

Chapter 2

Basic Setup

This chapter describes how to install your NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311 and set up basic connectivity on your Local Area Network (LAN) using the setup.exe utility.

What You Need Before You Begin

You need to verify your computer meets the minimum system requirements and identify the network configuration settings of the LAN where you will connect before you can configure your gigabit Ethernet adapter and connect.

Verifying System Requirements

Before installing the NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311, please make sure that these minimum requirements have been met:

- A computer with a Pentium® 300 MHz or higher compatible processor
- One open 32-bit or 64-bit PCI slot
- A CD-ROM drive
- 64 MB of memory
- Windows Vista, Windows XP Home, Windows XP Professional, 2000, Me, 98SE (2nd edition), Windows NT 4.0 (with Service Pack 5 or above), Windows 2000 Professional, Windows 2000 Server, or Windows 2000 Advanced Server

Some versions of Windows may ask for the original Windows operating system installation files to complete the installation of the GA311 driver software.

To download the latest Service Pack for Windows NT 4.0, go to the following Microsoft Web page and search for the latest service pack:

<http://www.microsoft.com/downloads/search.asp>

Preparing to Install Your GA311 Gigabit Ethernet Adapter

Follow the instructions provided in this section for installing the GA311 Gigabit Ethernet Adapter in your server or workstation. For additional information about performing these tasks on your particular system, refer to the manuals included with your system hardware.

Before installing your gigabit Ethernet adapter:

1. Make sure that your system meets the hardware and software requirements referenced in [“Verifying System Requirements” on page 2-1](#).
1. Make sure that your system uses the latest BIOS.
2. Turn off the power to your PC. If you are running Windows, close all applications and click Start from the desktop menu, select Shut Down, and then select Shut down the computer.



Warning: You are installing the gigabit Ethernet adapter in a machine that operates with voltages that can be dangerous. Protect yourself, the gigabit Ethernet adapter, and your server by taking these precautions:

- Shut down the server software and turn off the power to your server.
- Use only insulated or non-conducting tools.
- Hold the gigabit Ethernet adapter by the edges and place it on an antistatic surface only.
- Check the adapter for visible signs of damage, particularly to the connector on the edge of the card. Never attempt to install a damaged card.

Selecting the Network Cable

The GA311 has one RJ-45 connector used for attaching the system to an Ethernet copper-wire segment. The card will automatically negotiate the fastest connection speed and duplex possible. If a specific speed or duplex is desired, the card can be placed into one of the supported modes: 1000 Mbps full duplex; 100 Mbps full duplex, 100 Mbps half duplex; 10Mbps full duplex, 10Mbps half duplex. Prepare an appropriate cable. The cable specifications are:

- Port type: 10/100/1000BASE-T
- Connector: RJ-45
- Media: CAT 5 UTP/CAT 5e UTP
- Maximum Distance: 325 feet (100 meters)



Note: 1000BASE-T signaling requires four twisted pairs of Category 5 balanced cabling, as specified in ISO/IEC 11801:1995 and ANSI/EIA/TIA-568-A (1995) and tested using procedures defined in TIA/EIA TSB95.

Installation Order

1. First, install the GA311 driver and utility software using the setup.exe program on the *NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311 Resource CD*.
2. When the Windows system boots up after installing the GA311 Gigabit Ethernet Adapter, the system automatically detects the new hardware and prompts you to install the driver software for the device.
3. Follow the prompts of the Found New Hardware Wizard to automatically use the driver installed in step 1.

If you are installing more than one GA311 Gigabit Ethernet Adapter, you must perform the following procedure for each card.

Basic Installation Instructions

Use the procedure below that corresponds to the version of Windows you are using:

- Windows Vista
- Windows XP, 2000, 98SE 2nd edition, or Me
- Windows NT 4.0

For Windows Vista Users

1

First, install the GA311 Gigabit Ethernet Adapter.

- a. Power off and shut down your computer.
- b. Open the PC case, and locate an available PCI slot in your computer. Insert the card into the PCI expansion slot.

Note: To avoid damaging any components on the card, handle it by the edges. Use your thumbs to push it securely into the PCI slot. Do not use excessive force, but make sure the card is fully inserted into the slot to prevent the PC operating system from freezing at startup.

- c. Power on your PC, let the operating system boot up completely, and log in as needed. You will see the GA311 system tray icon on the lower right of the Windows task bar.
- d. Double-click the GA311 icon in the Windows system tray to open the Windows network connection page.
- e. Click **Properties** and configure the GA311 according to your network requirements.



Local Area Connection Icon before you connect a network cable

For assistance with configuring the network settings, please see the networking tutorials on the *NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311 Resource CD*.

2

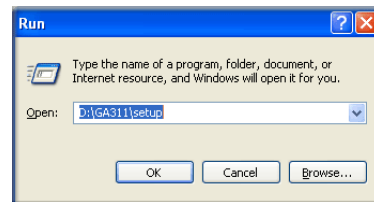
THEN, INSTALL THE GA311 SOFTWARE.

- a. Insert the *NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311 Resource CD* into your CD-ROM drive. The Adapter Resource CD main page will load.
- b. From the Windows Start menu, select Run. The Run dialog box opens.
- c. Enter the path to the GA311 setup.exe file on the CD. For example, if your CD-ROM is drive D, enter D:\GA311\setup as the path. Then, click **OK**.
- d. Follow the InstallShield Wizard steps, click **Finish** when done, and if prompted, restart your computer.

Now, the GA311 driver and utility software are installed.




Adapters Resource CD

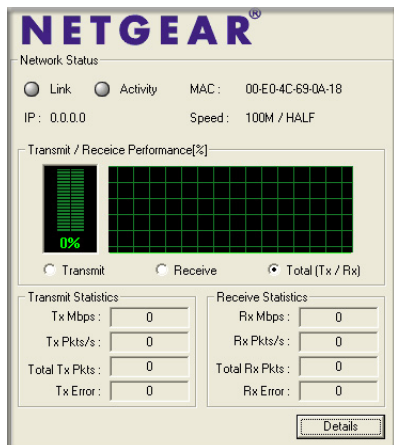


Windows Start Run

3

Verify connectivity to your network.

- a. Connect one end of the cable to the GA311 Gigabit Ethernet Adapter.
- b. Connect the other end of the cable to an RJ-45 Ethernet network port.
- c. Turn on power to the PC and then to the connected device.
- d. Verify that one of the four LEDs is on, indicating that there is a good link to the card.
- e. Click the GA311 system tray Netgear Smart Wizard utility icon on the lower right of the Windows task bar.  .
- f. Verify that the GA311 status information matches your network.



If there is a problem with the installation of the driver, an exclamation point will appear next to the NETGEAR GA311 Gigabit Adapter. Try rebooting your computer.

Note: If you are unable to connect, see troubleshooting tips in [“Basic Troubleshooting Tips”](#) on page 3-4.

For Windows XP, 2000, Me, and 98SE Users

1

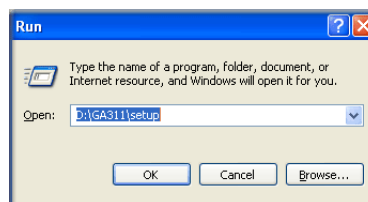
FIRST, INSTALL THE GA311 SOFTWARE.

- a. Power on your PC, let the operating system boot up completely, and log in as needed.
- b. Insert the *NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311 Resource CD* into your CD-ROM drive. The Adapter Resource CD main page will load.
- c. From the Windows Start menu, select Run. The Run dialog box opens.
- d. Enter the path to the GA311 setup.exe file on the CD. For example, if your CD-ROM is drive D, enter D:\GA311\setup as the path. Then, click **OK**.
- e. Follow the InstallShield Wizard steps, click **Finish** when done, and if prompted, restart your computer.

Now, the GA311 driver and utility software are installed.



Adapters Resource CD



Windows Start Run

2

Next, install the GA311 Gigabit Ethernet Adapter.

- a. Shut down and turn off your computer.
- b. Open the PC case, and locate an available PCI slot in your computer. Insert the card into the PCI expansion slot.

Note: To avoid damaging any components on the card, handle it by the edges. Use your thumbs to push it securely into the PCI slot. Do not use excessive force, but make sure the card is fully inserted into the slot to prevent the PC OS from freezing at startup.

- c. Restart the PC and **Follow the Found New Hardware Wizard** steps.

Accept the **Install the software automatically** setting, and click **Next** to proceed.

Note: If Windows XP or 2000 displays a Windows XP Logo Testing or a Digital Signature Not Found warning, click **Continue Anyway** or **Yes** to proceed.

- d. Click **Finish** to complete the installation. If prompted to do so, restart the PC. You will see the GA311 system tray icon on the lower right of the Windows task bar.
- e. Double-click the GA311 icon in the Windows system tray to open the Windows network connection page.
- f. Click **Properties** and configure the GA311 according to your network requirements.



Windows Found New Hardware Wizard




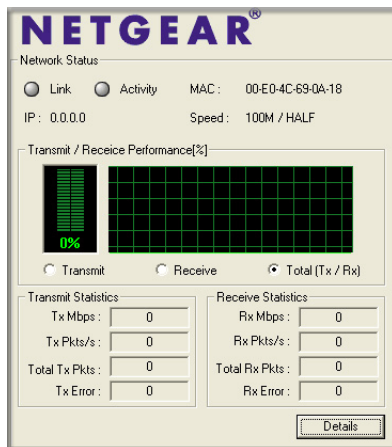
Local Area Connection Icon before you connect a network cable

For assistance with configuring the network settings, please see the networking tutorials on the *NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311 Resource CD*.

3

Verify connectivity to your network.

- a. Connect one end of the cable to the GA311 Gigabit Ethernet Adapter.
- b. Connect the other end of the cable to an RJ-45 Ethernet network port.
- c. Turn on power to the PC and then to the connected device.
- d. Verify that one of the four LEDs is on, indicating that there is a good link to the card.
- e. Click the GA311 system tray Netgear Smart Wizard utility icon on the lower right of the Windows task bar  ..
- f. Verify that the GA311 status information matches your network.



If there is a problem with the installation of the driver, an exclamation point will appear next to the NETGEAR GA311 Gigabit Adapter. Try rebooting your computer.

Note: If you are unable to connect, see troubleshooting tips in [“Basic Troubleshooting Tips”](#) on page 3-4.

For Windows NT 4.0 Users Installing a GA311

This section provides information about inserting the gigabit Ethernet adapter in your computer and installing the Microsoft Windows NT 4.0 driver software.

1

Install the GA311 Gigabit Ethernet Adapter.

- a. Locate an available PCI slot in your computer.
- b. Insert the card into the PCI expansion slot.

Note: To avoid damaging any components on the card, handle it by the edges, using your thumbs to push it securely into the PCI slot. Do not use excessive force, but make sure the card is fully inserted into the slot to prevent the PC operating system from freezing at startup.

- c. When you boot up the Windows system after installing the GA311 Gigabit Ethernet Adapter, on the Windows taskbar, click the Start button, point to Settings, and then click Control Panel. The Control Panel window opens, displaying a group of icons including the Network icon. Double-click on the network icon.
- d. The network dialog box opens, which displays a list of installed components. Click on the adapter tab, and then click the Add button.



Network Settings

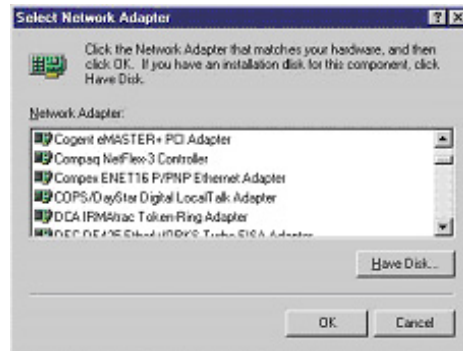
2

Install the driver for the NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311.

- a. The select network adapter dialog box opens, click the Have Disk button.
- b. The insert dialog box opens, insert the GA311 driver CD into your CD-ROM drive. Type D:\ in the dialog box and click OK.

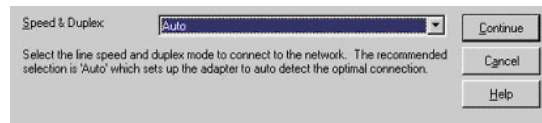
Note: Windows NT 4.0 drivers are found at D:\, assuming that D: is the drive letter for the CD-ROM drive.

- c. The select OEM Option dialog box opens, highlight the GA311 Gigabit Ethernet Adapter and click OK.
- d. The driver is copied onto your system, and NT 4.0 will probably ask for the original Windows NT 4.0 CD-ROM. Point Windows NT 4.0 to the proper location (for example, D:\i386). When the Adapter property dialog box opens, click Continue to accept the default parameters.
- e. If other cards in your system use TCP/IP bindings, the Microsoft TCP/IP properties dialog box will open. Set any necessary TCP/IP configurations and click Close.
- f. When prompted to restart your computer, remove your driver CD from the CDROM drive and click OK.
- g. The GA311 Windows NT 4.0 driver installation is complete.



Select Network Adapter

Note: If Windows warns about a Digital Signature Not Found, click **Yes** to continue.



Accept the Default Speed & Duplex

3

Verify connectivity to your network.

- a. Connect one end of the cable to the GA311 Gigabit Ethernet Adapter.
- b. Connect the other end of the cable to an RJ-45 Ethernet network port.
- c. Turn on power to the PC and then to the connected device.
- d. Verify that one of the four LEDs is on, indicating that there is a good link to the card. See [“Determining the GA311 Connection Status” on page 2-14](#) for more information.
- e. Verify connectivity to the Internet or network resources:
 - Double-click My Computer on the desktop, double-click Control Panel, and then double-click System.
 - Click Hardware and click Device Manager tab, and then double-click Network adapters.
 - Double-click NETGEAR GA311 Gigabit Ethernet Adapter. A message appears describing the status of the device.

If there is a problem with the installation of the driver, an exclamation point will appear next to the NETGEAR GA311 Gigabit Ethernet Adapter. Try rebooting your computer.

Note: The Netgear Smart Wizard utility is not available for Windows NT.

Moving the GA311 to a Different Slot in Windows Vista, XP, 2000, Me, or 98SE

Windows automatically detects the installation and removal of hardware. To move a GA311 Gigabit Ethernet Adapter to a different slot in the same system, you need to do the following:

1. Shut down the system and remove the card from the PCI slot.
2. Install the card in its new PCI slot.
3. When the system is powered on, reinstall the driver software. See [“Basic Installation Instructions” on page 2-3](#) for more information.

Moving the GA311 to a Different Slot in Windows NT 4.0

Before moving your GA311 Gigabit Ethernet Adapter to a different slot in the same system, you must first remove the card driver software. After removing the driver software, you can move the card to a different slot and reinstall the driver software.

To remove the driver software:

1. Start your Windows NT 4.0 system and log in. You must have Network Administrator privileges to remove the driver software.
2. On the Windows taskbar, click the Start button, point to Settings, and then click Control Panel.
3. Double-click the Network icon. The Network dialog box opens.
4. Click on the Adapter tab. Any previously installed driver is listed in the Network Adapters list.
5. Click on the network card you want to remove, and then click Remove. Repeat step 5 for each network card that you want to remove.
6. Click Close.
7. When prompted to restart your computer, click No.
8. Shut down your computer.

Install the network card in a new slot and then install the network drivers by following the instructions in [“For Windows NT 4.0 Users Installing a GA311” on page 2-9](#).

Updating the Driver Software in Windows NT 4.0

To replace an old driver software with a newer version:

1. Start your Windows NT 4.0 system and log in. You must have Network Administrator privileges to install the driver software.
2. On the Windows taskbar, click the Start button, point to Settings, and then click Control Panel.
3. Double-click the Network icon.
4. Click on the Adapters tab. Any previously installed software drivers are listed in the Network Adapters list.
5. Click on the adapter that you want to update.
6. Click Update. The Select Network Adapter dialog box opens.

7. When prompted, insert the *NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311 Resource CD* into the CD-ROM drive in your PC.
8. Type the path that matches the CD-ROM drive on your system, and then click OK. For example, enter the following path:

E:\

In this example, the letter E: is the CD-ROM drive.

9. Click Close in the Network Dialog box when the copying process is complete.
10. When prompted to restart your computer, click Yes.

The system restarts using the new driver and the default configuration settings.

Determining the GA311 Connection Status

The NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311 provides the following two indicators which give you feedback on the status of your connection:

- The LEDs on the NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311 indicate the condition of link.
- The GA311 Smart Wizard utility displays the current status of the device.

Viewing the Physical Connection Indicators



Figure 2-1:

Once the hardware and its driver software are properly installed on your system, the LEDs indicate the conditions described in the table below.

Table 2-1. GA311 Port LED Activity

| Label | Activity | Description |
|-------|-----------------------|---|
| DATA | Blinking On Off | Brief bursts of data detected on the port Streams of data detected on the port No data detected on the port |
| 1000 | On Off | Good 1000 Mbps Gigabit Ethernet link No 1000 Mbps link; possible link at different speed, possible bad cable, bad connector, or configuration mismatch |
| 100 | On Off | Good 100 Mbps Gigabit Ethernet link No 100 Mbps link; possible link at different speed, possible bad cable, bad connector, or configuration mismatch |
| 10 | On Off | Good 10 Mbps Gigabit Ethernet link No 10 Mbps link; possible link at different speed, possible bad cable, bad connector, or configuration mismatch |

Installing the GA311 Smart Wizard Utility

The GA311 Smart Wizard utility provides a convenient way to check the status of the adapter without needing to view the front of the adapter itself. ∴



Note: The Netgear Smart Wizard utility is not available for Windows NT.

To install the utility:

1. Click the Windows Start menu and select Run.
2. Choose cmd.
3. Type `d:\GA311\launch` to start the utility installation.



Note: The installation program is found on D:\, assuming that D: is the drive letter for the CD-ROM drive.

4. Follow the installation prompts.

- Click Finish to complete the installation. The GA311 Smart Wizard utility appears in the right section of the Windows taskbar.



- Click the GA311 Smart Wizard utility icon to view the current status.

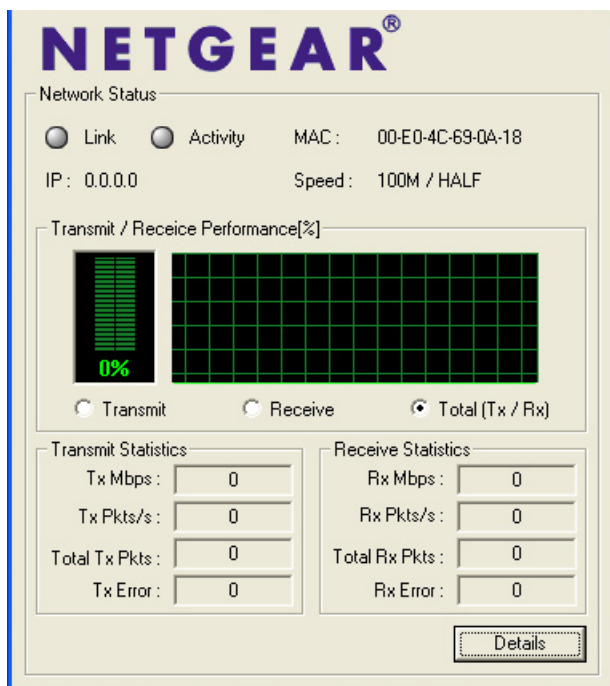


Figure 2-2:

The GA311 System Utility displays the following details:

- Link
- Activity
- MAC address
- IP number
- Speed
- TCP/IP Transmit/Receive Performance graph—select to view packets transmitted, received, or both

- TCP/IP Transmit and Receive Statistics
- Click Details to view the settings of the adapter:

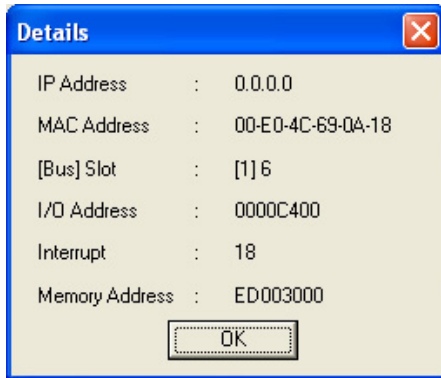


Figure 2-3:

