

Windows Server® 2012 R2 Installation Guide

Express5800/GT110e, GT110e-S, R110e-1E

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 <u>may differ from the actual screens, messages and</u> <u>procedures.</u> 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. CD-R/RW with DVD-ROM drive
- 2. DVD-ROM drive
- 3. DVD Super MULTI drive
- 4. DVD-Combo drive
- 5. DVD-RAM 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/GT110e, GT110e-S, R110e-1E
-------------	--

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 Standard
Windows Server 2012 R2	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 <u>is not recommended</u> because this may adversely affect drivers and applications.

2. Setting Up the Operating System

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

	Start
	~~
Chapter 3	Before You Start
Chapter 4	Before Starting Setup Update BIOS and BMC firmware/SDR
Chapter 5	Installing Windows Server 2012 R2
Chapter 6	Installing Starter Pack
Chapter 7	Setting Up Device Drivers
Chapter 8	Activating Windows
Chapter 9	Setup of Windows Server 2012 R2 NIC Teaming (LBFO)
Chapter 10	Setup for Solving Problems
	The installation is complete.

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

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	WS2012R2.10-004.01.zip
Supported Models	Express5800/GT110e, GT110e-S, R110e-1E

- 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")

ImportantAfter 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.

• 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.

Tips

3.2 Supported Mass Storage Controllers

The Starter Pack supports the following mass storage controllers.

	GT110e	GT110e-S	R110e-1E					
Starter Pack supports operating system installation with the following RAID Controllers								
Onboard RAID Controller (LSI Embedded MegaRAID)	~	~	\checkmark					
N8103-149 RAID Controller (512MB, RAID 0/1)	~	~	\checkmark					
N8103-150 RAID Controller (512MB, RAID 0/1/5/6)	✓	~	✓					
N8103-151 RAID Controller (1GB, RAID 0/1/5/6)	~	~	\checkmark					
N8103-152 RAID Controller (1GB, RAID 0/1/5/6)	_	_	✓					
N8103-167 RAID Controller (1GB, RAID 0/1/5/6)	_	~	_					
Other Options								
N8103-160 RAID Controller (1GB, RAID 0/1/5/6)	-	_	✓					
N8190-153 Fibre Channel Controller (1ch)	_	-	\checkmark					
N8190-154 Fibre Channel Controller (2ch)	-	_	\checkmark					
N8190-157 Fibre Channel Controller (1ch)	_	-	\checkmark					
N8190-158 Fibre Channel Controller (2ch)	-	-	\checkmark					

✓ : Supported – : Not Supported

3.3 Supported Optional LAN boards

The Starter Pack supports the following optional LAN boards.

	GT110e	GT110e-S	R110e-1E				
Starter Pack supports operating system installation with the following LAN boards							
_	_	_	~				
Other Options							
N8104-128 10GBASE Adapter(SFP+/2ch)	_	_	~				
N8104-132 1000BASE-T Adapter(2ch)	~	✓	~				
N8104-138 1000BASE-T Adapter(1ch)	~	✓	\checkmark				

 \checkmark : Supported - : Not Supported

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.
 - Go to NEC Corporation Web site at <u>http://www.nec.com/</u>. Click Support & Downloads.



(2) Under "Downloads," find "Service" and click Asia Pacific.

Support & Downloads	
Support	Downloads
et assistance from your local support center.	Download various software and drivers for your products.
PCs & Servers	PCs & Servers
PCs	PCs
NEC Brand	NEC Brand
North America (Support Only)	North America (Support Only)
Latin America	· Latin America
EMEA	· EMEA
Asia Pacific	· Asia Pacific
- China	- China
 Japan (for Business) 	 Japan (for Business)
 Japan (for Home) 	- Japan (for Home)
Servers	Servers
North America	North America
Latin America	Latin America
EMEA	· EMEA
- France	- risilize
Asia Pacific	Asia Pacific
- Japan	- Japan

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

Product Informat		d by Innovation					
Troduct morma							
Downloads	Express58	00 Server Seri	es				
lease input the m	odel name, e.g		Rece	nt updates			
		Q		than a week ok			
	–		Less	than a month ok	1 (38)		
Documents &	System	Windows Support Kits	VMware	ESMPRO	DianaScope	Utility	Technology paper
Software	Guides						_
-		icrani Server	Slade Man Serv	y-core Scal ver Serv			ther Server Options
Software	ck Faun-Te		Serv	*		inals	
Software	ck Faun-To Server		Server Server	ver Serv		inals <u>NEC Expr</u>	Options

(4) Select Windows Server 2012 R2.

NEC	Empowere	d by Innovation						
Product Informati	on							
Downloads -	Express58	00 Server Serie	es					
Please input the mo	del name, e.ç	p:120E	Less t	n t updates han a week ok han a month ol				
Documents & Software	System Guides	Windows Support Kits	VMware	ESMPRO	DianaScope	Utility	Technology paper	
	erver 2003 x							
	erver 2003 S erver 2003 S							
Vindows S	erver 2003 R	2						
Mindows S		-						
IE Windows Server 2008 SP2 IE Windows Server 2008 R2								
🚽 Windows S	erver 2008 R	12 SP1						
i <u>windows s</u> Vindows S		12						
About NEC Privacy Conversion 1 © NEC Com		1.00						

- (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 <u>Windows Server 2012 R2 support information</u>.

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.

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. To see if your system needs a BIOS update, go to NEC Corporation Web site at <u>http://www.nec.com/express/</u>. 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/SDR Updates

BMC Firmware/SDR updates may be required to install Windows Server 2012 R2.

To see if your system needs BMC firmware/ SDR 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.

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.

Peripheral devices such as RDX/MO

Remove an RDX/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.

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.

- Set the system partition size to a size sufficient to install the OS and paging file. 1.
- 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.

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)

- \rightarrow Paging files in a dynamic volume cannot be used for collecting memory dump.
 - Thus, collecting memory dump fails.

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

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

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

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

Note the following when specifying Dedicated Dump File:

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

System partition size

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

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 \times 1.5
Dump file size	= installed memory size + 400MB
Application size	= as required by the application

Server Core installations

Size required to install OS	= 6,4
Paging file size (recommended)	= Ins
Dump file size	= Ins
Application size	= as

- 400MB
- stalled memory size \times 1.5
- stalled memory size + 400MB
- required by the application

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.

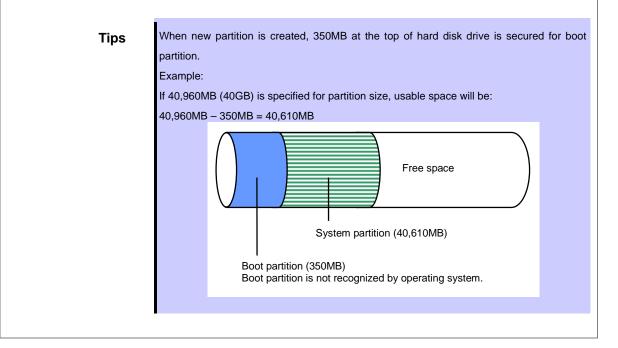
Server with a GUI	:	32,768MB(32GB) or more
Server Core installations	:	32,768MB(32GB) or more
*1GB = 1.024MB		

I	oto	
١	ote	

N

- 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.



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.

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

- 2. Insert the Backup DVD or the Windows Server 2012 R2 DVD-ROM into your DVD-ROM drive.
- Restart the system.
 To restart the system, press <Ctrl> + <Alt> + or turn off the system once and then turn it on again.
- 4. The DVD-ROM starts.

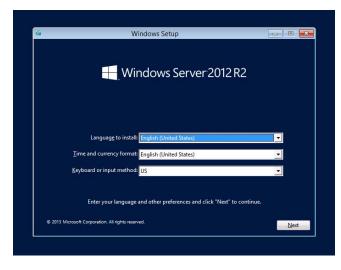
If an operating system has been installed already, the following message will appear: "Press any key to boot from CD or DVD..."

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.



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.

	🕞 🔬 Windows Satup
	Enter the product key to activate Windows
	It should be on the back of the box that Windows came in or in a message that shows you bought Windows.
	The product key looks like this: 30000-30000-30000-30000-30000
	Dashes will be added automatically.
	030309
	Envirystatement
	Envery statement liest
Collecting information	2 Installing Windows

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.

Select the operating system you want to install Operating system Windows Server X012 83 Standard Elever Core Installation	Architecture	Date modified	
Windows Server 2012 R2 Standard (Server with a GU)	64	8/22/2013	
Description: This option (incommended) reduces management and service to run most server relax and applications. It does not include ea- server locally example, with Vindows Texes (in the control of the installation option later. See "Windows Server installation Opti-	e GUI, but you can ools. You can swite	fully manage the	
		lint	

9. Read the license terms carefully.

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

MICROSOFT SOFTWARE LICENSE TERMS MICROSOFT WINDOWS SERVER 2012 R2 STANDARD These license terms are an agreement between you and: - the server manufacturer that distributes the software with the server; or	
These license terms are an agreement between you and: the server manufacturer that distributes the software with the server; or	
the server manufacturer that distributes the software with the server; or	
 the software installer that distributes the software with the server. 	
Please read them. They apply to the software named above, which includes the media on which you received it, if any. The terms also apply to any Microsoft:	
- updates,	
FF 3 gccept the license terms	
list	

10. Select the type of installation you want.

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

Windows Strap Which type of installation do you want?	
Upgrade: Install Windows and keep files, settings, and applications. The files, intropy, and applications are moved to Windows with the option. This option is only evaluate when a supported version of Windows is already naming on the computer.	
Content: Install Windows only failurenced: The face, setting, and applications and the compare solutions with the option. If you want to make change to protocol and advice, such the compare using the installation day. We recommend lacking up your file before you continue.	
Belg me decide	

11. Click New.

Whendows Setup Whene do you want to install Windows? Name Tatal tate Tree space Type Drive Obselocated Space 1272.00 1272.00 1272.00 1272.00 1272.00 1272.00 1272.00 Name Commat Comm Commat Commat Commat Commat Commat Commat Commat	
Name Total size Free space Drive O Unablocated Space 1272.00 1272.00 Free Space 1272.00 1272.00 Free Space 1272.00 1272.00	
Drive D Unafforcated Space 127.0-08	
fg Befends ∑Epieter @Esernat ∲Ngov @I Load driver @Efernal	
la Loud driver a St Laurd	
1 Collecting Information 2 Installing Windows	
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.	

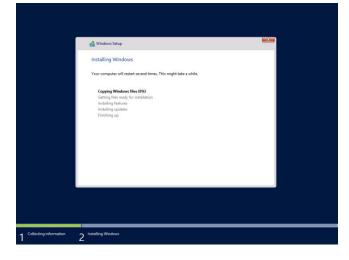
12. Specify the partition size and click **Apply**.

🚱 💰 Windows Setup Where do you Name	want to install Windows?	
Gr Direbbi		
49 Enroy	Colors Connet 1000 Cannot Som 10004 1 MS Agent Cannot I por	
1 Collecting information 2 Installing Windows		
Tips	When a new partition is created, 350MB of disk space is assigned as boot partition automatically.	Windows Setup
	Click OK on the screen below.	OK Cancel

- 13. Select the partition created in step 12 and click **Format**.
- 14. Select the partition you created and click Next.

fy Satash X Datas I Samut ⊕ Ngu ⊕ Load diver 2 Laned		
liet		

When the following message appears, Windows installation starts automatically.



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

Server with a GUI

Type a password and click **Finish**.

type a password for t	he built-in administrator account th	at you can use to sign in to this c	omputer.
User name	Administrator		
Password			
Reenter password			

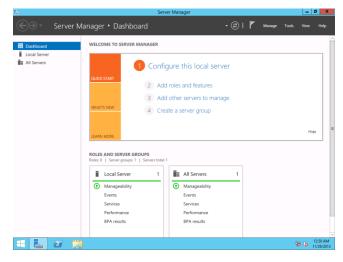
To sign-in to Windows Server 2012 R2, press <Ctrl>+<Alt>+ on the screen below.



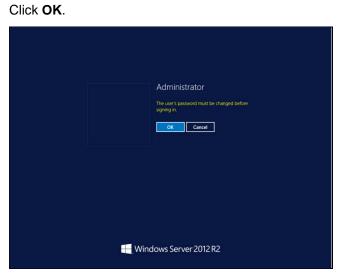
Type the password and press <Enter>.



Windows Server 2012 R2 starts.



Server Core Installations



Type the new password.

e)	Administrator
	,	New password
		Confirm password
Ŷ	- Wind	dows Server 2012 R2



Administrator Your password has been changed.
Windows Server 2012 R2

Windows Server 2012 R2 starts.

:\Users\Administrator}_	672	Administrator: C:\Windows\system32\cmd.exe	- 0
	C:\Users\Ad	ministrator)_	



- 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.

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) <u>dedicated for supported models</u>. 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

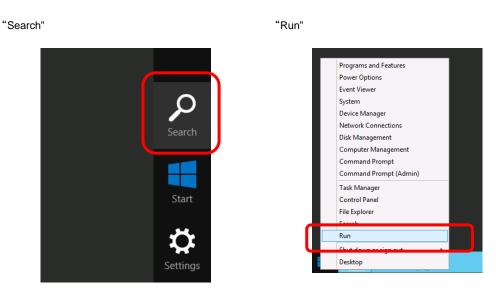
Installing Starter Pack disables the Scalable Networking Pack (SNP) function. If you want to enable SNP function, refer to the following Web site. http://www.nec.com/en/global/prod/express/

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.)



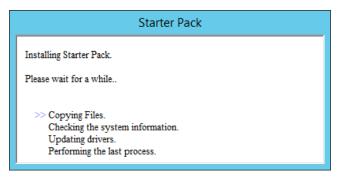
Enter the following path and press <Enter>.
 <drive letter>.\winnt\bin\pkgsetup.vbs

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

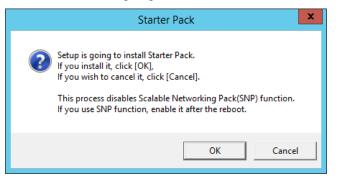
'Search"	"Run"
Roya ta Roya ta	Search
Tips	 For example, the Starter Pack is stored in temp folder in drive D. Server with a GUI Enter "D:\temp\winnt\bin\pkgsetup.vbs" and press Enter. Server Core Installation (1) At the command prompt, enter the following command to specify drive D. cd /d D:\temp\winnt\bin 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 <u>Server with a GUI</u>, the following message appears while Starter Pack is being installed.



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.

Starter Pack				
Installing Starter Pack.				
Please wait for a while				
 >> Copying Files. >> Checking the system information. Updating drivers. Performing the last process. 				

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.

	Starter Pack	x
т 🕕 А	nstalling Starter Pack was completed. 'he setup reboots for installing drivers. After taking out it from Optical Disc Drive, f the media is set in Optical Disc Drive, click [OK].	
	ОК	

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

The Starter Pack has been installed.

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	 Teaming of network adapters by using BACS is not supported. Wake On LAN feature is available only on the standard network adapter.
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 : N8104-128/132/138

* Optional LAN board (N8104-128) is supported by R110e-1E only.

Note

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

7.1.3 Network adapter name

After installing the LAN drivers, the following network adapter names are displayed on **Device Manager**.

- Standard network adapter
 Broadcom NetXtreme Gigabit Ethernet #xx(*)
- Optional LAN board

[N8104-128]

```
Broadcom BCM57711 NetXtreme I 10 GigE (NDIS VBD Client) #xx(*)
[N8104-132/138]
```

```
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 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.

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 N8104-128, 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.

7.2.2 When using N8104-132/138

When using N8104-132/138 on the server, follow the steps below to configure it.

- Double-click pgdyavd_disable.vbs in the Starter Pack.
- 2. When the following message is displayed, click OK.

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

Tips

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

3. Restart the system.

Setup is now completed.

7.3 Graphics accelerator driver

The standard Graphics Accelerator driver is installed automatically by the Starter Pack.

To reinstall drivers separately, complete the following steps.

Double-click the install.bat in the Starter Pack.

You will be prompted to confirm the End User License Agreement during this process. Click the **ACCEPT** button and continue.

2. Restart the system.

Setup is now completed.

7.4 When using a RAID Controller (N8103-160)

The driver for RAID Controller (N8103-160) is automatically installed by Windows Plug-and-Play.

7.5 When using a Fibre Channel controller (N8190-153/154/157/158)

The driver for Fibre Channel controller (N8190-153/154/157/158) is automatically installed by Windows Plug-and-Play.

8. Activating Windows

You need to activate Windows Server 2012 R2 to continue to use the system.

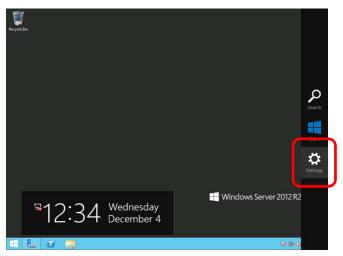
Follow the steps below to check if your operating system has been activated and perform the activation as needed.

Connect to the internet to complete online activation.

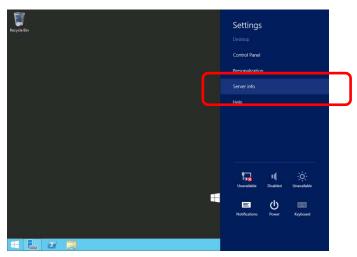
If you are offline, you can activate Windows Server 2012 R2 by calling Microsoft.

8.1 Server with a GUI

1. Click Settings on the Charms bar.



2. Click Server info.



3. Check Windows license authentication.

"Windows is activated" is displayed.

You do not need to perform this procedure.

ļ		System			
🄄 🍥 🔻 🕇 🕎 🕨 Control Par	nel 🔸 System and Security 🕨 Sy	rstem			
Control Panel Home	View basic information about your computer				
😚 Device Manager	Windows edition				
😌 Remote settings	Windows Server 2012 R2 X	xxxxxxxxx			
💡 Advanced system settings	© 2013 Microsoft Corpora	© 2013 Microsoft Corporation. All rights reserved.			
	System				
	Processor:	Intel(R) Xeon(R) CPU E3-1265L v3 @ 2.50GHz 2.50 GHz			
	Installed memory (RAM):	2.00 GB			
	System type:	64-bit Operating System, x64-based processor			
	Pen and Touch: No Pen or Touch Input is available for this Display				
	Computer name, domain, and workgroup settings				
	Computer name:	XXXXXXXXXXXXXXXXXX			
	Full computer name:	XXXXXXXXXXXXXXXXX			
	Computer description:				
_	Workgroup:	WORKGROUP			
ſ	Windows activation				
	Windows is activated Rea	d the Microsoft Software License Terms			
L L	Product ID: 00000-00000-0	0000-00000			

"Windows is not activated" is displayed.

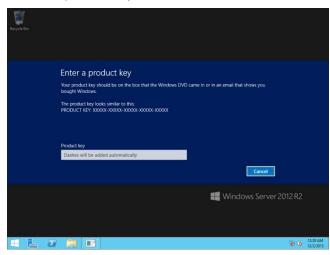
License authentication process is needed. Advance license authentication process according to the following procedure.

1		Sy	stem		- • ×
0	💿 🐁 🕆 🛃 🕨 Control Pane	el	stem v	C Search Control Pa	nel P
	Control Panel Home	View basic information	about your computer		0
6	Device Manager	Windows edition			
6	Remote settings	Windows Server 2012 R2 X			
9	Advanced system settings	© 2013 Microsoft Corporat reserved.	ion. All rights	Vindows Serve	er 2012 R2
		System			
		Processor:	Intel(R) Core(TM) i3 CPU	540 @ 3.07GHz 3.06 G	Hz
		Installed memory (RAM):	512 MB (512 MB usable)		
		System type:	64-bit Operating System, xt	54-based processor	
		Pen and Touch:	No Pen or Touch Input is a	vailable for this Display	
		Computer name, domain, and workgroup settings			
		Computer name:	X000000000000000	*	Change settings
		Full computer name:	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		
		Computer description:			
		Workgroup:	WORKGROUP		
	(Windows activation			
		Windows is not activated.	Read the Microsoft Software	License Terms	
	See also	Product ID: 00000-00000-0	0000.00000		Activate Windows
	Action Center	FIGURE 10: 0000-0000-0			Activate windows
	Windows Update				

Click Activate Windows.

Computer name:	~~~~~	The settings
Full computer name:	XXXXXXXXXXXXXXXXX	
Computer description:		
Workgroup:	WORKGROUP	
Windows activation		
Windows is not activated.	Read the Microsoft Software License Terms	
Product ID: 00000-00000-00000		Activate Windows

Enter the product key.



Hereafter, complete license authentication process according to the message.

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>sImgr -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.

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.
- 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.

- 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.

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)]

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.
-		

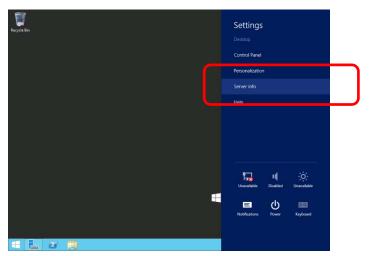
Follow the procedure below to specify the memory dump settings.

- Freedom

 Survey

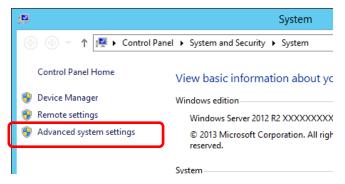
 Surv
- 1. On the Charms bar, click Settings.

2. Click Server info.



3. In System, click Advanced system settings.

The System Properties dialog box appears.



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

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

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">

Startup and Recovery
System startup
Default operating system:
Windows Server 2012 R2 V
Time to display list of operating systems:
Time to display recovery options when needed: 30 🔷 seconds
System failure ✓ Write an event to the system log ✓ Automatically restart Write debugging information
Automatic memory dump 🗸 🗸
Dump file: D: MEMORY.DMP
Verwrite any existing file
OK Cancel

Note the following when specifying a dump file:

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

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

The Performance Options window appears.

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

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

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

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

Performance Options X
Visual Effects Advanced Data Execution Prevention
Processor scheduling Choose how to allocate processor resources.
Adjust for best performance of:
Programs O Background services
Virtual memory A paging file is an area on the hard disk that Windows uses as if it were RAM.
Total paging file size for all drives: 1074 MR Change
OK Cancel Apply

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

Virtual Memory X
Automatically manage paging file size for all drives
Paging hie size for each drive Drive [Volume Label] Paging File Size (MB) C: System managed
C: System managed Selected drive: C: Space available: 122480 MB Imitial size (MD): Imitial size (MD): Maximum size (MB): Imitial size (MD): O System managed size System managed size O No paging file Set Total paging file size for all drives Minimum allowed: Minimum allowed: 16 MB Recommended: 1024 MB Currently allocated: 1024 MB
OK Cancel

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**.

Virtual Memory	x
Automatically manage paging file size for all drives Paging file size for each drive Drive [Volume Label] Paging File Size (MB) C: System managed	
Selected drive: C: Space available: 122480 MB	
Custom size: Initial size (MB): Maximum size (MB):	
O No paging file Set	
Total paging file size for all drives Minimum allowed: 16 MB Recommended: 1024 MB Currently allocated: 1024 MB	
OK Cancel	

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.

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.

P	Task Manager	_ 🗆 X
ᡖ Server Manager		
More details		End task

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

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

		uispiay	/ed, open Explore	1, 50				•
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File	Home Sha	e View						41
Navigation pane •	Preview par		ra large icons 📰 Large icons dium icons 📰 Small icons 📰 Details	* * *	Sort by ▼	 ☐ Item check boxes ☐ Eile pame extensions ☑ Hidden items 	Hide selected items	Ø Optior ▼
	Panes		Layout		Current view	snow/nide		

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

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.

13. Windows Event Logs

os

Event Log

ID	П	Source	Туре	Message (Description)
	שו	Registered timing of event log *		Action

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

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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.		
	volmgr	Error	Failed to initialize crash dump.		
46	When installing an OS		Go to the following Microsoft website for details: http://support.microsoft.com/kb/2756313		
	megasas2	Warning	Reset to device, \Device\RaidPortX, was issued.(The rest is skipped.)		
129	When the system is used.		If this event is logged, it is not problems since retrying is succeeded by OS. Continue running.		
400	Megasr1	Warning	A Reset command is issued to device \Device\RaidPort0.		
129	During consistency check		This event does not affect system operation.		
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.	
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.	
	Microsoft-Windows- WinRM	Warning	The WinRM service is not listening for WS-Management requests.	
10149	9 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.		

pplicatio	phication 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		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.		
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.		

Application Event Log and Service Log

Document Revision History

Date	Revision No.	Notes	
March 7,2014	1	The first edition	856-121112-447-Ae
April 25, 2014	2	It's renewed Setup of Windows Server 2012 R2 NIC Teaming (LBFO)	856-121112-447-Be
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