

User's Manual



10/100/1000Base-T PCI Express Gigabit Ethernet Adapter

▶ ENW-9702



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WEEE Warning



To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Revision

PLANET 10/100/1000Base-T PCI Express Gigabit Ethernet Adapter User's Manual

FOR MODEL: ENW-9702

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Chapter 1 Introduction

Thank you for purchasing PLANET ENW-9702 PCI Express Gigabit Ethernet adapter. It is a 10/100/1000Mbps Ethernet adapter for PCI local bus-compliant PCs, supports Auto-Negotiation for 10/100/1000Mbps Ethernet connection.



More Bandwidth and Advanced Functions

The ENW-9702 PCI Express Gigabit Ethernet adapter that designed to address high-performance system application requirements, with the bandwidth of x1 PCI Express Bus Architecture, the ENW-9702 provide higher performance than the network cards which base on 32/64bit PCI architecture. It is specifically designed to allow throughput at rates up to 2Gbps, thus eliminating the existing 32/64bit PCI network card.

High Performance, Boosts Network Traffic Speed

The ENW-9702 PCI Express Gigabit Ethernet adapter also provides a highly cost-effective solution to upgrading to the Gigabit network with your existing Fast Ethernet infrastructures; it can provide the best solution for one of the major issues of Local Area Networks - communication speed. Ten times as fast as the existing 100Base-TX solutions, using the PLANET ENW-9702 to connect your servers and workstations guarantees extremely high throughput and excellent signal quality.

1.1 Package Content

Check that your package contains the following items:

- 1 x ENW-9702 Gigabit Ethernet Adapter (w/ long faceplate)
- 1 x Quick Installation Guide
- 1 x CD-ROM (Include this User's Manual / Quick Installation Guide / Driver)
- 1x Low Profile Bracket

If any of these are missing or damaged, please contact your dealer immediately, if possible, retain the carton including the original packing material, and use them against to repack the product in case there is a need to return it to us for repair.

1.2 Features

- PCI Express x1 serial Bus
- 10/100/1000Mbps Auto-Negotiation for Optimal Connection
- Supports Auto MDI / MDI-X to swap the Transmission and Receipt
- IEEE 802.1Q VLAN Tagging
- Supports 9K Jumbo Frame
- IEEE 802.3x Full-Duplex Flow Control
- Complies to Microsoft and Linux Platform

1.3 Gathering Tools and Documentations

To install the ENW-9702 Gigabit Ethernet adapter, you need the following items:

- A suitable screw driver
- Your operating system documentation
- Your system unit documentation, including any service documentation

Chapter 2 Hardware Installation

2.1 LED Definition

The faceplate of ENW-9702 has two LED: Link / ACT and 1000. The pictures below have showed the faceplate of ENW-9702. Table 2-1 explains the function and state of the LED.

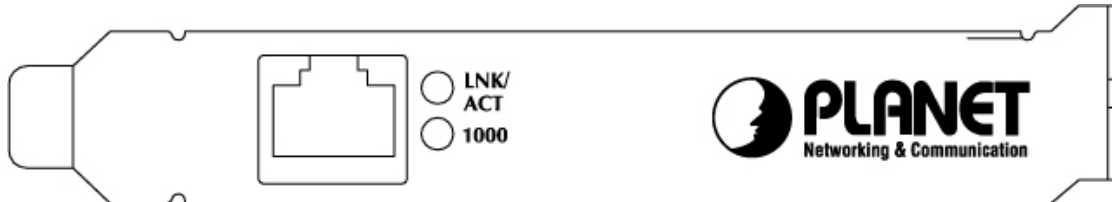


Figure 1: Long Profile Bracket of ENW-9702

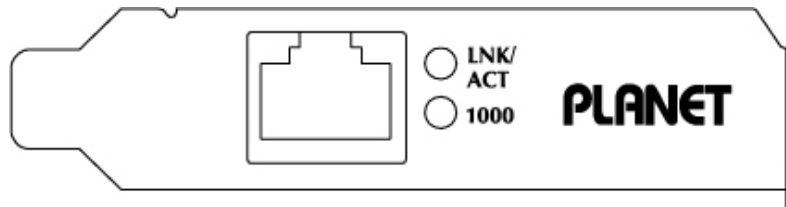


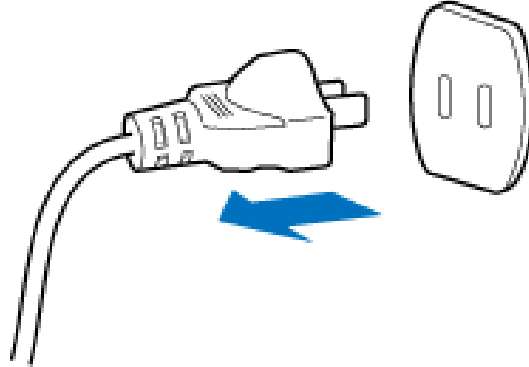
Figure 2: Low Profile Bracket of ENW-9702

LED	Color	Description
LNK/ACT	Green	Blinks slowly to indicate a functional network link through the port. Blinks fast to indicate data transmit and receive through the port.
1000	Green	Lights to indicate the port is running at 1000Mbps. Off to indicate the port is running at 10/100Mbps speed mode.

Table 2-1: Descriptions of ENW-9702 LED

2.2 Hardware Installation

Step 1: Please turn off your PC.

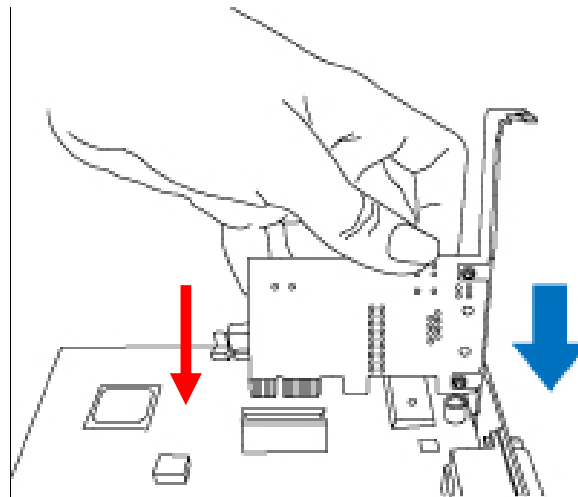


Step 2: Remove any metal decorations from your hands and wrists.

Step 3: Remove the cover from your PC.

Step 4: Locate an empty PCI Express slot and remove the corresponding back plate. Save the screw for use in Step 6.

Step 5: Carefully insert the Gigabit Ethernet Adapter into the chosen slot and press firmly with proper push to ensure it is fully seated in the slot.



Step 6: Secure the Gigabit Ethernet Adapter with the screw you saved in step 4.

Step 7: Replace the PC cover.

Step 8: Power on your PC and refer to next section to install driver.

Chapter 3 Driver Installation

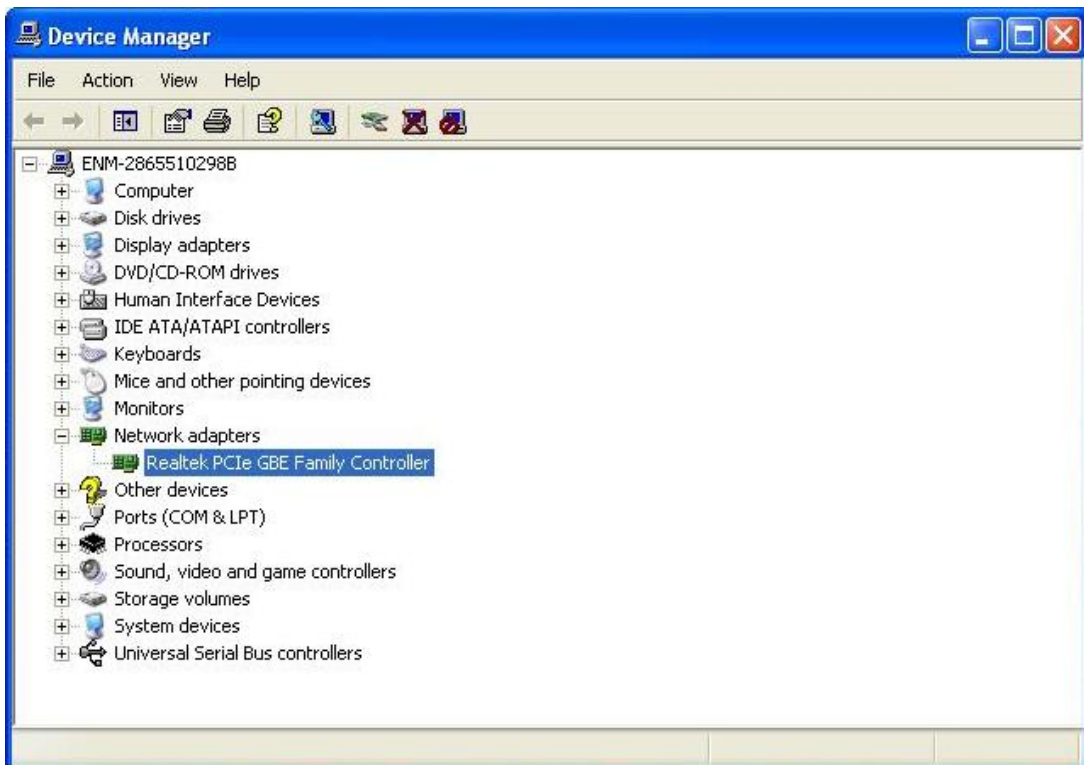
A device driver must be installed before your ENW-9702 can be used with your computer. This chapter describes how to install the driver for various operating systems. Before you begin the driver installation process, make sure you have the installation disks for your computer's operation system.

3.1 Installing Driver to Windows XP / Server 2003

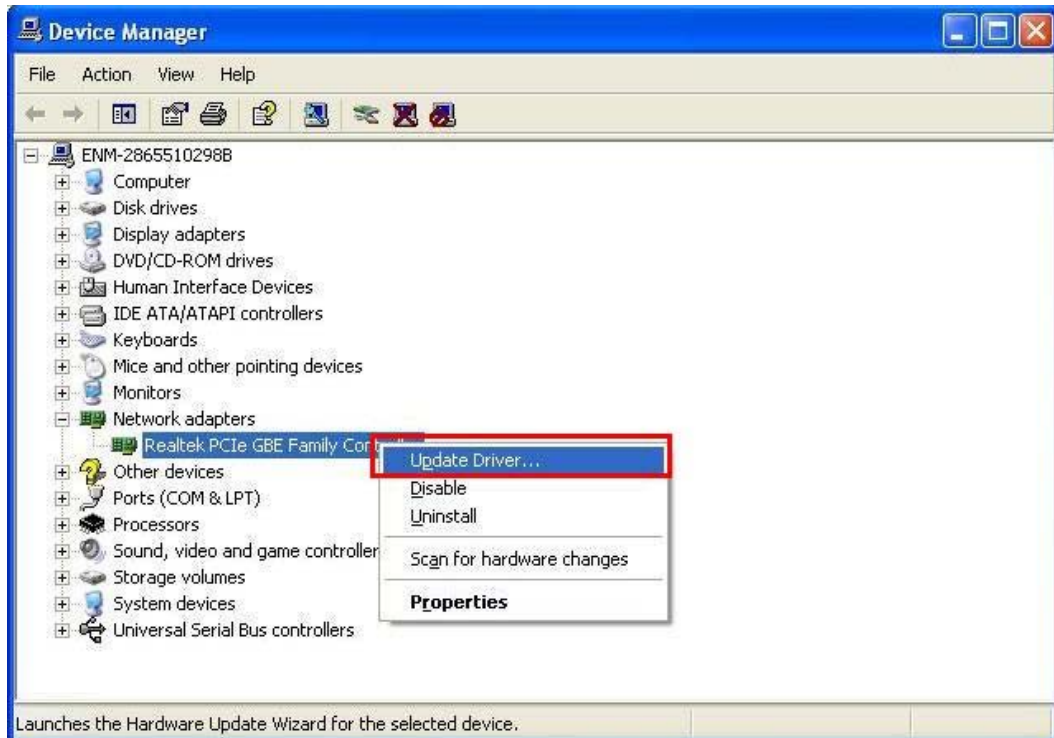


The following installation uses ENW-9702 and operates under Windows XP; the Install procedures will be similar to the Windows Server 2003.

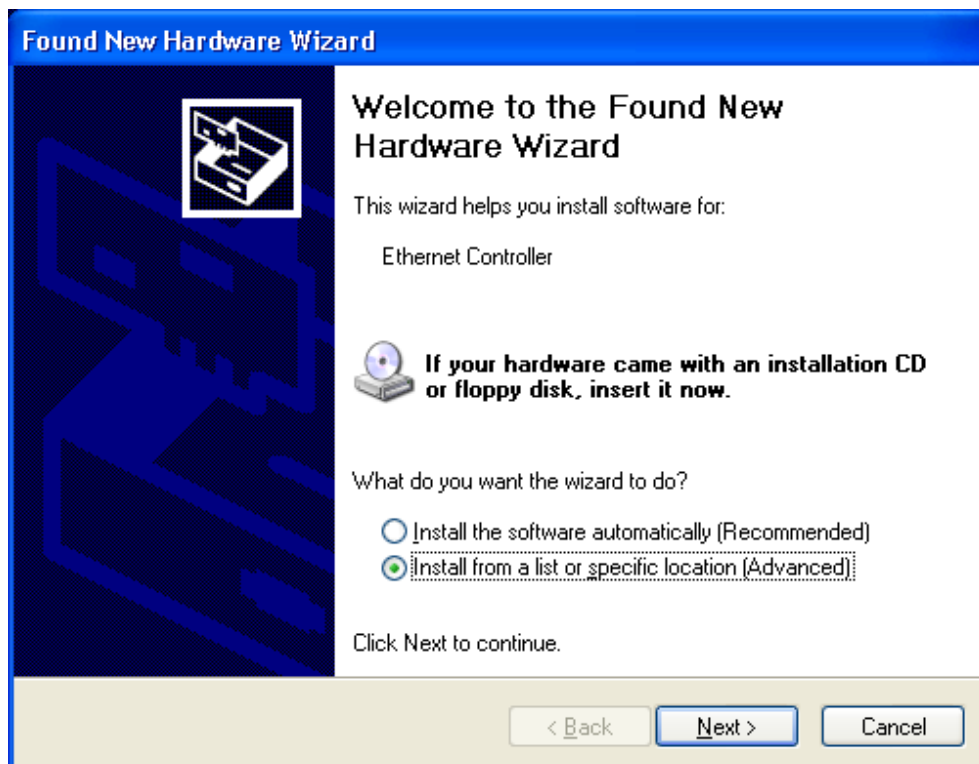
1. After installing ENW-9702 to your PC and boot up, Windows XP will detect it and you have to install driver.



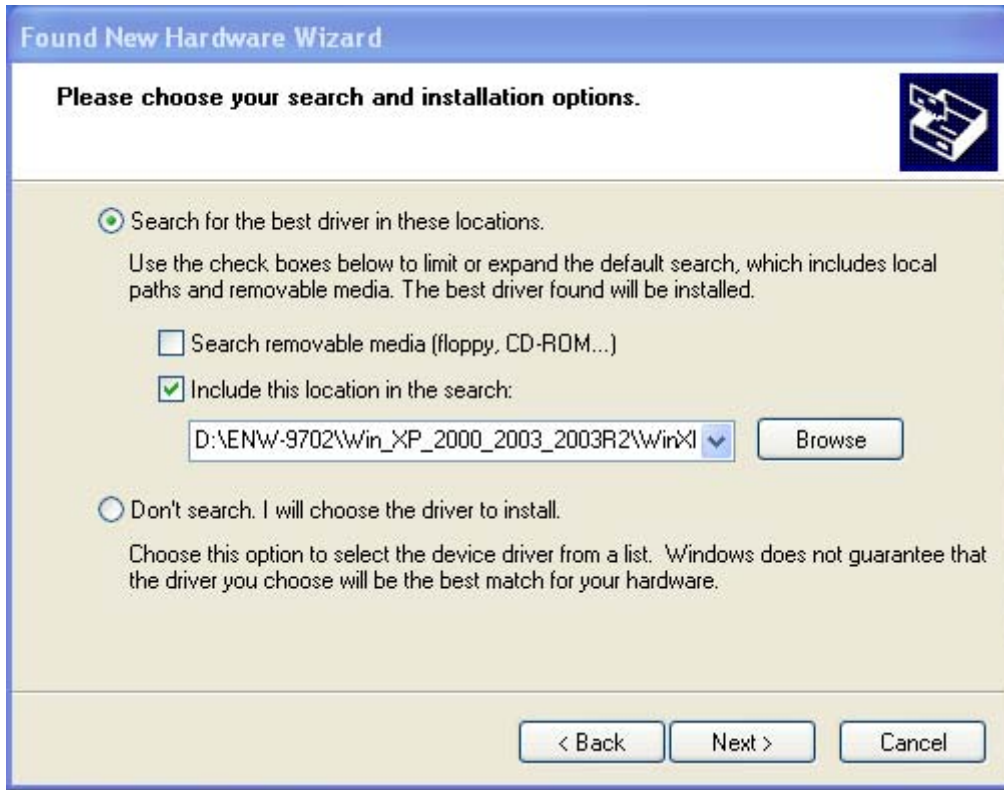
2. Please move and right click the mouse button for Ethernet Controller item and select “Update Driver”.



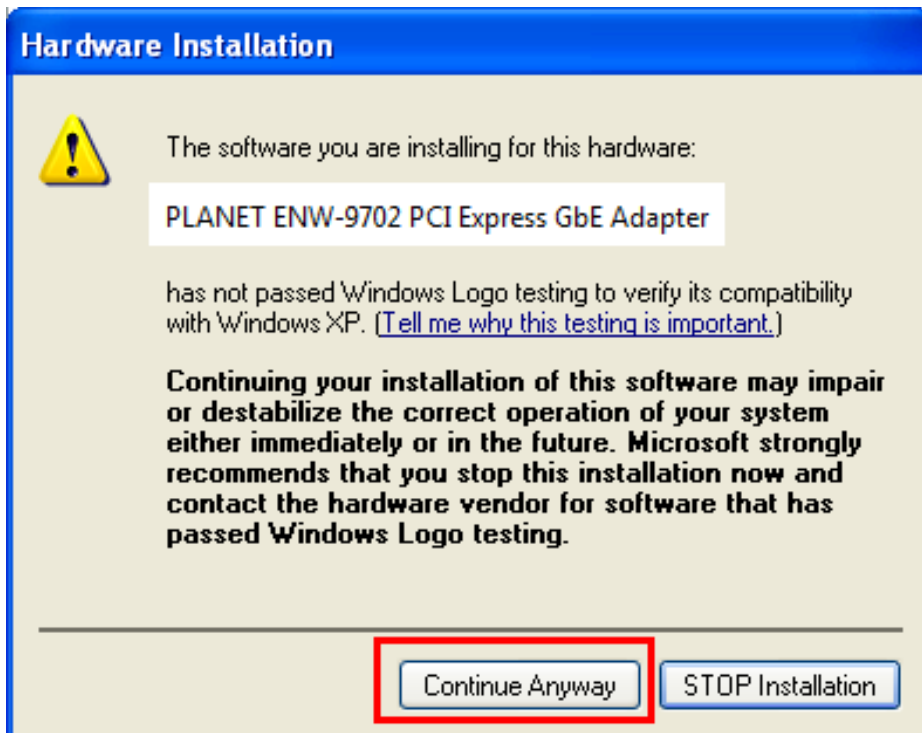
3. Please select the second option and click “Next”.



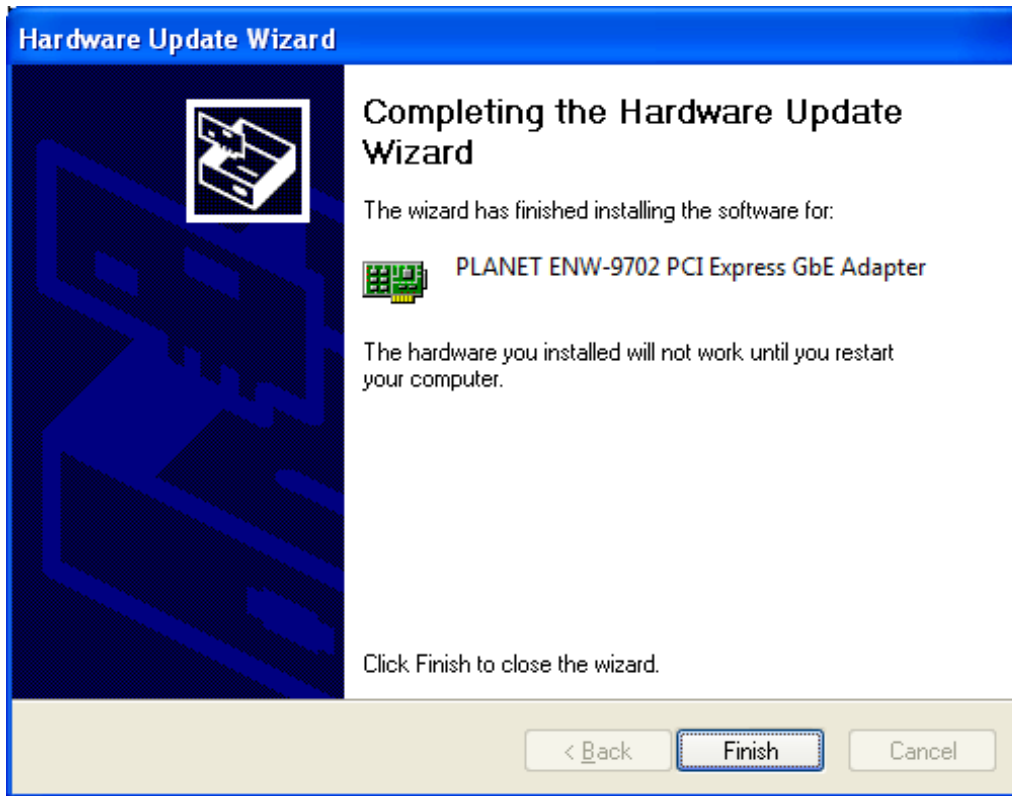
- Please select “**Include this location in the search**” and then click “**Browse**” to specify the driver location to install. (Assume “D” is your CD-ROM drive, the driver can be found in D:\ENW-9702\Win_XP_2000_2003_2003R2\WinXP). Click “**Next**” to continue.



- WinXP will show this dialog box to prompt you the driver has not passed Windows logo testing, please click “**Continue Anyway**”, then WinXP will start to install the driver.



6. Click **“Finish”** to complete the driver installation.

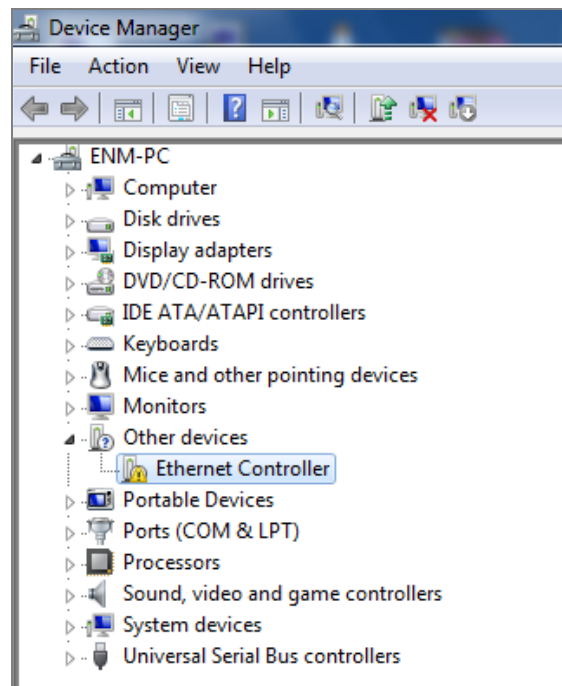


3.2 Installing Driver to Windows 7 / Server 2008

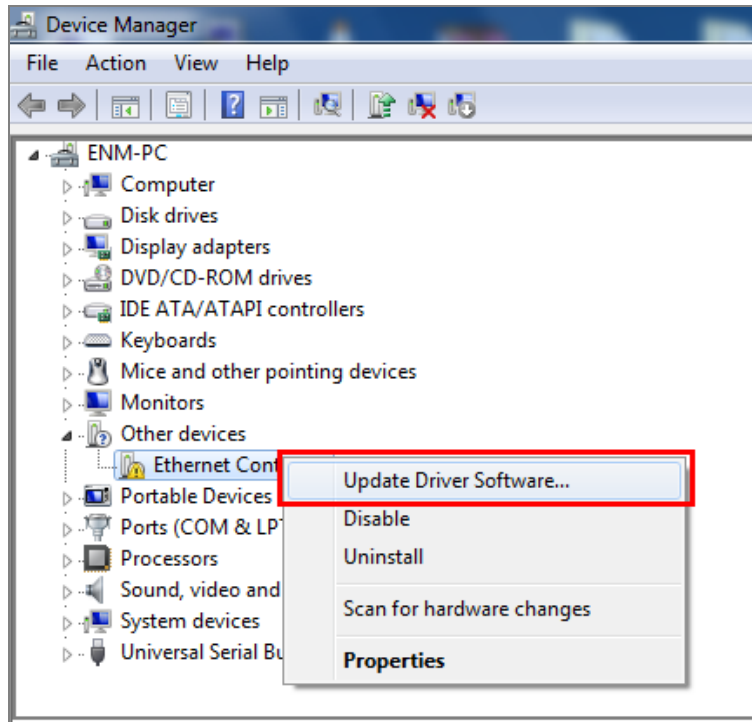


The following installation uses ENW-9702 and operates under Windows 7; the Install procedures will be similar to the Windows Server 2008.

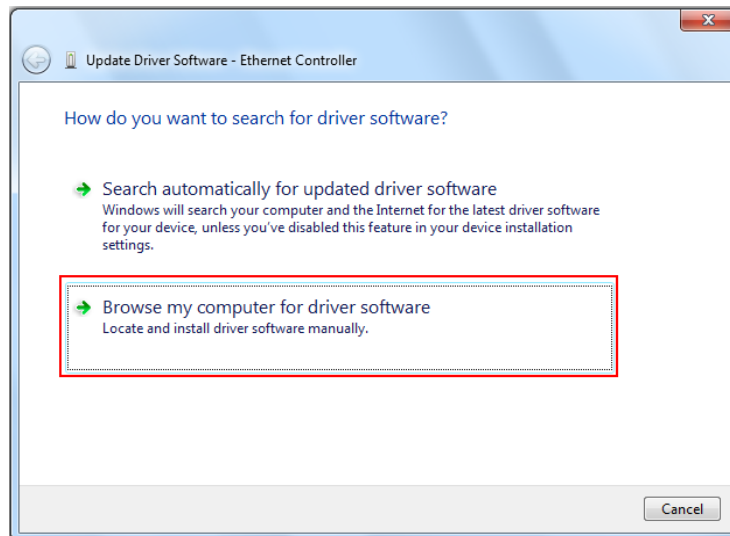
1. After installing ENW-9702 to your PC and boot up, Windows 7 will detect it and you have to install driver.



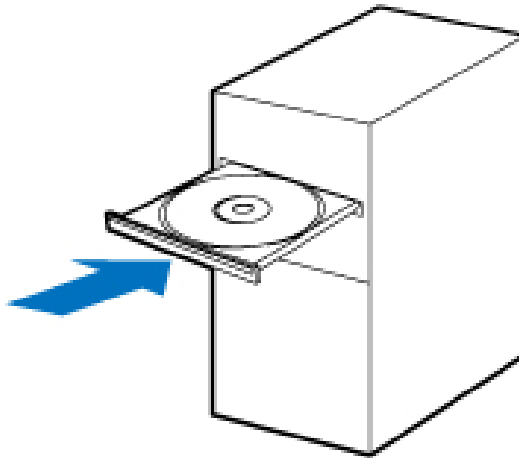
2. Please move and right click the mouse button for Ethernet Controller item and select “**Update Driver Software**”



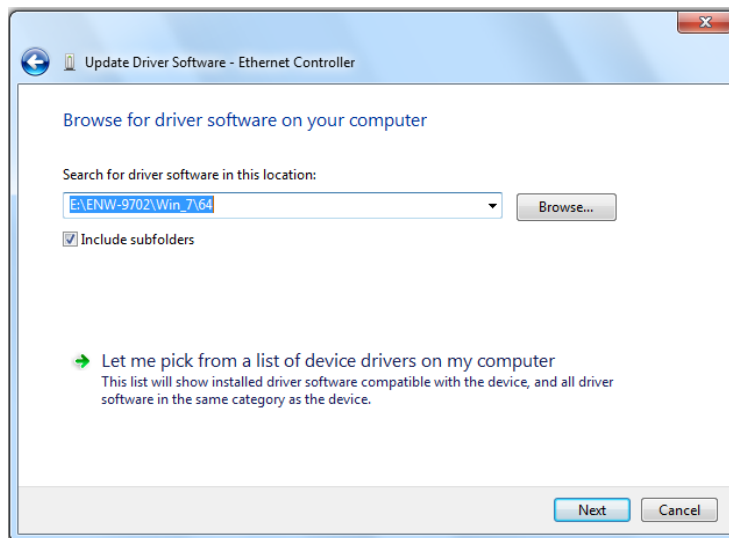
3. Please select “**Browser my computer for driver software**” for next step.



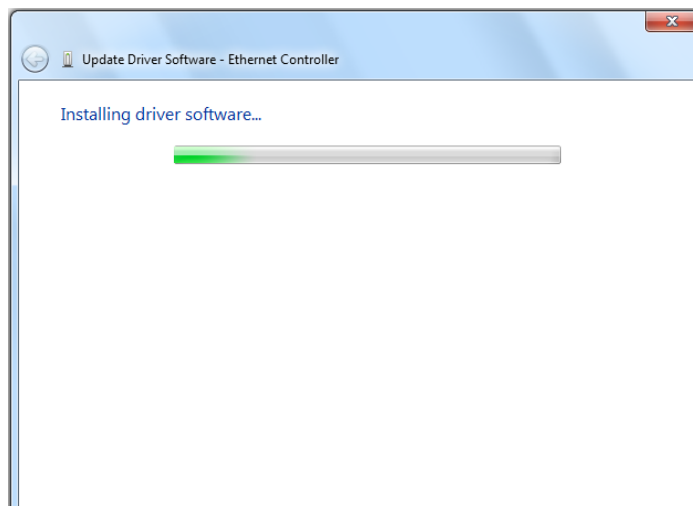
4. Insert the bundled CD into the CD-ROM driver.



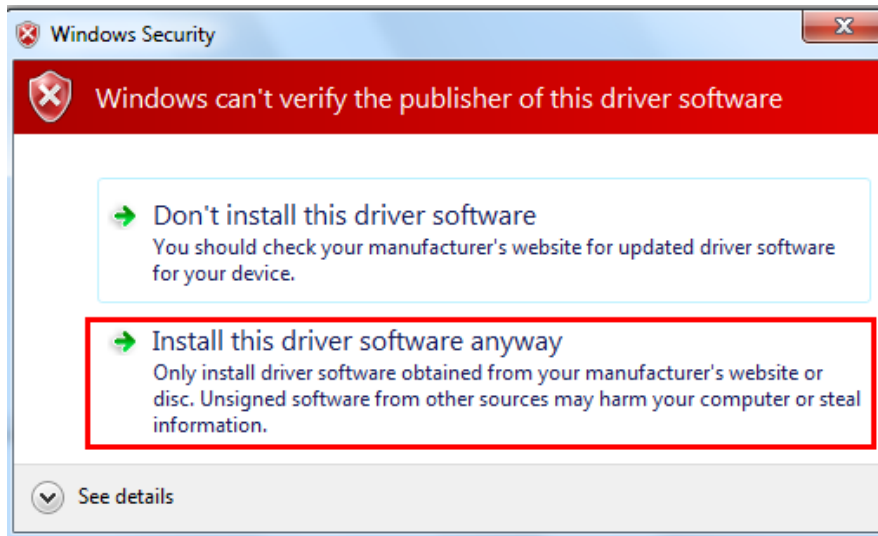
5. Please click “**Browse**” to specify the driver location to install. (Assume “**E**” is your CD-ROM drive, the driver can be found in E:\ENW-9702\Win_7\64). Click “**Next**” to continue.



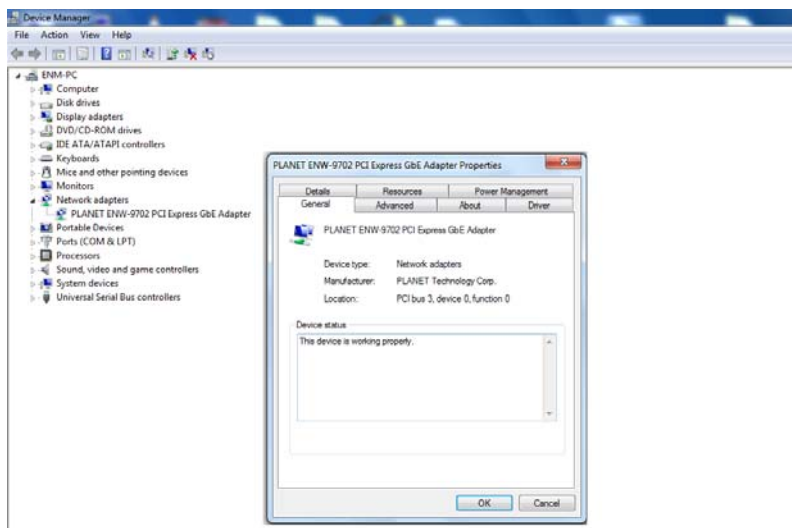
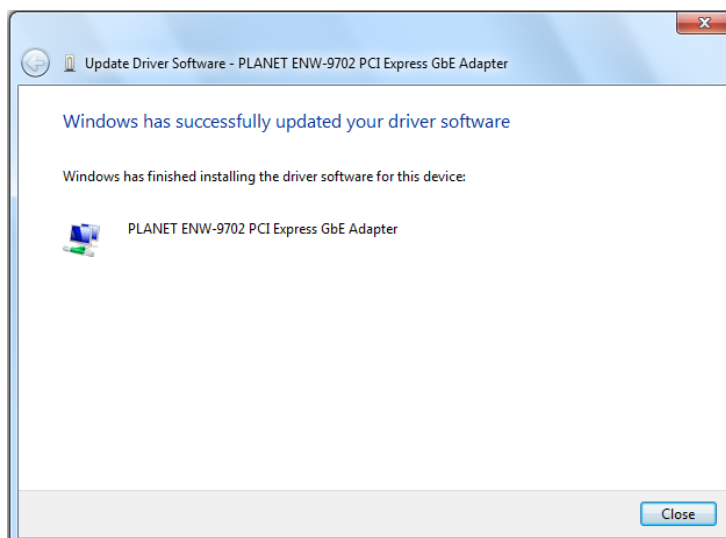
The driver installs process.



6. During the Driver installation, it will pop up one Windows Security message. Please Click **“Install this driver software anyway”** button for continue installation.



7. Click **“Close”** button to complete the driver installation.



3.3 Installing Driver to Linux

<Requirements>

- Kernel source tree (supported Linux kernel 2.6.x and 2.4.x)
- For linux kernel 2.4.x, this driver supports 2.4.20 and latter.
- Compiler/binutils for kernel compilation

<Quick install with proper kernel settings>

Unpack the tarball :

```
# tar vjxf r8168-8.aaa.bb.tar.bz2
```

Change to the directory:

```
# cd r8168-8.aaa.bb
```

If you are running the target kernel, then you should be able to do :

```
# ./autorun.sh (as root or with sudo)
```

You can check whether the driver is loaded by using following commands.

```
# lsmod | grep r8168
```

```
# ifconfig -a
```

If there is a device name, ethX, shown on the monitor, the linux driver is loaded. Then, you can use the following command to activate the ethX.

```
# ifconfig ethX up
```

```
,where X=0,1,2,...
```

<Set the network related information>

1. Set manually

- a. Set the IP address of your machine.

```
# ifconfig ethX "the IP address of your machine"
```

- b. Set the IP address of DNS.

Insert the following configuration in

```
/etc/resolv.conf. nameserver "the IP address of DNS"
```

- c. Set the IP address of gateway.

```
# route add default gw "the IP address of gateway"
```

2. Set by doing configurations in /etc/sysconfig/network-scripts

```
/ifcfg-ethX for Redhat and Fedora, or /etc/sysconfig/network
```

```
/ifcfg-ethX for SuSE.
```

There are two examples to set network configurations.

- a. Fixed IP address:

```
DEVICE=eth0
BOOTPROTO=static
ONBOOT=yes
TYPE=ethernet
NETMASK=255.255.255.0
IPADDR=192.168.1.1
```

```
GATEWAY=192.168.1.254
BROADCAST=192.168.1.255
```

b. DHCP:

```
DEVICE=eth0
BOOTPROTO=dhcp
ONBOOT=yes
```

<Modify the MAC address>

There are two ways to modify the MAC address of the NIC.

1. Use ifconfig:

```
# ifconfig ethX hw ether YY:YY:YY:YY:YY:YY
```

,where X is the device number assigned by Linux kernel, and

YY:YY:YY:YY:YY:YY is the MAC address assigned by the user.

2. Use ip:

```
# ip link set ethX address YY:YY:YY:YY:YY:YY
```

,where X is the device number assigned by Linux kernel, and

YY:YY:YY:YY:YY:YY is the MAC address assigned by the user.

<Force Link Status>

1. Force the link status when insert the driver.

If the user is in the path `~/r8168`, the link status can be forced to one of the 5 modes as following command.

```
# insmod ./src/r8168.ko speed=SPEED_MODE duplex=DUPLEX_MODE
autoneg=NWAY_OPTION
```

,where

```
SPEED_MODE = 1000 for 1000Mbps
              = 100 for 100Mbps
              = 10 for 10Mbps
```

```
DUPLEX_MODE = 0 for half-duplex
              = 1 for full-duplex
```

```
NWAY_OPTION = 0 for auto-negotiation off (true force)
              = 1 for auto-negotiation on (nway force)
```

For example:

```
# insmod ./src/r8168.ko speed=100 duplex=0 autoneg=1 will force PHY to
operate in 100Mbps Half-duplex(nway force).
```

2. Force the link status by using ethtool.

- a. Insert the driver first.
- b. Make sure that ethtool exists in /sbin.
- c. Force the link status as the following command.

```
# ethtool -s ethX speed SPEED_MODE duplex DUPLEX_MODE autoneg
```


NWAY_OPTION

,where

SPEED_MODE = 1000 for 1000Mbps

= 100 for 100Mbps

= 10 for 10Mbps

DUPLEX_MODE = half for half-duplex

= full for full-duplex

NWAY_OPTION = off for auto-negotiation off (true force)

= on for auto-negotiation on (nway force)

For example:

```
# ethtool -s eth0 speed 100 duplex full autoneg on will force PHY to operate in  
100Mbps Full-duplex(nway force).
```

<Jumbo Frame>

Transmitting Jumbo Frames, whose packet size is bigger than 1500 bytes, please change mtu by the following command.

```
# ifconfig ethX mtu MTU
```

, where X=0,1,2,...., and MTU is configured by user.

Chapter 4 Specifications

Product	ENW-9702 10/100/1000Base-T PCI Express Gigabit Ethernet Adapter	
Hardware Specification		
Attachment Interface	PCI Express serial Bus Interface	
Media Interface	10/100/1000Base-T RJ-45 Copper Interface	
Cabling Options	10Base-T: UTP category 3, 4, 5 cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m) 100Base-TX: UTP category 5, 5e cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m) 1000Base-T: UTP category 5, 5e cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m)	
Jumbo Frame	9K Bytes	
LED Indicators	LNK / ACT & 1000 per port	
Dimension (W x D x H)	65 x 40 x 19mm	
Weight	32g	
Advanced Function		
Layer 2 Features	IEEE 802.3x Flow Control support IEEE 802.1Q VLAN support	
Operation System Support	Windows 98 / ME Windows 2000 / 2000 / 2003 / 2003R2 Windows XP Windows Vista Windows 7 Windows 8 Linux / MAC OS	
Standards Conformance		
Regulation Compliance	FCC Part 15 Class B, CE	
Standards Compliance	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE 802.3ab 1000Base-T Gigabit Ethernet IEEE 802.3x Flow Control and Back pressure IEEE 802.1Q VLAN Tagging	
Environment		
Operating	Temperature:	0 ~ 50 Degree C
	Relative Humidity:	10 ~ 90% (non-condensing)
Storage	Temperature:	-40 ~ 70 Degree C
	Relative Humidity:	10 ~ 90% (non-condensing)

EC Declaration of Conformity

For the following equipment:

*Type of Product : 10/100/1000Base-T PCI Express Gigabit Ethernet Adapter
*Model Number : ENW-9702
* Produced by:
Manufacturer's Name : **Planet Technology Corp.**
Manufacturer's Address : 10F., No.96, Minquan Rd., Xindian Dist.,
New Taipei City 231, Taiwan (R.O.C.)

Is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (2004/108/EC). For the evaluation regarding the electromagnetic compatibility, the following standards were applied :

EN 55022	(CLASS B, 2010)
EN 55024	(2010)
EN 61000-4-2	(2009)
EN 61000-4-3	(2006 + A1:2008 + A2:2010)
EN 61000-4-4	(2004 + A1:2010)
EN 61000-4-5	(2006)
EN 61000-4-6	(2009)
EN 61000-4-8	(2010)

Responsible for marking this declaration if the:

Manufacturer Authorized representative established within the EU

Authorized representative established within the EU (if applicable):

Company Name: **Planet Technology Corp.**

Company Address: **10F., No.96, Minquan Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)**

Person responsible for making this declaration

Name, Surname : **Kent Kang**

Position / Title : **Product Manager**

Taiwan
Place

8, March, 2013
Date


Legal Signature

PLANET TECHNOLOGY CORPORATION