LAN Driver Installation Guide (Broadcom v17.2)

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Contents

1. Pre	face	. 3
1.1.	The target server	3
1.2.	Target software	3
1.3.	Target Driver Version	3
1.4.	Registration Trademark	3
2. Wo	rkflow LAN driver update process	. 4
3. Pre	paration	. 5
3.1.	Workflow preparation process	5
3.2.	Confirmation of LAN driver version	6
3.3.	Preparation of module	8
3.3	.1. Prepare the update module	. 8
3.3	.2. Prepare the recovery module	. 8
3.4.	Stop the WSFC node service	8
3.5.	Stop the EXPRESSCLUSTER service	.10
3.6.	Delete the team	.10
3.6	.1. Windows Server 2008 R2	10
3.6	.2. Windows Server 2012 / 2012 R2	12
4. LAN	N driver update	13
4.1.	Existing teaming driver uninstallation	.13
4.2.	Existing LAN driver uninstallation	.13
4.3.	New LAN driver installation	.14
5. Afte	er LAN driver install	15
5.1.	Workflow after LAN driver install	.15
5.2.	Setup the Team	.16
5.2	.1. Windows Server 2008 R2	16
5.2	.2. Windows Server 2012 / 2012 R2	25
5.3.	Reset LAN driver	.25
5.4.	Start the WSFC node service	.26
5.5.	Start the EXPRESSCLUSTER service	.28
6. Pro	cedure of rewinding LAN driver	29
6.1.	New teaming driver uninstallation	.29
6.2.	New LAN driver uninstallation	.29
6.3.	Old LAN driver installation	.29
7. Not	tice	30
7.1.	About the operation by remote desktop	.30
7.2.	Account of operation	.30
7.3.	For removing an adapter teaming	.30
7.4.	Uninstall the driver	.30

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	After update version
(b57nd60a.sys)	(b57nd60a.sys)
17.2.0.0	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 a R mark are not specified in the test.

2. Workflow LAN driver update process



3. Preparation



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.

	Device Manager		
Eile Action View Help			
(= -) II			
🔺 🚔 WIN-SJ273VILEP1			^
Computer			
Disk drives			
Display adapters			
DVD/CD-ROM drives			
Human Interface Devices			
IDE ATA/ATAPI controllers			
Keyboards			
Mice and other pointing devices			
Monitors			
Metwork adapters			
🔮 Broadcom NetXtreme Gigabit Ethernet			10.00
Broadcom NetXtreme Gigabit Ethernet #2			=
Broadcom NetXtreme Gigabit Ethernet #3			
🔮 Broadcom NetXtreme Gigabit Ethernet #4			
🔮 Broadcom NetXtreme Gigabit Ethernet #5			
Broadcom NetXtreme Gigabit Ethernet #6			
Broadcom NetXtreme Gigabit Ethernet #7			
Broadcom NetXtreme Gigabit Ethernet #8			
Broadcom NetXtreme Gigabit Ethernet #9			
Ports (COM & LPT)			
Print queues			
Processors			
Storage controllers			
System devices			~
►		1	

3. Click the Driver Details on the Driver tab.

Events		Resources	Power	Management
General	A	dvanced	Driver	Detai
Broadcom NetX		treme Gigabit Et	hemet	
Dri	iver Provider:	Broadcom		
Dri	iver Date:	4/10/2015		
Dri	iver Version:	17.2.0.0		
Dig	gital Signer:	Microsoft W Publisher	indows Hardware	e Compatibilit
Driver D	Details	To view details	about the driver	files.
U <u>p</u> date [Driver	To update the	driver software fo	or this device
Roll Back	c Driver	If the device fa back to the pre	ails after updating eviously installed	the driver, ro driver.
<u>D</u> isal	ble	Disables the se	elected device.	
Unins	stall	To uninstall the	e driver (Advance	:d).

4. Confirm the **File version**.

If the version is 17.2.0.2, no need to update the driver. Otherwise, update it.

	Driver File Details				
Broadcom NetXtreme Gigabit Ethernet					
iver files:					
JC: Windows	s system 32 URIVERS 05/hdbua.sys				
Provider:	Broadcom Corporation				
Provider: File version:	Broadcom Corporation 17.2.0.0				
Provider: File version: Copyright:	Broadcom Corporation 17.2.0.0 Copyright 2000-2015, Broadcom Corporation.				
Provider: File version: Copyright: Digital Signer:	Broadcom Corporation 17.2.0.0 Copyright 2000-2015, Broadcom Corporation. Microsoft Windows Hardware Compatibility				
Provider: File version: Copyright: Digital Signer:	Broadcom Corporation 17.2.0.0 Copyright 2000-2015, Broadcom Corporation. Microsoft Windows Hardware Compatibility				
Provider: File version: Copyright: Digital Signer:	Broadcom Corporation 17.2.0.0 Copyright 2000-2015, Broadcom Corporation. Microsoft Windows Hardware Compatibility				
Provider: File version: Copyright: Digital Signer:	Broadcom Corporation 17.2.0.0 Copyright 2000-2015, Broadcom Corporation. Microsoft Windows Hardware Compatibility				

Target driver version	After update version
(b57nd60a.sys)	(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_xxxxx.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.

44		Failover Cluster Manager	
File Action View Help			
🗢 🏟 🙎 🖬 👔			
Failover Cluster Manager	Nodes		Actions
Boles	Name	Status	Nodes 🔺
Nodes	WIN-HFO0CFUG1K3	🛞 Up	🚰 Add Node
Storage	WIN-OH6VOSNBA1C	🛞 Up	View
▷ Wetworks III Cluster Events			Q Refresh
			I Help
			WIN-HFO0CFUG1K3
			🛃 Pause 🕨
			📑, Resume 🕨
			Remote Desktop
			Show Critical Events
			More Actions
			Q Refresh
			Pelp
	WIN-HFOOCFUG1K3 Version: 6.2.9200		
		Status:	
		Up	
	Service Pack:		
	No Service Pack Installed		
< III >			

4. Right click the target **node** for driver update from the node list.

	ranover cluster manager	
ile Action View Help		
Fallover Cluster Manager ▲ WSFC.CLASSIC domain.com ● ● Nodes ● ●	Notes Note Status WINHEOD Resume Remote Desktop Show Critical Events Status Status VINHEODCFUGIKS Zersion: Status: Caso Up Service Packi Instaled	Actions Nodes Nodes Nodes Nodes Nodes Notes Notes Help WIN-HFOOCFUG1K3 Pause Remote Desktop Show Critical Events More Actions Refresh Help

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**.

File Action View Help	
Services (Local) Services (Local)	
Cluster Service Name Description Status Startup Type Log On As Application Experience Processes a Running Manual (Trig Local Syste	^
Stop the service Call Application Identity Determines Manual (Trig. Local Service Restart the service Application Information Facilitates t Running Manual Local Syste Call Application Layer Gateway Application Layer Gateway Monides Sum (Call Service Manual Local Syste	=
Description: Application Management Processes in Manual Local Syste Enables servers to work together as a cluster to keep server-based Application Intelligent Trans. Transfers fil Manual Local Syste	
applications highly available, regardless of individual component failures. If this service is stopped. Cuterion will be unavailable. If this Cuterion will be unavailable. If this Cuterion will be unavailable. If this Cuterion will be unavailable.	
service is disabled, any services that explicitly depend on it will fail to start. COM - Event System Support Sys. Running Automatic COM - System Application Manages th Manual Pause Computer Browser Maintains a Disabled Resume	
Gi Credential Manager Provides se… Manual Gi Cyptographic Services Provides thr Running Automatic Gi DCOM Server Process Laum. The DCOM Running Automatic Gi Device Association Service Enables pair Manual (Trig Refresh	
Construction of the second secon	
The Diagnostic Service Host The Diagnos. Manual Local Service Diagnostic Service Host The Diagnost. Manual Local Service Diagnostic Service The Diagnost Manual Local System.	
Justrobuted Link Frackung CL Maintansi II Kunning Automatic Local Syste Distributed Transaction Co Coordinates Running Automatic (D Network S Dist Client The DNS Cli Running Automatic (T Network S Distributed Figure System (EFS) Provides th Manual (Trig Local Syste	
Extensible Authentication P The Extensi Manual Local Syste Extended (Standard /	~

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

Cluster	Service Properties (Local Computer)			
General Log On	Recovery Dependencies			
Service name:	ClusSvc			
Display name:	Cluster Service			
Description:	Enables servers to work together as a cluster to keep server-based applications highly available,			
Path to executable C:\Windows\Clus	e: ter\clussvc.exe -s			
Startup type:	Disabled 🗸 🗸			
Help me configure	e service startup options.			
Service status:	Running			
Start	Stop Pause Resume			
You can specify the start parameters that apply when you start the service from here.				
Start parameters:				
	OK Cancel Apply			

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.

👺 Broadcom Advanced Control Suite 4		<u>_ </u>			
Eile View Action Filter Context Tools Teams iSOSI Help					
Filter: TEAM VIEW 💌 Information 🔽 🔽 Team Properties					
Explorer View 6	Information Statistics				
🖻 and Hosts	Property	Value			
🖶 🔍 R120d-1E	- Team Properties				
Teams	- Team Name	Team 1			
	- Team Type	Smart Load Balancing(TM) and Failover			
Edit Team	- Team Offload Capabilities	LSO, CO			
🖻 🥟 🛛 Delete Team ers	- Team MTU	1500			
Eallback BASP Virtual Adapter)	- Driver Name	Baspxp32.sys			
Add VI AN	- Driver Version	6.3.31			
	- Driver Date	6/15/2011			
	- Probe Interval	2000			
- 🏭 [0008] Broadcom NetXtreme Gigabit Ethernet #2	- Probe Max Retries	5			
of the second	- Probe Vlan ID	0			
	- Team Probe Target 1				
	Team Properties Displays information about the team.				
BROADCOM.		FIFT SH			
\sim \sim					

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])

 When the following message is displayed, click the OK Registry Addition Completed, Reboot the system

Note

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.

a	Server Mar	nager		_ D X
€ • • Local Se	erver	• 🗊 🚩 🔤	inage <u>T</u> ools	<u>V</u> iew <u>H</u> elp
Dashboard Local Server All Servers File and Storage Services	PROPERTIES For WIN-SJ273VILEP1 Computer name Workgroup	WIN-SJ273VILEP1 WORKGROUP	[TASKS TASKS
	Windows Firewall Remote management Remote Desktop NIC Teaming PCI1 Port 1 PCI2 Port 1 PCI2 Port 2 PCI3 Port 2 PCI3 Port 2 PCI3 Port 3 PCI3 Port 4	Public: On Enabled Disabled Enabled Not connected Not connected Not connected Not connected Not connected Not connected Not connected		Wi = Cu IE I Tir Pro

3. <u>Right click the team name, select the Delete.</u>

WIN-SJ273VILEP1 ⑦ Online	Physical Microsoft Windows Server 2012	2 R2 Datacenter 1
VIIV-53273VILEPT () Online	Physical Microsoft Windows Server 2012	2 KZ Datacenter I
CANAS	ADADTERS AND I	INTERFACES
EAIVIS	ADAPTERS AND	
II Teams 1 total	TASKS V	
ll Teams 1 total	TASKS 🔻	
Il Teams 1 total	TASKS e Load Balancing Network Adapters	Team Interfaces
III Teams 1 total Teâm Status Teaming Moo	TASKS E Load Balancing Network Adapters Adapter Speed	Team Interfaces
VI Teams 1 total Team Status Teaming Moo Team1 ⑦ OK Delete	e Load Balancing Network Adapters amic Adapter Speed	Team Interfaces State Reason
II Teams 1 total Team Status Teaming Moo Team1 () OK Delete Properti		Team Interfaces State Reason be added to a team (7)
II Teams 1 total Team Status Teaming Moo Team1 (•) OK Delete Properti	TASKS e Load Balancing Adapter Speed Adapter Speed Available to b PCI1 Port 1 Discont	Team Interfaces Team Interfaces State Reason be added to a team (7) Interfaced
Il Teams 1 total Team Status Teaming Moo Team1 OK Delete Properti	TASKS e Load Balancing amic as PCI1 Port 1 Discont PCI2 Port 1 Discont C22 Port 1 Discont PCI2 Port 1 Dis	Team Interfaces Team Interfaces State Reason be added to a team (7) meeted
Il Teams 1 total Team Status Teaming Moo Team1 OK Delete Properti	TASKS e Load Balancing amic as Network Adapter Adapter Speed Available to b PCI1 Port 1 Discom PCI2 Port 1 Discom	Team Interfaces TASKS Team Interfaces State Reason be added to a team (7) intercted intercted
All Teams 1 total Team Status Teaming Moo Team1 ① OK	e Load Balancing amic Adapter Speed	Team Interfaces State Reason
I Teams 1 total Feam Status Teaming Mod Feam1 ① OK Delete Properti	e Load Balancing Adapter Speed Available to the PCI1 Port 1 Discont	Team Interfaces TASKS Team Interfaces State Reason be added to a team (7) intercted
Il Teams 1 total Team Status Teaming Moo Team1 ① OK Delete Properti	TASKS e Load Balancing amic as Point for the second secon	Team Interfaces State Reason be added to a team (7) mected mected mected
Il Teams 1 total Team Status Teaming Moo Team1 (+) OK Delete Properti	TASKS ▼ e Load Balancing Adapter Speed ▲ Available to t PCI1 Port 1 Discont PCI2 Port 1 Discont	Team Interfaces Team Interfaces State Reason be added to a team (7) intercted
Il Teams 1 total Team Status Teaming Moo Team1 ① OK Delete Properti	e Load Balancing Adapter Speed Adapter Speed Available to the PCI1 Port 1 Disconne PCI2 PORT PCI2 PCI2 PCI2 PCI2 PCI2 PCI2 PCI2 PCI2	Team Interfaces Team Interfaces State Reason be added to a team (7) intercted intercted intercted

4. Restart the system.

4. LAN driver update

Refer the notice before driver update.



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.
- 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

	 Logon or sign in the system from local console by administrator account for
	executing the operation below.
Important	If physical network adapter or teaming adapter is bound into Hyper-V Virtual
important	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.

Broadcom Advanced Control Suite 4		
Lifeter TEAM VIEW	s 🔽 Driver Information	
Explorer View 69	Information Configurations Diagnostics	: Statistics
E dat Hosts	Property	Value
A Statements	- Vital Signs	
	MAC Address	
	Permanent MAC Address	
	- IPv4 Address	
UUU/] Broadcom NetXtreme Gizabit Ethernet	- Offload Capabilities	LS0,00
[0008] Broadcom Nereate learn het #2	- MTU	1500
Manage Teams	 Driver Information 	and the second
Add to a Team	- Driver Version	15.0.0.9
Create a <u>V</u> LAN	- Driver Date	10/3/2011
	- Driver Name	b57xp32.sys
	- Driver Status	Loaded
	Vital Signs The Vital Signs section of the Information tab metwork adapters that are installed in your sys adapter and general network connectivity.	has useful information about the tem, such as the link status of the
вполосом	<u> </u> /#	

The Broadcom Teaming wizard appears.

Click the Next. 3.

Broadcom Teaming Wizard	? ×
Welcome to the Broadcom Teaming Wizard	BROADCOM
The Broadcom Teaming Wizard will guide you through the process of creating and modifying teams and/or VLANs blick Next. To work without the wizard, click Expert Mode.	:. To continue,
Expert Mode	
Note: Current work in the Teaming Wizard will be lost when Expert Mode is clicked.	
To always start in Expert Mode, check the ""Default to Expert Mode on next start"" checkbox.	
Default to Expert Mode on next start	
Cancel < Back Next >	Preview 💽

Important Do not use Expert Mode.

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

Broadcom	Teaming Wizard	<u>Y</u> X
Creating/Mo You must as	odifying a Team: Team Name ssign your team a unique name.	BROADCOM
Enter th	e name for the team	
Team 1		
÷	A team name has a maximum length of 39 characters. The n &&//*? $\bigcirc \Gamma^{*}$	ame can use any symbolic character except
	Cancel < Back Next	Preview 💽

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

Team Type			
Smart Load Bala	ncing(TM) and Failov	ver (SLB)	
C 802.3ad Link Age	regation using Link /	Aggregation Control Protocol (LACP)	• • • • • • • • • • • • • • • • • • •
C FEC/GEC Gener	ic Trunking		
Enable Hyper∨ Mo	de	artad anlu an a SID taam tuna. If a t	toom tura otkey than SIR is calended as TOD

· If FEC/GEC Generic Trunking is selected, the following message will be displayed.

Note

- 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**.

No	Yes	Yes	No	Yes	5.1	1500	
TOE	LSO	CO	RSS	samab	NDIS	MTU	
No	Yes	Yes	No	Yes	5.1	1500	
TOE No	LSO Yes	CO Yes	RSS No	samab Yes	NDIS 5.1	MTU 1500	
	No	TOE LSO No Yes	TOE LSO CO No Yes Yes	TOE LSO CO RSS No Yes Yes No	TOE LSO CO RSS samab No Yes Yes No Yes	TOE LSO CO RSS samab NDIS No Yes Yes No Yes S1	TOE LSO CO RSS samab NDIS MTU No Yer Yer No Yer 5.1 1500

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

Broadcom Leaming Wizard	3
Creating/Modifying a Team: Designating a Standby Member Do you want to designate an available adapter as a standby member?	BROADCO
Optionally select if you want a standby member for the team.	
Do not configure a standby member.	
C Use the following member as a standby member:	
[0007] Broadcom NetXtreme Gigabit Ethernet	2
F Enable Auto-Failback Disable mode	

• 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**.

Broadcom Teaming Wizard	? >
Creating/Modifying a Team: Designating a Standby Member Do you want to designate an available adapter as a standby member?	BROADCOM
Optionally select if you want a standby member for the team.	
C Do not configure a standby member.	
C Use the following member as a standby member: 1	
[0008] Broadcom NetXtreme Gigabit Ethernet #2	
Enable Auto-Fallback Disable mode (3)	

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

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.

iii Broadcom Teaming Wizard	<u>?</u> ×
Creating/Modifying a Team: Configuring LiveLink Do you want to configure LiveLink?	BROADCOM.
-Configure LiveLink?	
C Yes C No	
LiveLink detects loss of network connectivity beyond the switch and routes traffic only through that have a live link.	n team members
Cancel < Back Next >	Preview 间

Important

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...**.

Configure LiveLink(TM) attribut	es.		BROADCOM
Probe Interval (seconds)	2		
robe Maximum Retries	5		
robe VLAN ID (Optional: 0-4094)	0		
Target		IP Address	<u>^</u>
Probe Target 1			
Probe Target 3			-
 At least one LiveLink on 	Edit Target IP A	ddress	

• 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**.

LiveLink Confi	gurations	
P Setting		
Team Name	Team 1	
Target 1:		
Target 2:		
Target 3:		
Target 4:		
Please enter e	ther an IPv4 or IPv6 address for the probe targets IP addre	ss field.
OK	Ca.	ncet
on.		1001

 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.

Important

 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

Configure LiveLink(TM) attribute	88.		BROADCOM
Probe Interval (seconds)	2		
Probe Maximum Retries	5	_	
Probe VLAN ID (Optional: 0-4094)	0		
Target		IP Address	<u>^</u>
Probe Target 1 Probe Target 2			
Probe Target 3			•
 At least one LiveLink pro 	be target must b	idit Target IP Address	

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

Joiningare the in address for each team	n memoer.	
Target Members	IPv4 Address	IPv6 Address
(0007] Broadcom NetXtreme Gigabit Etherne	et	
[0008] Broadcom NetXtreme Gigabit Ethern/	et#2	
	Edit Member IP Address.	
Every member must have a sta Every member must have a sta	atic 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.

Link (continued) er.	BROADCO
IPv4 Address	IPv6 Address
dit Member IP Address.	
ddress.	
	Link (continued) er.

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.

Broadcom Teaming Wizard	? >
Creating/Modifying a VLAN: Configure VLAN Support Specify whether you want to create or delete a VLAN.	BROADCOM
Manage VLAN	
C Add VLAN	
C Edit VLAN	
Skip Manage VLAN	
Cancel CBack Next	Preview 🗾

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?"

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. Broadcom Advanced Control Suite 4 Filter Context Eile View Tools Teams Help Filter: TEAM VIEW --Explorer View 8 🖻 🕬 Hosts Tips **b** Team Team 1 DI DA Adapters Team 1 ([00]0] BASP Virtual Adapter) D Adap ters 57 [0007] Broadcom NetXtreme Gigabit Ethernet E Standby Adapters - 🛐 [0008] Broadcom NetXtreme Gigabit Ethernet #2

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)

Property Team Name Team Name Team Type Team Offload Copublities Team MTU Driver Name Driver Version Driver Date	Value Team 1 Smart Load Balancing(TM) and Failove LSO, CO 1500 Besprop32.stys 6.5.31
Team Monortes Team Name Team Offload Capabilities Team Offload Capabilities Team MTU Driver Name Driver Version Driver Date	Team 1 Smart Lead Balancing (TM) and Failove LSO, CO 1500 Bespip02.sys 6.831
Team Name Team Type Team Offload Capabilities Team MTU Driver Name Driver Version Driver Dete	Team 1 Smart Load Balancing (TM) and Failove LSO, CO 1500 Bespup32.sys 6.331
Team Type Team Offload Capabilities Team MTU Driver Name Driver Version Driver Date	Smart Load Balancing(TM) and Failove LSO, CO 1500 Bespop32.sys 6331
Team Offload Capabilities Team MTU Driver Name Driver Version Driver Date	LSO, CO 1500 Bespup32.sys 6.3.31
- Team MTU Driver Name Driver Version Driver Date	1500 Baspop32.sys 6.3.31
Driver Name Driver Version Driver Date	Bespup32.sys 6.3.31
Driver Version	6.3.31
Driver Date	
The second se	6/15/2011
- Probe Interval	2000
 Probe Max Retries 	5
- Probe Vlan ID	0
Team Probe Target 1	
Team Properties Displays information about the team	
	Team Properties Deplays information about the team.

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

	Information Statistics	
MM Hosts	Property	Value
É.	- Team Properties	
E Para Teams	Team Name	Team 1
	- Team Type	SLB (Auto-Fallback Disable)
	Team Mode	Primary
E BASP Virtual Adapters	- Team Offload Capabilities	LS0, C0
- Team 1 ([0020] BASP Virtual Adapter)	Team MTU	1500
E 📂 Primary Adapters	Driver Name	Bespop32.sys
100071 Decedeese NetViseue Girshit Ethemat	- Driver Version	6.3.31
the coord broadcom renverene cligabil coverner	Driver Date	6/15/2011
E P Standby Adapters	Probe Interval	2000
- 57 [0008] Broadcom NetXtreme Gigabit Ethernet #2	Probe Max Hetries	5
	Probe Vian ID	0
	Team Probe Target 1	

	Team Properties Displays information about the team	

• FEC/GEC Generic Trunking

plorer View	Information Statistics	
B ddd, Hosts	Property	Value
· 自 500000000000000000000000000000000000	- Team Properties	
	- Team Name	Team 1
	- Team Type	FEC/GEC
ler leam l	- Team Offload Capabilities	LSO, CO, RSS
BASP Virtual Adapters	- Team MTU	1500
□ ■● Team 1 ([0057] BASP Virtual Adapter)	Driver Name	Basp.sys
Charles Advances	Driver Version	15.3
E Trimary Mosprers	- Driver Date	12/19/2011
	Team Properties	

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.

All Servers			1				TASKS	•
ame	Status	Server Type	Operating S	ystem Version		Teams		
IN-SJ273VILEF	1 🛈 Online	Physical	Microsoft W	indows Server 2012 I	R2 Datacenter	0		
AMS			AI	DAPTERS AND IN	ITERFACES			
EAMS Teams 0 tot	al	TAS		DAPTERS AND IN	ITERFACES	[TASKS	•
EAMS Teams 0 tot Feam Status	al Teaming Mode	TAS Lo:	AI KS - New Team	Adapters Te	ITERFACES eam Interfaces	[TASKS	•
EAMS Teams 0 tot Team Status	al Teaming Mode	TAS Lo:	AI KS New Team Delete Properties	Adapters Te Speed	ITERFACES eam Interfaces State	[Reaso	TASKS	•
AMS Teams 0 tot eam Status	al Teaming Mode	Lo	KS V New Team Delete Properties	Adapters Te Speed	TTERFACES eam Interfaces State e added to a	Reaso team (9)	TASKS	•
AMS Teams 0 tot eam Status	al Teaming Mode	Lo	AI New Team Delete Properties	Adapters AND IN Adapters Te Speed Available to be AN1 1 Gbps	am Interfaces State a added to a	Reaso team (9)	TASKS	•
AMS Teams 0 tot eam Status	al Teaming Mode	TAS	AI New Team Delete Properties	Adapters Te Adapters Te Speed Available to be AN1 1 Gbps AN2 1 Gbps	ITERFACES eam Interfaces State e added to a	Reaso team (9)	TASKS	▼

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.

Broadcom NetXtreme Gigabit Ethernet #8 Properties 🎴	ţ.
General Advanced Driver Details Events Power Management The following properties are available for this network adapter. Click the property you want to change on the left, and then select its value on the right. Property: Value: Property: Value: Value: Value: Image: Send Offload V2 (Prv4) Image: Send Offload V2 (Prv4) Image: Send Offload V2 (Prv4) Large: Send Offload V2 (Prv4) Image: Send Offload V2 (Prv4) Image: Network Address NS Offload Priority & VLAN Value:	
OK Cancel	

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**.

		Servi	ces				
File Action View	Help						
🧼 🏟 🔝 🖸	à 🛃 🚺 📷 🕨 🔳 🕪 👘						
🔅 Services (Local)	Services (Local)	-					
	Cluster Service	Name 🔺	Description	Status	Startup Type	Log On As	^
		Application Experience	Processes a		Manual (Trig	Local Syste	
	Start the service	🔍 Application Identity	Determines		Manual (Trig	Local Service	
		🔍 Application Information	Facilitates t	Running	Manual	Local Syste	_
	Description:	🍓 Application Layer Gateway	Provides su		Manual	Local Service	=
	Enables servers to work together as a	鵒 Application Management	Processes in		Manual	Local Syste	
	cluster to keep server-based	🍓 Background Intelligent Tran	Transfers fil		Manual	Local Syste	
	applications highly available,	🌼 Background Tasks Infrastru	Windows in	Running	Automatic	Local Syste	
	failures. If this service is stopped,	鵒 Base Filtering Engine	The Base Fil	Running	Automatic	Local Service	
	clustering will be unavailable. If this	Certificate Propagation	Copies user		Manual	Local Syste	
	service is disabled, any services that	🔐 Cluster Service	Enables serv		Start	/ste	
	explicitly depend on it will fail to start.	Section CNG Key Isolation	The CNG ke		Stop	/ste	
		🤐 COM+ Event System	Supports Sy	Running	D	ervice	
		🌼 COM+ System Application	Manages th		Pause	/ste	
		鵒 Computer Browser	Maintains a		Resume	/ste	
		🤐 Credential Manager	Provides se		Restart	/ste	
		Cryptographic Services	Provides thr	Running	All Tasks	<u>k</u> S	
		🔍 DCOM Server Process Laun	The DCOM	Running		/ste	
		Device Association Service	Enables pair		Ketresh	/ste	
		Device Install Service	Enables a c		Properties	/ste	
		😪 Device Setup Manager	Enables the	Running	Help	/ste	
		Client DHCP Client	Registers an	Running		ervice	
		Diagnostic Policy Service	The Diagno	Running	Automatic (D	Local Service	
		Diagnostic Service Host	The Diagno		Manual	Local Service	
		🔍 Diagnostic System Host	The Diagno		Manual	Local Syste	
		🔍 Distributed Link Tracking Cl	Maintains li	Running	Automatic	Local Syste	
		🧠 Distributed Transaction Co	Coordinates	Running	Automatic (D	Network S	
		Southern Client	The DNS Cli	Running	Automatic (T	Network S	
		鵒 Encrypting File System (EFS)	Provides th		Manual (Trig	Local Syste	
		Extensible Authentication P	The Extensi		Manual	Local Syste	×
	Extended Standard						

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

Cluster	r Service Properties (Local Computer)
General Log On	Recovery Dependencies
Service name:	ClusSvc
Display name:	Cluster Service
Description:	Enables servers to work together as a cluster to
Path to executab C:\Windows\Clus	le: ster\clussvc.exe -s
Startup type:	Automatic 🗸 🗸
Help me configur	e service startup options.
Service status:	Stopped
Start	Stop Pause Resume
You can specify t from here.	he start parameters that apply when you start the service
Start parameters:	
	OK Cancel Apply

- 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**.

	Failover Cluster Manager				x
File Action View Help					
🗢 🔿 🙍 📅 🚺 🖬					
Railover Cluster Manager	Nodes			Actions	
MSFC.CLASSICdomain.com	NameStatus			Nodes	•
	VIN-HFO0CFUG1K3 Down	Daura		🍄 Add Node	
Storage	WIN-OH6VOSNBA1C (1) Up	Resume +		View	•
Cluster Events		Remote Desktop		Refresh	
		Show Critical Events		🛛 Help	
		More Actions	Start Cluster Service	I-HFO0CFUG1K3	•
	· · · · · · · · · · · · · · · · · ·	Refresh	Stop Cluster Service	Pause	•
		Help	Evict	Resume	•
				💀 Remote Desktop	
				Bow Critical Events	
				More Actions	•
				Refresh	
				<table-cell> Help</table-cell>	
	WIN-HFO0CFUG1K3				
	Version: Status: 6.2.9200 Down				
	Samiaa Paaki				
	No Service Pack:				
< III >					
This action starts the Cluster service	on this node, after which the node can participate in	the cluster and host resources.			

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

- 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



- 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.
- 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**. After 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.