on the hardware.

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4. Before Starting Setup

Before you install Windows Server 2012 R2, read this chapter carefully.

Windows Activation

To activate Windows Server 2012 R2, enter the Product Key written on the COA (Certificate of Authenticity) label. The COA label of Windows Server 2012 R2 is attached to the operating system media package or the server. See Chapter 8 of this document, “Activating Windows,” for details.

Starter Pack

The Starter Pack includes the necessary drivers for the Express5800 Series. Be sure to install Starter Pack.

BIOS Update

A BIOS update may be required to install Windows Server 2012 R2. BIOS version must be 2.75 or later. To see if your system needs a BIOS update, go to NEC Corporation Web site at http://www.nec.com/express/.

For the update procedure, refer to “Readme.txt” included in the downloaded data or instructions shown on the above web site when downloading the module.

BMC Firmware Updates

BMC Firmware updates may be required to install Windows Server 2012 R2. BMC Firmware must be 3.2.1.4 or later. To see if your system needs BMC firmware updates, go to NEC Corporation Website at http://www.nec.com/express/.

For the update procedures, refer to “Readme.txt” included in the downloaded data or instructions shown on the above web site shown when downloading the modules.

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Hardware configuration

The following hardware configurations require special procedures.

Setup on a computer that has multiple physical drives

When you install Windows Server 2012 R2, disk drive numbers displayed on the screen may not correspond to the actual slot locations. Select the install location by disk capacity or partition size. If you select the incorrect disk drive, existing data may be deleted unexpectedly.

Important

Refer to the Microsoft Website for details.
http://support.microsoft.com/kb/937251/en-us

Reinstalling to a mirrored volume

When you install Windows Server 2012 R2 in a mirrored volume created using Windows feature, 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.

DAT, LTO, and similar media

Do not set media that is unnecessary to installation during setup.

Re-installation on an Upgraded Dynamic Disk

If you upgrade the disk drive for the operation system to Dynamic Disk, you cannot re-install the operating system and keep existing partitions. In this case, you have to perform a clean installation.

Setup when mass memory is installed

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

If you fail to secure the dump file size, use clean installation for setup, and allocate the file space required for storing the dump file to other hard disk drives 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 10(Setup for Solving Problems).

If hard disk drives do not have enough space to write dump file, add another disk drive after installation.

Note

If the partition size for installing Windows is smaller than the size to install the OS and paging file, expand the partition size or add another hard disk drive.

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

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- **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.

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

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

<When specifying the file named "dedicateddumpfile.sys" in drive D>

Key	:	HKEY_LOCAL_MACHINE\SYSTEM \CurrentControlSet\Control\CrashControl
Name	:	DedicatedDumpFile
Type	:	REG_SZ
Data	:	D:\dedicateddumpfile.sys

Note the following when specifying Dedicated Dump File:

- Pay strict attention to edit the registry.
- The setting is applied after restarting the system.
- Specify a drive that has free space of "installed memory size + 400 MB" or more.
- Dedicated Dump File cannot be placed in dynamic volumes.
- Dedicated Dump File is only used for collecting memory dump, and is not used as virtual memory. Specify the paging file size so that sufficient virtual memory can be allocated in the entire system.

System partition size

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

OS size + paging file size + dump file size + application size

Server with a GUI

Size required to install OS	＝ 9,200MB
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 OS	＝ 6,400MB
Paging file size (recommended)	＝ Installed memory size × 1.5
Dump file size	＝ Installed memory size + 400MB
Application size	＝ as required by the application

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

9,200MB ＋ (1,024MB × 1.5) ＋ 1,024MB ＋ 400MB ＋ 100MB ＝ 12,260MB

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

The following partition sizes are recommended.

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

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

*1GB = 1,024MB

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.

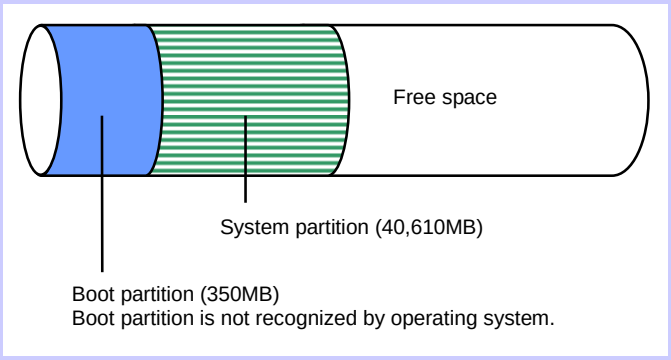
Tips

When new partition is created, 350MB at the top of hard disk drive is secured for boot partition.

Example:

If 40,960MB (40GB) is specified for partition size, usable space will be:

40,960MB – 350MB = 40,610MB



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Windows Server 2012 R2 Hyper-V support

Refer to the following web site for information related to Windows Server 2012 R2 Hyper-V.

http://www.58support.nec.co.jp/global/download/w2012r2/hyper-v/hyper-v-ws2012r2.html

Using BitLocker

If using BitLocker, note the following.

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

Important

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

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

*** Depending on your system, it may not be supported. Refer to the document about hardware.**

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

Support for NIC teaming in Windows Server 2012 R2

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

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5. Installing Windows Server 2012 R2

Note Read Chapter 4 “Important Instructions” before you start the installation.

This chapter lists the steps to install Windows Server 2012 R2.

1. Turn on your display and server in that order.

   Important **If you need to update the BIOS, refer to “BIOS Update” section in Chapter 4.**

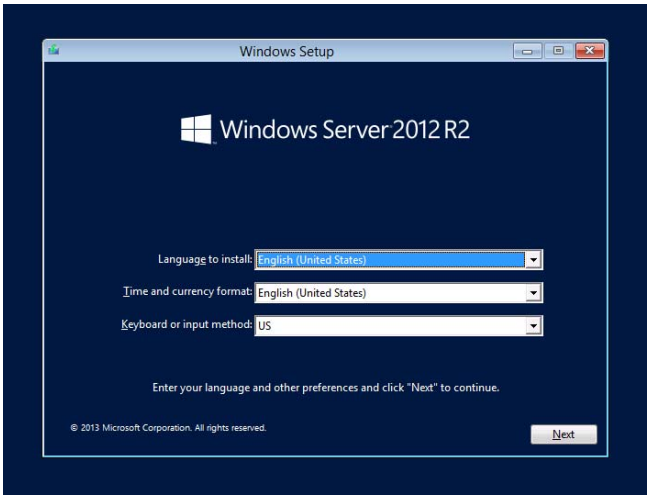
2. Insert the Backup DVD or the Windows Server 2012 R2 DVD-ROM into your DVD-ROM drive.

3. Restart the system.
   To restart the system, press <Ctrl> + <Alt> + <Del> or turn off the system once and then turn it on again.

4. The DVD-ROM starts.
   If an operating system has been installed already, the following message will appear:
   ”Press any key to boot from CD or DVD...”
   Press <Enter> to boot from the DVD-ROM.

   Note If the Windows Setup screen does not appear, it means that Enter key has not been pressed correctly. In this case, you should restart the system.

5. Click **Next**.



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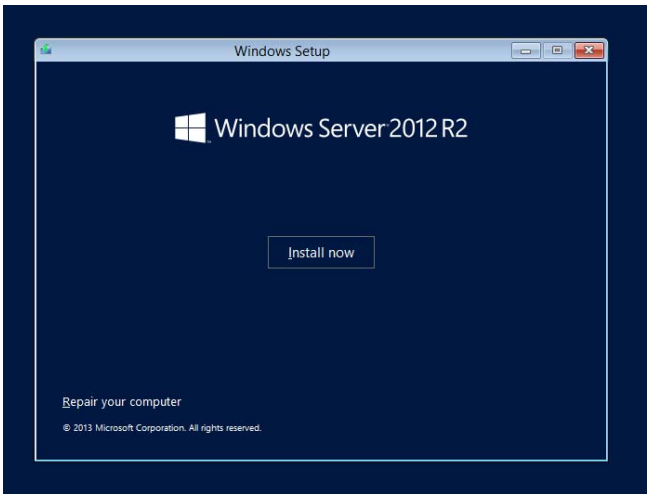
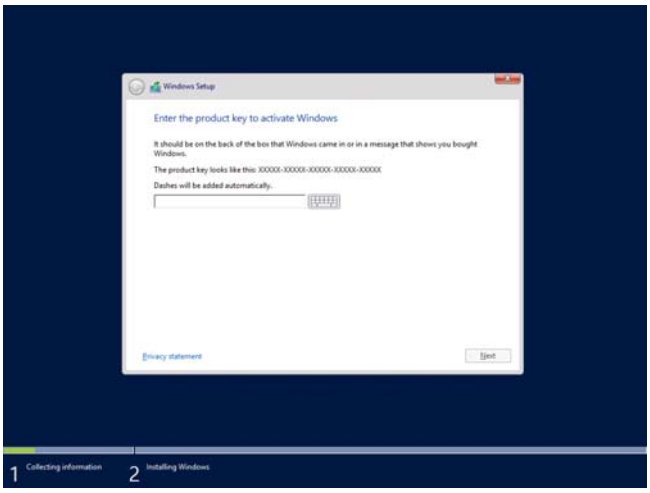
6. Click **Install now**.



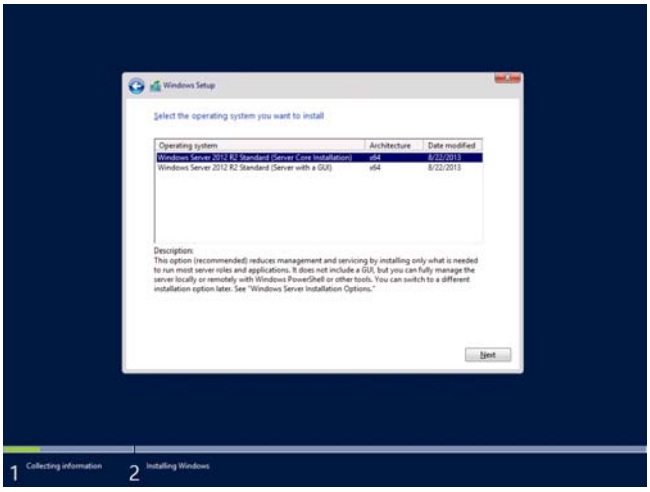
7. Enter the product key and click **Next**.

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



8. Select the operating system you want to install and click **Next**.

   The options listed on the screen vary depending on the installation media you are using.



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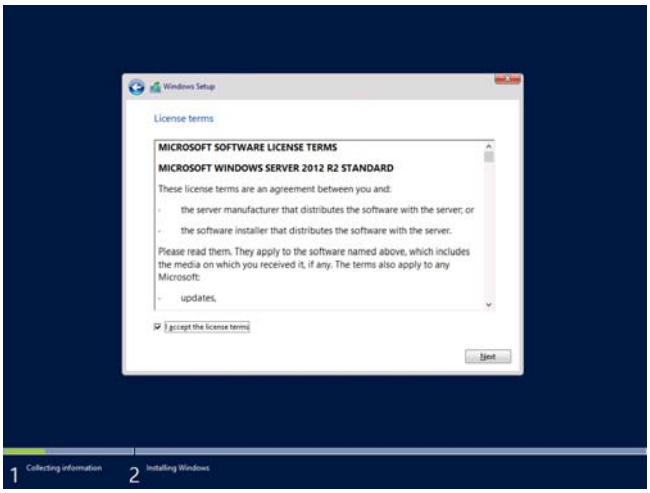
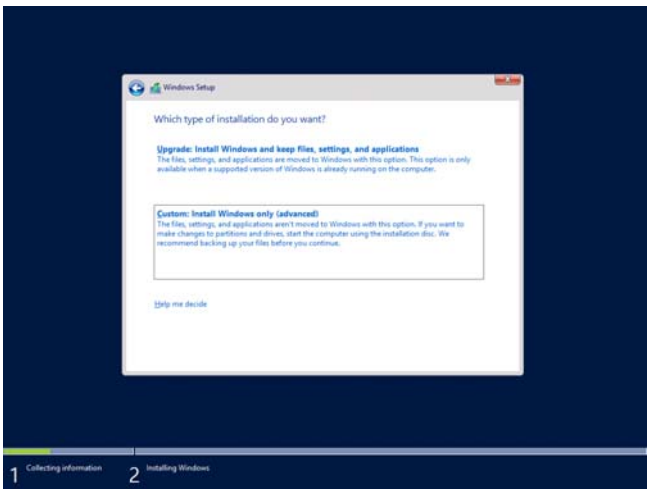
9. Read the license terms carefully.

   If you agree, check **I accept the license terms** and click **Next**.



10. Select the type of installation you want.

    Custom: Install Windows only (advanced) is selected below.



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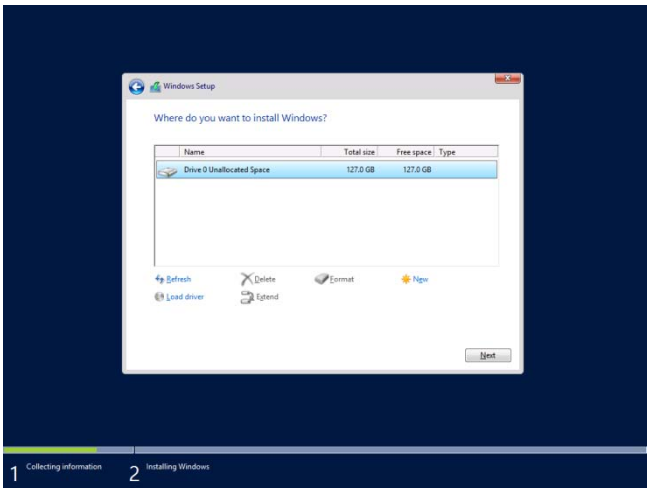
11. Click **New**.



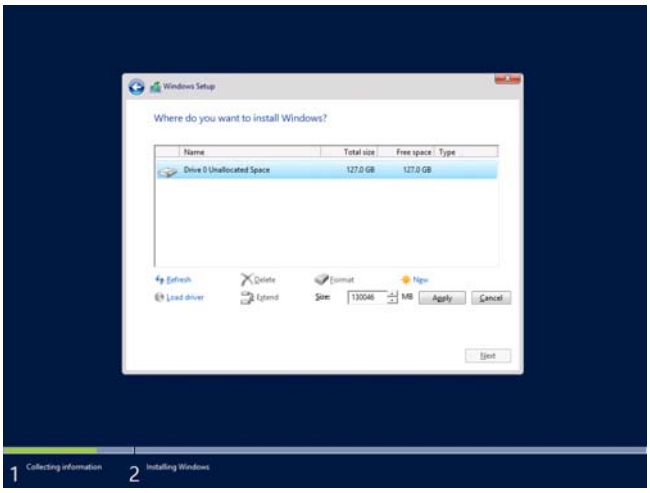
Important

- **Take care in making partition.**
  If you install into the disk that OS is installed, delete partition in which OS is installed in advance.
  At this time, contents of the partition to be deleted are not preserved.
- **If necessary user data exists, back up before deleting partition.**

Note

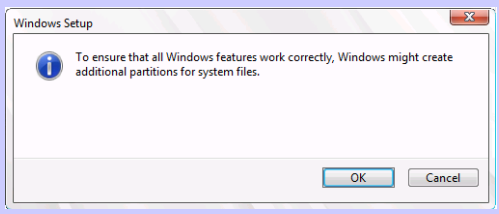
The partition size is restricted to 2TB or smaller.

12. Specify the partition size and click **Apply**.



Tips

When a new partition is created, 350MB of disk space is assigned as boot partition automatically. Click **OK** on the screen below.



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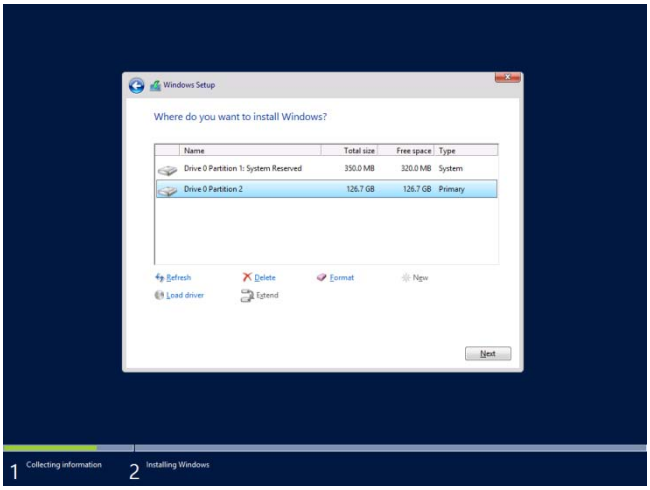
13. Select the partition created in step 12 and click **Format**.

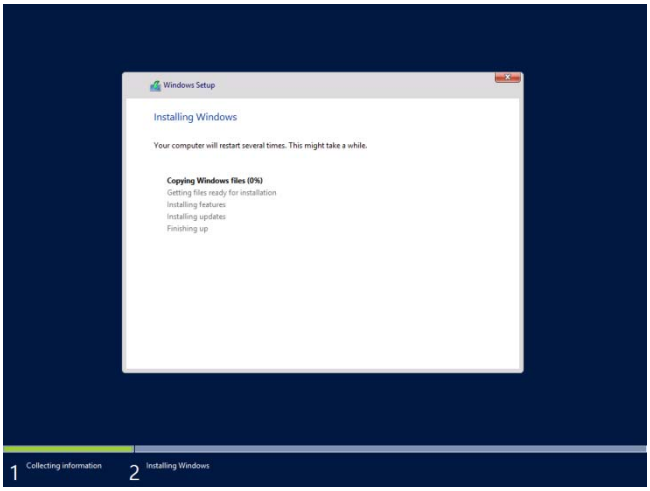
14. Select the partition you created and click **Next**.



Tips

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

When the following message appears, Windows installation starts automatically.



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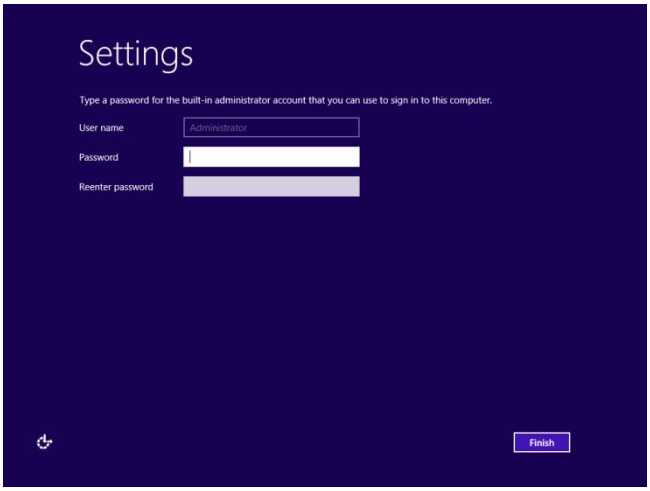
15. Set according to operating system selected in Step 8.

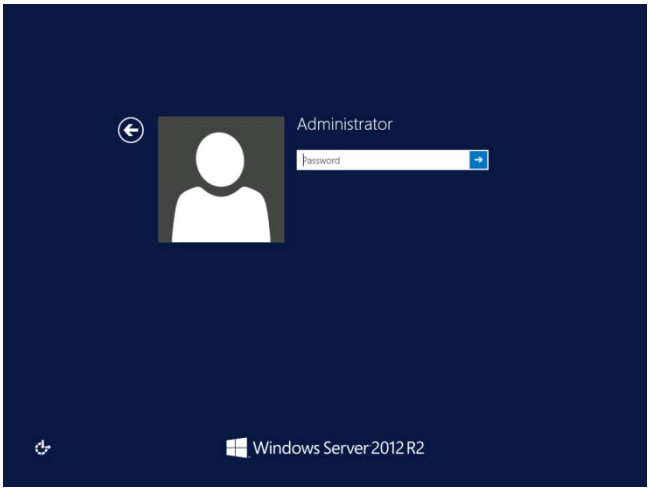
Server with a GUI

Type a password and click **Finish**.



To sign-in to Windows Server 2012 R2, press <Ctrl>+<Alt>+<Del> on the screen below.

Type the password and press <Enter>.



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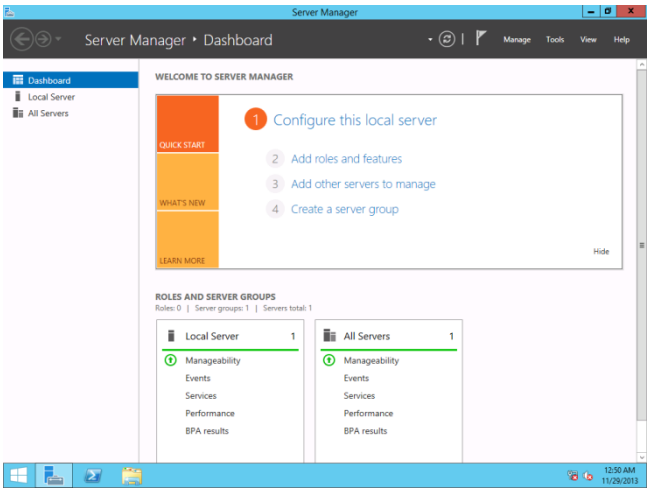
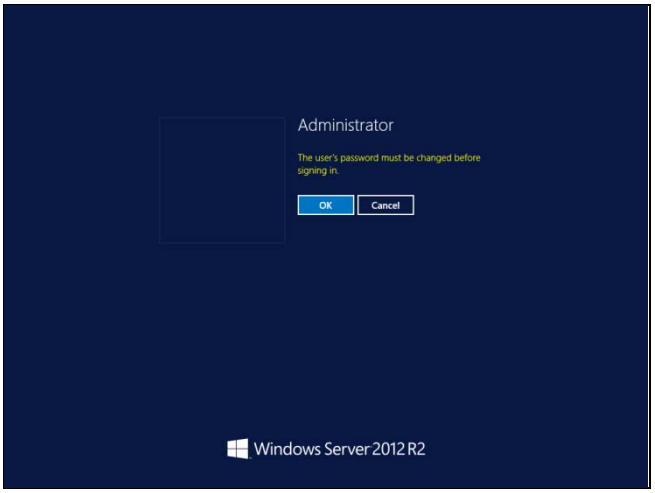
Windows Server 2012 R2 starts.

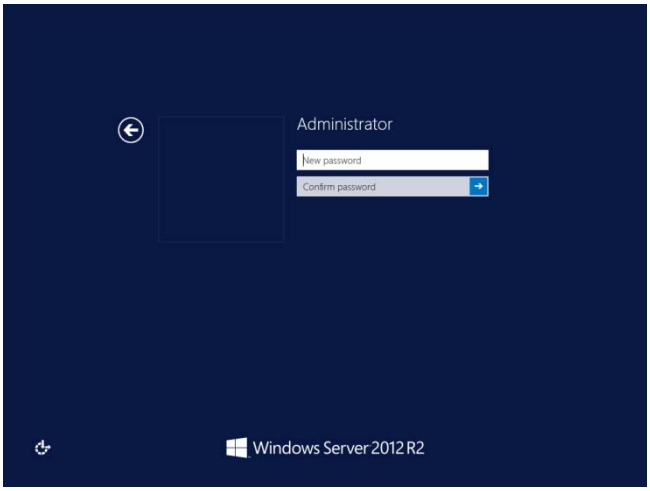


Server Core Installations

Click **OK**.



Type the new password.



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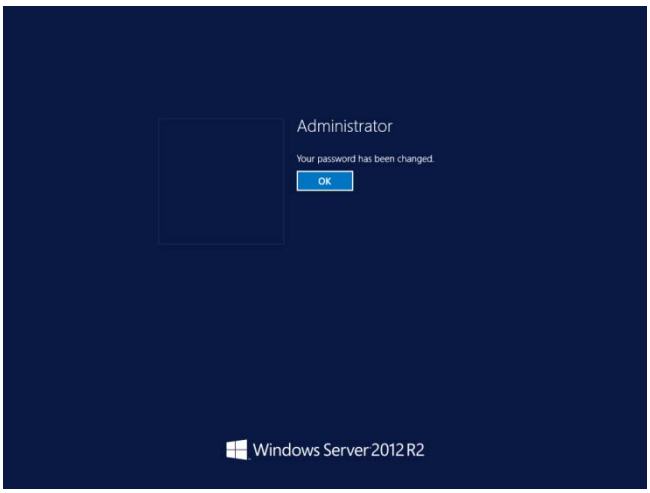
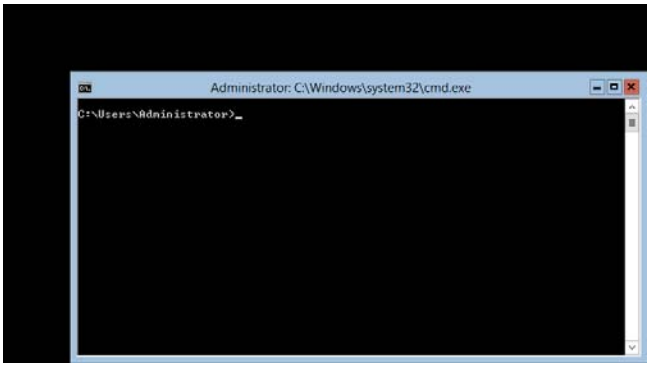
Click **OK**.



Windows Server 2012 R2 starts.



Tips

Refer to Microsoft Website for more details.
"Configure and Manage Server Core Installations"
http://technet.microsoft.com/us-en/library/jj574091.aspx
(as of July. 18, 2014)

16. See Chapter 6 (Installing Starter Pack) and follow the instructions.
17. See Chapter 7 (Setting Up Device Drivers) and follow the instructions.
18. See Chapter 8 (Activating Windows) and follow the instructions.
19. See Chapter 9 (Setup of Windows Server 2012 R2 NIC Teaming (LBFO)) and follow the instructions.
20. Execute setup by following the instructions described in Chapter 10 (Setup for Solving Problems).

The installation is complete.

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6. Installing Starter Pack

Starter Packs contains drivers customized for the Express5800 Series.

Before using your system, be sure to apply necessary modules to run Windows Server 2012 R2 (Starter Pack) dedicated for supported models. A Starter Pack can be used only for the supported models.

Also, Starter Pack for Windows Server 2012 is not available.

If you need to download Starter Pack, see “Downloading” in Chapter 3.4.

Important

Also install Starter Pack in the following cases.

- **The hardware configurations is 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 recovered using a recovery process**
- **If a system has been restored using the backup tool**

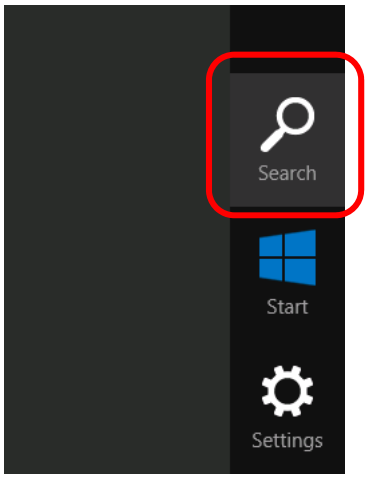
Note

Installing Starter Pack disables the Scalable Networking Pack（SNP）function. If you want to enable SNP function, refer to the following Web site.
http://www.nec.com/en/global/prod/express/

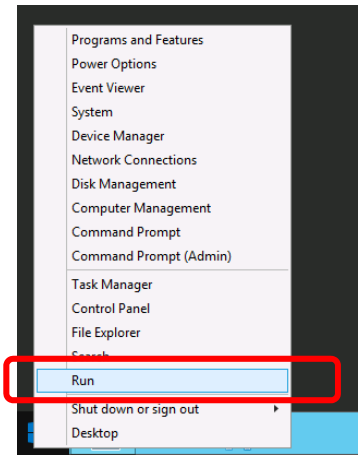
1. Sign-in to the system using the built-in administrator account (or an account with administrative rights).
   If you use the Starter Pack on a DVD, place the media into the disk drive.

2. Click **Search** on the charm bar.
   (Or select **Run** on the menu that appears when you right click on the lower left corner of the screen.）

“Search”



“Run”



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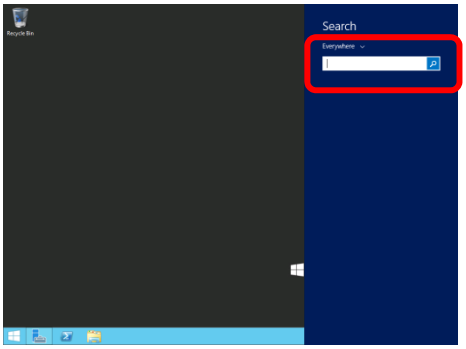
3. Enter the following path and press <Enter>.

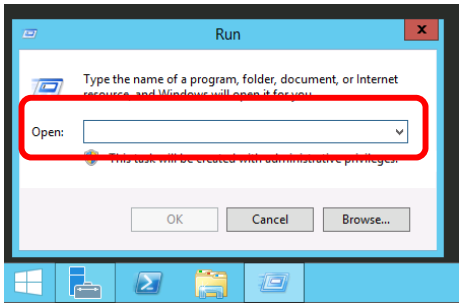
   <drive letter>:\winnt\bin\pkgsetup.vbs

   A path which includes double-byte characters or the space character cannot be used here.

"Search"



"Run"



Tips

For example, the Starter Pack is stored in **temp** folder in drive D.

- **Server with a GUI**

  Enter "*D:***temp\winnt\bin\pkgsetup.vbs**" and press **Enter**.

- **Server Core Installation**

  (1) At the command prompt, enter the following command to specify drive D.

  cd /d D:\temp\winnt\bin

  C:\Users\administrator>**cd /d D:\temp\winnt\bin**

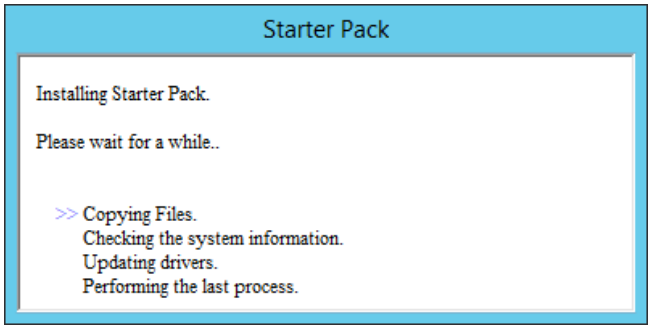
  (2) Enter the following command, and press **Enter**.

  pkgsetup.vbs

  D:\temp\winnt\bin>**pkgsetup.vbs**

Wait until the file copy is complete. (About 1-3minute(s).)

For a **Server with a GUI**, the following message appears while Starter Pack is being installed.



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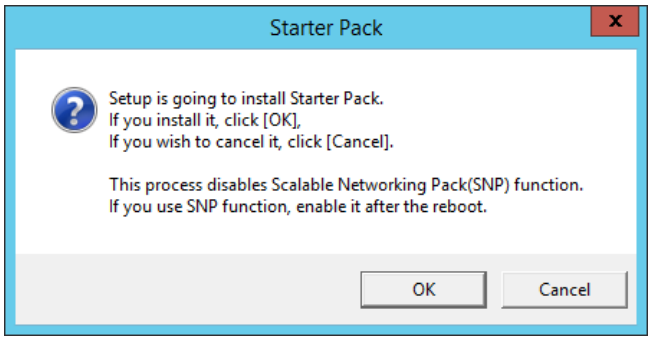
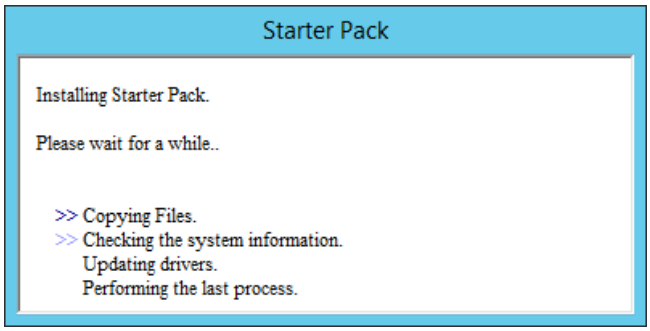
4. Read the message in the following box and click **OK**.
The Starter Pack is going to be installed.



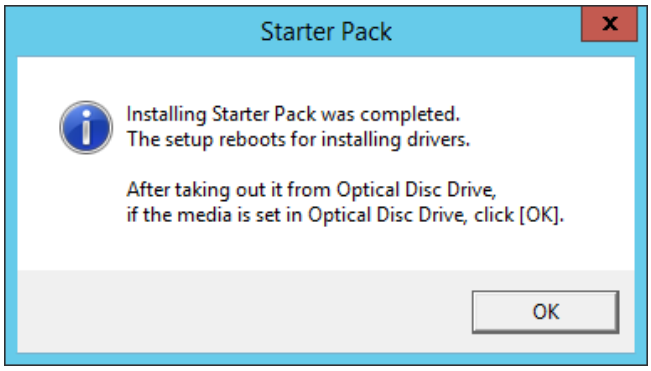
Wait until the installation of the Starter Pack is complete. (About 3 - 5 minutes.)

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, the installation of the Starter Pack is complete.
If you used a Starter Pack written on an optical disk such as DVD, follow the message to eject the disk.



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

The Starter Pack has been installed.

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7. Setting Up Device Drivers

Install and set up device drivers as needed.

For device drivers not described in this section, refer to the manual supplied with the device driver.

7.1 Installing LAN drivers

7.1.1 LAN drivers

The LAN driver is installed automatically when installing the Starter Pack.

Use a Starter Pack when you need to repair or re-configure your system.

Important

- **To start the NIC Teaming, enable "NIC Teaming" from the Server manager window. Do not use the property on the teaming tab in the device manager.**
- **Wake On LAN feature is not supported.**

Note

- To change the LAN 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 or any other remote management feature is not supported.
- Be sure to select the Internet Protocol (TCP/IP) check box when specifying an IP address.

7.1.2 Optional LAN board

This server supports the following optional LAN boards.

Optional LAN boards : NE3108-004/007/008

Note

If you additionally connect optional LAN board/riser card, be sure to configure them according to Chapter 7.2 (Setting up LAN drivers).

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7.1.3 Network adapter name

After installing the LAN drivers, the following network adapter names are displayed on **Device Manager**. The standard network adapter is not supported.

- Optional LAN board
  [NE3108-104]
  Broadcom BCM57711 NetXtreme Ⅱ 10 GigE (NDIS VBD Client) #xx(*)
  [NE3108-007/008]
  Broadcom NetXtreme Gigabit Ethernet #xx(*)

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

Tips The ID for NE3108-004 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.

7.2 Setting up LAN drivers

7.2.1 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 If you connect NE3104-004, setting "10 Gb Full" for "network adapter", and setting "Auto Negotiation" for destination switching hub, is available.

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.

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7.2.2 When using NE3108-004

When using NE3108-004 on the server, follow the steps below to configure it.

1. Open the **Device Manager**.
2. Expand Network Adapters, and then double-click the name of the network adapter you want to set. The properties of the network adapter will be displayed.
1. Select the Advanced tab, and set followings:

Name	Setting
Flow Control	Auto
Maximum Number of RSS Queues	8
TCP Connection Offload (IPv4)	Enabled
TCP Connection Offload (IPv6)	Enabled

2. Click **OK** and then restart the system.

   Setup is now completed.

7.2.3 When using NE3108-007/008

When using NE3108-007/008 on the server, follow the steps below to configure it.

1. Double-click **pgdyavd_disable.vbs** in the Starter Pack.
   <drive letter>:**\winnt\ws2012r2\lan\pgdyavd_disable.vbs**
2. When the following message is displayed, 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.

3. Restart the system.

   Setup is now completed.

7.3 When using a Fibre Channel controller (NE3108-103/104)

The driver for Fibre Channel controller (NE3108-103/104) is automatically installed by Windows Plug-and-Play.

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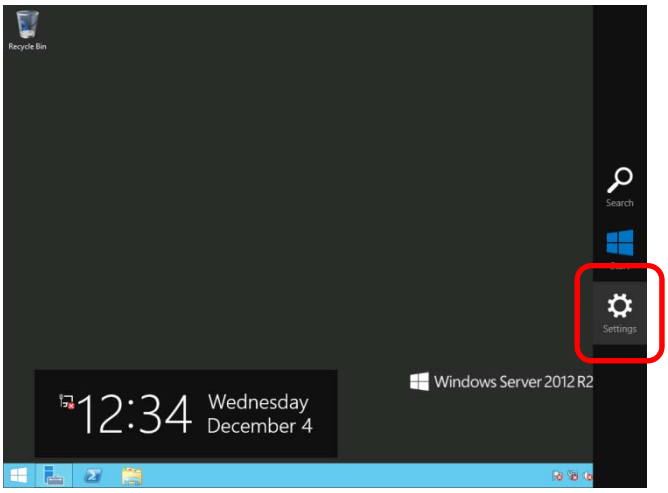
8. Activating Windows

You need to activate Windows Server 2012 R2 to continue to use the system.
Follow the steps below to check if your operating system has been activated and perform the activation as needed.

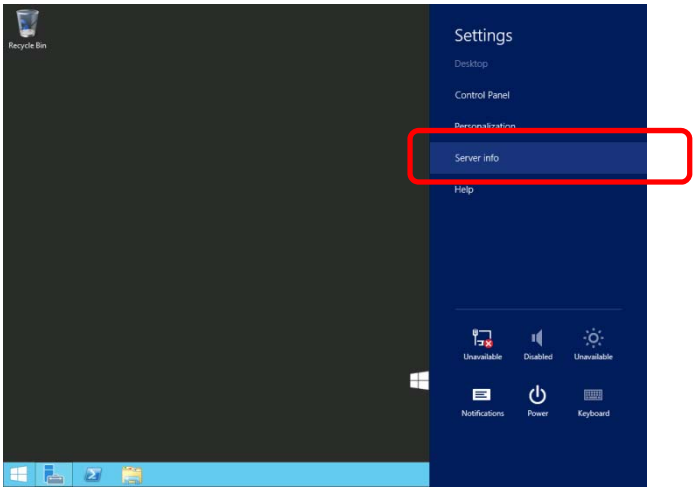
Connect to the internet to complete online activation.
If you are offline, you can activate Windows Server 2012 R2 by calling Microsoft.

8.1 Server with a GUI

1. Click **Settings** on the **Charms** bar.



2. Click **Server info**.



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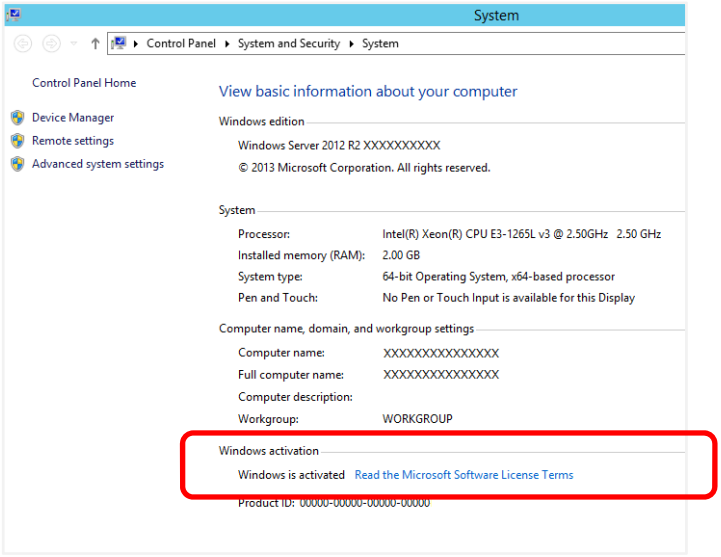
3. Check Windows license authentication.

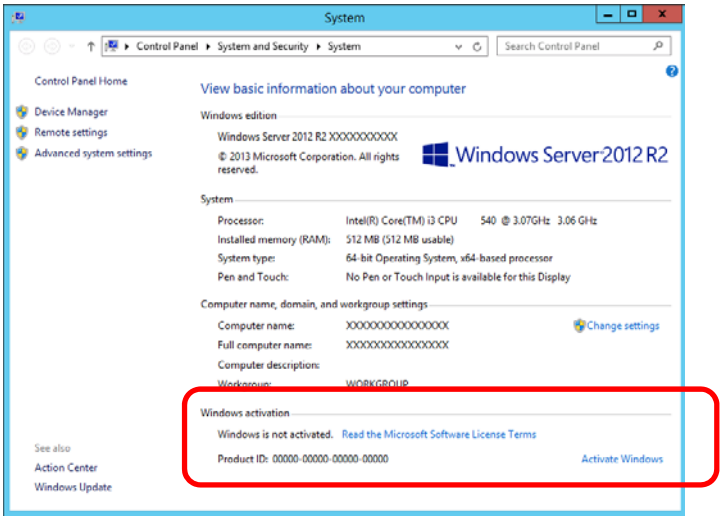
"Windows is activated" is displayed.

You do not need to perform this procedure.

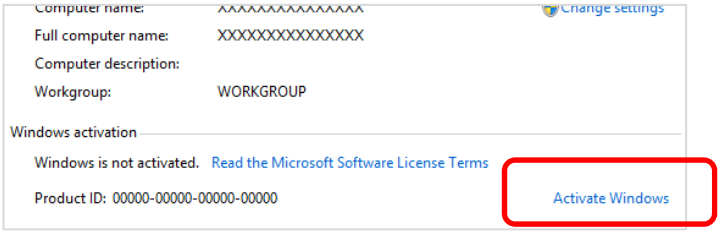


"Windows is not activated" is displayed.

License authentication process is needed.
Advance license authentication process according to the following procedure.



Click **Activate Windows**.



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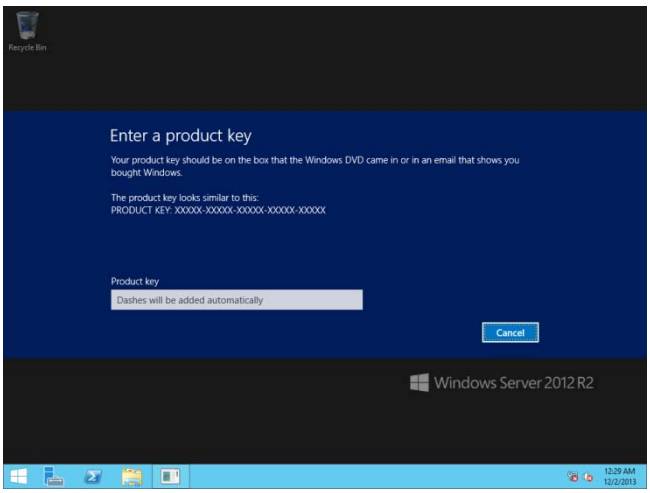
Enter the product key.



Hereafter, complete license authentication process according to the message.

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8.2 Server Core installations

1. Confirm if your license is authenticated.

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

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

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

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

2. Change the product key.

   When using Backup DVD:

   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 R2 DVD-ROM:

   You do not need to change the product key.

   Go to the next step.

3. Perform license authentication.

   When connected to Internet:

   License authentication is performed via the Internet.

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

   ```
   C:\Users\administrator> slmgr –ato
   ```

   When not connected to Internet:

   Use telephone for license authentication.

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

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

   Obtain 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 obtained confirmation ID in the following command, and then press the <Enter> key.

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

   This completes authentication.

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9. Setup of Windows Server 2012 R2 NIC Teaming (LBFO)

Set up the network adapter teaming feature as shown below.

9.1 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.

9.2 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, select **New Team** under **Tasks**.
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.
Dynamic	● Distributes the load based on IP addresses and port numbers in sending. ● Distributes the load same to "Hyper-V Port" in receiving.

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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.

9.3 Notes and restrictions

- NIC teaming on a guest OS is not supported.
- Teaming of virtual NICs on the host OS is not supported in the Hyper-V environment.
- When STP (Spanning Tree Protocol) is enabled on network switch ports to which network adapters of the team are connected, network communications may be disrupted. Disable STP, or configure "PortFast" or "EdgePort" to the ports.

  * About setting the network switch of the connection destination, see the manual of the network switch.
- All NICs in the team must be connected to the same subnet.
- Teaming of different speed NICs is not supported.
- Teaming of different vendor's NICs is not supported.

Refer to the following website for the latest information.

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

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

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10. Setup for Solving Problems

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

10.1 Specifying Memory Dump Settings (Debug Information)

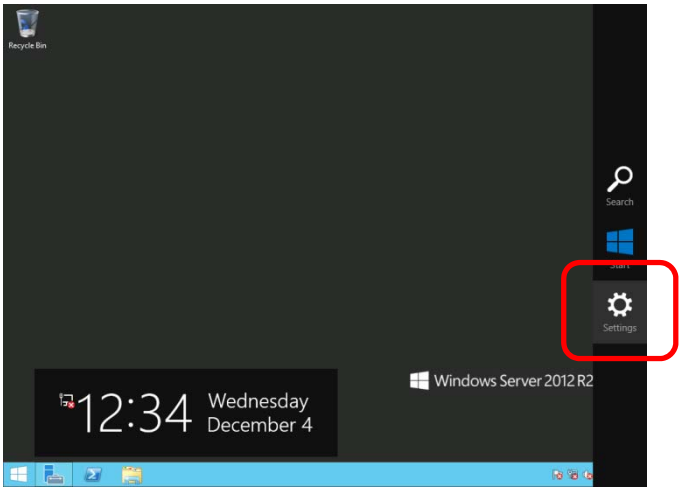
This section describes the procedures for collecting a memory dump (debug information) in the server.

Important

- **Memory dumps must be collected by a staff member from the maintenance service company. Customers only need to specify the settings for the memory dump.**
- **When you restart the system to save the memory dump, a message informing you that the system is short of virtual memory might appear. However, this message can be ignored and you can proceed with the restart. If you reset or restart the system, the memory dump might not be stored normally.**

Follow the procedure below to specify the memory dump settings.

1. On the Charms bar, click **Settings**.



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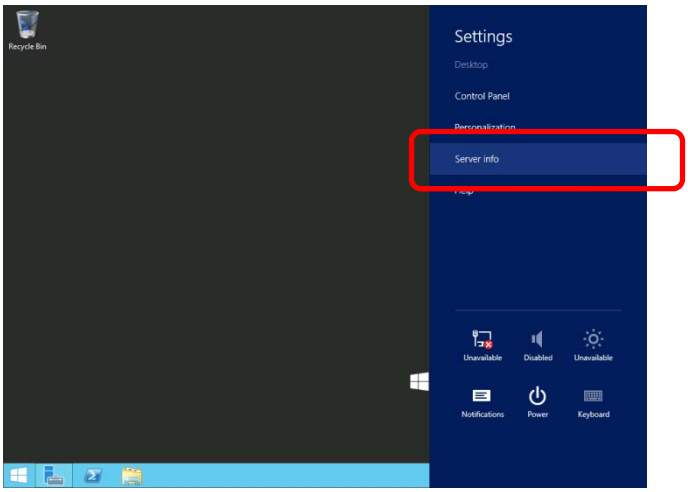
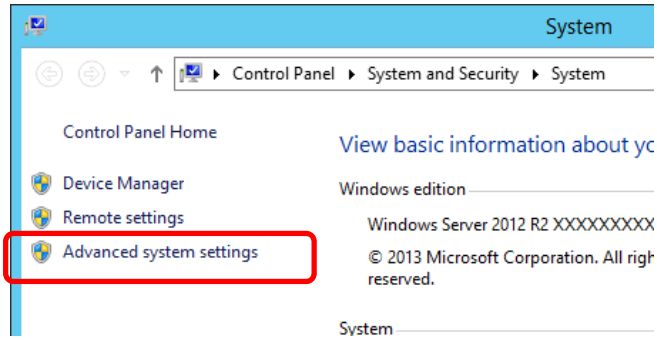
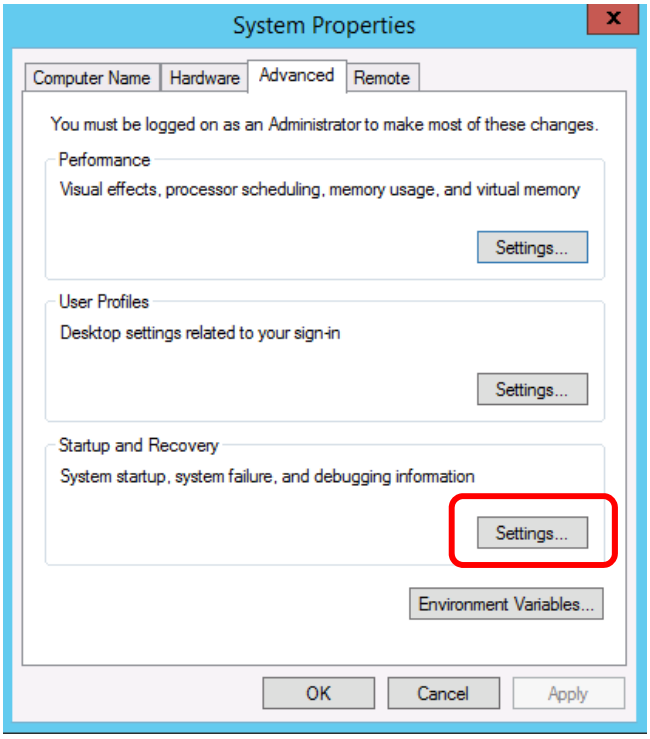
2. Click **Server info**.



3. In **System**, click **Advanced system settings**.
   The **System Properties** dialog box appears.



4. In **Startup and Recovery**, click **Settings…**.



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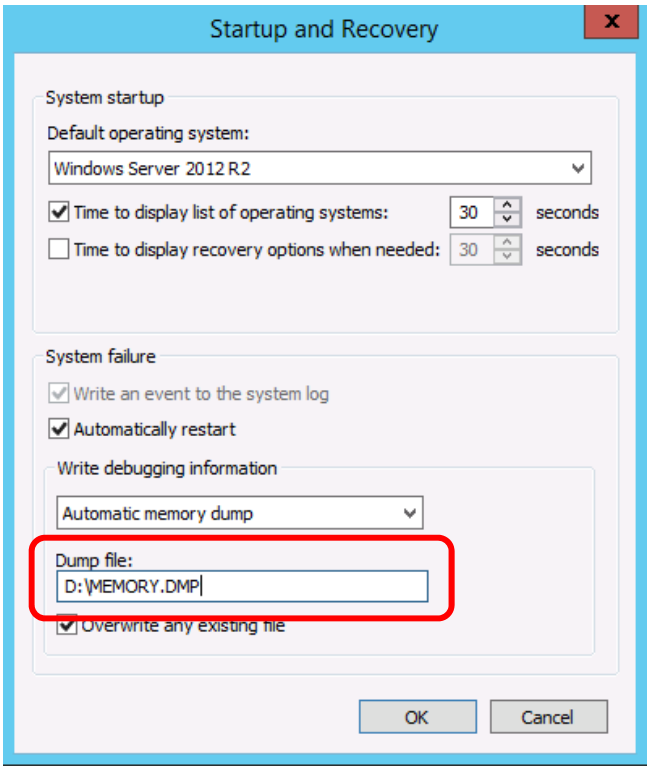
5. Type a file name to save the debug information, and then click **OK**.

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



Note the following when specifying a dump file:

- We recommend you specify Kernel memory dump for Write debugging information.
- Specify a drive that has a free space of at least "the memory capacity mounted on the server + 400 MB".
- The size of the debug information (memory dump) changes if DIMM is added. Make sure that the free space of the drive to store the debug information (memory dump) is sufficient.

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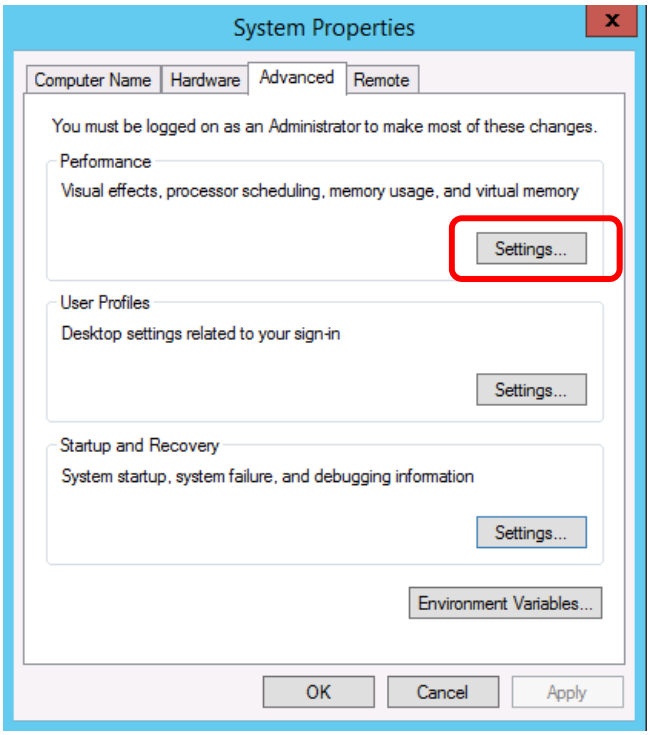
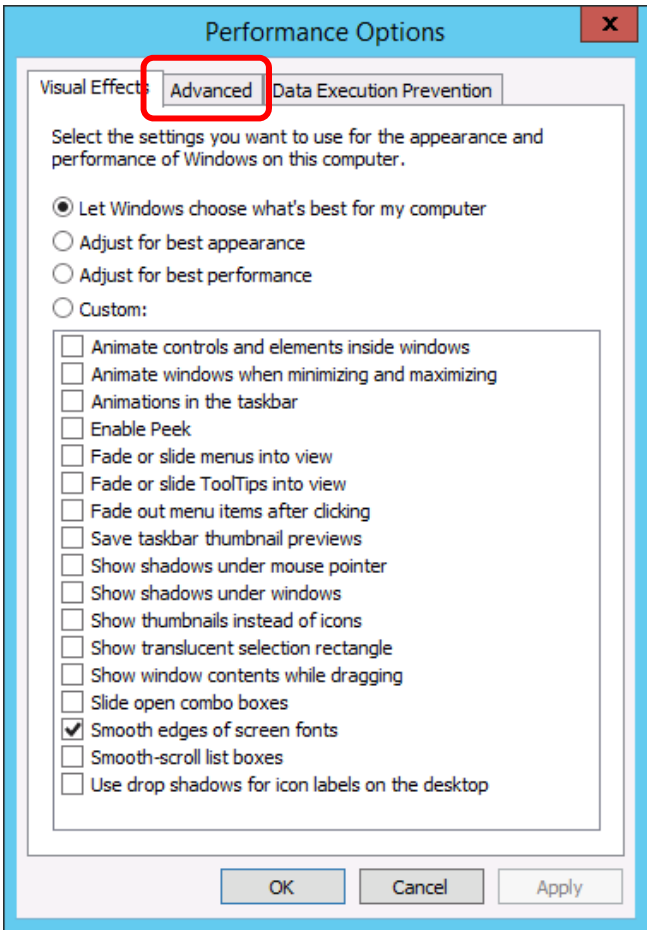
6. In **Performance**, click **Settings**.

   The **Performance Options** window appears.



7. Click the **Advanced** tab on the **Performance Options** window.



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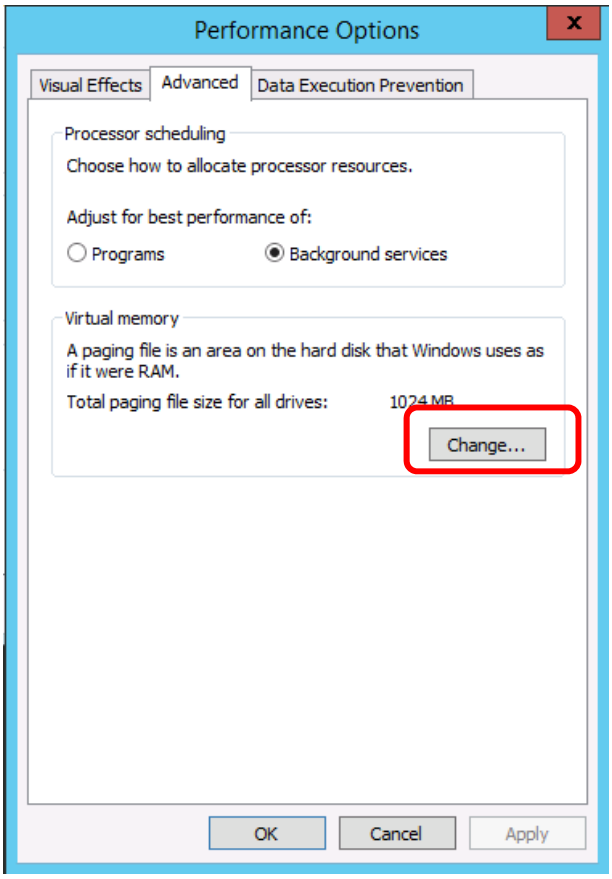
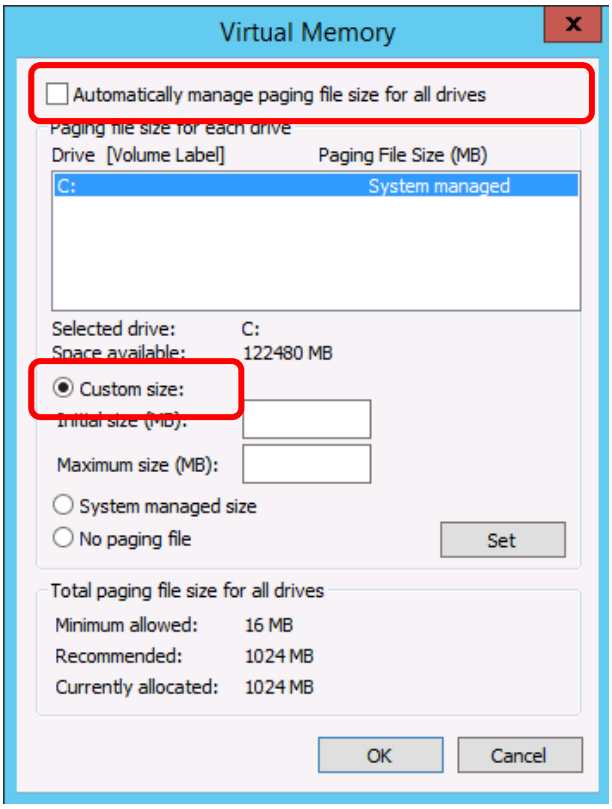
8. In **Virtual memory**, click **Change…**.



9. Clear the **Automatically manage paging file size for all drives** check box, and then click **Custom size**.



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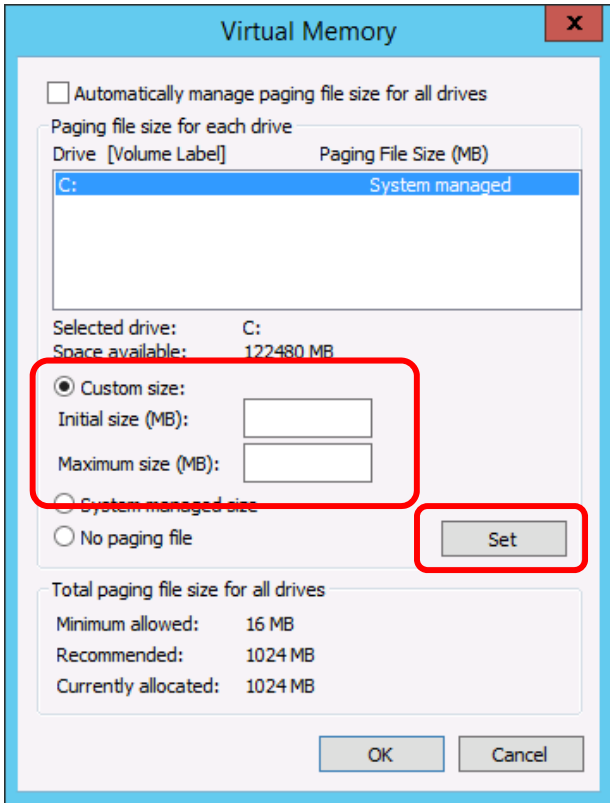
10. In **Paging file size for each drive**, enter the value equal or larger than the recommended value for **Initial size**, and the value larger than **Initial size** for **Maximum size**, and then click **Set**.



Note the following when specifying a paging file size:

- The paging file is used to collect debug information (dump file).
  The boot volume (usually created in drive C:) must have a paging file of its initial size (Total capacity of physical memory mounted + 400MB or larger) is enough to store the dump file. Specify "Total capacity of physical memory mounted + 400MB" or larger size.
- Make sure to specify a sufficient paging file size (recommended size: Total capacity of physical memory mounted * 1.5 or more) for entire system.
- See "System Partition" in Chapter 4 (Important Instructions) for recommended value.
- When DIMM is added, re-specify the paging file according to the increased memory size.

11. 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.

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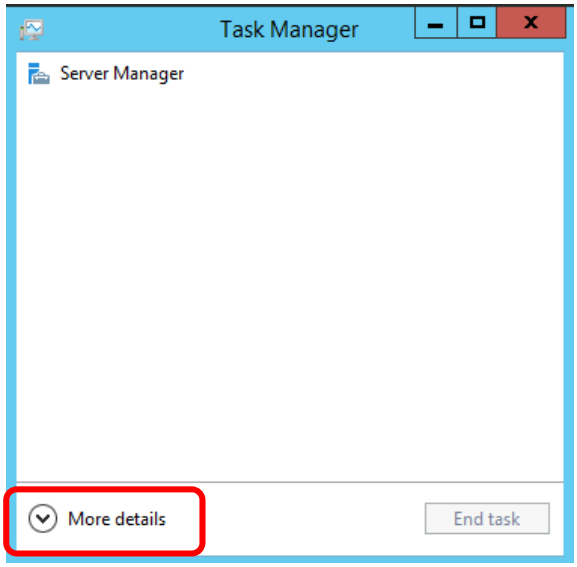
10.2 How to Create a User-mode Process Dump File

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

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

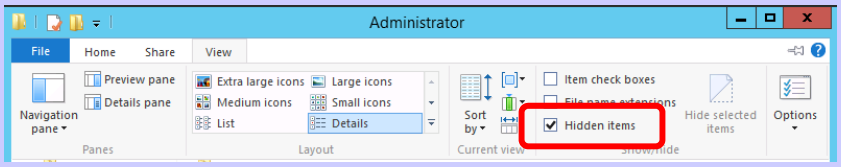
1. Right-click the left bottom of screen and then click **Task Manager** or press <Ctrl> + <Shift> + <Esc> keys to start Task Manager.
2. Click **More details**.



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.



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

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11. Windows System Recovery

If the Windows does not start correctly, you can recover it using the feature of the Windows installation disc. To run this feature, start the installation disc, and then choose **Repair your computer** in **Windows Setup** wizard.

We recommend that this option is performed by the system administrator.

Note

- After recovering the system, be sure to install each driver and Starter Pack.
  See "Windows Server 2012 R2 Installation Guide" to install Starter Pack and device drivers.
- If hard disk drives cannot be detected, you cannot recover the Windows system.

12. Troubleshooting

If this system does not operate as intended, check it according to the contents of your document before sending it for repair. If an item in the checklist corresponds with a problem you are experiencing, follow the processing instructions.

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13. Windows Event Logs

OS

Event Log

ID	Source	Type	Message (Description)
	Registered timing of event log *		Action

* This means from the start of OS installation to the first sign in.

Windows Server 2012 R2

System Log

4	b57nd60a	Warning	Broadcom NetXtreme Gigabit Ethernet #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS, starting system, or applying Starter Pack		This event does not affect system operation.
4	l2nd	Warning	Broadcom BCM57711 #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS, starting system, or applying Starter Pack		This event does not affect system operation.
11	Megasas	Error	The driver detected a controller error on Device\RaidPortX.
	When applying Starter Pack.		If this event is logged when applying Starter Pack, this event does not affect system operation.
46	volmgr	Error	Failed to initialize crash dump.
	When installing an OS		Go to the following Microsoft website for details: http://support.microsoft.com/kb/2756313
129	megasas2	Warning	Reset to device, \Device\RaidPortX, was issued.(The rest is skipped.)
	When the system is used.		If this event is logged, it is not problems since retrying is succeeded by OS. Continue running.
134	Microsoft-Windows-Time-Service	Warning	NtpClient was unable to set a manual peer to use as a time source because of DNS resolution error on 'time.windows.com,0x9'. NtpClient will try again in 15 minutes and double the reattempt interval thereafter.
	When installing an OS, starting system, or applying Starter Pack		If this event is not logged after connecting with Internet, this event does not affect system operation.
153	disk	Warning	The IO operation at the logical block address for disk (PD0 name:) was retried. * This event message is often invalid. It is no problem.
	When creating logical drive by Universal RAID Utility		When you create logical drive by using the Universal RAID Utility, the following message appears on the Windows Event Log. This warning message indicates that OS retried the I/O operation and it has succeeded. There is no problem with this message in terms of the system operation.

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7023	Service Control Manager	Error	The IP Helper service terminated with the following error: The specified service is invalid, or valid device is not associated with the service.
	When installing an OS		If this event is logged only upon OS installation and is not logged repeatedly, it does not affect system operation.
7030	Service Control Manager	Error	The Printer Extensions and Notifications service is marked as an interactive service. However, the system is configured to not allow interactive services. This service may not function properly.
	When installing an OS		If this event is logged only upon OS installation and is not logged repeatedly, it does not affect system operation.
10149	Microsoft-Windows-WinRM	Warning	The WinRM service is not listening for WS-Management requests.
	When installing an OS		If this event is logged together with ID 7036 "Service Control Manager (Windows Remote Management (WS-Management) service is changed to halt state.), it does not affect system operation. If these events are not in pair and WinRM Event 10148 (The WinRM service is not listening for WS-Management requests.) is output immediately after this event, it is not problem in system operation.

Application Log

1015	Microsoft-Windows-Security-SPP	Warning	Description: Detailed information of HRESULT Returned hr=0xC004F022, original hr=0x80049E00
	When installing an OS		If this event is logged only upon OS installation and is not logged If this event is logged only upon OS installation and is not logged.
1058	Microsoft-Windows-Security-SPP	Error	Installation of the Proof of Purchase from the ACPI table failed, Error code: 0xC004F057
	When installing an OS		This event does not affect system operation.
8198	Microsoft-Windows-Security-SPP	Error	License Activation (slui.exe) failed with the following error code:hr=0xC004F063
	When installing an OS		If this event is not logged repeatedly after license authentication process, it is not problems.

Application Event Log and Service Log

200	Microsoft-Windows-DeviceSetupManager	Warning	A connection to the Windows Update service could not be established.
	While the system is in use		If this event is not logged after connecting with Internet, this event does not affect system operation.
201	Microsoft-Windows-DeviceSetupManager	Warning	A connection to the Windows Metadata and Internet Services (WMIS) could not be established.
	While the system is in use		If this event is not logged after connecting with Internet, this event does not affect system operation.

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202	Microsoft-Windows-DeviceSetupManager	Warning	The Network List Manager reports no connectivity to the internet.
	While the system is in use		If this event is not logged after connecting with Internet, this event does not affect system operation.
215	Microsoft-Windows-AppReadiness	Error	'ART:ResolveStoreCategories' failed for Administrator. Error: 'Class not registered' (0.0312842 seconds)
	When installing an OS		If this event is logged only upon First Sign-in and is not logged repeatedly, it does not affect system operation.

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Document Revision History

Date	Revision No.	Notes	
March 27,2014	1	The first edition	856-121112-466-Ae
April 25, 2014	2	It's renewed *Setup of Windows Server 2012 R2 NIC Teaming (LBFO)*	856-121112-466-Be
July 18,2014	3	It's renewed *Setup of Windows Server 2012 R2 NIC Teaming (LBFO)*	856-121112-466-Ce

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