NETGEAR®

Copper Gigabit Ethernet Card
Installation Guide

MODEL
GA 622ᵀ

NETGEAR®

NETGEAR, Inc.
4500 Great America Parkway
Santa Clara, CA 95054
USA

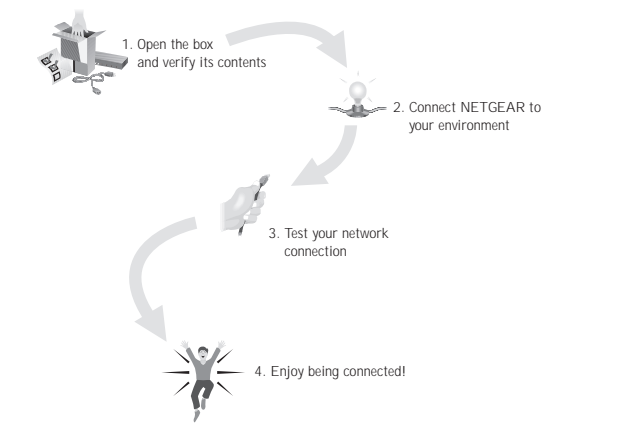Phone: 1-888-NETGEAR
E-mail: support@NETGEAR.com
www.NETGEAR.com

Support Information

See Support Information Card for phone numbers.

Internet / World Wide Web

Go to http://www.NETGEAR.com for the NETGEAR Web page.
Defective or damaged merchandise can be returned to your point-of-sale representative.

IMPORTANT!

Please register online. YOU MUST REGISTER TO OBTAIN TECHNICAL SUPPORT. PLEASE RETAIN PROOF OF PURCHASE and this warranty information. To register your product, get product support, or to obtain product information and NETGEAR product documentation, direct your Web browser to the **http://www.NETGEAR.com** Web page. If you do not have access to the World Wide Web, you can register your product using the enclosed registration card and mail it to NETGEAR customer service.

Introduction

NETGEAR's GA622ᵀ Copper Gigabit Ethernet Card accelerates your network to 1000 Mbps over Cat 5 networking cables and eliminates the problem of network bottlenecks. This high-performance, 100/1000 adapter is ideal for multiple 100 Mbps clients accessing a 1 Gbps server. It comes equipped with drivers supporting all popular operating systems and optimized for peak server performance. The versatile GA622T provides the ultimate throughput with 64-bit PCI connections, and speeds up legacy systems with 32-bit PCI capacity. Simple Plug and Play installation will have your network up and running in minutes.
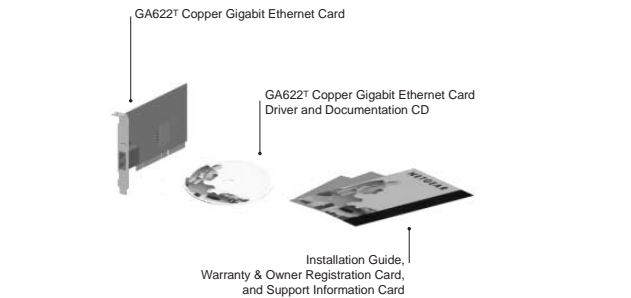
START HERE

1. Open the box and verify its contents

2. Connect NETGEAR to your environment

3. Test your network connection

4. Enjoy being connected!

As a last step, be sure to register your Ethernet card at http://www.NETGEAR.com.

Plan Your Time

Estimated setup time for this product is only **0:20** minutes.

1   OPEN BOX AND VERIFY CONTENTS
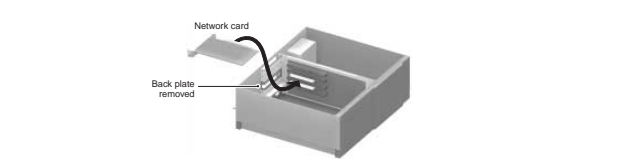
Make sure that your package contains the following:

GA622ᵀ Copper Gigabit Ethernet Card

GA622ᵀ Copper Gigabit Ethernet Card Driver and Documentation CD

Installation Guide, Warranty & Owner Registration Card, and Support Information Card

- GA622ᵀ Copper Gigabit Ethernet Card
- *GA622ᵀ Copper Gigabit Ethernet Card Driver and Documentation CD*
- *GA622ᵀ Copper Gigabit Ethernet Card Installation Guide*
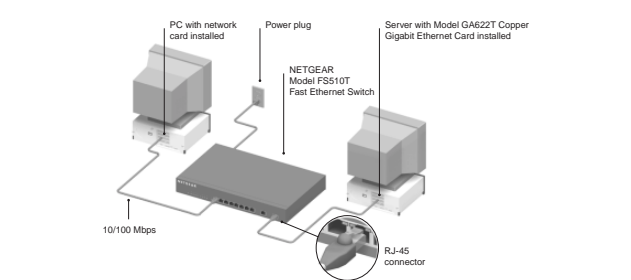- Warranty & Owner Registration Card
- Support Information Card

---

2   CONNECT NETGEAR TO YOUR ENVIRONMENT

Verify Software Requirements

The instructions given in this guide are for using the GA622ᵀ Copper Gigabit Ethernet Card in a server that runs the Microsoft® Windows NT® 4.0 operating system. You must have Service Pack 6 installed on your Windows NT server. You can download Service Pack 6 from the Microsoft Download Center at: **http://www.microsoft.com/downloads**

Note: If your server is operating in a Novell® NetWare, Windows® 2000 or Red Hat® Linux environment, refer to the Reference Guide for the Model GA622ᵀ Copper Gigabit Ethernet Card included on the GA622ᵀ Copper Gigabit Ethernet Card Driver and Documentation CD.

Verify Hardware Requirements

You must have a Pentium-based server that meets Windows NT 4.0 software requirements, and has an open 32-bit or 64-bit PCI expansion slot with bus mastering capability.

Install the Card

Note: Touch a grounded metal object to free yourself of static electricity before you handle the card.

1. Turn the power off and unplug the power cord from your computer.

2. Remove the PC cover.

3. Choose an available PCI slot (either a 32-bit or a 64-bit slot) and remove the corresponding back plate from the PC chassis.

4. Insert the card into the PCI expansion slot.

Caution: To avoid damaging any components on the card, handle it by the edges, using your thumbs to push it securely into the PCI slot. Make sure the card is fully inserted into the slot to prevent the PC operating system from freezing at startup. If you are inserting the card into a 32-bit slot, part of the connector edge on the card remains undocked. This situation is normal and does not affect the operation of the card.

5. Fasten the card to the rear of the computer chassis by tightening the screw that is on the PC.

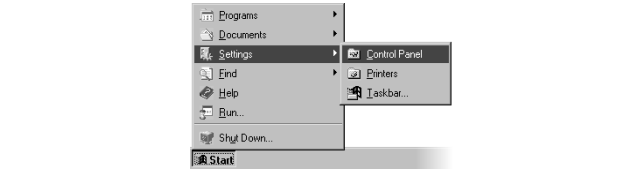6. Replace the PC cover and reconnect the power cord to the PC.

Network card

Back plate removed

Connect the Network Cables

Using the appropriate cable, connect the port on a network hub or switch to the port on the card. The port on the card performs autonegotiation and supports full-duplex operation.
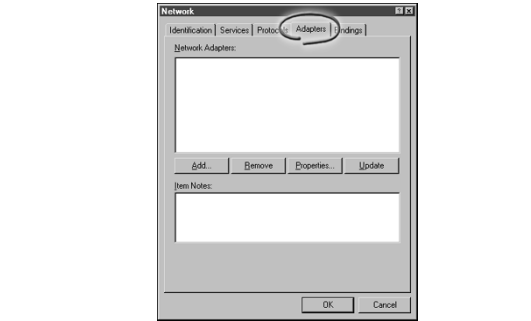
PC with network card installed   Power plug   Server with Model GA622T Copper Gigabit Ethernet Card installed

NETGEAR Model FS510T Fast Ethernet Switch

10/100 Mbps

RJ-45 connector

Unshielded Twisted Pair (GA622ᵀ)	Category 5 cabling	100 meters max

Install the Windows NT Network Driver

Note: You need to install the card (as described earlier) before installing the network driver. Also, you must have Network Administrator privileges to install the driver software.

Although the screens on your system may look different that those shown in these instructions, you should be prompted for the same information. If you are not prompted for the same information, refer to your Microsoft documentation.

1. Turn on the power to the computer and start Windows NT.

2. From the Windows desktop menu, click the Start button, point to Settings, and then click Control Panel.
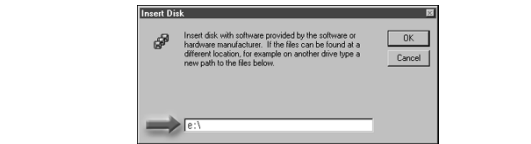
---

3. Double-click the Network icon.

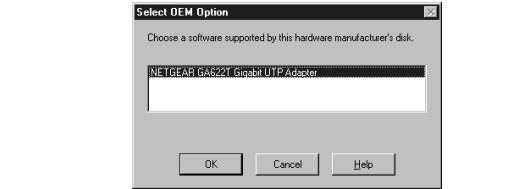The Network dialog box opens, which displays a list of installed components.

4. Click the Adapters tab, and then click Add.

If any previously installed GA622ᵀ Copper Gigabit Ethernet Card drivers are listed, you need to update the drivers as explained in the Reference Guide for the Model GA622ᵀ Copper Gigabit Ethernet Card.

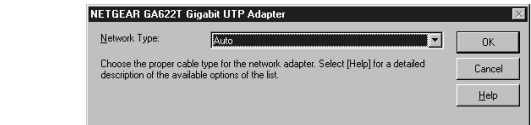The Select Network Adapter dialog box opens.

5. Click the Have Disk button.

The Insert Disk dialog box opens.

6. Insert the GA622ᵀ Copper Gigabit Ethernet Card Driver and Documentation CD into the server's CD-ROM drive.

7. In the text box, type the path to the server's CD-ROM drive and then click OK.

The Select OEM Option dialog box opens.

8. Make sure NETGEAR GA622ᵀ Copper Gigabit Ethernet Card is highlighted, and then click OK.

The driver is copied onto your system, and the NETGEAR GA622ᵀ Gigabit UTP Adapter properties dialog box opens.
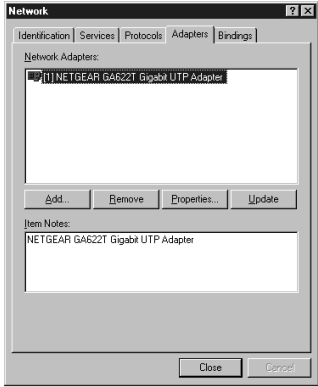
Refer to the following table for help with configuring the options in this dialog box.

Property:	Description:
IEEE Compliance Enable	Disabled is used for non-compliant switches. Enabled requires that the attached network device fully complies with 802.3ab
Interrupt Hold Off Time	Specifies the amount of time between adapter interrupts. Under normal operation, the adapter generates an interrupt every time a frame is received. Reducing the number of interrupts improves CPU utilization.
Jumbo Frame Size	Enables sending larger Ethernet packets on Gigabit. Jumbo Frames can increase throughput and decrease CPU utilization by putting more data in each packet, thereby sending out fewer packets. Jumbo Frames are not a part of the IEEE standard and can be used only if supported by the other network equipment.
Network Address	Allows you to change the network address.
Network Media	Duplex is a performance option that lets you choose how the card transmits and receives packets over the network.
Offload Rx IP Checksum	When enabled, this option allows the card to verify the IP checksum of incoming packets. This will improve IP receive performance by offloading this operation from the CPU. (Windows 2000, Me)
Offload Rx TCP Checksum	When enabled, this option allows the card to verify the TCP checksum of incoming packets. This will improve TCP receive performance by offloading this operation from the CPU. (Windows 2000, Me)
Offload Rx UDP Checksum	When enabled, this option allows the card to verify the UDP checksum of incoming packets. This will improve UDP receive performance by offloading this operation from the CPU. (Windows 2000, Me)
Offload Tx IP Checksum	When enabled, this option allows the card to compute the IP checksum of outgoing packets. This will improve IP transmit performance by offloading this operation from the CPU. (Windows 2000, Me)
Offload Tx TCP Checksum	When enabled, this option allows the card to compute the TCP checksum of outgoing packets. This will improve TCP transmit performance by offloading this operation from the CPU. (Windows 2000, Me)
Offload Tx UDP Checksum	When enabled, this option allows the card to compute the UDP checksum of outgoing packets. This will improve UDP transmit performance by offloading this operation from the CPU. (Windows 2000, Me)
Pause Frames Count	IEEE 802.3x flow control settings help fine-tune network performance by preventing dropped packets.
Pause Frames High	IEEE 802.3x flow control settings help fine-tune network performance by preventing dropped packets.
Pause Frames Low	IEEE 802.3x flow control settings help fine-tune network performance by preventing dropped packets.
Receive Buffer Count	Specifies hardware resources in memory used to receive packets.
Transmit Buffer Count	Specifies hardware resources in memory used to send packets. Increasing this value may increase transmit performance.

9. Click OK to accept the changed parameters.

   The Network dialog box opens.

10. Click Close.

    If other cards in your server use TCP/IP bindings, the Microsoft TCP/IP Properties dialog box opens. Set any necessary TCP/IP configurations, and then click OK.

11. When prompted to restart your computer, click Yes.

    The system restarts using the new driver and configuration settings.

Changing Configuration Parameters

1. From the Windows desktop menu, click the Start button, point to Settings, and then click Control Panel.

2. Double-click the Network icon.

   The Network dialog box opens.

3. Click the Adapters tab.

4. From the list, click NETGEAR GA622T Copper Gigabit Ethernet Card, and then click Properties.

   The Properties dialog box opens.

5. Enable or disable the parameters you want to change by clicking the appropriate boxes.
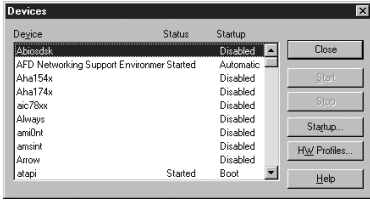
6. Click OK to accept the settings.

3 TEST YOUR NETWORK CONNECTION
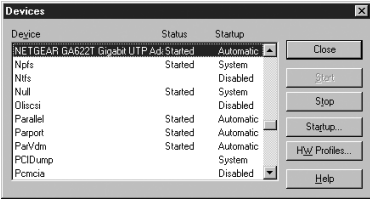
To verify your installation:

1. Double-click the "My Computer" icon on the desktop, then double-click the "Control Panel" icon.

2. Double-click the "Devices" icon in the Control Panel window. The "Devices" dialog box opens.

3. Scroll down the dialog box and look for the "NETGEAR GA622T Gigabit UTP Adapter Card" device name. (The device name may be partially cut off by the next column.) The Status list should show "Started" and the Startup list should show "Automatic.

If the Status list contains any words other than "Started," or if the Startup list contains any words other than "Automatic," there is a problem with the installation of the driver. Try rebooting your computer. If the problem persists, call 1-888-NETGEAR for free technical support.

4 ENJOY BEING CONNECTED!

Features

Your GA622T card provides you with the following key features:

• Up to 1000 Mbps speed using Cat 5 cables

• 64-bit PCI bus with 32-bit capability

• Flexible 100/1000 Mbps capability

• Includes proven Gigabit controller technology

• No fiber cables necessary

• Demonstrated interoperability within major operating systems

• Simple installation

• Networked PCs can share Internet access, printers, Zip drives, and CD-ROM drives

• Users of networked PCs can compete against each other when playing interactive games

• Free technical support seven days a week, twenty-four hours a day

TECHNICAL SPECIFICATIONS

Property:	Description:
Standards Compatibility	IEEE 802.3ab Gigabit Ethernet IEEE 802.3u Fast Ethernet IEEE 802.3u Auto Negotiation IEEE 802.3x Flow Control
GA622T Network Connection	RJ-45 connector for Category 5 UTP cable Full-duplex 2000 Mbps (1000 Mbps each way) Gigabit Ethernet
Host Connection	Single slot, short form factor, PCI card with 32-bit connectors Single slot, long form factor, PCI card with 64-bit connectors PCI rev 2.2 compliant Clock speed up to 66 MHz
DC Operating Voltage	+5V +/- 5%
Power Consumption	14 watts, maximum 2.8A @ + 5VDC
Dimensions	6.6 x 3.7 in. (16.8 x 9.5 cm)
Weight	3.8 oz. (104 g)
Operating Temperature	0 to 40° C
Operating Humidity	10 to 90% noncondensing
Agency Compliance	CE mark, commercial FCC, Part 15, Class B EN 55 022 (CISPR 22), Class B Canada ICES-003, Class B

Trademarks

NETGEAR® is a registered trademark of NETGEAR, INC. Microsoft®, Windows® and Windows NT® are registered trademarks of Microsoft Corporation. Other brand and product names are trademarks or registered trademarks of their respective holders. Information is subject to change without notice. All rights reserved.

Statement of Conditions

In the interest of improving internal design, operational function, and/or reliability, NETGEAR reserves the right to make changes to the products described in this document without notice.

NETGEAR does not assume any liability that may occur due to the use or application of the product(s) or circuit layout(s) described herein.

Certificate of the Manufacturer/Importer

It is hereby certified that the Model GA622T Copper Gigabit Ethernet Card has been suppressed in accordance with the conditions set out in the BMPT-AmtsblVfg 243/1991 and Vfg 46/1992. The operation of some equipment (for example, test transmitters) in accordance with the regulations may, however, be subject to certain restrictions. Please refer to the notes in the operating instructions.

Federal Office for Telecommunications Approvals has been notified of the placing of this equipment on the market and has been granted the right to test the series for compliance with the regulations.

VCCI Statement

This equipment is in the Class B category (information equipment to be used in a residential area or an adjacent area thereto) and conforms to the standards set by the Voluntary Control Council for Interference by Data Processing Equipment and Electronic Office Machines aimed at preventing radio interference in such residential areas.

When used near a radio or TV receiver, it may become the cause of radio interference.

Read instructions for correct handling.

Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

☺ **Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: (1) Reorient or relocate the receiving antenna, (2) Increase the separation between the equipment and receiver, (3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected, (4) Consult the dealer or an experienced radio/TV technician for help.

EN 55 022 Statement

This is to certify that the Model GA622T Copper Gigabit Ethernet Card is shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022 Class B (CISPR 22).

Compliance is dependent upon the use of shielded data cables.

Canadian Department of Communications Radio Interference Regulations

This digital apparatus (Model GA622T Copper Gigabit Ethernet Card) does not exceed the Class B limits for radio-noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique (Model GA622T Copper Gigabit Ethernet Card) respecte les limites de bruits radioélectriques visant les appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada.