

**LAN Driver
Installation Guide
(Broadcom v17.2)
Expres5800/A2040b, A2020b, A2010b, A1040b**

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1. Preface

Thank you very much for purchasing our product.
This installation guide explains how to set up the LAN Drivers.

1.1. The target server

Refer to the URL below and check the target server.

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

-> Click model name(product name).

-> Click "LAN Driver Module(V17.2)(Windows Server 2012 R2/Windows Server 2012)" in "Other update".

1.2. Target software

Abbreviated designation	Software Production Name
Windows Server 2012	Microsoft® Windows Server® 2012 Standard Microsoft® Windows Server® 2012 Datacenter
Windows Server 2012 R2	Microsoft® Windows Server® 2012 R2 Standard Microsoft® Windows Server® 2012 R2 Datacenter Microsoft® Windows Server® 2012 R2 Foundation

*1 Above information is based on 2016/07

Refer the Server Configuration Guide for the latest information.

The latest drivers are published on our NEC Express5800 Support Website.

*2 Refer to the Server Configuration Guide for correspondence Option LAN Board.

1.3. Target Driver Version

The target driver version before and after update are listed in the following.

If the driver version in use is not listed in the following, this update is not necessary.

Related to the confirmation method of installed version, please refer to [3.2 Confirmation of LAN driver version].

Target software	Target driver version (b57nd60a.sys)	After update version (b57nd60a.sys)
Windows Server 2012	15.6.0.10	17.2.0.2
Windows Server 2012 R2	16.2.0.4	17.2.0.2

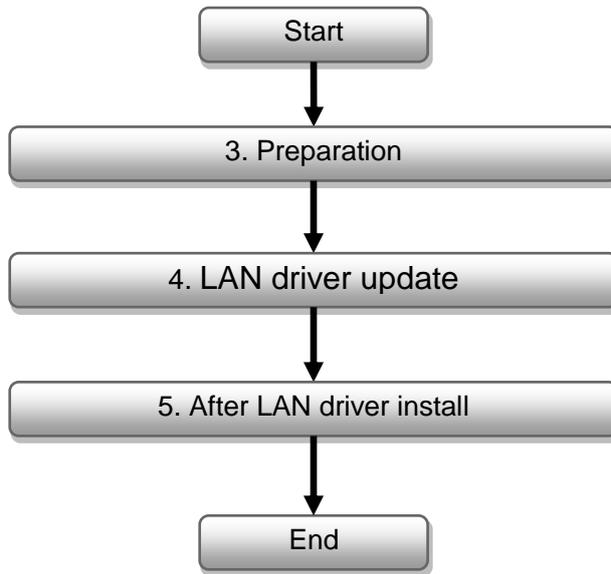
1.4. Registration Trademark

Microsoft, Windows, Windows Server, Hyper-V are registered trademark or trademarks of the Microsoft in the U.S. and other countries. Broadcom, the pulse logo, Connecting everything, the Connecting everything logo, NetXtreme, Ethernet@Wirespeed, LiveLink™, and Smart Load Balancing™ are among the trademarks of Broadcom Corporation and/or its affiliates in the United States, certain other countries, and/or the EXPRESSCLUSTER is registered trademark of the NEC corporation. In addition, TM and an R mark are not specified in the text.

2. Workflow LAN driver update process

Important

This document is based on using the Windows Server Failover Clustering (Afterward WSFC) and EXPRESSCLUSTER. If WSFC is not used, skip step [3.5 Stop the WSFC node service] and [5.3 Start the WSFC node service]. If EXPRESSCLUSTER is not used, skip step [3.6 Stop the EXPRESSCLUSTER service] and [5.4 Start the EXPRESSCLUSTER service].

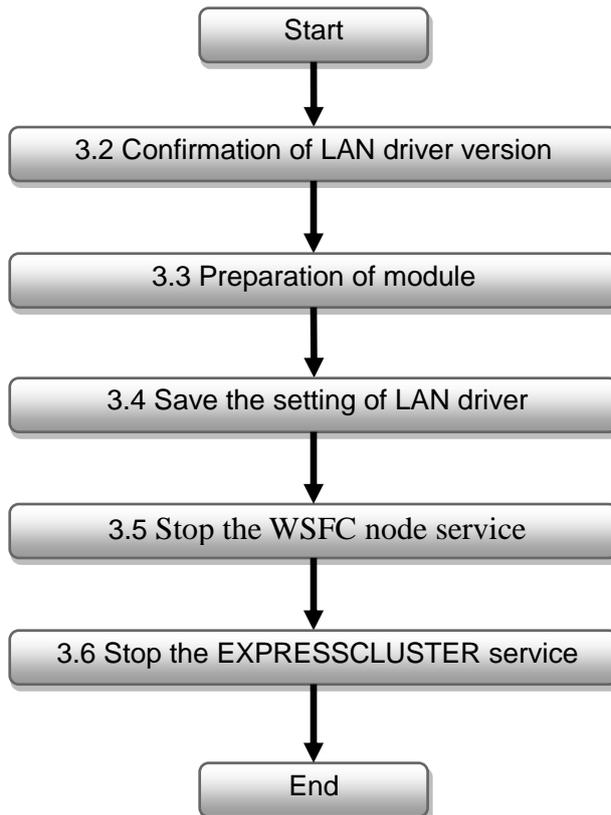


3. Preparation

Important

- Sign in the system from local console by administrator account for executing the operation below.
- If using Hyper-V and not using WSFC or EXPRESSCLUSTER, shutdown all the Guest OS and release the setting of auto boot up before the LAN driver update.

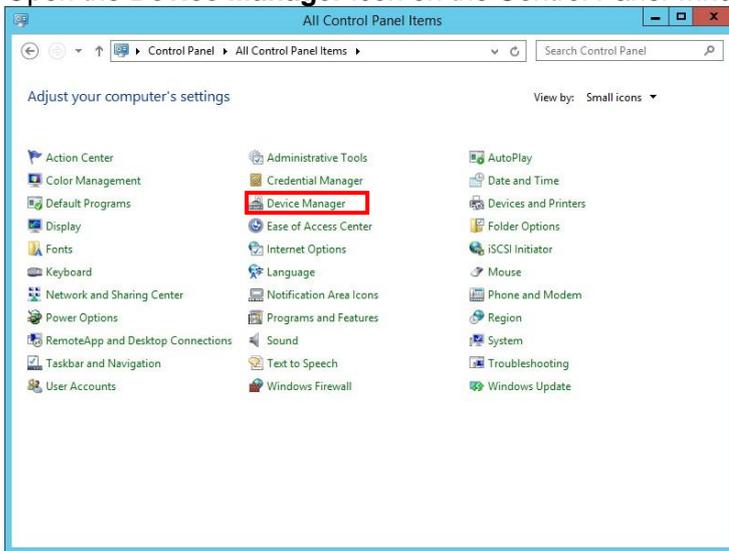
3.1. Workflow preparation process



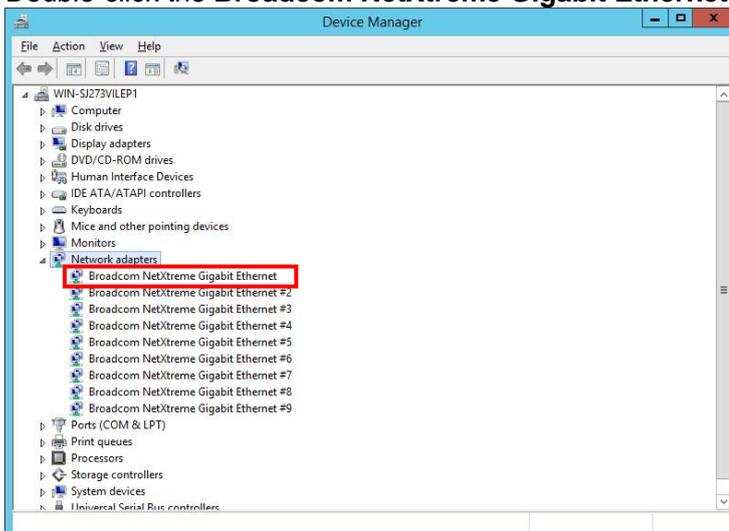
3.2. Confirmation of LAN driver version

Check the driver version by the procedure below. When the version is equal or newer than the following version, installation is not necessary.

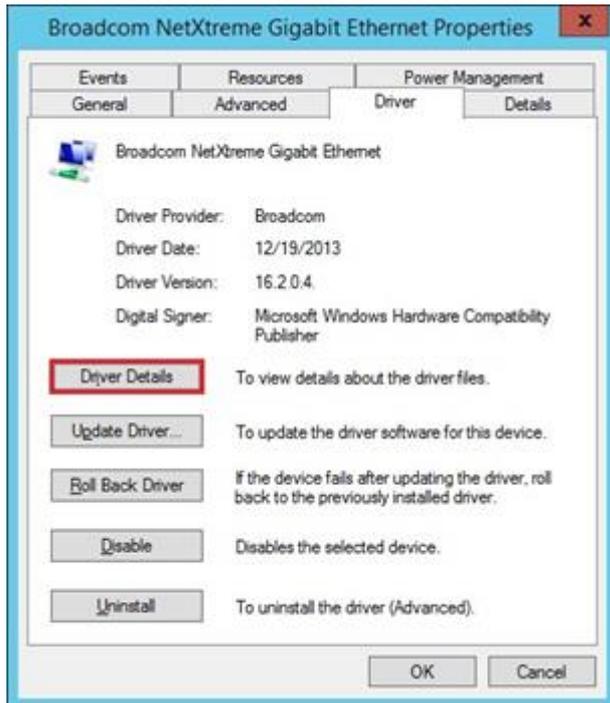
1. Open the **Device Manager** icon on the Control Panel window.



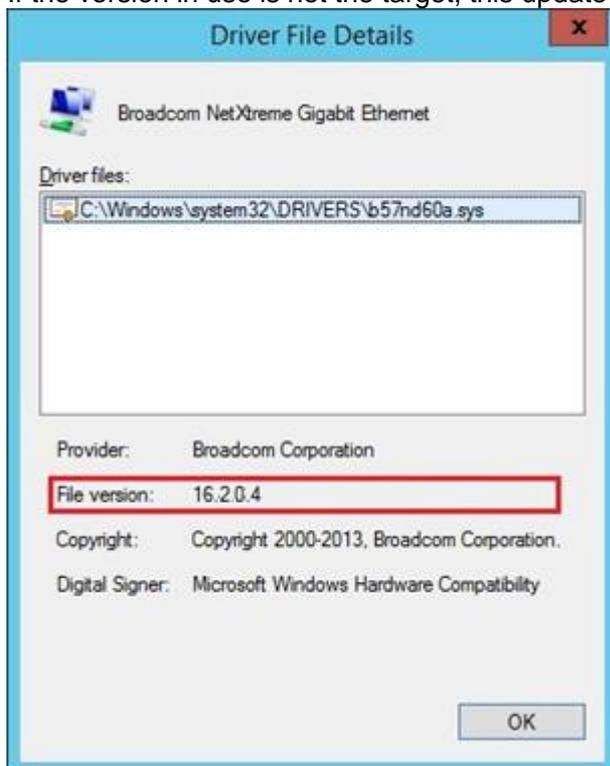
2. Double-click the **Broadcom NetXtreme Gigabit Ethernet** icon on the Device Manager.



3. Click the **Driver Details** on the **Driver** tab.



4. Confirm the version in **Driver** tab, and also the **File version** of the corresponding driver(b57nd60a.sys) in **Driver File Details**.
If the version in use is not the target, this update is not necessary.



Target OS	Target driver version before update (b57nd60a.sys)	Driver version after update (b57nd60a.sys)
Windows Server 2012	15.6.0.10	17.2.0.2
Windows Server 2012 R2	16.2.0.4	17.2.0.2

3.3. Preparation of module

3.3.1. Prepare the update module

1. Refer to the URL below and download the **GVO-010516-G01_XXXXXXXXXXXXXXXXXXXX.zip** (x is an expression of arbitrary numbers).
<http://www.58support.nec.co.jp/global/download/index.html>
-> Click model name(product name).
-> Click "NEC Express5800/A2000 series,A1040b LAN Driver Module(V17.2)(Windows Server 2012 R2/Windows Server 2012)" in "Other update".
2. Create a **temp** folder directly under the system drive.
(e.g., **C:\temp**)
3. Unzip **GVO-010516-G01_XXXXXXXXXXXXXXXXXXXX.zip**, copy the **BCOM172** folder in the **temp** folder.
(e.g., **C:\temp\BCOM172**)

3.3.2. Prepare the recovery module

For recovering to the original module, please use the DVD of EXPRESSBUILDER, support kit or the released module in Website.

Regarding the source for obtaining the recovery module, please refer to [8.2 List of stored path of recovery driver] to prepare it in advance.

Besides, if the recovery module is downloaded from Website, please extract it to an arbitrary folder.

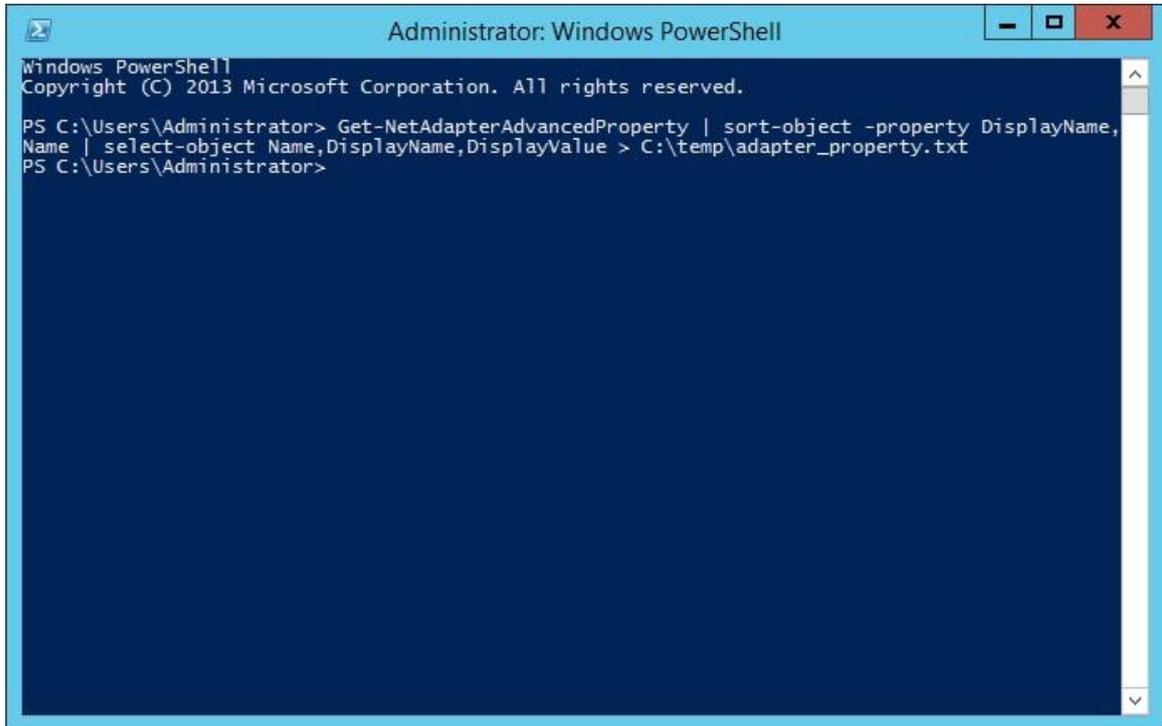
* If you want to use the DVD of EXPRESSBUILDER, DVD device is necessary for reading the DVD.

3.4. Save the setting of LAN driver

For updating or recovering the LAN driver, the setting of LAN driver returns to default. Please obtain the setting by the following procedures before updating or recovering the LAN driver.

1. Open Windows PowerShell as administrator and run the following command to output the setting of LAN driver to a text file.

```
Get-NetAdapterAdvancedProperty | sort-object -property DisplayName,Name |  
select-object Name,DisplayName,DisplayValue > C:\temp\adapter_property.txt
```



- Open the saved **adapter_property.txt** file in 1. and compare it with the default values of current driver version in [8.1 List of LAN driver setting default value]. For each network adapter, if any parameter or value is not default, note them down.

```
[adapter_property.txt]
```

Name	DisplayName	DisplayValue
LAN1	802.3az EEE (Copper Only)	Disable
LAN2	802.3az EEE (Copper Only)	Disable
LAN3	802.3az EEE (Copper Only)	Disable
LAN4	802.3az EEE (Copper Only)	Disable
LAN1	ARP Offload	Enabled
LAN2	ARP Offload	Enabled
LAN3	ARP Offload	Enabled
LAN4	ARP Offload	Enabled
LAN1	EEE Control Policies (Copper Only)	Optimal Power and Performance
LAN2	EEE Control Policies (Copper Only)	Optimal Power and Performance
LAN3	EEE Control Policies (Copper Only)	Optimal Power and Performance
LAN4	EEE Control Policies (Copper Only)	Optimal Power and Performance
LAN1	Ethernet@WireSpeed (Copper Only)	Enable
LAN2	Ethernet@WireSpeed (Copper Only)	Enable
LAN3	Ethernet@WireSpeed (Copper Only)	Enable
LAN4	Ethernet@WireSpeed (Copper Only)	Enable
LAN1	Flow Control	Disabled
LAN2	Flow Control	Auto Negotiation
LAN3	Flow Control	Auto Negotiation
LAN4	Flow Control	Auto Negotiation

If the value of "DisplayValue" is changed from default, note down the Name, DisplayName and DisplayValue.

- Run the following command to output the network adapter information to a text file.

```
Get-NetAdapter > C:\temp\adapter_info.txt
```

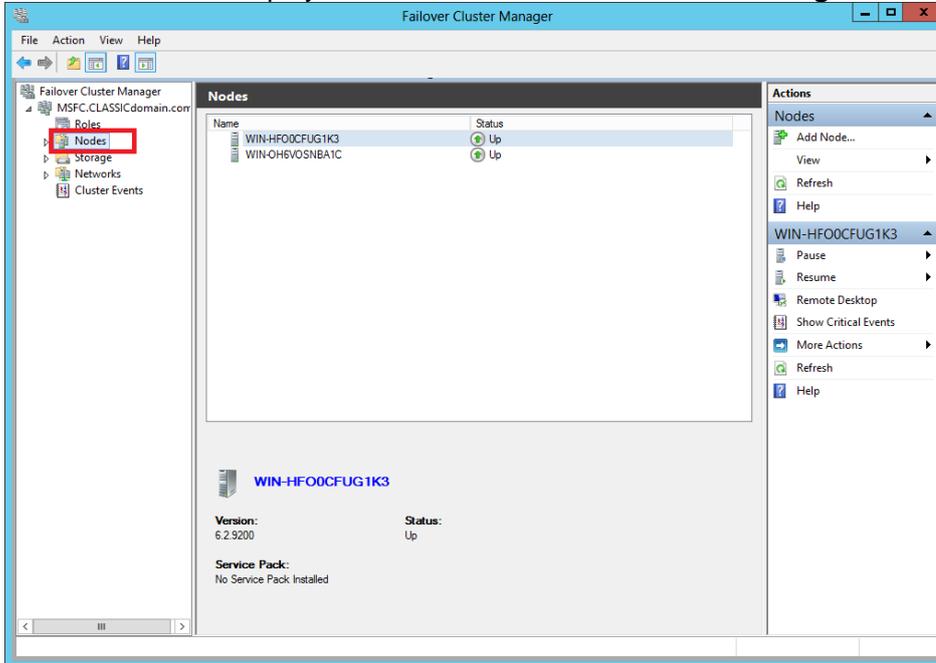
- Open the saved **adapter_info.txt** file in 3. and note down the network adapter name which **Status** is **Not Present**. **Not Present** means that it is disabled now. Since it will become enabled after updating or recovering the LAN driver, please refer to [5.2 Reset LAN driver] for disabling the corresponding network adapter.

```
[adapter_info.txt]
```

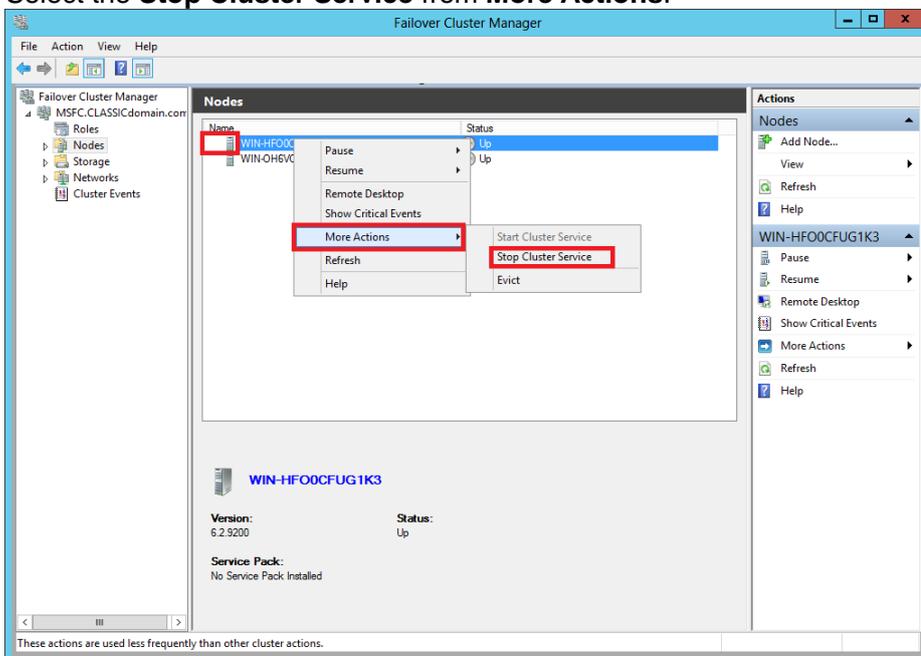
Name	InterfaceDescription	ifIndex	Status	MacAddress	LinkSpeed
LOM3	Broadcom NetXtreme Gigabit Ethernet #5	18	Up	44-8A-5B-6C-C2-FF	1 Gbps
LOM2	Broadcom NetXtreme Gigabit Ethernet #4	17	Up	44-8A-5B-6C-C2-FE	1 Gbps
LOM1	Broadcom NetXtreme Gigabit Ethernet #7	20	Up	44-8A-5B-6C-C2-FD	1 Gbps
NIC3_4	Broadcom NetXtreme Gigabit Ethernet #11	30	Up	58-C2-32-82-8B-F3	1 Gbps
NIC3_3	Broadcom NetXtreme Gigabit Ethernet #12	31	Up	58-C2-32-82-8B-F2	1 Gbps
NIC3_2	Broadcom NetXtreme Gigabit Ethernet #10	29	Not Present	58-C2-32-82-8B-F1	0 bps
NIC3_1	Broadcom NetXtreme Gigabit Ethernet #15	34	Not Present	58-C2-32-82-8B-F0	0 bps

3.5. Stop the WSFC node service

1. Open the **Failover Cluster Manager** from Server Manager.
2. Move the all resource of target node to another node.
3. Select the **Nodes** displayed on the left of **Failover Cluster Manager**.



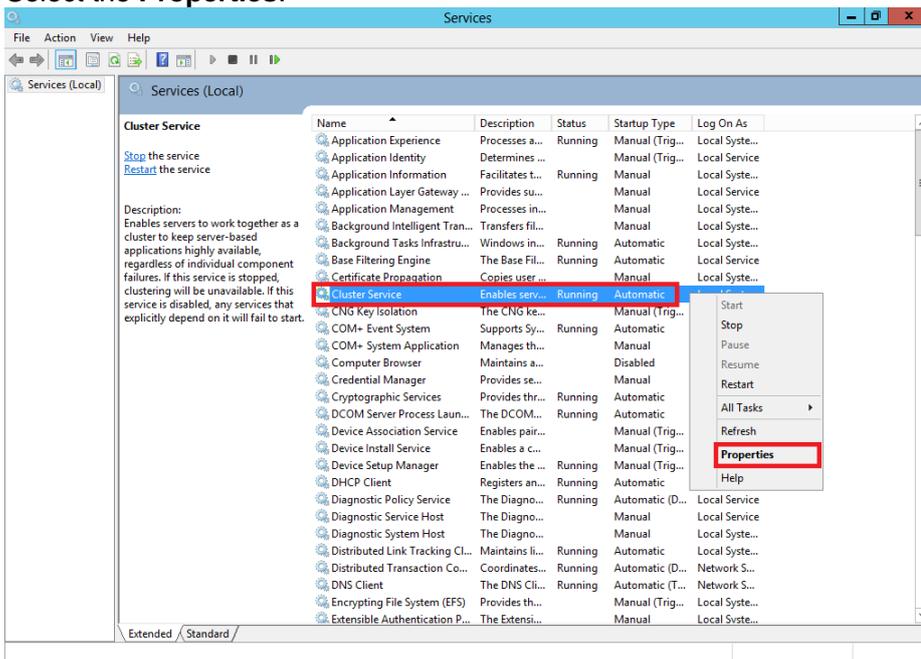
4. Right-click the target **node** for driver update from the node list.
5. Select the **Stop Cluster Service** from **More Actions**.



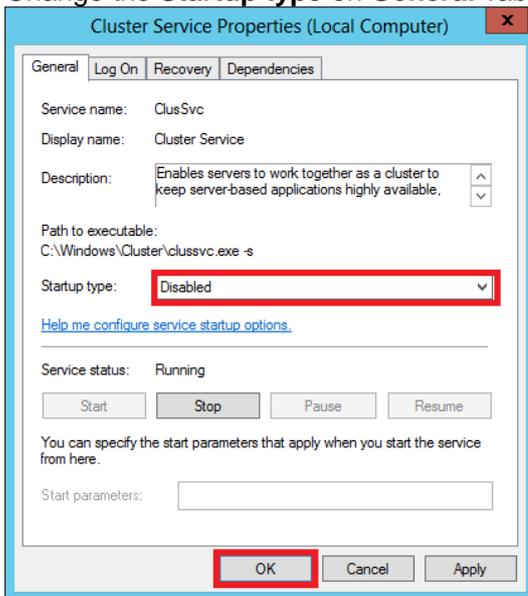
6. Open the **Services** from **Server Manager**.

7. Right-click the **Cluster Service**.

8. Select the **Properties**.



9. Change the **Startup type** on **General** Tab to **Disabled**. Select the **OK**.



3.6. Stop the EXPRESSCLUSTER service

Refer the following website for more information.

<http://www.nec.com/en/global/prod/expresscluster/en/support/manuals.html>

-> Reference Guide

-> Chapter 10 The system maintenance information

-> Replacing the network card

* Perform the procedures prior to the replace of network card.

Shut down the system and then start up it again. After that, Go to [4 LAN driver update].

4. LAN driver update

Refer the notice before driver update.

Important

Sign in the system from local console by administrator account for executing the operation below.

4.1. LAN driver installation

1. Run a command prompt as administrator. Enter the following command at the command prompt.

```
cd C:\temp\BCOM172\LAN\
```

(For file info, refer the [3.3.1 Prepare the update module])

2. Enter the following, and then press **Enter** key.

- Windows Server 2012

```
INSTALL_WS2012.bat
```

- Windows Server 2012 R2

```
INSTALL_WS2012R2.bat
```

3. When the following message is displayed, restart the system.

```
Installation Completed!
```

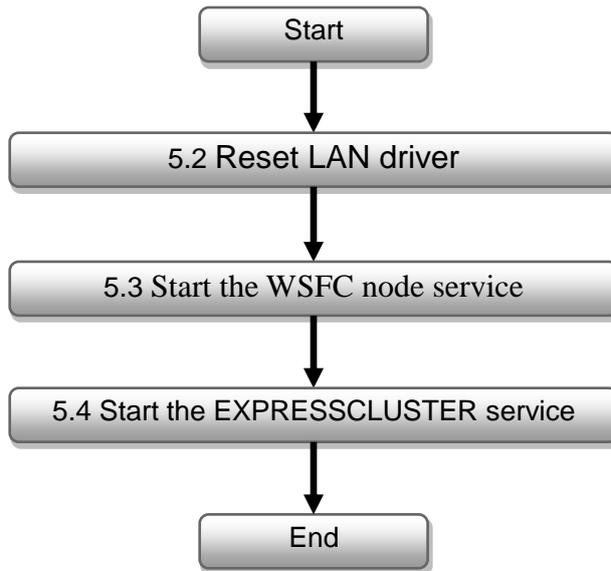
4. Check that the driver version is 17.2.0.2. By following [3.2 Confirmation of LAN driver version].

5. After LAN driver install

Important

- Sign in the system from local console by administrator account for executing the operation below.
- If using Hyper-V and not using WSFC or EXPRESSCLUSTER, shut down all the Guest OS if necessary and reset the system to auto boot up after this chapter.

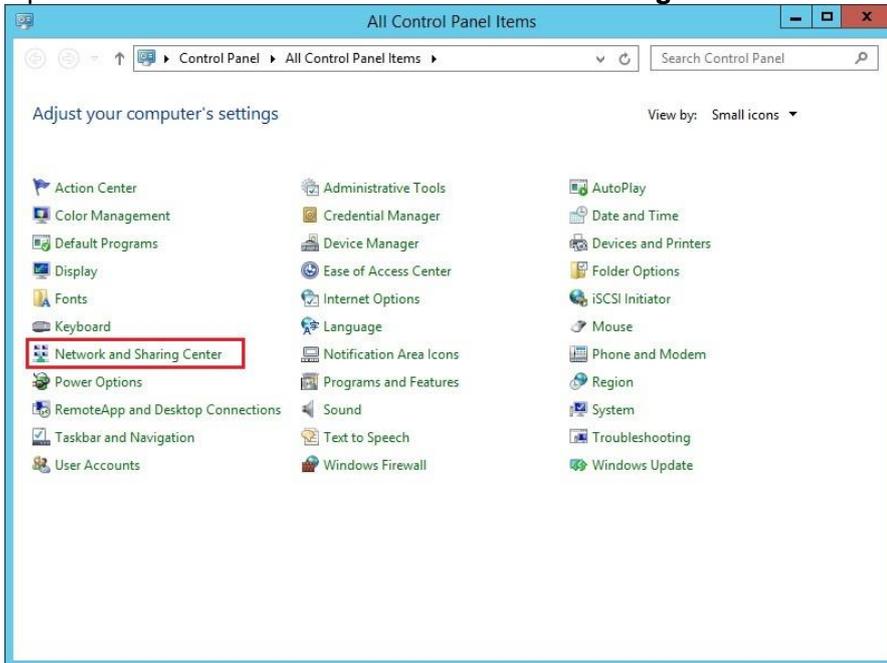
5.1. Workflow after LAN driver install



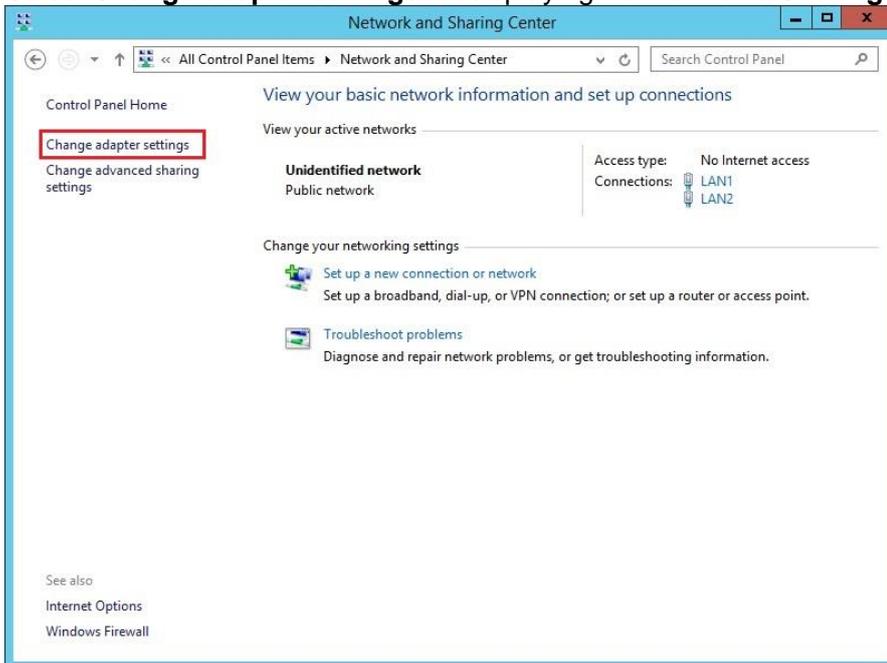
5.2. Reset LAN driver

Refer the following steps for resetting the parameter of LAN driver.

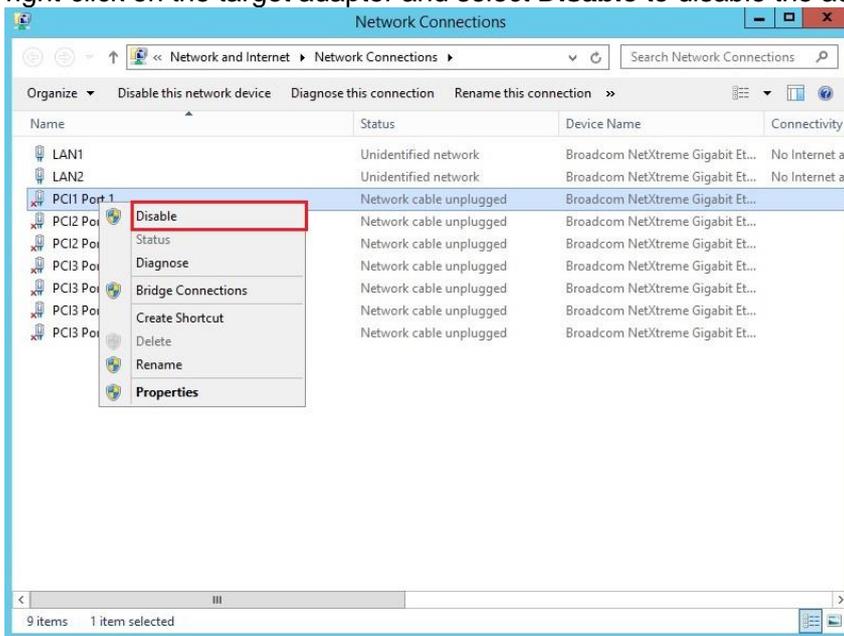
1. Open **Control Panel** and click **Network and Sharing Center**.



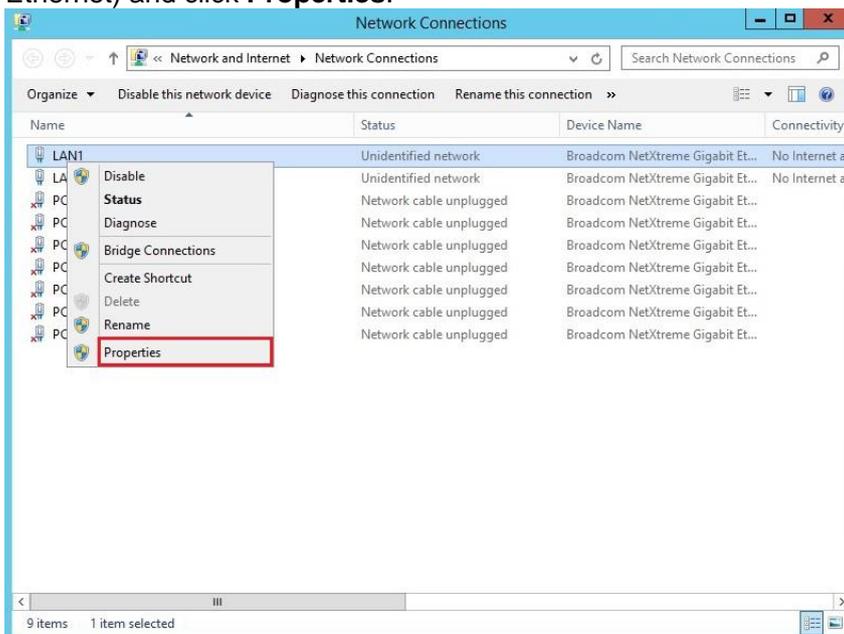
2. Select **Change adapter settings** for displaying **Network and Sharing Center** screen.



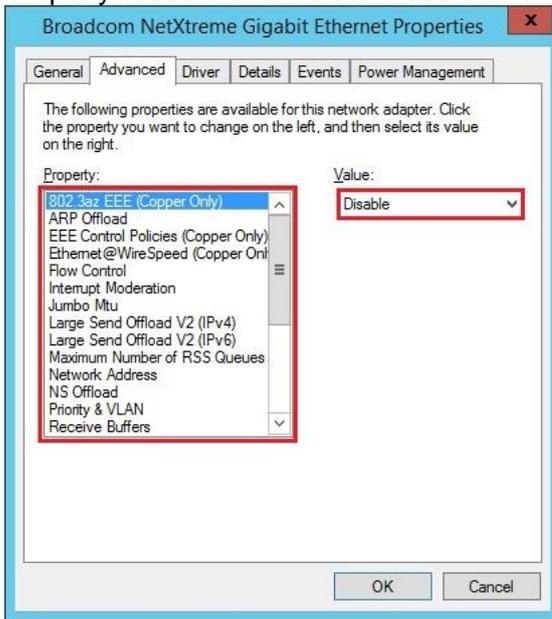
3. According to the noted network adapter name in 4. of [3.4 Save the setting of LAN driver], right-click on the target adapter and select **Disable** to disable the adapter.



4. Right-click on each physical network adapter (Device name: Broadcom NetXtreme Gigabit Ethernet) and click **Properties**.



5. Click on **Configure** and then select **Advanced** tab. Change the values of corresponding Property based on the noted values in 2. of [3.4 Save the setting of LAN driver].



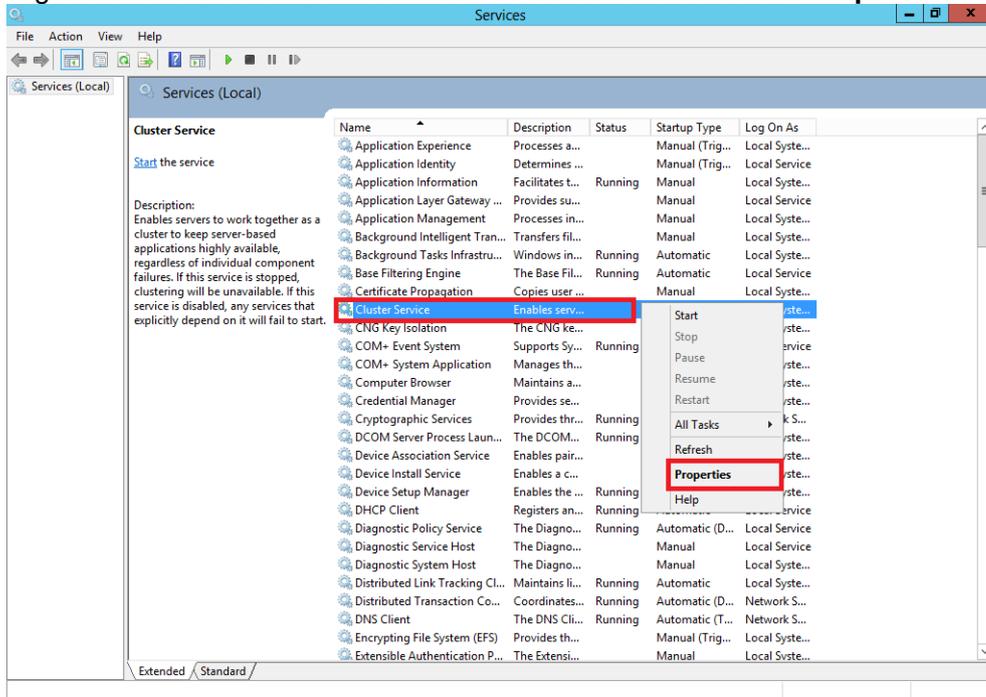
* Please refer to **Handoff of setting value** in [8.1 List of LAN driver setting default value] for confirming which property is needed to reset.

6. Restart the system.

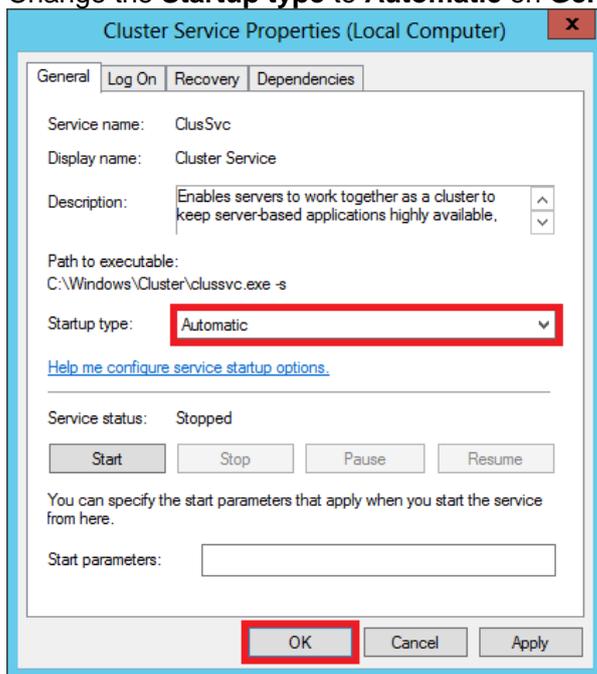
5.3. Start the WSFC node service

Refer the following steps for starting the service of node which has been stopped in [3.5 Stop the WSFC node service].

1. Open the **Services** from Server Manager in the node which LAN driver updated.
2. Right-click the **Cluster Service** in service screen and select the **Properties**.

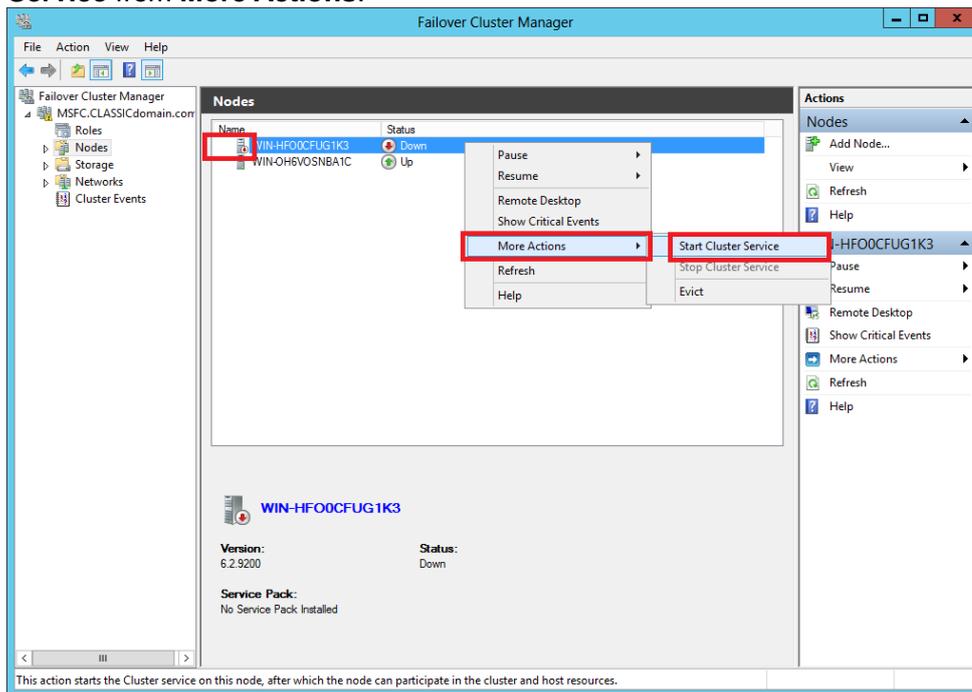


3. Change the **Startup type** to **Automatic** on **General** Tab then select **OK**.



4. Right-click the **Cluster Service** at service screen and select the **Start**.
5. Open the **Failover Cluster Manager** from **Server Manager**.
6. Select the **node** from the left side of **Failover Cluster Manager**.

7. Right-click the target **node** for driver update from the node list. Select the **Start Cluster Service** from **More Actions**.



5.4. Start the EXPRESSCLUSTER service

Refer to the following URL.

<http://www.nec.com/en/global/prod/expresscluster/en/support/manuals.html>

- > Reference Guide
- > Chapter 10 The system maintenance information
- > Replacing the network card
 - * Perform the procedures beyond replacing network card procedure.
 - In addition, no need to reset the network configuration.

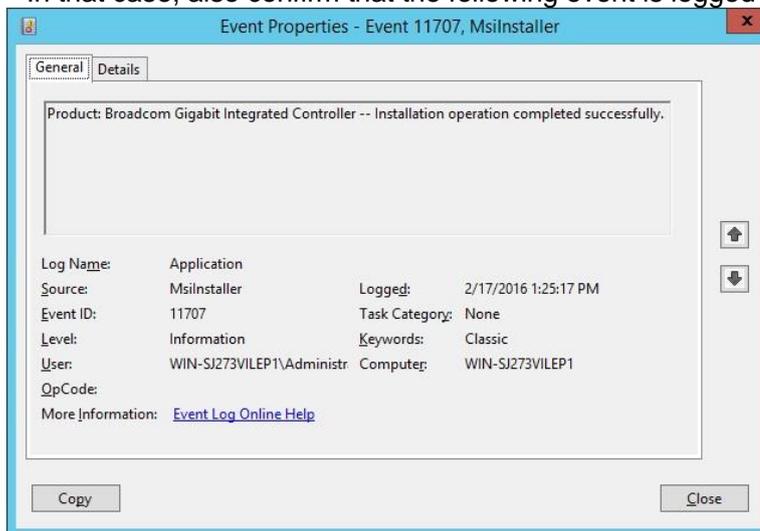
6. Rollback procedure of LAN driver

Important

- Sign in the system from local console by administrator account for executing the operation below.
- If necessary, execute [3.5 Stop the WSFC node service] and [3.6 Stop the EXPRESSCLUSTER service] in advance.
- If you use Hyper-V and not use WSFC or EXPRESSCLUSTER, shut down all the Guest OS and release the setting of auto boot up before the rollback of LAN driver.
- After rollback, execute [5 After LAN driver install] and reset the network setting.

6.1. Old LAN driver installation

1. If the attached DVD of EXPRESSBUILDER is used for recovery, insert the DVD in the optical device.
2. Open command prompt as administrator. Move the current path to the stored path of target driver by cd command by referring to **Stored path** in [8.2 List of stored path of recovery driver].
 - * The command example is written below when target device is A2040b and target OS is Windows Server 2012.
3. Run the following command and press <Enter> key to start the installation.
4. Open Event Viewer and confirm that the following event is logged in the application log. Close the Event Viewer and command prompt and then restart the system.
 - * If the following event is displayed, wait until it is logged.
 - * After the installation is completed, there may be some cases that the system is restarted automatically.
 - In that case, also confirm that the following event is logged after the system is restarted.



5. After the system is restarted, confirm that the version of the installed driver is the one before update by following [3.2 Confirmation of LAN driver version].
6. After the confirmation, please perform [5 After LAN driver install].

7. Notice

This section describes notice of LAN driver. Read the following notes or information before installation.

7.1. About the operation by remote desktop

For all the operation described in this document, it has to be performed from the local console. Remote desktop of OS or remote operation tool is not supported.

7.2. Account of operation

For all the operation described in this document, it has to be performed by logging on with an administrator account. In addition, open command prompt or Windows PowerShell as Administrator.

7.3. Notice of using Hyper-V

If you use Hyper-V and not use WSFC or EXPRESSCLUSTER, shut down all the Guest OS before the LAN driver installation.

7.4. Notice of update

The network is disconnected when updating the LAN driver. Please stop all the jobs of using network before the update.

8. Appendix

8.1. List of LAN driver setting default value

➤ List of default value (v15.6.0.10/16.2.0.4)

Property	Default value	Handoff of setting value	
		After update	After recovery
802.3az EEE (Copper Only)	Disable	-	Disable
ARP Offload	Enabled	-	-
EEE Control Policies (Copper Only)	Optimal Power and Performance	-	-
Ethernet@WireSpeed (Copper Only)	Enable	-	Enable
Flow Control	Rx & Tx Enabled	-	Rx & Tx Enabled
Interrupt Moderation	Enabled	-	-
Jumbo Mtu	1500	-	1500
Large Send Offload V2 (IPv4)	Enabled	-	Enabled
Large Send Offload V2 (IPv6)	Enabled	-	Enabled
Maximum Number of RSS Queues	RSS 1 Queue	-	RSS 1 Queue
Network Address	None	-	-
NS Offload	Enabled	-	-
Priority & VLAN	Priority & VLAN Enabled	-	-
Receive Buffers	Default	Default	Default
Receive Side Scaling	Enabled	-	-
Speed & Duplex (Copper Only)	Auto Negotiation	-	-
TCP/UDP Checksum Offload (IPv4)	Rx & Tx Enabled	-	-
TCP/UDP Checksum Offload (IPv6)	Rx & Tx Enabled	-	-
Transmit Buffers	500	500	500
Virtual Machine Queues	WS2012 : Disabled WS2012R2 : Enabled	Disabled	-
VLAN ID	0	-	-
VMQ VLAN Filtering	Disable	-	-
Wake On Magic Packet	Enabled	-	Enabled
Wake On Pattern Match	Enabled	-	Enabled
WOL Speed (Copper Only)	Lowest Speed Advertised	-	Lowest Speed Advertised

* In "Handoff of setting value", "-" means the value does not change after the update or recovery.

For the others, the values are set based on the above table after the update or recovery.

* For the properties with hatching, the corresponding values are set depending on your environment. For the other properties, it is recommended to set to the default value.

* Regarding "Ethernet@WireSpeed", there are some cases that the confirmed value in [3.4 Save the setting of LAN driver] is blank.

In that case, the value becomes "Enable".

* For the property with "Copper Only", there are some cases that the property is not existed depending on the adapter or driver version but there is no problem on it.

* Regarding "Network Address", if the confirmed value in [3.4 Save the setting of LAN driver] is blank, the value becomes "None".

8.2. List of stored path of recovery driver

Target device	Target OS	Driver version	Source for obtaining driver	Stored path
NEC Express5800/A2040b NEC Express5800/A2020b NEC Express5800/A2010b NEC Express5800/A1040b	Windows Server 2012	15.6.0.10	EXPRESSBUILDER of server	\\002\win\winnt\ws2012\b57nd60a\bcom\ws2012\lan\bcom\drvinst\156a0401\x64
	Windows Server 2012 R2	16.2.0.4	http://www.58support.nec.co.jp/global/download/w2012r2/Global-A2040b_A2020b_A2010b_A1040b.html	\\winnt\ws2012r2\lan\bcom\drvinst\16020401\x64