LAN Driver
Installation Guide
(Broadcom v17.2)

Jan 2016

808-882328-313-A

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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 “NEC Express5800/R110h-1, T110h, T110h-S LAN Driver Module(V17.2)” in “Other update”.

1.2. Target software

Abbreviated designation	Software Production Name
Windows Server 2008 R2	Microsoft® Windows Server® 2008 R2 Standard Microsoft® Windows Server® 2008 R2 Enterprise
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 2016/01
Refer the Server Configuration Guide for the latest information.
The latest drivers, 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 version is v17.2.0.0. If your version is v17.2.0.2 and above, no driver update is required. Refer to [3.2 Confirmation of LAN driver version] for the method of checking driver version.

Target driver version (b57nd60a.sys)	After update version (b57nd60a.sys)
17.2.0.0	17.2.0.2

1.4. Registration Trademark

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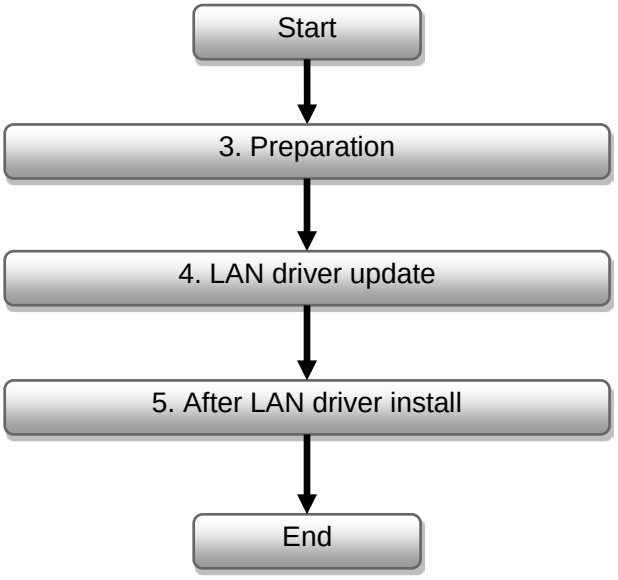
2. Workflow LAN driver update process

Important

This document is based on using the Windows Server Failover Clustering (Afterward WSFC) and EXPRESSCLUSTER. If WSFC is not used, skip step [3.4 Stop the WSFC node service] and [5.4 Start the WSFC node]. If EXPRESSCLUSTER is not used, skip step [3.5 Stop the EXPRESSCLUSTER service] and [5.5 Start the EXPRESSCLUSTER].

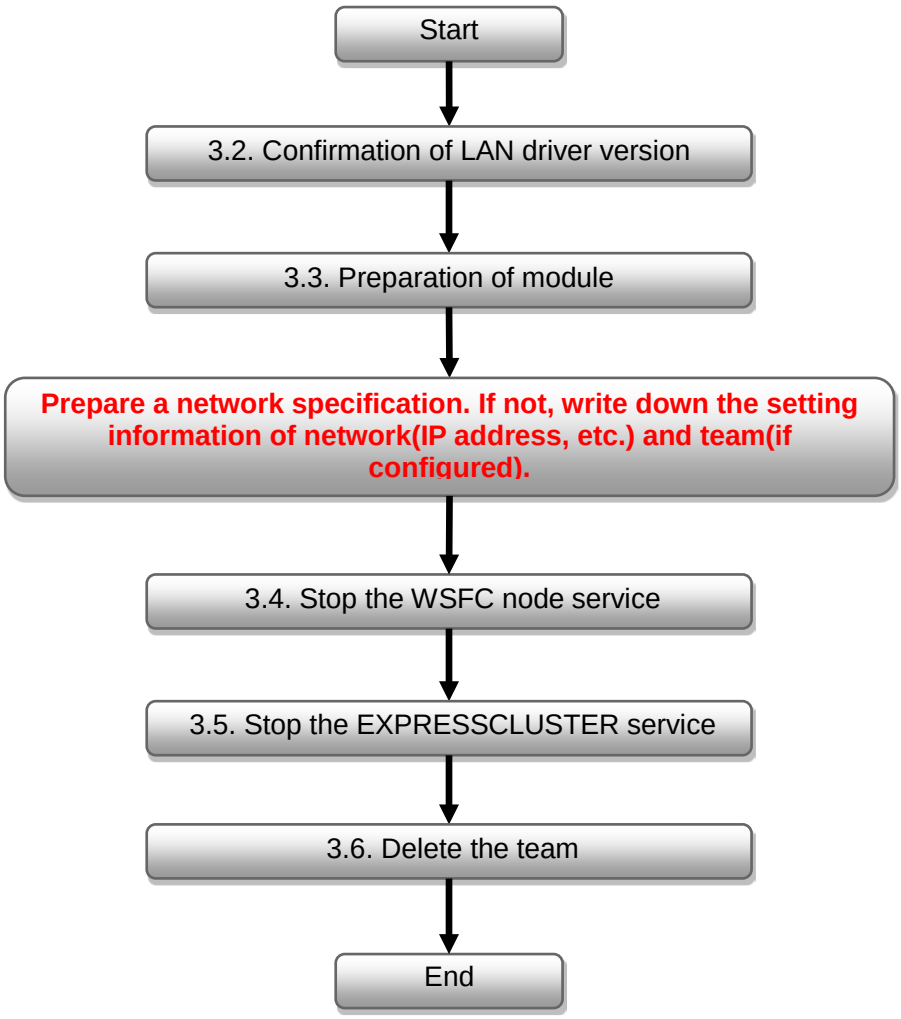


3. Preparation

Important

- **Logon or 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.**
- **If Physical network adapter or teaming adapter is bound into Hyper-V virtual switch, remove the binding before [3.6 Delete the team].**

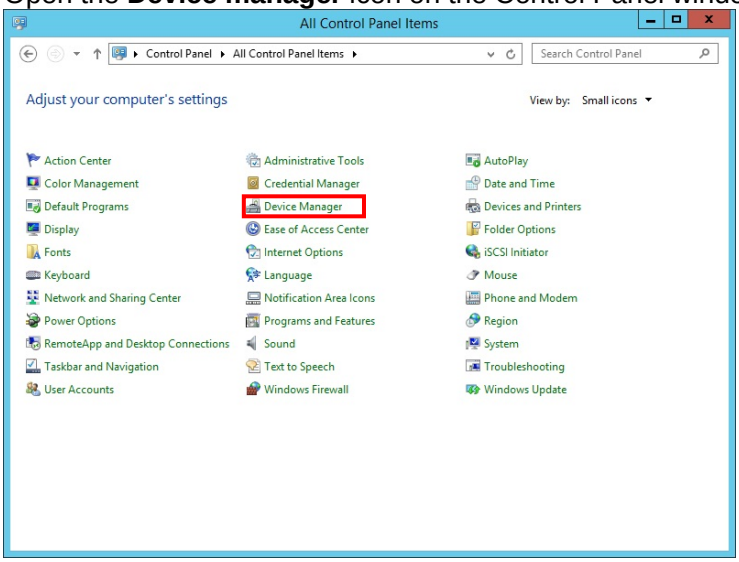
3.1. Workflow preparation process



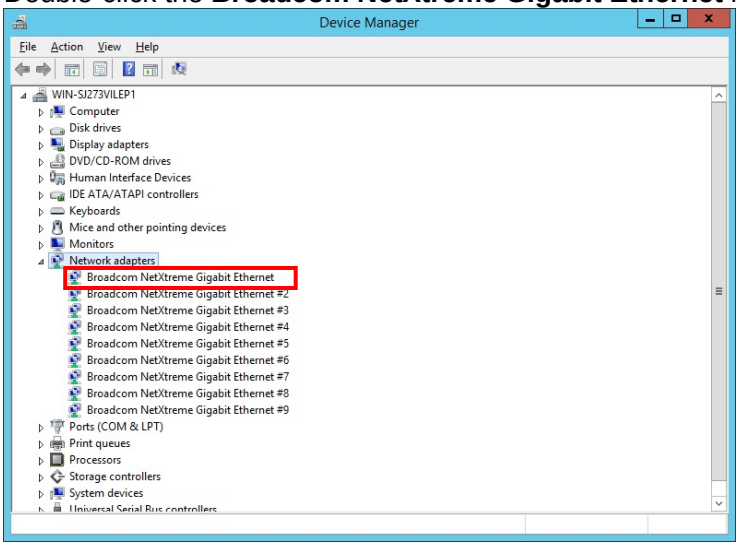
3.2. Confirmation of LAN driver version

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

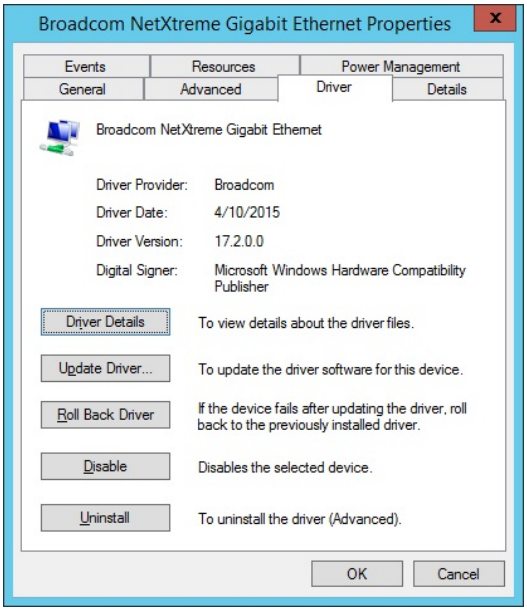
1. Open the **Device manager** icon on the Control Panel window.



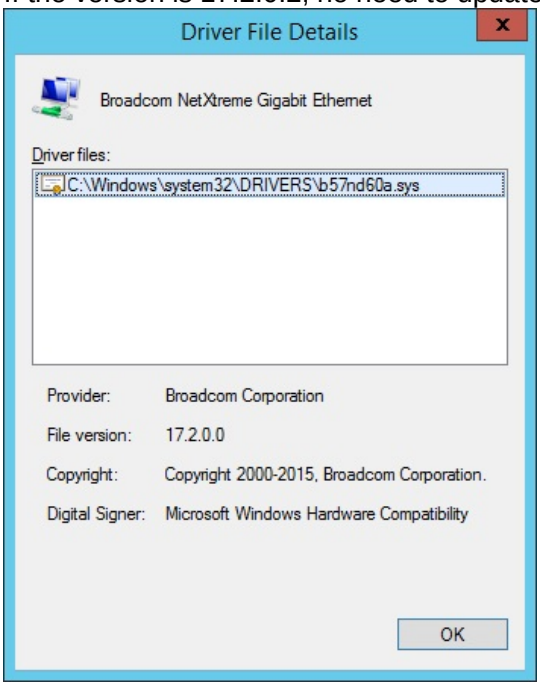
2. Double-click the **Broadcom NetXtreme Gigabit Ethernet** icon on the Device manager.



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



4. Confirm the **File version**.
If the version is 17.2.0.2, no need to update the driver. Otherwise, update it.



Target driver version (b57nd60a.sys)	After update version (b57nd60a.sys)
17.2.0.0	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-006741-G01_xxxxxx.zip** (xxxxxx is an expression of arbitrary numbers).
   http://www.58support.nec.co.jp/global/download/index.html
   -> Click model name(product name).
   -> Click “NEC Express5800/R110h-1, T110h, T110h-S LAN Driver Module(V17.2)” in “Other update”.

2. Create a **temp** folder directly under the system drive.
   (e.g., **C:\temp**)

3. Unzip **GVO-006741-G01_xxxxxx.zip**, copy the **BCOM172** folder in the **temp** folder.
   (e.g., **C:\temp\BCOM172**)

3.3.2. Prepare the recovery module

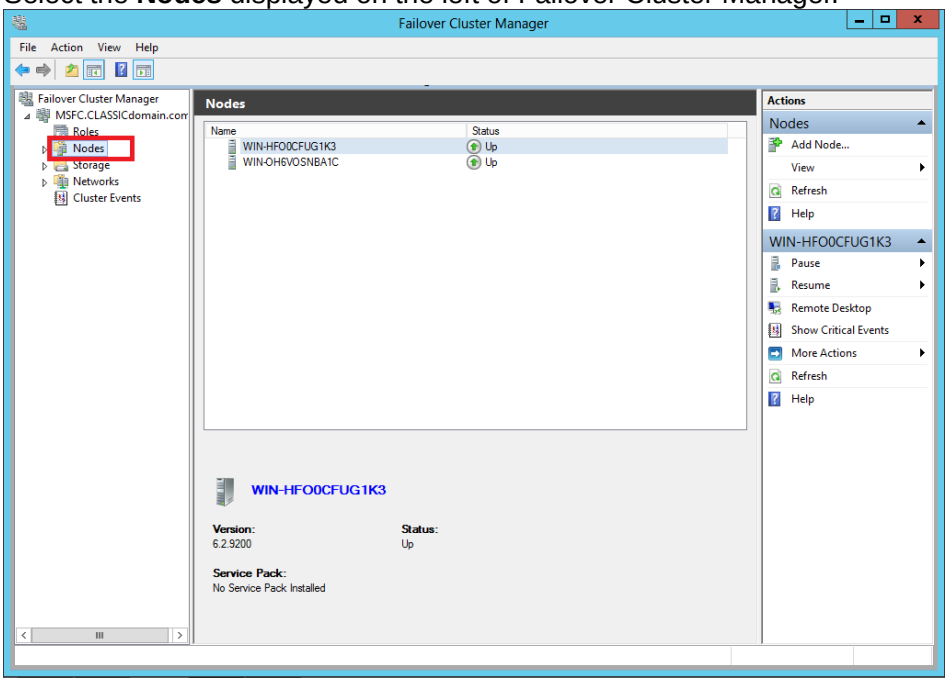
Use the setup DVD of EXPRESSBUILDER for recovery. Please prepare it in advance.

3.4. Stop the WSFC node service

1. Open the **Failover Cluster Manager** from Server Manager.

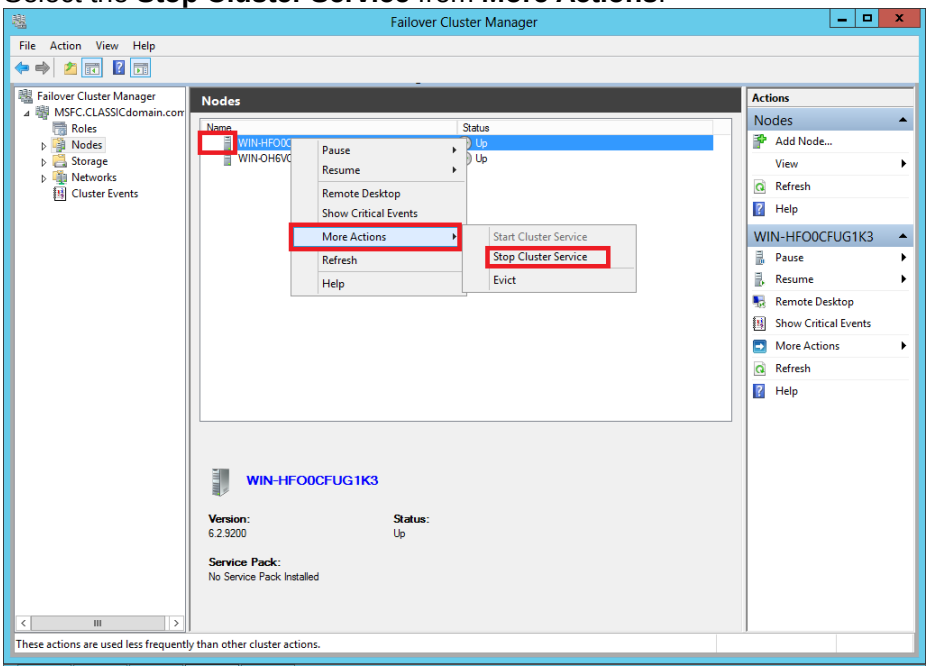
2. Move the all resource of target node to another node.

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.

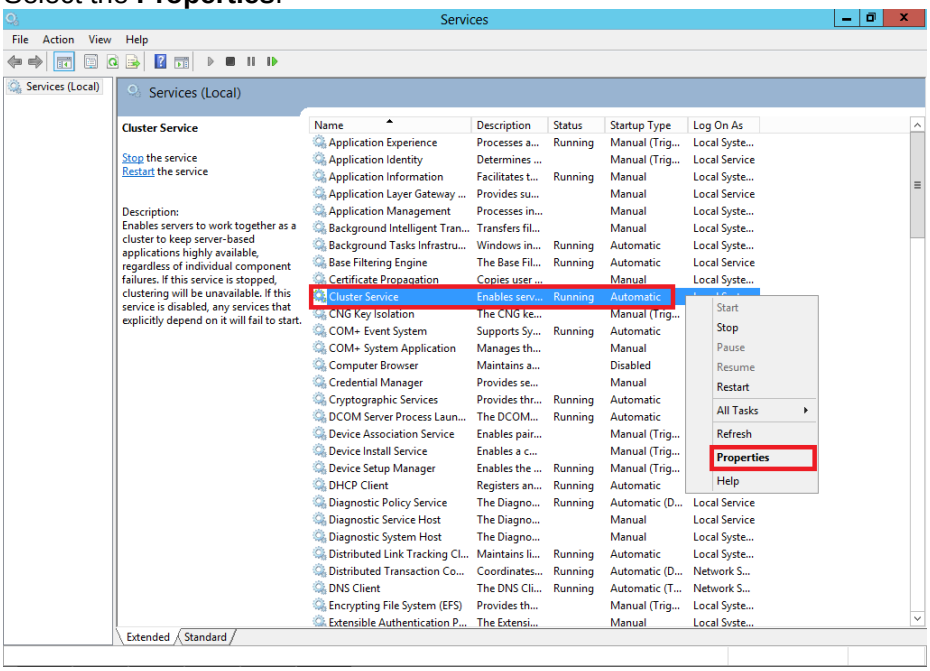
5. Select the **Stop Cluster Service** from **More Actions**.



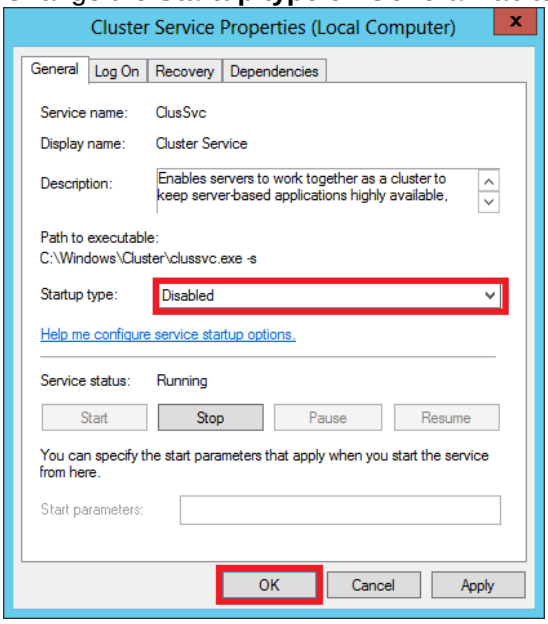
6. Open the **Services** from Server Manager.

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

8. Select the **Properties**.



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



3.5. 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 [3.6 Delete the team].

3.6. Delete the team

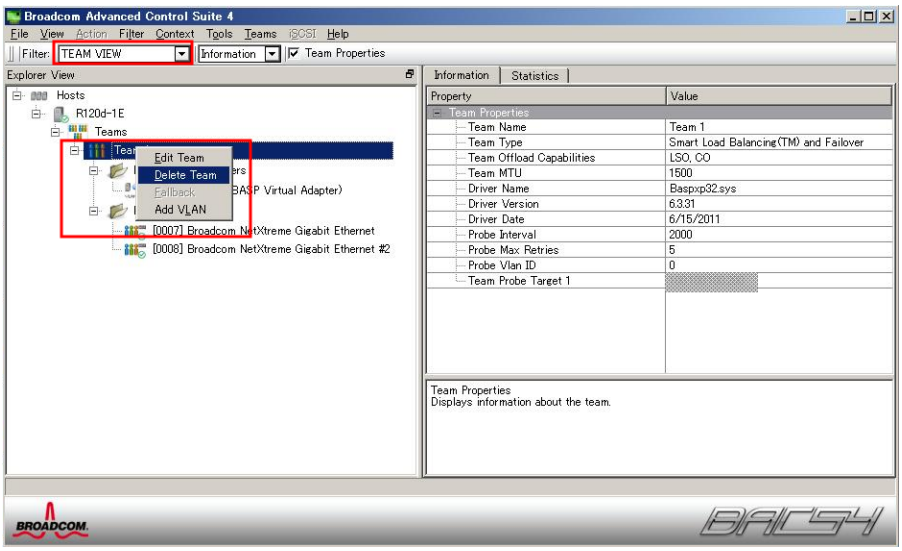
If using Windows Server 2008 R2, refer to [3.6.1 Windows Server 2008 R2]. If using Windows Server 2012/2012 R2, refer to [3.6.2 Windows Server 2012 / 2012 R2].

Important	**Please delete the team from [Broadcom Advanced Control Suite] or [NIC teaming] screen. It cannot be deleted from Device Manager.**

3.6.1. Windows Server 2008 R2

1. Open the **Broadcom Control Suite** icon on the Control Panel window.
Broadcom Advanced Control Suite starts.

2. Set the **Filter** to **TEAM VIEW**, right-click the target team adapter, and then select **Delete Team** from the short-cut menu.



Note

When the below message is displayed, select [Yes].
"The selected team will be deleted from system, do you want to proceed?
NOTE: Applying the changes will temporarily interrupt the network connection. The process may take several minutes and the connection will resume afterwards."

3. Double-click the following file (this example is using the C drive)

C:\temp\BCOM172\LAN\lan\AddLVlanStats.vbs

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

4. When the following message is displayed, click the **OK**

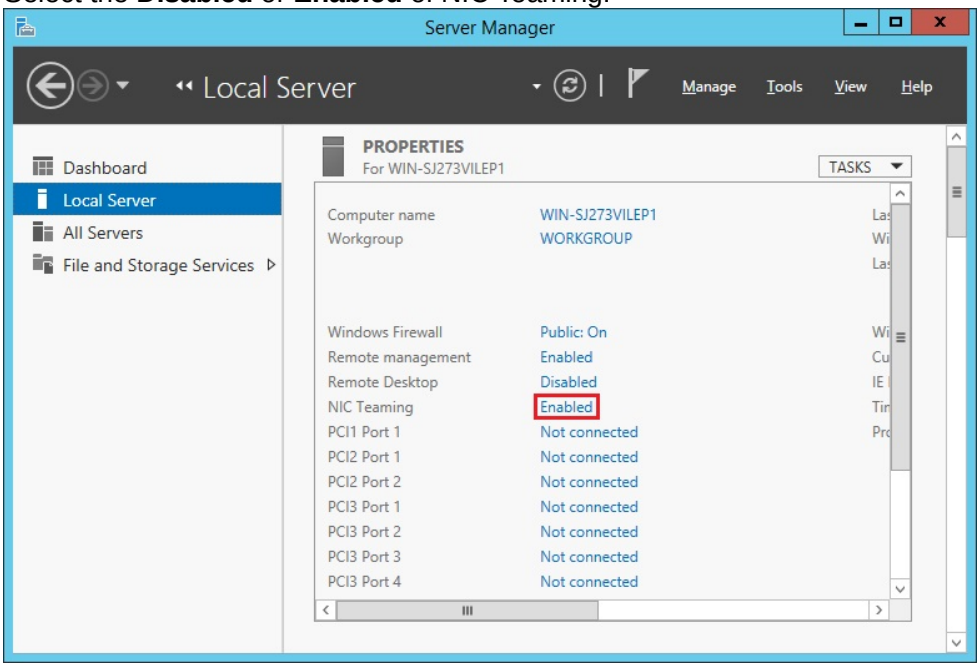
Registry Addition Completed, Reboot the system

5. Restart the system
Team removal is now completed.

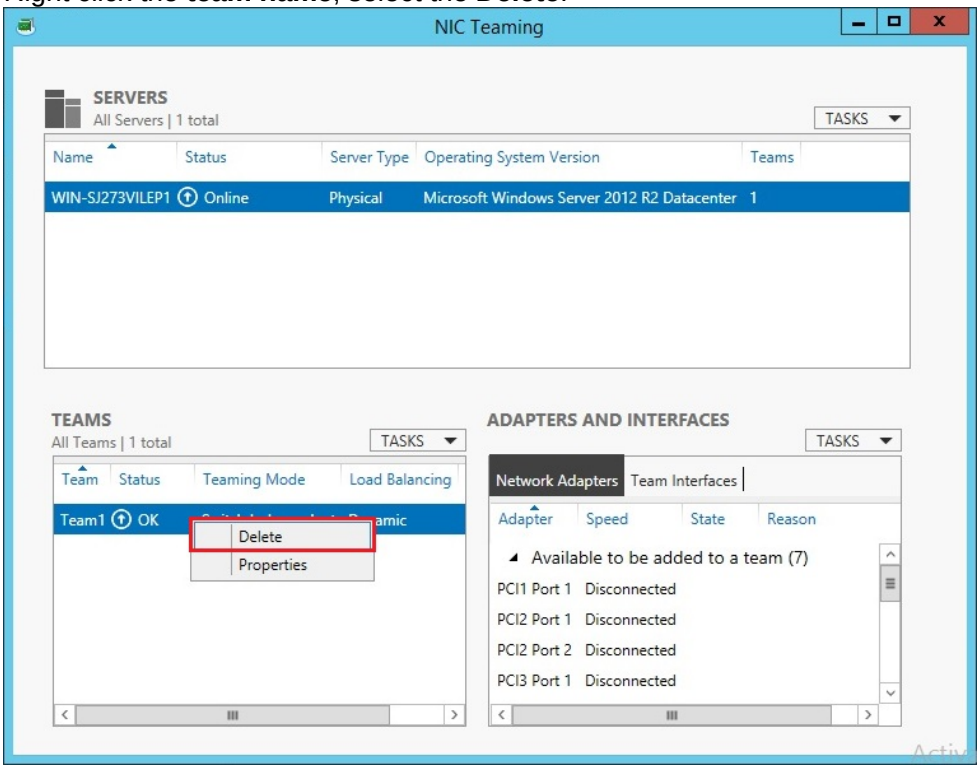
3.6.2. Windows Server 2012 / 2012 R2

1. Execute the **Sever Manager** and select the **Local Server**.

2. Select the **Disabled** or **Enabled** of NIC Teaming.



3. Right click the **team name**, select the **Delete**.



4. Restart the system.

4. LAN driver update

Refer the notice before driver update.

Important	**Logon or sign in the system from local console by administrator account for executing the operation below.**

4.1. Existing teaming driver uninstallation

Important	**If team is existed, remove it first.**
Note	In case that OS is Windows Server 2012 or 2012 R2, BACS is not installed. Please go on [4.2 Existing LAN driver uninstallation].

1. Open the **Program and Function** icon on the Control Panel window.
2. Click the **Broadcom Management Programs** in the list, right click it and select **Uninstall**. Continue the installation according to the popup message.
3. A popup message of restarting the system is displayed. Click **OK**.
4. Go to [4.2 Existing LAN driver uninstallation] without restarting the system.

4.2. Existing LAN driver uninstallation

1. Open the **Program and Function** icon on the Control Panel window.
2. Click the **Broadcom Gigabit Integrated Controller** in the list, right click it and select **Uninstall**.
   Continue the uninstallation according to the popup message.
3. Restart the system.

4.3. New 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 2008 R2

     ```
     INSTALL_WS2008R2.bat
     ```

   - Windows Server 2012

     ```
     INSTALL_WS2012.bat
     ```

   - Windows Server 2012

     ```
     INSTALL_WS2012R2.bat
     ```

3. When the following message is displayed, restart the system.
   Installation Completed!

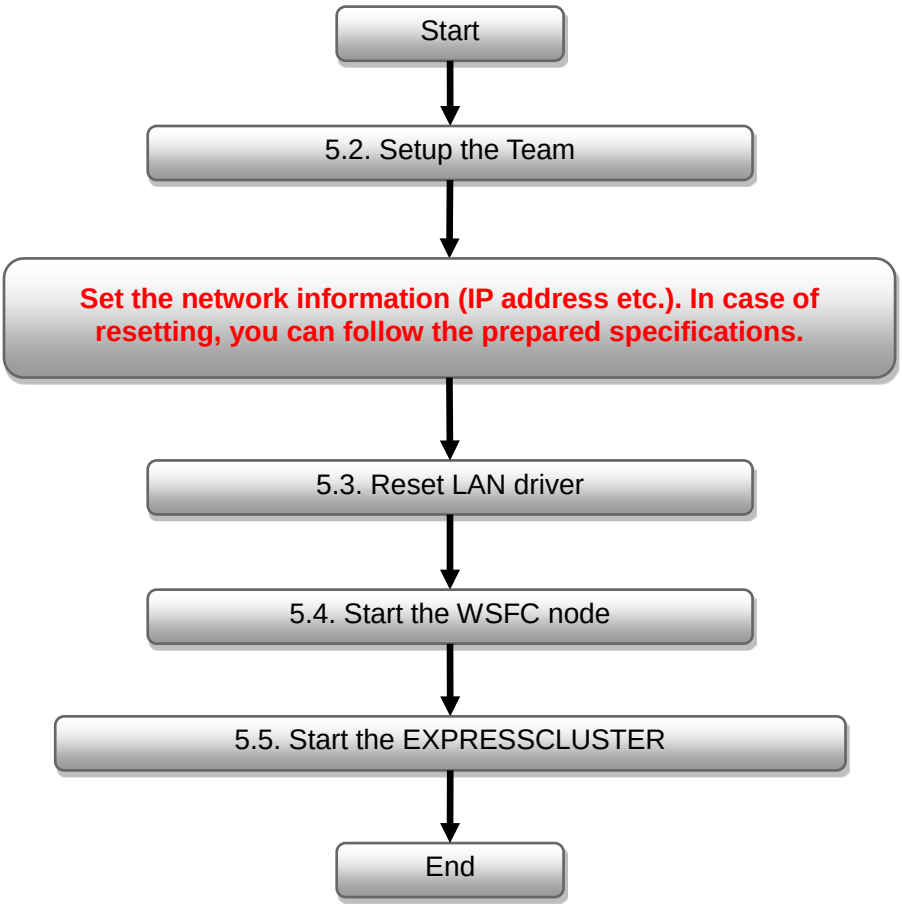
4. Check that the driver version is 17.2.0.2. by following [3.2 Confirmation of LAN driver version].

5. After LAN driver install

Important

- **Logon or sign in the system from local console by administrator account for executing the operation below.**
- **If physical network adapter or teaming adapter is bound into Hyper-V Virtual Switch, rebind it after [5.2 Setup the Team].**
- **If using Hyper-V and not using WSFC or EXPRESSCLUSTER, shutdown all the Guest OS if necessary and reset the system to auto boot up after this chapter.**

5.1. Workflow after LAN driver install



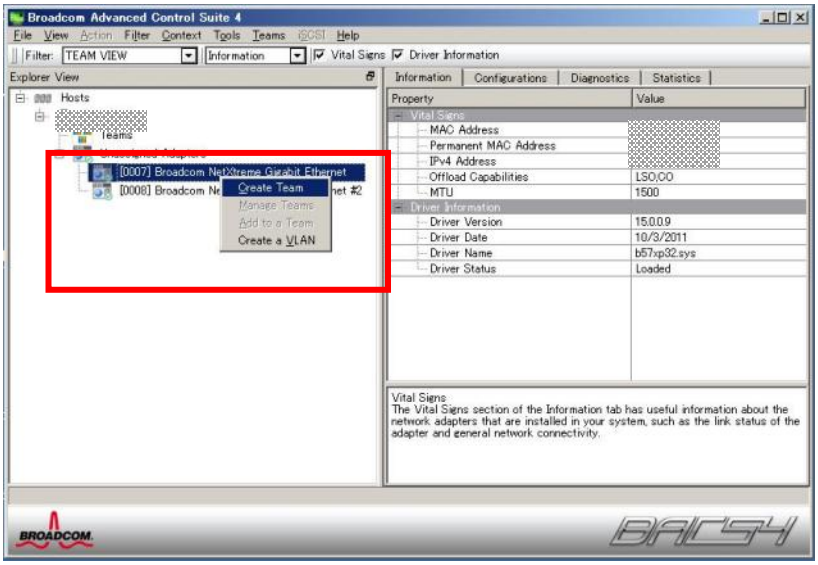
5.2. Setup the Team

If using Windows Server 2008 R2, refer to [5.2.1 Windows Server 2008 R2]. If using Windows Server 2012/2012 R2, refer to [5.2.2 Windows Server 2012 / 2012 R2].

5.2.1. Windows Server 2008 R2

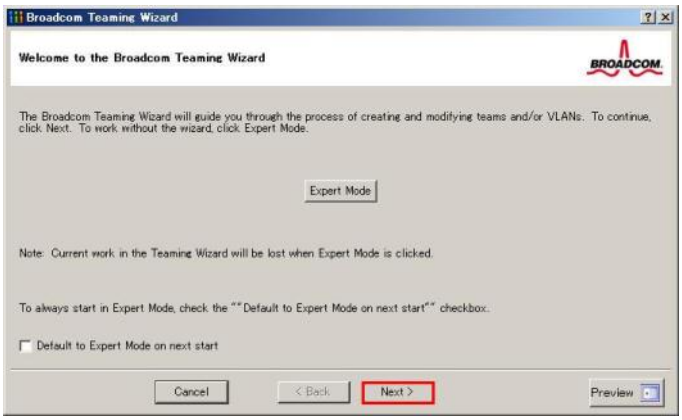
1. Open the **Broadcom Control Suite** icon on the Control Panel window.
   Broadcom Advanced Control Suite starts.

2. Set the **Filter** to **TEAM VIEW**, right-click the target team adapter, and then select **Create a Team** from the short-cut menu.



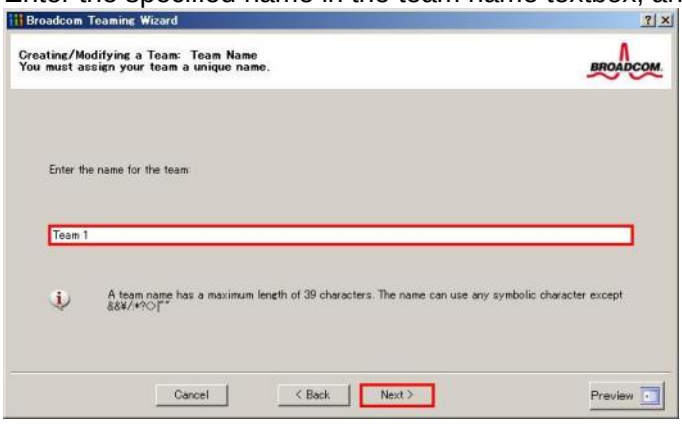
The **Broadcom Teaming wizard** appears.

3. Click the **Next**.

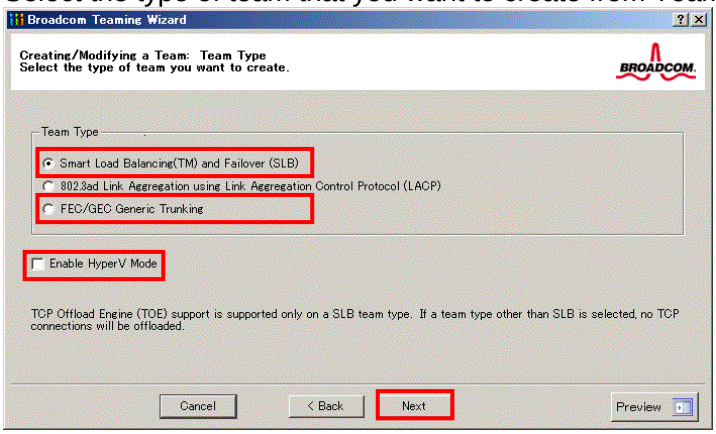


Important	**Do not use Expert Mode.**

4. Enter the specified name in the team name textbox, and then click the **Next**.



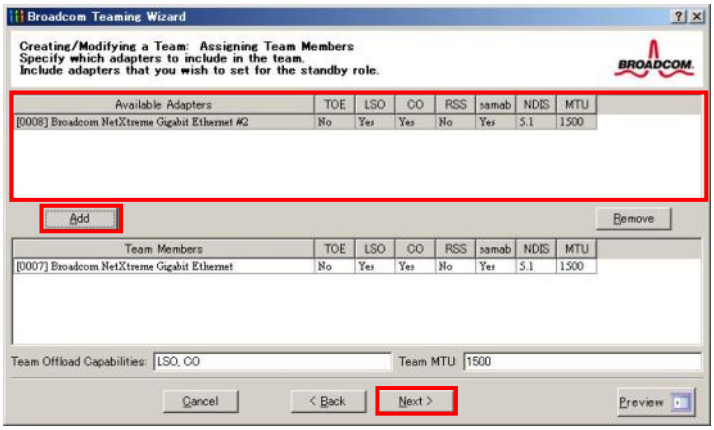
5. Select the type of team that you want to create from Team Type, and then click the **Next**.



Note

・If **FEC/GEC Generic Trunking** is selected, the following message will be displayed. Then Click [OK].
"Verify that the network switch connected to the team members is configured correctly for the team type."
・When using Hyper-V, check "Enable HyperV Mode" box.

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



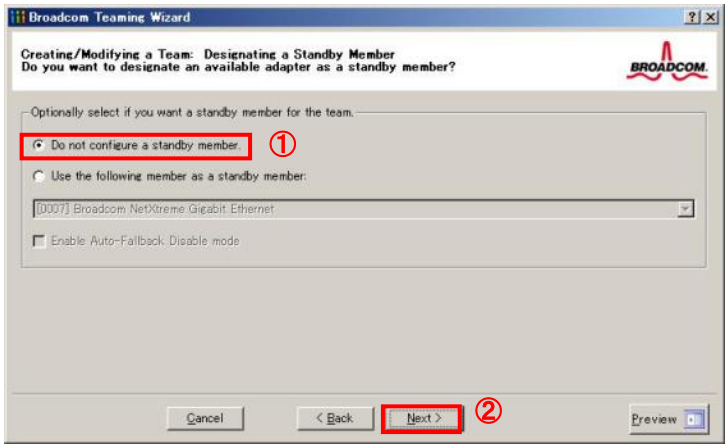
Note When selecting **FEC/GEC Generic Trunking**, skip to step 15.

7. Proceed according to your desired team type.

● **Smart Load Balancing and Failover(**without Standby Member**)**

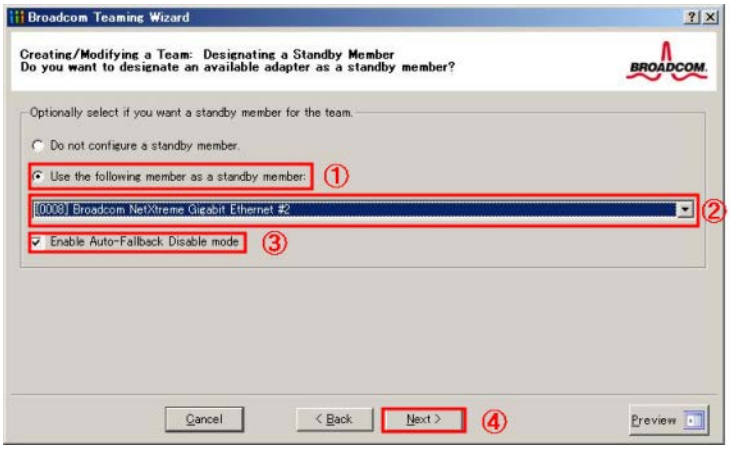
I. Select the **Do not configure a standby member**.

II. Click the **Next**.



● **Smart Load Balancing (Auto-Fallback Disable)(** with Standby Member**)**

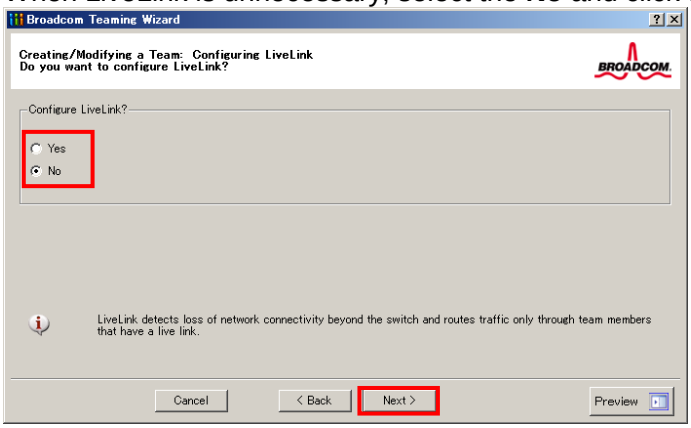
I. Select the **Use the following member as a standby member**.
II. Select the adapter as a standby member from the pull-down menu.
III. Select the **Enable Auto-Fallback Disable mode**.
IV. Click the **Next**.



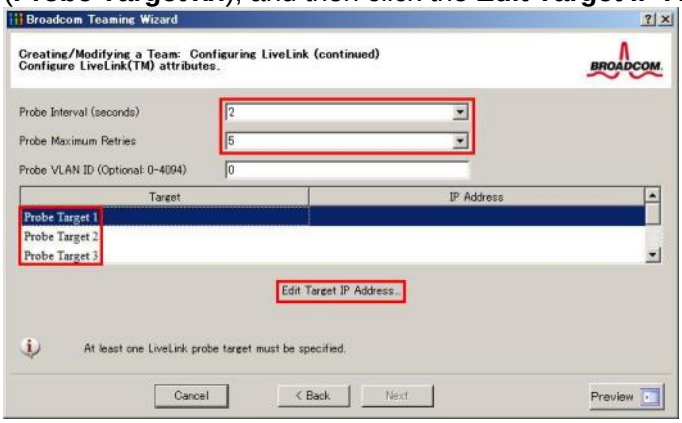
Important

- **Check "Enable Auto-Fallback Disable mode" box again while editing the team.**
- **Always select the Enable Auto-Failback Disable mode.**

8. When configure LiveLink, select the **Yes** and click the **Next** and go to step 9.
When LiveLink is unnecessary, select the **No** and click the **Next** and then go to step 15.



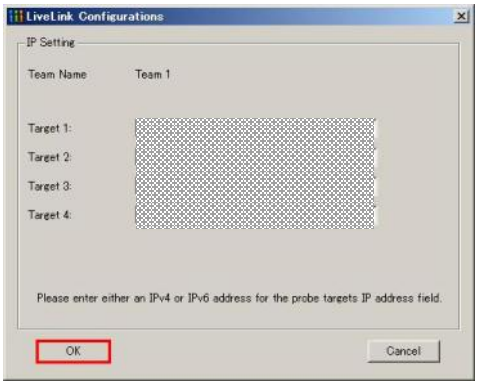
9. You can use the default setting for **Probe interval** and **Probe maximum retries**. If you want to change these values, select a value from each pull-down menu, click the target probe (**Probe Target *xx***), and then click the **Edit Target IP Address…**.



Tips

- The setting range of Probe interval (link packet transmission interval) is 1 to 60(units: seconds).
- The setting range of Probe maximum retries (link packet retry count) is 1 to 10(times).
- For the time of switching the path by the detection of communication path error by LiveLink, the maximum value is (Probe maximum retries + 1) x Probe interval (seconds). However, If link-down is detected, failover will be happened immediately after link-down. The minimum recovery time after link-down is Probe interval (seconds).
- When using Tagged VLAN, input VLAN ID to “Probe VLAN ID”.

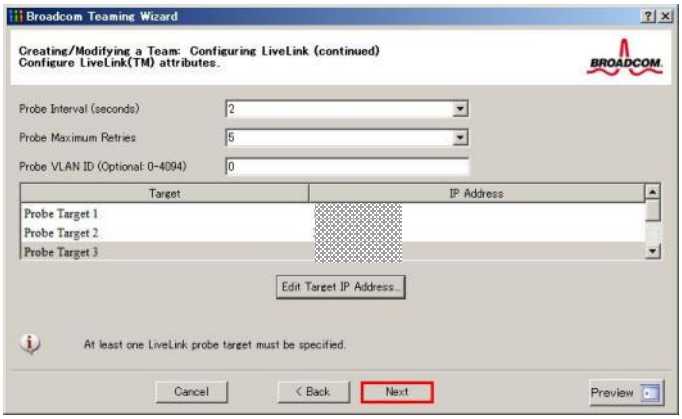
10. In the **Target *xx*** text box, enter the IP address of the alive monitoring server, and then click the **OK**.



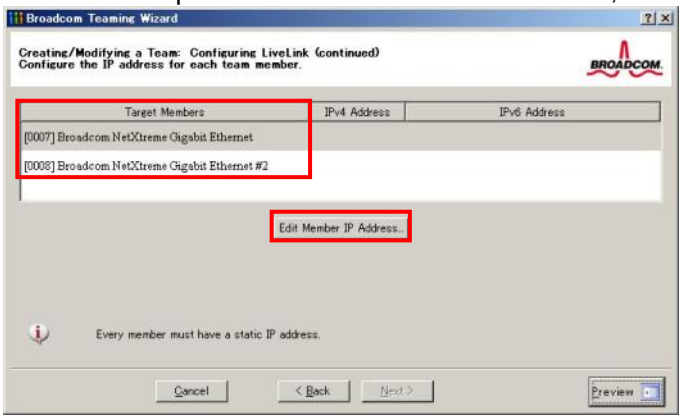
Important

- **Target xx must be the same broadcast domain as that specified for the data communication IP and LiveLink communication IP (described in step 13). Specify and IP address that exists on the network and it can be communicated.**
- **If the specified ID address in Target xx cannot be communicated, the team will also not be able to communicate. It is therefore recommended that you specify multiple IP addresses using Probe Target. Up to four IP addresses can be specified.**

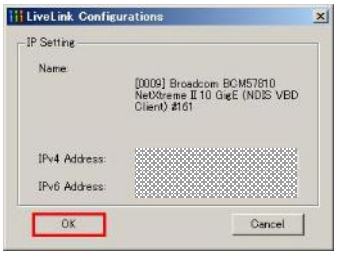
11. Click the **Next**



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



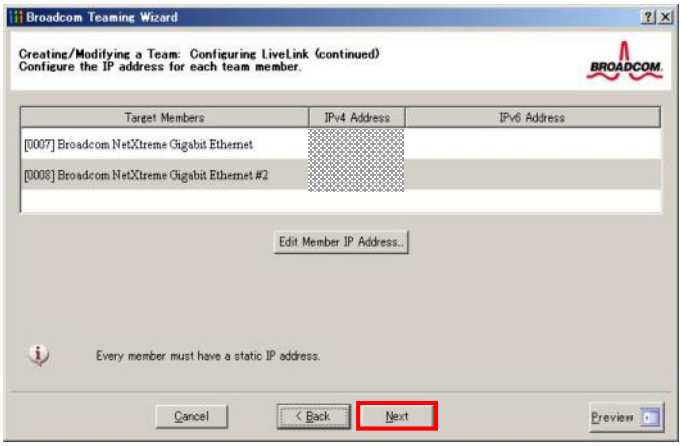
13. Enter the IP address used for LiveLink communication, and then click the **OK**.



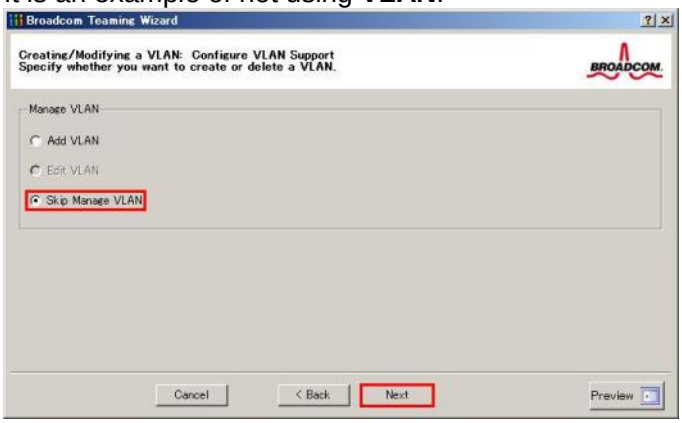
Important

- **Specify an IP address for LiveLink communication for all the adapter members of team. The address specified here is the IP address for LiveLink communication. Specify a different IP address for data communication.**
- **For Target xx, specify an unique and communicating IP address on the network.**

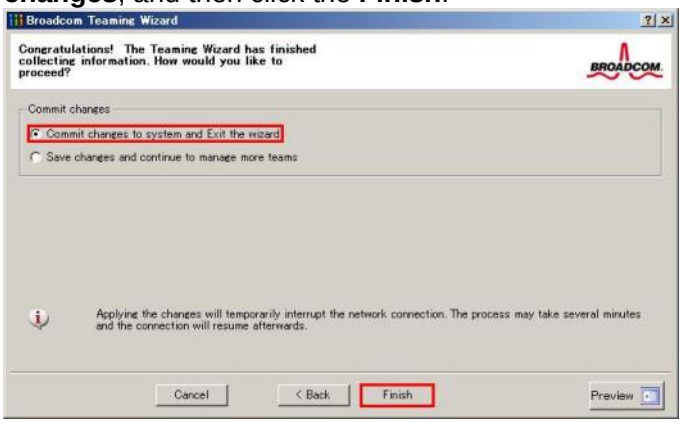
14. Click the **Next**.



15. Make sure that **Skip manage VLAN** is selected under **Manage VLAN**, and then click the **Next**.
    It is an example of not using **VLAN**.



16. Make sure that **Commit changes to system and Exit the wizard** is selected under **Commit changes**, and then click the **Finish**.

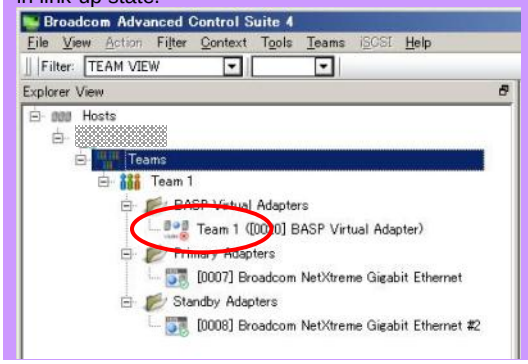


Note

When the message below is displayed, select [Yes].
"Applying the changes will temporarily interrupt the network connection.
The process may take several minutes and the connection will resume afterwards. Do you want to continue?"

Tips

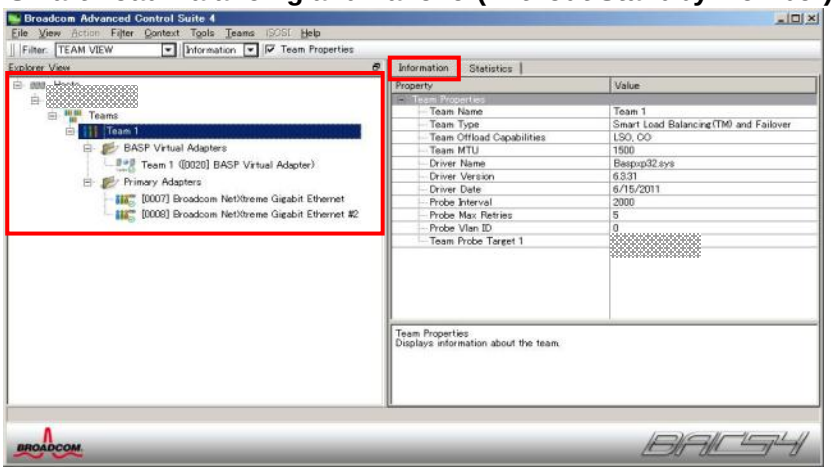
After creating the team, if it is displayed as the following image, perform Step 8 - 14 again and correct the LiveLink settings.
If all the adapter members of team are linking-down, the team adapter will also be displayed as the following image. Therefore, make sure all the adapter members are in link-up state.



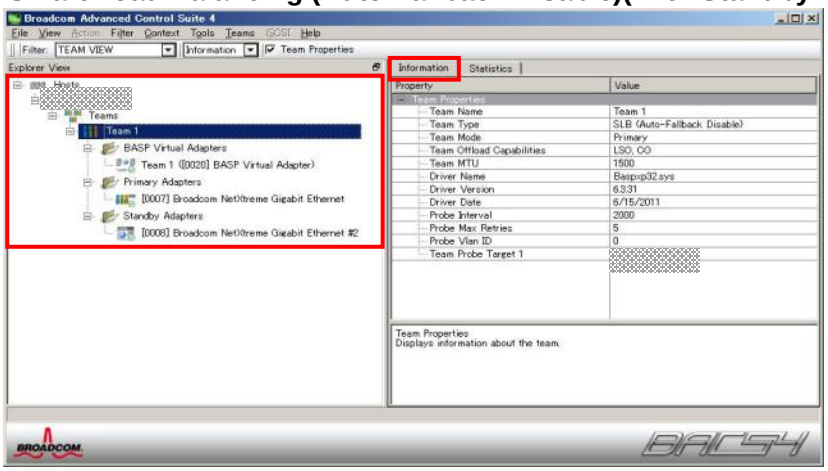
17. Restart the system.

18. After the system is started up, follow step 1 to start the **Broadcom Control Suite**(Open the **Broadcom Control Suite** icon from **Control Panel**) to confirm that the team is created. The team settings cab be confirmed on the right **Information** window.

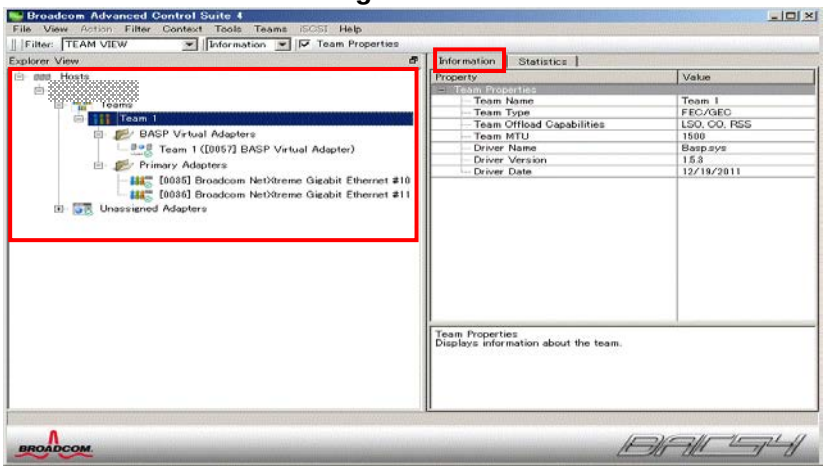
- **Smart Load Balancing and Failover(Without Standby Member)**



- **Smart Load Balancing (Auto-Fallback Disable)(With Standby Member)**



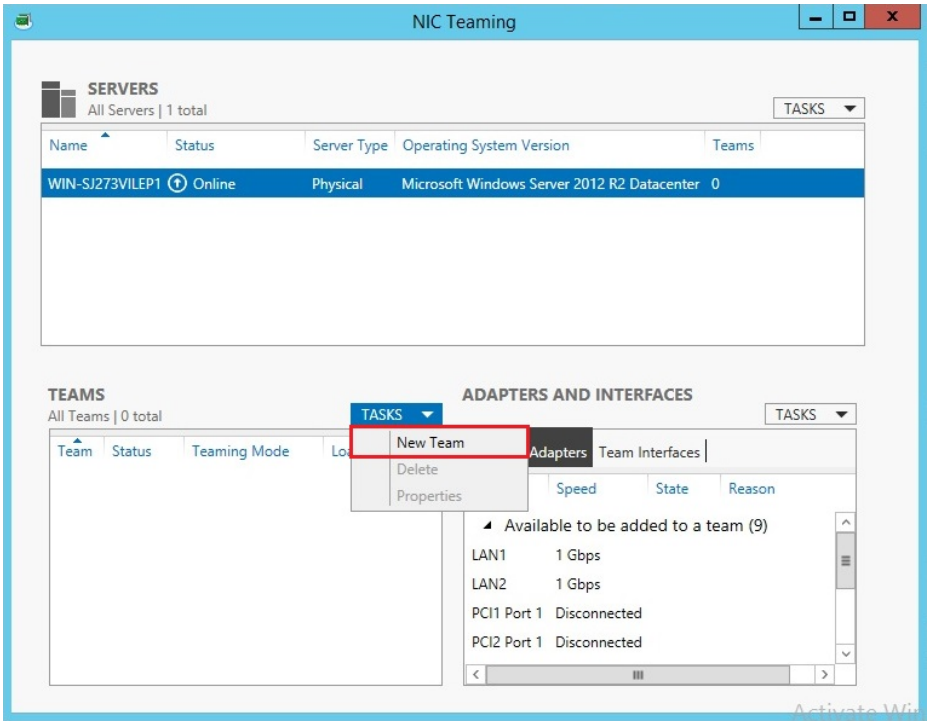
- **FEC/GEC Generic Trunking**



Team setup is now completed.

5.2.2. Windows Server 2012 / 2012 R2

1. Execute the **Sever Manager** and select the **Local Server**.
2. Select the **Disabled** or **Enabled** of NIC Teaming.
3. Select the **TASKS** of **TEAMS** tab and select the **New Team**.



4. Setup the team referring to teaming information which had noted in advance.

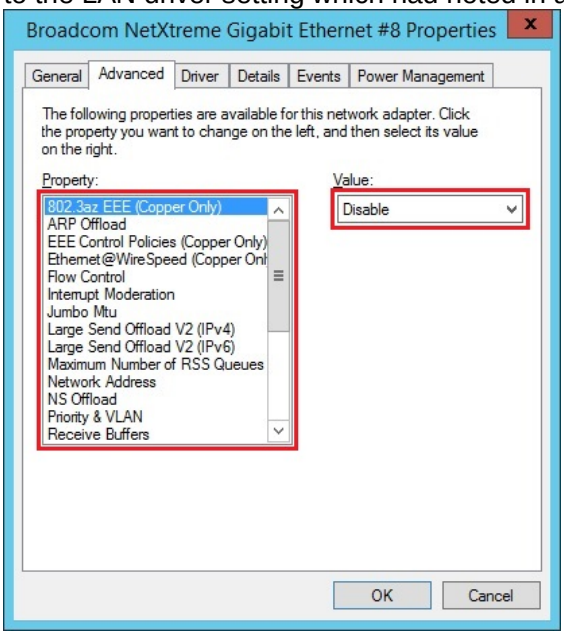
5.3. Reset LAN driver

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

Important	**When you changed the parameter of LAN driver, you have to restart the system.**

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. Select the **Advanced** tab and change the value of property which you need to set by referring to the LAN driver setting which had noted in advance.

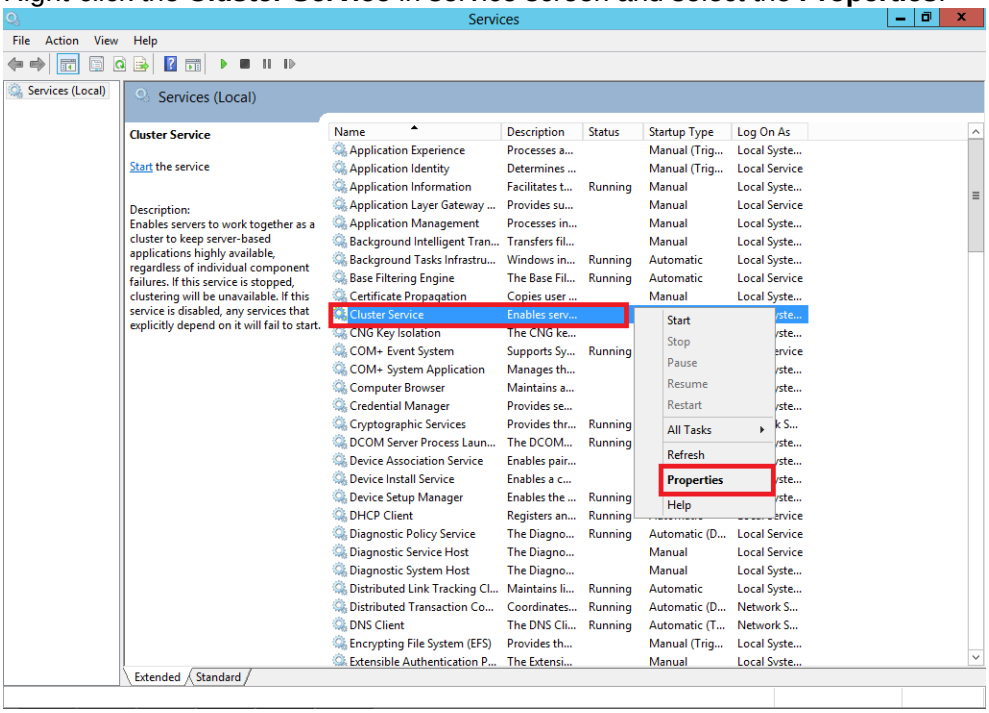


5.4. Start the WSFC node service

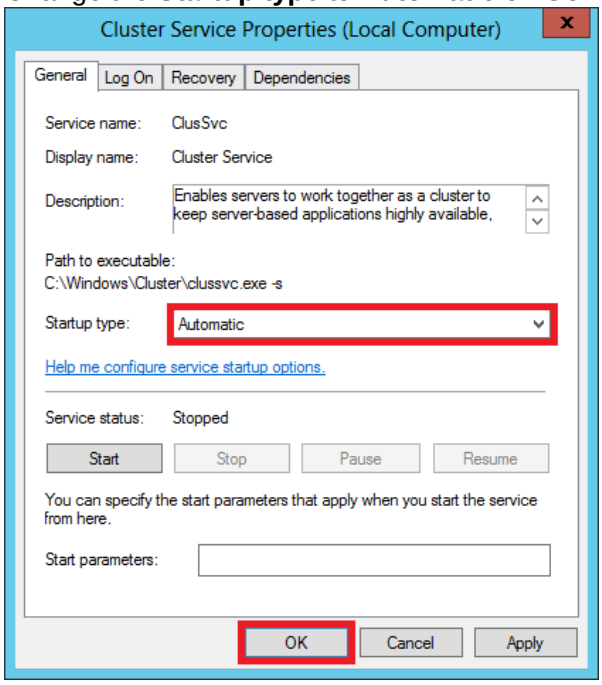
Refer the following steps for starting the service of node which has been stopped in [3.4 Stop the WSFC node service].

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**.

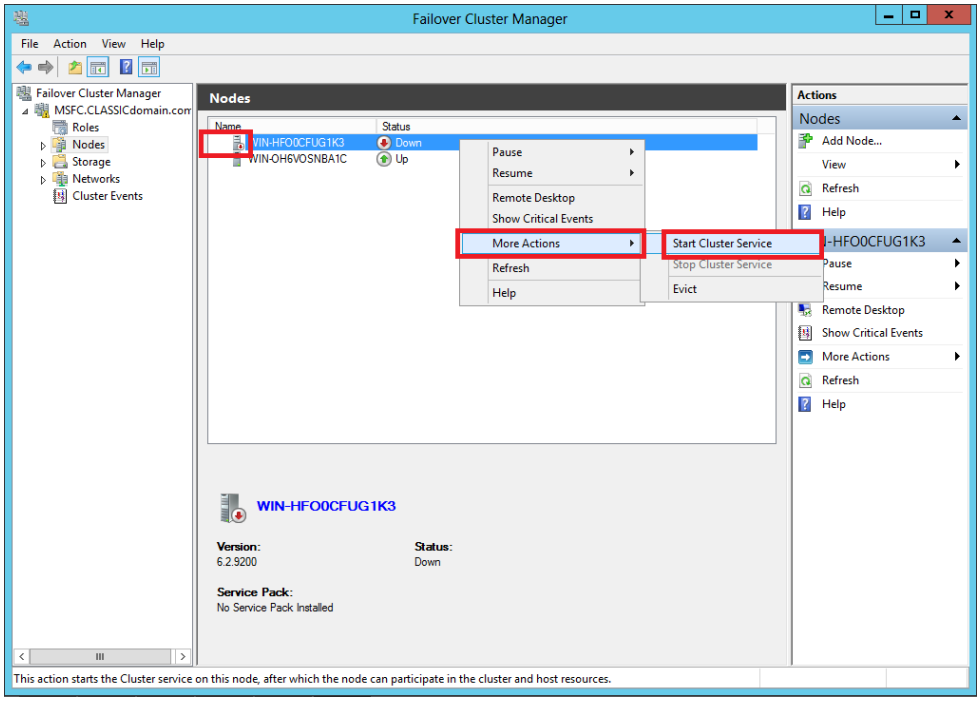


4. Right click the **Cluster Service** at service screen and select the **Start**.

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**.



5.5. 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. Procedure of rewinding LAN driver

Important

- **Logon or sign in the system from local console by administrator account for executing the operation below.**
- **If necessary, execute [3.4 Stop the WSFC node service], [3.5 Stop the EXPRESSCLUSTER service] and [3.6 Delete the team] in advance.**
- **If physical network adapter or teaming adapter is bound into Hyper-V Virtual Switch, stop the guest OS and remove the binding before [3.6 Delete the team].**
- **After rewinding, execute [5 After LAN driver install] and reset the network setting.**

6.1. New teaming driver uninstallation

Important

If team is already existed, refer to [3.6 Delete the team] for deleting all the teams before uninstallation.

Note

For Windows Server 2012 or 2012 R2, BACS is not installed. Please go to [6.2 New LAN driver uninstallation].

1. Open the **Program and Function** icon on the Control Panel window.
2. Click the **Broadcom Management Programs** in the list, right click it and select the **Uninstall**. Continue the installation according to the popup message.
3. A popup message of restarting the system is displayed. Click **OK**.
4. Go to [6.2 New LAN driver uninstallation] without restarting the system.

6.2. New LAN driver uninstallation

1. Open the **Program and Function** icon on the Control Panel window.
2. Click the **Broadcom Gigabit Integrated Controller** in the list, right click it and select the **Uninstall**.
   Continue the uninstallation according to the popup message.
3. Restart the system.

6.3. Old LAN driver installation

1. Refer to the **installation guide** for installing **StarterPack**. Afrer the installation, restart the system.
2. Check that the driver version is 17.2.0.0. by following [3.2 Confirmation of LAN driver version].

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 as Administrator.

7.3. For removing an adapter teaming

If you want to uninstall the LAN driver in the teaming environment, please remove the team adapter before the uninstallation. In addition, if the team is bound into Hyper-V virtual adapter, remove the binding before the removal of team.

7.4. Uninstall the driver

Note the setting information of network(IP Address etc...) and teaming(when is team environment) and default gateway. After LAN driver install or teaming setup (when was team environment), set it again.