Omada
by tp-link

Installation Guide

Omada VPN Gateway

About this Installation Guide

This Installation Guide describes the hardware characteristics, installation methods and the points that should be attended to during the installation. This Installation Guide is structured as follows:

Chapter 1 Appearance

This chapter describes the external components of the gateway.

Chapter 2 Installation

This chapter illustrates how to install the gateway.

Chapter 3 Hardware Connection

This chapter illustrates how to do the physical connection of the gateway.

Chapter 4 Software Configuration

This chapter illustrates how to configure the gateway.

Appendix A FAQ

Appendix B Specifications

Audience

This Installation Guide is for:

Network Engineer Network Administrator

Conventions

- Some models featured in this guide may be unavailable in your country or region. For local sales information, visit https://www.omadanetworks.com.
- The figures in Chapter 2, Chapter 3, and Chapter 4 are for demonstration purposes only. Your device may differ in appearance from that depicted.
- This guide uses the specific formats to highlight special messages. The following table lists the notice icons that are used throughout this guide.

	Remind to be careful. A caution indicates a potential which may result in device damage.
	Remind to take notice. The note contains the helpful information for a better use of the product.

Related Document

The User Guide, datasheet and other information of the product can be found at https://support.omadanetworks.com/document/.

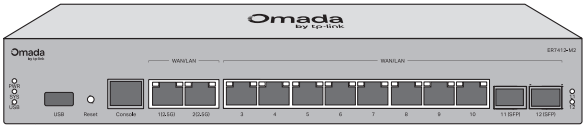
Contents

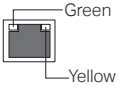
Chapter 1 Appearance

1.1 Front Panel

The figures are for demonstration only. They may differ from your actual products.

- The front panel of ER7412-M2 is shown as the following figure.

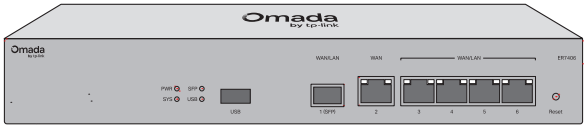


LED	Indication
PWR	**On**: The gateway is powered on. **Off**: The gateway is powered off or power supply is abnormal.
SYS	**Slow Flashing**: System is running normally. **Quick Flashing**: The gateway is being reset. **On or Off**: System is starting up or running abnormally.
USB	**For USB Modem:** **Flashing**: A modem is connected, and it is initializing. **On**: The modem is loaded. **Off**: No modem is inserted, or it is corrupted or incompatible. **For USB Storage:** **On**: A USB storage device is inserted and identified. **Off**: No USB storage device is inserted, or it is corrupted or incompatible.
Link/Act  	**For 2.5G Port:** **Green On**: Running at 2.5 Gbps, but no activity. **Green Off**: No device is linked to the corresponding port. **Green Flashing**: Running at 2.5 Gbps, and transmitting or receiving data. **Yellow On**: Running at 1000/100/10 Mbps, but no activity. **Yellow Off**: No device is linked to the corresponding port. **Yellow Flashing**: Running at 1000/100/10 Mbps, and transmitting or receiving data. **For Gigabit Port:** **Green On**: Running at 1000 Mbps, but no activity. **Green Off**: No device is linked to the corresponding port. **Green Flashing**: Running at 1000 Mbps, and transmitting or receiving data. **Yellow On**: Running at 100/10 Mbps, but no activity. **Yellow Off**: No device is linked to the corresponding port. **Yellow Flashing**: Running at 100/10 Mbps, and transmitting or receiving data.

LED	Indication
11-12	**On:** The correspondng SFP port is running at 1000 Mbps, but no activity. **Off**: No device is linked to the corresponding port. **Flashing**: The correspondng SFP port is running at 1000 Mbps, and transmitting or receiving data.

Interface	Description
USB	USB 3.0 port for USB modem and USB storage device.
Reset	Press and hold the button for 5 seconds, the SYS LED will flash quickly, indicating the device is being reset to its factory default settings.
Console	Connect with a computer for monitoring and configuring the gateway.
Port 1	2.5G RJ45 WAN/LAN port. By default, it is a WAN port. You can configure it to a LAN port on the management page
Port 2	2.5G RJ45 WAN/LAN port. By default, it is a LAN port connecting to local PCs or switches. You can configure it to a WAN port on the management page.
Port 3	Gigabit RJ45 WAN/LAN port. By default, it is a WAN port. You can configure it to a LAN port on the management page.
Port 4-10	Gigabit RJ45 WAN/LAN ports. By default, they are LAN ports connecting to local PCs or switches. You can configure each port to a WAN port on the management page.
Port 11-12	Gigabit SFP WAN/LAN port connecting to an SFP module. By default, it is a LAN port. You can configure it to a WAN port on the management page.

- The front panel of ER7406 is shown as the following figure.

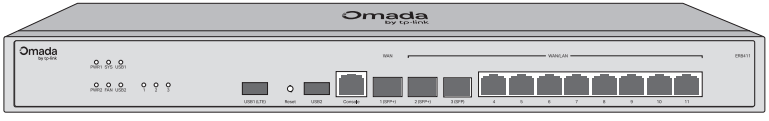


LED	Indication
PWR	**On**: The gateway is powered on. **Off**: The gateway is powered off or power supply is abnormal.
SYS	**Slow Flashing**: System is running normally. **Quick Flashing**: The gateway is being reset. **On or Off**: System is starting up or running abnormally.

LED	Indication
SFP	**On:** The SFP port is running at 1000 Mbps, but no activity. **Off**: No device is linked to the SFP port. **Flashing**: The SFP port is running at 1000 Mbps, and transmitting or receiving data.
USB	**For USB Modem:** **Flashing**: A modem is connected, and it is initializing. **On**: The modem is loaded. **Off**: No modem is inserted, or it is corrupted or incompatible. **For USB Storage:** **On**: A USB storage device is inserted and identified. **Off**: No USB storage device is inserted, or it is corrupted or incompatible.
Link/Act	**Green On**: Running at 1000 Mbps, but no activity. **Green Off**: No device is linked to the corresponding port. **Green Flashing**: Running at 1000 Mbps, and transmitting or receiving data. **Yellow On**: Running at 100/10 Mbps, but no activity. **Yellow Off**: No device is linked to the corresponding port. **Yellow Flashing**: Running at 100/10 Mbps, and transmitting or receiving data.

Interface	Description
USB	USB 3.0 port for USB modem and USB storage device.
Reset	Press and hold the button for 5 seconds, the SYS LED will flash quickly, indicating the device is being reset to its factory default settings.
Port 1	SFP WAN/LAN port. By default, it is a WAN port. You can configure it to a LAN port on the management page
Port 2	Gigabit RJ45 WAN port.
Port 3-6	Gigabit RJ45 WAN/LAN ports. By default, they are LAN ports connecting to local PCs or switches. You can configure each port to a WAN port on the management page.

- The front panel of ER8411 is shown as the following figure.



LED	Indication
PWR1*	**On**: The gateway is powered by PWR1. **Off**: PWR1 is disconnected or it works improperly, or the gateway is powered off.
PWR2	**Green On**: The gateway is powered by PWR2. **Yellow On****: PWR2 are connected, but the gateway is powered by PWR1.* **Off:** PWR2 is disconnected or it works improperly, or the gateway is powered off.

LED	Indication
SYS	**Flashing**: The gateway works properly. **On or Off**: The gateway works improperly. **Quick Falshing**: The gateway is being reset.
FAN	**Green On**: The fan works properly. **Yellow On**: The fan works improperly.
USB	**For USB Modem:** **Flashing**: A modem is connected and it is initializing. **On**: The modem is loaded. **Off**: No modem is inserted, or it is corrupted or incompatible. **For USB Storage:** **On**: A USB storage device is inserted and identified. **Off**: No USB storage device is inserted, or it is corrupted or incompatible.
SFP+ (Port 1-2)	**Green On**: Running at 10 Gbps, but no activity. **Green Flashing**: Running at 10 Gbps and transmitting or receiving data. **Yellow On**: Running at 1000 Mbps, but no activity. **Yellow Flashing**: Running at 1000 Mbps and transmitting or receiving data. **Off:** No device is linked to the corresponding port.
SFP (Port 3)	**On**: Running at 1000 Mbps, but no activity. **Flashing**: Running at 1000 Mbps and transmitting or receiving data. **Off**: No device is linked to the corresponding port.
RJ45 (Port 4-11)	**Green On**: Running at 1000 Mbps, but no activity. **Green Flashing**: Running at 1000 Mbps and transmitting or receiving data. **Yellow On**: Running at 100/10 Mbps, but no activity. **Yellow Flashing**: Running at 100/10 Mbps and transmitting or receiving data. **Off:** No device is linked to the corresponding port.
*PWR1 is the primary power supply and it takes priority over PWR2. **When both PWR1 and PWR2 work properly and the gateway is powered by PWR1, it takes 10-20 seconds for the LED PWR2 (yellow) to go out.	

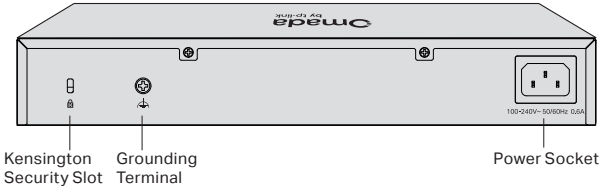
Interface	Description
USB1 (LTE)	USB 3.0 port for USB modem and USB storage device.
Reset	Press and hold the button for 5 seconds, the SYS LED will flash quickly, indicating the device is being reset to its factory default settings.
USB2	USB 3.0 port for USB storage device.
Console	Connect with a computer for monitoring and configuring the gateway.
SFP+ WAN (Port 1)	10G SFP+ WAN port.

SFP+ WAN/LAN (Port 2)	10G SFP+ WAN/LAN port connecting to an SFP+ module. By default, it is a LAN port. You can configure it to a WAN port on the management page.
SFP WAN/LAN (Port 3)	Gigabit SFP WAN/LAN port connecting to an SFP module. By default, it is a LAN port. You can configure it to a WAN port on the management page.
Port 4	Gigabit RJ45 WAN/LAN port. By default, it is a WAN port. You can configure it to a LAN port on the management page
Port 5-11	Gigabit RJ45 WAN/LAN ports. By default, they are LAN ports connecting to local PCs or switches. You can configure each port to a WAN port on the management page.

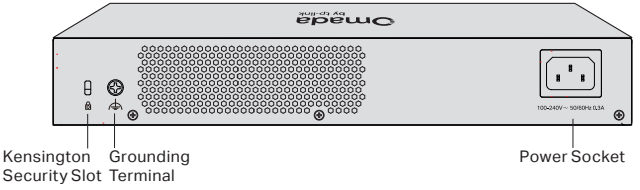
1.2 Rear Panel

The figures are for demonstration only. They may differ from your actual products.

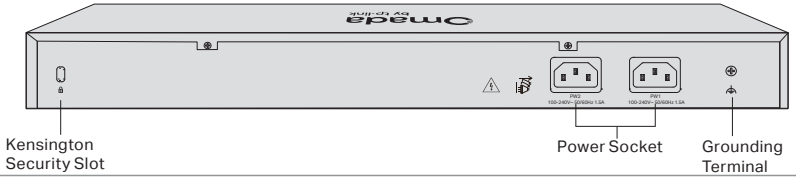
- The rear panel of ER7412-M2 is shown as the following figure.



- The rear panel of ER7406 is shown as the following figure.



- The rear panel of ER8411 is shown as the following figure.



Note:
PWR1 is the primary power supply and it takes priority over PWR2.

Kensington Security Slot

Secure the lock (not provided) into the security slot to prevent the device from being stolen.

Grounding Terminal

The device already comes with lightning protection mechanism. You can also ground the device through the PE (Protecting Earth) cable of AC cord or with Ground Cable. For detailed lightning protection measures, refer to the **Lightning Protection Guide**:

https://www.omadanetworks.com/us/configuration-guides/lightning_protection_guide/.

Power Socket

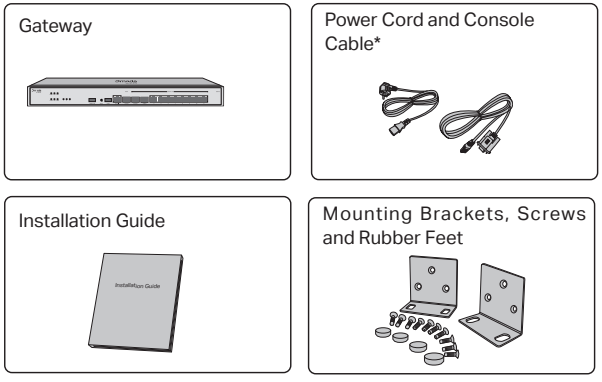
Connect the female connector of the power cord here, and the male connector to the AC power outlet. Make sure that the voltage of the power supply meets the requirement of the input voltage (100–240 V~ 50/60 Hz).

Caution:
Please use the provided power cord.

Chapter 2 Installation

2.1 Package Contents

Make sure that the package contains the following items. Please contact your distributor, if any of the listed items is damaged or missing. The figures are for demonstration only. The actual items may differ in appearance and quantity from the depicted.



Note:
*ER7406 does not come with a console port and the console cable is not provided.

2.2 Safety Precautions

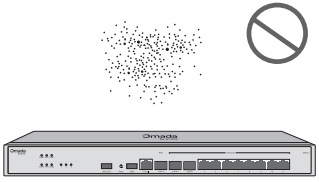
To avoid any device damage and bodily injury caused by improper use, you should observe the following rules.

- **Safety Precautions**
  - Keep the power off during the installation.
  - Wear an ESD-preventive wrist strap, and make sure that the wrist strap has a good skin contact and is well grounded.
  - Use only the power cord provided with the device.
  - Make sure that the supply voltage matches the specifications indicated on the rear panel of the device.
  - Ensure that the device is installed in a well-ventilated environment and its ventilation hole is not blocked.
  - Do not open or remove the cover of the device.
  - Before cleaning the device, cut off the power supply. Do not clean it by the waterish cloth, and never use any other liquid cleaning method.
  - Place the device with its bottom surface downward.
- **Site Requirements**

Temperature/Humidity

Keep the equipment room at an appropriate level of temperature and humidity. Too much or too little humidity may lead to bad insulation, leakage of electricity, mechanical property changes, and corrosion. High temperatures may accelerate aging of the insulation materials, significantly shortening the service life of the device. To find out the best temperature and humidity conditions for the device, check the device's datasheet.

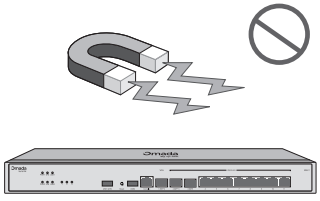
Clearness



The dust accumulated on the device can be absorbed by static electricity and result in poor contact of metal contact points. Some measures have been taken for the device to prevent static electricity, but too strong static electricity can cause deadly damage to the electronic elements on the internal circuit board. To avoid the effect of static electricity on the operation of the device, attach much importance to the following items:

- Dust the device regularly, and keep the indoor air clean.
- Keep the device well grounded and ensure that the static electricity has been transferred.

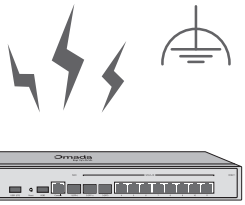
Electromagnetic Interference



Electronic elements including capacitance and inductance on the device can be affected by external interferences, such as conducted emission by capacitance coupling, inductance coupling, and impedance coupling. To decrease the interferences, make sure to take the following measures:

- Use the power supply that can effectively filter interference from the power grid.
- Keep the device far from high-frequency and strong-current devices such as radio transmitting station.
- Use electromagnetic shielding when necessary.

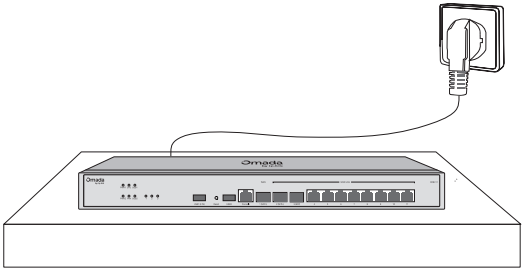
Lightning Protection



Extremely high voltage currents can be produced instantly when lightning occurs and the air in the electric discharge path can be instantly heated up to 20,000 °C. As this instant current is strong enough to damage electronic devices, more effective lightning protection measures should be taken.

- Ensure that the rack and the device are well earthed.
- Make sure the power socket has a good contact with the ground.
- Keep a reasonable cabling system and avoid induced lightning.
- Use the signal SPD (Surge Protective Device) when wiring outdoor.

Installation Site



When installing the device on a rack or a flat workbench, attach much importance to the following items:

- The rack or workbench is flat, stable, and sturdy enough to support the weight of 5.5 kg at least.
- The rack or workbench has a good ventilation system. The equipment room is well ventilated.
- The rack is well grounded. Keep the device less than 1.5 meters away from the power socket.

2.3 Installation Tools

- Phillips screwdriver
- ESD-preventive wrist wrap
- Cables

Note:
These tools are not included with our product. If needed, you can purchase them separately.

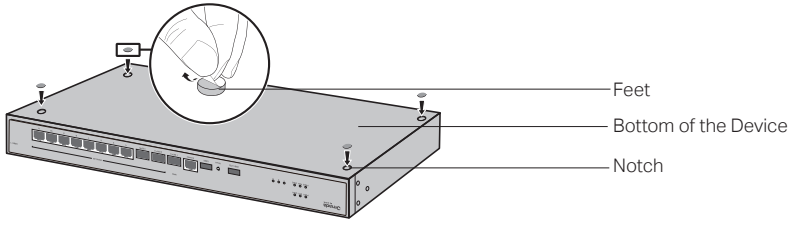
2.4 Product Installation

- **Desktop Installation**

To install the device on the desktop, follow the steps:

1. Set the device on a flat surface which is strong enough to support the entire weight of the device with all fittings.
2. Remove the adhesive backing papers from the rubber feet.
3. Turnover the device and attach the supplied rubber feet to the recessed areas on the bottom at each corner of the device.

Figure 2-1 Desktop Installation

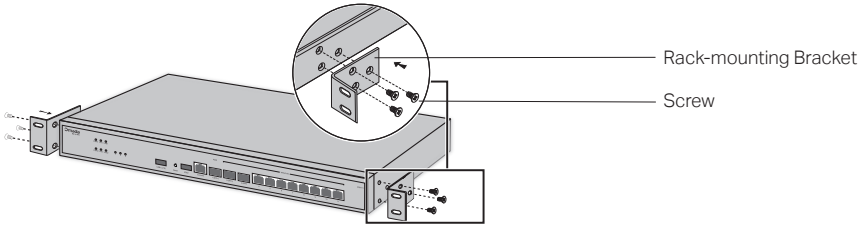


- **Rack Installation**

To install the device in a rack, follow the instructions described below:

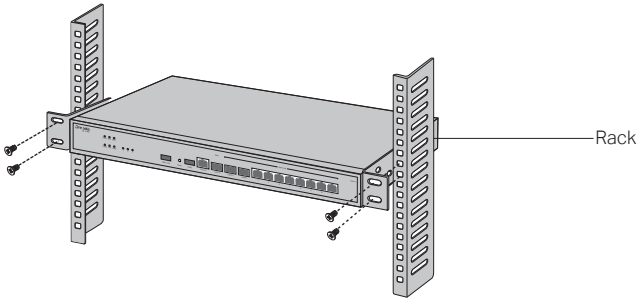
1. Check the efficiency of the grounding system and the stability of the rack.
2. Secure the supplied rack-mounting brackets to each side of the device with supplied screws, as illustrated in the following figure.

Figure 2-2 Bracket Installation



3. After the brackets are attached to the device, use suitable screws (not provided) to secure the brackets to the rack, as illustrated in the following figure.

Figure 2-3 Rack Installation

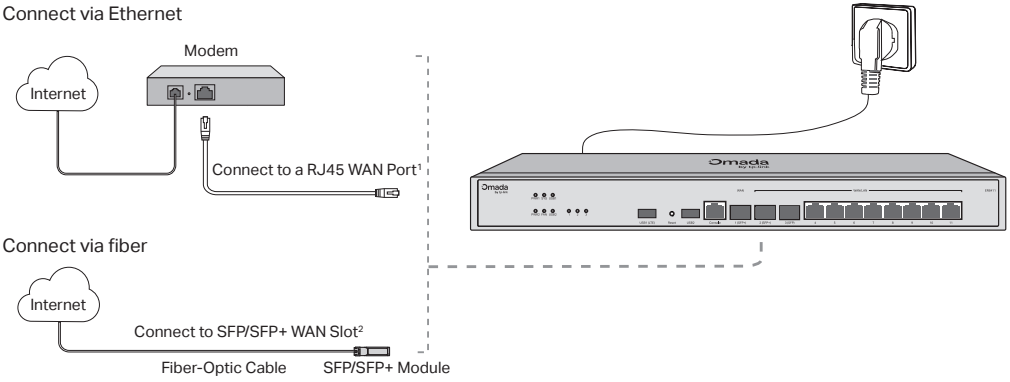


Caution:

- Leave 5 to 10 cm gaps around the devices for air circulation.
- Avoid placing heavy things on the device.
- Place the device with its bottom facing downwards.
- Mount devices in sequence from the bottom to top of the rack and ensure a certain clearance between devices for the purpose of heat dissipation.

Chapter 3 Hardware Connection

Follow the steps below to connect your gateway to the internet.



Note:

- 1. If you want to connect to the internet via another RJ45 WAN port, refer to FAQ-Q1 to configure your desired port to a WAN port first, and connect the port to the internet via an RJ45 cable.
- 2. If you want to connect to the internet via another SFP/SFP+ WAN port, refer to FAQ-Q1 to configure the SFP/SFP+ port as a WAN port first, and connect the SFP/SFP+ port to the internet via an SFP/SFP+ module.

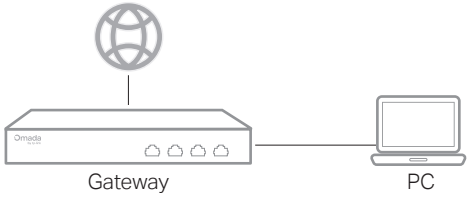
Chapter 4 Software Configuration

The gateway supports two configuration options:

- Standalone Mode: Configure and manage the gateway by itself.
- Controller Mode: Configure and manage network devices centrally. It is recommended in large-scale networks, which consist of a large number of devices such as access points, switches, and gateways.

▪ Standalone Mode

In Standalone Mode, use a computer to configure and manage the gateway.



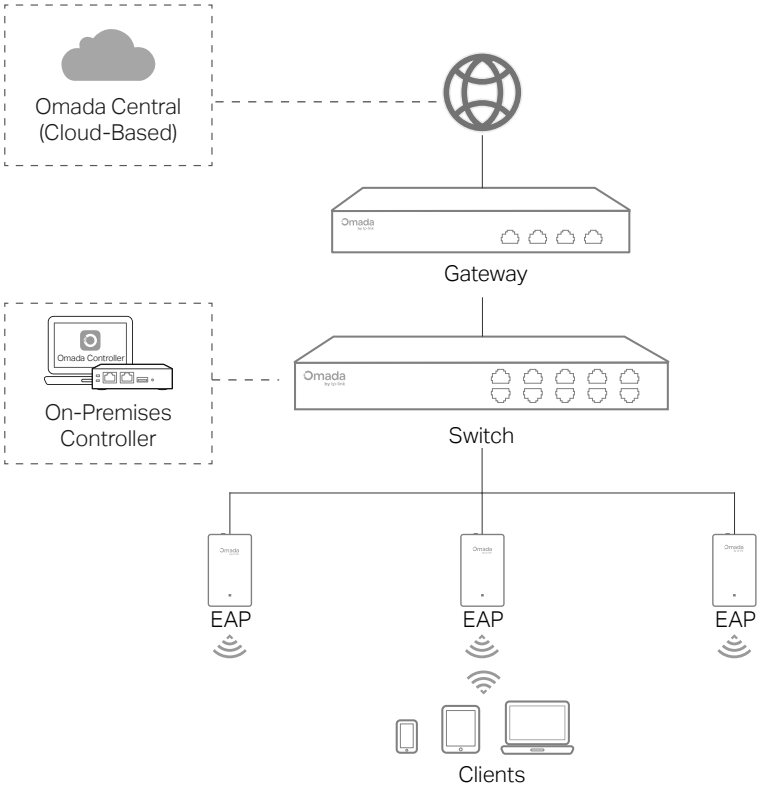
1. Connect a computer to a LAN port of the gateway with an RJ45 cable properly. If your computer is configured with a fixed IP, change it to Obtain an IP address automatically.
2. Open a web browser and type the default management address **https://omadaer.net** in the address field of the browser, then press the Enter key.
3. Follow the web instructions to complete the quick setup.

Note:
Make sure the ports you select as WAN ports correspond to the real situation.

▪ Controller Mode

Note:
The Omada Controller must have network access to your Omada devices in order to find, adopt, and manage them.

To set up an Omada gateway with an Omada Controller, scan the QR code or refer to the Omada Controller configuration guide at **https://www.omadanetworks.com/support/faq/4096/**.



▪ Omada App

With the TP-Link Omada app, you can access and manage your Omada devices at a local site or remotely with a tap of your phone. You can download and install the TP-Link Omada app from the App Store or Google Play.

▪ More Configurations

For more configurations, refer to the User Guides of the Controller and EAPs on the Documents page: **https://support.omadanetworks.com/document/**.

Appendix A FAQ

Q1. What should I do if I want to change the mode of the WAN/LAN ports?

1. (Recommended) Refer to the Interface Description table of this guide for the default mode of the WAN/LAN ports.
2. Connect a computer to a LAN port of this gateway. If your computer is configured with a fixed IP address, change it to Obtain an IP address automatically.
3. Log in to this gateway's management page at **https://omadaer.net**. Go to Network > WAN > WAN Mode, change the mode of the WAN/LAN ports by ticking the checkboxes, and click Save.

Q2. What should I do if I need to connect this gateway to a modem gateway?

Check the LAN IP address of the modem gateway first. If the LAN IP address of the modem gateway is 192.168.188.1, which is the same as the default LAN IP address of this gateway, follow the steps to change the LAN IP address of this gateway:

1. Connect a computer to a LAN port of this gateway. If your computer is configured with a fixed IP address, change it to Obtain an IP address automatically.
2. Log in to this gateway's management page at **https://omadaer.net**, and go to Network > LAN > LAN. In the Network List section, change the IP address 192.168.188.1 to 192.168.1.1, and click OK.

Appendix B Specifications

Specifications for gateways with RJ45 Ports and SFP/SFP+ Slots

Item	Content
Standards	IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3ad, IEEE 802.3z, IEEE 802.3x, IEEE 802.1p, IEEE 802.1q, IEEE 802.1x, IEEE 802.1d, IEEE 802.1s, IEEE 802.1w, IEEE 802.1ab
Transmission Medium	10BASE-T: 2-pair UTP/STP of Cat. 3,4,5 (maximum 100 m) 100BASE-TX: 2-pair UTP/STP of Cat. 5 or above (maximum 100 m) 1000BASE-T: 4-pair UTP/STP of Cat. 5e or above (maximum 100 m) 2.5GBASE-T: 4-pair UTP/STP of Cat. 5e or above (maximum 100 m) (for ER7412-M2 100BASE-FX/LX10/BX10: MMF, SMF 1000BASE-SX/LX/LX10/BX10: MMF, SMF 10GBASE-SR/LR: MMF, SMF (For ER8411) 10GSFP+CU SFP+ Direct Attach Cable (SM5220-1M, SM5220-3M) (For ER8411)
LED	ER7412-M2: PWR, SYS, USB, Link/Act, 11, 12 ER7406: PWR, SYS, SFP, USB, Link/Act ER8411: PWR1, PWR2, SYS, FAN, USB1, USB2, 1, 2, 3, Link/Act

EU Declaration of Conformity

For ER7406:

TP-Link hereby declares that the gateway is in compliance with the essential requirements and other relevant provisions of directives 2014/30/EU, 2014/35/EU, 2009/125/EC, 2011/65/EU and (EU)2015/863.
The original EU Declaration of Conformity may be found at https://www.tp-link.com/en/support/ce/

For other models:

TP-Link hereby declares that the gateway is in compliance with the essential requirements and other relevant provisions of directives 2014/30/EU, 2014/35/EU, 2011/65/EU and (EU)2015/863.
The original EU Declaration of Conformity may be found at https://www.tp-link.com/en/support/ce/

UK Declaration of Conformity

TP-Link hereby declares that the gateway is in compliance with the essential requirements and other relevant provisions of the Electromagnetic Compatibility Regulations 2016 and Electrical Equipment (Safety) Regulations 2016.

The original UK Declaration of Conformity may be found at https://www.tp-link.com/support/ukca/

Safety Information

- Keep the device away from water, fire, humidity or hot environments.
- Do not attempt to disassemble, repair, or modify the device.If you need service, please contact us.
- Place the device with its bottom surface downward.
- The plug on the power supply cord is used as the disconnect device, the socket-outlet shall be easily accessible.
- Plug the product into the wall outlets with earthing connection through the power supply cord or plug.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.
- Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord. (Dansk)
- Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan.(Suomi)
- Apparatet må tilkoples jordet stikkontakt.(Norsk)
- Apparaten skall anslutas till jordat uttag. (Sweden)

This equipment is not suitable for use in locations where children are likely to be present, such as family environment, school, children's playground and so on.

Please read and follow the above safety information when operating the device. We cannot guarantee that no accidents or damage will occur due to improper use of the device. Please use this product with care and operate at your own risk.

For technical support, the user guide and other information, please visit **https://support.omadanetworks.com/**, or simply scan the QR code.

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