LAN Driver
Installation Guide
(Intel R1681)

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1. Preface

Thank you very much for purchasing our product.

This setup guide explains how to set up the LAN drivers.

◆ Target OS

Abbreviated designation	Software Production Name
Windows Server 2008 (32Bit)	Microsoft® Windows Server® 2008 Standard (32Bit) Microsoft® Windows Server® 2008 Enterprise (32Bit)
Windows Server 2008 (64Bit)	Microsoft® Windows Server® 2008 Standard (64Bit) Microsoft® Windows Server® 2008 Enterprise (64Bit)
Windows Server 2008 R2	Microsoft® Windows Server® 2008 R2 Standard Microsoft® Windows Server® 2008 R2 Enterprise

◆ Target server and optional LAN boards, Storage and I/O Blade, Tape Blade

Target server

Abbreviated designation	Server Production Name	Target
Express5800/ GT120a	NEC Express5800/ GT120a	Standard network adapters (2x)
Express5800/ GT120b	NEC Express5800/ GT120b	Standard network adapters (2x)
Express5800/ T120a-E	NEC Express5800/ T120a-E	Standard network adapters (2x)
Express5800/ T120b-E	NEC Express5800/ T120b-E	Standard network adapters (2x)
Express5800/ T120a-M	NEC Express5800/ T120a-M	Standard network adapters (2x)
Express5800/ T120b-M	NEC Express5800/ T120b-M	Standard network adapters (2x)
Express5800/ R120a-1	NEC Express5800/ R120a-1	Standard network adapters (2x)
Express5800/ R120b-1	NEC Express5800/ R120b-1	Standard network adapters (2x)
Express5800/ R120a-2	NEC Express5800/ R120a-2	Standard network adapters (2x)
Express5800/ R120b-2	NEC Express5800/ R120b-2	Standard network adapters (2x)
Express5800/ R140b-4	NEC Express5800/ R140b-4	Standard network adapters (4x)
Express5800/ B120a	NEC Express5800/ B120a	Standard network adapters (2x)
Express5800/ B120b	NEC Express5800/ B120b	Standard network adapters (2x)
Express5800/ B120a-d	NEC Express5800/ B120a-d	Standard network adapters (2x)
Express5800/ B120b-d	NEC Express5800/ B120b-d	Standard network adapters (2x)
Express5800/ B120b-h	NEC Express5800/ B120b-h	Standard network adapters (2x)
Express5800/ B120b-Lw	NEC Express5800/ B120b-Lw	Standard network adapters (2x)
Express5800/ B120d	NEC Express5800/ B120d	*1
Express5800/ B120d-h	NEC Express5800/ B120d-h	*1

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Express5800/ B110d	NEC Express5800/ B110d	*1

*1 The Target environment is applicable only when optional lan boards, storage and I/O blade, tape blade are connected.
Standard network adapters is not applicable.

Storage and I/O Blade, Tape Blade

Server	Target
N8404-001F	Standard network adapters (2x)
N8404-002	Standard network adapters (2x)
N8404-003F	Standard network adapters (2x)
N8404-005F	Standard network adapters (4x)

Optional LAN boards

Model number	Production Name
N8104-112	1000BASE-SX Adapter
N8104-119	1000BASE-T Adapter
N8104-120	1000BASE-T Adapter(2ch)
N8104-121	1000BASE-T Adapter(2ch)
N8104-122	1000BASE-T Adapter(2ch)
N8104-125A	1000BASE-T Adapter(4ch)
N8104-126	1000BASE-T Adapter
N8403-017	1000BASE-T Adapter(2ch)
N8403-020	1000BASE-T Adapter(4ch)
N8403-021	1000BASE-T Adapter(2ch)
N8403-022	1000BASE-T Adapter(4ch)
N8403-035	10GBASE-KR Adapter(2ch)

*2 Above information is base on 2012/12.
Refer to the Server Configuration Guide for the latest information.
The latest drivers published on our Support Website

*3 Refer to the Server Configuration Guide for correspondence Optional LAN Board.

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Intel, PROSet are registered trademarks of the Intel Corporation in the U.S.

* In addition, TM and a R mark are not specified in the text.

2. Installation of Windows Driver

This Section explains how to install the Windows Driver.
Make sure “2.7Notice(P.18)” are confirmed before begins.

In this section “LAN driver” is including omission of LAN Controller Utility “PROSet” and “network controller driver”.

Important **Logon the system by administrator account for execute the operation below**

◆ Preparations

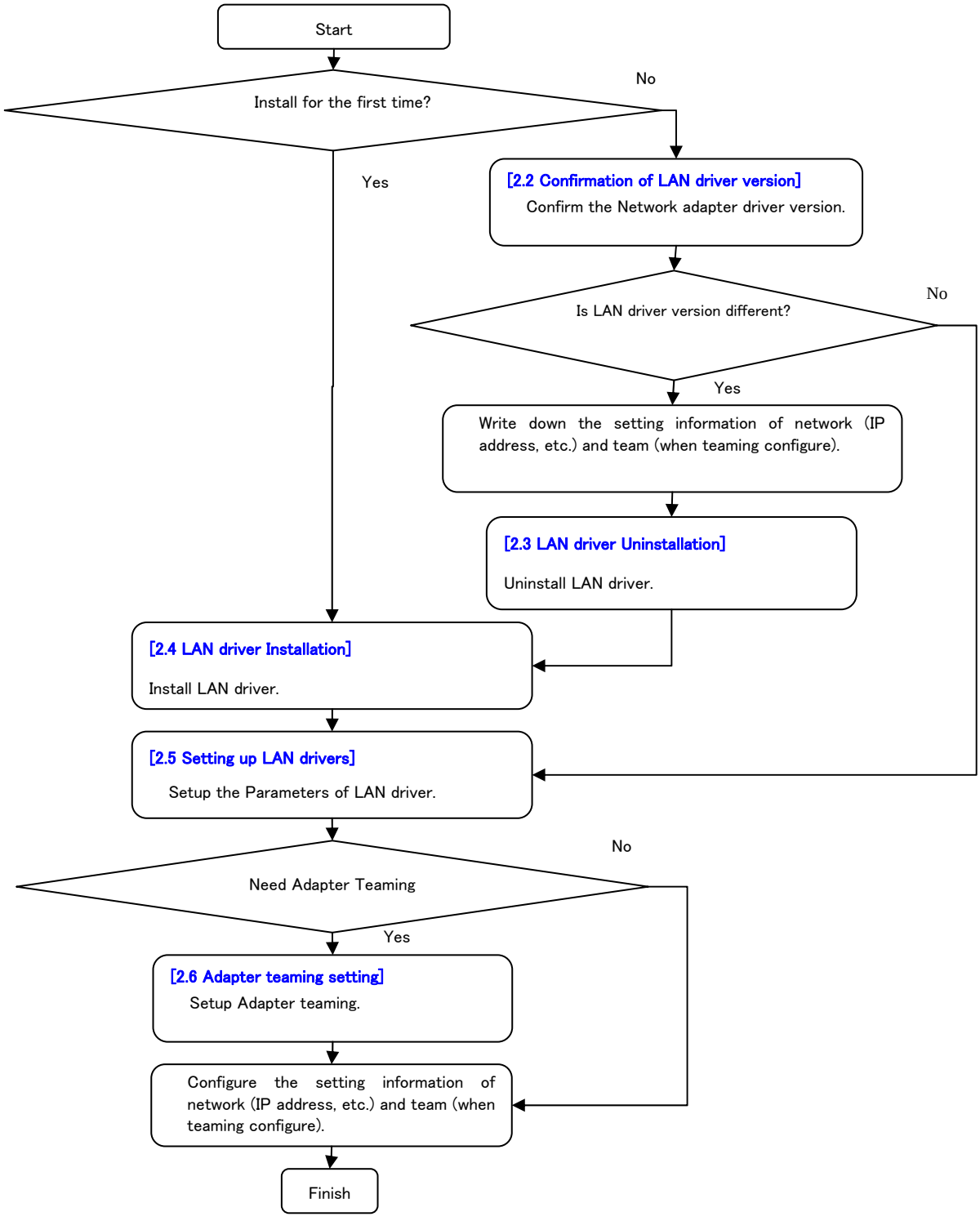
1. Download the R1681.exe.
2. The file for installing driver is a Self Extractor file.
   Create a “temp” folder directly under the system drive and uncompressed to the “temp” folder.

   (e.g., **C:\temp\R1681**)

2.1. The flow of LAN driver installation process

The flow of LAN driver installation process

The installation process is executed by the following flow.



2.2. Confirmation of LAN driver version

Check the Driver version by the procedure below.

1. Logon the system into administrator account.
2. Open [Device Manager].
3. Open the [Properties] of the appropriate devices existed under [Network adapters].
4. Open [Driver] tab and confirm the [Driver Version]. Confirm it is the same version as driver information on the table below.

OS	Device name	Driver file name	Version
Windows Server 2008 (32Bit)	Intel(R) 82574L Gigabit Network Connection Intel(R) 82576 Gigabit Dual Port Network Connection Intel(R) 82576NS Gigabit Ethernet Controller Intel(R) 82576 Gigabit Dual Port Server Network Connection	e1q6032.sys	11.14.48.0
	Intel(R) 82578DM Gigabit Network Connection	e1k6032.sys	11.13.51.0
	Intel(R) PRO/1000 PT Server Adapter Intel(R) PRO/1000 PT Dual Port Server Adapter Intel(R) PRO/1000 PT Quad Port Server Adapter Intel(R) PRO/1000 PB Dual Port Server Connection	e1e6032.sys	9.15.11.0
	Intel(R) 82599 10 Gigabit Dual Port Backplane Connection	ixn6032.sys	2.9.71.0
	Intel(R) PRO/1000 MF Server Adapter Intel(R) PRO/1000 MT Server Adapter Intel(R) PRO/1000 MT Dual Port Server Adapter	e1g60i32.sys	8.3.15.0
Windows Server 2008 (64Bit)	Intel(R) 82574L Gigabit Network Connection Intel(R) 82576 Gigabit Dual Port Network Connection Intel(R) 82576NS Gigabit Ethernet Controller Intel(R) 82576 Gigabit Dual Port Server Network Connection	e1q60x64.sys	11.14.48.0
	Intel(R) 82578DM Gigabit Network Connection	e1k60x64.sys	11.13.51.0
	Intel(R) PRO/1000 PT Server Adapter Intel(R) PRO/1000 PT Dual Port Server Adapter Intel(R) PRO/1000 PT Quad Port Server Adapter Intel(R) PRO/1000 PB Dual Port Server Connection	e1e6032e.sys	9.15.11.0
	Intel(R) 82599 10 Gigabit Dual Port Backplane Connection	ixn60x64.sys	2.9.71.0

Windows Server 2008 (64Bit)	Intel(R) PRO/1000 MF Server Adapter Intel(R) PRO/1000 MT Server Adapter Intel(R) PRO/1000 MT Dual Port Server Adapter	e1g6032e.sys	8.3.15.0
Windows Server 2008 R2	Intel(R) 82574L Gigabit Network Connection Intel(R) 82576 Gigabit Dual Port Network Connection Intel(R) 82576NS Gigabit Ethernet Controller Intel(R) 82576 Gigabit Dual Port Server Network Connection	e1q62x64.sys	11.14.48.0
	Intel(R) 82578DM Gigabit Network Connection	e1k62x64.sys	11.13.51.0
	Intel(R) PRO/1000 PT Dual Port Server Adapter Intel(R) PRO/1000 PT Server Adapter Intel(R) PRO/1000 PT Quad Port Server Adapter Intel(R) PRO/1000 PB Dual Port Server Connection	e1e6232e.sys	9.15.11.0
	Intel(R) 82599 10 Gigabit Dual Port Backplane Connection	ixn62x64.sys	2.9.71.0

5. Open [Programs and Features].
   [Start] -> [Control Panel] -> [Programs and Features].
6. Make sure indicate **"Intel(R) Network Connections 16.8.46.0"**.

Note

- Confirm all Network adapter driver versions are correct in [Device Manager]. Adapter Teaming is not included in this step.
- If [Ethernet Controller] is displayed in [Device Manager], it means "LAN driver/PROSet" are not installed. Please install the attached driver by [2.4 LAN driver/PROSet(Teaming driver) Installation(P.11)] procedure.

Important

- **install LAN driver by this document, the version is always equal to following version in step 4 and 6.**
  When only the version in step 4 is different, please install the attached driver by [2.4.2 LAN driver manual Installation (P.12)] procedure.

2.3. LAN driver/PROSet(Teaming driver) Uninstallation

Important

- **Logon the system by administrator account for execute the operation below.**
- **If team existed, remove the team first. And if Hyper-V virtual adapter bound, remove the Hyper-V bound first before remove the team.**

Note

For install the new LAN driver, go to Step [2.4 LAN driver/PROSet(Teaming driver) Installation(P.11)].

1. Logon the system with administrative user.
2. Open [Programs and Features].
   [Start] -> [Control Panel] -> [Programs and Features]
3. Point to the **"Intel(R) Network Connections xx.xx.xx.xx"** in the list, right click and point to [Uninstall].
   [Intel(R) Network Connections] is displayed.
4. Confirm the check to the three points of follows and click [Remove].
   - ☐ Drivers
   - ☐ Intel(R) PROSet for Windows* Device Manager
   - ☐ Advanced Network Services
5. Confirmation message of selected components is displayed, but clicks [Yes].
   Uninstall is start.
6. Successfully message is displayed and clicks [Finish].
7. Restart the system.

2.4. LAN driver/PROSet(Teaming driver) Installation

Important

- **Logon the system by administrator account for execute the operation below.**
- **Adding N8104-125A after LAN drivers are already installed on Windows Server 2008 (32Bit) or Windows Server 2008 (64Bit), must first uninstall the LAN driver, and then install LAN driver with the N8104-125A connected.**
- **Adding any supported optional LAN boards after LAN driver/PROSet are already installed, refer to [2.2 Confirmation of LAN driver version (P.8)] and confirm the version of LAN driver. If LAN driver version are different, refer to [2.4.2 LAN driver manual Installation (P.12)], and install LAN driver.**

2.4.1.LAN driver/PROSet(Teaming driver) installation procedure

1. Logon the system into administrator account.
2. Enter the following command at the command prompt, and then specify the drive letter of System Drive (usually C drive).

   ☐ Windows Server 2008 (32Bit)

   cd C:\temp\R1681\LAN\WS2008x86

   ☐ Windows Server 2008 (64Bit)

   cd C:\temp\R1681\LAN\WS2008x64

   ☐ Windows Server 2008 R2

   cd C:\temp\R1681\LAN\WS2008R2

3. Enter the following, and then press <Enter> key.

   "**INSTALL.bat**"
4. When the following message appears, restart the system.

   "Installation Completed!"

2.4.2.LAN driver manual Installation

1. Open [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. Click [Update Driver] in [Driver] tab.
   [Update Driver Software - (Network Adapter Name)] will be displayed.
4. Click [Browse my computer for driver software].
5. Enter the following to [Search for driver software in this location] and click [Next] (usually C drive).

   □ Windows Server 2008 (32Bit)
   - 1000 BASE Network Adapter
     C:\temp\R1681\LAN\WS2008x86\lan\intel\R1681\PRO1000\Win32\NDIS61
   - 10G BASE Network Adapter
     C:\temp\R1681\LAN\WS2008x86\lan\intel\R1681\PROXGB\Win32\NDIS61

   □ Windows Server 2008 (64Bit)
   - 1000 BASE Network Adapter
     C:\temp\R1681\LAN\WS2008x64\lan\intel\R1681\PRO1000\Winx64\NDIS61
   - 10G BASE Network Adapter
     C:\temp\R1681\LAN\WS2008x64\lan\intel\R1681\PROXGB\Winx64\NDIS61

   □ Windows Server 2008 R2
   - 1000 BASE Network Adapter
     C:\temp\R1681\LAN\WS2008R2\lan\intel\R1681\PRO1000\Winx64\NDIS62
   - 10G BASE Network Adapter
     C:\temp\ R1681\LAN\WS2008R2\lan\intel\R1681\PROXGB\Winx64\NDIS62

   A search of Driver is started, and install is started after search.
   Wait a little, [Windows has successfully updated your driver software] will be displayed.

6. Click [Close].
7. Restart the system.

2.5. Setting up LAN drivers

2.5.1.Setting link speed

Important **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.

1. Open [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. Click [Link Speed] and specify the [Speed & Duplex] value the same as the value specified for switching hub.
4. Click [OK] in the Network Adapter Properties dialog box.
5. Restart the system.

2.6. Adapter teaming setting

Note

- Converged Network Adapter is not available to configure adapter teaming by PROSet.
- For remove an adapter teaming, refer to [2.6.3 Procedure for deleting team(P.17)].

Please verifies the following notification for remove an adapters teaming.

- Once an adapter teaming is configured, before replace Mother board or optional LAN boards, removed the adapter teaming first.
- If team existed, remove the team first. And if Hyper-V virtual adapter bound, remove the Hyper-V bound first before remove the team.

Important

- **Do not configure the Teaming on Adapter which using iSCSI function.**
- **Install Service Pack 1 before using adaptive Load Balancing(ALB) in Windows Server 2008 R2**
- **The team must be configured between LAN port on the same controller on SIGMABLADE(Blade Server).**

2.6.1.About Team Type

You can create four types of load balance teams:

- **Adapter Fault Tolerance (AFT)**

  AFT is a feature that creates a group containing more than one adapter and automatically converts the process of the working adapter to the other adapter in the group when any trouble occurred on that adapter.

- **Adaptive Load Balancing (ALB)**

  ALB is a feature that creates a group containing more than one adapter and enhances the throughput by operating packet transmission from the server by all the adapters.

  This feature includes AFT feature.

- **Static Link Aggregation (SLA)**

  SLA accounts for the GEC and 802.3ad static protocols.

  SLA is a switch-assisted teaming mode and requires configuring ports at both ends of the link server interfaces and switch ports.

- **Switch Fault Tolerance (SFT)**

  SFT is a feature that provides a failover relationship between two ports when each port is connected to a separate switch.

  SFT supports two ports per team.

2.6.2.Setting up team

Important

- **AFT/ALB setup must be operated after system update and restarting the system.**
- **All the adapters specified as a group of adapter Teaming must exist on the same LAN. If they are connected to the separate switches, they will not work normally.**
- **The adapters specified as a group of Adaptive Load Balancing (ALB) can be connected to only the switching hub.**
- **Confirm the port setting of the switching hub (L2) matches the server network adapter teaming mode.**
- **If you want to change the type of a teaming, be sure to remove the teaming first, then re-setup a new teaming. Do not use the function of PROSet to change the type of a teaming.**

1. Open the [Device Manager].
2. Double click [(network adapter name include in the team)] in the list.
   Property of the network adapter is displayed.
3. Click [Teaming] tab and checked [Team this adapter with other adapters] and click [New Team].
4. Fill the name of the team in [Specify a name for the team] and click [Next].
5. Checked adapters include in the team and click [Next].
6. Select a team mode, and then click [NEXT].

Tips

Following team types are supported.

- Adapter Fault Tolerance
- Adaptive Load Balancing
- Switch Fault Tolerance
- Static Link Aggregation

Important **Use the default parameter for N8403-035 profile.**

7. Click [Finish].
   Property of the teaming adapter is displayed.

Tips

When Windows Server 2008 R2, teaming an adapter with standard network adapter and optional network adapter will cause the following message appear.
Click “OK” button and continue the setting.

"One or more adapters in the team do not support true NDIS6.20 Receive-Side Scaling, Receive-Side Scaling will be disabled for the team, Disabling Receive-Side Scaling will negatively impact the performance of the team."

8. Click [Settings] tab and click [Modify Team].
9. Refer to the following procedure to set the team member adapter priority status.
   - Set Primary
     Point the adapter and click [Set Primary].
   - Set Secondary
     Point the adapter and click [Set Secondary].

   Click [OK].

Tips

Priority setting of team adapter can be confirmed by the following procedure.
(1) Open the [Device Manager].
(2) Double click [Team Adapter name]. Property of team network adapter is displayed.
(3) Click [Setting] tab.
(4) Confirm back of adapter name in [Adapters in team] list.

10. Click [Test Switch].
    [Test Switch] window is displayed.
11. Click [Run Test] to confirm the adapter team is properly setup.
    Confirm the result in [Test results].

Note

Before executing “Run Test”, make sure all teaming member adapter state in [status] list is “Active” or “Standby”.
When an error message was indicated, refer to the contents of an error and change setting in the switching hub.

12. Restart the system.

2.6.3.Procedure for deleting team

1. Open the [Device Manager].
2. Double click [(team adapter)] in the list.
   Property of the team adapter is displayed.
3. Click [Setting] tab and click [Remove Team].
4. Click [Yes] to the message.
5. Confirm [TEAM: "Team name"] adapter is not existing in [Network adapters] tree.
6. Restart the system.

2.7. Notice

This section describes notice of installing. Read the following notes or information before installing.

2.7.1.About the operation by remote desktop

To Operation that has been described to this document, log on to the system from a local console using an administrator account.

Remotely changing the settings by using the operating system's remote desktop feature is not supported.

2.7.2.About Wake On LAN (WOL)

Wake On LAN (WOL) is only supported on standard network adapters.

2.7.3. About IP Address and Default Gateway setting

When Windows Server 2008 32-Bit /64-Bit and Windows Server 2008 R2 are using, the following phenomenon may occur.

Important	**When use workaround of the [Document number:2473489 Detailed URL], all IP address and default gateway will be initialize.** **Please take a note all of the setting information of IP address and default gateway before using this workaround.**

[Phenomenon]
When setting of IP Address and Default Gateway in Windows Server 2008 32-Bit /64-Bit and Windows Server 2008 R2, value that was set may not be assigned.

[Document number:2473489 Detailed URL]
http://support.microsoft.com/kb/2473489/en