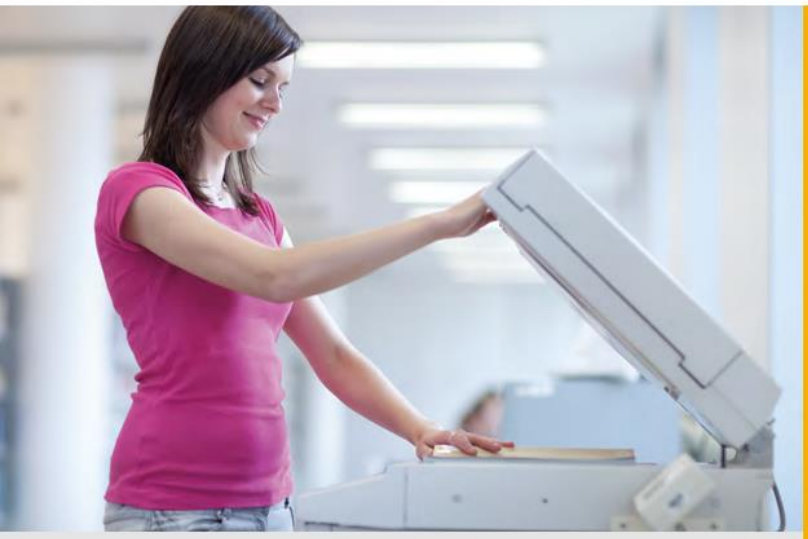
PLANET
Networking & Communication

User's Manual

PCI Express 10G Ethernet Adapter

- ENW-9801/ENW-9803



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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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the Instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at whose own expense.

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This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

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

User’s Manual of PLANET 10GBASE-T PCI Express Server Adapter

FOR MODEL: ENW-9803

REVISION: 3.0 (January 2022)

Part No.: EM-ENW-9803_v3.0

Table of Contents

Chapter 1: Introduction

Enhanced from the current highly-praised version, PLANET ENW-9803 10GBASE-T PCI Express Server Adapter adopts Marvell AQtion LAN controller solution. It comes with PCI Express rev. 3.0 specification x4 interface and other advanced features as show below:

- **Smaller and compact in design**
- **10M/100M/1G/2.5G/5G/10GBASE-T RJ45 Multi-gigabit network solution**
- **Supports iSCSI/FCoE/PXE/Other boot**
- **Low profile bracket**

10 Gigabit Performance yet Low Cost and Low Power

The **ENW-9803** comes with one **10GBASE-T RJ45 interface** and **low-profile PCI Express form factor**. As the new ENW-9803 uses Marvell AQtion LAN controller solution, it is a low-powered, high-performance model that supports IEEE 802.az Energy Efficient Ethernet (EEE). The new ENW-9803 NIC adapter reference design supports auto-negotiation for allowing the NBASE-T solution to optimally select the best and flexible speed like 10 Gigabit Ethernet (10GbE), 5 Gigabit Ethernet (5GbE), 2.5 Gigabit Ethernet (2.5GbE), 1Gigabit Ethernet (GbE) or 100 Megabit Ethernet (100MbE) over Cat 5e/Cat 6/Cat 6A or better cabling. It is designed to address system application requirements by offering **the best cost**, **10Gbps high performance**, **low power consumption** and **better-quality** solution in the 10Gbps network market today.

Cost-effective and Ideal 10G Copper NIC Adapter

Compared with 10G adapter with CX4 and SFP+ interface, PLANET 10GBASE-T PCI-E adapter is the best choice in that the ENW-9803 10GBASE-T can reach up to 100 meters over Cat.6a or Cat.7 RJ45 cable, whereas the CX4 and SFP+ interface only can work with fixed speed rate. However, the ENW-9803 10G copper NIC adapter can adjust and work with the speed rate of 100M/1G/2.5G/5G. The CX4 interface can only extend up to 15 meters in distance. The cost is too high for having an extra SFP+ interface for the SFP+ transceiver. However, with the ENW-9803, customers only spend on Cat.6a or Cat.7 cable as the ENW-9803 is bundled with RJ45 connector, thus costing less than the SFP+ transceiver.

10G Spec.	Interface	Media	Maximum Distance	Total Ownership Cost
10GBASE-T	RJ45	Cat.6a/Cat.7 UTP cable	100 meters (328 ft)	**Low**
10GBASE-CX4	CX4	Copper	15 meters (49 ft)	Medium
10GBASE-SR	SFP+	Multi-mode fiber cord	300 meters (984 ft)	High
10GBASE-LR	SFP+	Single mode fiber cord	10 km (32808 ft)	High

10GbE Device Designed for Low-power, Low-cost and Single-port Applications

The ENW-9803 is an optimized 10GbE device designed for low-power, low-cost and single-port applications required in application servers, high-end workstations and personal computers. This makes it ideal for enabling 1GbE to migrate to 10GbE for bandwidth-intensive workstation applications and low-end to mid-range network appliances. With the innovative PCI Express Bus Architecture, it offers increased bandwidth, reliability and additional functionality compared with standard GbE network cards. The performance of throughput at rates up to 20Gbps is unbelievable, thus eliminating the bottleneck that exists with the current Gigabit network. PLANET ENW-9803 is designed to connect your servers and workstations, guaranteeing extremely high throughput and excellent signal quality.

Standard 802.1Q VLAN Support

Moreover, the ENW-9803 supports IEEE 802.1Q VLAN which allows it to operate in a flexible and secure network environment. With 16K jumbo frame ability and IEEE 802.3 flow control support, it further optimizes throughput and wire-speed packet transfer performance without risk of packet loss. The high data throughput of the device makes it ideal for most 10 Gigabit Ethernet environments.

Multiple OS Support

The ENW-9803 operates completely well with most of the popular and latest operating systems including **Microsoft Windows Server**, **Linux** and **VMware**, enabling simple integration into network designs. There is no need of any modification to the server's operating system or any special software required for the ENW-9803 to be integrated into the system.

1.1 Package Contents

Thank you for purchasing PLANET ENW-9803 PCI Express 10 Gigabit Ethernet adapter. It supports x4 PCI Express interfaces. The 10 Gigabit Ethernet adapter provides a highly cost-effective solution that can upgrade your existing Ethernet infrastructure to the 10 Gigabit network.

Package Contents

- 1 x ENW-9803 10Gigabit Ethernet Adapter (with long profile bracket)
- 1 x Quick Installation Guide
- 1 x Low Profile Bracket

ENW-9803 	Quick Installation Guide 
Low Profile Bracket 	

1.2 Features

- PCI Express rev. 3.0 specification x4 Interface
- 10Gbps throughput with 100-meter UTP cable
- Complies with IEEE 802.3an 10GBASE-T, IEEE 802.3ab 1000BASE-T, IEEE 802.3u 100BASE-TX
- Complies with IEEE P802.3bz (NBASE-T) 5GBASE-T and 2.5GBASE-T
- IP, TCP, UDP checksum offloading
- IEEE 802.1Q VLAN ID tagged/IEEE 802.1p CoS
- Reduced CPU utilization and improved throughput
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- 16K jumbo frame size
- IEEE 802.3x full-duplex flow control
- PXE/Other boot support
- Complies with Microsoft and Linux platforms

1.3 Gathering Tools and Documentations

To install the ENW-9803 PCI Express 10 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

Below are the pictures of the faceplates of the ENW-9803, consisting of two LEDs: Link Speed and Link/ACT. Table 1 explains the function and state of the LEDs.

Figure 1: Long Profile Bracket of ENW-9803

Figure 2: Low Profile Bracket of ENW-9803

LED	Color	Description
Link Speed	**Green**	Indicates the link is established at 10Gbps full duplex mode.
	Orange	Indicates the link is established at 100Mbps/1G/2.5G/5G mode.
LNK/ACT	**Green**	When it lights, it indicates a functional network link through the port. When it blinks fast, it indicates data transmit and receive through the port.

Table 1: Descriptions of the ENW-9803 LEDs

2.2 Hardware Installation

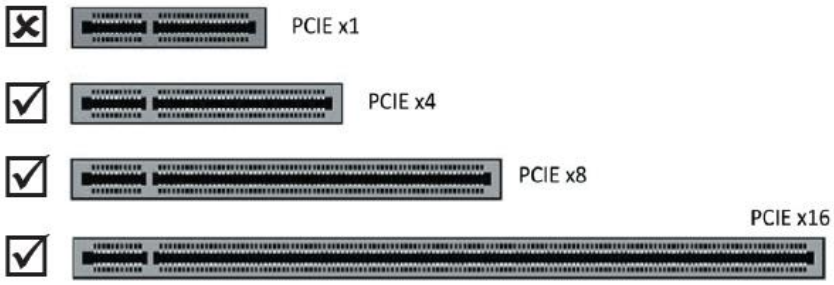
System Requirement

■ **PCI-Express support**

ENW-9803: The Server/Workstation supports **PCI Express v3.0** (8GT/s) and PCI Express (PCIe) x4 interface.

Note

Below are the different PCI Express Slots.
The ENW-9803 is compatible with PCIe 2.0 x4 slots or larger.

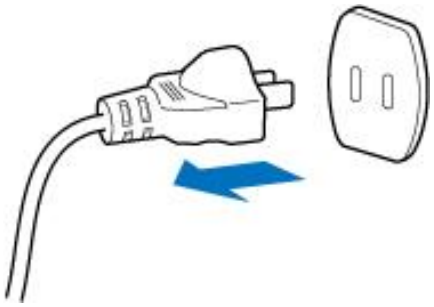


Operating System Support:

Windows Server 2008R2 64 bits
Windows Server 2012R2 64 bits
Windows Server 2016R2 64 bits
Windows Server 2019R2 64 bits
Windows 7 32/64 bits
Windows 8 32/64 bits
Windows 10 32/64 bits
Linux Stable Kernel Version (2.6.32.x to 5.x)
Linux CentOS/RHEL (6.x to 7.x)
Ubuntu (14.x to 16.x)
VMware ESX/ESXi 4.x/5.x/6.x

Hardware Installation

Step 1: Please turn off your PC.

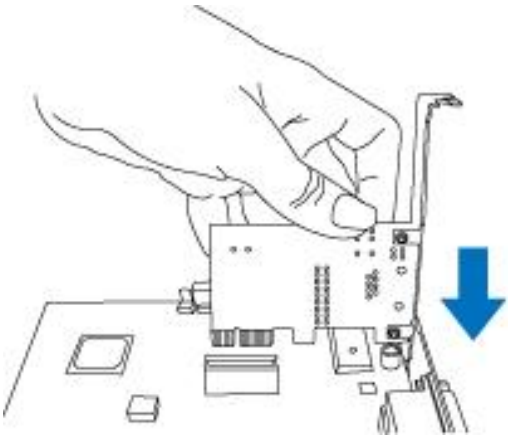


Step 2: Remove any metal decorations from your hands and wrists.

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 10 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 10 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 the next section to install driver.

Chapter 3: Driver Installation

A device driver must be installed before your ENW-9803 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.

Installation on Windows 10

Before installing drivers of ENW-9803 server adapter, please visit PLANET ENW-9803 web pages to download the drivers for your operating system.

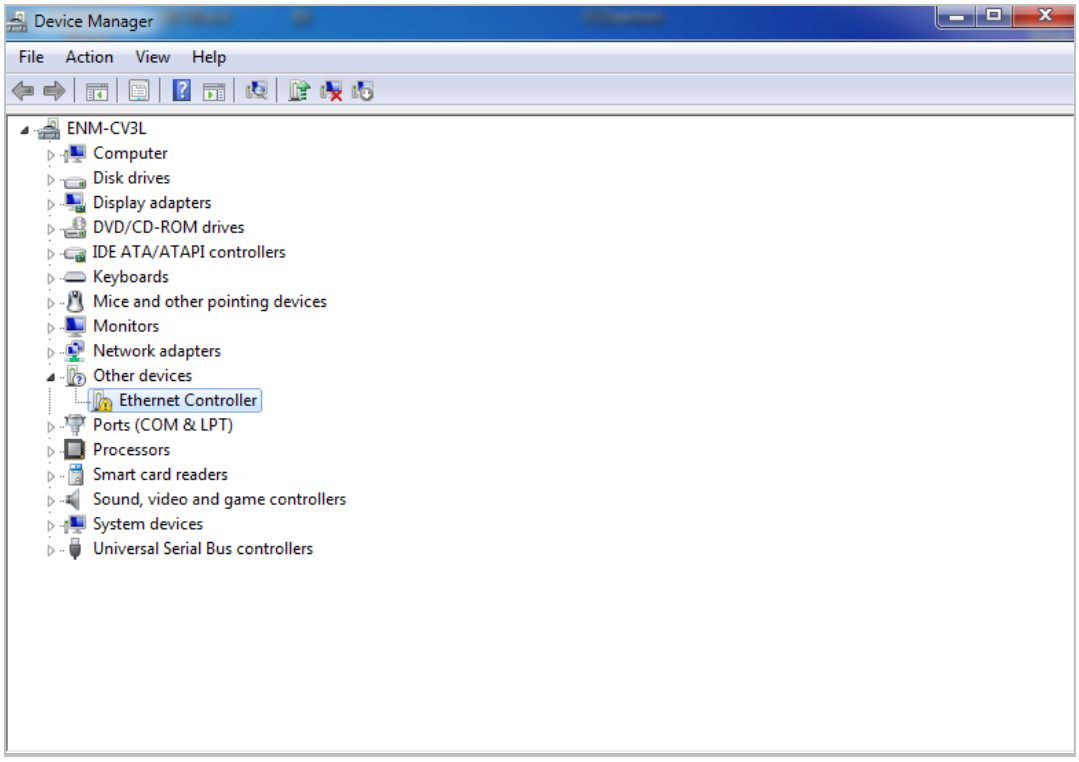
https://www.planet.com.tw/en/support/downloads?&method=keyword&keyword=ENW-98&view=4#list

Note

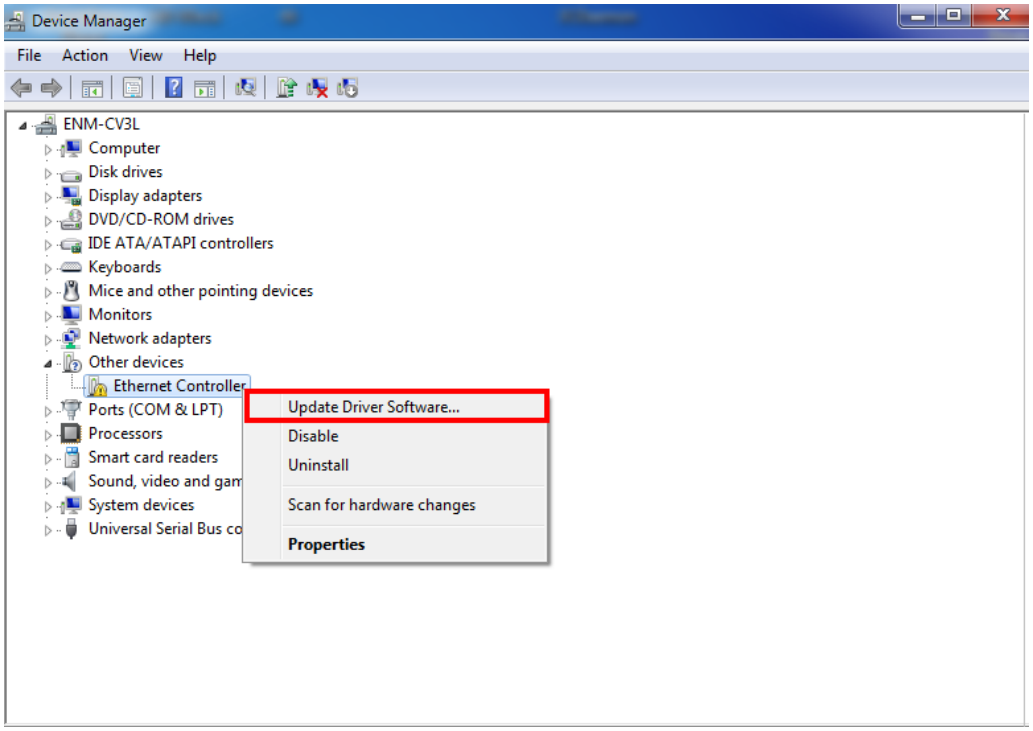
1: Window 10 and other Windows-based operating systems will detect server adapter and install driver automatically. However, if driver is not installed successfully, you have to install driver manually.

2: This operation is under Win10 which it is similar to Win7/8/Windows Server 2008/Windows Server 2012/Windows Server 2016/Windows Server 2019.

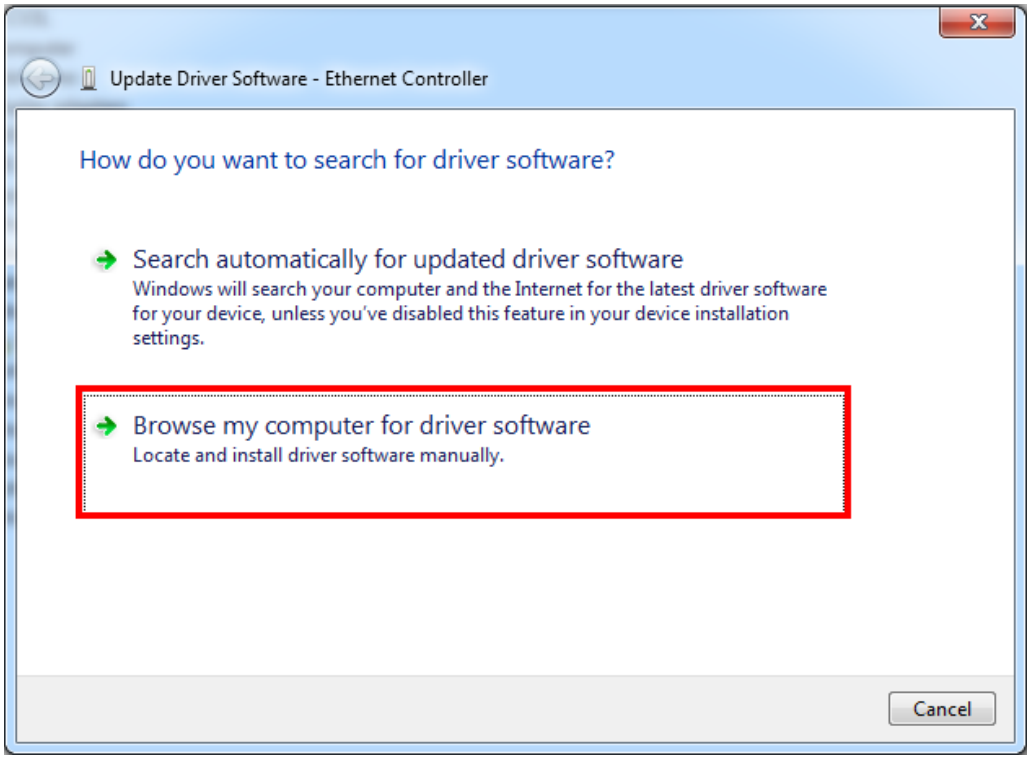
1. After installing the ENW-9803 to your PC and booting it up, Windows 10 will detect it and you have to install driver.



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

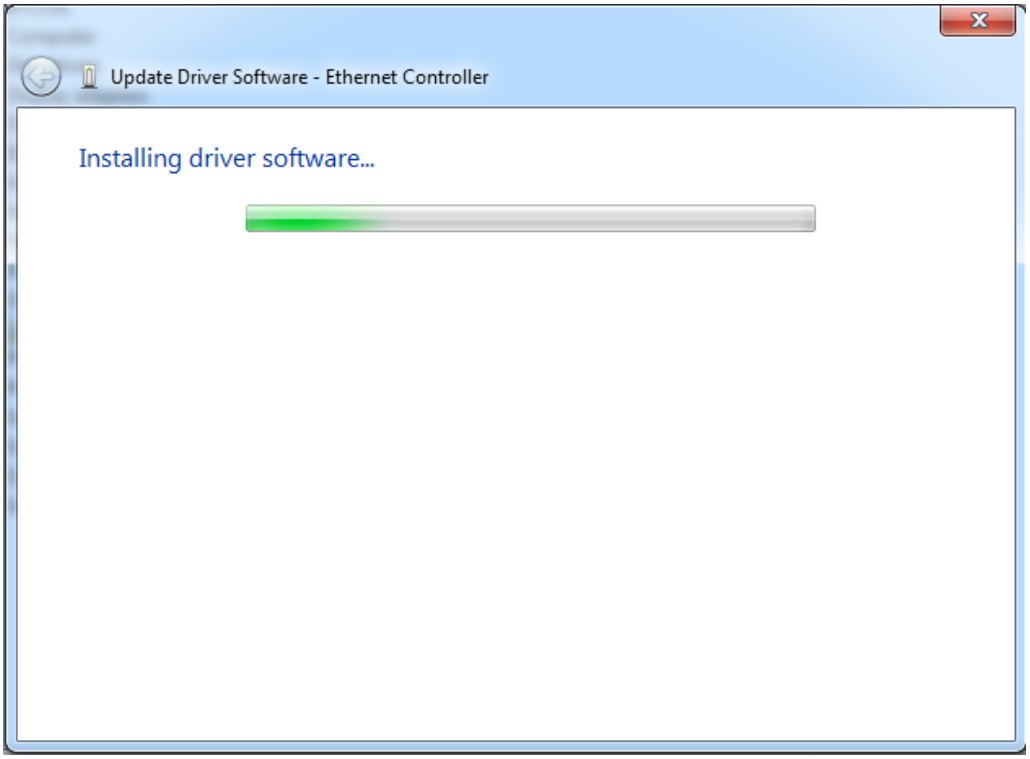


3. Please select **"Browse my computer for driver software"** for the next step.

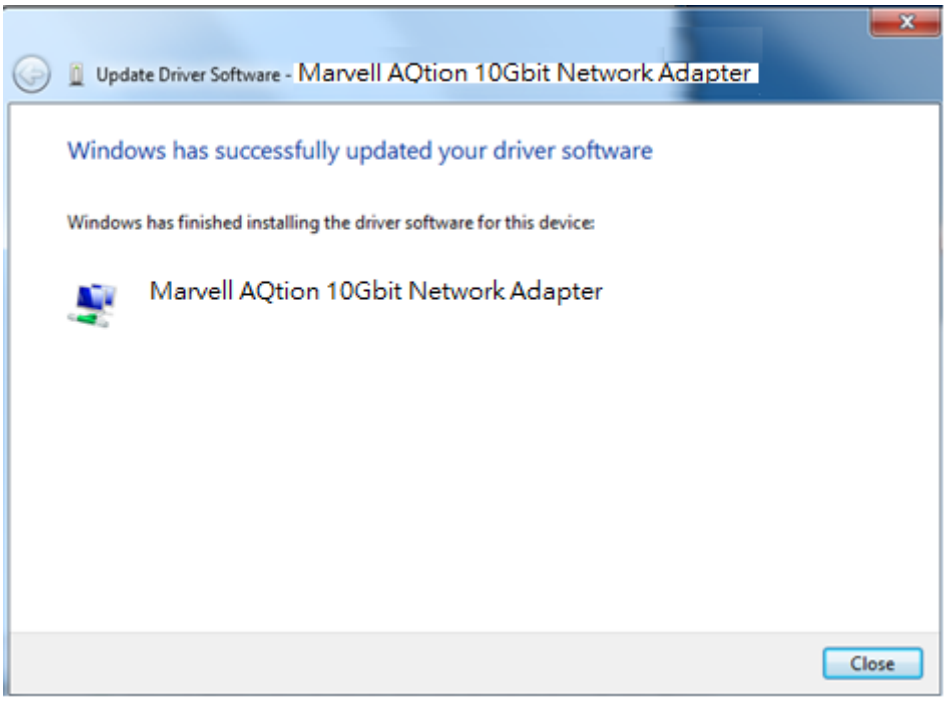


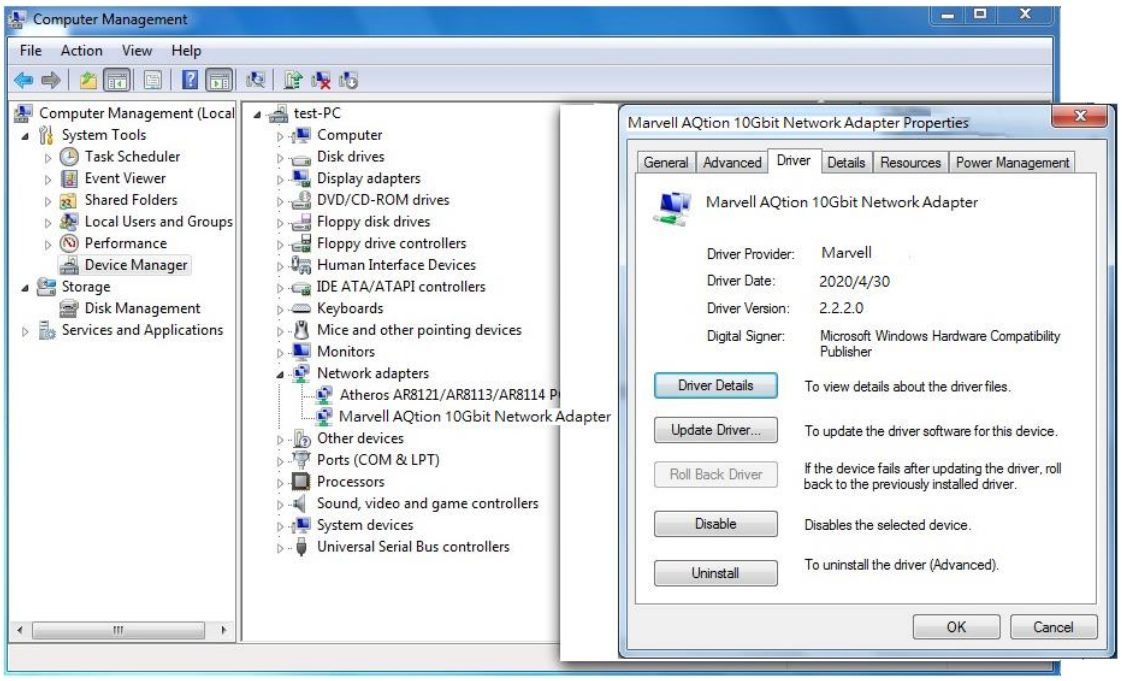
4. Please click **"Browse"** to specify the driver location to install. Click **"Next"** to continue.

The driver is being installed.



5.Click the **"Close"** button to complete the driver installation.





Chapter 4: Specifications

Product	**ENW-9803** 10GBASE-T PCI Express Server Adapter
Hardware Specifications	
Hardware Version	3
Attachment Interface	PCI Express rev. 3.0 specification x4 interface
Media Interface	RJ45 connector
Data Rate	10M/100M/1G/2.5G/5G/10Gbps
Jumbo Frame	2K/4K/9K/16K Bytes
LED Indicators	10G LNK Speed (**Green**)/100Mbps/1G/2.5G/5G LNK Speed (**Amber**) Dual Color LED LNK/ACT(**Green**)
Dimensions (W x D x H)	120 x 109 x 69 mm
Weight	82g
Typical Power Consumption	4.7 watts/16BTU
Network Cable	Twisted-pair cable up to 100 meters (328ft) 10BASE-T: 4-pair UTP Cat. 3, 4, 5, 5e, 6, 6A 100BASE-TX: 4-pair UTP Cat. 5, 5e, 6, 6A 1G/2.5GBASE-T: 4-pair UTP Cat 5e/Cat 6/Cat 6A/ Cat 7 5GBASE-T: 4-pair UTP Cat 6/Cat 6A/Cat 7 10GBASE-T:4-pair UTP Cat 6A/Cat 7
Advanced Functions	
Layer 2 Features	IEEE 802.3x Flow Control support IEEE 802.1Q VLAN support IEEE 802.1p CoS support
Pre-boot Execution Environment (PXE)	Yes
Data Plane Development Kit (DPDK)	Yes
Operating System Support	Windows Server 2008R2 64 bits Windows Server 2012R2 64 bits Windows Server 2016R2 64 bits Windows Server 2019R2 64 bits Windows 7 32/64 bits Windows 8 32/64 bits Windows 10 32/64 bits Linux Stable Kernel Version (2.6.32.x to 5.x) Linux CentOS/RHEL (6.x to 7.x) Ubuntu (14.x to 16.x) VMware ESX/ESXi 4.x/5.x/6.x
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class B, CE

Standards Compliance	IEEE 802.3	10BASE-T Ethernet
	IEEE 802.3u	100BASE-TX Ethernet
	IEEE 802.3ab	1GBASE-T Ethernet
	IEEE 802.3bz	2.5/5GBASE-T Ethernet
	IEEE 802.3an	10GBASE-T Ethernet
	IEEE 802.3x	Flow Control and Back Pressure
	IEEE 802.1Q	VLAN Tagging
	IEEE 802.3az	Energy Efficient Ethernet (EEE)
Environment		
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 95% (non-condensing)	
Storage	Temperature: -10 ~ 85 degrees C Relative Humidity: 5 ~ 95% (non-condensing)	
Package		
Package Contents	● ENW-9803 Server Adapter ● Quick Installation Guide ● Low Profile Bracket	