



User Guide

Omada Controller

About this Guide

This User Guide provides information for using the Omada Controller. Please read this guide carefully before operation.

For instructions about how to manage each type of devices via the Omada Controller, refer to the relevant user guides:

- [Manage the Gateway via the Omada Controller](#)
- [Manage Switches via the Omada Controller](#)
- [Manage APs via the Omada Controller](#)
- [Manage the OLT via the Omada Controller](#)

Intended Readers

This User Guide is intended for network managers familiar with IT concepts and network terminologies.

Conventions

When using this guide, notice that:

- Features available in the controller may vary due to your region, controller type and version, and device model. All images, steps, and descriptions in this guide are only examples and may not reflect your actual experience.
- The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute the warranty of any kind, express or implied. Users must take full responsibility for their application of any products.
- This guide uses the specific formats to highlight special messages. The following table lists the notice icons that are used throughout this guide.

In this guide, the following conventions are used:

Controller	Stands for the Omada On-Premises Controller and the Omada Cloud-Based Controller.
On-Premises Controller	Includes the Omada Software Controller (also referred to as the Omada Network Application), Omada Hardware Controller, and Omada Integrated Gateway (Controller).

Cloud-Based Controller / Omada Central	The Omada Cloud-Based Controller is now referred to as the Omada Network system on the Omada Central. Note that the Omada Central integrates the Omada Network system and Omada Guard system. The Omada Network system works as an Omada Controller to manage network devices (gateways, switches, access points, OLTs, and more), while the Omada Guard system works as a VMS system to manage surveillance devices (security cameras, NVRs, and more). This guide involves instructions about the Omada Network system. For instructions about the Omada Guard system, refer to the Omada Guard User Guide.
Gateway	Stands for the Omada Gateway/Router.
Switch	Stands for the Omada/Omada Campus Switch.
AP/EAP	Stands for the Omada/Omada Campus AP.
OLT	Stands for the DeltaStream GPON Optical Line Terminal.
Note:	The note contains the helpful information for a better use of the controller.
Configuration Guidelines:	Provide guidelines for the feature and its configurations.

More Resources

Main Site	https://www.omadanetworks.com/
Video Center	https://support.omadanetworks.com/video/
Documents	https://support.omadanetworks.com/document/
Product Support	https://support.omadanetworks.com/product/
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For technical support, the latest software, and management app, visit <https://support.omadanetworks.com/>.

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Chapter 1

Omada SDN Solution Overview

Omada SDN (Software-defined Networking) Solution offers centralized and efficient management for configuring enterprise networks comprised of gateways, switches, wireless access points, OLTs (Optical Line Terminals), and more via the On-Premises Controller as well as the Omada Central.

With a reliable network management platform powered by Omada, you can develop comprehensive, software-defined networking across demanding, high-traffic environments with robust wired and wireless solutions.

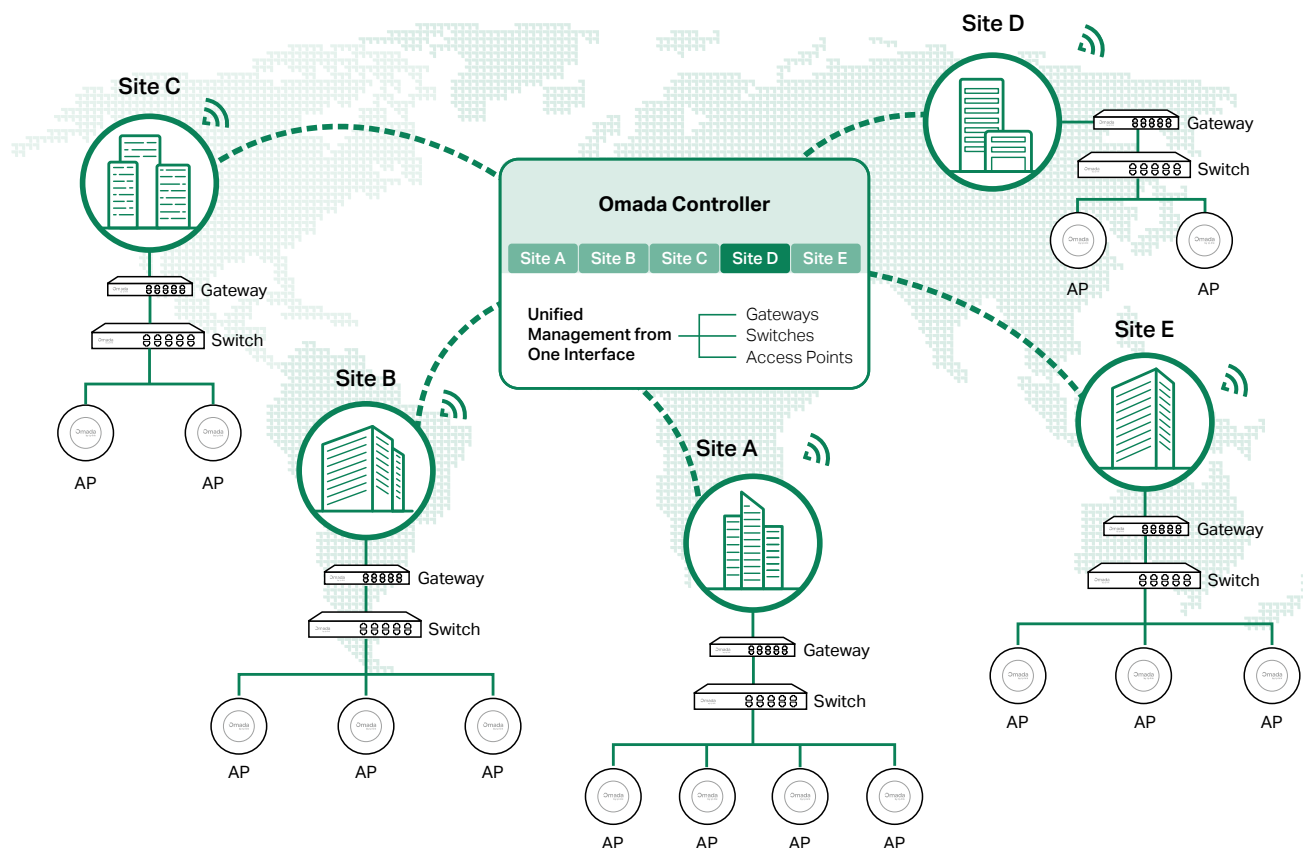
The chapter includes the following sections:

- [1.1 Overview](#)
- [1.2 Core Components](#)

1.1 Overview

Omada SDN Solution is designed to provide business-class networking solutions for demanding, high-traffic environments such as campuses, hotels, malls, and offices. It simplifies deploying and managing large-scale enterprise networks and offers easy maintenance, ongoing monitoring, and flexible scalability.

This figure shows a sample architecture of an SDN enterprise network:



The interconnected elements that work together to deliver a unified enterprise network include: Controller, gateways, switches, access points, and client devices. Beginning with a base of client devices, each element adds functionality and complexity as the network is developing, interconnecting with the elements above and below it to create a comprehensive, secure wired and wireless solution.

The Controller is a command center and management platform at the heart of the network. With a single platform, the network administrators configure and manage enterprise networks comprised of gateways, switches, and wireless access points in batches. This unleashes new levels of management to avoid complex and costly over-provisioning.

1.2 Core Components

An SDN network consists of the following core components:

- **Controller** — A command center and management platform at the heart of network solution for the enterprise. With a single platform, the network administrators configure and manage all compatible products which have all your needs covered in terms of routing, switching and Wi-Fi.
- **Gateways** — Boast excellent data processing capabilities and an array of powerful functions, including IPsec/OpenVPN/PPTP/L2TP VPN, Load Balance, and Bandwidth Control, which are ideal for the business network where a large number of users require a stable, secure connection.
- **Switches** — Offer flexible and cost-effective network solution with powerful Layer 2 features and PoE options. Advanced features such as Access Control, QoS, LAG and Spanning Tree will satisfy advanced business networks.
- **Access Points** — Satisfy the mainstream Wi-Fi Standard and address your high-density access needs with Omada's innovation to help you build the versatile and reliable wireless network for all business applications.
- **OLTs** — Work with GPON APs to enable rapid optical network construction. Leveraging OLTs with single PON ports and optical splitters, GPON APs provide excellent scalability and enable high-density device management.

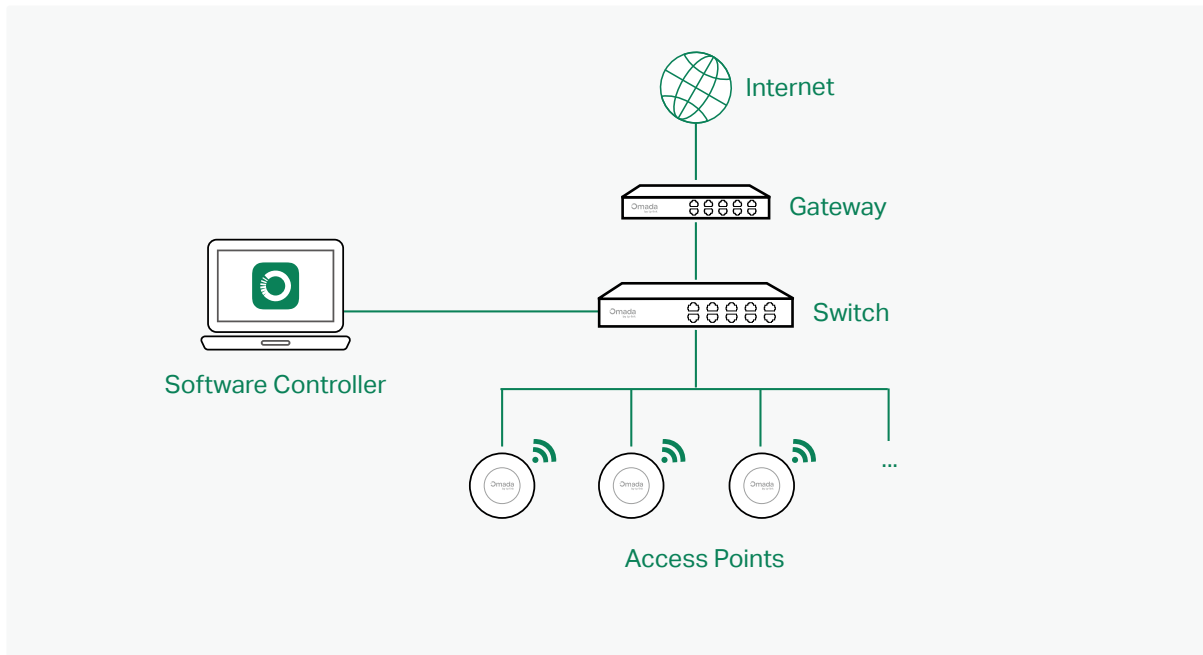
Controller

Tailored to different needs and budgets, Omada Controller offers diverse deployment solutions. Software Controller, Hardware Controller, and Cloud-Based Controller each has their own set of advantages and applications. The controllers differ in forms, but they have almost the same browser-based management interface and serve the same functions of network management.

For more information about the Omada Controller, refer to <https://www.omadanetworks.com/business-networking/omada/controller/>.

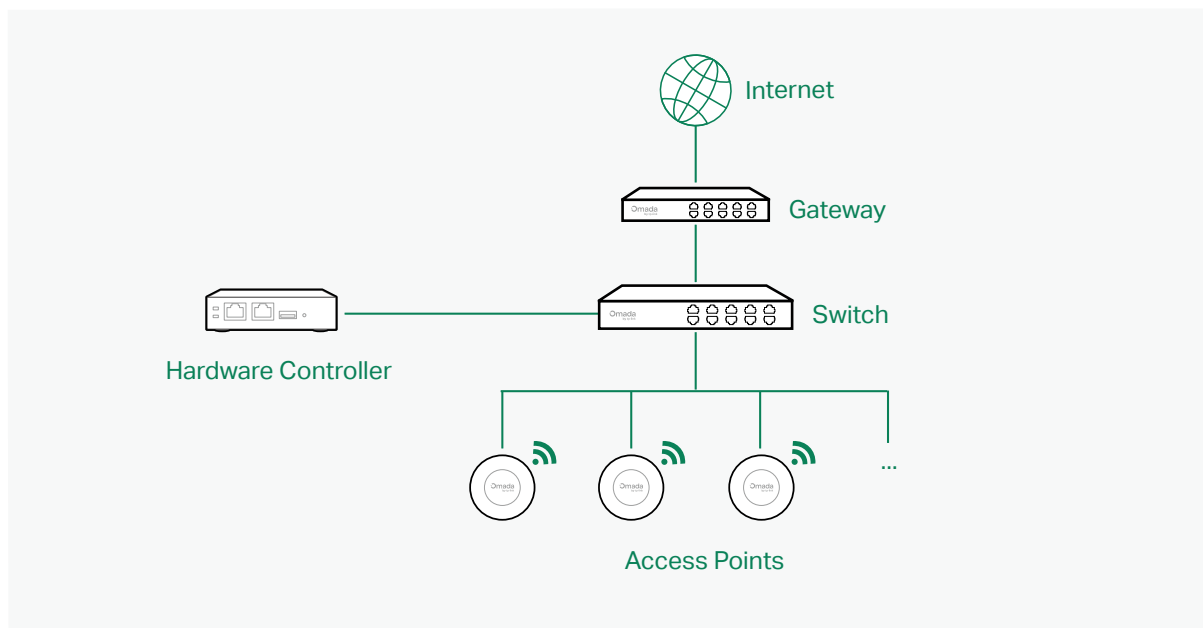
- **Software Controller**

Software Controller can be hosted on any computers with Windows or Linux systems on your network.



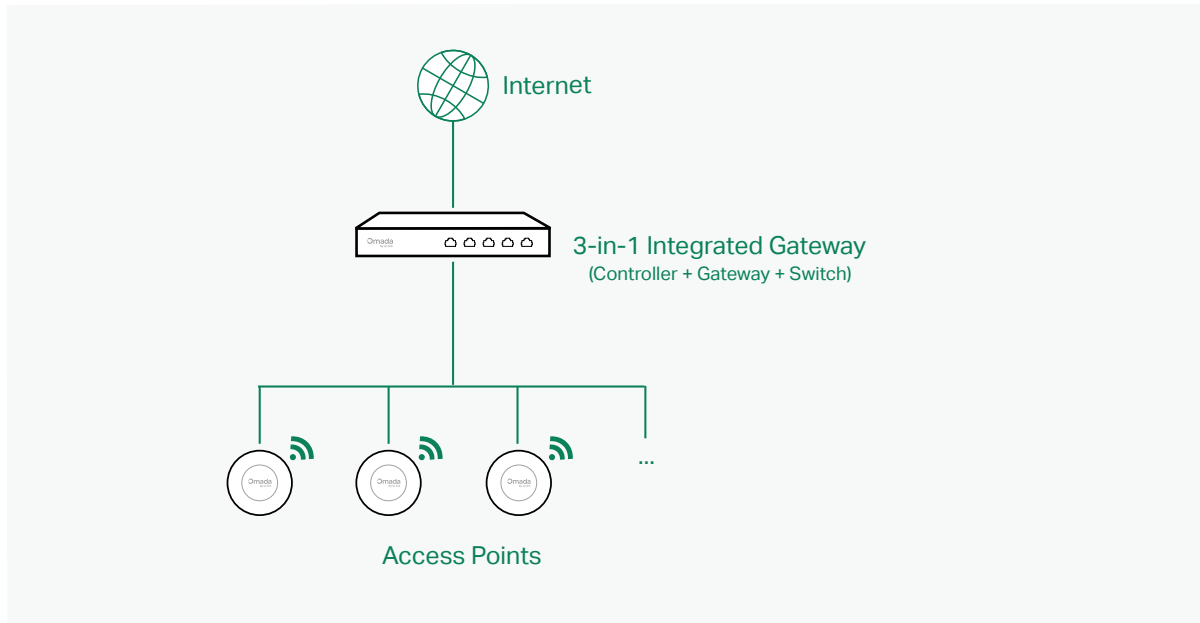
■ Hardware Controller

Hardware Controller is the management device which is pre-installed with the Software Controller. You just need to purchase the device, then the built-in software controller is ready to use. About the size of a mobile phone, the device is easy to deploy and install on your network.



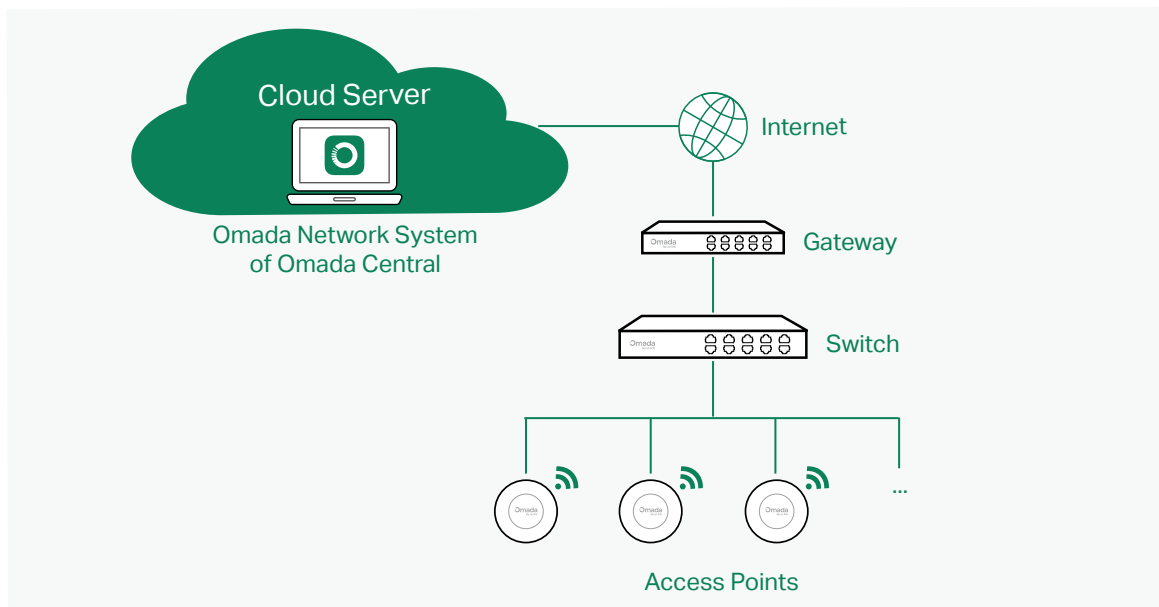
■ 3-in-1 Integrated Gateway (Controller)

3-in-1 Integrated Gateway integrates PoE+ ports and Controller ability. It is the management device which is pre-installed with the Software Controller. You just need to purchase the device, then the built-in software controller is ready to use. It can also work as the Gateway and Switch at the same time, allowing you to connect to access points and PoE-supported devices with ease.



■ Cloud-Based Controller (Omada Network System)

The Cloud-Based Controller is now referred to as the Network system on the Omada Central. It is deployed on the Omada Cloud server, providing the Essentials version for free management of essential features and the Standard version for basic and advanced features through subscription-based licensing.



Gateways

Gateways support Gigabit Ethernet connections on both WAN and LAN ports which keep the data moving at top speed. Including all the routing and network segmentation functions that a business gateway must have, VPN Gateway will be the backbone of the SDN network. Moreover, the gateway provides a secure and easy approach to deploy site-to-site VPN tunnels and access for remote clients.

Managing gateways centrally through the Omada Controller is available on certain models only. For more information, refer to <https://www.omadanetworks.com/omada-sdn/product-list/>.

Switches

Switches provide high-performance and enterprise-level security strategies and lots of advanced features, which is ideal access-edge for the SDN network.

Managing switches centrally through the Omada Controller is available on certain models only. For more information, refer to <https://www.omadanetworks.com/omada-sdn/product-list/>.

Access Points

Access Points provide business-class Wi-Fi with superior performance and range, which guarantees reliable wireless connectivity for the SDN network.

Managing access points centrally through the Omada Controller is available on certain models only. For more information, refer to <https://www.omadanetworks.com/omada-sdn/product-list/>.

OLTs

OLTs and GPON APs are commonly used in all-optical network deployments, especially for FTTH/FTTR applications. As the shift toward fiber-to-the-home and the phase-out of copper accelerates, the OLT + GPON AP combination is emerging as a preferred enterprise networking solution.

Managing OLTs centrally through the Omada Controller is available on certain models only. For more information, refer to <https://www.omadanetworks.com/omada-sdn/product-list/>.

Chapter 2

Get Started with Omada Controller

This chapter guides you on how to get started with Omada Controller to configure the network. The controllers differ in forms, but they have almost the same browser-based management interface for network management. Therefore, they have almost the same initial setup steps, including building your network topology, deploying your controller, and logging in to the controller. The chapter includes the following sections:

- [2. 1 Set Up Your Software Controller](#)
- [2. 2 Set Up Your Hardware Controller](#)
- [2. 3 Set Up Your Integrated Gateway \(Controller\)](#)
- [2. 4 Set Up Your Cloud-Based Controller](#)
- [2. 5 Navigate the Controller UI](#)

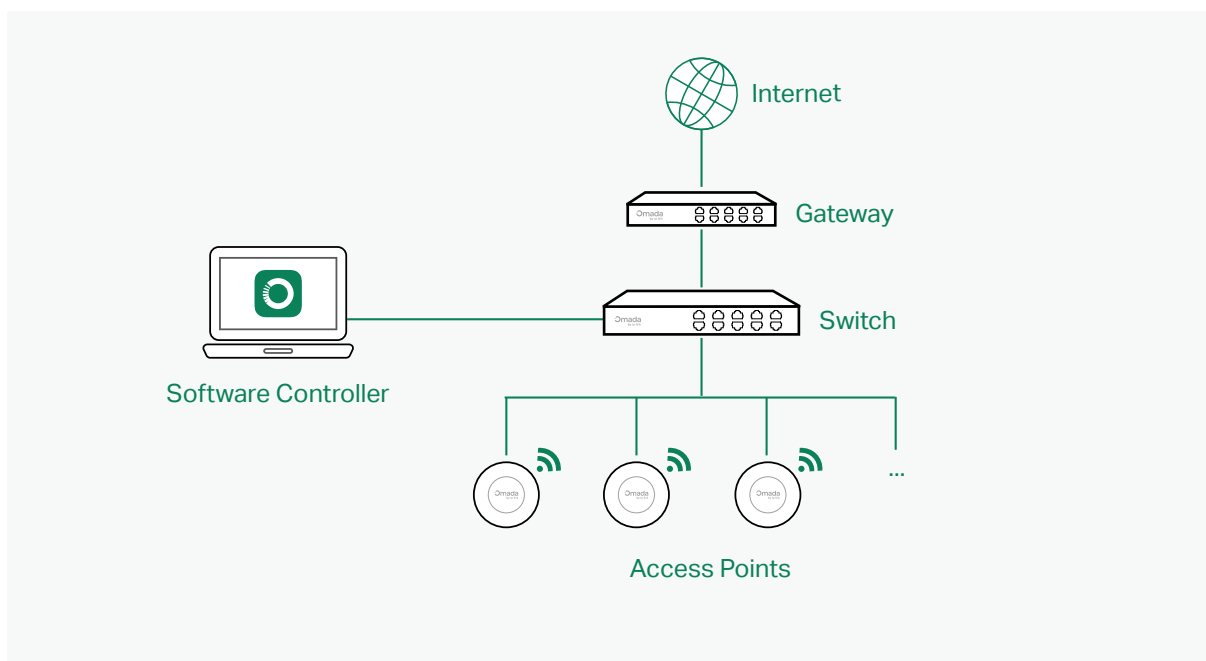
2.1 Set Up Your Software Controller

Omada Controller is designed for scalable networks. Deployments and configurations vary according to actual situations. Understanding your network requirements is the first step when planning to provision any project. After you have identified these requirements, follow the steps below to initially set up the Software Controller:

- 1) Determine the network topology.
- 2) Install the Software Controller.
- 3) Start and log in to the controller.

2.1.1 Determine the Network Topology

The network topology that you create for the controller varies depending on your business requirements. The following figure shows a typical topology for a high-availability use case.



Note:

When using the Omada Controller, we recommend that you deploy the full topology with compatible devices. If you use third-party devices, Omada Controller cannot discover and manage them.

2.1.2 Install the Software Controller

Omada Software Controller is provided for both Windows and Linux operating systems. Determine your operating system and follow the introductions below to install the Software Controller.

Installation on Windows Host

Omada Software Controller can be hosted on any computers with Windows systems on your network. Make sure your PC's hardware and system meet the following requirements, then properly install the Software Controller.

■ Hardware Requirements

To guarantee operational stability, we recommend that you use the hardware which meets or exceeds the following specifications:

CPU: Intel Core i3-8100, i5-6500, or i7-4700 with 2 or more cores and 4 or more threads.

Memory: 16 GB RAM or more.

■ System Requirements

Operating System: Microsoft Windows 10/11/Server. (We recommend that you deploy the controller on a 64-bit operating system to guarantee the software stability.)

Web Browser: Google Chrome 107 (or above), Mozilla Firefox 106 (or above), or Microsoft Edge 106 (or above). It is recommended to use the latest version.

■ Install the Software Controller

Download the installation file of Software Controller from <https://support.omadanetworks.com/download/software/omada-controller/>. Then follow the instructions to install the controller. After a successful installation, the controller shortcut icon will be created on your desktop.

Installation on Linux Host

Two versions of installation package are provided: **.tar.gz** file and **.deb** file. Both of them can be used in multiple versions of Linux operating system, including Ubuntu and Debian.

Make sure your PC's hardware and system meet the following requirements, then choose the proper installation files to install the Software Controller.

■ Hardware Requirements

To guarantee operational stability, we recommend that you use the hardware which meets or exceeds the following specifications:

CPU: Intel Core i3-8100, i5-6500, or i7-4700 with 2 or more cores and 4 or more threads.

Memory: 16 GB RAM or more.

■ System Requirements

Operating System: 64-bit Linux operating system, including Ubuntu 20.04/22.04/24.04, and Debian 11/12. Only support x64 version.

Web Browser: Google Chrome 107 (or above), Mozilla Firefox 106 (or above), or Microsoft Edge 106 (or above). It is recommended to use the latest version.

■ Install the Software Controller

Download the installation file of Software Controller from <https://support.omadanetworks.com/download/software/omada-controller/>. Check the prerequisites and follow the steps based on your

file version to install the controller.

- Prerequisites for installing

To successfully install the Software Controller, ensure that you have performed the following tasks before your installation:

- Ensure that the Java Runtime Environment (JRE) has been installed in your system. The controller requires that the system has Java 17 installed. Download the file according to your operating system from https://www.java.com/download/linux_manual.jsp and follow the instructions to install the JRE.

For Ubuntu 20.04 or above, you can use the command: **apt-get install openjdk-17-jre-headless** to get the Java 17 installed.

- Ensure that MongoDB has been installed in your system. The controller works when the system runs MongoDB 3.6-8.0 LTS versions. Download the file according to your operating system from the <https://www.mongodb.com/try/download> and follow the instructions to install the MongoDB.
- Ensure that you have **jsvc** and **curl** installed in your system before installation, which is vital to the smooth running of the system. If your system does not have **jsvc** or **curl** installed, you can install it manually with the command: **apt-get install** or **yum install**. For example, you can use the command: **apt-get install jsvc** or **yum install jsvc** to get **jsvc** installed. And if dependencies are missing, you can use the command: **apt-get -f install** to fix the problem.

- Install the .tar.gz file

- Make sure your PC is running in the root mode. You can use this command to enter root mode:
sudo

- Extract the tar.gz file using the command:

tar zxvf Omada_Controller_vx.x.x_linux_x64_targz.tar.gz

- Install the Controller using the command:

sudo bash ./install.sh

- Install the .deb file

- Make sure your PC is running in the root mode. You can use this command to enter root mode:
sudo

- Install the .deb file using the command:

dpkg -i Omada_Controller_vx.x.x_linux_x64.deb

If dependencies are missing during the installation, you can use the command: **apt-fix-broken install** to fix the problem.

After installing the controller, use the following commands to check and change the status of the controller.

- tpeap start** — Start the controller, use the command.
- tpeap stop** — Stop running the Controller.
- tpeap status** — Show the status of Controller.

For more detailed information about the installation on Linux hosts, refer to [How to install Omada](#)

Software Controller on Linux system.

Note:

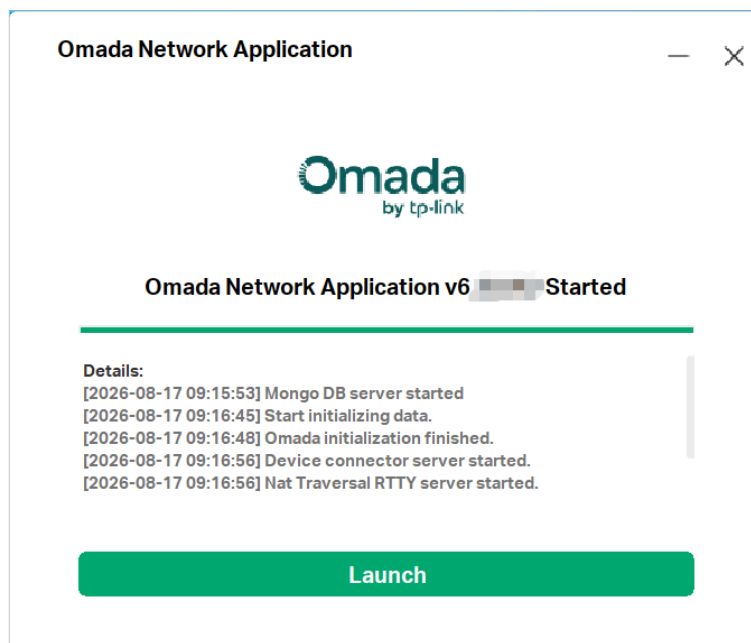
- For installing the .tar.gz, if you want the Controller to run as a user (it runs as root by default) you should modify OMADA_USER value in bin/control.sh.
- To uninstall the Controller, go to the installation path: /opt/tplink/EAPController, and run the command: sudo bash ./uninstall.sh.
- During uninstallation, you can choose whether to back up the database. The backup folder is /opt/tplink/eap_db_backup.
- During installation, you will be asked whether to restore the database if there is any backup database in the folder /opt/tplink/eap_db_backup.

2.1.3 Start and Log In to the Software Controller

Launch the Software Controller and follow the instructions to complete basic configurations, and then you can log in to the management interface.

Launch the Software Controller

Double-click the controller shortcut icon and the following window will pop up. After a while, your web browser will automatically open.



Note:

- If your browser does not open automatically, click [Launch](#). You can also launch a web browser and enter `http://127.0.0.1:8043` in the address bar.
- If your web browser opens but prompts a problem with the website's security certificate, click **Continue**.

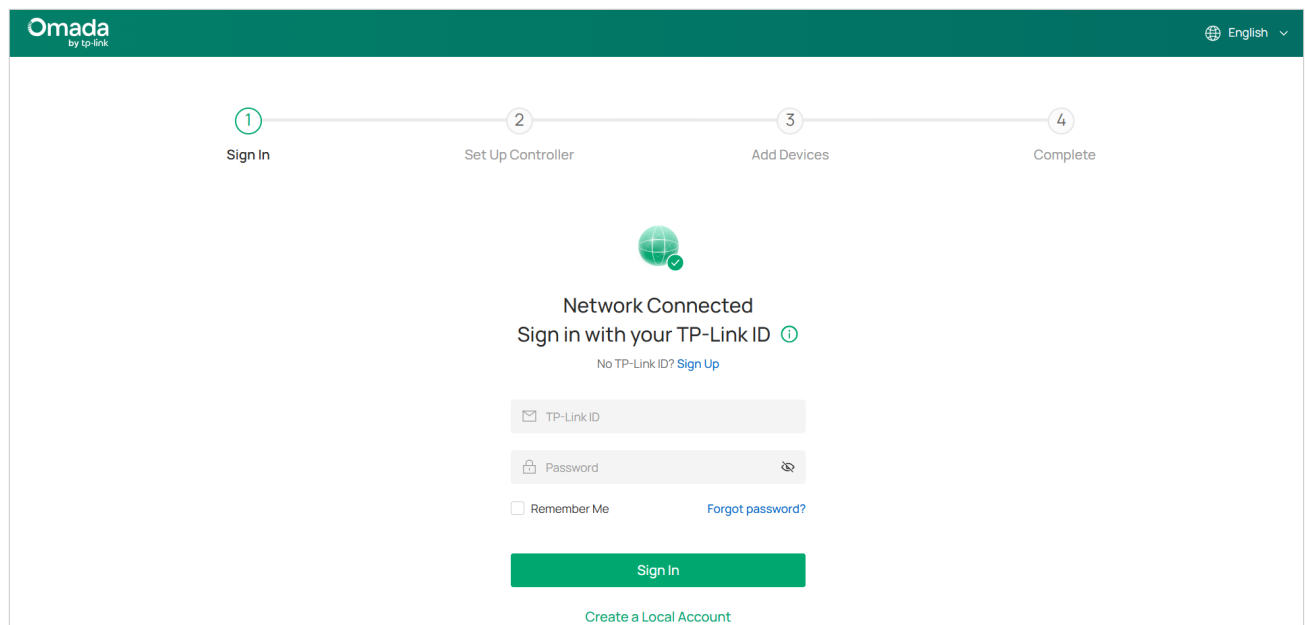
Complete Basic Configurations

In the web browser, you can see the configuration page. Follow the setup wizard to complete the basic settings for the controller.

1. Sign in with your TP-Link ID to bind it to the controller.

If you don't have a TP-Link ID, sign up one first.

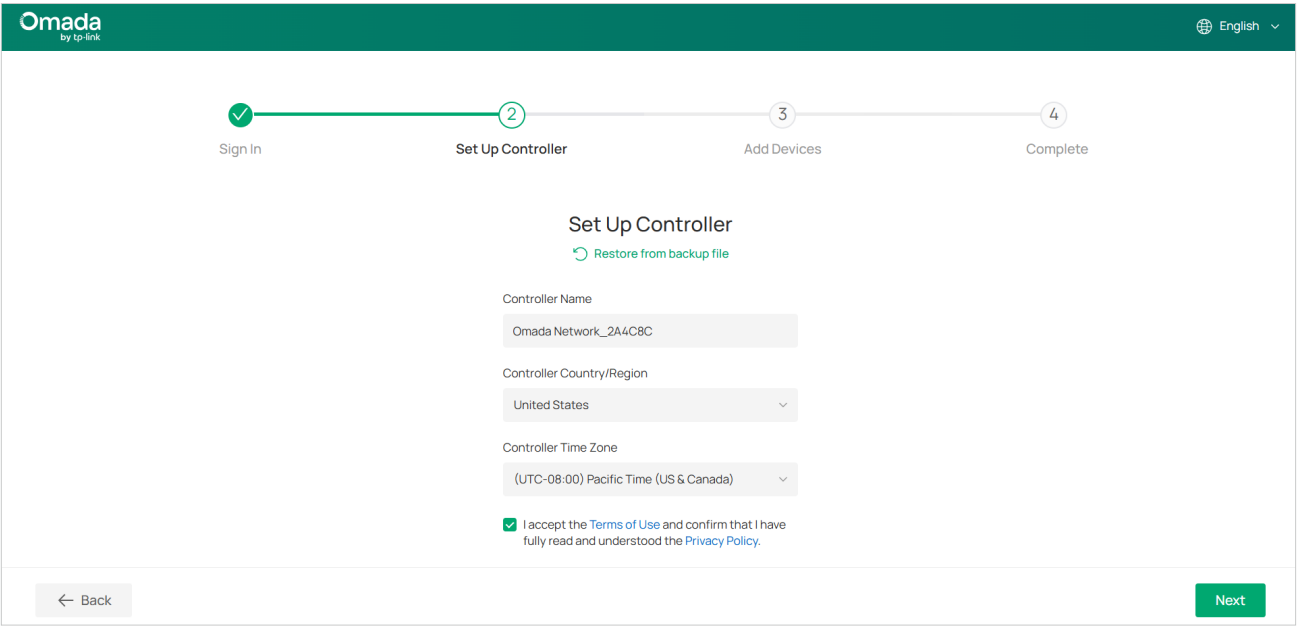
If you don't need cloud access, create a local account for local access only.



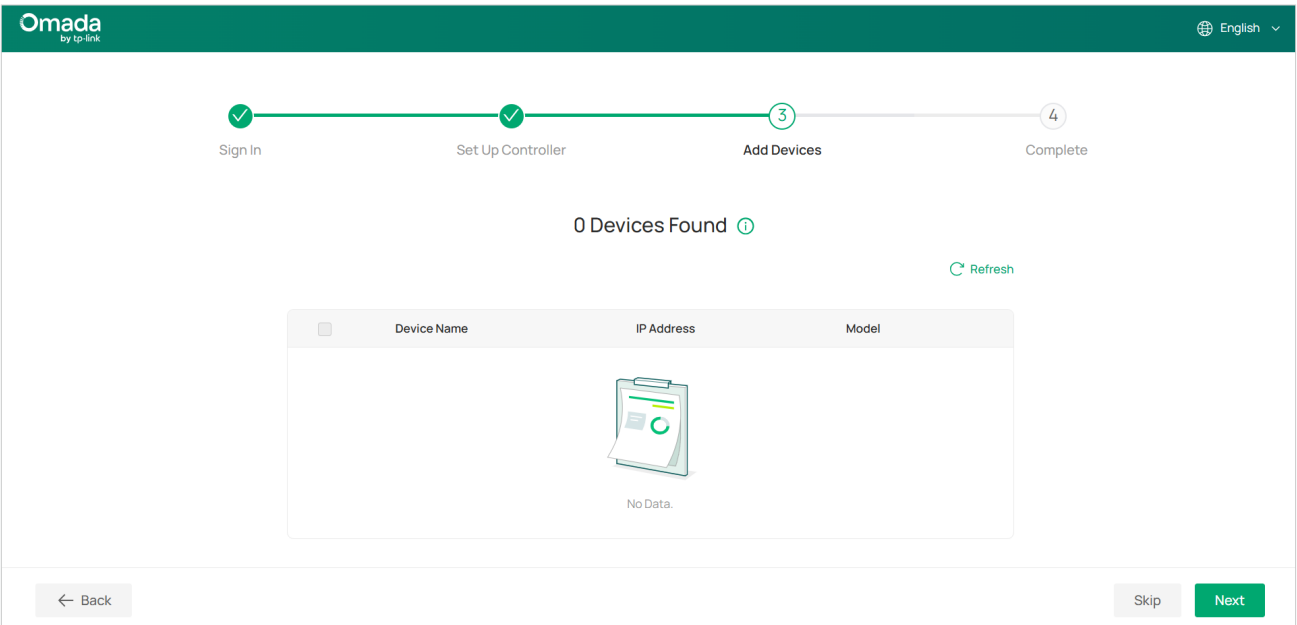
The screenshot shows the Omada Controller Setup Wizard interface. At the top, there is a progress bar with four steps: 1. Sign In, 2. Set Up Controller, 3. Add Devices, and 4. Complete. The first step, 'Sign In', is currently active. Below the progress bar, there is a green globe icon with a checkmark, indicating 'Network Connected'. The main heading is 'Sign in with your TP-Link ID' with a help icon. Below this, there is a link for 'No TP-Link ID? Sign Up'. The login form consists of two input fields: 'TP-Link ID' and 'Password'. There is a 'Remember Me' checkbox and a 'Forgot password?' link. A large green 'Sign In' button is at the bottom, and a link for 'Create a Local Account' is at the very bottom.

2. Set up controller settings. Read and agree to the Terms of Use, then click [Next](#).

If you have backed up controller configurations, you can restore from a backup file.

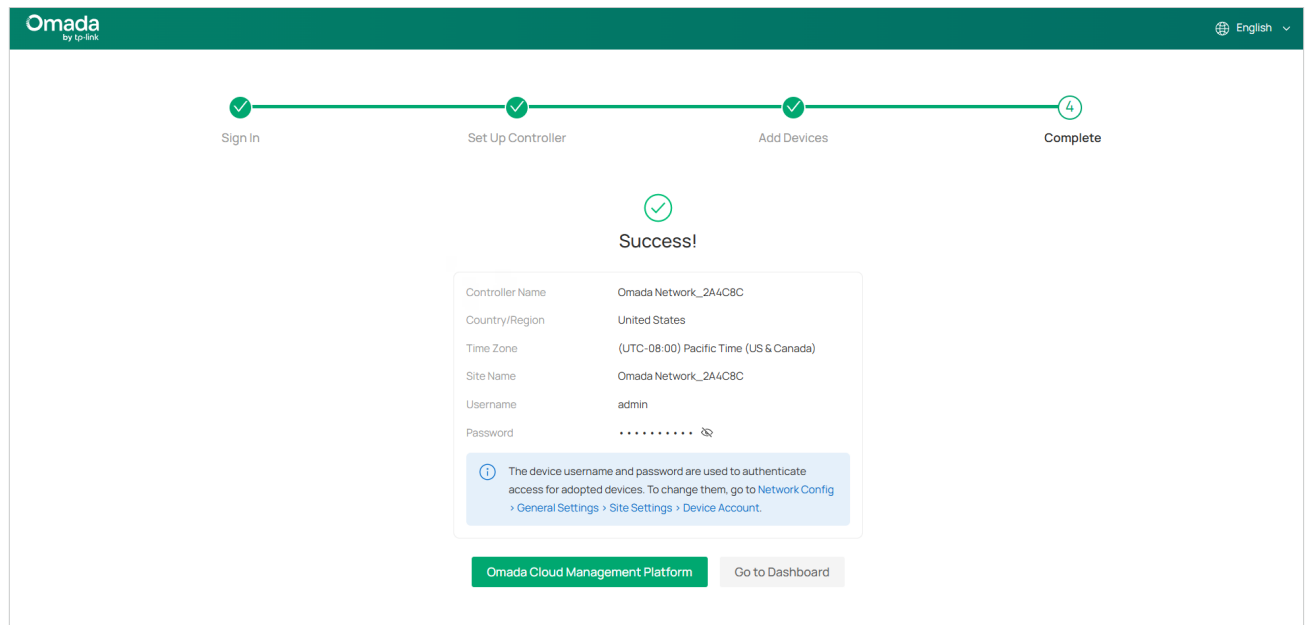


3. If devices are detected on the network of your controller, adopt the devices. You can also click **Skip** and add devices on the **Devices** page later.



4. Confirm the controller settings and the device username and password.
- The device username and password are used to authenticate access for adopted devices. To

change them, go to [Network Config > General Settings > Site Settings > Device Account](#).



Log In to the Management Interface

Once the basic configurations are finished, you can click [Go to Dashboard](#) to access the controller locally, or click [Omada Cloud Management Platform](#) and log in with the TP-Link ID you bound for cloud access.

Note:

In addition to the Controller Host, other hosts in the same LAN can also manage devices via remote access to the Controller Host. For example, if the IP address of the Controller Host is 192.168.0.100 and the Controller is running normally on this host, you can enter <https://192.168.0.100:8043>, or <http://192.168.0.100:8088> in the web browser of other hosts in the same LAN to log in to the Controller and manage devices. Or you can log in to the Controller using other management devices through Cloud service.

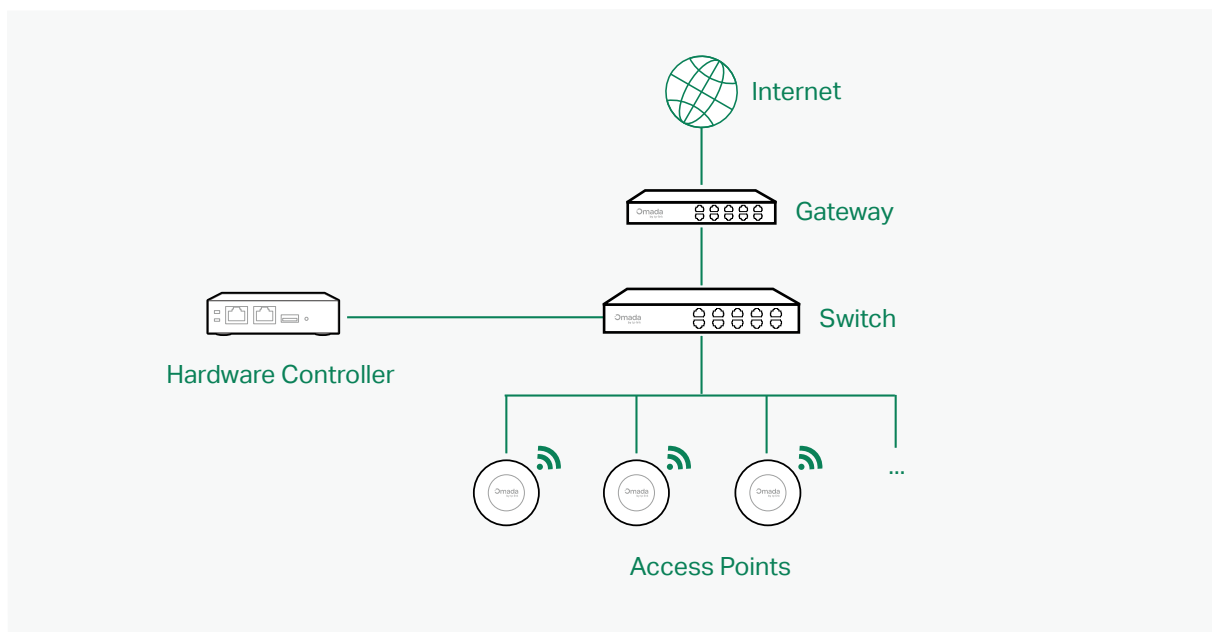
2.2 Set Up Your Hardware Controller

Omada Controller is designed for scalable networks. Deployments and configurations vary according to actual situations. Understanding your network requirements is the first step when planning to provision any project. After you have identified these requirements, follow the steps below to initially set up the Hardware Controller:

- 1) Determine the network topology.
- 2) Deploy the Hardware Controller.
- 3) Start and log in to the controller.

2.2.1 Determine the Network Topology

The network topology that you create for the controller varies depending on your business requirements. The following figure shows a typical topology for a high-availability use case.



Note:

When using the Omada Controller, we recommend that you deploy the full topology with compatible devices. If you use third-party devices, Omada Controller cannot discover and manage them.

2.2.2 Deploy the Hardware Controller

Omada Hardware Controller comes with the pre-installed controller software, so installation is not necessary. After deploying the Hardware Controller on your network infrastructure, proceed to configure the controller.

2.2.3 Start and Log in to the Controller

Log In to the Management Interface

Follow the steps below to enter the management interface of the Hardware Controller:

1. Make sure that your management device has the route to access the controller.
2. Check the DHCP server (typically a gateway) for the IP Address of the controller. If the controller fails to get a dynamic IP address from the DHCP server, the default fallback IP address 192.168.0.253, is used.
3. Launch a web browser and type the IP address of the controller in the address bar, then press **Enter** (Windows) or **Return** (Mac).

Complete Basic Configurations

In the web browser, you can see the configuration page. Follow the setup wizard to complete the basic settings for the controller.

1. Sign in with your TP-Link ID to bind it to the controller.

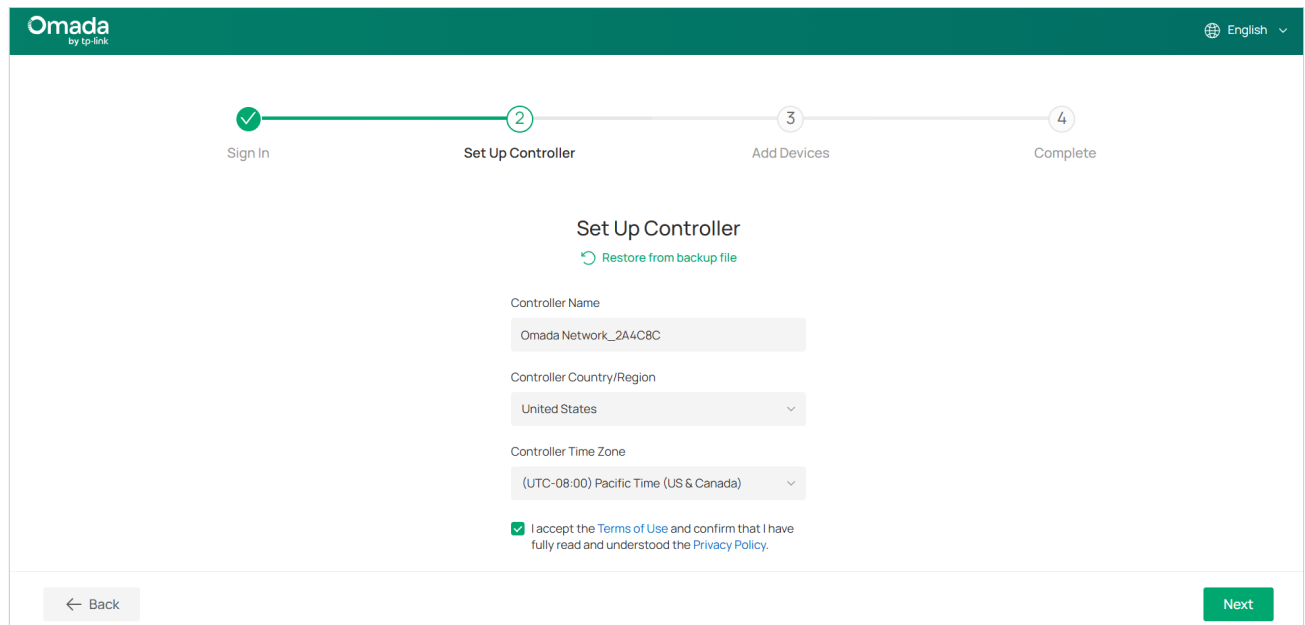
If you don't have a TP-Link ID, sign up one first.

If you don't need cloud access, create a local account for local access only.

The screenshot shows the Omada by tp-link management interface. At the top, there's a green header with the Omada logo and a language dropdown set to 'English'. Below the header is a progress bar with four steps: 1. Sign In (active), 2. Set Up Controller, 3. Add Devices, and 4. Complete. The main content area features a green globe icon with a checkmark and the text 'Network Connected'. Below this, it says 'Sign in with your TP-Link ID' with a help icon. A link 'No TP-Link ID? Sign Up' is provided. There are input fields for 'TP-Link ID' and 'Password' (with a toggle for visibility). A 'Remember Me' checkbox and a 'Forgot password?' link are also present. A large green 'Sign In' button is at the bottom, with a 'Create a Local Account' link below it.

2. Set up controller settings. Read and agree to the Terms of Use, then click **Next**.

If you have backed up controller configurations, you can restore from a backup file.



The screenshot shows the Omada Controller Setup Wizard. At the top, a progress bar indicates four steps: 1. Sign In (completed), 2. Set Up Controller (current step), 3. Add Devices, and 4. Complete. The 'Set Up Controller' section includes a link to 'Restore from backup file'. Below this, there are three input fields: 'Controller Name' (Omada Network_2A4C8C), 'Controller Country/Region' (United States), and 'Controller Time Zone' ((UTC-08:00) Pacific Time (US & Canada)). A checkbox is checked, indicating acceptance of the Terms of Use and Privacy Policy. At the bottom, there are 'Back' and 'Next' buttons.

Omada by tp-link

English

1 Sign In 2 Set Up Controller 3 Add Devices 4 Complete

Set Up Controller

Restore from backup file

Controller Name
Omada Network_2A4C8C

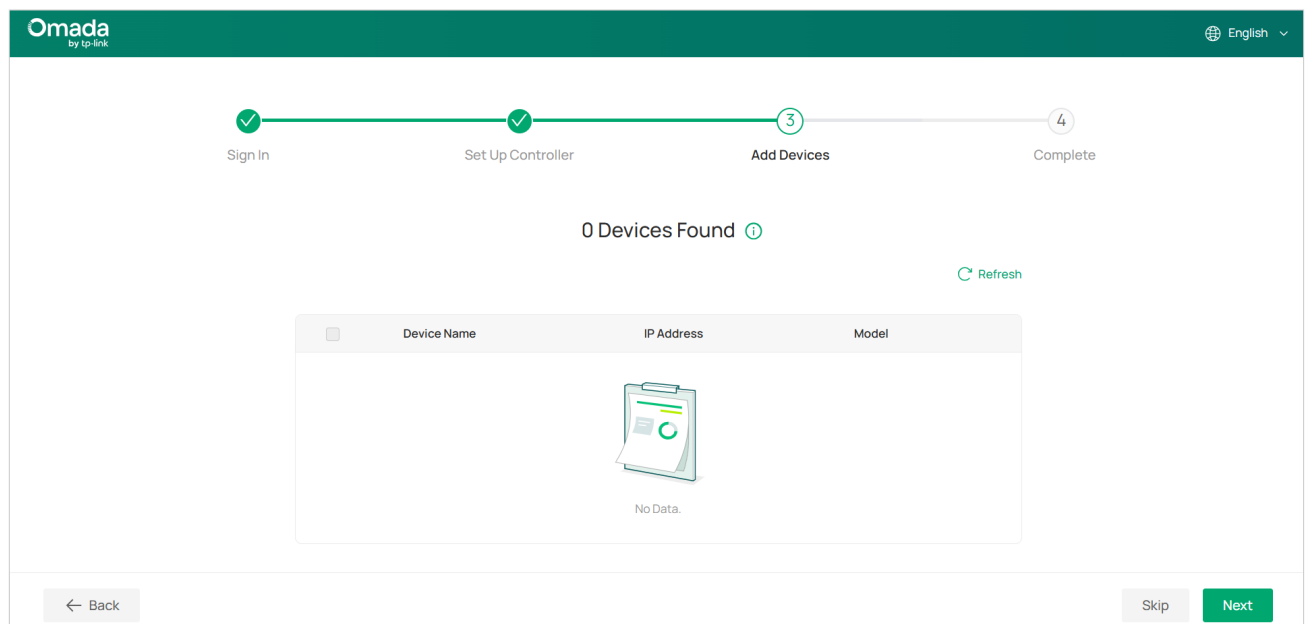
Controller Country/Region
United States

Controller Time Zone
(UTC-08:00) Pacific Time (US & Canada)

☒ I accept the [Terms of Use](#) and confirm that I have fully read and understood the [Privacy Policy](#).

Back Next

3. If devices are detected on the network of your controller, adopt the devices. You can also click [Skip](#) and add devices on the [Devices](#) page later.



The screenshot shows the Omada Controller Setup Wizard at the 'Add Devices' step. The progress bar shows steps 1 (Sign In), 2 (Set Up Controller), 3 (Add Devices), and 4 (Complete). The main content area displays '0 Devices Found' with an information icon. A 'Refresh' button is present. Below this is a table with columns 'Device Name', 'IP Address', and 'Model'. The table is empty, showing a 'No Data' message with a clipboard icon. At the bottom, there are 'Back', 'Skip', and 'Next' buttons.

Omada by tp-link

English

1 Sign In 2 Set Up Controller 3 Add Devices 4 Complete

0 Devices Found ⓘ

Refresh

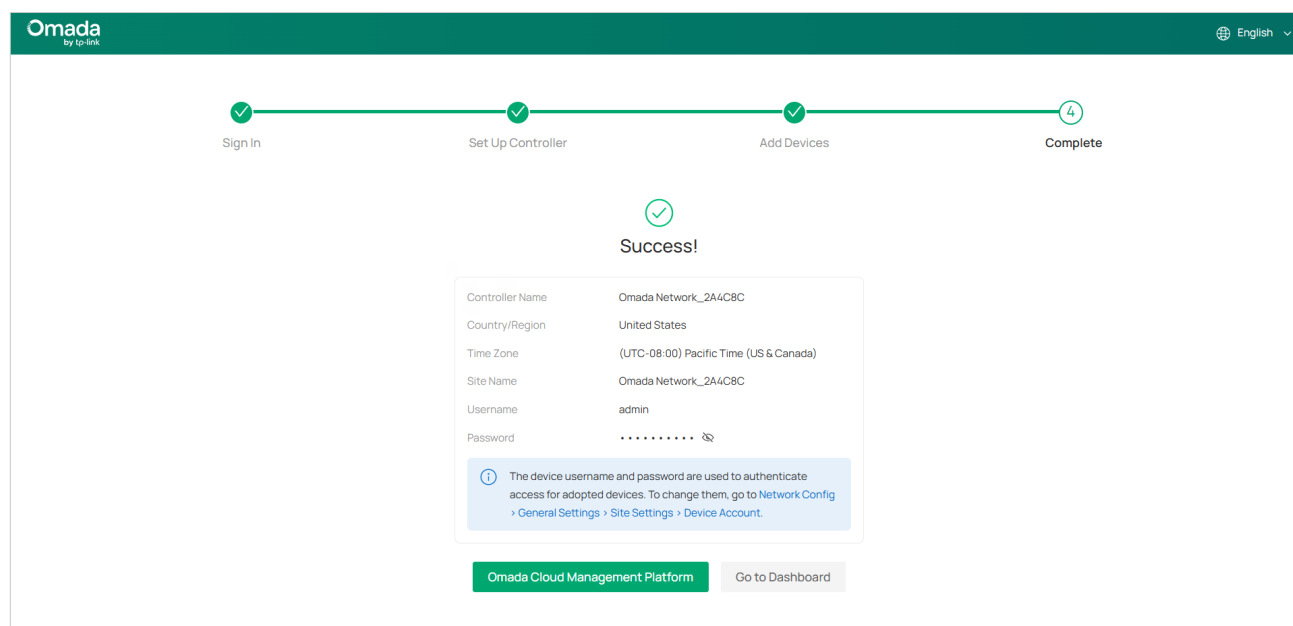
Device Name	IP Address	Model
No Data.		

Back Skip Next

4. Confirm the controller settings and the device username and password.

The device username and password are used to authenticate access for adopted devices. To

change them, go to [Network Config > General Settings > Site Settings > Device Account](#).



Log In to the Management Interface

Once the basic configurations are finished, you can click [Go to Dashboard](#) to access the controller locally, or click [Omada Cloud Management Platform](#) and log in with the TP-Link ID you bound for cloud access.

Note:

In addition to the Controller Host, other hosts in the same LAN can also manage devices via remote access to the Controller Host. For example, if the IP address of the Controller Host is 192.168.0.100 and the Controller is running normally on this host, you can enter <https://192.168.0.100:8043>, or <http://192.168.0.100:8088> in the web browser of other hosts in the same LAN to log in to the Controller and manage devices. Or you can log in to the Controller using other management devices through Cloud service.

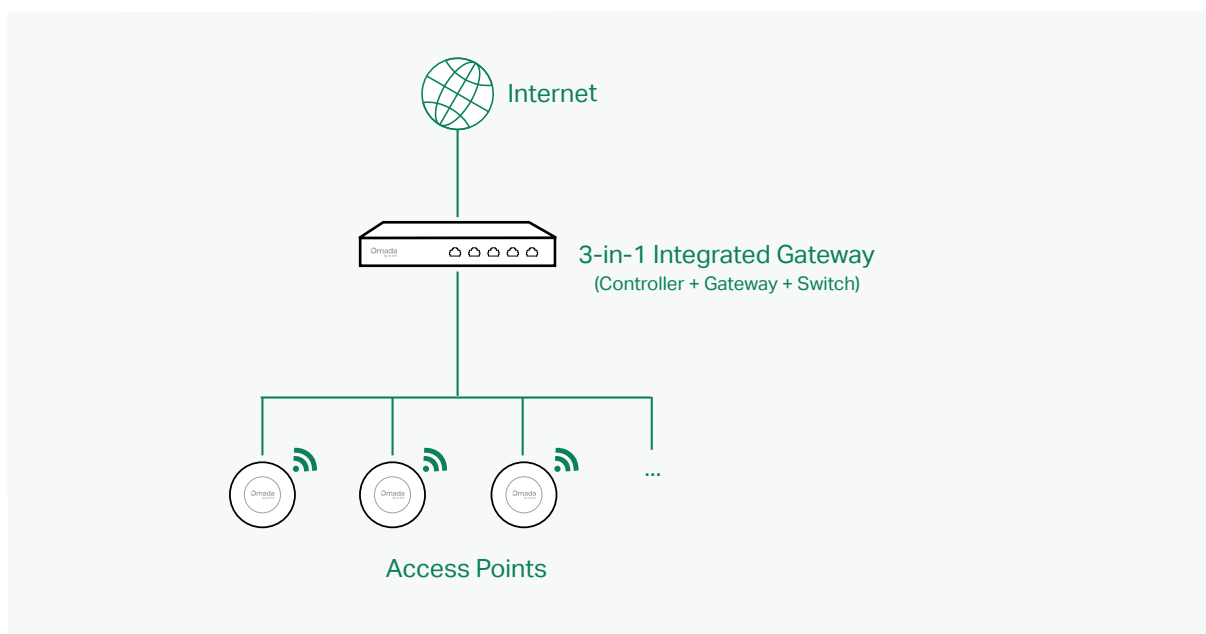
2.3 Set Up Your Integrated Gateway (Controller)

Omada Controller is designed for scalable networks. Deployments and configurations vary according to actual situations. Understanding your network requirements is the first step when planning to provision any project. After you have identified these requirements, follow the steps below to initially set up the Integrated Gateway (Controller):

- 1) Determine the network topology.
- 2) Deploy the Integrated Gateway (Controller).
- 3) Start and log in to the controller.

2.3.1 Determine the Network Topology

The network topology that you create for the controller varies depending on your business requirements. The following figure shows a typical topology for a high-availability use case.



Note:

When using the Omada Controller, we recommend that you deploy the full topology with compatible devices. If you use third-party devices, Omada Controller cannot discover and manage them.

2.3.2 Deploy the Integrated Gateway (Controller)

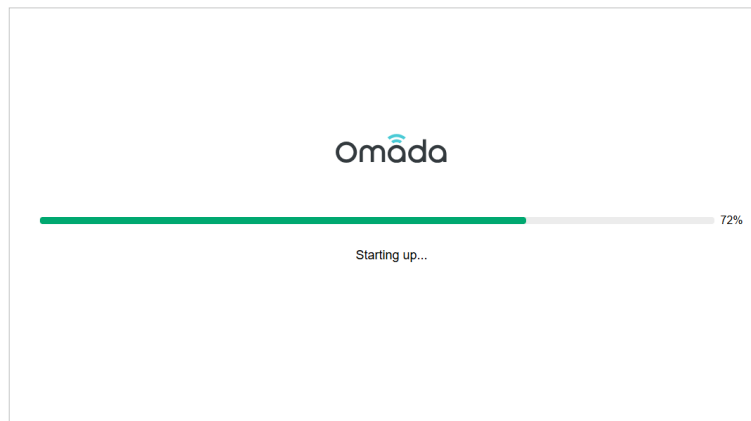
Omada Integrated Gateway (Controller) comes with the pre-installed controller software, so installation is not necessary. After deploying the Integrated Gateway (Controller) on your network infrastructure, proceed to configure the controller.

2.3.3 Start and Log in to the Controller

Log In to the Management Interface

Follow the steps below to enter the management interface of the Integrated Gateway (Controller):

1. Connect a computer to a LAN port of the Integrated Gateway (Controller) with an RJ45 port properly. If your computer is configured with a fixed IP address, change it to obtain an IP address automatically.
2. Launch a web browser and type the default management address **192.168.0.1** in the address bar, then press **Enter** (Windows) or **Return** (Mac). The management interface will start up.



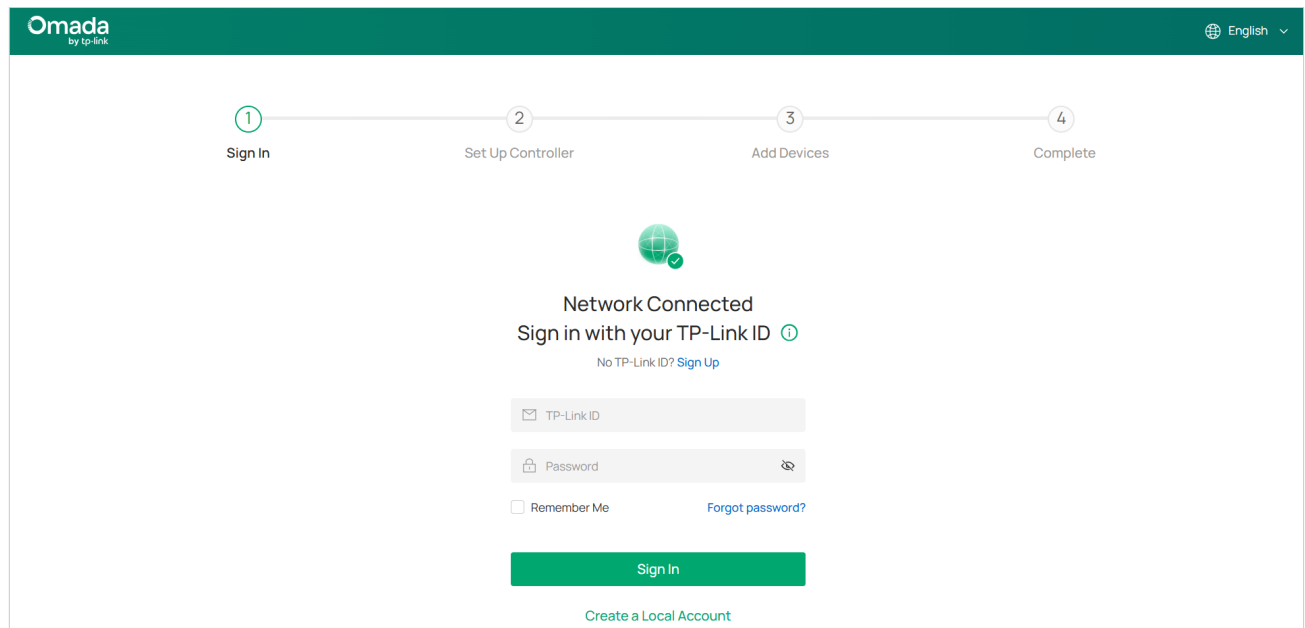
Complete Basic Configurations

In the web browser, you can see the configuration page. Follow the setup wizard to complete the basic settings for the controller.

1. Sign in with your TP-Link ID to bind it to the controller.

If you don't have a TP-Link ID, sign up one first.

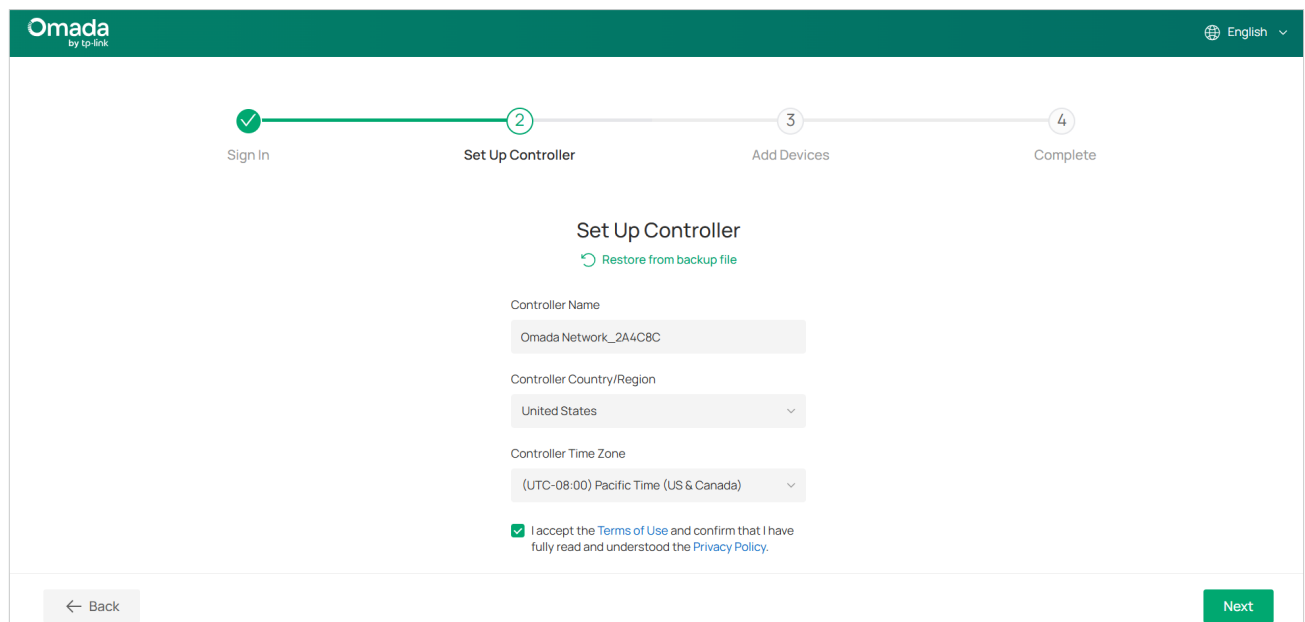
If you don't need cloud access, create a local account for local access only.



The screenshot shows the Omada Sign In screen. At the top, there is a progress bar with four steps: 1. Sign In (active), 2. Set Up Controller, 3. Add Devices, and 4. Complete. Below the progress bar, a green globe icon with a checkmark indicates 'Network Connected'. The main heading is 'Sign in with your TP-Link ID'. Below this, there is a link 'No TP-Link ID? Sign Up'. The sign-in form includes fields for 'TP-Link ID' and 'Password', a 'Remember Me' checkbox, and a 'Forgot password?' link. A green 'Sign In' button is at the bottom, with a link 'Create a Local Account' below it.

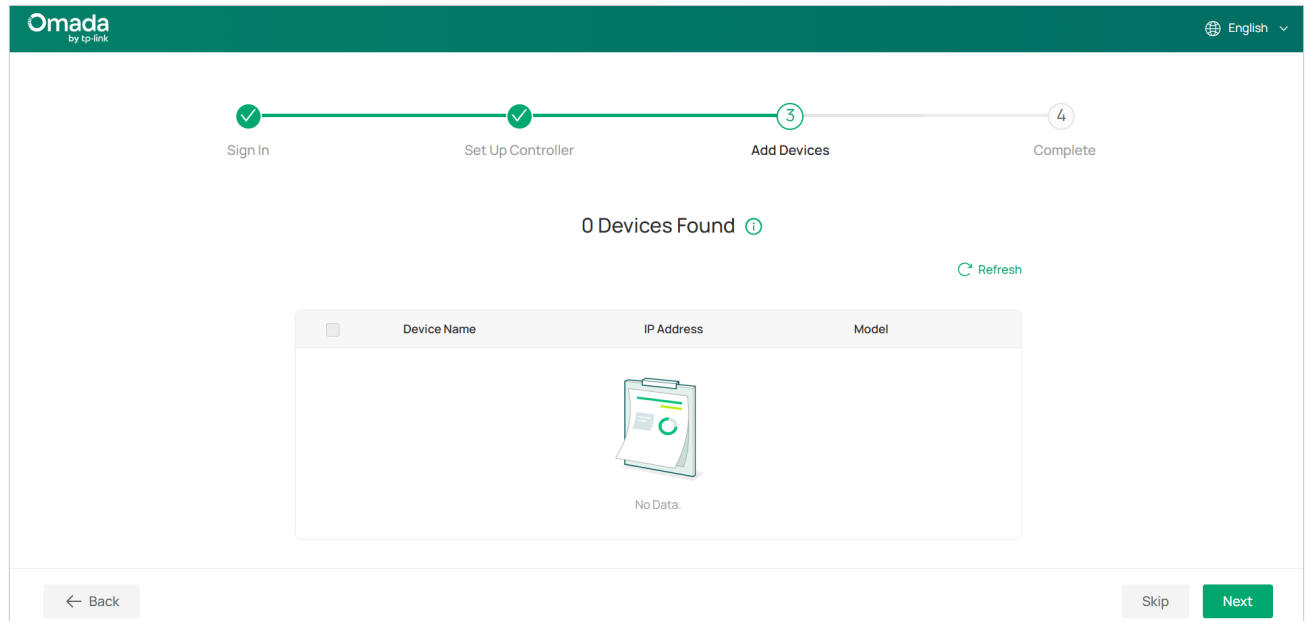
2. Set up controller settings. Read and agree to the Terms of Use, then click **Next**.

If you have backed up controller configurations, you can restore from a backup file.



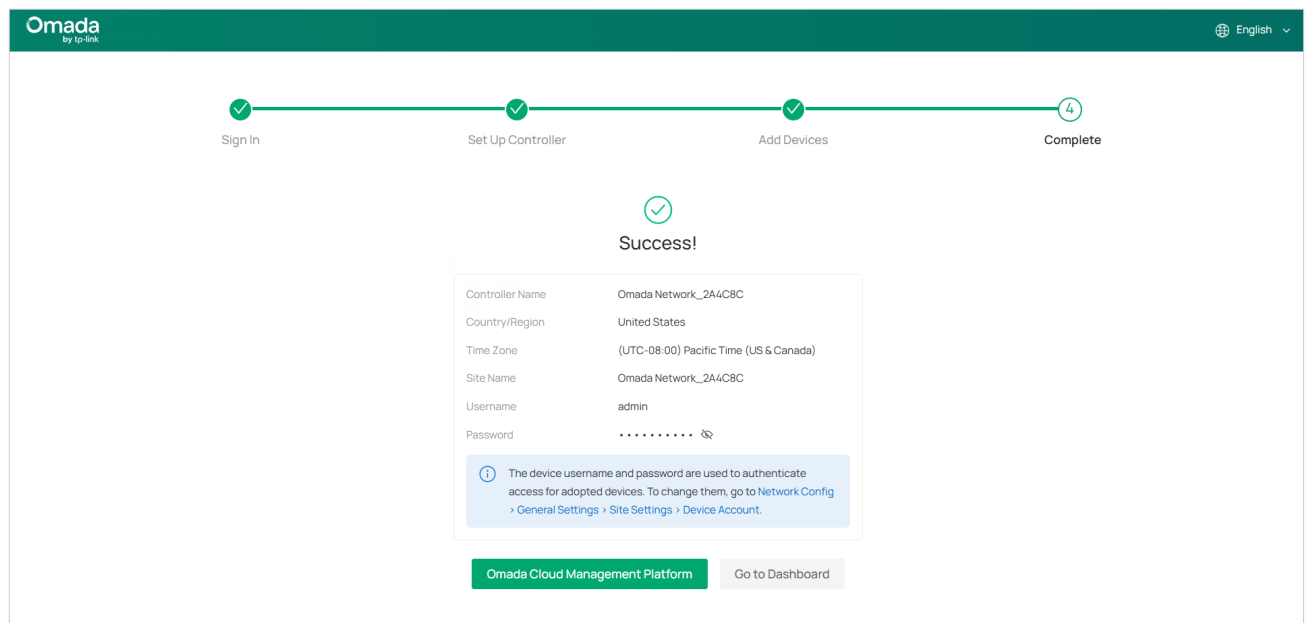
The screenshot shows the Omada Set Up Controller screen. At the top, there is a progress bar with four steps: 1. Sign In (completed with a green checkmark), 2. Set Up Controller (active), 3. Add Devices, and 4. Complete. Below the progress bar, a green globe icon with a checkmark indicates 'Network Connected'. The main heading is 'Set Up Controller'. Below this, there is a link 'Restore from backup file'. The setup form includes fields for 'Controller Name' (Omada Network_2A4C8C), 'Controller Country/Region' (United States), and 'Controller Time Zone' (UTC-08:00 Pacific Time (US & Canada)). At the bottom, there is a checkbox 'I accept the Terms of Use and confirm that I have fully read and understood the Privacy Policy.' with a 'Next' button to the right and a 'Back' button to the left.

3. If devices are detected on the network of your controller, adopt the devices. You can also click [Skip](#) and add devices on the [Devices](#) page later.



4. Confirm the controller settings and the device username and password.

The device username and password are used to authenticate access for adopted devices. To change them, go to [Network Config](#) > [General Settings](#) > [Site Settings](#) > [Device Account](#).



Log In to the Management Interface

Once the basic configurations are finished, you can click [Go to Dashboard](#) to access the controller locally, or click [Omada Cloud Management Platform](#) and log in with the TP-Link ID you bound for cloud access.

Note:

In addition to the Controller Host, other hosts in the same LAN can also manage devices via remote access to the Controller Host. For example, if the IP address of the Controller Host is 192.168.0.100 and the Controller is running normally on this host, you can enter <https://192.168.0.100:8043>, or <http://192.168.0.100:8088> in the web browser of other hosts in the same LAN to log in to the Controller and manage devices. Or you can log in to the Controller using other management devices through Cloud service.

2.4 Set Up Your Cloud-Based Controller

The Omada Cloud-Based Controller is now referred to as the Omada Network system on the Omada Central.

Omada Central integrates the Omada Network system and Omada Guard system. The Omada Network system works as an Omada Controller to manage network devices (gateways, switches, access points, OLTs, and more), while the Omada Guard system works as a VMS system to manage surveillance devices (security cameras, NVRs, and more). The Omada Central

Omada Central offers the Essentials version for easy and free management of essential features, and the Standard version for basic and advanced features through subscription-based licensing.

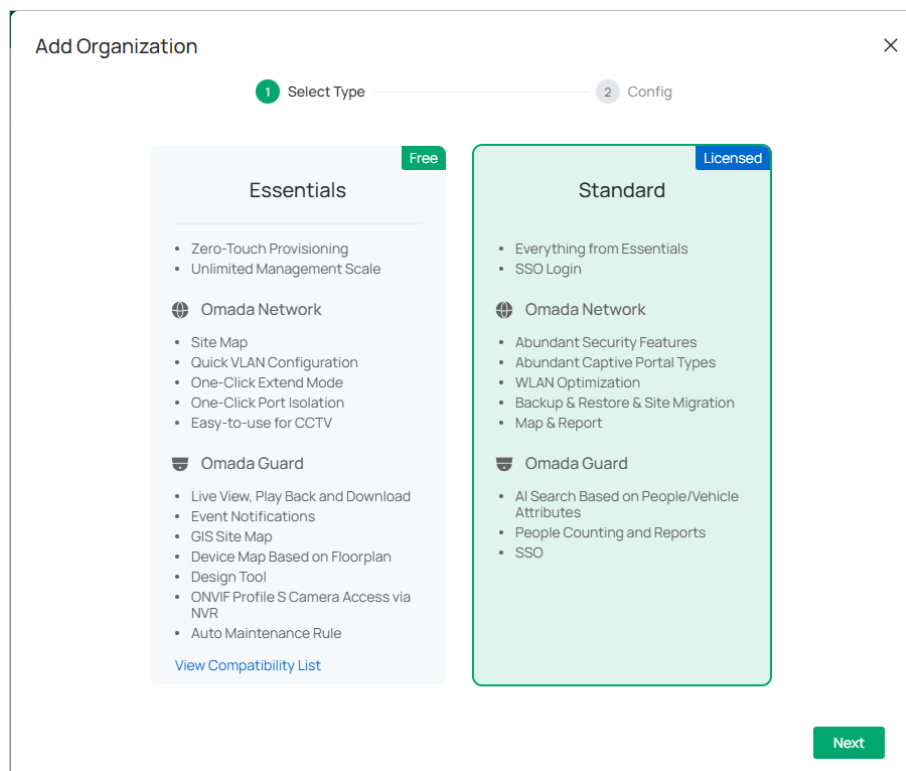
View the compatible device list below to see if your devices can be centrally managed by the Omada Central:

Essentials version: <https://www.omadanetworks.com/omada-cloud-essentials/product-list/>

Standard version: <https://www.omadanetworks.com/omada-cloud-based-controller/product-list/>

To set up the Omada Central, follow the steps below:

1. Launch a web browser and enter <https://omada.tplinkcloud.com> in the address bar. Enter your TP-Link ID and password to log in. If you do not have a TP-Link ID, create one first.
2. Go to the **Cloud Based Systems** page, click **Add** and choose the type of your organization.



Essentials

Select this type to create an Essentials organization for easy and free management of essential features. To check whether your devices can be managed by Omada Central Essentials, click [View Compatibility List](#).

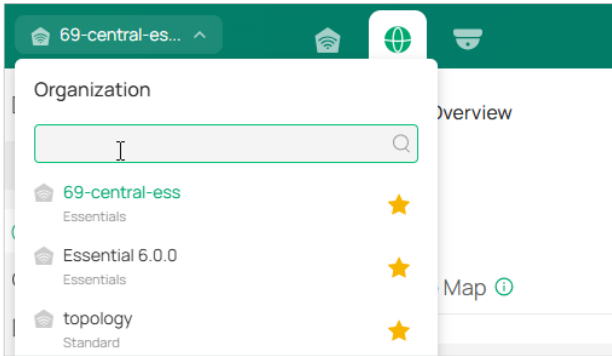
Standard	Select this type to create a Standard organization for basic and advanced features through subscription-based licensing.
----------	--

3. Follow the instructions to set up the organization.

Log In to the Management Interface

After creating an organization, you will automatically access the organization.

You can click the **Organization** drop-down list in the top left of the screen to manage the organization list or switch organizations.



In the organization list, you can click the Card View / List View icon in the upper right corner to switch views or click an organization to access it.

Search Name

+ Add

ORGANIZATION NAME	TYPE	SITE NUMBER	DEVICE NUMBER	ALERT NUMBER	ACTION
☆ Office	Standard	0	0	0	
☆ Test1	Essentials	2	0	0	
☆ Test2	Standard	1	0	0	

For more instructions, refer to the [Omada Central Start Guide](#).

2.5 Navigate the Controller UI

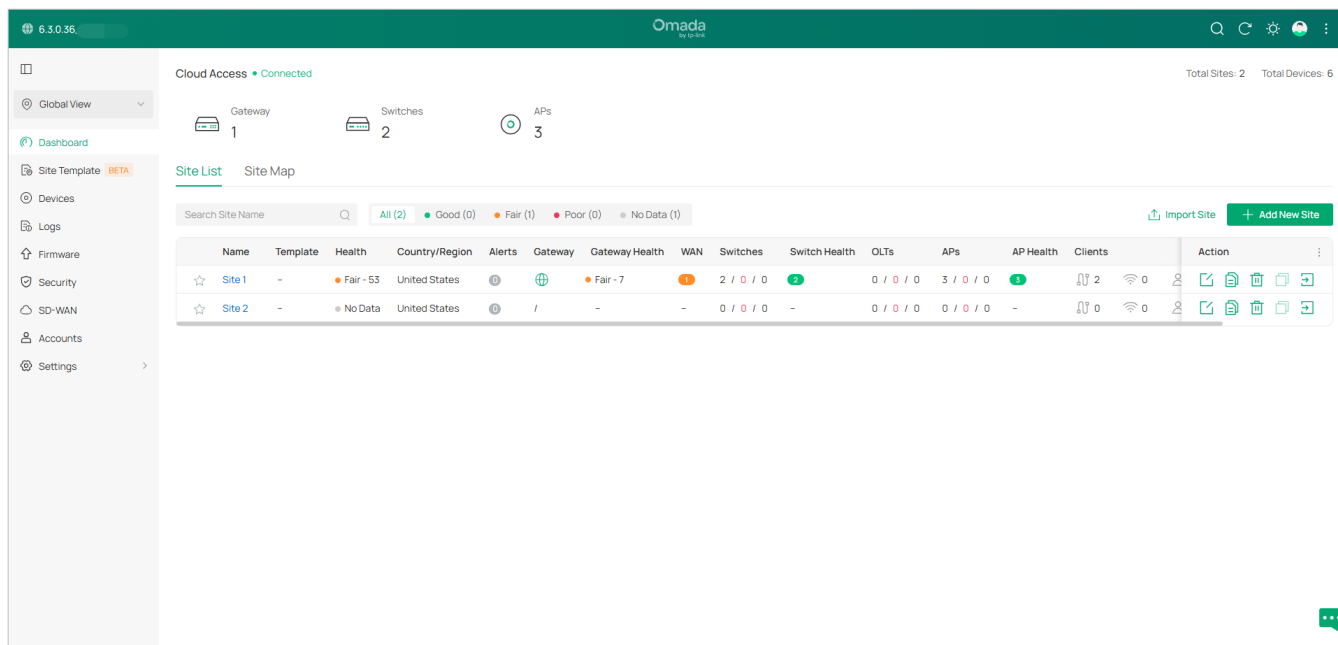
As you start using the management interface of the controller (Controller UI) to configure and monitor your network, it is helpful to familiarize yourself with the Controller UI.

Note: Features available in the Omada Controller may vary due to your region, controller type and version, and device model.

■ Global Overview

Know the status of your sites at a glance, and manage sites in the platform. The panel is divided into sections and placed in the order that you are most likely to use them when configuring and monitoring the network.

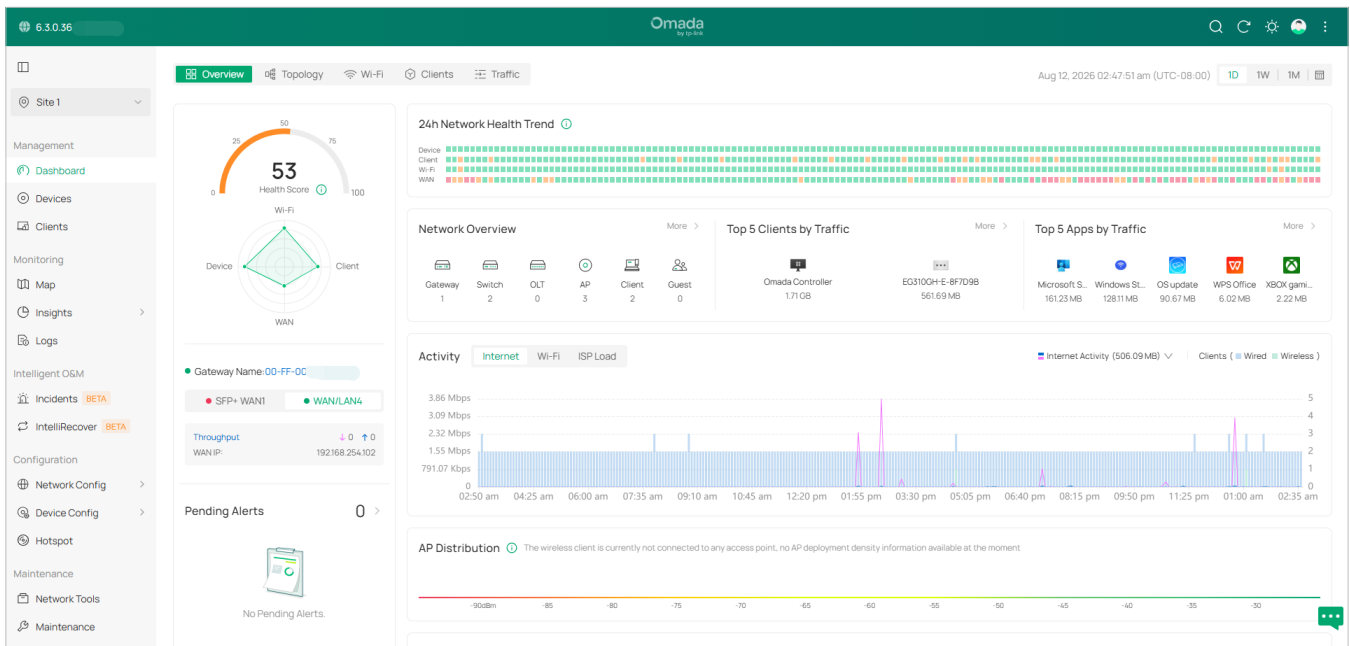
- **Site Monitoring** — Keep you informed of accurate, real-time status of every site.
- **Site Management** — Manage all sites to deploy the whole network.
- **Account Settings** — Manage all administrative accounts.



■ Site Overview

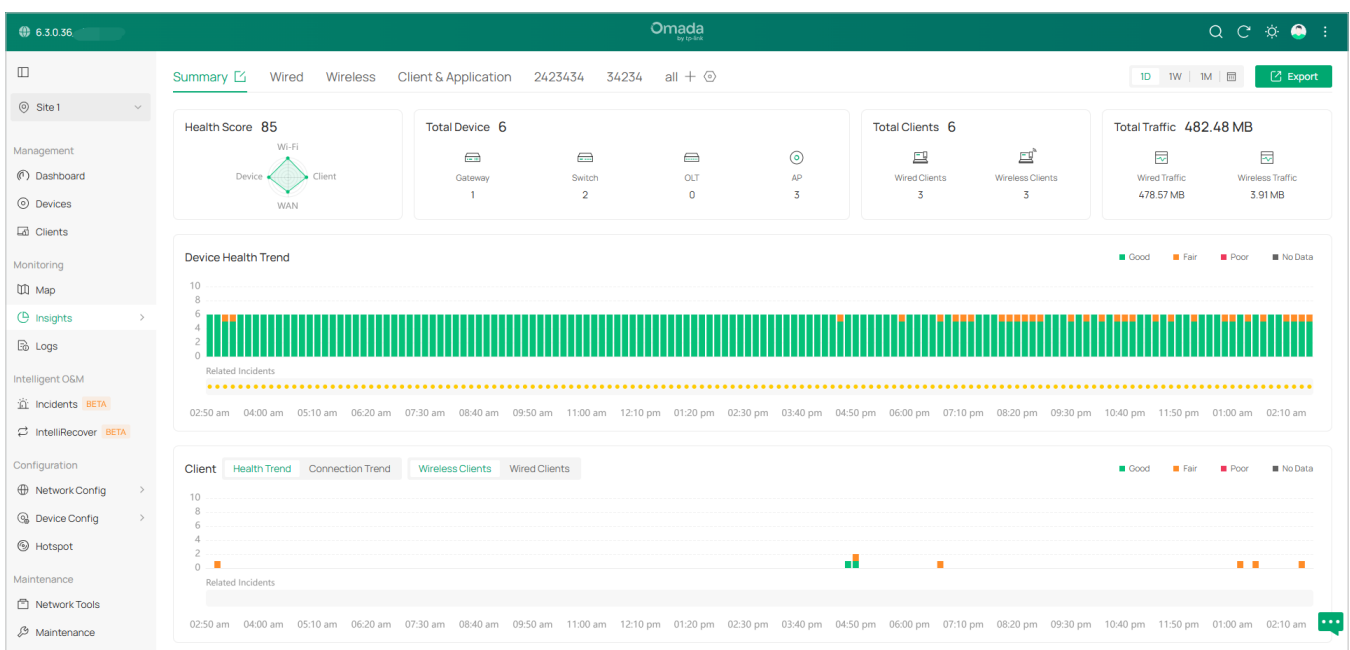
Know the status of your network at a glance, gain insights, and manage network devices all in the platform. By visualizing data, key information is presented on a single screen, allowing you to quickly understand the status and trends of your business.

- **Statistics & Monitoring** — Keep you informed of accurate, real-time status of every network device and client.
- **Configuration** — Configure all network devices, including network configuration, device configuration, and authentication.



■ Monitoring

Network administrators can monitor the status of all network devices and clients in real time. The system provides detailed connection statuses, data usage, and alert logs, ensuring the stability and security of network operations.

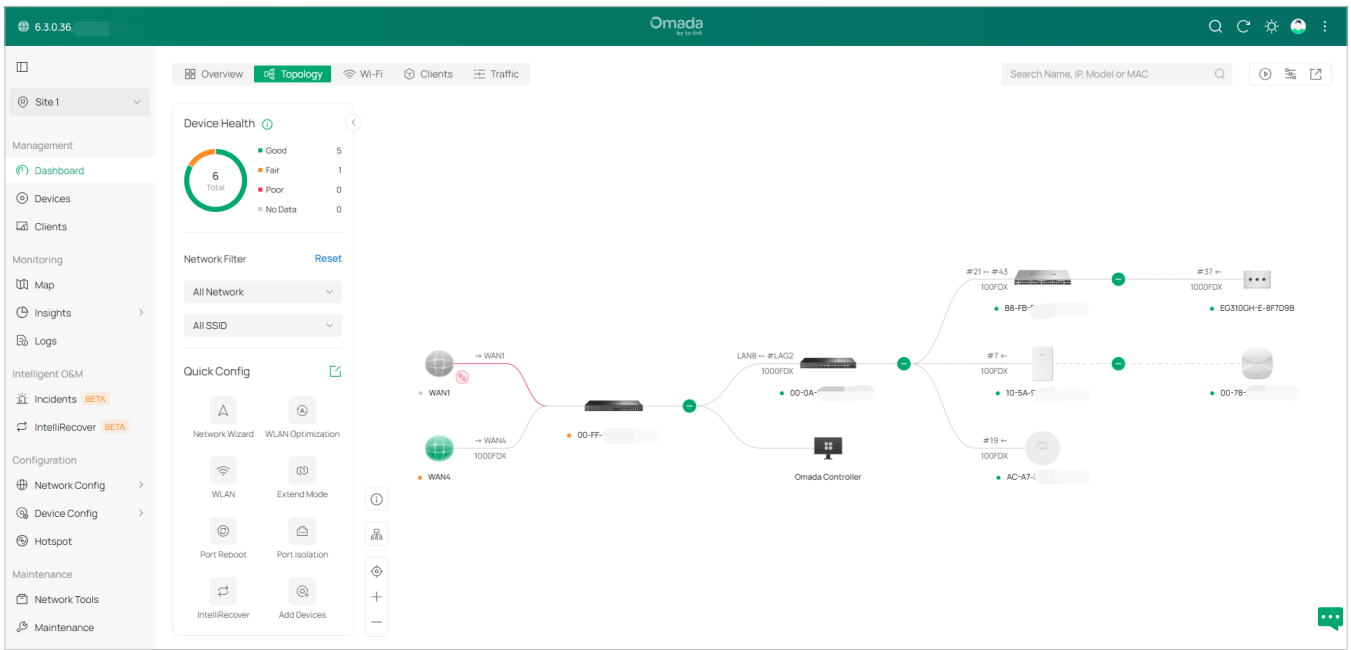


■ Configuration

Set up and manage network, device, and authentication configurations for the optimal overall network performance.

- **Network Config** — Manage and optimize network configurations to ensure efficient and secure network connections.
- **Device Config** — Centrally set up and manage device configurations by device type, improving

device performance and stability.



The Controller UI is grouped into task-oriented menus. These menus are located in the left-hand navigation bar of the page. Note that the settings and features that appear in the UI depend on your user account permissions. The following image depicts the main elements of the Controller UI.

■ Elements in top right corner

The elements in the top right corner of the screen give quick access to:



Global Search Feature	Click the Search icon and enter the keywords to quickly look up the functions or devices that you want to configure. And you can search for the devices by their MAC addresses and device names.
Refresh Page	Click the Refresh icon to refresh the page.
Theme Settings	Change theme settings to light mode, dark mode, or system theme to improve your overall screen experience.
My Account	Click the Account icon to display account information, Account Settings and Log Out. You can change your password on Account Settings.

More Settings

Click the More icon for more settings.

Feedback: Click to send your feedback to us.

About: Click to display the controller info.

Tutorial: Click to view the quick Getting Started guide which demonstrates the navigation and tools available for the controller.

Old UI Layout/New UI Layout: Click to switch between the previous UI layout and the new UI layout.

■ Navigation bar in the left

In Global View, the left-hand navigation bar provides access to various global settings.

Note: Available menus may vary by controller type and version. For the actual menus, refer to the actual web interface.

Global/Site View drop-down list

Allows you to access the Global View or access a site quickly.

Global View: Know the status of your Site at a glance, and manage sites in the platform.

Site View: Know the status of your network at a glance, gain insights, and manage network devices all in the platform.

Dashboard

Displays the sites in the organization and their status. You can switch between the site list view and site map view.

Site Template

Allows you to configure site templates and bind sites to them to facilitate batch configuration and management of sites.

Devices

Displays the devices on all sites and their general information. This list view can change depending on your monitoring need through customizing the columns.

You can click any device on the list for device details and settings.

Logs

Displays the logs about systems events and devices. Comprehensive logs make historical information more accurate, readily accessible, and usable, which allows for proactive troubleshooting. And you can determine alert-level events and enable pushing notifications.

Firmware

Allows you to update the firmware of network devices in a one-time or periodic manner.

Security

Allows you to manage threats that the controller discovered to ensure network security.

Note: This option will be hidden if no device that supports this function is adopted.

SD-WAN

Allows you to easily connect multiple gateways together without complicated VPN configuration.

Note: This option will be hidden if no device that supports this function is adopted.

Accounts

Allows you to manage all administrative accounts of the controller.

Settings

Allows you to configure global settings in minutes and maintain the Omada network for best performance.

In Site View, the left-hand navigation bar provides access to:

Note: Available menus may vary by controller type and version. For the actual menus, refer to the actual web interface.

Global/Site View drop-down list	Allows you to access the Global View or access a site quickly. Global View: Know the status of your Site at a glance, and manage sites in the platform. Site View: Know the status of your network at a glance, gain insights, and manage network devices all in the platform.
Dashboard	Displays a summarized view of the network status through different visualizations. The dashboard is a powerful tool that arms you with real-time data for monitoring the network.
Devices	Displays the devices in the site and their general information. This list view can change depending on your monitoring need through customizing the columns. You can click any device on the list for device details and settings.
Clients	Displays a list view of wired and wireless clients, IPCs, and NVRs that are connected to the network. This list view can change depending on your monitoring need through customizing the columns. You can click any entry on the list for more detailed information and settings.
Map	Displays the geographic location of each device in Device Map. You can also upload images of your location for a visual representation of your network in Heat Map.
Insights	Displays the statistics of various network indicators and their changes over time in Reports and detailed traffic information in Application Analytics.
Logs	Records the activities of the system, devices, users and administrators. Comprehensive logs make historical information more accurate, readily accessible, and usable, which allows for proactive troubleshooting. And you can determine alert-level events and enable pushing notifications.
Incidents	Keeps you informed about network abnormalities and helps you troubleshoot with optimization recommendations.
IntelliRecover	Allows you to monitor the status of PoE devices, automatically repairing abnormal devices.
Network Config	Allows you to manage and optimize network configurations to ensure efficient and secure network connections.
Device Config	Allows you to centrally set up and manage device configurations by device type, improving device performance and stability.
Hotspot	Allows you to centrally monitor and manage the clients authorized by portal authentication.
Network Tools	Provides various network tools for you to test the device connectivity, capture packets for troubleshooting, open Terminal to execute CLI or Shell commands, and perform cable tests.
Maintenance	Allows you to back up and restore configurations and data of the site network.

Chapter 3

Get Started with Omada Network

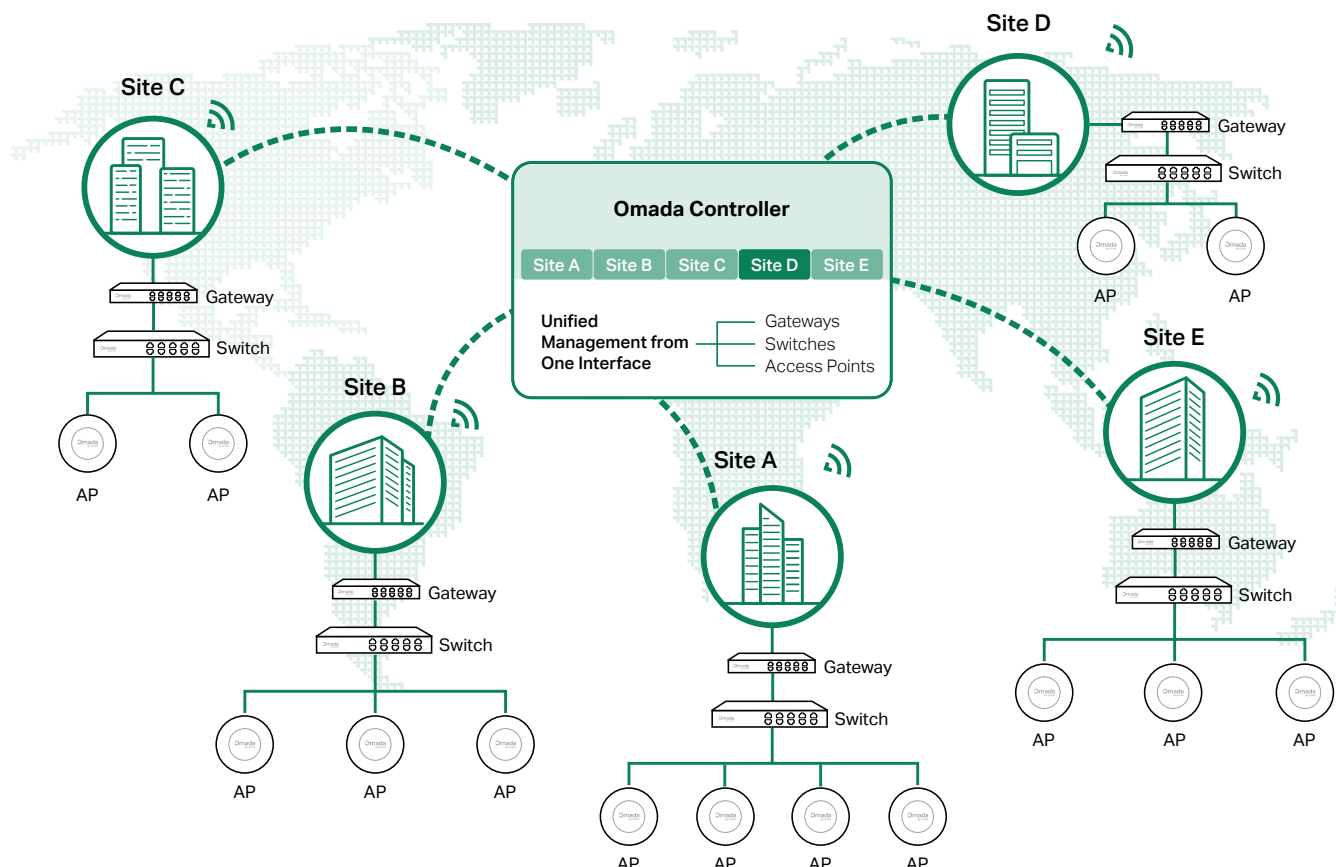
Get started with your network on the Omada Controller by creating sites and adopting devices so that you can configure and monitor your devices centrally while keeping things organized. The chapter includes the following sections:

- [3.1 Create Sites](#)
- [3.2 Configure the Site Template](#)
- [3.3 Adopt Devices](#)

3.1 Create Sites

Overview

Different sites are logically separated network locations, like different subsidiary companies or departments. It's best practice to create one site for each LAN (Local Area Network) and add all the devices within the network to the site, including the gateway, switches and APs.



Devices at one site need unified configurations, whereas those at different sites are not relative. To make the best of a site, configure features simultaneously for multiple devices at the site, such as VLAN and PoE Schedule for switches, and SSID and WLAN Schedule for APs, rather than set them up one by one.

Configuration

To create and manage a site, follow these steps:

- 1) Create a site.
- 2) View and edit the site.
- 3) Access the site.

Step 1: Create a Site

To create a site, choose one from the following methods according to your needs.

■ Create a site from scratch

1. Launch the controller and access the Global View.
2. Go to [Dashboard](#) > [Site List](#) and click [Add New Site](#).

Check Switch Categories'. At the bottom are 'Apply' and 'Cancel' buttons."/>

Add New Site

Site Configuration

Name

Created Method ☒ Custom ☐ Through Template

Site Tags Please Select... (Optional)

Country/Region United States

Time Zone (UTC-08:00) Pacific Time (US & Canada)

Switch Series ☐ Agile (Easy Managed) ☒ Access Series/ Aggregation/ Campus (Smart / L2+ / L3)

Application Scenario

[Check Switch Categories](#)

Apply Cancel

3. Enter a [Site Name](#) to identify the site, and configure other parameters according to actual site needs and location.
4. Create a device username and password for login to newly adopted devices.
5. Click [Apply](#). The new site will be added to the [Site List](#).

■ Copy an existing site

You can quickly create a site based on an existing one by copying its site configuration, wired configuration, and wireless configuration among others. After that, you can flexibly modify the new site configuration to make it different from the old.

1. In the [Site List](#), click the Copy icon in the ACTION column of the site which you want to copy.

A dialog box titled "Site Copy" with a close button (X) in the top right corner. It contains a text input field for "Site Name". Below the input field is a note: "Note: With Site Copy, you can create a new site with the same configuration as the existing site." At the bottom are two buttons: "Apply" (green) and "Cancel" (gray).

Site Copy ×

Site Name

Note: With Site Copy, you can create a new site with the same configuration as the existing site.

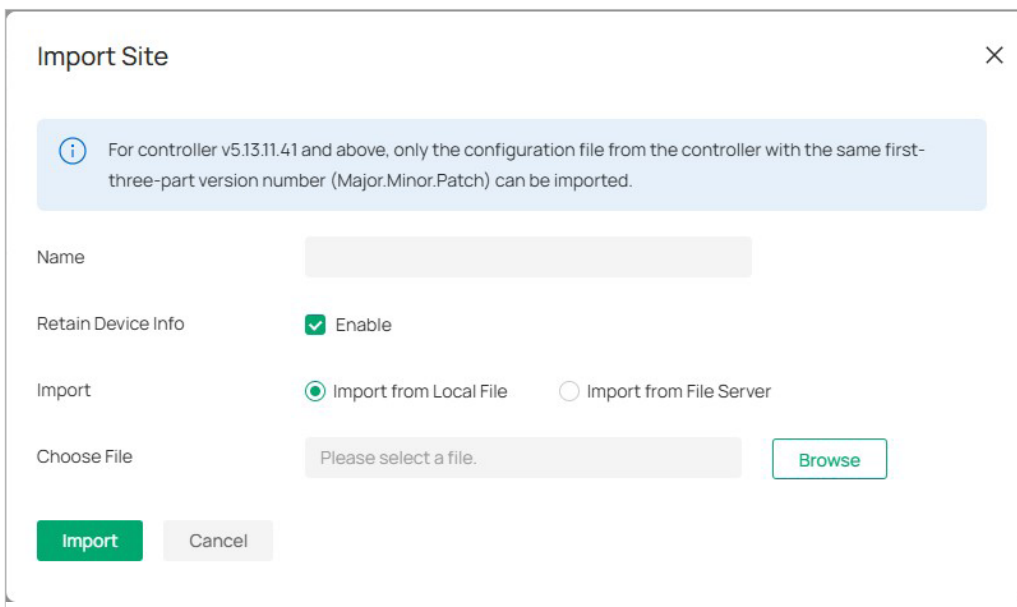
Apply **Cancel**

2. Enter a [Site Name](#) to identify the new site.
3. Click [Apply](#). The new site will be added to the [Site List](#).

■ Import a site from another controller

If you want to migrate seamlessly from an old controller to a new one, import the site configuration file of the old controller into the new. Before that, you need to export the site configuration file from the old controller, which is covered in the Site Migration chapter in this guide.

1. In the [Site List](#), click [Import Site](#).

A dialog box titled "Import Site" with a close button (X) in the top right corner. It features an information icon and a note: "For controller v5.13.11.41 and above, only the configuration file from the controller with the same first-three-part version number (Major.Minor.Patch) can be imported." Below this is a text input field for "Name". Then, a checkbox for "Retain Device Info" is checked and labeled "Enable". Under the "Import" section, "Import from Local File" is selected with a radio button, and "Import from File Server" is unselected. Below these is a "Choose File" section with a text input field containing "Please select a file." and a "Browse" button. At the bottom are "Import" (green) and "Cancel" (gray) buttons.

Import Site ×

i For controller v5.13.11.41 and above, only the configuration file from the controller with the same first-three-part version number (Major.Minor.Patch) can be imported.

Name

Retain Device Info ☒ Enable

Import ☒ Import from Local File ☐ Import from File Server

Choose File **Browse**

Import **Cancel**

2. Enter a [Site Name](#) to identify the site, and configure other parameters according to actual site needs.
3. Browse your file explorer and choose a site configuration file.
4. Click [Import](#). The new site will be added to the [Site List](#).

Step 2: View and Edit the Site

After you create the site, you can view the site status in the [Site List](#). You can click the icons in the ACTION column to edit, copy, delete and launch the site.

NAME	TEMPLATE	COUNTRY/REGION	ALERTS	GATEWAY	SWITCHES	OLTS	EAPS	CLIENTS	ACTION
S1	-	Mainland China		/	0 / 0 / 0	0 / 0	0 / 0 / 0	0 0 0	

Showing 1-1 of 1 records < 1 > 10 /page

Step 3: Access the Site

To monitor and configure a site, you need first access the site.

Click the Launch icon in the ACTION column of the site to access the site.

Alternatively, select the site from the Global/Site View drop-down list in the left of the page.

Note:

Configuration items in Global View will be applied to the whole system while configuration items in Site View will be applied to the site which you are currently in.

3.2 Configure the Site Template

Overview

The Site Template feature is implemented at the Controller's Global View to facilitate users to configure and manage sites in bulk. Most of the site's functions are supported to be set up in the Site Templates, such as Internet/LAN/WLAN/ACL/URL Filtering/Portal/MAC Authentication, etc. By binding each site to a different template, you can quickly and easily realize the batch configuration of a large number of sites. For example, if a Controller manages several different sites and needs to make bulk configuration changes for them for business changes or other reasons, you can create Site Templates ahead of time and then apply the target Site Templates directly to the sites to be changed without having to go into each site individually to make adjustments to them. The greater the number of sites, the more the feature will work.

In addition, you can also create Device Template in Site template, then choose to bind the devices with the same model to the related Device template after binding them to Site template, which greatly improves the efficiency of managing and configuring devices. For instance, a large number of SG3452XP v2.20 are deployed on the same site, but the configurations are not exactly the same, in this case, it's possible to create a Device Template for each configuration, i.e. to set up different Ports/VLAN interface/Static Route/Service settings, and then apply each Device Template to the required devices.

Configuration

1. Launch the controller and access the Global View.
2. Go to the [Site Template](#) page. Click [Add New Site Template](#). Name the template and select the configurable modules according to your needs.

Note:

- Most of the site's Configurable Modules are supported to be set up in the Site Template, some of them are mandatory and some are optional (you can set them up only if they are selected here). Please refer to <https://www.omadanetworks.com/support/faq/4341> to know all modules supported in Site Template feature in detail.
- After the Site Template is created, its configurable modules cannot be changed.

Add New Site Template

×

Template Name

ⓘ

Besides mandatory modules, you can select optional modules below for the current template.

Configurable Modules

☐ All

☐ Logs

Incidents

Logs

Audit Logs

☐ Network Config

General Settings

Reboot Schedule

Port Schedule

☐ Network Settings

WLAN Optimization

☐ Security

Application Control

Wireless IDS/IPS

Create

Cancel

3. Click **Create**. The created site template will be displayed.

SITE TEMPLATE NAME	BOUND SITES	ACTION
test	1	   

4. Click the edit icon in the Action column of the created site template, set up the network config, device config, and log settings according to site needs.

Note: For configuration of the function modules, refer to the related chapters in this guide.

Edit Template mytest

⌕

Exit

Site Settings

?

Network Config

Device Config

Device Template

Logs

Incidents BETA

Site Configuration

Time Settings

General Config

LED

☒ Enable

Switch Jumbo

1518

Bytes

(1518-9216)

Switch LAG Hash Algorithm

SRC IP+DST IP

Remember Device

☐ Enable

LLDP

☒ Gateway

☒ Switch

☒ AP

Portal Logout Domain

portal.tplink.net

Automatic Gateway Detection

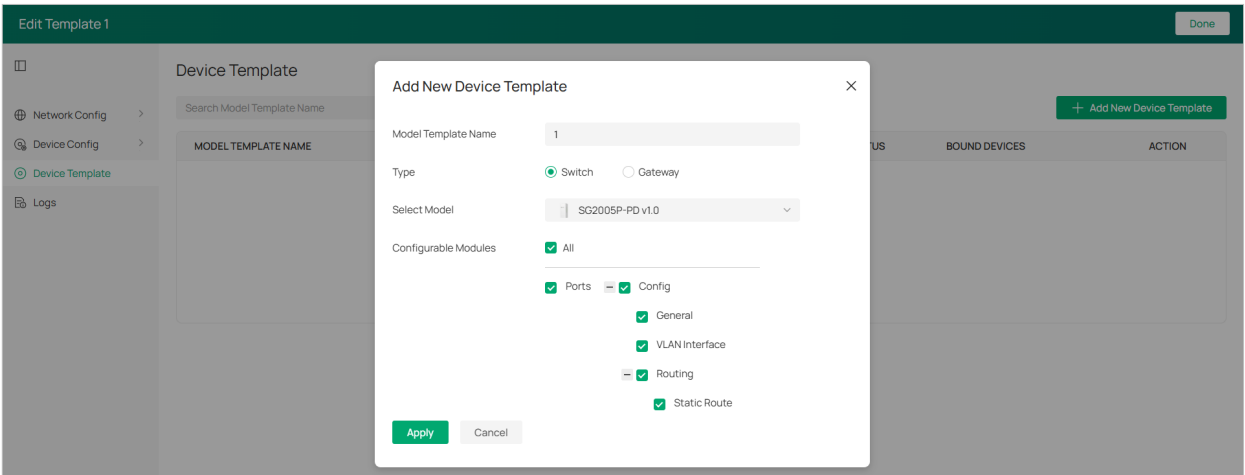
☐ Enable

Wireless Features

Mesh

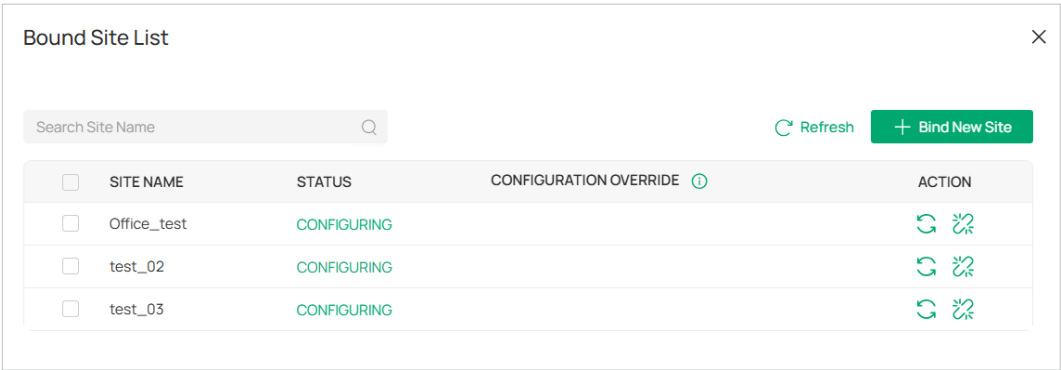
☒ Enable

5. In Device Template, you can create a template for specific device type and model, then click the edit icon in the Action column of the created device template to set up device settings. Device template parameters vary by device type and model.



6. Save the settings to go back to the template list.
7. Click the Bound Site List icon in the Action column of the template, and click **Bind New Site** to bind the template to your desired sites. The template's configuration will be synchronized to the bound sites.

In the Action column of a site, you can also click the Re-Apply icon to re-apply template settings or click the Unbind icon to unbind the template from the site.

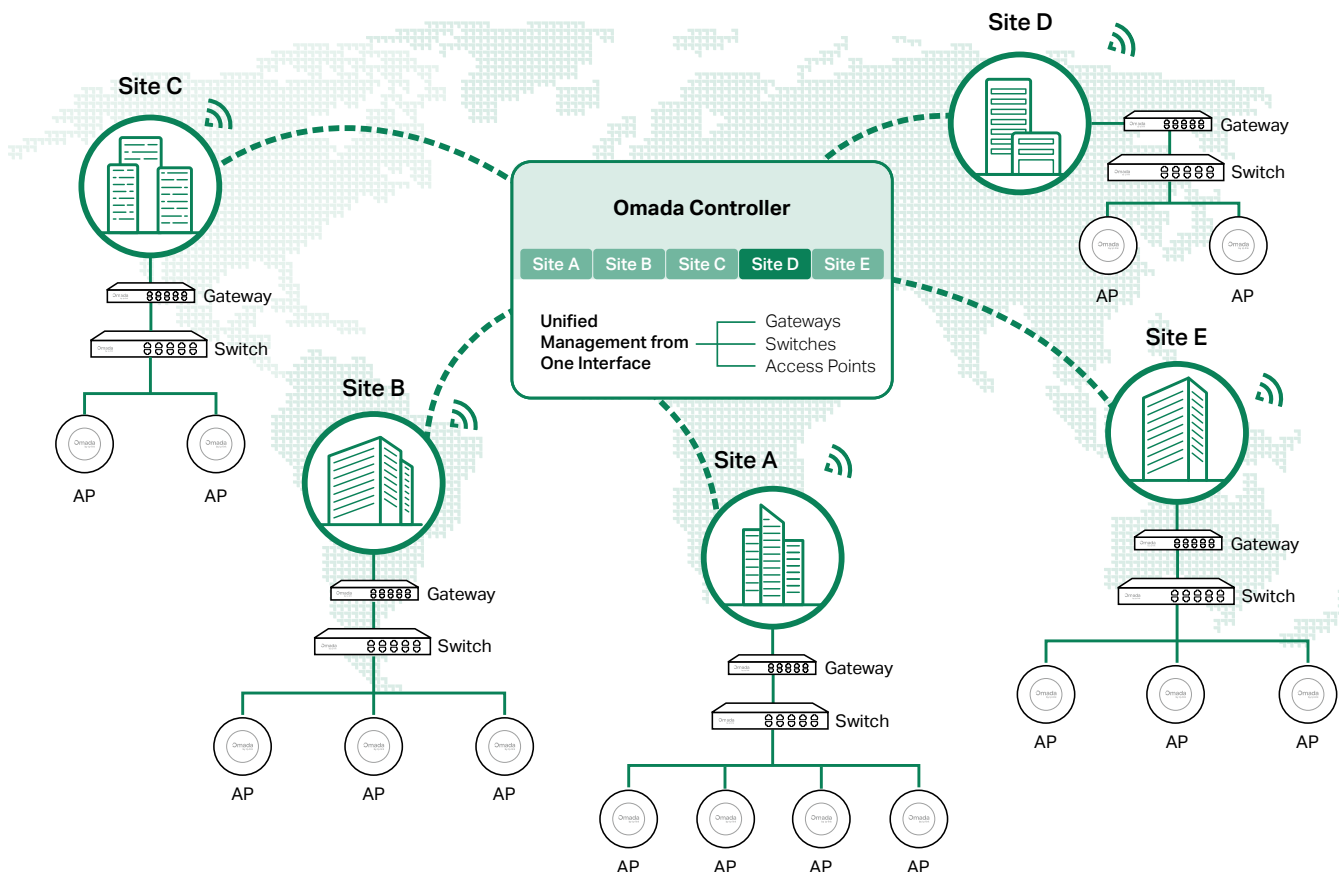


For more configuration instructions about the site template and device template, refer to <https://www.omadanetworks.com/support/faq/4341>.

3.3 Adopt Devices

Overview

After you create a site, add your devices to the site by making the controller adopt them. Make sure that your devices in each LAN are added to the corresponding site so that they can be managed centrally.



Configuration

Choose a procedure according to the type of your controller:

- [3.3.1 For Software Controller / Hardware Controller](#)
- [3.3.2 For Integrated Gateway \(Controller\)](#)
- [3.3.3 For Cloud-Based Controller](#)

3.3.1 For Software Controller / Hardware Controller

To adopt the devices on the controller, follow these steps:

- 1) Prepare for communication between the controller and devices.
- 2) Prepare for device discovery.
- 3) Adopt the devices.

Step 1: Prepare for Communication

Note:

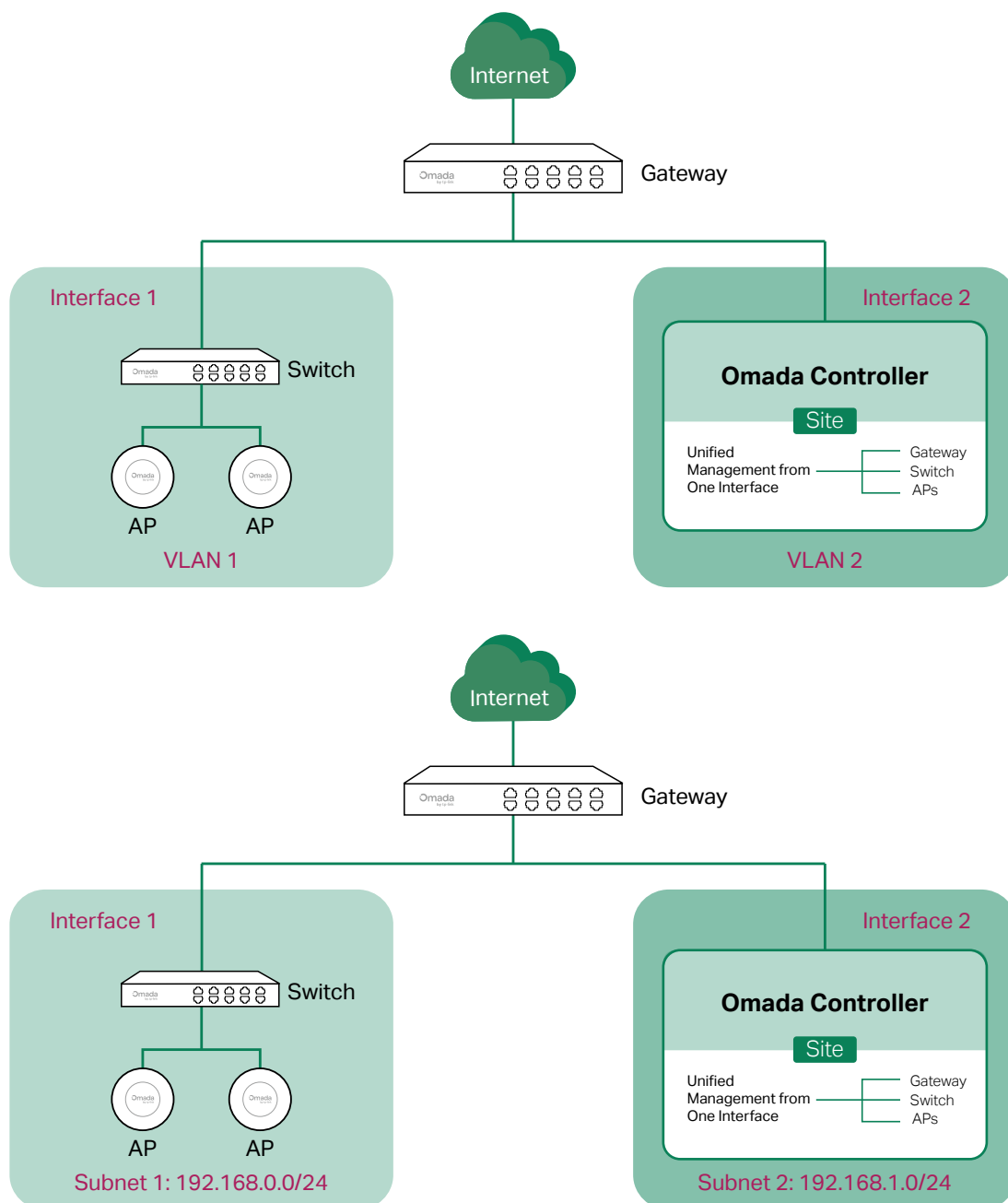
If the controller and devices are in the same LAN, subnet and VLAN, skip this step.

Make sure that the controller can communicate with the devices. Otherwise, the controller cannot discover or adopt the devices by any means. If the controller and devices are in different LANs, subnets or VLANs, use the following techniques to build up the connection according to your scenario.

1. Set up the network.

■ Scenario 1: Across VLANs or Subnets

If the controller and devices are in different VLANs or subnets, you need to set up a layer 3 interface for each VLAN or subnet, and make sure the interfaces can communicate with each other.



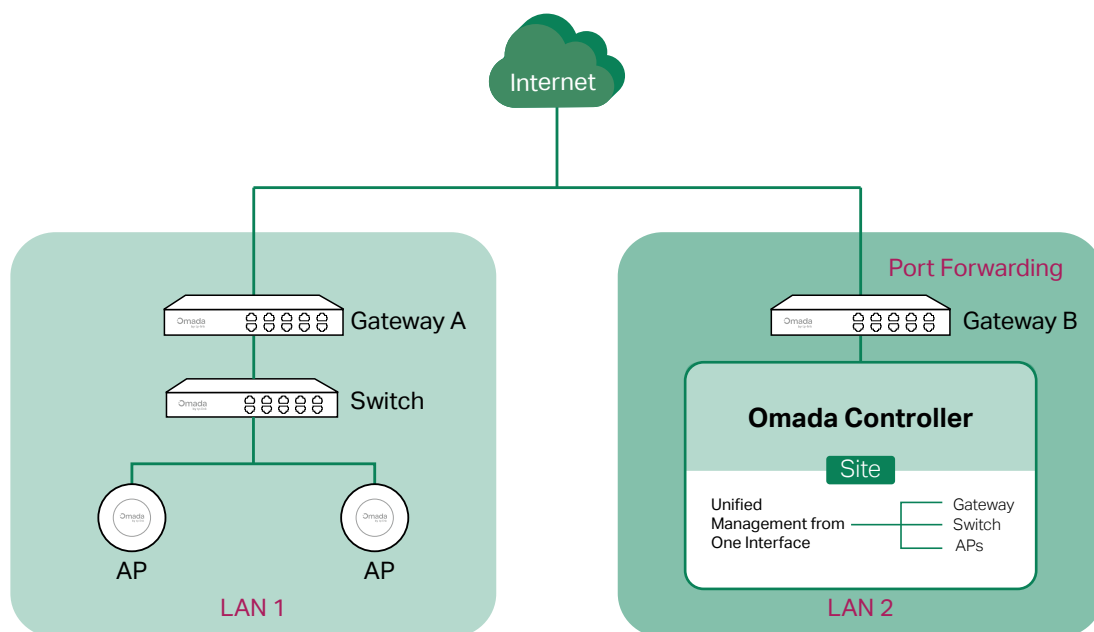
■ Scenario 2: Across LANs

If the controller and devices are in different LANs, you need to establish communication across the internet and the gateways.

By default, devices in LAN 1 cannot communicate with the controller in LAN 2, because Gateway B is in front of the controller and block access to it. To make the controller accessible to the devices, you can use Port Forwarding or VPN.

- Use Port Forwarding

Configure Port Forwarding on Gateway B and open port 29810-29817 for the controller, which are essential for discovering and adopting devices. If you are using firewalls in the networks, make sure that the firewalls don't block those ports.



To configure Port Forwarding on Gateway B, you need first adopt Gateway B to a site on the controller. Then access the site and go to [Network Config > Transmission > NAT > Port Forwarding](#). Click [Create New Rule](#) to load the following page. Specify a name to identify the Port Forwarding rule, check Enable for Status, select Any as Source IP, select the desired WAN port as Interface,

disable DMZ, specify 29810-29817 as Source Port and Destination Port, specify the controller's IP address as Destination IP, and select All as Protocol. Then click **Create**.

Create New Rule

Name: open-port-for-controller

Status: ☒ Enable

Source IP: ☒ Any ☐ Limited IP Address

Interface: WAN

DMZ: ☐ Enable

Source Port: 29810-29817 (1-65535, e.g. 80 or 80-100)

Destination IP: 192 . 168 . 0 . 26

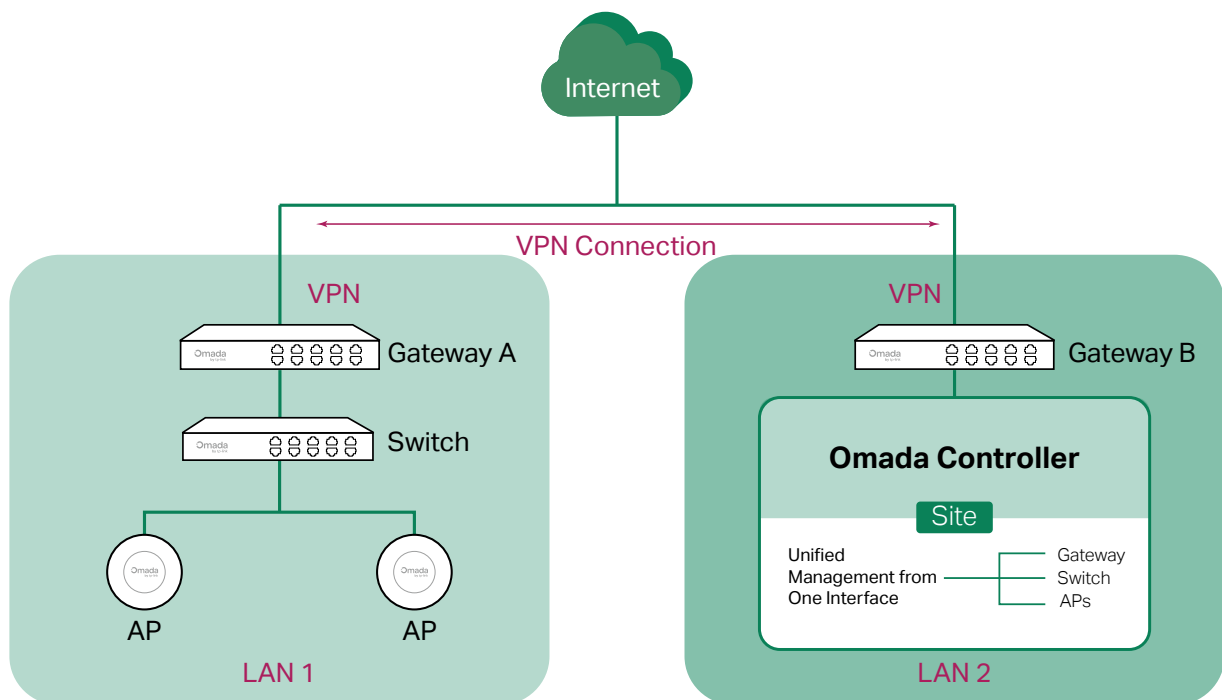
Destination Port: 29810-29813 (1-65535, e.g. 80 or 80-100)

Protocol: ☒ All ☐ TCP ☐ UDP

Create **Cancel**

- Use VPN

Set up a VPN connection between Gateway A and Gateway B in Standalone Mode. For details about VPN configuration, refer to the User Guide of the gateways.



2. (Optional) Test the network.

If you are not sure whether the controller and devices can establish communication, it's recommended to do the ping test from the devices to the controller.

Let's take a switch for example. Log into the web page of the switch in Standalone Mode. Then Go to [MAINTENANCE](#) > [Network Diagnostics](#) > [Ping](#) to load the following page, and specify Destination IP as the IP address of the controller (if you have configured Port Forwarding on the controller side, use the public WAN IP address of the gateway instead). Then click [Ping](#).

Note:

To ping the gateway, turn off Block WAN Ping on the [Settings](#) > [Network Security](#) > [Attack Defense](#) page.

The screenshot displays the 'Ping Config' web interface. It features four input fields for configuration: 'Destination IP' (192.168.0.26), 'Ping Times' (4), 'Data Size' (64), and 'Interval' (1000). Each field has a format hint. A 'Ping' button is located on the right. Below the configuration section is a 'Ping Result' section with a light blue header. It contains the text 'Pinging 192.168.0.26 with 64 bytes of data:' followed by four lines of response data: 'Reply from 192.168.0.26 : bytes=64 time=19ms TTL=64', 'Reply from 192.168.0.26 : bytes=64 time=3ms TTL=64', 'Reply from 192.168.0.26 : bytes=64 time=3ms TTL=64', and 'Reply from 192.168.0.26 : bytes=64 time=3ms TTL=64'. Below this is a 'Ping statistics for 192.168.0.26 :' section showing 'Packets: Sent=4, Received=4, Loss=0 (0%Loss)'. At the bottom is an 'Approximate round trip times in milliseconds:' section showing 'Maximum=19ms, Minimum=3ms, Average=7ms'.

Ping Config	
Destination IP:	192.168.0.26 (Format: 192.168.0.1 or 2001::1)
Ping Times:	4 (1-10)
Data Size:	64 bytes (1-1500)
Interval:	1000 milliseconds (100-1000)
Ping	

Ping Result

Pinging 192.168.0.26 with 64 bytes of data:

Reply from 192.168.0.26 : bytes=64 time=19ms TTL=64

Reply from 192.168.0.26 : bytes=64 time=3ms TTL=64

Reply from 192.168.0.26 : bytes=64 time=3ms TTL=64

Reply from 192.168.0.26 : bytes=64 time=3ms TTL=64

Ping statistics for 192.168.0.26 :

Packets: Sent=4, Received=4, Loss=0 (0%Loss)

Approximate round trip times in milliseconds:

Maximum=19ms, Minimum=3ms, Average=7ms

If the ping result shows the packets are received, it implies that the controller can communicate with the devices. Otherwise, the controller cannot communicate with the devices, then you need to check your network.

Step 2: Prepare for Device Discovery

Note:

If the controller and devices are in the same LAN, subnet and VLAN, skip this step. In this scenario, the controller can discover the devices directly, and no additional settings are required.

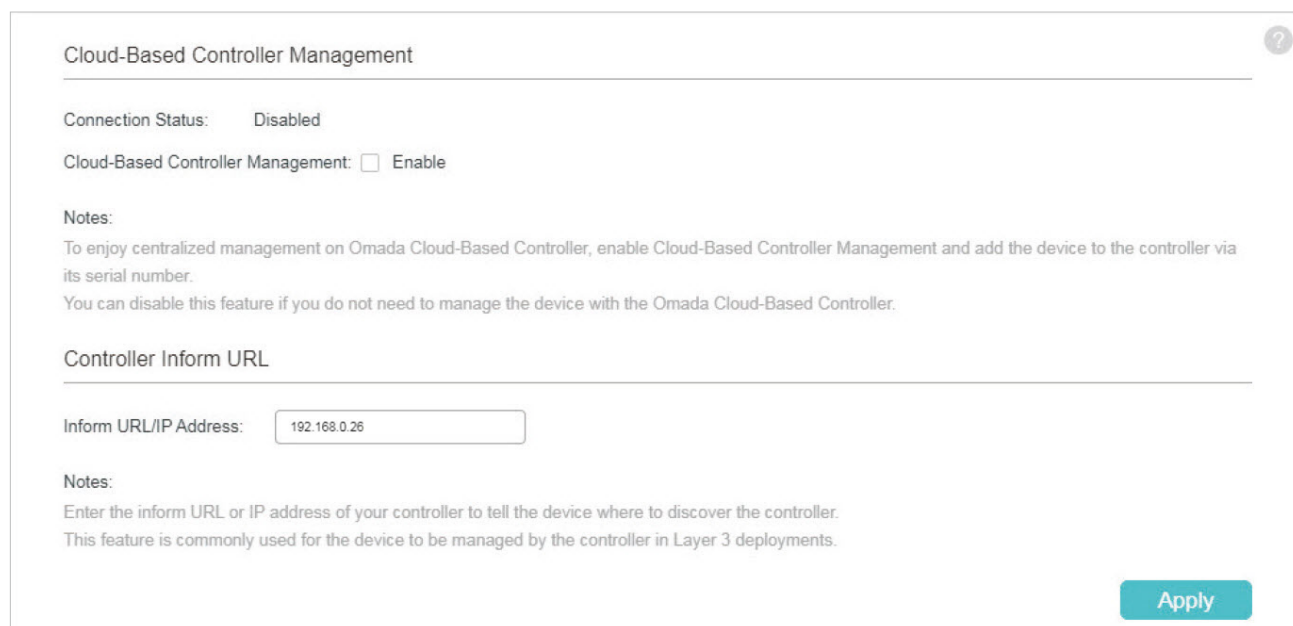
Make sure that the controller can discover the devices.

When the controller and devices are in different LANs, subnets or VLANs, the controller cannot discover the devices directly. You need to choose [Controller Inform URL](#), [Discovery Utility](#), or [DHCP Option 138](#) as the method to help the controller discover the devices.

■ Controller Inform URL

Controller Inform URL informs the devices of the controller's URL or IP address. Then the devices make contact with the controller so that the controller can discover the devices.

You can configure Controller Inform URL for devices in Standalone Mode. Let's take a switch for example. Log into the management page of the switch in Standalone Mode and go to **SYSTEM > Controller Settings** to load the following page. In **Controller Inform URL**, specify Inform URL/ IP Address as the controller's URL or IP address (if you have configured Port Forwarding on the controller side, use the public WAN IP address of the gateway instead). Then click **Apply**.

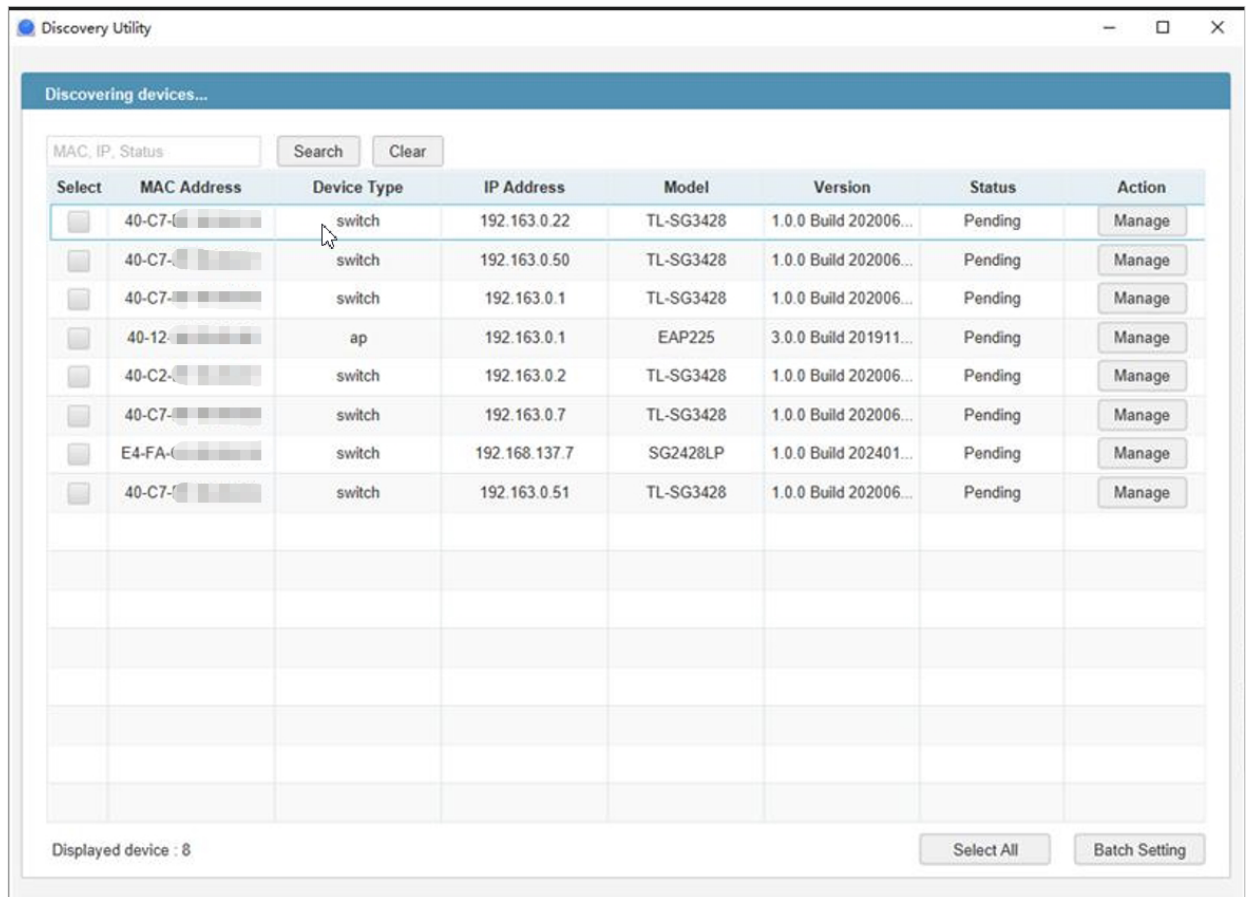


The screenshot shows the 'Cloud-Based Controller Management' configuration page. At the top, there is a title bar with a question mark icon. Below it, the 'Connection Status' is 'Disabled'. There is a checkbox for 'Cloud-Based Controller Management' which is currently unchecked, with an 'Enable' label next to it. A 'Notes' section follows, explaining that enabling this feature allows for centralized management on the Omada Cloud-Based Controller and that the device should be added to the controller via its serial number. It also notes that the feature can be disabled if not needed. Below the notes is the 'Controller Inform URL' section, which has a text input field for 'Inform URL/IP Address' containing the value '192.168.0.26'. Another 'Notes' section below this field explains that the user should enter the inform URL or IP address of their controller to tell the device where to discover the controller, and that this feature is commonly used for Layer 3 deployments. At the bottom right of the form is a blue 'Apply' button.

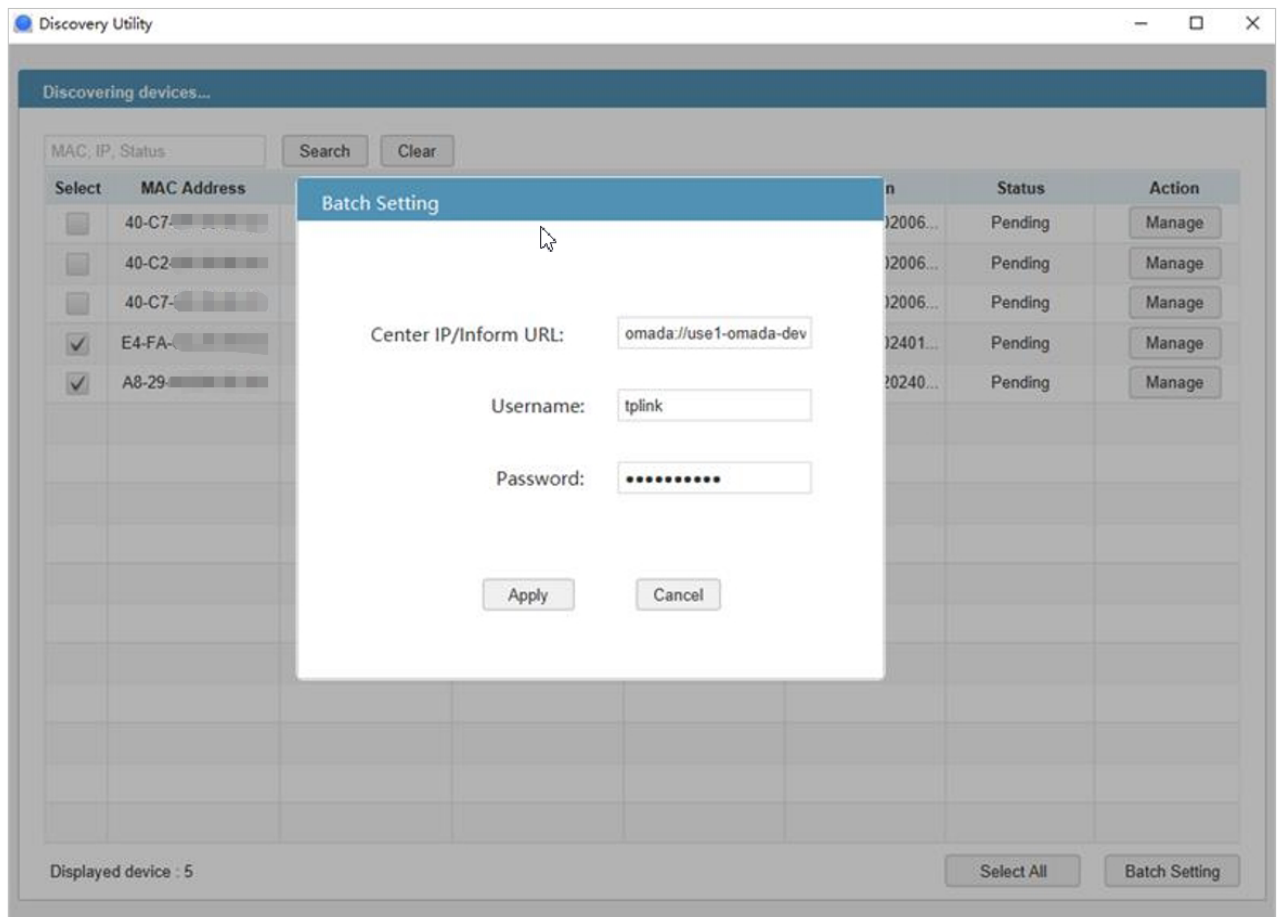
■ Discovery Utility

Discovery Utility can discover the devices in the same LAN, subnet and VLAN, and inform the devices of the controller's IP address. Then the devices make contact with the controller so that the controller can discover the devices.

1. Download Discovery Utility from <https://support.omadanetworks.com/product/omada-software-controller/?resourceType=download> and then install it on your PC which should be located in the same LAN, subnet and VLAN as your devices.
2. Open Discovery Utility and you can see a list of devices. Select the devices to be adopted and click **Batch Setting**.



- Specify Controller Hostname/IP as the IP address of the controller (if you have configured Port Forwarding on the controller side, use the public WAN IP address of the gateway instead), and enter the username and password of the devices. By default, the username and password are both admin. Then click [Apply](#). Wait until the setting succeeds.



■ DHCP Option 138

DHCP Option 138 informs a DHCP client, such as a switch or an AP, of the controller's IP address when the DHCP client sends DHCP requests to the DHCP server, which is typically a gateway.

1. To use DHCP Option 138, you need to adopt the gateway on the controller first, which may require other techniques like [Controller Inform URL](#) or [Discovery Utility](#) if necessary.
2. After the gateway is adopted, access the site and go to [Network Config](#) > [Network Settings](#) > [LAN](#).
3. Choose the LAN where the DHCP clients are located and click the Edit icon in the upper right.
4. Enable DHCP Server and configure common DHCP parameters. Then click [Advanced DHCP Options](#) and specify Option 138 as the controller's IP address (if you have configured Port Forwarding on the controller side, use the public WAN IP address of the gateway instead).
5. Configure other parameters and save the settings.

DHCP Server

☒ Enable

192 . 168 . 0 . 1 - 192 . 168 . 0 . 254

Advanced Settings

Advanced DHCP Options

Option 2

Seconds

(Optional)

Option 42

(Optional)

Option 44

(Optional)

Option 60

(Optional)

Option 66

(Optional)

Option 67

(Optional)

Option 138

192 . 168 . 0 . 1

(Optional)

6. To make DHCP Option 138 take effect, you need to renew DHCP parameters for the DHCP clients. One possible way is to disconnect the DHCP clients and then reconnect them.

Step 3: Adopt the Devices

1. Launch the controller and access a site.
2. Go to [Devices](#) and click [Add Devices](#). Choose a method to add your devices.

Add Devices

For Switches, only the Switch Series supported by the currently selected site will be adopted. You can edit the Switch Series in the Site List.

OLTs can be added via Auto Find only.

When adopting a mesh EAP, the system will automatically select an uplink AP for it.

Add to Site

Please Select...

Mode

☒ Manually Add

☐ Auto Find

☐ Import

Fill in the devices' information to add them. The device username and password are optional when adding non-gateway devices. If they are not specified, the system will use the default account and password for adoption. But they are required when adding gateways.

INDEX	DEVICE KEY	DEVICE NAME (OPTIONAL)	DEVICE USERNAME (OPTIONAL)	DEVICE PASSWORD (OPTIONAL)
1	- - - -			

Apply

Cancel

- Manually Add

Fill in the devices' information to add them. The device username and password are optional when adding non-gateway devices. If they are not specified, the system will use the default account and password for adoption. But they are required when adding gateways.

- Auto Find

Automatically find Omada devices in the same LAN or configured with an Inform URL.

47

- **Import**

Download the template and fill in your devices' information. Then import the file. Up to 1500 devices can be imported at a time.

3. Once the devices are adopted, they are subject to central management in the site.

3.3.2 For Integrated Gateway (Controller)

The integrated gateway has been adopted by the build-in Controller by default during the initial setup.

To adopt other devices on the build-in controller of the Integrated Gateway, follow these steps:

- 1) Prepare for communication between the controller and devices.
- 2) Prepare for device discovery.
- 3) Adopt the devices.

Step 1: Prepare for Communication

Note:

If the controller and devices are in the same LAN, subnet and VLAN, skip this step.

Make sure that the controller can communicate with the devices. Otherwise, the controller cannot discover or adopt the devices by any means. If the controller and devices are in different LANs, subnets or VLANs, use the following techniques to build up the connection according to your scenario.

1. Set up the network.

■ Scenario 1: Across VLANs or Subnets

If the controller and devices are in different VLANs or subnets. You need to set up a layer 3 interface for each VLAN or subnet, and make sure the interfaces can communicate with each other.

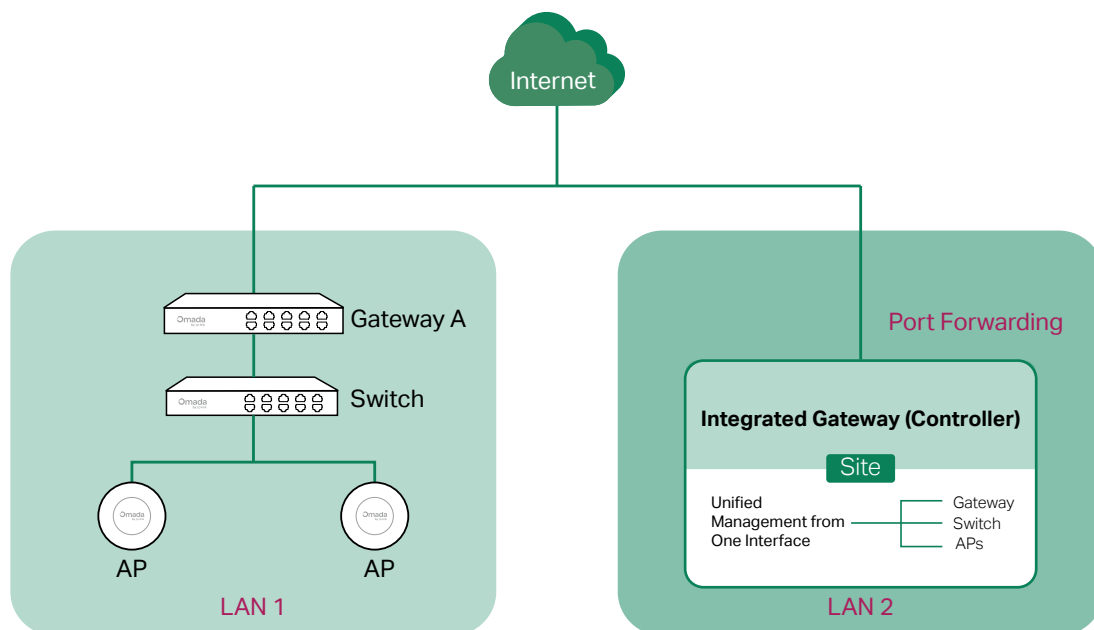
■ Scenario 2: Across LANs

As shown in the following figure, the controller and devices are in different LANs. You need to establish communication across the internet and the gateways.

By default, devices in LAN 1 cannot communicate with the controller in LAN 2, because Gateway A blocks their access to the controller. To make the controller accessible to the devices, you can use Port Forwarding or VPN.

- Use Port Forwarding

Configure Port Forwarding and open port 29810-29817 for the controller, which are essential for discovering and adopting devices. If you are using firewalls in the networks, make sure that the firewalls don't block those ports.



To configure Port Forwarding on the controller, go to **Network Config > Transmission > NAT > Port Forwarding**. Click **Create New Rule** to load the following page. Specify a name to identify the Port Forwarding rule, check Enable for Status, select Any as Source IP, select the desired WAN port as Interface, disable DMZ, specify 29810-29817 as Source Port and Destination Port, specify the controller's IP address as Destination IP, and select All as Protocol. Then click **Create**.

Create New Rule

Name

open-port-for-controller

Status

☒ Enable

Source IP

☒ Any ☐ Limited IP Address

Interface

WAN × ▼

DMZ

☐ Enable

Source Port

29810-29817 (1-65535, e.g. 80 or 80-100) ⓘ

Destination IP

192 . 168 . 0 . 26

Destination Port

29810-29813 (1-65535, e.g. 80 or 80-100) ⓘ

Protocol

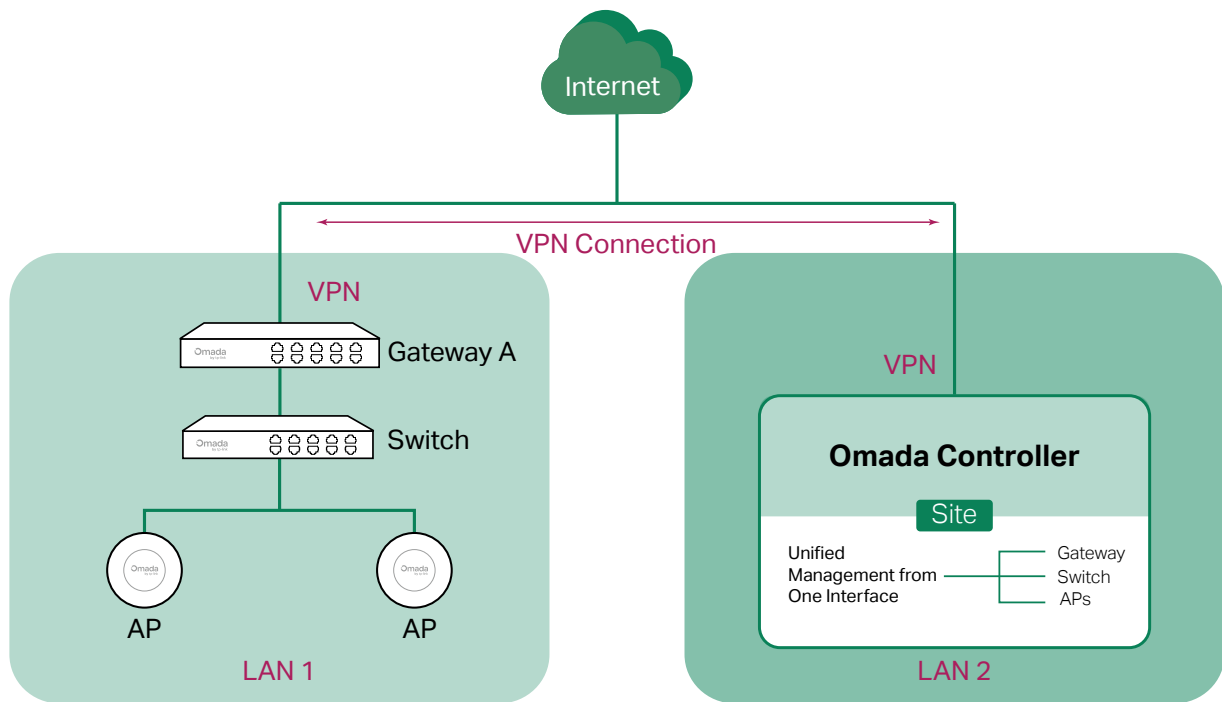
☒ All ☐ TCP ☐ UDP

Create

Cancel

- Use VPN

Set up a VPN connection between Gateway A and the controller. For details about VPN configuration, refer to the corresponding chapter of this guide.



2. (Optional) Test the network.

If you are not sure whether the controller and devices can establish communication, it's recommended to do the ping test from the devices to the controller.

Let's take a switch for example. Log into the web page of the switch in Standalone Mode. Then Go to **MAINTENANCE > Network Diagnostics > Ping** to load the following page, and specify Destination IP as the IP address of the controller (if you have configured Port Forwarding on the controller side, use the public WAN IP address of the gateway instead). Then click **Ping**.

Note:

To ping a gateway, please turn off Block WAN Ping on the **Settings > Network Security > Attack Defense** page.

Ping Config

Destination IP: (Format: 192.168.0.1 or 2001::1)

Ping Times: (1-10)

Data Size: bytes (1-1500)

Interval: milliseconds (100-1000)

Ping

Ping Result

Pinging 192.168.0.26 with 64 bytes of data:

Reply from 192.168.0.26 : bytes=64 time=19ms TTL=64

Reply from 192.168.0.26 : bytes=64 time=3ms TTL=64

Reply from 192.168.0.26 : bytes=64 time=3ms TTL=64

Reply from 192.168.0.26 : bytes=64 time=3ms TTL=64

Ping statistics for 192.168.0.26 :

Packets: Sent=4, Received=4, Loss=0 (0%Loss)

Approximate round trip times in milliseconds:

Maximum=19ms, Minimum=3ms, Average=7ms

If the ping result shows the packets are received, it implies that the controller can communicate with the devices. Otherwise, the controller cannot communicate with the devices, then you need to check your network.

Step 2: Prepare for Device Discovery

Note:

If the controller and devices are in the same LAN, subnet and VLAN, skip this step. In this scenario, the controller can discover the devices directly, and no additional settings are required.

Make sure that the controller can discover the devices.

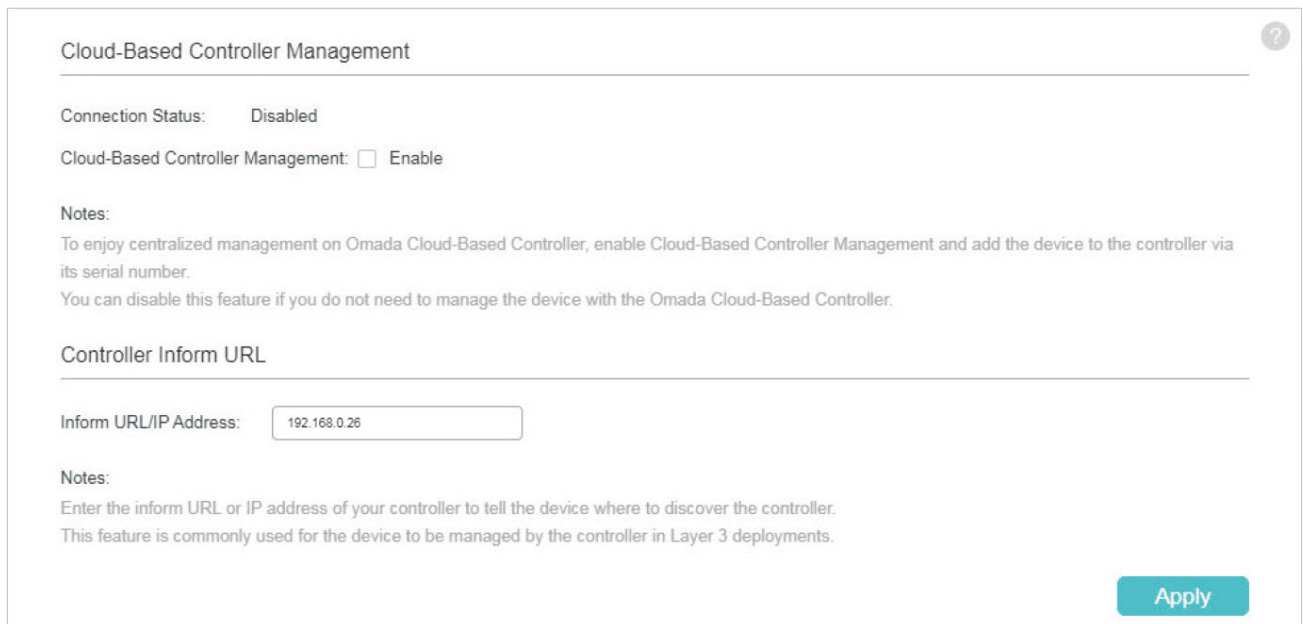
When the controller and devices are in different LANs, subnets or VLANs, the controller cannot discover the devices directly. You need to choose [Controller Inform URL](#), [Discovery Utility](#), or [DHCP Option 138](#) as the method to help the controller discover the devices.

■ Controller Inform URL

Controller Inform URL informs the devices of the controller's URL or IP address. Then the devices make contact with the controller so that the controller can discover the devices.

You can configure Controller Inform URL for devices in Standalone Mode. Let's take a switch for example. Log into the management page of the switch in Standalone Mode and go to **SYSTEM** > **Controller Settings** to load the following page. In **Controller Inform URL**, specify Inform URL/

IP Address as the controller's URL or IP address (if you have configured Port Forwarding on the controller side, use the public WAN IP address of the gateway instead). Then click **Apply**.

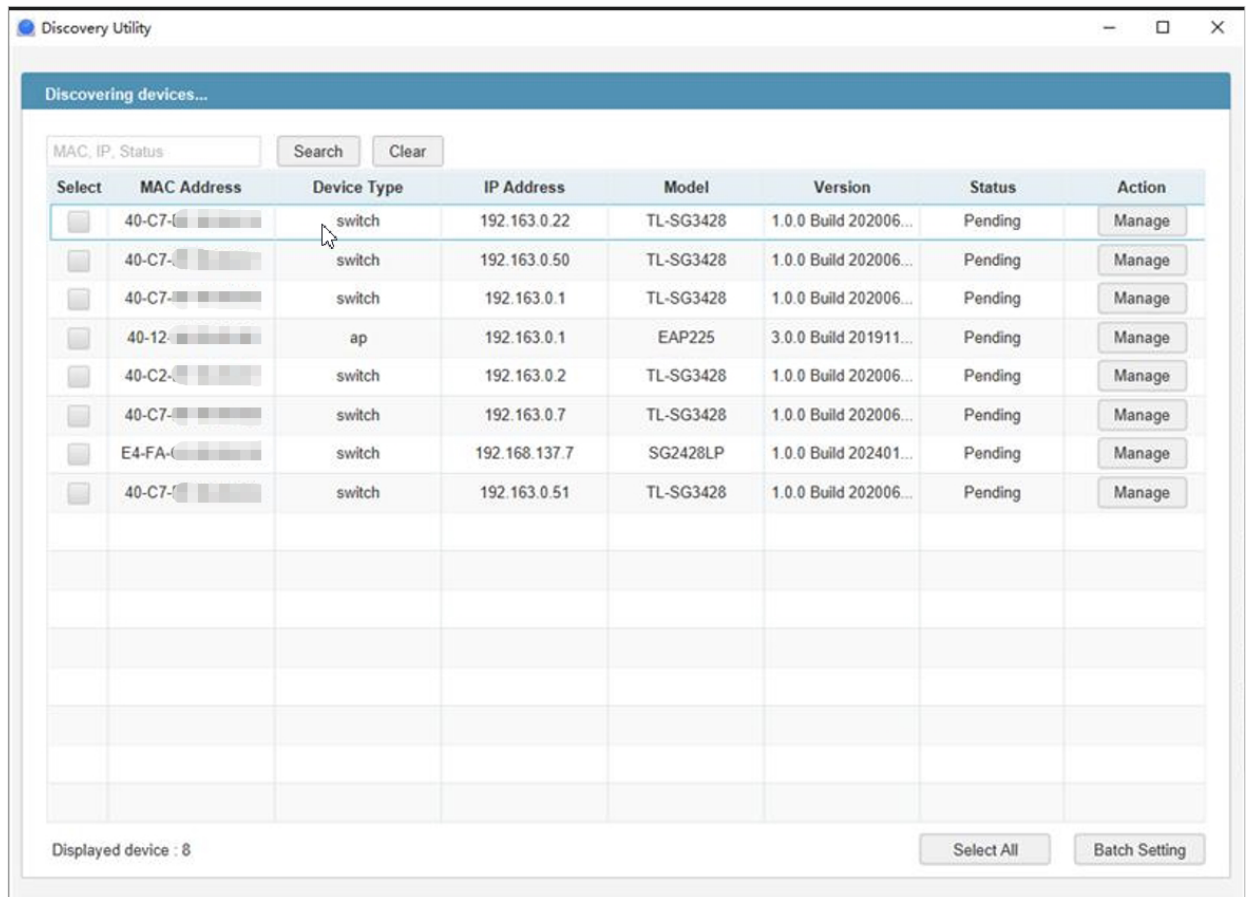


The screenshot shows the 'Cloud-Based Controller Management' configuration page. At the top, the title 'Cloud-Based Controller Management' is followed by a help icon. Below this, the 'Connection Status' is 'Disabled'. There is a checkbox for 'Cloud-Based Controller Management' which is currently unchecked, with an 'Enable' label next to it. A 'Notes' section follows, explaining that enabling this feature allows for centralized management on the Omada Cloud-Based Controller and that it can be disabled if not needed. Below the notes is a section titled 'Controller Inform URL'. It contains a label 'Inform URL/IP Address:' and a text input field containing the IP address '192.168.0.26'. Another 'Notes' section explains that this field is used to tell the device where to discover the controller. At the bottom right of the form is a blue 'Apply' button.

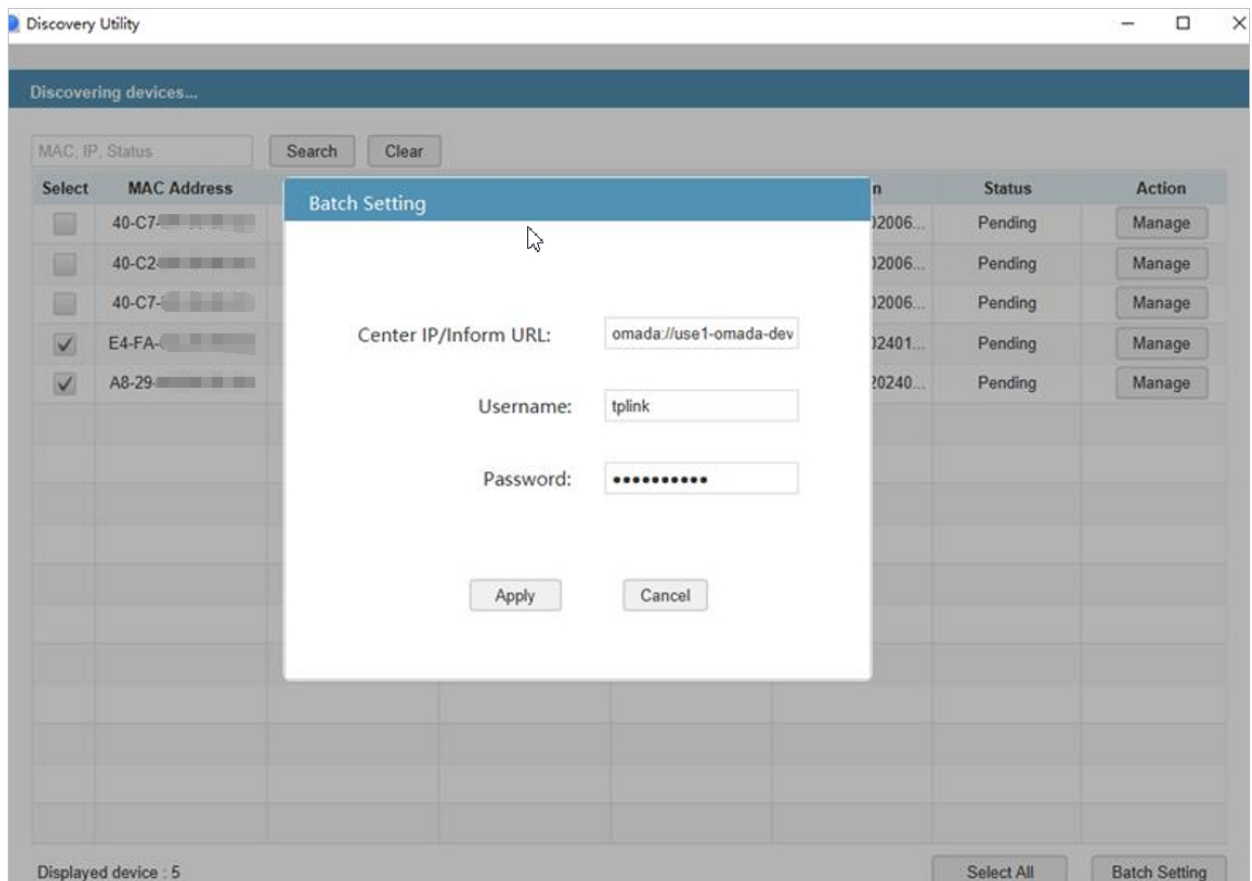
■ Discovery Utility

Discovery Utility can discover the devices in the same LAN, subnet and VLAN, and inform the devices of the controller's IP address. Then the devices make contact with the controller so that the controller can discover the devices.

1. Download Discovery Utility from <https://support.omadanetworks.com/product/omada-software-controller/?resourceType=download> and then install it on your PC which should be located in the same LAN, subnet and VLAN as your devices.
2. Open Discovery Utility and you can see a list of devices. Select the devices to be adopted and click **Batch Setting**.



3. Specify Controller Hostname/IP as the IP address of the controller (if you have configured Port Forwarding on the controller side, use the public WAN IP address of the gateway instead), and enter the username and password of the devices. By default, the username and password are both admin. Then click **Apply**. Wait until the setting succeeds.



■ DHCP Option 138

DHCP Option 138 informs a DHCP client, such as a switch or an AP, of the controller's IP address when the DHCP client sends DHCP requests to the DHCP server, which is typically a gateway.

1. To use DHCP Option 138, you need to adopt the gateway on the controller first, which may require other techniques like [Controller Inform URL](#) or [Discovery Utility](#) if necessary.
2. After the gateway is adopted, access the site and go to [Network Config](#) > [Network Settings](#) > [LAN](#).
3. Choose the LAN where the DHCP clients are located and click the Edit icon in the upper right.
4. Enable DHCP Server and configure common DHCP parameters. Then click [Advanced DHCP Options](#) and specify Option 138 as the controller's IP address (if you have configured Port Forwarding on the controller side, use the public WAN IP address of the gateway instead).
5. Configure other parameters and save the settings.

DHCP Server

☒ Enable

192 . 168 . 0 . 1 - 192 . 168 . 0 . 254

+ Advanced Settings

- Advanced DHCP Options

Option 2

Seconds

(Optional) ⓘ

Option 42

(Optional) ⓘ

Option 44

(Optional) ⓘ

Option 60

(Optional) ⓘ

Option 66

(Optional) ⓘ

Option 67

(Optional) ⓘ

Option 138

192 . 168 . 0 . 1

(Optional) ⓘ

6. To make DHCP Option 138 take effect, you need to renew DHCP parameters for the DHCP clients. One possible way is to disconnect the DHCP clients and then reconnect them.

Step 3: Adopt the Devices

1. Launch the controller and access a site.
2. Go to [Devices](#) and click [Add Devices](#). Choose a method to add your devices.

Add Devices

ⓘ For Switches, only the Switch Series supported by the currently selected site will be adopted. You can edit the Switch Series in the Site List.
OLTs can be added via Auto Find only.
When adopting a mesh EAP, the system will automatically select an uplink AP for it.

Add to Site

Please Select...

Mode

☒ Manually Add ☐ Auto Find ☐ Import

Fill in the devices' information to add them. The device username and password are optional when adding non-gateway devices. If they are not specified, the system will use the default account and password for adoption. But they are required when adding gateways.

INDEX	DEVICE KEY	DEVICE NAME (OPTIONAL)	DEVICE USERNAME (OPTIONAL)	DEVICE PASSWORD (OPTIONAL)
1	- - - -			

Apply

Cancel

Manually Add

Fill in the devices' information to add them. The device username and password are optional when adding non-gateway devices. If they are not specified, the system will use the default account and password for adoption. But they are required when adding gateways.

Auto Find

Automatically find Omada devices in the same LAN or configured with an Inform URL.

- **Import**

Download the template and fill in your devices' information. Then import the file. Up to 1500 devices can be imported at a time.

3. Once the devices are adopted, they are subject to central management in the site.

3.3.3 For Cloud-Based Controller

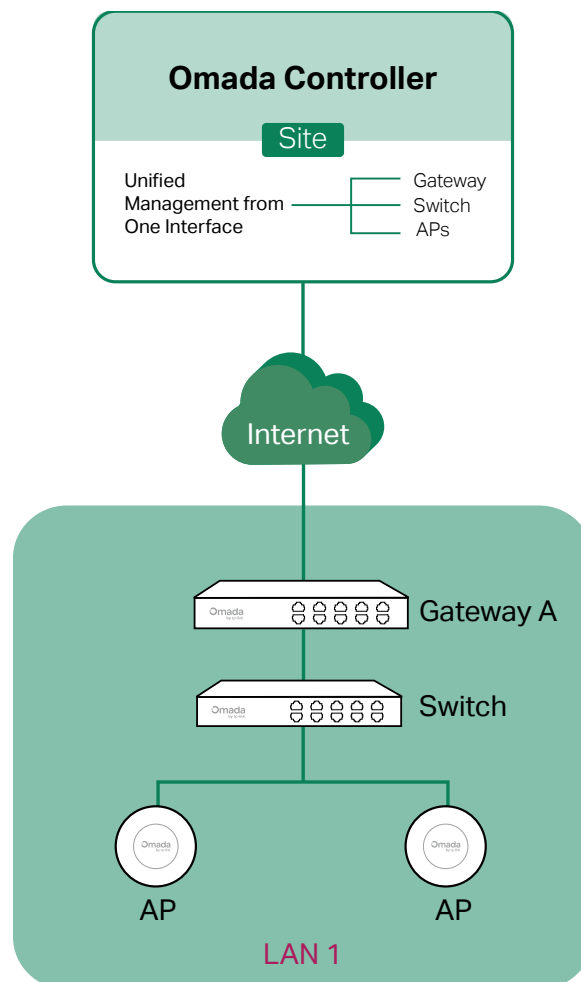
To adopt the devices on the controller, follow these steps:

- 1) Connect to the internet.
- 2) Prepare for controller management.
- 3) Adopt the devices.

Step 1: Connect to the Internet

1. Set up the network.

Make sure that your devices are connected to the internet.



If you are using firewalls in your network, make sure that the firewall doesn't block traffic from the controller. To configure your firewall policy, you may want to know the URL of the controller. After you open the web page of the controller, you can get the URL from the address bar of the browser.

2. (Optional) Test the network.

If you are not sure whether the devices are connected to the internet, it's recommended to do the ping test from the devices to a public IP address, such as 8.8.8.8.

Let's take a switch for example. Log into the web page of the switch in Standalone Mode. Go to **MAINTENANCE > Network Diagnostics > Ping** to load the following page. Specify Destination IP as a public IP address, such as 8.8.8.8. Then click **Ping**.

The screenshot displays the 'Ping Config' web interface. It features four input fields for configuration: 'Destination IP' (8.8.8.8), 'Ping Times' (4), 'Data Size' (64), and 'Interval' (1000). Each field has a format hint. A 'Ping' button is located on the right. Below the configuration fields is a 'Ping Result' section with a light blue header. It shows the command 'Pinging 8.8.8.8 with 64 bytes of data:' followed by four successful replies, each showing 'bytes=64 time=3ms TTL=64'. Below this, 'Ping statistics for 8.8.8.8:' are shown with 'Packets: Sent=4, Received=4, Loss=0 (0%Loss)'. At the bottom, 'Approximate round trip times in milliseconds:' are listed as 'Maximum=3ms, Minimum=3ms, Average=3ms'.

Ping Config	
Destination IP:	8.8.8.8 (Format: 192.168.0.1 or 2001::1)
Ping Times:	4 (1-10)
Data Size:	64 bytes (1-1500)
Interval:	1000 milliseconds (100-1000)
Ping	
Ping Result	
Pinging 8.8.8.8 with 64 bytes of data:	
Reply from 8.8.8.8 : bytes=64 time=3ms TTL=64	
Reply from 8.8.8.8 : bytes=64 time=3ms TTL=64	
Reply from 8.8.8.8 : bytes=64 time=3ms TTL=64	
Reply from 8.8.8.8 : bytes=64 time=3ms TTL=64	
Ping statistics for 8.8.8.8 :	
Packets: Sent=4, Received=4, Loss=0 (0%Loss)	
Approximate round trip times in milliseconds:	
Maximum=3ms , Minimum=3ms, Average=3ms	

If the ping result shows the packets are received, it implies that the devices are connected to the internet. Otherwise, the devices are not connected to the internet, then you need to check your network.

Step 2: Prepare for Controller Management

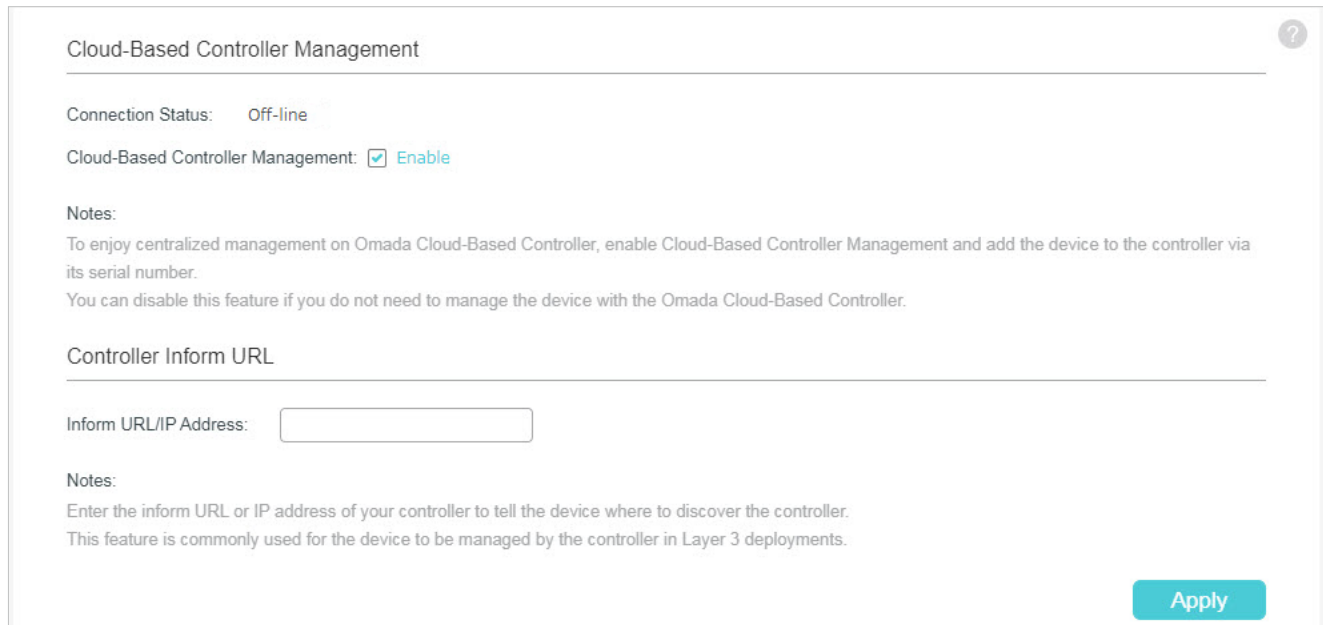
Note:

If your devices are on the factory default setting, skip this step.

The Cloud-Based Controller Management feature allows the devices to be adopted by the Cloud-Based Controller. Make sure Cloud-Based Controller Management is enabled on the devices. For details, refer

to the User Guide of your devices, which can be downloaded from <https://support.omadanetworks.com/product/>.

Let's take a switch for example. Log into the web page of the switch in Standalone Mode. Go to **SYSTEM > Controller Settings** to load the following page. In **Cloud-Based Controller Management**, enable Cloud-Based Controller Management and click **Apply**.



The screenshot shows a web interface titled "Cloud-Based Controller Management" with a help icon in the top right corner. Below the title, the "Connection Status" is "Off-line". The "Cloud-Based Controller Management" toggle is checked and labeled "Enable". A "Notes" section explains that to enjoy centralized management, the feature must be enabled and the device added to the controller via its serial number. It also states that the feature can be disabled if not needed. Below this is a section titled "Controller Inform URL" with a text input field for "Inform URL/IP Address". Another "Notes" section explains that the URL or IP address is used to tell the device where to discover the controller, and that this feature is commonly used for Layer 3 deployments. An "Apply" button is located at the bottom right of the form.

Step 3: Adopt the Devices

1. Ensure your devices are compatible with your Cloud-Based Controller.
 - Omada Central Essentials:
<https://www.omadanetworks.com/omada-cloud-essentials/product-list/>
 - Omada Central Standard:
<https://www.omadanetworks.com/omada-cloud-based-controller/product-list/>
2. Launch an Omada Central organization, go to **Omada Network**, and access a site.

3. Go to **Devices** and click **Add Devices**. Choose a method to add your devices.

Add Devices

For Switches, only the Switch Series supported by the currently selected site will be adopted. You can edit the Switch Series in the Site List.

OLTs can be added via Auto Find only.

When adopting a mesh EAP, the system will automatically select an uplink AP for it.

Add to Site

Please Select...

Mode

☒ Manually Add
 ☐ Auto Find
 ☐ Import

Type

☐ Add by Serial Number
 ☒ Add by Device Key

Fill in the devices' information to add them. The device username and password are optional when adding non-gateway devices. If they are not specified, the system will use the default account and password for adoption. But they are required when adding gateways.

INDEX	DEVICE KEY	DEVICE NAME (OPTIONAL)	DEVICE USERNAME (OPTIONAL)	DEVICE PASSWORD (OPTIONAL)	
1	- - - -				

Apply

Cancel

- **Manually Add**

Fill in the devices' information to add them. The device username and password are optional when adding non-gateway devices. If they are not specified, the system will use the default account and password for adoption. But they are required when adding gateways.

- **Auto Find**

Automatically find the compatible devices with Inform URL configured to add them.

- **Import**

Download the template and fill in your devices' information. Then import the file. Up to 1500 devices can be imported at a time.

4. Once the devices are adopted, they are subject to central management in the site.

Chapter 4

Configure Controller Settings

Controller settings control the appearance and behavior of the controller and provide methods of data backup, restoration, migration, and more. The chapter includes the following sections:

- [4. 1 System Settings](#)
- [4. 2 Controller Settings](#)
- [4. 3 UI Interaction](#)
- [4. 4 History Data Retention](#)
- [4. 5 Server Settings](#)
- [4. 6 Account Security](#)
- [4. 7 Platform Integration](#)
- [4. 8 SAML SSO](#)
- [4. 9 Maintenance](#)
- [4. 10 Migration](#)
- [4. 11 Export Data](#)
- [4. 12 Cloud Access](#)

4. 1 System Settings

Launch the controller and access the Global View. Go to [Settings > System Settings](#).

4. 1. 1 Controller Status

In [Controller Status](#), you can view the controller-related information and status.

Controller Status

Controller Name	Omada Controller_Office
MAC Address	
System Time	Jul 31, 2025 07:13:05 pm
Uptime	9day(s) 16h 20m 37s

Controller Name	Displays the controller name, which identifies the controller. You can specify the controller name in Controller Settings.
MAC Address	Displays the MAC address of the controller.
System Time	Displays the system time of the controller. The system time is based on the time zone which you configure in Controller Settings.
Uptime	Displays how long the controller has been working.

4. 1. 2 Controller Updates

In [Controller Updates](#), you can view the controller version information and check for updates.

Controller Updates

Join Early Access Program

☒

Release Channel

Beta

Controller Version

6.0.0.8

Check for Updates

Click **Check for Updates** to check and save the release channel information.

Controller Update Notification

☒ ⓘ

Join Early Access Program	Enable the option to join the program and check for firmware in the Release Channel > Beta for upgrading, so you can try out in-development features and help improve them.
Release Channel	Select the Release Channel of the controller to check whether the corresponding Channel has a newer version.
Controller Version	Display the software version of the controller.
Check for Updates	Click to check for any updates of the controller.
Controller Update Notification	Enable the option and the system will query the cloud for controller firmware updates.

4.1.3 HTTPS Certificate

If you have assigned a domain name to the controller for login, to eliminate the “untrusted certificate” error message in the login process, import the corresponding SSL certificate and private key issued by the certificate authority in [HTTPS Certificate](#).

Note:

- HTTPS Certificate configuration is only available for the Software Controller and Hardware Controller.
- You need to restart you controller for the imported SSL certificate to take effect.

HTTPS Certificate


 • If you have assigned a domain name to the controller for login, to eliminate the “untrusted certificate” error message in the login process, import the corresponding SSL certificate and private key issued by the certificate authority. Then restart your controller for the SSL certificate to take effect.
 • If you cannot access the controller through the assigned domain name after you delete the certificate, please clear your browser cache.
 • If you access the Controller http port through a domain name, you will not be automatically redirected. Please delete the HSTS cache.

File Format

JKS

SSL Certificate

Import

Keystore Password





File Format	Select the format of your certificate, and import the certificate file.
SSL Certificate	Import the SSL certificate to create an encrypted link between the controller and server. JKS: Import your SSL certificate and enter the Keystore Password if your SSL certificate has the password. Otherwise, leave it blank. PFX: Import your SSL certificate and enter the Private Key Password if your SSL certificate has the password. Otherwise, leave it blank. PEM: Import your SSL certificate and SSL Key.

Note:

For the PEM-formatted certificate:

- Starts with: -----BEGIN CERTIFICATE-----
- Ends with: -----END CERTIFICATE-----
- Certificate chain is supported and no blank line is allowed between two certificate chains.

For the PEM-formatted key:

- RSA encryption is required.
- Starts with: -----BEGIN RSA PRIVATE KEY-----
- Ends with: -----END RSA PRIVATE KEY -----
- The key can be placed behind certificate file, and they can be imported together.

4. 1. 4 System Logging

In **System Logging**, you can customize the log level if needed.

System Logging

Logging Level Type

Custom

1. The default auto logging level is Info.

2. Debug logging will generate a lot of logs, which may affect the controller performance. If you need to collect debug logs of certain modules, adjust the logging level of the modules only, and reset the level in time after log collection.

Manager Logs

Debug

Client Info Logs

Debug

Network Monitoring Logs

Debug

System Setting Logs

Debug

Account Logs

Debug

Log-related Operation Logs

Debug

Others

Debug

Logging Level Type	Choose whether to customize the log level.
Manager Logs	Select the log level of the manager module, which mainly includes device management and site-related configurations.
Client Info Logs	Select the log level of the client info module, which mainly includes functions related to client monitoring.
Network Monitoring Logs	Select the log level of the network monitoring module, which mainly includes functions related to data monitoring.

System Setting Logs	Select the log level of the system setting module, which mainly includes system data related functions.
Account Logs	Select the log level of the account module, which mainly includes account-related functions.
Log-related Operation Logs	Select the log level of the log-related operation module, which mainly includes related functions of the log page.
Others	Select the log level of other modules.

4.1.5 Access Config

In **Access Config**, you can specify the port used by the controller for management and portal.

Note:

- Access Config is only available on the on-premises controller.
- Once applying the change of HTTPS and HTTP port, restart the controller to make the change effective.
- For security, the HTTPS and HTTP port for Portal should be different from that for controller management.

Access Config

Controller Hostname/IP

13.250.230.56

Auto Refresh IP

☐

HTTPS Port for Controller Management

8043

(443 or 1024-65535)

HTTP Port for Controller Management

8088

(80 or 1024-65535)

Once applying the change of HTTPS and HTTP port, restart the controller to make the change effective. After restart, visit the following URLs to log in to the Omada Controller:

- `http://[Omada Controller Host's IP address or URL]:[HTTP Port]`
- `https://[Omada Controller Host's IP address or URL]:[HTTPS Port]`

Portal URL

☒ Auto Refresh
 ☐ Manual

HTTP redirect to HTTPS for Portal

☐

HTTPS Port for Upgrade

8043

(1024-65535)

HTTPS Port for Portal

8843

(1024-65535)

HTTP Port for Portal

8088

(80 or 1024-65535)

Once applying the change of HTTPS and HTTP port, restart the controller to make the change effective. For security, the HTTPS and HTTP port for Portal should be different from that for controller management.

Device Management

☒ Enable

Device Management Hostname/IP

13.250.230.56

Controller Hostname/IP	Enter the hostname or IP address of the controller which will be used as the Controller URL in the notification email for resetting your controller password. You can keep it default and IP address recognized by the controller will be used as the Controller URL.
Auto Refresh IP	(Only for hardware controller) Enable the feature and the hardware controller will refresh its IP address automatically.

HTTPS Port for Controller Management	Specify the HTTPS port used by the controller for management. After setting the port, you can visit <code>https://[Controller Host's IP address or URL]:[HTTPS Port]</code> to log in to the Controller.
HTTP Port for Controller Management	Specify the HTTP port used by the controller for management. After setting the port, you can visit <code>https://[Controller Host's IP address or URL]:[HTTP Port]</code> to log in to the Controller.
Portal URL	Set the Portal URL. Auto Refresh: The device will automatically use the actual IP address of the Controller as the portal redirection destination. Manual: Manually enter a domain name or IP address that clients can access.
HTTP redirect to HTTPS for Portal	If enabled, clients will be redirected to Captive Portal using HTTPS instead of HTTP.
HTTPS Port for Upgrade	Allows for the independent configuration of the port used exclusively for device firmware upgrades, separate from the management login port.
HTTPS Port for Portal	Specify the HTTPS port used by the controller for Portal.
HTTP Port for Portal	Specify the HTTP port used by the controller for Portal.
Device Management	When enabled, the controller will apply the Device Management Hostname/IP you specified to managed devices for remote management.

4.2 Controller Settings

Launch the controller and access the Global View. Go to **Settings > Controller Settings** (for an on-premises controller) or **Settings > Organization Settings** (for a Cloud-Based Controller).

4.2.1 General Settings

In **General Settings**, you can configure general settings of the controller.

■ **For Hardware Controller and Integrated Gateway (Controller)**

Note: The Country/Region, Time Zone, and Daylight Saving Time settings are the same as those of the default site.

General Settings

Controller Name

Omada Controller_Office

Country/Region

United States

ⓘ

Time Zone

(UTC-08:00) Pacific Time (US & C...

ⓘ

Daylight Saving Time

Manual

ⓘ

- DST is applicable only when the device supports the feature. To make DST work properly, it is recommended to upgrade your devices to the latest firmware version.
- The DST configuration here only takes effect on the controller. To configure the DST for sites, go to the Site Configuration.
- With DST configured, the valid duration of Local User will be influenced accordingly.

Time Offset

60 Minutes

Starts On

Week

1st

Day

Sunday

Month

January

Time

00:00

ⓘ

Ends On

Week

1st

Day

Sunday

Month

January

Time

00:00

ⓘ

Controller Name	Specify the Controller Name to identify the controller.
Country/Region	Select the location of the controller. The configuration here only takes effect on the controller. To configure the Country/Region for sites, go to the Site Configuration.
Time Zone	Select the Time Zone of the controller according to your region. For controller settings and statistics, time is displayed based on the Time Zone. The configuration here only takes effect on the controller. To configure the Time Zone for sites, go to the Site Configuration.
Daylight Saving Time	Enable the feature if your country/region implements DST (Daylight Saving Time).
Time Offset	Select the time added in minutes when Daylight Saving Time starts.
Starts On	Specify the time when the DST starts. The clock will be set forward by the time offset you specify.

Ends On	Specify the time when the DST ends. The clock will be set back by the time offset you specify.
■ For Software Controller / Cloud-Based Controller Controller Settings General Settings Controller Name Omada Controller_CE8354 Country/Region United States Time Zone (UTC) Coordinated Universal Tim... Daylight Saving Time Manual • DST is applicable only when the device supports the feature. To make DST work properly, it is recommended to upgrade your devices to the latest firmware version. • The DST configuration here only takes effect on the controller. To configure the DST for sites, go to the Site Configuration. • With DST configured, the valid duration of Local User will be influenced accordingly.	
Time Offset 60 Minutes Starts On Week 1st Day Sunday Month January Time 00:00 Ends On Week 1st Day Sunday Month January Time 00:00	
Controller Name	Specify the Controller Name to identify the controller.
Country/Region	Select the location of the controller. The configuration here only takes effect on the controller. To configure the Country/Region for sites, go to the Site Configuration.
Time Zone	Select the Time Zone of the controller according to your region. For controller settings and statistics, time is displayed based on the Time Zone. The configuration here only takes effect on the controller. To configure the Time Zone for sites, go to the Site Configuration.
Daylight Saving Time	Enable the feature if your country/region implements DST (Daylight Saving Time).
Time Offset	Select the time added in minutes when Daylight Saving Time starts.
Starts On	Specify the time when the DST starts. The clock will be set forward by the time offset you specify.
Ends On	Specify the time when the DST ends. The clock will be set back by the time offset you specify.

4.2.2 Services

In **Services**, you can configure remote logging and client idle threshold.

Services

Device Web HTTP Access

☒ Enable ⓘ

Device Web HTTPS Access

☒ Enable ⓘ

Device Standalone-Mode App Management

☒ Enable ⓘ

Client Idle Threshold

5

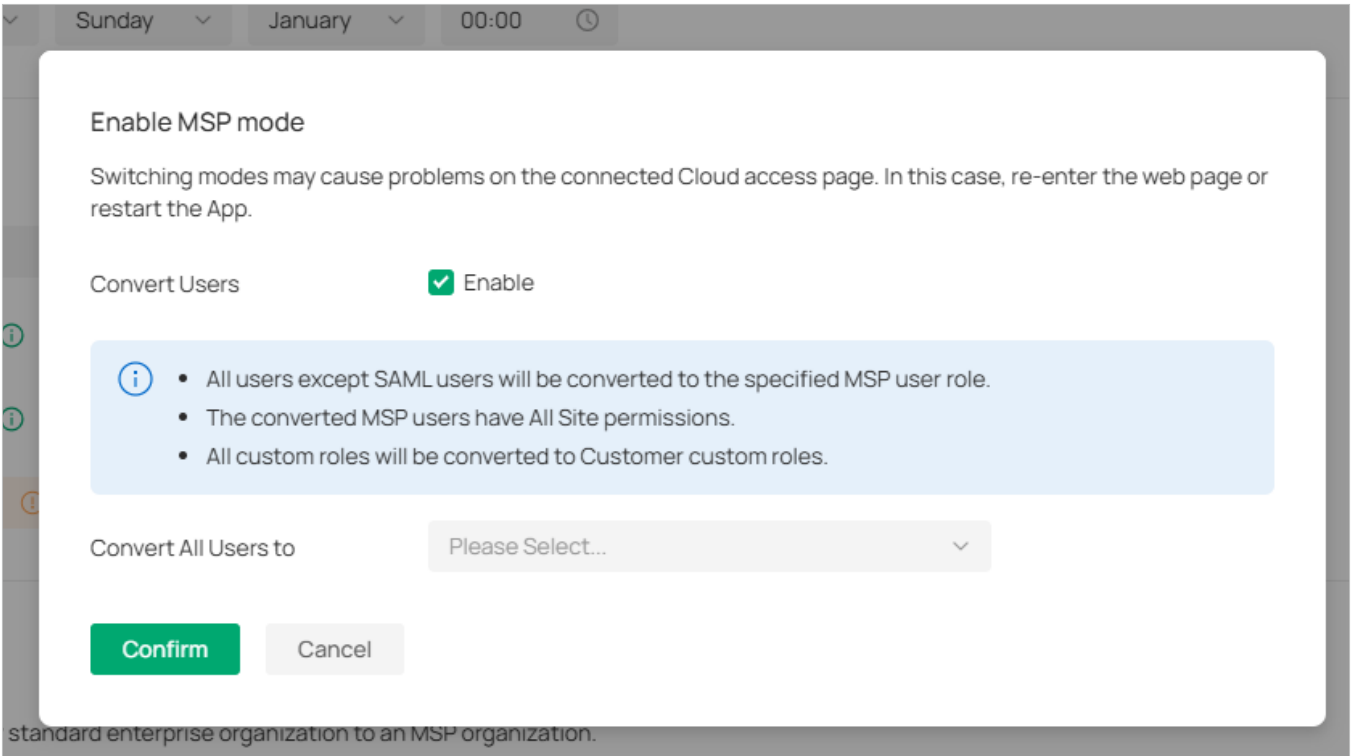
Minutes

(3-10) ⓘ

Device Web HTTP Access	This function controls HTTP access to the web pages of managed Omada devices. If it is turned off, HTTP access to the devices' web pages will be unavailable.
Device Web HTTPS Access	This function controls HTTPS access to the web pages of managed Omada devices. If it is turned off, HTTPS access to the devices' web pages will be unavailable.
Device Standalone-Mode App Management	This function controls whether standalone-mode app management of managed Omada devices is available or not. Turning on this function will enable Device Web HTTPS Access at the same time.
Client Idle Threshold	The controller will consider a client offline (thus disconnect it) when it is idle for longer than the specified threshold. If the specified threshold is too short, clients may be disconnected frequently.

4.2.3 MSP Mode

In **MSP Mode**, you can convert your standard enterprise organization to an MSP organization. For more settings in MSP mode, refer to [10 Manage Customer Networks in MSP Mode](#).



Convert Users	When enabled, all users except SAML users will be converted to the specified MSP user role. The converted MSP users have All Site permissions. All custom roles will be converted to Customer custom roles.
Convert All Users to	Select to convert all users to MSP Admin or MSP Viewer .

4. 2. 4 Join User Experience Improvement Program

You can participate in the user experience improvement program and help improve the quality and performance of TP-Link products by sending statistics and usage information.

Join User Experience Improvement Program

☒

By joining this program, you have fully read and understood our [User Experience Improvement Program Policy](#). You can opt out of the program at any time.

4.3 UI Interaction

In [UI Interaction](#), you can customize the UI interaction settings of the controller according to your preferences.

Launch the controller and access the Global View. Go to [Settings > UI Interaction](#).

UI Interaction

User Interface

MAC Display Format

Lowercase

aa-bb-cc-dd-ee-ff

Custom Labeling of Controller

Label Image

Choose

Label Redirection

(Optional)

Refresh Interval	(Available if you access the controller locally) Select how often the controller automatically refreshes the data displayed on the page.
MAC Display Format	Select the case sensitivity and separator style for all physical addresses displayed in the Controller. You can independently choose the character case and the separator type, which now supports colons, hyphens, or no separators.
Custom Labeling of Controller	When enabled, you can upload a private labeling image to replace the current labeling on the controller web page, and modify the redirect URL. The default label points to https://www.omadanetworks.com. Label Image: Click to upload the labeling image. Only PNG, JPG, JPEG, and BMP images are supported. The image size should be less than 2MB. Label Redirection: Specify the hyperlink URL to redirect after clicking the labeling image.

4.4 History Data Retention

In [History Data Retention](#), you can specify how the controller retains its data.

Launch the controller and access the Global View. Go to [Settings > History Data Retention](#).

History Data Retention

Client Data

Connected Client

1 Year

Client Recognition

Enable

Cloud Access Required

Client Health

Enable

Client History Retention

Enable

Retention Time: -

Data Trend Retention

Enable

Retention Time: 3 Months

Client History

All Time

Client Trend

3 Months

Time-Based Settings

The settings below will affect the graphical display of Statistics and Report.

Time Series with 5 Minutes Granularity

2 Days

Time Series with Hourly Granularity

7 Days

Time Series with Daily Granularity

1 Year

Time Series with Weekly Granularity

1 Year

Others

Portal Authentication Records

All Time

Log

All Time

Interference Detection

All Time

Save

Cancel

Connected Client	Record connected clients according to the time you specified. When the limit is exceeded, the oldest disconnected known client may be deleted.
------------------	--

Client Recognition	With the feature enabled, network devices will report client information in real time to ensure the accuracy of client recognition. Note: This feature requires Cloud Access to be enabled.
Client Health	Controls the calculation of client-level health metrics. When enabled, the system computes health scores for both Client Health and Wi-Fi Health (specifically for Client Access Time and RSSI dimensions).
Client History Retention	Enables the storage of individual client historical activity logs.
Data Trend Retention	Enables the storage of statistical data trends over time. Default retention is typically 3 months.
Client History	Specify the retention time of client online and offline records.
Client Trend	Sets the specific retention period for aggregate client data trends.
Time Series with 5 Minutes Granularity	Displays the retention time of AP, switch, gateway, and client data. Corresponding to 5-minute statistics.
Time Series with Hourly Granularity	Displays the retention time of AP, switch, gateway, and client data. Corresponding to hourly statistics.
Time Series with Daily Granularity	Specify the retention time of AP, switch, gateway, and client data. Corresponding to daily statistics.
Time Series with Weekly Granularity	Specify the retention time of client data. Corresponding to weekly statistics.
Portal Authentication Records	Specify the retention time of portal authorization records. Corresponding to Hotspot - Authorized Clients.
Log	Specify the retention time of logs.
Interference Detection	Specify the retention time of scanned Interference Detection. Corresponding to Network Tools-Interference Detection.

4.5 Server Settings

Launch the controller and access the Global View. Go to [Settings > Server Settings](#).

4.5.1 Mail Server

With the Mail Server, the controller can send emails for resetting your password, pushing notifications, and delivering the system logs. The Mail Server feature works with the SMTP (Simple Mail Transfer Protocol) service provided by an email service provider.

Configuration

1. Log in to your email account and enable the SMTP (Simple Mail Transfer Protocol) Service. For details, refer to the instructions of your email service provider.
2. Launch the controller and access the Global View. Go to [Settings > Server Settings](#). Enable [Mail Server](#) and configure the parameters. Then apply the settings.

Mail Server

With the Mail Server, the controller can send emails for resetting your password, pushing notifications, and delivering the system logs. For security reasons, we recommend that you configure Mail Server carefully.

SMTP

Port

465

(1-65535)

SSL

Enable

Authentication

Enable

Sender Email

Test Email

SMTP	Enter the URL or IP address of the SMTP server according to the instructions of the email service provider.
Port	Configure the port used by the SMTP server according to the instructions of the email service provider.
SSL	Enable or disable SSL according to the instructions of the email service provider. SSL (Secure Sockets Layer) is used to create an encrypted link between the controller and the SMTP server.
Authentication	Enable or disable Authentication according to the instructions of the email service provider. If Authentication is enabled, the SMTP server requires the username and password for authentication.
Username	When Authentication is enabled, enter your email address as the username.

Authorization Code	When Authentication is enabled, enter the authorization code as the password, which is provided by the email service provider when you enable the SMTP service.
Sender Email	(Optional) Specify the email address of the sender. If you leave it blank, the controller will use your current email address.
Test Email	Test the Mail Server configuration by sending a test email to an email address that you specify.

4.5.2 Built-in RADIUS

A RADIUS server maintains a database which stores the identity information of legal users. It authenticates users against the database when the users are requesting to access the network, and provides authorization and accounting services for them.

For the on-premises controller, you can set up the built-in RADIUS server for user authentication.

Note:
Built-in RADIUS server is only available for the Software Controller and Hardware Controller. It has been removed from OC200 due to specification restriction.

RADIUS Server

Built-in RADIUS

Built-in RADIUS

Status

● Disabled

Server Address Type

○ Manually

● Auto

Secret

Password

🔒 ⓘ

Authentication Port

1812

(1-65535)

Enable Tunneled Reply

❑ Enable

ⓘ

Require Message-Authenticator

❑ Enable

ⓘ

Limit Proxy-State

❑ Enable

ⓘ

Server Certificate

File Format

JKS

▼

SSL Certificate

📁 Import

Keystore Password

🔒 ⓘ

Download Root CA

Built-in RADIUS	Toggle on to enable the built-in RADIUS server.
Status	Displays the actual running status of the built-in server

Server Address Type	Specify the built-in server address type. When the controller is on a computer with multiple network adapters, and the type is configured as Auto, the server address will be sent to the device according to the ports connected to the device; when the type is configured as Manual, the user needs to manually configure the server's IP address, which should be the address the device can communicate with
Secret	Specify the RADIUS server key.
Authentication Port	Specify the RADIUS server authentication port.
Enable Tunneled Reply	Enable this option if you want to allow the reply of the Tunneled Reply-related attributes to the device. Only after this switch is enabled can the client be assigned a VLAN
Require Message-Authenticator	When enabled, the built-in RADIUS Server requires all access requests to include the Message-Authenticator attribute. If not included or the validation fails, the message will be discarded.
Limit Proxy-State	When enabled, the built-in RADIUS Server requires all access requests with the Proxy-State attribute to include the Message-Authenticator attribute. If not included or the validation fails, the message will be discarded.
SSL Certificate	Import the SSL certificate to create an encrypted link between the controller and server. JKS: Import your SSL certificate and enter the Keystore Password if your SSL certificate has the password. Otherwise, leave it blank. PFX: Import your SSL certificate and enter the Private Key Password if your SSL certificate has the password. Otherwise, leave it blank. PEM: Import your SSL certificate and SSL Key.
File Format	Select the format of your certificate, and import the certificate file.
Keystore Password	If the certificate you imported has a password, enter the password here. For the PEM-formatted certificate: 1. Starts with: -----BEGIN CERTIFICATE----- - Ends with: -----END CERTIFICATE----- 2. Certificate chain is supported and no blank line is allowed between two certificate chains. For the PEM-formatted key: 1. RSA Encryption is required. 2. Starts with: -----BEGIN RSA PRIVATE KEY----- - Ends with: -----END RSA PRIVATE KEY ----- 3. The key can be placed behind certificate file, and they can be imported together.

Download Root CA	Export the installable built-in authentication server root certificate. If the user uploads a certificate, the root certificate of the uploaded certificate will be exported; otherwise the default root certificate will be exported. The DNS name of the default root certificate is "Omada".
------------------	---

4.5.3 Radius Proxy Server

A Radius proxy authenticates and authorizes users or devices and also tracks the usage of those services. You can configure the Radius Proxy Server for user authentication.

RADIUS Proxy Server

RADIUS Proxy Server

Status

● Disabled

Authentication Port

1812

(1-65535)

Require Message-Authenticator

☐

Enable ⓘ

Limit Proxy-State

☐

Enable ⓘ

Radius Proxy Server	Toggle on to enable the Radius Proxy Server.
Status	Specify the status of the current radius proxy server.
Authentication Port	Specify the port that the controller listens for to receive radius messages from devices.
Require Message-Authenticator	When enabled, the RADIUS Proxy Server requires all access requests and responses to include the Message-Authenticator attribute. If not included or the validation fails, the message will be discarded.
Limit Proxy-State	When enabled, the RADIUS Proxy Server requires all access requests and responses with the Proxy-State attribute to include the Message-Authenticator attribute. If not included or the validation fails, the message will be discarded.

4.6 Account Security

Launch the controller and access the Global View. Go to **Settings > Account Security**.

4. 6. 1 Two-Factor Authentication (2FA)

You can enable Two-Factor Authentication (2FA) to improve the security of the controller.

Two-Factor Authentication (2FA) 

With this function enabled on the controller, all accounts will be forced to enable Two-Factor Authentication (2FA).

Two-Factor Authentication (2FA)	This function improves the security of the controller by requiring two factors of identification to access resources and data. With this function enabled, all accounts will be forced to enable 2FA upon user login. You can also enable 2FA for accounts on the Accounts > User page.
--	---

4.6.2 Controller IP Access Rules

You can enable Controller IP Access Rules, so that only the IPv4 addresses you specified can access the controller locally. IPv6 addresses will be blocked.

Controller IP Access Rules

With this function enabled on the controller, only the IPv4 addresses you specified can access the controller locally. IPv6 addresses will be blocked.

- This function can be configured by the Main Administrator and Super Administrator only.
- The rules take effect as the allow list. Ensure that your access IP is in the list. If you want to allow Dynamic IP, configure it in the form of IP Range or Subnet Mask.
- The IP address of the local PC with the controller installed will not be restricted by this function.

Search IP Description

+ Add IP Address

TYPE	IP ADDRESSES	DESCRIPTION	ACTION
No Data.			

Type	Specify the IP address type: Single IP Address, Single Subnet Mask, or IP Range.
IP Addresses	Specify the IP addresses that are allowed to access the controller.
Description	Enter a description for identification.

4.7 Platform Integration

4.7.1 Open API

Overview

Omada's Open API supports the REST API of most Controller services. This feature allows Omada users to write custom applications, embed APIs, or combine their own applications. The REST API supports HTTP GET and POST operations by providing specific URLs for each query, and the output of these operations is returned in JSON format.

To access the API securely, the Omada API framework supports the OAuth protocol for authentication and authorization, and supports the authorization code mode and client mode.

Access Token provides temporary and secure access to the API. For security reasons, Access Token has a limited lifespan. Access Token in authorization code mode uses the refresh API to obtain a new Access Token, and client mode obtains a new token through clientKey and clientSecret.

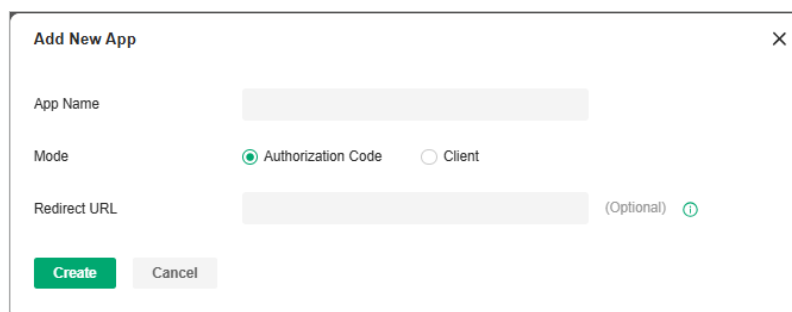
To use the Open API function, first create a new application, the smallest API access unit, which can be specified as client mode or authorization code mode. After creation, you can configure your own application for Open API access.

Configuration

1. In Global View, go to [Settings](#) > [Platform Integration](#) > [Open API](#).
2. Click [Add New App](#).
3. Specify the App name, choose the access mode and configure the parameters.

- **Authorization code mode**

The authorization code grant type is used to obtain both access tokens and refresh tokens and is optimized for confidential clients. Since this is a redirection-based flow, the client must be capable of interacting with the resource owner's user-agent (typically a web browser) and capable of receiving incoming requests (via redirection) from the authorization server.



The screenshot shows a modal window titled "Add New App" with a close button (X) in the top right corner. Inside the modal, there are three main sections: "App Name" with a text input field, "Mode" with two radio button options, "Authorization Code" (which is selected) and "Client", and "Redirect URL" with a text input field. To the right of the "Redirect URL" field is the text "(Optional)" followed by a small circular icon with an "i". At the bottom left of the modal are two buttons: a green "Create" button and a grey "Cancel" button.

Redirect URL

Specify the redirect URL for Oauth2.0 authorization flow.

• **Client mode**

The client can request an access token using only its client credentials (or other supported means of authentication) when the client is requesting access to the protected resources under its control, or those of another resource owner that have been previously arranged with the authorization server (the method of which is beyond the scope of this specification).

Add New App

App Name

Mode

☐ Authorization Code

☒ Client

Role

Role

Privileges

Site Privileges

☐ All sites (including newly created sites)

☒ Sites

Choosing Sites

None

Create

Cancel

Role

Specify the authority role of the client through the Open API.

Site Privileges

Specify the site privileges of the client through the Open API.

4. Apply the settings. The application will be added for Open API access.

APPLICATION	CLIENT ID	CLIENT SECRET	MODE	ACTION
app_01	733a23c22a364225a9e7749c510db9b7		Authorization Code	  
app_02	38c8bba399ec47a5b913d116c736c225		Client	  

Showing 1-2 of 2 records < 1 > 10 / page Go to page Go

For more instructions, click [Online API Document](#) in the upper right corner of the web page to get the Open API Access Guide.

4.7.2 Webhooks

Overview

Webhook is an API concept and one of the usage paradigms of microservice APIs. It is also called a reverse API, that is, the front end does not actively send requests, but is completely pushed by the back

end. In Omada, Webhook is used for the active push function of messages such as alerts.

Configuration

- 1. In Global View, go to [Settings > Platform Integration > Webhooks](#).
- 2. Click [Create New Webhook](#).

Create Webhook

Name

Shared Secret

(Optional)

URL

Payload Template

Omada

Retry Policy

☒ None

☐ Important (Up to 5 retries over 60 minutes)

☐ Critical (Up to 5 retries over 24 hours)

Create

Cancel

Name	Specify the Webhook entry name.
Shared Secret	Specify the authentication secret key. If it is not filled in, the system will automatically generate a key. If it is manually cleared, the system will no longer generate a key.
URL	Specify the Webhook URL address.
Payload Template	Select a template for message push.
Retry Policy	Specify the Webhook retry policy: None (no retry), Important (up to 5 retries over 60 minutes), and Critical (up to 5 retries over 24 hours).

- 3. Save the settings. The webhook entry will be added.

NAME	URL NUM	PAYLOAD TEMPLATE	WEBHOOK ID	SHARED SECRET	LAST UPDATE	RETRY POLICY	ACTION
webhook_01	1	Omada	5188a5900d1688109bdc369e2c38762e	31c968b2-bd35-4a7f-871c-e1f72862cd81	Feb 12, 2025 04:27:41 am	None	

You can click the icon in the ACTION column to test the connectivity, view the dispatch logs, and edit, or delete the Webhook entry.

4.8 SAML SSO

Overview

SAML (Security Assertion Markup Language) SSO (Single Sign On) enables clients to access multiple web applications using one set of login credentials. To complete the SAML SSO interconnection, the system administrator needs to configure the IdP (identity provider) information when the current system serves as the SP (service provider), or configure the SP information when the current system serves as the IdP.

Prerequisites

- This chapter takes the configuration of the current system as an example to explain the operation. Other systems also need to be configured. SAML SSO works only after all systems are configured.
- If you need to connect with other systems that serve as the IdP, please obtain the metadata file of the IdP first, then configure the SP.
- If you need to connect with a third-party IdP, please configure the third-party IdP first and obtain its metadata file.

Configuration

1. Configure the SAML user group.
 - a. In Global View, go to [Accounts > SAML User Group](#).
 - b. Click [Add New SAML User Group](#). Configure the parameters and click [Create](#).

← Add New SAML User Group

Role

SAML User Group Name

samlRole

Valid Period

☐ Permanent

☒ Temporary

Oct 01, 2025

–

Oct 04, 2025

Role

Admin

The selected role includes the permission to create new users.

Privileges

Site Privileges

☒ All sites (including newly created sites)

☐ Specific sites

SAML User Group Name	Specify the role name.
----------------------	------------------------

Valid Period	Set the validity period of the user. Permanent: The user account will have permissions permanently unless modified or deleted. Temporary: The user account will have permissions only in the period you set. Note that Temporary Users don't have account-related permissions, including permissions such as User Manager, Roles Manager, SAML User Group Manager, SAML Users Manager, and SAML SSO Manager.
Role	Specify the authority role of the account.
Site Privileges	Specify the site privileges of the client through the Open API.

2. Configure the IdP.

Use a third-party system as the IdP and follow the steps below to configure the parameters:

- Create an IdP. Fill in the initial information except the name.
- Use the IdP metadata information for SP configuration on the Controller.
- Edit the IdP information, including Entity ID, Sign-On URL, and Relay State.

Note:

- The above three parameters use the information of View SAML Attribute in SP configuration.
- Relay State is base64(resourceId_omadId).
- Edit the Attribute, and configure the username and usergroup_name. The usergroup_name is the **SAML User Group Name** you configured in step 1.

3. Configure the SP.

Use the Controller as the SP and follow the steps below to configure the parameters:

- In Global View, go to **Settings > SAML SSO**.
- Click **Add New SAML Connection**.

Identity Provider Name	Specify the IdP name.
Description	Enter a description for identification.

Configuration Method

Configure the metadata. You can upload the metadata file, use URL parsing, or manually fill in the information.

- c. Click [View SAML Attribute](#) to view the SP configuration. This will be used for IdP configuration on the third-party system.

Subsequent Processing

After configuring all systems, verify whether the SAML SSO configuration is successful as follows:

1. In the configured IdP system, find the SP login entry and click to log in.
2. On the login page, enter the Username and Password to log in.
3. Go to the SP system and verify that the user has logged in.

For more instructions, refer to [How to Configure SAML SSO on Omada Controller](#).

4.9 Maintenance

You can back up the configuration and data of your controller to prevent any loss of important information.

If necessary, restore the controller to a previous status using the backup file.

4.9.1 Backup

Launch the controller and access the Global View. Go to **Settings > Maintenance**. In **Backup**, click **Export** to export and save the backup file.

If you want to export the data to a file server, configure the parameters accordingly and click **Export**.

Backup

Backup Contents

☒ Settings

☒ User Info ⓘ

☒ Authenticated Clients ⓘ

☒ Firmware Update Logs

Retained Data Backup

7 Days ▾

ⓘ Only the selected items will be included in the backup. All other data is not included and will be lost when restoring the backup file.

Export

☒ Export to Local File

☐ Export to File Server

☐ Export to Local Disk

Export

Backup Contents

Select the data contents to back up.

Settings: All the controller settings will be backed up.

User Info: All local and cloud user information except for the main admin will be retained. Make sure Cloud Access is enabled on the Controller to be restored. Otherwise the Cloud account will not be retained correctly.

Authenticated Clients: The authenticated client information will be backed up and can be used to verify clients for portal authentication. It is recommended to select this option if your network uses portal authentication.

Firmware Update Logs: The firmware update logs will be backed up.

Retained Data Backup

Select the length of time in days that data will be backed up.

7 Days/30 Days/60 Days/90 Days/180 Days/365 Days: Back up the data in the recent days.

All Time: (Only for Software Controller) Back up all data in the controller.

Export

Select where you want to export the data to.

Export to Local File:

Export and save the data locally. It is not supported when accessing the controller via cloud.

Export to File Server:

Export and save the data to a file server. Select the desired file server type (FTP / TFTP / SFTP / SCP) and configure the parameters.

Export to Local Disk:

Export and save the data to the controller’s installation directory.

If you export backup files to local disk, you can view them in [Backup Files List](#).

Backup Files List				
File Name	Backup Time	Size	Action	
omada_backup_6.3.0.28_2026-07-27_14-19-37.cfg	2026-07-27 02:19:37 pm	863.05 KB	 	

You can click the icons in the [Action](#) column to restore or delete the backup file.



Restore the configurations and data in the backup file. All current configurations will be replaced after the restoration.

To keep the backup data safe, please wait until the operation is finished. This will take several minutes.



Delete the backup file.

4.9.2 Backup Schedule

With Backup Schedule enabled, the controller will be scheduled to back up the configurations and data automatically at the specified time. You can easily restore the configurations and data when needed.

Note:

- On Omada Cloud-Based Controller, there is no need to configure Backup Schedule. It will automatically save the configurations and data on the cloud.

Launch the controller and access the Global View. Go to [Settings > Maintenance](#). In [Backup Schedule](#), enable Backup Schedule and configure the parameters. Click [Save](#).

Backup Schedule

Backup Schedule

Occurrence

Every

Month

on

1

at

12:00

in Coordinated Universal Time

Backup Contents

Configuration File:

Settings

User Info

Authenticated Clients

Firmware Update Logs

Data:

Client List

Alert & Event List

Audit Log List

Retained Data Backup

30 Days

Except for the selected backup contents, all data will not be backed up.

Storage

Save to Local File (the same path as the controller software)

Save to File Server

Maximum Number of Files

7

(1-100)

Save

Cancel

Occurrence

Specify when to perform Auto Backup regularly. Select **Every Day**, **Week**, **Month**, or **Year** first and then set a time to back up files.

Note the time availability when you choose **Every Month**. For example, if you choose to automatically backup the data on the 31st of every month, Backup Schedule will not take effect when it comes to the month with no 31st, such as February, April, and June.

Backup Contents

Select the data contents to back up.

Settings: All the controller settings will be backed up.

User Info: All local and cloud user information except for the main admin will be retained. Make sure Cloud Access is enabled on the Controller to be restored. Otherwise the Cloud account will not be retained correctly.

Authenticated Clients: The authenticated client information will be backed up and can be used to verify clients for portal authentication. It is recommended to select this option if your network uses portal authentication.

Firmware Update Logs: The firmware update logs will be backed up.

Known Clients: Back up the list of the known clients.

Past Connections: Back up the list of the past connections. To export past connections data, you need to first enable Client's History Data in [5.4 History Data Retention](#).

Logs: Back up the list of the logs.

Audit Log List: Back up the list of the audit logs.

Retained Data Backup	Select the length of time in days that data will be backed up. 7 Days/30 Days/60 Days/90 Days/180 Days/365 Days: Back up the data in the recent days. All Time: (Only for Software Controller) Back up all data in the controller.
Storage	Select where you want to save the backup file. Save to Local File: The backup file will be saved as a local file. Save to File Server: The backup file will be saved in the specified file server.
Saving Path	(Only for Hardware Controller) Select a path to save the backup files.
Maximum Number of Files	(When selecting Save to Local File) Specify the maximum number of backup files to save.
Type	(When selecting Save to File Server) Specify the file server you are using. Four types of file server are available: FTP, TFTP, SFTP, and SCP.
Server Hostname/IP	(When selecting Save to File Server) Specify the Hostname/IP corresponding to the file server.
Port	(When selecting Save to File Server) Specify the port corresponding to the file server.
FTP Username	(When selecting FTP as File Server) Specify the username of the FTP file server.
FTP Password	(When selecting FTP as File Server) Specify the password of the FTP file server.
SFTP Username	(When selecting SFTP as File Server) Specify the username of the SFTP file server.
SFTP Password	(When selecting SFTP as File Server) Specify the password of the SFTP file server.
SCP Username	(When selecting SCP as File Server) Specify the username of the SCP file server.
SCP Password	(When selecting SCP as File Server) Specify the password of the SCP file server.
File Path	(When selecting Save to File Server) Specify the file path.

You can view the name, backup time and size of backup files in [Backup Files List](#).

Backup Files List			
FILE NAME	BACKUP TIME	SIZE	ACTION
autobackup_5.15.20.11_NoLimit_2025-02-11_19-23-00_1739330580010.cfg	2025-02-11 07:23:00 pm	7.78 KB	  
autobackup_5.15.20.11_2025-02-11_19-23-00_1739330580010_NoLimit_data.zip	2025-02-11 07:23:00 pm	953 B	 

To restore, export or delete the backup file, click the icon in the [Action](#) column.

	Restore the configurations and data in the backup file. All current configurations will be replaced after the restoration. To keep the backup data safe, please wait until the operation is finished. This will take several minutes.
	Export the backup file. The exported file will be saved in the saving path of your web browser.
	Delete the backup file.

Note:

If the backup file is saved to file server and the type SCP / TFTP is selected, it will not included in the Backup Files List, and it cannot be exported, restored, or deleted.

4. 9. 3 **Restore**

If you want to restore using the configuration file stored in the local PC or a file server, follow the steps below:

Launch the controller and access the Global View. Go to **Settings > Maintenance**. In **Restore**, click **Browse** and select a backup file from your computer or file server. Click **Restore**.

Restore

Import

☒ Import from Local File ☐ Import from File Server

Retain Device Info

☒ Enable

Restore

Please select a file.

Browse

Restore

i

Note:

- The controller will be restored to the selected file and all current configurations will be lost.
- Only the configuration file of controller v5.0.x or above is supported.
- The current controller only supports the configuration file of the controller with the same or a smaller first-three-part version number (Major.Minor.Patch).

Import	Select where you store the restore file. Import from Local File: Import the data locally. It is not supported when accessing the controller via cloud. Import from File Server: Import the data from a file server. Select the desired file server type (FTP / TFTP / SFTP / SCP) and configure the parameters.
Retain Device Info	Select this option if you want to retain device information.

Restore

Select the backup file to restore the information.

If you want to restore using the configuration file stored in the local disk (the controller’s installation directory), follow the steps below:

Launch the controller and access the Global View. Go to **Settings > Maintenance**. In **Backup**, click **Export to Local Disk** to display the **Backup Files List**. Select a backup file and click the Restore icon in the **Action** column to restore it.

Backup

Backup Contents

☒ Settings

☒ User Info ⓘ

☒ Authenticated Clients ⓘ

☒ Firmware Update Logs

Retained Data Backup

7 Days

ⓘ Only the selected items will be included in the backup. All other data is not included and will be lost when restoring the backup file.

Export

☐ Export to Local File

☐ Export to File Server

☒ Export to Local Disk

Export

Successfully Backup

100%

Backup Files List

File Name	Backup Time	Size	Action
omada_backup_6.3.0.28_2026-07-27_16-29-56.cfg	2026-07-27 04:29:56 pm	863.05 KB	

4.10 Migration

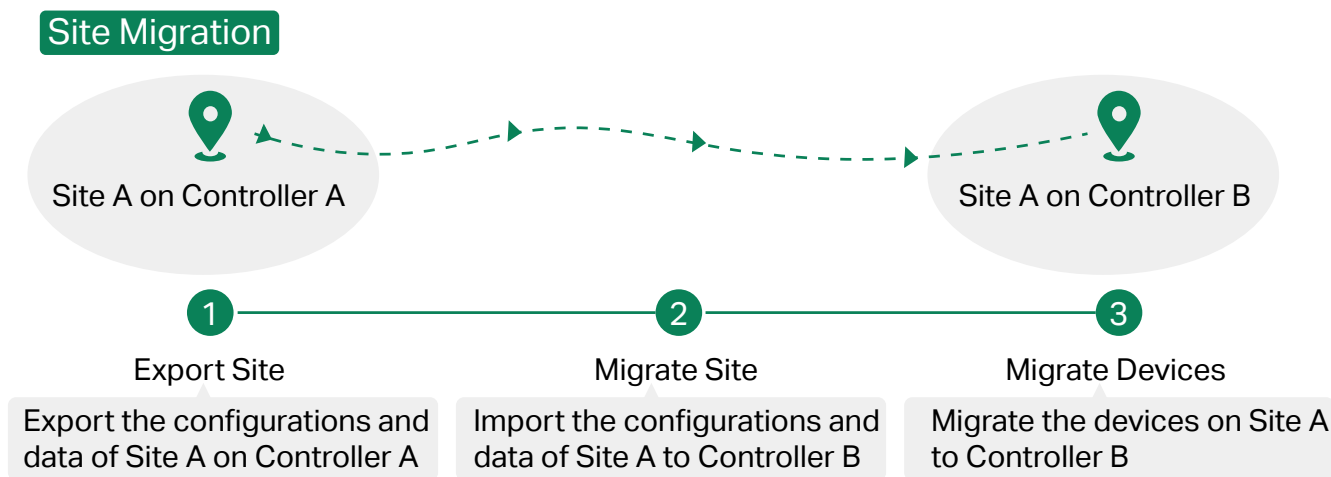
Migration services allow users to migrate the configurations and data to any other controller. Migration services include Site Migration and Controller Migration, covering all the needs to migrate both a single site and the whole controller.

4.10.1 Site Migration

Overview

Site Migration allows the administrators to export a site from the current controller to any other controller that has the same version. All the configurations and data of the site will be migrated to the target controller.

The process of migrating configurations and data from a site to another controller can be summarized in three steps: Export Site, Migrate Site and Migrate Devices.



Step 1: Export Site

Export the configurations and data of the site to be migrated as a backup file.

Step 2: Migrate Site

In the target controller, import the backup file of the original site.

Step 3: Migrate Devices

Migrate the devices which are on the original site to the target controller.

Configuration

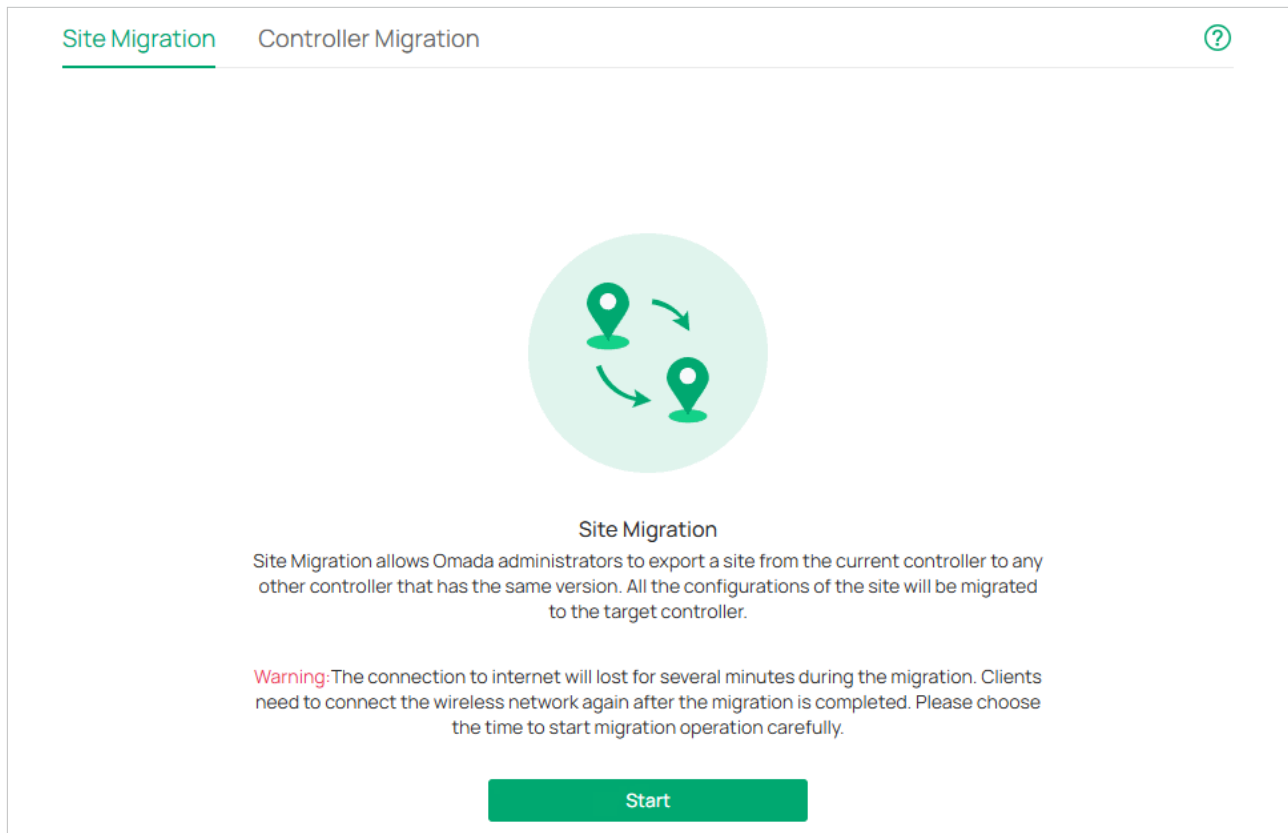
To migrate a site to another controller, follow these steps below.

Note:

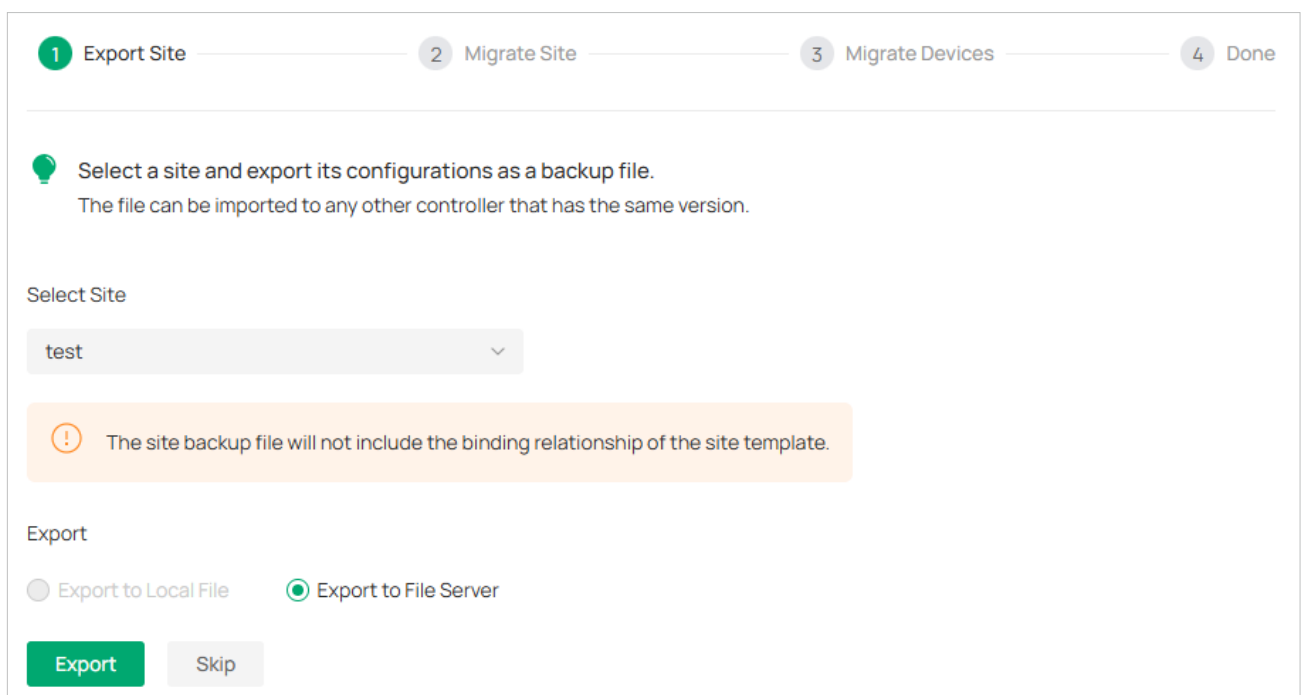
The connection to internet will be lost for several minutes during the migration. Clients need to connect the wireless network again after the migration is completed. Please choose the time to start migration operation carefully.

Step 1: Export Site

1. Launch the controller and access the Global View. Go to **Settings > Migration**. On the **Site Migration** tab, click the start button.

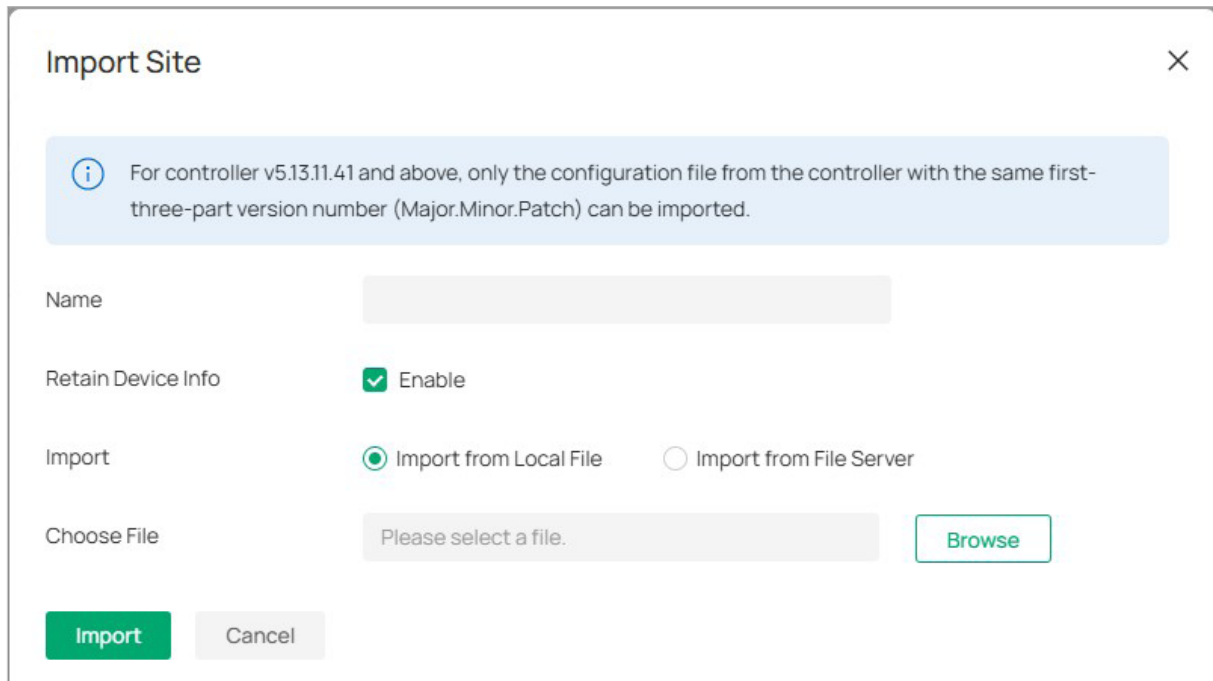


2. Select the site to be imported into the second controller in the **Select Site** drop-down list. Select where you want to export and save the backup file. Click **Export** to download the file of the current site. If you have backed up the file, click **Skip**.



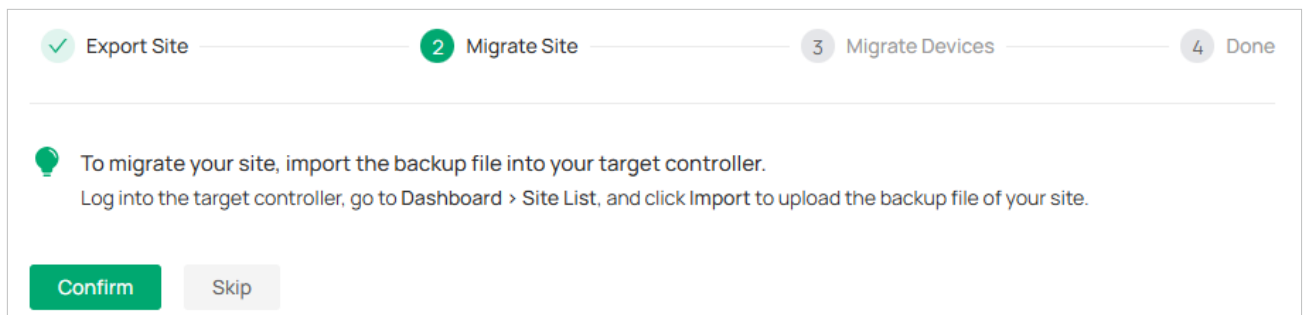
Step 2: Migrate Site

1. Start and log in to the target controller, access the Global View, go to [Dashboard](#) > [Site List](#), and click [Import Site](#) to upload the backup file of your site, and then the following window will pop up. Note that for organization v5.13.11.41 and above, only the configuration file from the organization with the same first-three-part version number (Major.Minor.Patch) can be imported.



The 'Import Site' dialog box features a title bar with a close button (X). Below the title is an information banner with a blue background and a white 'i' icon, stating: 'For controller v5.13.11.41 and above, only the configuration file from the controller with the same first-three-part version number (Major.Minor.Patch) can be imported.' The main area contains a 'Name' text input field. Below it is a 'Retain Device Info' section with a checked checkbox and the label 'Enable'. The 'Import' section has two radio buttons: 'Import from Local File' (selected) and 'Import from File Server'. Below the radio buttons is a 'Choose File' section with a text input field containing 'Please select a file.' and a green 'Browse' button. At the bottom are two buttons: a green 'Import' button and a grey 'Cancel' button.

2. Enter a unique name for the new site. Click [Browse](#) to upload the file of the site to be imported and click [Import](#) to import the site.
3. After the file has been imported to the target controller, go back to the previous controller and click [Confirm](#).



The progress bar shows four steps: 'Export Site' (completed with a green checkmark), '2 Migrate Site' (current step, highlighted with a green circle), '3 Migrate Devices' (grey circle), and '4 Done' (grey circle). Below the progress bar is a light blue box with a light blue lightbulb icon and the text: 'To migrate your site, import the backup file into your target controller. Log into the target controller, go to Dashboard > Site List, and click Import to upload the backup file of your site.' At the bottom are two buttons: a green 'Confirm' button and a grey 'Skip' button.

Step 3: Migrate Devices

1. Enter the IP address or URL of your target controller into Controller IP/Inform URL input field. In this

case, the IP address of the target controller is 10.0.3.23.

✓ Export Site

✓ Migrate Site

3 Migrate Devices

4 Done

💡

Select the devices to be migrated and enter the URL or IP address of your target controller.
The selected devices will try to discover the target controller.

Controller IP/Inform URL

10.0.3.23

Note:
Make sure that you enter the correct IP address or URL of the target controller to establish the communication between managed devices and your target controller. Otherwise the managed devices cannot be adopted by the target controller.

2. Select the devices that are to be migrated by clicking the box next to each device. By default, all the devices are selected. Click **Migrate Devices** to migrate the selected devices to the target controller.

✓ Export Site

✓ Migrate Site

3 Migrate Devices

4 Done

💡

Select the devices to be migrated and enter the URL or IP address of your target controller.
The selected devices will try to discover the target controller.

Controller IP/Inform URL

10.0.3.23

Device List:

Search Name/Model

Q

✓	DEVICE NAME	STATUS	MODEL
✓	 OC-EF	CONNECTED 	EAP683 UR
✓	 E0-D3	CONNECTED	EAP655-Wall

<

1

>

10 /page

▼

Select 2 of 2 items [Unselect All](#)

Migrate Devices

3. Verify that all the migrated devices are visible and connected on the target controller. When all the migrated devices are in Connected status on the Device page on the target controller, click **Forget**

Devices to finish the migration process.

✓ Export Site

✓ Migrate Site

✓ Migrate Devices

4 Done

💡 Migration succeeded! We suggest you forget the successfully migrated devices.
Go to the Device page of your target controller and check if the migrated devices are visible and connected. This process may take several minutes.

✓	DEVICE NAME	STATUS	MODEL	ACTION
✓	 OC-EF- 	DISCONNECTED 	EAP683 UR	Cancel Migration
✓	 E0-D3- 	DISCONNECTED 	EAP655-Wall	Cancel Migration

< 1 >

10 /page

Select 2 of 2 items [Unselect All](#)

Forget Devices

Skip

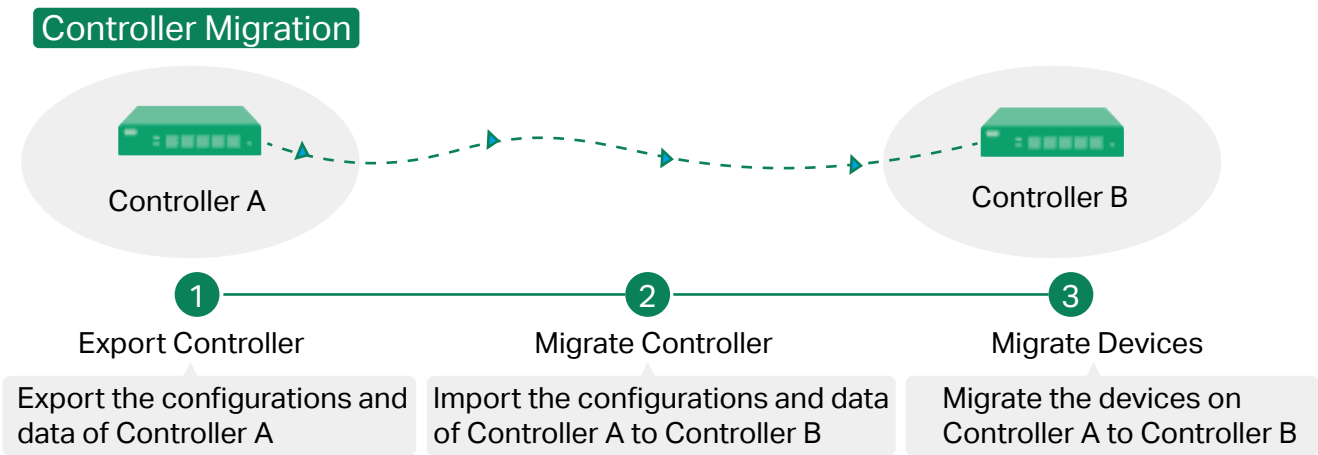
4. When the migration process is completed, all the configuration and data are migrated to the target controller. You can delete the previous site if necessary.

4. 10. 2 Controller Migration

Overview

Controller Migration allows administrators to migrate the configurations and data from the current controller to any other controller that has the same version.

The process of migrating configurations and data from the current controller to another controller can be summarized in three steps: Export Controller, Migrate Controller and Migrate Devices.



Step1: Export Controller

Export the configurations and data of the current controller as a backup file.

Step2: Migrate Controller

In the target controller, import the backup file of the current controller.

Step3: Migrate Devices

Migrate the devices on the current controller to the target controller.

Configuration

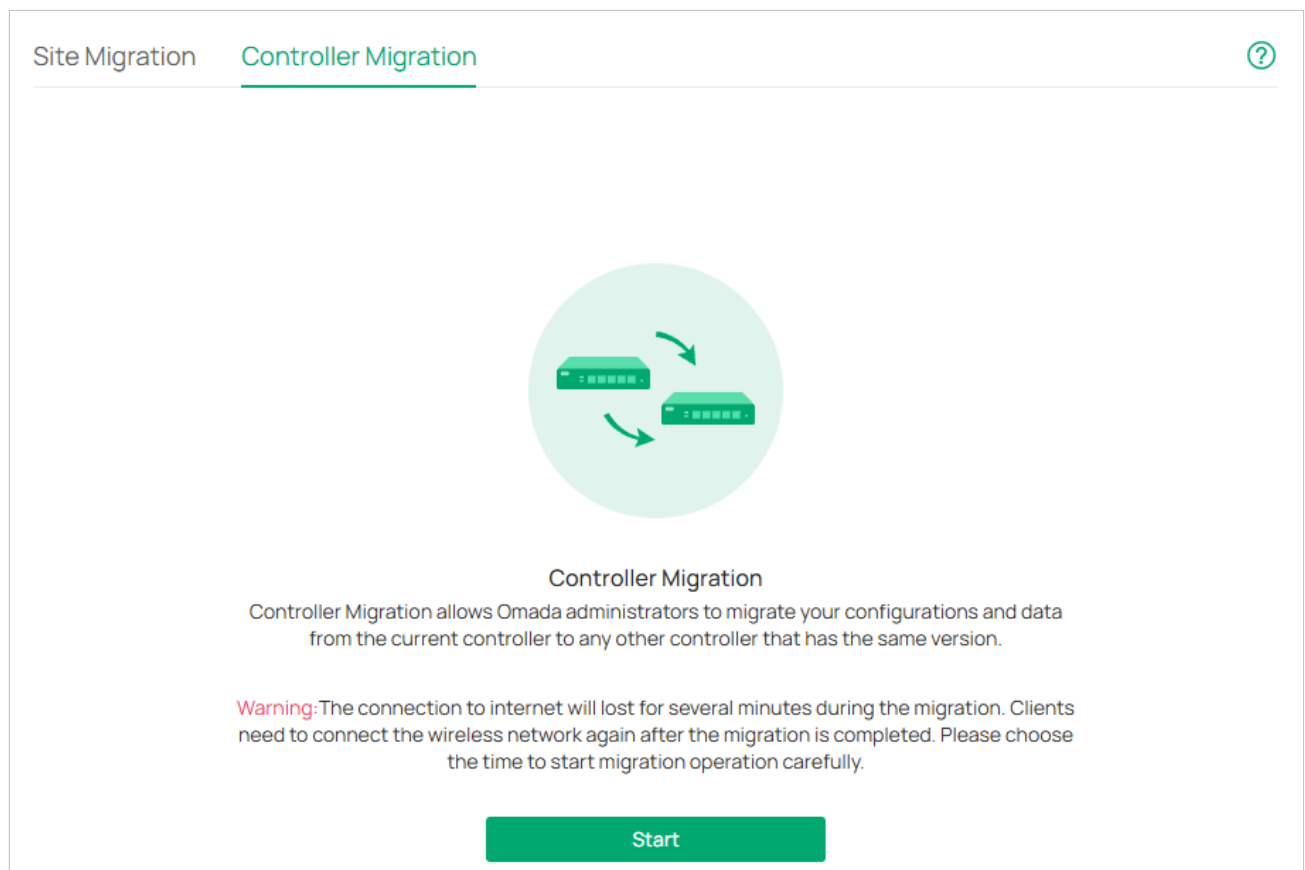
To migrate your controller, follow these steps below.

Note:

The connection to internet will be lost for several minutes during the migration. Clients need to connect the wireless network again after the migration is completed. Please choose the time to start migration operation carefully.

Step1: Export Controller

1. Launch the controller and access the Global View. Go to [Settings > Migration](#). On the Controller Migration tab, click the start button on the following page.



2. Select the length of time in days that data will be backed up in the [Retained Data Backup](#), and where you want to export and save the data. Click [Export](#) to export the configurations and data of your

current controller as a backup file. If you have backed up the file, click [Skip](#).

The screenshot shows a four-step migration wizard. Step 1, 'Export Controller', is active. It contains a lightbulb icon and text: 'Export the configurations and data of your current controller as a backup file. The file can be imported to any other controller that has the same version.' Below this is a section titled 'Backup Contents' with four checkboxes: 'Settings' (checked), 'User Info' (unchecked with an info icon), 'Authenticated Clients' (unchecked with an info icon), and 'Firmware Update Logs' (unchecked). Under the 'Export' section, there are two radio buttons: 'Export to Local File' (unchecked) and 'Export to File Server' (checked). At the bottom are two buttons: 'Export' (green) and 'Skip' (grey).

Step2: Migrate Controller

1. Log in to the target controller. Launch the controller and access the Global View. Go to [Settings](#) > [Maintenance](#) > [Restore](#). Click [Browse](#) to locate and choose the backup file of the previous controller. Then click [Restore](#) to upload the file.

The screenshot shows the 'Restore' configuration screen. It has a title 'Restore'. Under the 'Import' section, there are two radio buttons: 'Import from Local File' (checked) and 'Import from File Server' (unchecked). Under the 'Retain Device Info' section, there is a checked checkbox labeled 'Enable'. In the 'Restore' section, there is a text input field with the placeholder 'Please select a file.' and a green 'Browse' button to its right. At the bottom left is a green 'Restore' button with an info icon to its right.

2. After the file has been imported to the target controller, go back to the previous controller and click

Confirm.

✓ Export Controller

2 Migrate Controller

3 Migrate Devices

4 Done

 Log into the target controller and go to Maintenance- Backup & Restore and upload the backup file of your controller.

Confirm

Skip

Step3: Migrate Devices

1. Enter the IP address or URL of your target controller into Controller IP/Inform URL input field. In this case, the IP address of the target controller is 10.0.3.23.

✓ Export Controller

✓ Migrate Controller

3 Migrate Devices

4 Done

 Select the devices to be migrated and enter the URL or IP address of your target controller.
The selected devices will try to discover the target controller.

Controller IP/Inform URL

10.0.3.23

Note:

Make sure that you enter the correct IP address or URL of the target controller to establish the communication between managed devices and your target controller. Otherwise the managed devices cannot be adopted by the target controller.

2. Select the devices that are to be migrated by clicking the box next to each device. By default, all the

devices are selected. Click [Migrate Devices](#) to migrate the selected devices to the target controller.

✓ Export Controller

✓ Migrate Controller

3 Migrate Devices

4 Done

💡

Select the devices to be migrated and enter the URL or IP address of your target controller.
The selected devices will try to discover the target controller.

Controller IP/Inform URL

10.0.3.23

Device List:

Search Name/Model

Q

✓		DEVICE NAME	STATUS	MODEL	SITE NAME
✓	+ 	Stack STACK		-	MySite
✓		PoE Switch	CONNECTED	SG3210XHP-M2	MySite

< 1 >

10 /page ▾

Select 2 of 2 items [Unselect All](#)

Migrate Devices

3. Verify that all the migrated devices are visible and connected on the target controller. When all the migrated devices are in Connected status on the Device page on the target controller, click [Forget Devices](#) to finish the migration process.

✓ Export Controller

✓ Migrate Controller

✓ Migrate Devices

4 Done

 Migration succeeded! We suggest you forget the successfully migrated devices.
Go to the Device page of your target controller and check if the migrated devices are visible and connected. This process may take several minutes.

✓		DEVICE NAME	STATUS	MODEL	SITE NAME	ACTION
✓	+ 	Stack STACK		-	MySite	Cancel Migration
✓		PoE Switch	DISCONNECTED 	SG3210XHP-M2	MySite	Cancel Migration

< 1 >

10 /page ▾

Select 2 of 2 items [Unselect All](#)

Forget Devices

Skip

When the migration process is completed, all the configuration and data are migrated to the target controller. You can uninstall the previous controller if necessary.

4. 11 Export Data

4. 11. 1 Export Data

You can export data to monitor or debug your devices.

Launch the controller and access the Global View. Go to [Settings > Export Data](#). Select the type of data from the export list and click [Export](#).

Export Data

Export Data

Export List

Device List

Mode

☒ Default Columns

☐ All Columns

☐ Current Display Columns

If you select All or Current Display Columns, data exporting will be time-consuming if there are lots of devices.

Format

XLSX

Export

Export List	Device List: Export the list of managed devices. Client List (All): Export the list of all clients that are connected to the networks. Alert & Event List: Export the list of the alerts and events. Audit Log List: Export the list of the audit logs. Authorized Client List: Export the list of authorized clients. Voucher Codes: Export the list of the voucher codes. Client Connection Records: Export the list of the client connection records. Threat Management: Export the list of the threat management data.
Mode	Select the columns to export. We recommend selecting Default Columns , which include commonly needed columns such as DEVICE NAME, MAC ADDRESS, MODEL, etc. If you select All Columns or Current Display Columns , data exporting will be time-consuming if there are lots of devices.
Format	The data can be exported to the file in the format of .CSV or .XLSX.

4. 11. 2 Export for Support

In [Export for Support](#), you can export configuration data and running logs for technical support to

diagnose network problems. The exported data will not contain users' personal information.

Export for Support

Export configuration data and running logs for technical support to diagnose network problems. The exported data will not contain users' personal information.

Export Running Logs

Export Configuration Data

Export Running Logs	Click to export running logs.
Export Configuration Data	Click to export configuration data.

Note:
Configuration data cannot be imported into the controller through restore.

4. 11. 3 Auto Send Data to Email

In **Auto Send Data to Email**, you can send the data report to the specified email addresses regularly.

Auto Send Data to Email

Send data to the specified email addresses regularly.

Send Email

☒ Enable

Data Content

☒ Device List

Report Name

Report Type

☐ CSV ☒ XLSX

Occurrence

Every Day at 00:00 in Chennai, Kolkata, Mumbai, New Delhi ⓘ

Send To Email Address

Enter the email addresses and tap Enter after each email address. (Each Controller can send up to 100 emails every 24 hours via Cloud Access.)

Send to

Apply

Cancel

Data Content	Specify the data content to send.
--------------	-----------------------------------

Report Name	Specify the name of the data report.
Report Type	Specify the file format of the data report.
Occurrence	Specify the time to send the data report.
Send to	Specify the email to send the data report.
Note: Cloud Access or SMTP is required to enable the Send Email feature.	

4.12 Cloud Access

Overview

With Cloud Access, it is convenient for you to manage your controller from anywhere, as long as you have access to the internet.

Configuration

To manage your controller from anywhere, follow these steps:

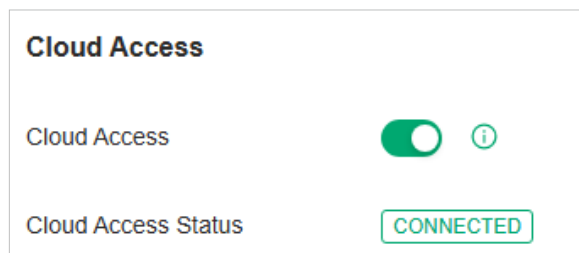
1. Prepare your controller for Cloud Access

■ For Software Controller / Hardware Controller:

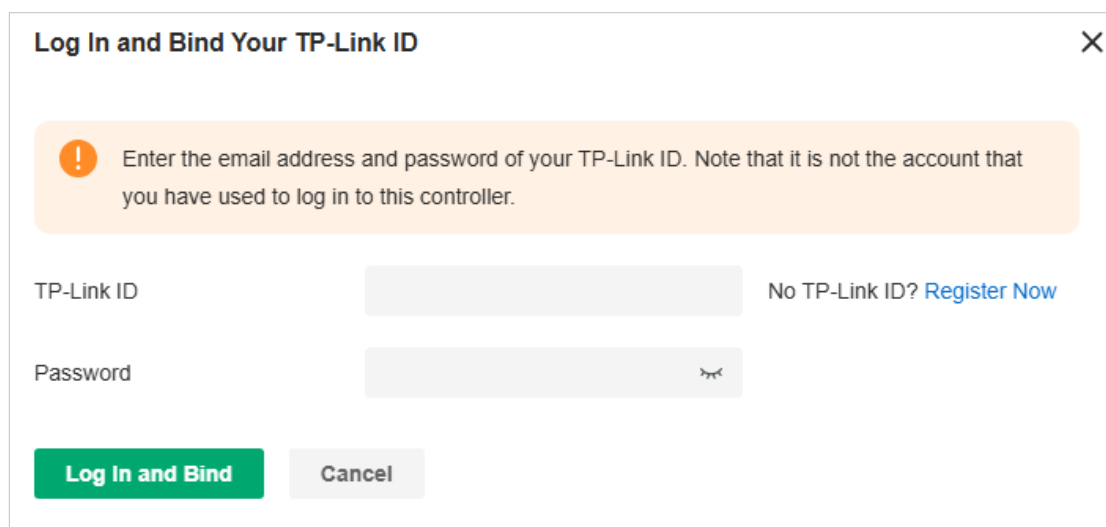
Note:

- Before you start, make sure your Software Controller Host or Hardware Controller has access to the internet.
- If you have enabled cloud access and bound your TP-Link ID in the quick setup wizard, skip this step.

- 4) Launch the controller and access the Global View. Go to [Settings > Cloud Access](#). Enable Cloud Access.



- 5) Enter your TP-Link ID and password. Then click [Log In and Bind](#).



■ For Cloud-Based Controller

Your Cloud-Based Controller is based on the Cloud, so it is naturally accessible through Cloud Service.

No additional preparation is needed.

2. Access your controller through Cloud Service

Go to <https://omada.tplinkcloud.com> and login with your TP-Link ID and password. A list of controllers that have been bound with your TP-Link ID will appear. Then click the launch icon in the Action column to manage the controller.

ORGANIZATION NAME	TYPE	SITE NUMBER	DEVICE NUMBER	ALERT NUMBER	ACTION
☆ TestJ	Standard	2	0	0	 
☆ test	Standard	1	0	0	 
☆ Test_2	Standard	0	0	0	 

Showing 1-3 of 3 records < 1 > 10 / page Go to page

Chapter 5

Configure General Network Settings

This chapter guides you on how to configure general network settings with the Omada Controller. The chapter includes the following sections:

- [5. 1 Configure Site Settings](#)
- [5. 2 Configure SSH Settings](#)
- [5. 3 Configure Reboot Schedules](#)
- [5. 4 Configure Port Schedules](#)
- [5. 5 Configure mDNS Settings](#)
- [5. 6 Configure Bonjour Service](#)
- [5. 7 Configure SNMP Settings](#)
- [5. 8 Configure VoIP Settings](#)
- [5. 9 Use CLI Configuration](#)

5.1 Configure Site Settings

1. Launch the controller and access a site.
2. Go to **Network Config > General Settings > Site Settings**.

Site Settings

Site Configuration

Site Name

site1

Application Scenario

Office

Country/Region

United States

Time Zone

(UTC-08:00) Pacific Time (US & Canada)

Network Time Protocol

☐ Enable

Daylight Saving Time

Disabled

Longitude

(Optional)

Latitude

(Optional)

Address

(Optional)

Refresh

Inform URL

omada://192.168.0.1?dPort=29810&mPort=29814&omadaId=686b223db5b75b3b07f84a00

Copy URL

General Config

Save

Cancel

3. Configure the parameters according to actual site needs.

- Site Configuration

In Site Configuration, you can view and modify the site name, location, time zone, and application scenario of the current site.

Site Name	Specify the name of the current site. It should be no more than 64 characters.
Application Scenario	Specify the application scenario of the site. To customize your scenario, click Create New Scenario in the drop-down list.
Country/Region	Select the location of the site.
Time Zone	Select the time zone of the site.
Network Time Protocol	Enter the IP address(es) of the NTP (Network Time Protocol) server. NTP server assigns network time to the AP devices.
Daylight Saving Time	Enable the feature if your country/region implements DST.
Time Offset	Select the time added in minutes when Daylight Saving Time starts.
Starts On	Specify the time when the DST starts. The clock will be set forward by the time offset you specify.
Ends On	Specify the time when the DST ends. The clock will be set back by the time offset you specify.

Longitude / Latitude / Address	Configure the parameters according to where the site is located. These fields are optional.
Inform URL	Site Inform URL adds site information based on the Controller Inform URL to inform devices of the controller's URL or IP address as well as site info. Then the devices make contact with the controller so the controller can discover them and adopt them to the site.

- General Config

In General Config, you can control the LED status of devices in the site, remember all devices in the site, configure the controller to send generated system logs to the log server.

LED	Enable or disable LEDs of all devices in the site. By default, the device follows the LED setting of the site it belongs to. To change the LED setting for certain devices, configure the devices on the Devices page.
Switch Jumbo	Specifies the maximum Ethernet frame size used within the site (1518–9216 bytes). Set this value only if all devices and endpoints on the same traffic path support the configured size. A mismatch may cause packet loss or connectivity issues.
Switch LAG Hash Algorithm	Defines how traffic is distributed across aggregated links in this site. Different options use different packet attributes (such as source/destination MAC, IP address, or TCP/UDP ports) to calculate forwarding paths. Select an algorithm based on your dominant traffic type to achieve better load balancing.
Remember Device	When enabled, the controller will remember all devices in the site. After device reset and power-on, the controller will automatically adopt the device if the controller can find it.
LLDP	Enables Link Layer Discovery Protocol (LLDP) for Gateway, Switch, and AP. This allows devices to advertise their identities and capabilities to neighboring neighbors for improved topology mapping.
Portal Logout Domain	Customize the domain name for portal-authenticated clients to open the logout page. If not specified, the default value is the domain name in the configuration file (in \properties\omada.properties in the controller installation path).
Automatic Gateway Detection	Ensures downstream switches maintain connectivity if the Gateway is changed or the subnet is modified. When enabled, switches in DHCP mode will actively probe for the gateway; if the probe fails while the controller is offline, the switch will immediately force an IP refresh rather than waiting for the DHCP lease to expire.

- Wireless Features

Wireless features include Mesh, Auto Failover, Connectivity Detection, Full-Sector DFS, EAP LLDP, Fast Roaming, Non-Stick Roaming, AI Roaming, Band Steering, Multicast/Broadcast Rate Limit and Beacon Control. They are applicable to wireless devices. With these wireless features configured properly, you can improve the network's stability, reliability and communication efficiency.

Wireless features are recommended to be configured by network administrators with the WLAN knowledge. If you are not sure about your network conditions and the potential impact of all settings, keep [Wireless Features](#) as their default configurations.

Mesh	When enabled, APs supporting Mesh can establish the mesh network at the site.
Auto Failover	(For APs in the mesh network) Auto Failover is used to automatically maintain the mesh network. When enabled, the controller will automatically select a new wireless uplink for the AP if the original uplink fails. To enable this feature, enable Mesh first.
Connectivity Detection	(For APs in the mesh network) Specify the method of Connection Detection when mesh is enabled. In a mesh network, the APs can send ARP request packets to a fixed IP address to test the connectivity. If the link fails, the status of these APs will change to Isolated. Auto (Recommended): Select this method and the mesh APs will send ARP request packets to the default gateway for the detection. Custom IP Address: Select this method and specify a desired IP address. The mesh APs will send ARP request packets to the custom IP address to test the connectivity. If the IP address of the AP is in different network segments from the custom IP address, the AP will use the default gateway IP address for the detection.
Full-Sector DFS	(For APs in the mesh network) With this feature enabled, when radar signals are detected on current channel by one AP, the other APs in the mesh network will be also informed. Then all APs in the mesh network will switch to an alternate channel. To enable this feature, enable Mesh first.
EAP LLDP	Click the checkbox to enable EAP LLDP (Link Layer Discovery Protocol) for device discovery and auto-configuration of VoIP devices.
Fast Roaming	(Only for certain models) When enabled, clients supporting 802.11k/v can roam faster between access points. By default, it is disabled.
Non-Stick Roaming	This feature helps disconnect “sticky clients” receiving weak signals from their suboptimal Wireless Device, allowing them to switch to a superior Wireless Device and improve network efficiency. Note that this may cause temporary disconnections or hinder re-association in rare cases.
Ping-Pong Roaming Suppression	This feature prevents clients from frequently roaming between two APs in areas where weak signals overlap, thereby improving connection stability. In rare cases, clients may be unable to connect to certain APs, and AP transmit power may be adjusted dynamically.
AI Roaming	With Fast Roaming enabled, you can enable AI Roaming to facilitate Fast Roaming, which improves roaming experience of the wireless clients that support 802.11k/v. This feature is available for certain models.

Band Steering	Band steering can adjust the number of clients in 2.4 GHz, 5 GHz and 6 GHz bands to provide better wireless experience. When enabled, multi-band clients will be steered to the 5 GHz and 6 GHz band according to the configured parameters. This function can improve the network performance because the 5 GHz and 6 GHz band supports a larger number of non-overlapping channels and is less noisy.
Multicast/Broadcast Rate Limit	With rate limit configured for Other Multicast, multicast services such as multicast video will be affected.
Management Frame Control	Beacons are transmitted periodically by wireless devices to announce the presence of wireless networks for clients. Click , select the band, and configure the following parameters of Beacon Control. Beacon Interval: Specify how often wireless devices send beacons to clients. By default, it is 100. DTIM Period: Specify how often clients check for buffered data that are still on wireless devices awaiting pickup. By default, clients check for them at every beacon. DTIM (Delivery Traffic Indication Message) is contained in some Beacon frames indicating whether wireless devices have buffered data for clients. An excessive DTIM interval may reduce the performance of multicast applications, so we recommend that you keep the default interval, 1. RTS Threshold: RTS (Request to Send) can ensure efficient data transmission by avoiding the conflict of packets. If a client wants to send a packet larger than the threshold, the RTS mechanism will be activated to delay packets of other clients in the same wireless network. We recommend that you keep the default threshold, which is 2347. If you specify a low threshold value, the RTS mechanism may be activated more frequently to recover the network from possible interference or collisions. However, it also consumes more bandwidth and reduces the throughput of the packet. Airtime Fairness: With this option enabled, each client connecting to a wireless device can get the same amount of time to transmit data so that low-data-rate clients do not occupy too much network bandwidth and network performance improves as a whole. We recommend you enable this function under multi-rate wireless networks. Probe Response Maximum Retransmission: Set the maximum number that the AP retransmits probe responses if it does not receive a client acknowledgment. When a client sends a probe request to detect the network, the AP responds with a probe response. However, factors like interference, long distance, or mobile devices (such as passing clients) may cause response loss and trigger retransmissions. Frequent invalid retransmissions in high-density scenarios will occupy wireless channel resources. It is recommended to keep the default value of 1 to balance reliability and efficiency. Probe Response Threshold: When enabled, the AP will filter probe requests with signal strength below the set threshold and stop responding, which may affect weak signal terminals from discovering the network. It is recommended to enable this feature only in high-density scenarios and select the Auto mode to optimize efficiency. In Auto mode, the AP dynamically calculates the threshold based on historical coverage data to avoid wasting wireless resources for devices in non-target areas. In Custom mode, you need to set the threshold manually.

- Device Account

You can specify a device account for all adopted devices on the site in batches. Once the devices are adopted by the controller, their username and password become the same as settings in Device Account to protect the communication between the controller and devices. By default, the username is admin and the password is generated randomly.

Username / Password	Enter a username and password for all devices in the site. The new username and password will be applied to all the managed devices. For newly adopted devices, once they are adopted by the controller, their username and password becomes the same as settings in device account.
---------------------	--

- Auto Send Data to Email

In Export Data, you can export the data of the Controller to monitor or debug the connected devices.

Send Email	Check the box to enable automatic data report.
Data Content	Specify the content of data report.
Report Name	Specify the name of data report.
Report Type	Specify the file format of data report: csv or xlsx.
Occurrence	Set the time to send the data report.
Send To Email Address	Enter the email addresses to send the data reports. Press Enter after each email address to separate them. (Each Controller can send up to 100 emails every 24 hours via Cloud Access.)

5.2 Configure SSH Settings

Overview

SSH (Secure Shell) provides a method for you to securely configure and monitor network devices via a command-line user interface on your SSH terminal.

Note:
If you use an SSH terminal to manage devices which are managed by the controller, you can only get the User privilege.

Configuration

Launch the controller and access a site. Go to [Network Config](#) > [General Settings](#) > [SSH](#). Enable SSH Login globally and configure the parameters. Then click [Apply](#).

SSH

SSH Login

SSH Server Port

22

(22 or 1025-65535)

Layer 3 Accessibility

Enable ⓘ

Apply

Reset

SSH Server Port	Specify the SSH Sever Port which your network devices use for SSH connections. You need to configure the SSH Server Port correspondingly on your SSH terminal.
Layer 3 Accessibility	With this feature enabled, the SSH terminal from a different subnet can access your devices via SSH. With this feature disabled, only the SSH terminal in the same subnet can access your devices via SSH.

5.3 Configure Reboot Schedules

Overview

Reboot Schedule can make your devices reboot periodically according to your needs. You can configure Reboot Schedule flexibly by creating multiple Reboot Schedule entries.

Configuration

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [General Settings](#) > [Schedule](#) > [Reboot Schedule](#).
3. Click [Create New Reboot Schedule](#) to load the following page and configure the parameters.

Create New Reboot Schedule

Name

Status

☒ Enable

Occurrence

Every

Month

 on

1

 at

12:00

 in

Pacific Time (US & Canada)

Device List

	NAME	STATUS	MODEL	VERSION
☐	 5C-E9-31-B5-97-C4	DISCONNECTED	ER706W-4G v1.0	1.0.1
☐	 A8-42-A1-61-4A-7E	DISCONNECTED	SG2210P v5.20	5.20.0
☐	 98-25-4A-60-31-1A	DISCONNECTED	EAP660 HD(US) v2.0	1.0.3

Select 0 of 3 items

Select All

Showing 1-3 of 3 records

< 1 >

10 / page

Go to page

Go

Create

Cancel

Name	Enter the name to identify the Reboot Schedule entry.
Status	Enable or disable the Reboot Schedule entry.
Occurrence	Specify the date and time for the devices to reboot.
Devices List	Select the devices which the Reboot Schedule applies to.

4. Click [Create](#). The new Reboot Schedule entry will be added to the table.

5.4 Configure Port Schedules

Overview

In Port Schedule, you can set schedules to control the PoE feature of the PoE switch or control the on/off behavior of the switch port. When the PoE feature is disabled, the PoE switches will not supply power to the connected PoE devices during the specified time period, but the switches can still transmit data; when the Port feature is disabled, please check your topology and related configurations to avoid network problems. You can configure PoE or Port Schedule flexibly by creating multiple entries.

Configuration

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [General Settings](#) > [Schedule](#) > [Port Schedule](#).
3. Click [Create New Port Schedule](#) to load the following page and configure the parameters.

Create New Port Schedule

Name

Status

☒ Enable

Type

☒ PoE Schedule ☐ Port Schedule

This function only affects PoE power supply.

Time Range

Please select a Time Range entry.

Manage Time Range Entries

Device List

	NAME	PORTS	STATUS	MODEL	VERSION
☐		1 3 5 7 9 ☐☐☐☐☐ 2 4 6 8 10	DISCONNECTED	SG2210P v5.20	5.20.0

Showing 1-1 of 1 records

< 1 >

10 / page

Go to page

Go

Create

Cancel

Name	Enter the name to identify the schedule entry.
Status	Enable or disable the schedule entry.
Type	Type: Specify the schedule type: PoE Schedule: This function only affects PoE power supply. Port Schedule: This function affects LAN connections of ports but does not affect PoE power supply. To avoid network problems, please check your topology and related configurations before turning off ports.

Time Range	When the Type is PoE Schedule, select the time range when the PoE switches will supply power to the powered devices. When the Type is Port Schedule, select the time range when the switches will turn on the designated ports. You can create a Time Range entry by clicking Create New Time Range Entry from the drop down list.
Devices List	When Type is PoE Schedule, select the PoE switch and PoE port to apply the schedule. When Type is Port Schedule, select the switch and port to apply the schedule.

4. Click **Create**. The new schedule entry will be added to the table.

5.5 Configure mDNS Settings

Overview

mDNS (Multicast DNS) Repeater can help forward mDNS request/reply packets between different VLANs. With this function, you can create a forwarding rule to allow the devices in the specified Client VLAN to discover the mDNS service in the specified Service VLAN. You can also specify the services to be forwarded.

Configuration

1. Launch the controller and access a site. Go to [Network Config > General Settings > mDNS](#).
2. Click [Create New Rule](#). Configure the parameters.

← Create New Rule

Name

Status

☐ Enable

Bonjour Service

Please Select...

Bonjour Service

Band VLAN

☐ By Network

☒ By VLAN ID

Services Network VLAN

(Range: 1-4094. Enter only one VLAN.)

Client Network VLAN

(Range: 1-4094. Enter one or multiple VLANs. For example: 1,2-100)

Apply

Cancel

Name	Specify the rule name for identification.
Status	Enable or disable this rule.
Bonjour Service	Specify the services to be forwarded.
Band VLAN	By default, the mDNS rules of the network type apply only to the gateway. If the site has no adopted gateway, the rules apply only to the APs.
Services Network	Specify the networks where the mDNS services are located.
Client Network	Specify the networks where the Client devices are located.
Services Network VLAN	Specify the VLAN where the mDNS service is located.
Client Network VLAN	Specify the VLANs where the Client devices are located. You can enter VLAN ranges or VLAN IDs separated by comma.

3. Apply the settings.

5.6 Configure Bonjour Service

Overview

mDNS (Multicast DNS) Repeater can help forward mDNS request/reply packets between different VLANs. With this function, you can create a forwarding rule to allow the devices in the specified Client VLAN to discover the mDNS service in the specified Service VLAN. You can also specify the services to be forwarded.

Configuration

To configure the Bonjour Service profiles, follow these steps:

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [General Settings](#) > [mDNS](#) > [Bonjour Service](#).
3. Click [Create New Bonjour Service](#) to add a new profile .

Add Service

Service Name

Service ID

⊕ Add

Confirm

Cancel

4. Configure the parameters.

Service Name	Enter a name to identify the profile.
Service ID	Specify the domain name corresponding to the mDNS service. It is used to identify and filter mDNS packets.

5. Click [Apply](#) to save the profile.

5.7 Configure SNMP Settings

Overview

SNMP (Simple Network Management Protocol) provides a convenient and flexible method for you to configure and monitor network devices. Once you set up SNMP for the devices, you can centrally manage them with an NMS (Network Management Station).

The controller supports multiple SNMP versions including SNMPv1, SNMPv2c and SNMPv3.

Note: If you use an NMS to manage devices which are managed by the controller, you can only read but not write SNMP objects.

Configuration

1. Launch the controller and access a site.
2. Go to **Network Config > General Settings > SNMP**.
3. Configure the parameters. Then click **Apply**.

SNMP

SNMPv1 & SNMPv2c

IES2XX Series do not support SNMPv1 & SNMPv2c.

Community String

SNMPv3

Agile (ES2XX/IES2XX Series) does not support SNMPv3.

Username

Security Level

AuthNoPriv

AuthPriv

NoAuthNoPriv

Authentication Mode

MD5

SHA

Authentication Password

Password

Privacy Mode

DES

AES

Privacy Password

Password

Location

Contact

Apply

Cancel

SNMPv1 & SNMPv2c	Enable or disable SNMPv1 and SNMPv2c globally.
Community String	With SNMPv1 & SNMPv2c enabled, specify the Community String, which is used as a password for your NMS to access the SNMP agent. You need to configure the Community String correspondingly on your NMS.
SNMPv3	Enable or disable SNMPv3 globally.
Username	With SNMPv3 enabled, specify the username for your NMS to access the SNMP agent. You need to configure the username correspondingly on your NMS.

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Security Level	Specify the security level for your NMS to access the SNMP agent: AuthNoPriv, AuthPriv, or NoAuthNoPriv.
Authentication Mode	If the Security Level is AuthNoPriv or AuthPriv, specify the authentication mode for your NMS to access the SNMP agent: MD5 or SHA.
Authentication Password	If the Security Level is AuthNoPriv or AuthPriv, specify the authentication password for your NMS to access the SNMP agent. You need to configure the authentication password in your NMS accordingly.
Privacy Mode	If the Security Level is AuthPriv, specify the privacy mode for your NMS to access the SNMP agent: DES or AES.
Privacy Password	If the Security Level is AuthPriv, specify the privacy password for your NMS to access the SNMP agent. You need to configure the privacy password in your NMS accordingly.
Location	Specify the physical or logical location of devices in the site for identification in SNMP management systems.
Contact	Specify the administrator or support contact information for this site, which can be retrieved through SNMP queries.

5.8 Configure VoIP Settings

VoIP (Voice over Internet Protocol) allows you to make voice calls using a broadband Internet connection instead of a regular (or analog) phone line. You can configure the VoIP settings for your devices on Omada Central Essentials.

5.8.1 Call Settings

Overview

You can create telephony provider profiles, digit map profiles, call blocking profiles, and emergency number settings to facilitate telephony configurations.

Configuration

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [General Settings](#) > [VoIP](#) > [Call Settings](#).
3. Click [Create New Provider Profile](#). Configure the parameters and click [Create](#).

Create New Provider Profile

Profile Name

Telephony Provider

Other Provider

▼

Registrar Address

i

Port Settings

—

Registrar Port

5060

(1-65535)

SIP Proxy

0.0.0.0

SIP Proxy Port

5060

(1-65535)

Outbound Proxy

0.0.0.0

Outbound Proxy Port

5060

(1-65535)

Register via Outbound Proxy

☒ Enable

Create

Cancel

Profile Name	Enter a name to identify the profile.
Telephony Provider	Choose your telephony provider, then enter the parameters specified by your provider. The parameters differ according to your selection. If your provider is not listed, choose Other Provider, then refer to the following to configure the parameters:
Registrar Address	Specify the registrar address specified by your provider. Usually it is a domain name, if not, an IP address.
Registrar Port	Specify the registrar port. Typically 5060, unless your provider specifies a different port.
SIP Proxy	Specify the IP address or URL of the SIP proxy server.
SIP Proxy Port	Specify the SIP proxy port. Typically 5060, unless your provider specifies a different port.
Outbound Proxy	Specify the IP address or URL of the outbound proxy server.
Outbound Proxy Port	Specify the outbound proxy port. Typically 5060, unless your provider specifies a different port.
Register via Outbound Proxy	When enabled, the connected VoIP devices will use the specified Outbound Proxy for SIP registration. When disabled, the connected VoIP devices will use the Registrar Address above for SIP registration.

4. Configure other call settings according to actual site needs.

■ Digit Map

A digit map can be used to match digits to control phone numbers from being dialed. A phone number can be dialed out only when its digit sequence matches the digit map. Click [Create New Digit Map](#). Configure the parameters and click [Create](#).

Create New Digit Map

Profile Name

Digit Map

(1024 characters at most.)

Create

Cancel

Profile Name	Enter a name to identify the profile.
--------------	---------------------------------------

Digit Map	Enter a digit map by referring to the setting examples.
-----------	---

■ Call Blocking

Call Blocking allows the connected VoIP devices to block unwanted incoming and outgoing calls.

Click [Create New Call Blocking Profile](#). Configure the parameters and click [Create](#).

Create New Call Blocking Profile

Name

Incoming Calls Blocking

☒

Incoming Calls Blocking Type

Please Select...

▼

Outgoing Calls Blocking

☒

Outgoing Calls Blocking Type

Please Select...

▼

Create

Cancel

Profile Name	Enter a name to identify the profile.
Incoming Calls Blocking	Enable this option to block unwanted incoming calls.
Incoming Calls Blocking Type	Specify the types of incoming calls to block. Specific Number: Specify one or more phone numbers to block incoming calls from them. Anonymous Number: Block all unknown incoming calls.
Outgoing Calls Blocking	Enable this option to block unwanted outgoing calls.

**Outgoing Calls
Blocking Type**

Specify the types of outgoing calls to block.

Mobile: Block outgoing calls to mobile numbers.

Landline: Block outgoing calls to landline numbers.

Long Distance: Block outgoing calls to long-distance numbers.

International: Block outgoing calls to international numbers.

Calls with specific number prefix: Specify one or more number prefixes to block outgoing calls to phone numbers with the prefixes.

5.8.2 VoIP Devices

Overview

In VoIP Devices, you can configure and manage the connected VoIP devices.

Configuration

1. Launch the controller and access a site.
2. Go to **Network Config > General Settings > VoIP > VoIP Devices**.
3. Click the **Telephony Settings** icon. Configure the parameters and click **Apply**.

Port Settings

Port 1

Number for Outgoing Calls

Auto

Number for Incoming Calls

VAD Support

☒ Enable

Speaker Gain

Mic Gain

Port 2

Number for Outgoing Calls

Auto

Number for Incoming Calls

VAD Support

☒ Enable

Speaker Gain

Mic Gain

Device Settings

Call Blocking

☒ Enable

Blocking Profile

- Advanced Settings

Bound Interface

Default

Locale Selection

AT - AUSTRIA

No Answer Time

18

seconds

(5 - 60)

T.38 Support

☐ Enable

Number for Outgoing Calls

Select the phone number used by your telephony device to make outgoing calls. The default is Auto, which means the device will automatically select an available phone number to make calls.

Number for Incoming Calls

Select the phone numbers used by your telephony device to receive incoming calls. The default is all registered numbers, which means the device can use all registered numbers to receive calls.

VAD Support	VAD (Voice Activity Detection) saves bandwidth consumption by avoiding transmission of silence packets. It also ensures that the bandwidth is reserved only when voice activity is activated.
Speaker Gain	Adjust the slider to control the speaker sound.
Mic Gain	Adjust the slider to control the microphone sound.
Call Blocking	Enable this function to block unwanted calls.
Blocking Profile	Select a blocking profile to block unwanted calls.
Digit Map Profile	Select a digit map profile to control phone numbers from being dialed. A phone number can be dialed out only when its digit sequence matches the digit map.
Locale Selection	Select your location. The system is embedded with the default location-based parameters such as ring tones.
DSCP for SIP / DSCP for RTP	DSCP (Differentiated Services Code Point) is the first 6 bits in the ToS (Type of Service) byte. DSCP marking allows you to ensure preferential treatment for higher-priority traffic on the network based on the DSCP value. Select DSCP for the SIP (Session Initiation Protocol) and RTP (Real-time Transport Protocol) respectively. If you are unsure, please keep the default value.
DTMF Relay Setting	Select a protocol for DTMF relay setting. If you are unsure of which one to select, please keep the default value.
Registry Expiration Time	Enter the expiration time of the SIP registration.
Registry Retry Interval	Enter the time duration for which the system sends a request to retry registering automatically prior to the Registry Expiration Time. If you are unsure, please keep the default value.
T.38 Support	Select the check box to enable T.38 support that allows fax documents to be transferred in real-time between two standard Group 3 facsimile terminals over the Internet or other networks using IP protocols. This function is only effective between two T.38-enabled terminals.
End with #	Select the check box to use the pound sign (#) as an end-of-dialing.

5.8.3 VoIP Phone Number

Overview

On this page, you can configure phone numbers for VoIP-enabled devices on the current

site.

Configuration

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [General Settings](#) > [VoIP](#) > [VoIP Phone Number](#).
3. Choose a method to add phone numbers:

■ Add phone numbers separately

Click [Add](#). Configure the parameters and click [Save](#).

PHONE NUMBER	USERNAME	PASSWORD	PROVIDER PROFILE	DEVICE MAC	STATUS	ACTION
Phone Number		Password	Please Select...	Please Select...		

PHONE NUMBER	The number used to make calls. This number cannot be reused across different devices.
USERNAME	The account name used to register the phone number. Please enter it according to the registration server configuration.
PASSWORD	The authentication password used to register the phone number. Please enter it according to the registration server configuration.
PROVIDER PROFILE	Specify the provider profile associated with the phone number. The phone number will be registered on the corresponding server.
DEVICE MAC	Specify the VoIP device associated with the phone number. Up to eight phone numbers can be added to a device.
STATUS	Displays the phone number's registration status.
ACTION	Edit or delete an added phone number.

■ Import phone numbers in batches

Click [Import](#). Download the template and fill in your phone number information. Then import the file.

Import Phone Number List

×

Download the [template](#) and fill in your phone number information. Then import the file.

Choose File

Please select a file.

Browse

Import

Cancel

5. 8. 4 Call Logs

Overview

In Call Logs, you can record the details of incoming calls and outgoing calls.

Configuration

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [General Settings](#) > [VoIP](#) > [Call Logs](#).
3. Enable [Call Logs](#) and click [Apply](#). The calls will be recorded in the table below.

Call Logs

Call Logs

Apply

Device Number, Device

Start date - End date

All (0) Incoming (0) Outgoing (0) Forwarding (0) Missed/Rejected (0)

Delete All

DATE	STATUS	DUARTION	NUMBER/CONTACTS	DEVICE NUMBER	TELEPHONY DEVICE	PORT
No Data.						

5. 8. 5 Advanced Settings

Overview

In Advanced Settings, you can configure Telephone Book, Emergency Number, DND (Do Not Disturb), and Call Forwarding.

Configuration

1. Launch the controller and access a site.
2. Go to [Network Config > General Settings > VoIP > Advanced Settings](#).
3. Configure the functions according to actual site needs.

■ Telephone Book

In Telephone Book, you can save contact details and assign a speed dial number to the contact.

Click [Create New Contact Person](#). Configure the parameters and click [Create](#).

Create New Contact Person

First Name

Last Name

Private Phone Number

Work Phone Number

Mobile Phone Number

Speed Dial

☐ Enable

Create

Cancel

First Name / Last Name	Enter the last name and first name of your contact.
Private Phone Number	Enter the private phone number of your contact.
Work Phone Number	Enter the work phone number of your contact.
Mobile Phone Number	Enter the mobile phone number of your contact.
Speed Dial Number Type	Select the type of number for speed dial. Speed Dial allows you to quickly place a call with fewer numbers to dial.
Speed Dial Number	Set the speed dial number. After saving the settings, you can simply press this number followed by # to place a call.

■ Emergency Number Settings

Emergency number settings can be helpful to make a call for help when emergency occurs. Enable **Emergency Number**. Configure the parameters and click **Apply**.

Emergency Number Settings

Emergency Number

☒

No Operation Time

3

seconds

(2-8)

Emergency Number

ⓘ + Add Number

Apply

Cancel

Emergency Number	Enable this function to allow the telephony device to call a specific contact when the handset is picked up but no operation is done within a specific time period.
No Operation Time	Specify the time period before the telephony device makes a call automatically.
Emergency Number	Specify one or more phone numbers for emergency calls. The telephony device will call these numbers in order if the previous call is not answered.

• DND (Do Not Disturb)

DND (Do Not Disturb) allows you to temporarily block all incoming calls based on your specific schedule.

Enable **DND**. Configure the parameters and click **Apply**.

DND(Do Not Disturb)

ⓘ This feature is only available for DSL gateways.

DND

☒

Schedule

☒ Every Day

☐ Weekends

☐ Weekdays

From

00:00

ⓘ

To

06:00

ⓘ

Apply

Cancel

Schedule	Specify the days you want to block the incoming calls.
----------	--

From / To	Set the start time and end time of the DND period you want to block incoming calls.
-----------	---

- Call Forwarding

Call Forwarding allows you to redirect incoming calls to a designated phone number. Click **Add New Call Forwarding**. Enable the function, configure the parameters, and click **Add**.

Add New Call Forwarding

Enable

☒

Incoming calls to be Forward

All Incoming Calls

▼

Destination Telephone Number

Call Forward Condition

☒ Unconditional

☐ No Answer

Add

Cancel

Incoming Calls to be Forwarded	Select a call type to be forwarded. All Incoming Calls: If this option is selected, all incoming calls will be forwarded. Calls to the Telephone Number: If this option is selected, select a telephone number from the list. Any incoming calls to this number will be forwarded. Calls to the Phone: If this option is selected, select a telephony device from the list. Any incoming calls to this device will be forwarded. Calls from a Person in the Telephone Book: If this option is selected, select a contact from the list. Any incoming calls from this contact will be forwarded. Calls from the Telephone Number: If this option is selected, enter a specific telephone number. Any incoming calls from this number will be forwarded.
Destination Telephone Number	Enter a Destination Telephone Number that incoming calls will be redirected to.

Call Forward Condition

- Select the Call Forward Condition.
- Unconditional:** All incoming calls will be redirected to the designated telephone number whether the receiver is busy or not.
- No Answer:** Incoming calls that are not answered for the specified time period will be redirected to the designated telephone number.

Voice Main

Voice Mail allows callers to leave voice messages on an external USB storage device with the appropriate configuration files when calls are not answered. To use this function, plug the USB storage device into the USB port on the gateway. This feature is only available for DSL gateways.

Enable **Voice Mail**, configure the parameters, and click **Apply**. The voice mails will be recorded in the Voice Mail List.

Voice Mail

No Answer Time

18

(5-60s)

Remote Access to Voice Mail

Remote Access PIN

Store Voice Mail in USB

Select USB Device

Greeting for Voice Mail

Default

Custom

Default Greeting

Play

Voice Mail Duration

60

(20-120s)

No Answer Time

Enter the duration for the incoming calls to go to voicemail or the destination telephone number when there is no response.

Remote Access to Voice Mail

(Optional) If you want to listen to your voice mails remotely, enable Remote Access to Voice Mail.

Remote Access PIN

To access your voice mail remotely, dial the number for incoming calls. When your personal greeting starts, press *. Enter your Remote Access PIN when prompted.

Store Voice Mail in USB	Enable Store Voice Mail in USB. Select a path in the USB storage device to save your voice mail.
Greeting for Voice Mail	Select the Greeting for Voice Mail to use either the default or your custom greeting for the voice mail. You can click the Play icon to play the greeting.
Default Greeting	Click the Play icon to play the greeting.
Voice Mail Duration	Specify the length of each voice mail.

5.9 Use CLI Configuration

CLI configuration is essentially to configure devices via command lines. It is a supplementary means of GUI configuration. CLI configuration may conflict with GUI configuration.

The Controller supports two types of CLI configuration: Site CLI and Device CLI.

- **Site CLI**

Site CLI supports batch configuration of devices that support CLI configuration on the site.

- **Device CLI**

Device CLI supports batch configuration of selected devices.

- **Model CLI**

Model CLI simplifies management by targeting configurations at the hardware model level.

Currently, CLI configuration only supports switches. Please refer to the CLI Reference Guide of the correspond Omada switch to understand the CLI commands.

If you need to use CLI configuration, please read the precautions and User Guide carefully. You can contact TP-Link technical support if necessary.

After applying the CLI configuration, you can go to **Devices > Application Result** to view the configuration results.

General Precautions

1. The GUI and CLI configuration should be planned globally according to the actual network topology and requirements.
2. To avoid conflicts, it is recommended not to use the CLI to configure the existing functions of the GUI.
 - a. When adopting a new device, the Controller will apply configurations to the device in the order of GUI, Site CLI, and then Device CLI. If there is a configuration conflict, the configuration applied last takes effect.
 - b. CLI profiles (including Site CLI profiles and Device CLI profiles) will only be sent to devices once after applied, unless the "Apply Again" button in the Application Result is clicked to trigger the full configurations application.
 - c. When a device upgrades its firmware, the Controller will apply the full configurations to the device in the order of GUI, Site CLI, and then Device CLI.
 - d. Since the configurations applied later will overwrite the previous configurations, the configuration results of different devices may be different after the same function has been modified repeatedly via GUI, Site CLI and Device CLI.

3. The Controller will not verify the existing GUI and CLI configurations of devices. Be sure to check the existing configurations before performing new configurations. Otherwise, unexpected results may occur after the configurations are applied, and the devices may even go offline.
4. To avoid configuration conflicts, if you really need to use the CLI to configure a certain function, it is recommended not to configure it via GUI at the same time.
5. To avoid disconnection of devices from the Controller due to configuration errors or conflicts, it is recommended to configure VLAN, VLAN Interface, IP Address, ACL, etc. via GUI, and avoid modifying related configurations via CLI.

Repeated Configurations

When the same function is configured via CLI multiple times, the previous configuration may be overwritten, and the last configuration shall prevail.

- a. It is recommended to confirm the currently effective commands via the CLI configuration viewing function "Show Running Config".
- b. If you need to cancel a certain configuration, use the "no" command.
- c. If you need to modify a certain configuration, you can enter a new command to overwrite the configuration.
- d. Apply the final configuration, and confirm that the function is configured correctly and takes effect via the CLI configuration viewing function.

Execution Failures

If a CLI command fails to be executed, an error will be reported and subsequent commands will be executed. You can view the error details via the error message, and the commands that have been successfully executed before will not be undone. It is recommended to follow the steps below:

- a. Use the CLI configuration viewing function (Show Running Config) to confirm the commands that have taken effect. If you need to cancel them, you can enter "no" commands and apply them to devices.
- b. Troubleshoot and correct the command error, regenerate the CLI configuration, and apply it to devices.

Command Modification

If you need to modify the commands issued via CLI, please follow the steps below:

- a. Use the CLI configuration view function (Show Running Config) to confirm the commands that have taken effect, and sort out the commands that need to be canceled.
- b. Enter "no" commands to cancel the configurations, and apply them to devices.

Prohibited Commands

1. CLI commands such as modifying user name and password, managing VLAN, SDM profile, reboot, reset, upgrade, import and export configurations have been prohibited. When using other CLI commands, please also pay attention to avoid affecting the management of the Controller.
2. Device CLI supports the variable function. The variable content does not have too many restrictions, for example, you can enter CLI commands, but it is not recommended to use it in this way.

5.9.1 Site CLI

Overview

Site CLI enables batch configurations of all devices that support CLI configuration on the site via command lines.

Configuration

1. Go to [Network Config > General Settings > CLI Configuration > Site CLI](#).
2. Click [Create New Site CLI Profile](#) and create a CLI profile according to your needs.

Create New Site CLI Profile

Name

Description

(Optional)

CLI

Import CLI from Device

Import CLI from File

Note:

1.The # character is a special command, which indicates entering the configure mode. Please use it in a separate line. If you add other commands after it in the same line, they will be ignored.
2.If a command starts with the ! character, the command will be ignored.

Save

Cancel

- Note:**
- The # character is a special command, which indicates entering the configure mode. Please use it in a separate line. If you add other commands after it in the same line, they will be ignored.
 - If a command starts with the ! character, the command will be ignored.

Name	Specify the name of the CLI profile.
------	--------------------------------------

Description	(Optional) Enter a description for identification.
CLI	Enter the command lines manually.
Import CLI from Device	Click and select a device that supports CLI configuration to import its running config.
Import CLI from File	Click and select an existing command file to import command lines.

3. Click **Save** to add the profile. The new profile is in inactive state and will not be applied to devices.



4. Click **Apply** to apply the CLI. The profile will change to active state and apply configurations to all devices that support CLI configuration on the site.

Note:
Once the profile becomes active, you will be unable to edit it.

To check whether the profile is successfully applied to devices and takes effect, click **View CLI Details** to view the configuration results on the **Devices > Configuration Result** page.

Note:
Deleting a CLI profile will not take effect on existing configurations on devices. To delete the configurations, use the "no" command.

5. 9. 2 Device CLI

Overview

Device CLI enables batch configuration of specific devices via command lines.

Device CLI supports variables. You can use the %x% format to define a variable x, and then set different values for different switches. When the Controller applies the Device CLI configuration to switches, it will automatically modify the variable %x% to the values you set.

Configuration

- Go to **Network Config > General Settings > CLI Configuration > Device CLI**. Click **Create New Device CLI Profile** and create a CLI profile according to your needs.

Create New Device CLI Profile

1 CLI Template

2 Device Variable Settings

Name

Description

CLI

Variables:

Note:

1.The # character is a special command, which indicates entering the configure mode. Please use it in a separate line. If you add other commands after it in the same line, they will be ignored.

2.If a command starts with the ! character, the command will be ignored.

Import CLI from Device

Import CLI from File

Next

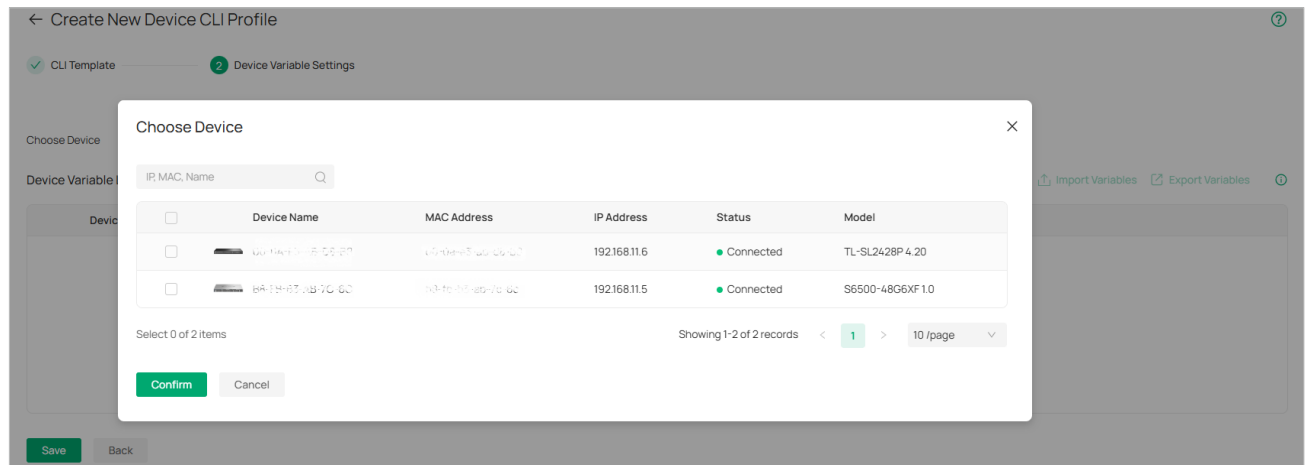
Cancel

Note:

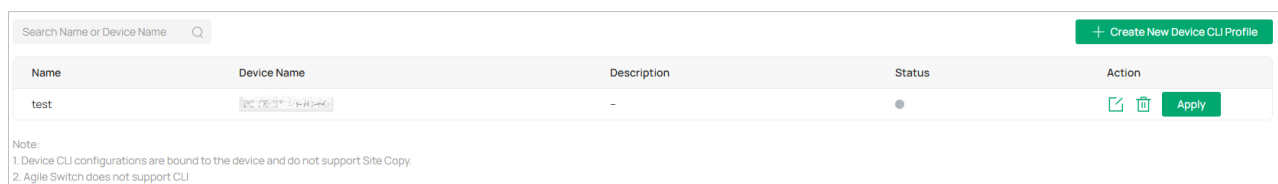
- The # character is a special command, which indicates entering the configure mode. Please use it in a separate line. If you add other commands after it in the same line, they will be ignored.
- If a command starts with the ! character, the command will be ignored.

Name	Specify the name of the CLI profile.
Description	(Optional) Enter a description for identification.
CLI	Enter the command lines manually. You can enter %xxx% in the CLI template to define variables.
Import CLI from Device	Click and select a device that supports CLI configuration to import its running config.
Import CLI from File	Click and select an existing command file to import command lines.

2. Click **Next**. Select the devices to apply the CLI profile. You can quickly search for a device by its IP, name and MAC. Click the  icon beside IP Address to sort by IP. You can Click **Export Variables** to export variables to edit locally, then click **Import Variables** to import them. Only the variables of the selected device(s) are imported.



- Click **Save** to add the profile. The new profile is in inactive state and will not be applied to devices.



- Click **Apply** to apply the CLI. The profile will change to active state and apply configurations to the devices you selected.

Note:

Once the profile becomes active, you will be unable to edit it.

To check whether the profile is successfully applied to devices and takes effect, click **View CLI Details** to view the configuration results on the **Devices > Configuration Result** page.

Note:

Deleting a CLI profile will not take effect on existing configurations on devices. To delete the configurations, use the "no" command.

5.9.3 Model CLI

Overview

The CLI feature allows advanced administrators to execute batch configurations and fine-tune network settings through direct command entry. This version introduces Model CLI, which simplifies management by targeting configurations at the hardware model level.

Configuration

- Go to **Network Config > General Settings > CLI Configuration > Model CLI**. Click **Create New Model CLI Profile** and create a CLI profile according to your needs.

Create New Model CLI Profile

Name

Select Model

▼

Description

(Optional)

CLI

 Import CLI from Device

 Import CLI from File

Note:

1.The # character is a special command, which indicates entering the configure mode. Please use it in a separate line. If you add other commands after it in the same line, they will be ignored.

2.If a command starts with the ! character, the command will be ignored.

- Note:**
- The # character is a special command, which indicates entering the configure mode. Please use it in a separate line. If you add other commands after it in the same line, they will be ignored.
 - If a command starts with the ! character, the command will be ignored.

Name	Specify the name of the CLI profile.
Select Model	Select a model to batch configure CLI entries for devices of this model.
Description	(Optional) Enter a description for identification.
CLI	Enter the command lines manually. You can enter %xxx% in the CLI template to define variables.
Import CLI from Device	Click and select a device that supports CLI configuration to import its running config.

Import CLI from File

Click and select an existing command file to import command lines.

2. Click **Save** to add the profile. The new profile is in inactive state and will not be applied to devices.

Search Name					+ Create New Model CLI Profile
Name	Model	Description	Status	Action	
test	S4500-16G2F v1.0	-			Apply

3. Click **Apply** to apply the CLI. The profile will change to active state and apply configurations to the devices you selected.

Note:

Once the profile becomes active, you will be unable to edit it.

To check whether the profile is successfully applied to devices and takes effect, click [View CLI Details](#) to view the configuration results on the [Devices > Configuration Result](#) page.

Note:

Deleting a CLI profile will not take effect on existing configurations on devices. To delete the configurations, use the "no" command.

Chapter 6

Configure Wired Networks

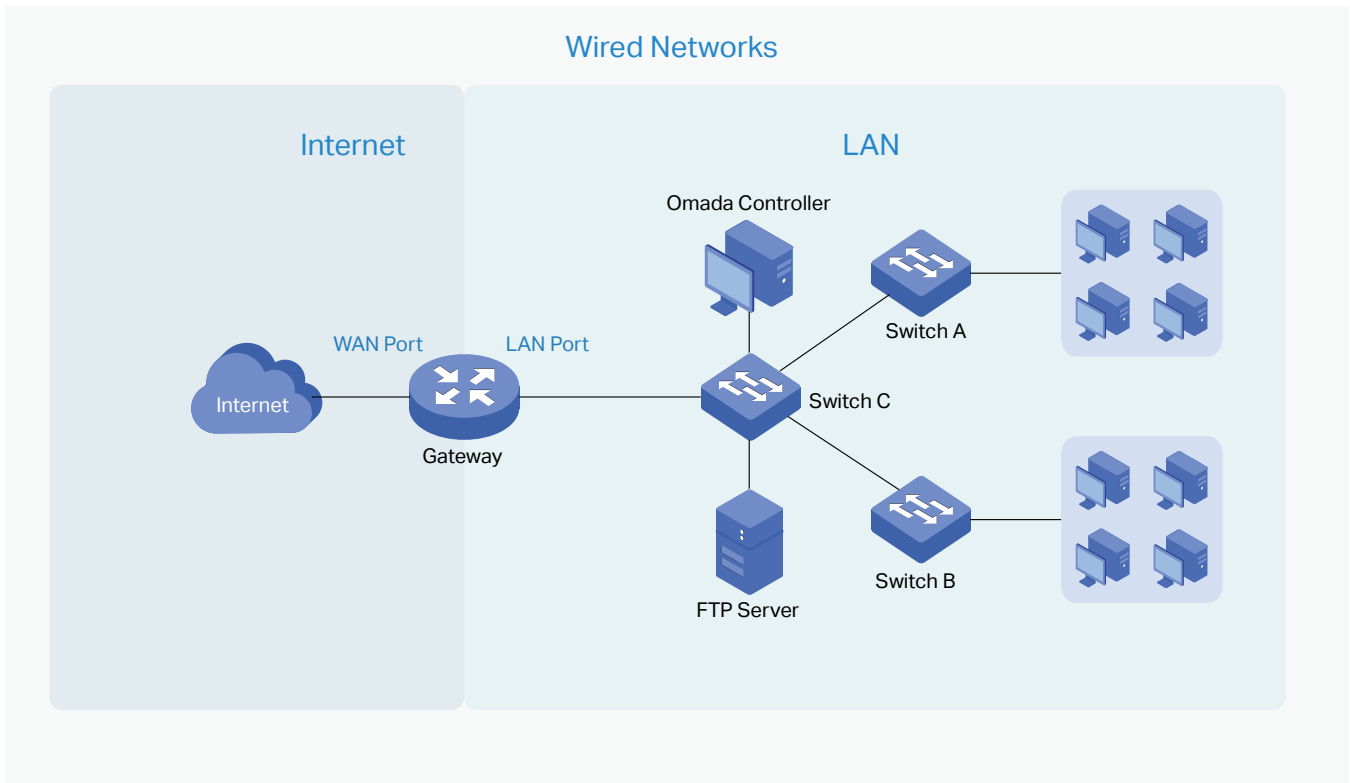
This chapter guides you on how to configure wired networks with the Omada Controller. The chapter includes the following sections:

- [6. 1 Overview](#)
- [6. 2 Set Up an Internet Connection](#)
- [6. 3 Configure LAN Networks](#)
- [6. 4 Configure Multicast Snooping](#)
- [6. 5 Configure Network Isolation](#)
- [6. 6 Configure LAN DNS](#)

6.1 Overview

Wired networks enable your wired devices and clients including the gateway, switches, APs and PCs to connect to each other and to the internet.

As shown in the following figure, wired networks consist of two parts: Internet and LAN.



For Internet, you determine the number of WAN ports on the gateway and how they connect to the internet. You can set up an IPv4 connection and IPv6 connection to your internet service provider (ISP) according to your needs. The parameters of the internet connection for the gateway depend on which connection types you use. For an IPv4 connection, the following internet connection types are available: Dynamic IP, Static IP, PPPoE, L2TP, and PPTP. For an IPv6 connection, the following internet connection types are available: Dynamic IP (SLAAC/ DHCPv6), Static IP, PPPoE, 6to4 Tunnel, and Pass-Through (Bridge). And, when more than one WAN port is configured, you can configure Load Balancing to optimize the resource utilization if needed.

For LAN, you configure the wired internal network and how your devices logically separate from or connect to each other by means of VLANs and interfaces. Advanced LAN features include IGMP Snooping, DHCP Server and DHCP Options, PoE, Voice Network, 802.1X Control, Port Isolation, Spanning Tree, LLDP-MED, and Bandwidth Control.

6.2 Set Up an Internet Connection

Configuration

To set up an internet connection, follow these steps:

- 1) Configure the number of WAN ports on the gateway based on needs.
- 2) Configure WAN Connections. You can set up the IPv4 connection, IPv6 connection, or both.
- 3) (Optional) Configure Load Balancing if more than one WAN port is configured.

Step 1: Select WAN Mode

- Configure Physical WAN

Launch the controller and access a site. Go to [Network Config](#) > [Network Settings](#) > [Internet](#) to load the following page. In the [Port Config](#) > [Physical WAN](#) section, toggle the switch on to set the desired ports as WAN ports deployed by the gateway and other parameters. Then click [Apply](#).

Internet

Mode Config

Gateway ModelER7206 v2.30

Online Detection IntervalCustom

The smaller the detection interval, the faster the load balancing/link backup, and more detection packets will be sent.

Custom Time10Seconds(1-3600)

Port Config

Physical WANVirtual WAN

To edit the status of a Gateway port, go to the device's Properties Window. [Go to Config >](#)

PORT NAME	STATUS	DESCRIPTION	SET TO WAN PORT	ACTION
USB Modem	Enable	-	☐	-
SFP WAN/LAN1	Enable	-	☒	✎
WAN2	Enable	-	☒	✎
WAN/LAN3	Enable	-	☐	-
WAN/LAN4	Enable	-	☐	-
WAN/LAN5	Enable	-	☐	-
WAN/LAN6	Enable	-	☐	-

Load Balancing

Load Balancing Weight1: 1

ApplyCancel

WAN Settings Overrides

(When a gateway is not adopted) With this option disabled, the WAN settings of the newly adopted Omada gateway in standalone mode will take effect on the controller.

When this option is turned on, the gateway will use the configurations on the Controller after adoption. Please make sure the configurations are correct. Otherwise the gateway may be unable to access the internet after adoption. If the adopted device does not support some pre-configurations, the relevant configurations will be deleted after adoption.

Gateway Model	(When a gateway is not adopted) Specify the gateway model and version. If you change the gateway, follow the web instructions to select WAN ports and copy WAN port settings. If the number of preconfigured WAN ports does not match the number of WAN ports enabled in the adopted Omada gateway, the gateway will automatically reboot after adoption.
Online Detection Interval	Select how often the WAN ports detect WAN connection status. If you don't want to enable online detection, select Disable. Online Detection results will influence whether Load Balancing and Link Backup features take effect. The smaller the online detection interval, the faster Load Balancing and Link Backup features will respond, and meanwhile more detection packets will be sent.

• (Optional) Configure Virtual WAN

Virtual WAN allows multiple WAN connections to share one physical WAN port. Each virtual WAN can be configured independently to meet your ISP's requirements. This is useful for separating services, assigning different ISPs, or applying distinct routing and traffic policies without additional hardware.

Launch the controller and access a site. Go to [Network Config](#) > [Network Settings](#) > [Internet](#) to load the following page. In the [Port Config](#) > [Virtual WAN](#) section, click [Create New Virtual WAN](#) to create virtual WAN interfaces as needed and other parameters. Then click [Apply](#).

Create New Virtual WAN

Name

WAN Interface

Please Select...

▼

MAC Address

☒ Use Default MAC Address

☐ Customize MAC Address

Connection Type

Dynamic IP

▼

Advanced Settings

Unicast DHCP

☐ Enable

i

Primary DNS Server

.

.

.

(Optional)

Secondary DNS Server

.

.

.

(Optional)

Host Name

(Optional)

MTU

1500

(576-1500, default:1500)

VLAN ID

i

☐ 0

Advanced DHCP Options

Name	Enter the name to identify the virtual WAN interface.
WAN Interface	Select the physical WAN interface which the virtual WAN interface is mapped to.
MAC Address	Specify the MAC address of the virtual WAN interface if needed. Use Default MAC Address: The virtual WAN interface of the gateway uses the default MAC address to set up the internet connection. It's recommended to use the default MAC address unless required otherwise. Customize MAC Address: The virtual WAN interface of the gateway uses a customized MAC address to set up the internet connection and you need to specify the MAC address. Typically, this is required when your ISP has bound the MAC address with your account or IP address. If you are not sure, contact the ISP.

Step 2: Configure WAN Connections

Note: The number of configurable WAN ports is decided by WAN Mode.

- Set Up DSL WAN Connection

Launch the controller and access a site. Go to [Network Config](#) > [Network Settings](#) > [Internet](#). In the [WAN Ports Config](#) section, click the edit icon of USB Modem and configure the parameters.

Edit DSL WAN

Description

(Optional)

Location

United States

▼

ISP

Other

▼

ⓘ

DSL Modulation Type

☒ VDSL

☐ ADSL

Description	Enter a description for identification.
Location	Select your location.
ISP	Select your ISP (internet service provider).
DSL Modulation Type	Select the modulation type for your DSL connection.

- Set Up USB Modem Connection

Launch the controller and access a site. Go to [Network Config > Network Settings > Internet](#). In the [WAN Ports Config](#) section, click the edit icon of USB Modem and configure the parameters.

USB Modem

Description

(Optional)

USB Modem

No USB modem Connected.

Config Type

Auto

Location

Argentina

Mobile ISP

Claro

SIM/UIIM PIN

(Optional)

Connection Mode

☒ Connect Automatically

☐ Connect Manually

Authentication Type

Auto

MTU Size

1480

bytes

Use the following DNS Servers

☐ Enable

USB 3.0 Interference Reduction

☐ Enable

+ Advanced DHCP Options

Description	Enter a description for identification.
USB Modem	Display whether a USB modem is connected to the device and the name of the connected USB modem.
Config Type	Select a configuration type for the USB modem. Auto: Use the Location and Mobile ISP information below for configuration. Manually: Enter the Dial Number, APN, Username, and password provided by your Mobile ISP.
Location	Select your location.
Mobile ISP	Select your mobile ISP.

SIM/UIM PIN	(Optional) Enter the PIN of your SIM card. The field is required when the following information appears in the Message: PIN protection is enabled and the PIN is invalid.
Connection Mode	Select the connection mode. Connect Automatically: The gateway will use the USB modem to connect to the internet automatically. Connect Manually: You need to turn on/off the internet manually for the gateway on the device page.
Authentication Mode	Select the Authentication mode for the USB modem. The default value is Auto, and it is recommended to keep the default value.
MTU Size	Specify the MTU (Maximum Transmission Unit) of the USB WAN port. The default value is 1480, and it is recommended to keep the default value. MTU is the maximum data unit transmitted in the physical network.
Use the following DNS Servers	Enable the feature if you want to specify the Primary and Secondary DNS servers manually.
USB 3.0 Interference Reduction	Enable this option if you want to lower the data transfer speed of a USB 3.0 port to improve performance on the 2.4GHz Wi-Fi band. Enabling the feature trades USB 3.0 speed for better wireless stability.

- **Set Up IPv4 Connection**

Launch the controller and access a site. Go to **Network Config > Network Settings > Internet**. In the **WAN Ports Config** section, click the edit icon of a WAN port and configure the Connection Type according to the service provided by your ISP.

Connection Type	Dynamic IP: If your ISP automatically assigns the IP address and the corresponding parameters, choose Dynamic IP. Static IP: If your ISP provides you with a fixed IP address and the corresponding parameters, choose Static IP. PPPoE: If your ISP provides you with a PPPoE account, choose PPPoE. L2TP: If your ISP provides you with an L2TP account, choose L2TP. PPTP: If your ISP provides you with a PPTP account, choose PPTP. MAP-E: If your ISP provides you with a MAP-E account, select MAP-E. DS-Lite: If your ISP provides you with a DS-Lite account, select DS-Lite.
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■ **Dynamic IP**

Choose Connection Type as Dynamic IP and configure the parameters.

IPv4

Connection Type

Dynamic IP

Advanced Settings

Unicast DHCP

☐ Enable

Primary DNS Server

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.

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(Optional)

Secondary DNS Server

.

.

.

(Optional)

Host Name

(Optional)

MTU

1500

(576-1500, default:1500)

VLAN ID

☐ 0

WAN IP Alias

Unicast DHCP	With this option enabled, the gateway will require the DHCP server to assign the IP address by sending unicast DHCP packets. Usually you need not to enable the option.
Primary DNS Server / Secondary DNS Server	Enter the IP address of the DNS server provided by your ISP if there is any.
Host Name	Enter a name for the gateway.
MTU	Specify the MTU (Maximum Transmission Unit) of the WAN port. MTU is the maximum data unit transmitted in the physical network. When the connection type is Dynamic IP, MTU can be set in the range of 576-1500 bytes. The default value is 1500.
VLAN ID	Add the WAN port to a VLAN and you need to specify the VLAN ID. Generally, you don't need to manually configure it unless required by your ISP.
VLAN Priority	Priority is only available when Internet VLAN is enabled. The VLAN Priority function helps to prioritize the internet traffic based on your needs. You can determine the priority level for the traffic by specifying the tag. The tag ranges from 0 to 7. None means the packet will be forwarded without any operation.
WAN IP Alias	WAN IP Alias supports configuring multiple IP addresses on one WAN port, and these IP addresses can be used to configure virtual server and other functions.

■ Static IP

Choose Connection Type as Static IP and configure the parameters.

Connection Type

Static IP

IP Address

.

.

.

Subnet Mask

.

.

.

Default Gateway

.

.

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⊞

Advanced Settings

Primary DNS Server

.

.

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(Optional)

i

Secondary DNS Server

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.

.

(Optional)

i

MTU

1500

(576-1500, default:1500)

VLAN ID

i

☐

0

WAN IP Alias

IP Address	Enter the IP address provided by your ISP.
Subnet Mask	Enter the subnet mask provided by your ISP.
Default Gateway	Enter the default gateway provided by your ISP.
Primary DNS Server / Secondary DNS Server	Enter the IP address of the DNS server provided by your ISP if there is any.
MTU	Specify the MTU (Maximum Transmission Unit) of the WAN port. MTU is the maximum data unit transmitted in the physical network. When the connection type is Static IP, MTU can be set in the range of 576-1500 bytes. The default value is 1500.
VLAN ID	Add the WAN port to a VLAN and you need to specify the VLAN ID. Generally, you don't need to manually configure it unless required by your ISP.
VLAN Priority	Priority is only available when Internet VLAN is enabled. The VLAN Priority function helps to prioritize the internet traffic based on your needs. You can determine the priority level for the traffic by specifying the tag. The tag ranges from 0 to 7. None means the packet will be forwarded without any operation.
WAN IP Alias	WAN IP Alias supports configuring multiple IP addresses on one WAN port, and these IP addresses can be used to configure virtual server and other functions.

■ PPPoE

Choose Connection Type as PPPoE and configure the parameters.

IPv4

Connection Type

PPPoE

Username

Password

Advanced Settings

Get IP Address from ISP

☒ Enable

Primary DNS Server

. . .

(Optional)

Secondary DNS Server

. . .

(Optional)

Connection Mode

☒ Connect Automatically

☐ Connect Manually

☐ Time-based

Redial Interval

10

Seconds

(1-99999)

Service Name

(Optional)

i

MTU

1492

(576-1492, default:1492)

MRU

1492

(576-1492, default:1492)

MSS Clamping

☐ Disable

☒ Auto

☐ Custom

(536-1452)

VLAN ID

i

☐

0

Secondary Connection

☒ None

☐ Static IP

☐ Dynamic IP

Username	Enter the PPPoE username provided by your ISP.
Password	Enter the PPPoE password provided by your ISP.
Get IP address from ISP	With this option enabled, the gateway gets IP address from ISP when setting up the WAN connection. With this option disabled, you need to specify the IP Address provided by your ISP.

Primary DNS Server / Secondary DNS Server	Enter the IP address of the DNS server provided by your ISP if there is any.
Connection Mode	Connect Automatically: The gateway activates the connection automatically when the connection is down. You need to specify the Redial Interval, which decides how often the gateway tries to redial after the connection is down. Connect Manually: You can manually activate or terminate the connection. Time-Based: During the specified period, the gateway will automatically activate the connection. You need to specify the Time Range when the connection is up.
Redial Interval	Specify how often the gateway tries to redial after the connection is down.
Service Name	Keep it blank unless your ISP requires you to configure it.
MTU	Specify the MTU (Maximum Transmission Unit) of the WAN port. MTU is the maximum data unit transmitted in the physical network. When the connection type is PPPoE, MTU can be set in the range of 576-1492 bytes. The default value is 1492.
MRU	Specify the MRU (Maximum Receive Unit) of the WAN port. MRU is the maximum data unit transmitted in the Data link layer.
MSS Clamping	Specify the upper limit of the value of the MSS (Maximum Segment Size) field negotiated by the sending and receiving parties when establishing TCP connection to avoid IP fragmentation. If the value of the MSS field negotiated by the communication parties exceeds the specified value, the gateway will change the negotiated MSS field to the specified value Disabled: Disable the MSS Clamping function, and the gateway will not intervene in the MSS value negotiated by the communication parties. Auto: Automatically calculate MSS value based on path MTU. Custom: Select this option to specify the MSS value. It should not exceed the MTU value.
VLAN ID	Add the WAN port to a VLAN and you need to specify the VLAN ID. Generally, you don't need to manually configure it unless required by your ISP.
VLAN Priority	Priority is only available when Internet VLAN is enabled. The VLAN Priority function helps to prioritize the internet traffic based on your needs. You can determine the priority level for the traffic by specifying the tag. The tag ranges from 0 to 7. None means the packet will be forwarded without any operation.

Secondary Connection

Secondary connection is required by some ISPs. Select the connection type required by your ISP.

None: Select this if the secondary connection is not required by your ISP.

Static IP: Select this if your ISP provides you with a fixed IP address and subnet mask for the secondary connection. You need to specify the **IP Address** and **Subnet Mask** provided by your ISP.

Dynamic IP: Select this if your ISP automatically assigns the IP address and subnet mask for the secondary connection.

■ L2TP

Choose Connection Type as L2TP and configure the parameters.

IPv4

Connection Type

L2TP

Username

Password

VPN Server/Domain Name

Get IP Address from ISP

☒ Enable

Primary DNS Server

.

.

.

(Optional)

Secondary DNS Server

.

.

.

(Optional)

Connection Mode

☒ Connect Automatically

☐ Connect Manually

☐ Time-based

Redial Interval

10

Seconds

(1-99999)

MTU

1460

(576-1460, default:1460)

MSS Clamping

☐ Disable

☒ Auto

☐ Custom

(536-1420)

VLAN ID i

☐

0

Secondary Connection

☐ Static IP

☒ Dynamic IP

Username Enter the L2TP username provided by your ISP.

Password Enter the L2TP password provided by your ISP.

VPN Server / Domain Name	Enter the VPN Server/Domain Name provided by your ISP.
Get IP address from ISP	With this option enabled, the gateway gets IP address from ISP when setting up the WAN connection. With this option disabled, you need to specify the IP address provided by your ISP.
Primary DNS Server / Secondary DNS Server	Enter the IP address of the DNS server provided by your ISP if there is any.
Connection Mode	Connect Automatically: The gateway activates the connection automatically when the connection is down. You need to specify the Redial Interval, which decides how often the gateway tries to redial after the connection is down. Connect Manually: You can manually activate or terminate the connection. Time-Based: During the specified period, the gateway will automatically activate the connection. You need to specify the Time Range when the connection is up.
Redial Interval	Specify how often the gateway tries to redial after the connection is down.
MTU	Specify the MTU (Maximum Transmission Unit) of the WAN port. MTU is the maximum data unit transmitted in the physical network. When the connection type is L2TP, MTU can be set in the range of 576-1460 bytes. The default value is 1460.
MSS Clamping	Specify the upper limit of the value of the MSS (Maximum Segment Size) field negotiated by the sending and receiving parties when establishing TCP connection to avoid IP fragmentation. If the value of the MSS field negotiated by the communication parties exceeds the specified value, the gateway will change the negotiated MSS field to the specified value Disabled: Disable the MSS Clamping function, and the gateway will not intervene in the MSS value negotiated by the communication parties. Auto: Automatically calculate MSS value based on path MTU. Custom: Select this option to specify the MSS value. It should not exceed the MTU value.
VLAN ID	Add the WAN port to a VLAN and you need to specify the VLAN ID. Generally, you don't need to manually configure it unless required by your ISP.
VLAN Priority	Priority is only available when Internet VLAN is enabled. The VLAN Priority function helps to prioritize the internet traffic based on your needs. You can determine the priority level for the traffic by specifying the tag. The tag ranges from 0 to 7. None means the packet will be forwarded without any operation.

Secondary Connection	Select the connection type required by your ISP. Static IP: Select this if your ISP provides you with a fixed IP address and subnet mask for the secondary connection. You need to specify the IP Address, Subnet Mask, Default Gateway (Optional), Primary DNS Server (Optional), and Secondary DNS Server (Optional) provided by your ISP. Dynamic IP: Select this if your ISP automatically assigns the IP address and subnet mask for the secondary connection.
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■ PPTP

Choose Connection Type as PPTP and configure the parameters.

IPv4

Connection Type

PPTP

Username

Password

VPN Server/Domain Name

Get IP Address from ISP

☒ Enable

Primary DNS Server

.

.

.

(Optional)

Secondary DNS Server

.

.

.

(Optional)

Connection Mode

☒ Connect Automatically

☐ Connect Manually

☐ Time-based

Redial Interval

10

Seconds

(1-99999)

MTU

1420

(576-1420, default:1420)

MSS Clamping

☐ Disable

☒ Auto

☐ Custom

(536-1380)

VLAN ID

0

Secondary Connection

☐ Static IP

☒ Dynamic IP

Username	Enter the PPTP username provided by your ISP.
Password	Enter the PPTP password provided by your ISP.
VPN Server / Domain Name	Enter the VPN Server/Domain Name provided by your ISP.

Get IP address from ISP	With this option enabled, the gateway gets IP address from ISP when setting up the WAN connection. With this option disabled, you need to specify the IP address provided by your ISP.
Primary DNS Server / Secondary DNS Server	Enter the IP address of the DNS server provided by your ISP if there is any.
Connection Mode	Connect Automatically: The gateway activates the connection automatically when the connection is down. You need to specify the Redial Interval, which decides how often the gateway tries to redial after the connection is down. Connect Manually: You can manually activate or terminate the connection. Time-Based: During the specified period, the gateway will automatically activate the connection. You need to specify the Time Range when the connection is up.
Redial Interval	Specify how often the gateway tries to redial after the connection is down.
MTU	Specify the MTU (Maximum Transmission Unit) of the WAN port. MTU is the maximum data unit transmitted in the physical network. When the connection type is PPTP, MTU can be set in the range of 576-1420 bytes. The default value is 1420.
MSS Clamping	Specify the upper limit of the value of the MSS (Maximum Segment Size) field negotiated by the sending and receiving parties when establishing TCP connection to avoid IP fragmentation. If the value of the MSS field negotiated by the communication parties exceeds the specified value, the gateway will change the negotiated MSS field to the specified value Disabled: Disable the MSS Clamping function, and the gateway will not intervene in the MSS value negotiated by the communication parties. Auto: Automatically calculate MSS value based on path MTU. Custom: Select this option to specify the MSS value. It should not exceed the MTU value.
VLAN ID	Add the WAN port to a VLAN and you need to specify the VLAN ID. Generally, you don't need to manually configure it unless required by your ISP.
VLAN Priority	Priority is only available when Internet VLAN is enabled. The VLAN Priority function helps to prioritize the internet traffic based on your needs. You can determine the priority level for the traffic by specifying the tag. The tag ranges from 0 to 7. None means the packet will be forwarded without any operation.
Secondary Connection	Select the connection type required by your ISP. Static IP: Select this if your ISP provides you with a fixed IP address and subnet mask for the secondary connection. You need to specify the IP Address, Subnet Mask, Default Gateway (Optional), Primary DNS Server (Optional), and Secondary DNS Server (Optional) provided by your ISP. Dynamic IP: Select this if your ISP automatically assigns the IP address and subnet mask for the secondary connection.

■ MAP-E

Choose Connection Type as MAP-E according to your ISP information, click Advanced to configure the parameters as needed. With this connection type configured, some features on this WAN port (such as VPN, SD-WAN, IGMP, DDNS, UPnP, Disable NAT, Port Forwarding, NAT ALGP) will not be available.

Connection Type

MAP-E

MAP-E

V6 plus

Advanced Settings

VLAN ID

0

(1-4094)

VLAN Priority

0

MAP-E	V6 plus, IPv6 Option, and OCN virtual connect are supported.
VLAN ID	If the WAN port has VLAN enabled, enter the VLAN ID, and the WAN port will automatically join the VLAN. By default, the egress rule of VLAN is UNTAG, so the packets sent by the WAN port do not carry VLAN tags. If you want the packets sent by the WAN port to carry VLAN tags, configure its egress rule as TAG.
VLAN Priority	Priority is available only when VLAN is enabled. The VLAN Priority feature can prioritize the internet traffic as needed. You can determine the priority level for the traffic by specifying the tag. The tag ranges from 0 to 7.

■ DS-Lite

Choose Connection Type as DS-Lite according to your ISP information, click Advanced to configure the parameters as needed. With this connection type configured, some features on this WAN port (such as VPN, SD-WAN, IGMP, DDNS, UPnP, Disable NAT, Port Forwarding, NAT ALGP) will not be available.

Connection Type

DS-Lite

DS-Lite

Auto

Advanced Settings

VLAN ID

0

(1-4094)

VLAN Priority

0

DS-Lite	Select the connection type according to your ISP information. Auto: AFTR name will be automatically identified based on your ISP information. Manual: Manually enter the information provided by your ISP, which could be a URL or an IPv6 address. Transix (gw.transix.jp): Provided by Multifeed. IPv4 traffic is tunneled and encapsulated to the carrier's AFTR for centralized NAT translation. Xpass (dgw.xpass.jp): Provided by ARTERIA. Its underlying mechanism aligns with transix, enabling IPv4 access through carrier-grade NAT. V6 connect (dslite.v6connect.net): Provided by Asahi Net. It employs DS-Lite protocol encapsulation for IPv4 traffic, with all NAT state managed by the carrier side.
VLAN ID	If the WAN port has VLAN enabled, enter the VLAN ID, and the WAN port will automatically join the VLAN. By default, the egress rule of VLAN is UNTAG, so the packets sent by the WAN port do not carry VLAN tags. If you want the packets sent by the WAN port to carry VLAN tags, configure its egress rule as TAG.
VLAN Priority	Priority is available only when VLAN is enabled. The VLAN Priority feature can prioritize the internet traffic as needed. You can determine the priority level for the traffic by specifying the tag. The tag ranges from 0 to 7.

- Set Up IPv6 Connection

For IPv6 connections, check the box to enable the IPv6 connection, select the internet connection type according to the requirements of your ISP.

Connection Type	Dynamic IP (SLAAC/DHCPv6): If your ISP uses Dynamic IPv6 address assignment, either DHCPv6 or SLAAC+Stateless DHCP, select Dynamic IP (SLAAC/DHCPv6). Static IP: If your ISP provides you with a fixed IPv6 address, select Static IP. PPPoE: If your ISP uses PPPoEv6, and provides a username and password, select PPPoE. 6to4 Tunnel: If your ISP uses 6to4 deployment for assigning IPv6 address, select 6to4 Tunnel. 6to4 is an internet transition mechanism for migrating from IPv4 to IPv6, a system that allows IPv6 packets to be transmitted over an IPv4 network. The IPv6 packet will be encapsulated in the IPv4 packet and transmitted to the IPv6 destination through IPv4 network. Pass-Through (Bridge): In Pass-Through (Bridge) mode, the gateway works as a transparent bridge. The IPv6 packets received from the WAN port will be transparently forwarded to the LAN port and vice versa. No extra parameter is required.
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- Dynamic IP (SLAAC/DHCPv6)

Choose Connection Type as Dynamic IP (SLAAC/DHCPv6) and configure the parameters.

Connection Type	Dynamic IP (SLAAC/DHCPv6) ▼			
Get IPv6 Address	☒ Automatically	☐ Via SLAAC	☐ Via DHCPv6	☐ Non-Address
Prefix Delegation	☒ Enable ⓘ			
Prefix Delegation Size				(48-64) ⓘ
DNS Address	☒ Get from ISP Dynamically ☐ Use the Following DNS Addresses			

Get IPv6 Address

Select the proper method whereby your ISP assigns IPv6 address to your gateway.

Automatically: With this option selected, the gateway will automatically select SLAAC or DHCPv6 to get IPv6 addresses.

Via SLAAC: With SLAAC (Stateless Address Auto-Configuration) selected, your ISP assigns the IPv6 address prefix to the gateway and the gateway automatically generates its own IPv6 address. Also, your ISP assigns other parameters including the DNS server address to the gateway.

Via DHCPv6: With DHCPv6 selected, your ISP assigns an IPv6 address and other parameters including the DNS server address to the gateway using DHCPv6.

Non-Address: With this option selected, the gateway will not get an IPv6 address.

Prefix Delegation

Select Enable to get an address prefix by DHCPv6 server from your ISP, or Disable to designate an address prefix for your LAN port manually. Clients in LAN will get an IPv6 address with this prefix.

Prefix Delegation Size

With Prefix Delegation enabled, enter the Prefix Delegation Size to determine the length of the address prefix. If you are not sure about the value, you can ask your ISP.

DNS Address

Select whether to get the DNS address dynamically from your ISP or designate the DNS address manually.

Get from ISP Dynamically: The DNS address will be automatically assigned by the ISP.

Use the Following DNS Addresses: Enter the DNS address provided by the ISP.

■ Static IP

Choose Connection Type as Static IP and configure the parameters.

Connection Type	Static IP ▾	
IPv6 Address		(Format: 2001::)
Prefix Length		(1-128) ⓘ
Default Gateway		(Format: 2001::)
Primary DNS Server		(Format: 2001::)
Secondary DNS Server		(Optional. Format: 2001::)

IPv6 Address	Enter the static IPv6 address information received from your ISP.
Prefix Length	Enter the prefix length of the IPv6 address received from your ISP.
Default Gateway	Enter the default gateway provided by your ISP.
Primary DNS Server	Enter the IP address of the primary DNS server provided by your ISP.
Secondary DNS Server	(Optional) Enter the IP address of the secondary DNS server, which provides redundancy in case the primary DNS server goes down.

■ **PPPoE**

Choose Connection Type as PPPoE and configure the following parameters. Then click [Apply](#).

Connection Type	PPPoE ▾	
	☐ Share the same PPPoE session with IPv4	
Username		
Password		
Get IPv6 Address	☒ Automatically ☐ Via SLAAC ☐ Via DHCPv6 ☐ Non-Address ☐ Specified by ISP	
Prefix Delegation	☒ Enable ⓘ	
Prefix Delegation Size		(48-64) ⓘ
DNS Address	☒ Get from ISP Dynamically ☐ Use the Following DNS Addresses	

Share the same PPPoE session with IPv4	If your ISP provides only one PPPoE account for both IPv4 and IPv6 connections, and you have already established an IPv4 connection on this WAN port, you can check the box, then the WAN port will use the PPP session of IPv4 PPPoE connection to get the IPv6 address. In this case, you do not need to enter the username and password of the PPPoE account. If your ISP provides two separate PPPoE accounts for the IPv4 and IPv6 connections, or the IPv4 connection of this WAN port is not based on PPPoE, do not check the box and manually enter the username and password for the IPv6 connection.
Username	Enter the username of your PPPoE account provided by your ISP.
Password	Enter the password of your PPPoE account provided by your ISP.
Get IPv6 Address	Select the proper method whereby your ISP assigns IPv6 address to your gateway. Automatically: With this option selected, the gateway will automatically select the method to get IPv6 addresses between SLAAC and DHCPv6. Via SLAAC: With SLAAC (Stateless Address Auto-Configuration) selected, your ISP assigns the IPv6 address prefix to the gateway and the gateway automatically generates its own IPv6 address. Also, your ISP assigns other parameters including the DNS server address to the gateway. Via DHCPv6: With DHCPv6 selected, your ISP assigns an IPv6 address and other parameters including the DNS server address to the gateway using DHCPv6. Non-Address: With this option selected, the gateway will not get an IPv6 address. Specified by ISP: With this option selected, enter the IPv6 address you get from your ISP.
Prefix Delegation	Select Enable to get an address prefix by DHCPv6 server from your ISP, or Disable to designate an address prefix for your LAN port manually. Clients in LAN will get an IPv6 address with this prefix.
Prefix Delegation Size	With Prefix Delegation enabled, enter the Prefix Delegation Size to determine the length of the address prefix. If you are not sure about the value, you can ask your ISP.
DNS Address	Select whether to get the DNS address dynamically from your ISP or designate the DNS address manually. Get from ISP Dynamically: The DNS address will be automatically assigned by the ISP. Use the Following DNS Addresses: Enter the DNS address provided by the ISP.

■ 6to4 Tunnel

Choose Connection Type as 6to4 Tunnel and configure the parameters.

Connection Type
6to4 Tunnel

 If you want to configure the IPv6 address on the LAN side, it is recommended to use the SLAAC+Stateless DHCP or SLAAC+RDNS dialing method on the LAN side. If you want to use the DHCPv6 configuration, ensure that the first 48 bits are the same as the 6to4 IPv6 address on the WAN side; otherwise IPv6 WAN-LAN connection may not work.

DNS Address
☒ Get from ISP Dynamically
☐ Use the Following DNS Addresses

DNS Address	Select whether to get the DNS address dynamically from your ISP or designate the DNS address manually. Get from ISP Dynamically : The DNS address will be automatically assigned by the ISP. Use the Following DNS Addresses : Enter the DNS address provided by the ISP.
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■ **Pass-Through (Bridge)**

Choose Connection Type as Pass-Through (Bridge) and no configuration is required for this type of connection.

Connection Type

Pass-Through(Bridge)

• **Set Up MAC Address**

Launch the controller and access a site. Go to [Network Config > Network Settings > Internet](#). In the [WAN Ports Config](#) section, click the edit icon of a WAN port and configure the MAC address according to actual needs.

MAC Address	Use Default MAC Address : The WAN port uses the default MAC address to set up the internet connection. It's recommended to use the default MAC address unless required otherwise. Customize MAC Address : The WAN port uses a customized MAC address to set up the internet connection and you need to specify the MAC address. Typically, this is required when your ISP bound the MAC address with your account or IP address. If you are not sure, contact the ISP.
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Step 3: (Optional) Configure Load Balancing

Note: Loading Balancing is only available when you configure more than one WAN port.

Launch the controller and access a site. Go to [Network Config > Network Settings > Internet](#). In [Load Balancing](#), configure the following parameters and click [Apply](#).

Load Balancing

Load Balancing Weight

1

:

1

SFP WAN/LAN1

WAN2

Application Optimized Routing☒ Enable

Link Backup☒ Enable

Recover Mode☒ Link Backup☐ Always Link Primary

Primary WAN

Please Select...

Backup WAN

Please Select...

Failover Mode☒ Enable backup link when any primary WAN fails☐ Enable backup link when all primary WANs fail☐ Timing

Load Balancing Weight	Specify the ratio of network traffic that each WAN port carries.
Application Optimized Routing	With Application Optimized Routing enabled, the gateway will consider the source IP address and destination IP address (or destination port) of the packets as a whole and record the WAN port they pass through. Then the packets with the same source IP address and destination IP address (or destination port) will be forwarded to the recorded WAN port. This feature ensures that multi-connected applications work properly.
Link Backup	With Link Backup enabled, the gateway will switch all the new sessions from dropped lines automatically to another to keep an always on-line network.
Recover Mode	Link Backup: The system will switch all the new sessions from dropped line automatically to another to keep an always on-link network. Always Link Primary: Traffic is always forwarded through the primary WAN port unless it fails. The system will try to forward the traffic via the backup WAN port when it fails, and switch back when it recovers.
Primary WAN	Specify the primary WAN port. You can choose one or more primary WAN ports to perform load balance.
Backup WAN	Specify a backup WAN which will take over to forward the traffic when the primary WAN fails.
Failover Mode	Select when to enable the backup link. Enable backup link when any primary WAN fails: Link Backup will be enabled when any one of the primary WANs fails. Enable backup link when all primary WANs fail: Link Backup will be enabled only when all primary WANs fail. Timing: Link Backup will be enabled after the specified effective time is reached. When the effective time starts, traffic on the primary WAN will be switched to the backup WAN; when the effective time ends, traffic on the backup WAN will be switched to the primary WAN.

Step 4: (Optional) Speed Test Settings

Configure the speed test setting, and the system will automatically test the speed of all WAN ports according to predefined time.

Launch the controller and access a site. Go to **Network Config > Network Settings > Internet**. In **Speed Test Settings**, check the box to enable **Automatic Speed Test**, specify the test schedule and click **Apply**.

Speed Test Settings

Automatic Speed Test

☒

Enable

Schedule

☒Daily☐Weekly☐Monthly

Time

00:00

Speed Test Settings

Automatic Speed Test

☒

Enable

Schedule

☐Daily

☒Weekly☐Monthly

Repeat On

SunMonTueWedThuFriSat

Time

00:00

Speed Test Settings

Automatic Speed Test

☒

Enable

Schedule

☐Daily☐Weekly

☒Monthly

On the Date

Please Select...

Time

00:00

Schedule	Specify the schedule mode to automatically test the speed.
Daily	When this option is selected, specify the specific time, and the system will automatically test the speed at this specific time every day.
Weekly	With this option is selected, select the day and specify time to repeat, and the system will automatically test the speed at the specific time on the selected day.
Monthly	With this option is selected, select the date of every month and specify time to repeat, and the system will automatically test the speed at the specific time on the selected date each month.

6.3 Configure LAN Networks

Overview

The LAN page allows you to configure wired internal network. Based on 802.1Q VLAN, Omada Controller provides a convenient and flexible way to separate and deploy the network. The network can be logically segmented by departments, application, or types of users, without regard to geographic locations.

Guidelines

To create a LAN, follow the guidelines:

- 1) Create a new Network with specific purpose. Select the device to serve as the DHCP Server based on the purpose of the VLAN, configure the VLAN on the selected device, specify the VLAN ID, and set related network parameters.
- 2) Bind the VLAN to the destination device port according to the actual use scenario. It can flexibly divide the network logic boundary to meet different business requirements.
- 3) Confirm the configuration and apply to activate the VLAN.
- 4) View the devices that are currently functioning in this VLAN through the topology view or check the configuration of this VLAN on the device ports through the port view.

Configuration

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Network Settings](#) > [LAN](#) > [VLAN](#). Click [Add](#) to create a network.

← Add LAN

1 Network Parameters

2 Select Device Port

3 Confirm

Network Name

VLAN

Single

(1-4094)

DHCP Server Device

00-FF-00-31-ED-FD

IP Address/Mask

192.168.1.1 / 24

DHCP Service

☐ Disabled

☒ DHCP Server

DHCP Server Config

DHCP Server IP

192.168.1/24

Update DHCP Config

DHCP Pool Range

192.168.1 - 192.168.254

DHCP Pool Mask

24/(255.255.255.0)

Default Gateway IP

☒ Auto

☐ Manual

DNS Server IP

☒ Auto

☐ Manual

Lease Time

120

minutes

(2-10080)

DHCP Next Server

(Optional)

DHCP Option

Name	Option Code	Type	Value	Action
+ Add a DHCP Option				

Advanced Settings

3. Set the network name, VLAN type and specify the VLAN ID.

Network Name	Enter a name to identify the network.
VLAN	Specify whether to use a single VLAN or multiple VLANs, and enter a VLAN ID or a VLAN ID range with the value between 1 and 4094. Each VLAN can be uniquely identified by its VLAN ID, which is transmitted and received as IEEE 802.1Q tag in an Ethernet frame.

4. Select the DHCP Server Device type for the network. Parameters to configured will vary by device type.

■ If you select a gateway, configure the following parameters:

IP Address/Mask	Enter the IP address and subnet mask in the CIDR format. The CIDR Notation here includes the IP address and subnet mask of the default gateway. The summary of the information that you entered will show up below in realtime.
DHCP Service	You can select to set the gateway to server as a DHCP server for this network. A DHCP server assigns IP addresses, DNS server, default gateway, and other parameters to all devices in the network. Select Disabled if there is already a DHCP server in the network.

Expand DHCP Server Config to configure the following parameters.

DHCP Server IP	Not configurable. It is the same as the device interface IP. Click Update DHCP Config to automatically update the DHCP configuration (including DHCP Pool Range and DHCP Pool Mask).
DHCP Pool Range	The range of IP addresses that the DHCP server can assign to clients. Clients obtaining an IP address via DHCP will be assigned one from this range.

DHCP Pool Mask	The subnet mask of the DHCP address pool, used to determine the network and host portions of the IP addresses assigned to clients.
Default Gateway IP	The default gateway address assigned to DHCP clients, which clients will use to access other network segments or the internet. When set to Auto, the DHCP Server IP will be used as the DNS address.
DNS Server IP	When set to Auto, the DHCP Server IP will be used as the DNS address.
Lease Time	The duration of the IP address lease assigned to clients by the DHCP server.
DHCP Next Server	Specifies the next server address that DHCP clients should contact during the boot process, typically used for scenarios such as PXE network booting.
DHCP Option	Used to configure additional DHCP option fields (Option Code and Value) to deliver custom network parameters to clients.

You can expand and configure [Advanced Settings](#) if needed.

Multicast Snooping	Select the Multicast Snooping function to be enabled. For more detailed configuration requirements, please visit the LAN-Multicast Snooping page. IGMP Snooping: Click the checkbox to monitor IGMP (Internet Group Management Protocol) traffic and thereby manage multicast traffic. MLD Snooping: Click the checkbox to monitor MLD (Multicast Listener Discovery) traffic and thereby manage IPv6 multicast traffic.
Legal DHCP Servers	Specify legal DHCP servers for the network. With legal DHCP servers configured, Omada Gateways and Switches ensure that clients get IP addresses only from the DHCP servers specified here.
Legal DHCPv6 Servers	Click the checkbox to specify legal DHCPv6 servers for the network. With legal DHCPv6 servers configured, Omada Gateways and Switches ensure that clients get IPv6 addresses only from the DHCPv6 servers specified here.
DHCP L2 Relay	With DHCP L2 relay enabled, Omada switches configure the Option 82 field of the DHCP packets and transmit the packets in the LAN.
Isolate Network	Click the check box to isolate the network from communication with other networks (except the Internet).
ARP Detection	When enabled, the gateway will broadcast ARP requests to obtain the status of the dumb terminal. It is recommended that the subnet mask be no less than 24 bits.

You can expand and configure IPv6 connections for the LAN clients if needed. First, determine the method whereby the gateway assigns IPv6 addresses to the clients in the local network. Some clients may support only a few of these connection types, so you should choose it according to the compatibility of clients in the local network.

IPv6 Interface Type	Configure the type of assigning IPv6 address to the clients in the local network. None: IPv6 connection is not enabled for the clients in the local network. DHCPv6: The gateway assigns an IPv6 address and other parameters including the DNS server address to each client using DHCPv6. SLAAC+Stateless DHCP: The gateway assigns the IPv6 address prefix to each client and the client automatically generates its own IPv6 address. Also, the gateway assigns other parameters including the DNS server address to each client using DHCPv6. SLAAC+RDNSS: The gateway assigns the IPv6 address prefix to each client and the client automatically generates its own IPv6 address. Also, the gateway assigns other parameters including the DNS server address to each client using the RDNSS option in RA (Router Advertisement). Pass-Through: Select this type if the WAN ports of the gateway use the Pass-Through for IPv6 connections.
----------------------------	--

With DHCPv6 selected, configure the following parameters.

Gateway/Subnet	Enter the IP address and subnet mask in the CIDR format. The CIDR notation here includes the IP address and subnet mask of the default gateway. The summary of the information that you entered will show up below in real time.
DHCP Range	Enter the starting and ending IP addresses of the DHCP address pool in the fields provided. For quick operation, click Update DHCP Range beside the Gateway/Subnet entry to get the IP address range populated automatically, and edit the range according to your needs.
Lease Time	This entry determines how long the assigned IPv6 address remains valid. Either keep the default 1440 minutes or change it if required by your ISP.
DNS Server	Select a method to configure the DNS server for the network. With Auto selected, the DHCP server automatically assigns DNS server for devices in the network. With Manual selected, enter the IP address of a server in each DNS server field.
RA Priority	Specify the router priority to help a host choose its default gateway. If a host receives RA messages from multiple routers, it will select the router with the highest RA priority as the default gateway. In the case of routers with the same priority, it will select the router whose RA message is received first as the default gateway.
RA Valid Lifetime	Specify the validity lifetime of the prefix. The addresses automatically generated with the prefix can be used normally during the valid lifetime, and they will become invalid and be deleted after the valid lifetime expires.
RA Preferred Lifetime	Specify the preferred lifetime for stateless auto-configuration of addresses with the prefix. After the preferred lifetime expires, the addresses automatically configured by the hosts with this prefix will be abolished. A host cannot use an abolished address to establish a new connection, but it can still receive packets whose destination address is an abolished address. The RA Preferred Lifetime must be less than or equal to the RA Valid Lifetime.

With SLAAC+Stateless DHCP selected, configure the following parameters.

Prefix	Configure the IPv6 address prefix for each client in the local network. Manual Prefix: With Manual Prefix selected, enter the prefix in the Address Prefix field. Get from Prefix Delegation: With Get from Prefix Delegation selected, select the WAN port with Prefix Delegation configured, and the clients will get the address prefix from the Prefix Delegation.
Address Prefix	With Get from Prefix Delegation selected, enter the Address Prefix, which will be added to the prefix to obtain a /64 subnet. The range of IPv6 Prefix ID is determined by the larger value of Prefix Delegation Size and Prefix Delegation Length (obtained from the ISP). Note that if the Prefix Delegation Length is larger than 64, the IPv6 Prefix ID cannot be obtained from Prefix Delegation, please select another method. In site view, go to Network Config > Network Settings > Internet to configure Prefix Delegation Size.
DNS Server	Select a method to configure the DNS server for the network. Auto: With Auto selected, the DHCP server automatically assigns DNS server for devices in the network. Manual: With Manual selected, enter the IP address of a server in each DNS server field.
RA Priority	Specify the router priority to help a host choose its default gateway. If a host receives RA messages from multiple routers, it will select the router with the highest RA priority as the default gateway. In the case of routers with the same priority, it will select the router whose RA message is received first as the default gateway.
RA Valid Lifetime	Specify the validity lifetime of the prefix. The addresses automatically generated with the prefix can be used normally during the valid lifetime, and they will become invalid and be deleted after the valid lifetime expires.
RA Preferred Lifetime	Specify the preferred lifetime for stateless auto-configuration of addresses with the prefix. After the preferred lifetime expires, the addresses automatically configured by the hosts with this prefix will be abolished. A host cannot use an abolished address to establish a new connection, but it can still receive packets whose destination address is an abolished address. The RA Preferred Lifetime must be less than or equal to the RA Valid Lifetime.
With SLAAC+RDNSS selected, configure the following parameters.	
Prefix	Configure the IPv6 address prefix for each client in the local network. Manual Prefix: With Manual Prefix selected, enter the prefix in the Address Prefix field. Get from Prefix Delegation: With Get from Prefix Delegation selected, select the WAN port with Prefix Delegation configured, and the clients will get the address prefix from the Prefix Delegation.
Address Prefix	With Get from Prefix Delegation selected, enter the Address Prefix, which will be added to the prefix to obtain a /64 subnet.

DNS Server	Select a method to configure the DNS server for the network. Auto: With Auto selected, the DHCP server automatically assigns DNS server for devices in the network. Manual: With Manual selected, enter the IP address of a server in each DNS server field.
RA Priority	Specify the router priority to help a host choose its default gateway. If a host receives RA messages from multiple routers, it will select the router with the highest RA priority as the default gateway. In the case of routers with the same priority, it will select the router whose RA message is received first as the default gateway.
RA Valid Lifetime	Specify the validity lifetime of the prefix. The addresses automatically generated with the prefix can be used normally during the valid lifetime, and they will become invalid and be deleted after the valid lifetime expires.
RA Preferred Lifetime	Specify the preferred lifetime for stateless auto-configuration of addresses with the prefix. After the preferred lifetime expires, the addresses automatically configured by the hosts with this prefix will be abolished. A host cannot use an abolished address to establish a new connection, but it can still receive packets whose destination address is an abolished address. The RA Preferred Lifetime must be less than or equal to the RA Valid Lifetime.
With Pass-Through selected, configure the following parameters.	
IPv6 Prefix Delegation Interface	Select the WAN port using Pass-Through (Bridge) for the IPv6 connection.

■ **If you select a switch, configure the following parameters:**

VRF	(For certain models) Select the VRF instance. More instances can be created on the device's configuration page.
IP Address Mode	Select a method to configure the IP for the DHCP Server Static: Specify the IP of DHCP servers manually. Enter the IP address of server in IP Address/Subnet field. DHCP: The DHCP server is automatically assigned an IP address in the network.
Host Name	Enter the value for DHCP Option 12. It is used in carrying the host name or device identification information of the client device in a DHCP interactive message.
IP Address/Mask	Enter the IP address and subnet mask in the CIDR format.

DHCP Service

Select a mode for the clients in the VLAN to obtain their IP address.

Disabled: Do not use DHCP to assign IP addresses.

DHCP Server: Assign an IP address to the clients through a DHCP server.

When DHCP Server is selected, you can specify the **DHCP Range**, and the IP addresses in the range can be assigned to the clients in the VLAN. Also, it is optional for you to specify the **DHCP Option 138**, **Primary/Secondary DNS**, **Default Gateway**, and **Lease Time**. DHCP Option 138 informs the DHCP client of the controller's IP address when the client sends a request to the DHCP server, and specify Option 138 as the controller's IP address here. Lease Time decides how long the client can use the assigned IP address.

DHCP Relay: It allows clients in the VLAN to obtain IP addresses from a DHCP server on different subnet. When DHCP Relay is selected, specify the IP address of the DHCP server in **Server Address**.

Expand **DHCP Server Config** to configure the following parameters.

DHCP Server IP

Not configurable. It is the same as the device interface IP. Click Update DHCP Config to automatically update the DHCP configuration (including DHCP Pool Range and DHCP Pool Mask).

DHCP Pool Range:

The range of IP addresses that the DHCP server can assign to clients. Clients obtaining an IP address via DHCP will be assigned one from this range.

DHCP Pool Mask

The subnet mask of the DHCP address pool, used to determine the network and host portions of the IP addresses assigned to clients.

DHCP Server VRF

The DHCP server VRF allows a single DHCP server to assign IP addresses to clients across multiple isolated Virtual Routing and Forwarding (VRF) instances.

Default Gateway IP

The default gateway address assigned to DHCP clients, which clients will use to access other network segments or the internet. When set to Auto, the device interface IP address will be used.

DNS Server IP

The DNS server address assigned to DHCP clients for domain name resolution. When set to Auto, the device interface IP address will be used.

Lease Time

The duration of the IP address lease assigned to clients by the DHCP server.

DHCP Option

Used to configure additional DHCP option fields (Option Code and Value) to deliver custom network parameters to clients.

You can expand and configure **Advanced DHCP Options** if needed.

Multicast Snooping

Select the Multicast Snooping function to be enabled. For more detailed configuration requirements, please visit the LAN-Multicast Snooping page.

IGMP Snooping: Click the checkbox to monitor IGMP (Internet Group Management Protocol) traffic and thereby manage multicast traffic.

MLD Snooping: Click the checkbox to monitor MLD (Multicast Listener Discovery) traffic and thereby manage IPv6 multicast traffic.

Legal DHCP Servers	Specify legal DHCP servers for the network. With legal DHCP servers configured, Omada Gateways and Switches ensure that clients get IP addresses only from the DHCP servers specified here.
Legal DHCPv6 Servers	Click the checkbox to specify legal DHCPv6 servers for the network. With legal DHCPv6 servers configured, Omada Gateways and Switches ensure that clients get IPv6 addresses only from the DHCPv6 servers specified here.
DHCP L2 Relay	With DHCP L2 relay enabled, Omada switches configure the Option 82 field of the DHCP packets and transmit the packets in the LAN.

■ If you select **External Device**, configure the following parameters:

Note: This VLAN will be managed by an external device for network services. Please ensure that the external device has correctly configured the interface gateway and DHCP settings for this VLAN.

You can expand and configure **Advanced Settings** if needed.

Multicast Snooping	Select the Multicast Snooping function to be enabled. For more detailed configuration requirements, please visit the LAN-Multicast Snooping page. IGMP Snooping: Click the checkbox to monitor IGMP (Internet Group Management Protocol) traffic and thereby manage multicast traffic. MLD Snooping: Click the checkbox to monitor MLD (Multicast Listener Discovery) traffic and thereby manage IPv6 multicast traffic.
Legal DHCP Servers	Click the checkbox to specify legal DHCP servers for the network. With legal DHCP servers configured, Omada Gateways and Switches ensure that clients get IP addresses only from the DHCP servers specified here.
Legal DHCPv6 Servers	Click the checkbox to specify legal DHCPv6 servers for the network. With legal DHCPv6 servers configured, Omada Gateways and Switches ensure that clients get IPv6 addresses only from the DHCPv6 servers specified here.
DHCP L2 Relay	With DHCP L2 relay enabled, Omada switches configure the Option 82 field of the DHCP packets and transmit the packets in the LAN.

■ If you select **None**, configure the following parameters:

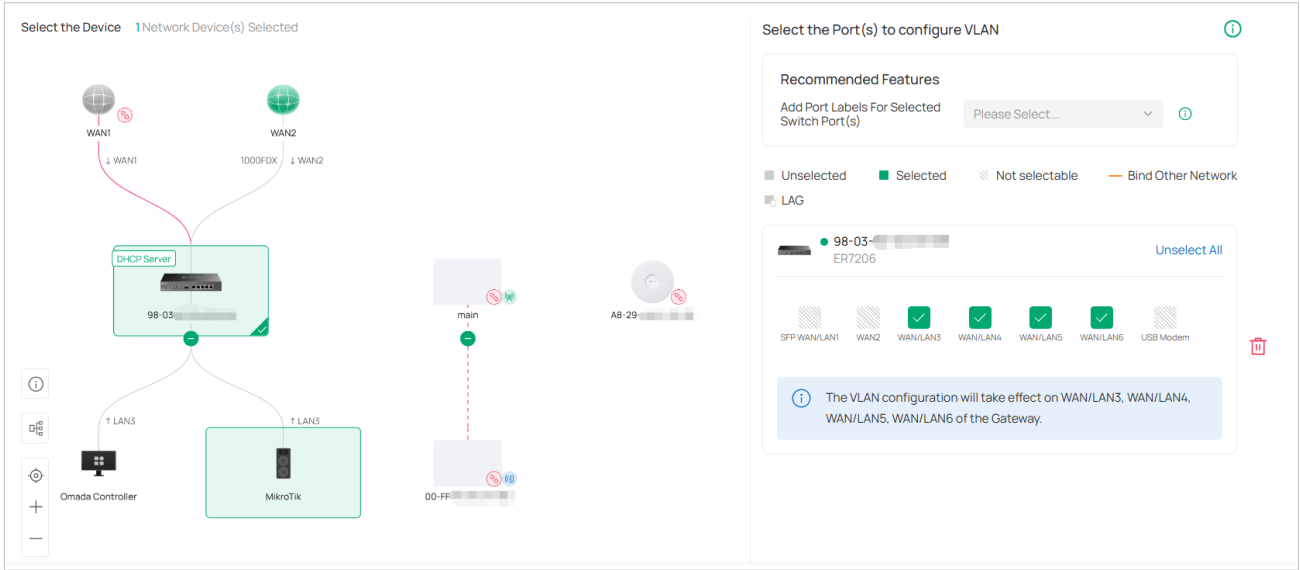
Note: This VLAN has no gateway and no DHCP service, and will operate as a pure Layer 2 switching network. Devices within the VLAN need to be manually configured with static IP addresses and can only communicate with other devices in the same VLAN.

You can expand and configure **Advanced Settings** if needed.

Multicast Snooping	Select the Multicast Snooping function to be enabled. For more detailed configuration requirements, please visit the LAN-Multicast Snooping page. IGMP Snooping: Click the checkbox to monitor IGMP (Internet Group Management Protocol) traffic and thereby manage multicast traffic. MLD Snooping: Click the checkbox to monitor MLD (Multicast Listener Discovery) traffic and thereby manage IPv6 multicast traffic.
Legal DHCP Servers	Click the checkbox to specify legal DHCP servers for the network. With legal DHCP servers configured, Omada Gateways and Switches ensure that clients get IP addresses only from the DHCP servers specified here.

Legal DHCPv6 Servers	Click the checkbox to specify legal DHCPv6 servers for the network. With legal DHCPv6 servers configured, Omada Gateways and Switches ensure that clients get IPv6 addresses only from the DHCPv6 servers specified here.
DHCP L2 Relay	With DHCP L2 relay enabled, Omada switches configure the Option 82 field of the DHCP packets and transmit the packets in the LAN.

6. Click **Next**. Select the port(s) to configure VLAN. The VLAN determines the Port VLAN Identifier (PVID) for switch ports. If you set the **VLAN Type** to **Multiple** in the previous step, select the port(s) to add it to the tagged network.



7. Configure recommended features if needed.

Port Isolation	When enabled, Port Isolation will be applied to the selected ports to enhance security.
Flow Control	When enabled, 802.3 pause frames notify IPCs to temporarily buffer video data during network congestion, preventing frame loss that would occur when packets are dropped. This requires IPC support for the protocol.
Add Port Labels For Selected Switch Port(s)	This option is used to add labels to the selected switch ports, facilitating centralized port management on the Device Config > Switch Ports page.

8. Click **Next**. Confirm your settings and click **Apply**. The VLAN network will be added to the list. Now you can view the devices that are currently functioning in this VLAN through the topology view or check the configuration of this VLAN on the device ports through the port view.

6.4 Configure Multicast Snooping

You can configure Multicast Snooping to optimize multicast traffic management.

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Network Settings](#) > [LAN](#) > [Multicast Snooping](#). Click **+Add**.

Name

Snooping Network

Please Select... ▾

Protocol

☒ IGMP Snooping (v4) ☐ MLD Snooping (v6)

Unknown Multicast ⓘ

Forward ▾

☐ Exceptional Device

Flood Known Protocols ⓘ

☐ Enable

Querier ⓘ

☐ Enable

Manual Router Port ⓘ

☐ Enable

⊟ Snooping Advanced Config

Report Suppression ⓘ

☐ Enable ☐ Exceptional Device

Member Port Aging Time

260

seconds

(60-600)

Router Port Aging Time

300

seconds

(60-600)

Leave Time

1

seconds

(1-30)

3. Configure the parameters and apply the settings.

Name	Enter a name to identify the Multicast network.
Snooping Network	Select the target network for multicast configuration, which will automatically enable its multicast snooping.
Protocol	Choose between IGMP (IPv4) or MLD (IPv6) based on network protocol requirements.
Unknown Multicast	Specify handling method for unidentified multicast packets. Forward: Flood unknown multicast traffic within VLAN. Discard: Drop unknown multicast packets. Router Port First: Forward to router ports (static/dynamic) if available; otherwise flood within VLAN. Exceptional Device: When enabled, you can click +Add to add exceptional devices and specify how unknown multicast packets from the selected devices are processed.
Flood Known Protocols	When enabled, IGMP Snooping will be activated, Unknown Multicast will be discarded, and the Switch can transparently transmit SSDP (Simple Service Discovery Protocol) messages.

Querier	Set a switch as the querier for a specific network, and configure more parameters in Advanced Settings.
Manual Router Port	Manually set Static Router Port and Forbidden Router Port. Static Router Port: Select one or more ports to be the Static Router Ports in the network. All multicast data in this network will be forwarded through the static router ports. Forbidden Router Port: Select one or more ports to forbid them from being router ports in the network.
Report Suppression	When enabled, the switch will only forward the first IGMP report message for each multicast group to L3 devices during one query interval. This feature prevents duplicate report messages from being sent to the L3 devices. Exceptional Device: When enabled, you can click +Add to add exceptional devices and these exceptional devices will not apply report suppression.
Member Port Aging Time	Specify the aging time of the member ports in the Network. If the switch does not receive any IGMP membership report messages for a specific multicast group from a dynamic member port, it will no longer consider this port as a member port of this multicast group and delete it from the multicast forwarding table.
Router Port Aging Time	Specify the aging time of the router ports in the Network. If the switch does not receive any IGMP general query message from a dynamic router port within the router port aging time, the switch will no longer consider this port as a router port and delete it from the router port list.
Leave Time	Specify the leave time for the Network. When the switch receives a leave message from a port to leave a multicast group, it will wait for a leave time before removing the port from the multicast group. During the period, if the switch receives any report messages from the port, the port will not be removed from the multicast group. Exceptions are as follows: If the member port ages out before the Leave Time ends and no report messages are received, the port will be removed from the multicast group once its Member Port Aging Time ends. The Leave Time mechanism will not take effect when Fast Leave takes effect.

6.5 Configure Network Isolation

When creating a VLAN, you can configure whether to isolate network segments in the advanced settings.

You can also configure network isolation on the Isolation Settings page to manage communication between VLANs.

Note: Network Isolation is only supported for networks with the Omada Gateway configured as the DHCP Server Device.

1. Launch the controller and access a site.
2. Go to **Network Config > Network Settings > LAN > Isolation Settings**.

Isolated Network ⓘ ⓘ
The Isolated network will only access the internet and cannot communicate with other networks.

Search Name, VLAN 🔍

2-5,8,20
VLAN 2-5,8,20 —

Clear All

Interconnected Network
Interconnected networks can communicate with each other.

Search Name, VLAN 🔍 Add All

Default
VLAN 1 +

123
VLAN 123 +

_Test201
VLAN 201 +

_test301
VLAN 301 +

Apply Cancel

3. Select the network to be isolated. Click the **Add** button on the right or drag to move the Network to the Isolated Network area to isolate it.

6.6 Configure LAN DNS

1. Launch the controller and access a site.
2. Go to [Network Config > Network Settings > LAN > LAN DNS](#).
3. Click [Create New LAN DNS](#) to load the following page, set the parameters, and save the settings.

Create New LAN DNS

Profile Name

Status

☐ Enable

Domain Name

Alias Domain Name

+ Add Alias Domain Name

Type

IP

TTL ⓘ

☐ 3600 sec (1-86400)

IP Address

+ Add IP Address

IPv6 Address

+ Add IPv6 Address

Apply To LAN

Please Select...

Save

Cancel

Profile Name	Specify the name of the profile.
Status	Whether to enable this entry.
Domain Name	Enter the domain name.
Alias Domain Name	If a server provides different services and has multiple domain names, you can enter them here.
Type	There are three options, IP, CNAME, and FORWARD. IP: When selected, the gateway will respond to the DNS query of the specified domain name, and use the configured IP address as the DNS response to directly reply to the LAN host. Select this type when there is a web server in the intranet and you want hosts in the LAN to access the web server through private IP addresses instead of public IP addresses. CNAME: When selected, the gateway will map the domain name to the configured CNAME domain name, send it to the DNS server for query, and then reply to the LAN host with the IP corresponding to the CNAME domain name. FORWARD: When selected, the gateway will forward the DNS query of the LAN host to the specified DNS server, and reply the DNS response to the LAN host. The forwarding priority is higher than other public configurations, such as the DNS Server configured on the WAN port.
IP Address	When the Type is IP, it is the IPv4 address of the returned DNS response.

TTL	When the Type is IP, set TTL to specify the amount of time DNS information that is allowed to be cached before it expires and needs to be refreshed. It is recommended to use the default TTL for each record.
IPv6 Address	When the Type is IP, it is the IPv6 address of the returned DNS response.
Apply To LAN	When the Type is IP or CNAME, it is the LAN network to which the rule applies. You can choose to apply all LANs or apply to a single LAN or multiple LANs.
CNAME	When Type is CNAME, set the domain name to which Domain Name and Alias Domain Name need to be mapped.
DNS Server	When the Type is FORWARD, set the Domain Name and Alias Domain Name to be forwarded to a specific DNS Server, up to two DNS Servers can be configured.

Chapter 7

Configure Wireless Networks

Wireless networks enable your wireless clients to access the internet. Once you set up a wireless network, your wireless devices typically broadcast the network name (SSID) in the air, through which wireless clients connect to the wireless network and access the internet.

An AP group is a combination of wireless networks with different configurations including WLAN Schedule, 802.11 Rate Control, MAC Filter, and Multicast/Broadcast Management. These wireless networks can be flexibly applied to different APs based on needs.

This chapter guides you on how to configure wireless networks with the Omada Controller. The chapter includes the following sections:

- [7.1 Set Up Basic Wireless Networks](#)
- [7.2 Configure Advanced Settings](#)
- [7.3 Configure Hotspot 2.0](#)
- [7.4 Configure WLAN Schedules](#)
- [7.5 Configure 802.11 Rate Control](#)
- [7.6 Configure MAC Filtering](#)
- [7.7 Configure Multicast/Broadcast Management](#)
- [7.8 DHCP Option 82](#)
- [7.9 Configure WLAN Optimization](#)

7.1 Set Up Basic Wireless Networks

Configuration

To create, configure and apply wireless networks, follow these steps:

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Network Settings](#) > [WLAN](#).
3. Click [Add SSID](#). Configure basic parameters for the network.

← Create New Wireless Network

Network Name (SSID)

Band

☒ 2.4 GHz

☒ 5 GHz

☒ 6 GHz ⓘ

Choose Devices

☐ All Devices ⓘ

☒ Custom

☐ AP

Select AP Group

▼

☐ Gateway

Guest Network

☐ Enable ⓘ

Security

WPA-Personal

▼

Security Key

Password

🔒

+ Advanced Settings

+ WLAN Schedule

+ 802.11 Rate Control

+ MAC Filtering ⓘ

+ Multicast/Broadcast Management ⓘ

+ DHCP Option 82

Apply

Cancel

Network Name (SSID)

Enter the network name (SSID) to identify the wireless network. The users of wireless clients choose to connect to the wireless network according to the SSID, which appears on the WLAN settings page of wireless clients.

Band

Enable the radio band(s) for the wireless network.

Note: Only certain models support 6 GHz band. When 6 GHz is turned on, Security cannot be PPSK without RADIUS since 6 GHz does not support it.

Choose Devices

Select the devices that the wireless network can apply to.

All Devices: The wireless network will apply to all wireless devices in the site.

Custom: Specify the AP group and/or gateway to apply the wireless network. You can click the [Select AP Group](#) drop-down list to add new AP groups or choose existing AP groups to apply.

Guest Network	With this option enabled, the guest network will prevent wireless clients from communicating with each other. This may restrain the functions of AirPlay, ChromeCast, Sonos devices, screen mirroring, and wireless printers.
Security	Select the encryption method for the wireless network based on needs.

4. Select the security strategy for the wireless network.

■ None

With None selected, the hosts can access the wireless network without authentication, which is applicable to lower security requirements.

Security

None

OWE

☐ Enable

OWE	Opportunistic Wireless Encryption, also known as Enhanced Open, is a certification provided by the Wi-Fi Alliance as part of the WPA3 wireless security standard. OWE will enable two wireless APs per radio, one for access of OWE-supported stations, and one for access of other stations. An SSID with OWE enabled will be counted as two SSID entries.
-----	---

■ WPA-Personal

With WPA-Personal selected, traffic is encrypted with a Security Key you set,

Security

WPA-Personal

Security Key

Password

Security Key	Specify a security key to encrypt the traffic.
--------------	--

■ WPA-Enterprise

WPA-Enterprise requires an authentication server to authenticate wireless clients, and probably an accounting server to record the traffic statistics.

Security

WPA-Enterprise

RADIUS Profile

NAS ID

☒ Default (TP-Link: MAC Address)

☐ Follow Device Name

☐ Custom

RADIUS Profile	Select a RADIUS Profile, which records the settings of the authentication server and accounting server. You can create a RADIUS Profile by clicking Create New Radius Profile from the drop-down list of RADIUS Profile. For details, refer to the network profile configuration section in this guide.
NAS ID	Configure a Network Access Server Identifier (NAS ID) for the authentication. Authentication request packets from the controller to the RADIUS server carry the NAS ID. The RADIUS server can classify users into different groups based on the NAS ID, and then choose different policies for different groups. The NAS ID can be a default one (TP-Link: MAC Address), follow the device name, or a customized one.

■ **PPSK without RADIUS**

PPSK (private pre-shared key) can provide a unique PSK for each wireless user. Compared with the traditional SSID solution with one password for all users, it is more secure.

Security	PPSK without RADIUS	▼	
PPSK Profile		▼	Manage PPSK Profile

PPSK Profile	Select a PPSK Profile, which records the PPSK settings. You can create a PPSK Profile by clicking Create New PPSK Profile from the drop-down list of PPSK Profile. For details, refer to the network profile configuration section in this guide.
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■ **PPSK with RADIUS**

PPSK (private pre-shared key) can provide a unique PSK for each wireless use. PPSK with RADIUS requires an authentication server to authenticate wireless clients and probably an accounting server to record the traffic statistics. The SSID will not be applied to the device firmware not supporting PPSK.

Security	PPSK with RADIUS	▼	
RADIUS Profile		▼	
Authentication type	Generic Radius with bound MAC	▼	
NAS ID			(Optional)
MAC Address Format	aa:bb:cc:dd:ee:ff	▼	

RADIUS Profile	Select a RADIUS Profile, which records the settings of the authentication server and accounting server. You can create a RADIUS Profile by clicking + Create New Radius Profile from the drop-down list of RADIUS Profile. For details, refer to the network profile configuration section in this guide.
--------------------------------	---

Authentication type

Choose the authentication type.

Generic Radius with bound MAC: This method uses a device's unique MAC address as the username and password for a RADIUS server to grant or deny network access. This type needs to specify device MAC addresses.

EKMS: The EKMS (Eleven Key Matching Service) authentication type is used to connect to the ElevenOS server. Only the EKMS authentication method in PPSK with RADIUS supports domain name.

Generic Radius with unbound MAC: This method uses a client's MAC address as the username and password for a RADIUS server to grant or deny network access. This type does not need to specify device MAC addresses.

NAS ID

Configure a Network Access Server Identifier (NAS ID) for the authentication. Authentication request packets from the controller to the RADIUS server carry the NAS ID. The RADIUS server can classify users into different groups based on the NAS ID, and then choose different policies for different groups.

MAC Address Format

Select clients' MAC address format which the controller uses for authentication. Then configure the MAC addresses in the specified format as usernames for the clients on the RADIUS server.

- (Optional) You can also configure Advanced Settings, WLAN Schedule, 802.11 Rate Control, and MAC Filtering, and more according to your needs. Related topics are covered later in this chapter.
- Click **Apply**. The new wireless network will be added to the wireless network list. In the Action column, you can click the Edit icon to edit a network or click the Delete icon to delete a network.

SSID Name	Enabled	Security	Band	Devices	Clients	Traffic	VLAN	Action
test_ssid_1		None	2.4 GHz 5 GHz 6 GHz	All Devices	0	-	-	
Floor 2		WPA-Personal	2.4 GHz 5 GHz 6 GHz	2 Groups (3 APs)	0	-	-	
Office_Staff		WPA-Personal	2.4 GHz 5 GHz	4 Groups (3 APs)	0	-	-	
Office_Manager		WPA-Personal	2.4 GHz 5 GHz 6 GHz	5 Groups (3 APs)	0	-	-	
Hall_Spaces		WPA-Personal	2.4 GHz 5 GHz	5 Groups (3 APs)	0	-	-	
Café_Connect		WPA-Personal	2.4 GHz 5 GHz 6 GHz	5 Groups (3 APs)	0	-	-	
Office_Guest		WPA-Personal	2.4 GHz 5 GHz 6 GHz	All Devices	0	-	-	
PPSK		PPSK without RADIUS	2.4 GHz 5 GHz	All Devices	0	-	-	
		None	2.4 GHz 5 GHz	111(0 APs)	0	-	-	

7.2 Configure Advanced Settings

Launch the controller and access a site. Go to [Network Config > Network Settings > WLAN](#), click the Edit icon in the ACTION column of the wireless network which you want to configure, and click [Advanced Settings](#) to load the following page. Configure the parameters and click [Apply](#).

Advanced Settings

EoGRE Tunnel

☐ Enable [Go to EoGRE Tunnel](#) ⓘ

Wi-Fi Calling

☐ Enable [Manage Wi-Fi Calling Profile](#)

Load Balance

☐ Enable ⓘ

Band Steering

Use Site Setting ▾

SSID Broadcast

☒ Enable

Conditional SSID Broadcast Control

☐ Enable ⓘ

Prohibit Wi-Fi Sharing

☐ Enable ⓘ

Enhanced IoT Connectivity

☐ Enable ⓘ

VLAN

☒ Default ☐ Custom

WPA Mode

WPA2-PSK / AES ▾

MLO

☐ Enable ⓘ

PMF

☐ Mandatory ☐ Capable ☒ Disable

Group Key Update Period

☐ Enable GIK rekeying every Seconds ▾ (30-86400)

802.11r

☐ Enable ⓘ

Client Rate Limit Profile

Custom ▾ ⓘ [Go to Rate Limit](#)

SSID Rate Limit Profile

Custom ▾ ⓘ [Go to Rate Limit](#)

EoGRE Tunnel	Toggle on to enable the EoGRE (Ethernet over GRE) Tunnel for the wireless network. Note: If the function is unavailable, go to Device Config > AP > EoGRE Tunnel to enable the feature globally.
Wi-Fi Calling	This feature allows user terminals connected to this SSID to maintain stable voice service even when cellular coverage is poor, provided both the terminals and carrier support Wi-Fi calling. To use this feature, enable this option, then select or create a Wi-Fi calling profile.
Load Balance	When enabled, APs will use 802.11k/v to rebalance clients, even when Roaming is disabled.

Band Steering	This function helps improve the network performance by steering multi-band clients to the 5 GHz/6 GHz band. By default, it uses site setting. If a specific mode is selected for the SSID, the SSID setting takes precedence over the site setting.
SSID Broadcast	With SSID Broadcast enabled, APs broadcast the SSID (network name) in the air so that wireless clients can connect to the wireless network, which is identified by the SSID. With SSID Broadcast disabled, users of wireless clients must enter the SSID manually to connect to the wireless network.
Conditional SSID Broadcast Control	Toggle on to enable this feature. This feature automatically pauses SSID broadcast for a specified WLAN after the uplink fails, and resumes it after the uplink recovers. This avoids Wi-Fi connections without actual network/internet access and minimizes unnecessary energy consumption for SSID broadcast and roaming activities. When enabled, select the detection strategy used by wireless devices: Uplink: Check connectivity between the wireless device and the gateway. Internet: Check connectivity between the wireless device and the internet. Up Delay: Resume SSID broadcast once a link remains stable for the set duration. Down Delay: Stop SSID broadcast after a link failure persists for the set duration.
Prohibit Wi-Fi Sharing	When enabled, the connected clients will be prohibited to share the Wi-Fi with other clients.
Enhanced IoT Connectivity	When enabled, devices will adjust their wireless parameters to improve the connection success rate and stability of low-power IoT devices, enhancing compatibility.
VLAN	Configure the uplink port VLAN(s) corresponding to the SSID. Default: Using untagged transmission. Custom: Configure an SSID-based VLAN pool by binding one or multiple networks (by network) or manually entering one or multiple VLAN IDs (by VLAN). When a client connects to the SSID, it will be assigned to a VLAN in the VLAN pool you configured. If a device does not support multiple VLANs, the smallest VLAN you configured will be applied to the SSID.
WPA Mode	If you select WPA-Personal or WPA-Enterprise as the security strategy, you can select the WPA Mode including the version of WPA, and the encryption type. Select the version of WPA according to your needs. Select the encryption type. Some encryption type is only available under certain circumstances. AES: AES stands for Advanced Encryption Standard. Auto: APs automatically decide the encryption type in the authentication process.
MLO	MLO (Multi-Link Operation) enables Wi-Fi 7 devices to simultaneously send and receive data across different frequency bands and channels. This ensures fast and reliable connections even in dense network environments.

PMF	Protected Management Frames (PMF) provide protection for unicast and multicast management action frames. When Mandatory is selected, non-PMF-capable clients may fail to connect to the network. Disable: Disables PMF for a network. It is not recommended to use this setting, only in case non-PMF-capable clients experience connection issues with the “Capable” option. Capable: Both types of clients, capable of PMF or not, can connect to the network. Clients capable of PMF will negotiate it with the AP. Mandatory: Only PMF-capable clients can connect to the network.
Group Key Update Period	If you select WPA-Personal or WPA-Enterprise as the security strategy, you can specify whether and how often the security key changes. If you want the security key to change periodically, enable GIK (Group Integrity Key) rekeying and specify the time period.
802.11r	802.11r allows faster roaming when both the AP and client have 802.11r capabilities. However, older devices may be incompatible with the feature.
Client Rate Limit Profile	Specify the profile to limit the download and upload rates of each client to balance bandwidth usage. You can use the default profile or custom a profile.
SSID Rate Limit Profile	Specify the profile to limit the download and upload rates of each wireless band. Bandwidth is shared among all clients connected to the same wireless band of the same AP. You can use the default profile or custom a profile. Note: This feature requires new firmware updates for Omada APs, and the rate limit settings will only take effect on those APs running firmware that supports the feature.

7.3 Configure Hotspot 2.0

Overview

Hotspot 2.0 is a wireless network technology based on the IEEE 802.11u standard. It provides a simplified network selection mechanism for wireless clients, enabling them to automatically discover and securely access Hotspot 2.0-certified Wi-Fi networks.

Hotspot 2.0 is only available for a wireless network using WPA3-Enterprise encryption.

Configuration

Launch the controller and access a site. Go to [Network Config > Network Settings > WLAN](#), click the Edit icon in the ACTION column of a wireless network that is using WPA3-Enterprise encryption, and click [Hotspot 2.0](#) to load the following page. Enable Hotspot 2.0 and configure the parameters. Then click [Apply](#).

Hotspot 2.0 BETA

Hotspot 2.0

☒ Enable

Network Type

Private network

PLMN ID

(Optional, 10000-999999) ⊕ Add

Roaming Consortium OI

(Optional, Format: XX-XX-XX or XX-XX-XX-XX-XX) ⊕ Add

Operator Domain

(Optional)

Operator Friendly Name

(Optional)

DGAF Disable

☐ Enable

HESSID

- - - - -

(Optional)

Internet

☐ Enable

Network Availability IPv4

Address type not available

Network Availability IPv6

Address type not available

Venue Info

Venue Group

Unspecified

Venue Type

Unspecified

Venue Name

(Optional)

NAI Realm list

⊕ Add New Realm

REALM NAME	REALM ENCODING	CRED1	CRED2	CRED3	CRED4	ACTION

Network Type	Specify the 802.11u network type: public, private, or guest network.
PLMN ID	Enter the PLMN (Public Land Mobile Network) ID of the 802.11u 3GPP cellular network, which consists of the MCC (Mobile Country Code) and MNC (Mobile Network Code). Wireless clients can obtain this information through ANQP queries to determine whether to access the network. This is applicable to networks that have roaming relationships with mobile operators.

Roaming Consortium Oi	Enter the 802.11u roaming organization identifiers. For a network that has roaming relationships with other network operators, you can configure a roaming organization list for wireless clients to automatically identify trusted roaming network partners.
Operator Domain	Enter the domain name of the access network operator. Wireless clients can obtain this information through ANQP queries as the basis for network selection.
Operator Friendly Name	Network operator friendly name. This parameter can be used to define the names of different language environments, so that users of different languages can easily select the network. Currently, only English format input is provided.
DGAF Disable	In DGAF (downstream group-addressed forwarding) disable mode, the AP will not forward downstream multicast and broadcast packets. Downstream multicast and broadcast packets use the same GTK (Group Temporal Key) key, which poses a security risk. The AP will discard these ARP and multicast packets to prevent attackers from exploiting the vulnerability that all clients in the same BSS use the same GTK key to forge group address frames and attack clients. This function is disabled by default. When it is enabled, some multicast services will be unavailable. To ensure normal internet access, the AP will enable the ARP proxy and disable ARP-to-unicast conversion.
HESSID	Homogenous Extended Service Set Identifier. It is used to identify the same type of ESS network set. An area may have multiple Hotspot 2.0 networks. Based on the unique HESSID, wireless clients can identify which networks provide the same service without having to re-acquire network parameters. HESSID should be consistent with one of the BSSIDs of the APs in the zone.
Internet	Internet access support status (network reachability).
Network Availability IPv4	Available type information of IPv4 addresses. When a wireless client accesses a Hotspot 2.0 network, the AP can pass the available types of IPv4 addresses in the network to the client as ANQP parameters, so that the client can understand the types of IP addresses that can be obtained after accessing the network.
Network Availability IPv6	Available type information of IPv6 addresses. When a wireless client accesses a Hotspot 2.0 network, the AP can pass the available types of IPv6 addresses in the network to the client as ANQP parameters, so that the client can understand the types of IP addresses that can be obtained after accessing the network.
Venue Info	Indicates the venue information using the combination of the network's venue group and venue type (using the international building code). When a wireless client attempts to access a Hotspot 2.0 network, it can obtain the location type information of the current network from the AP for network selection.
Venue Name	Network's venue name, identifying the physical location of the network.

NAI Realm list

Add a profile to identify and describe a NAI (Network Access Identifier) realm accessible using the AP, and the method that this NAI realm uses for authentication.

Realm name: The name of the NAI realm. Usually the domain name of the service provider.

Realm Encoding: NAI realm name format. Two formats are supported:

- **RFC4282:** Realm formatted according to RFC 4282.
- **UTF-8:** UTF-8 formatted string not formatted according to IETF RFC 4282.

EAP Method: EAP authentication method supported by the NAI realm.

Authentication param: Configure the EAP authentication parameter identifier and authentication parameters.

7.4 Configure WLAN Schedules

Overview

WLAN Schedule can turn on or off your wireless network in the specific time period as you desire.

Configuration

Launch the controller and access a site. Go to [Network Config](#) > [Network Settings](#) > [WLAN](#), click the Edit icon in the ACTION column of the wireless network which you want to configure, and click [WLAN Schedule](#) to load the following page. Enable WLAN schedule and configure the parameters. Then click [Apply](#).

WLAN Schedule

WLAN Schedule

☒ Enable

Action

☒ Radio on ⓘ

☐ Radio off ⓘ

Time Range

Please select a Time Range entry. ▾

[Manage Time Range Entries](#)

Action	Radio On: Turn on your wireless network within the time range you set, and turn it off beyond the time range. Radio Off: Turn off your wireless network within the time range you set, and turn it on beyond the time range.
Time Range	Select the Time Range for the action to take effect. You can create a Time Range entry by clicking Create New Time Range Entry from the drop-down list of Time Range. For details, refer to the network profile configuration section in this guide.

7.5 Configure 802.11 Rate Control

Overview

Note: 802.11 Rate Control is only available for certain devices.

802.11 Rate Control can improve performance for higher-density networks by disabling lower bit rates and only allowing the higher. However, 802.11 Rate Control might make some legacy devices incompatible with your networks, and limit the range of your wireless networks.

Configuration

Launch the controller and access a site. Go to [Network Config](#) > [Network Settings](#) > [WLAN](#), click the Edit icon in the ACTION column of the wireless network which you want to configure, and click [802.11 Rate Control](#) to load the following page. Select one or multiple bands to enable minimum data rate control according to your needs, move the slider to determine what bit rates your wireless network allows, and configure the parameters. Then click [Apply](#).

Note: The 6 GHz band is only available for certain devices.

802.11 Rate Control

2.4 GHz Data Rate Control

☒ Enable Minimum Data Rate Control ⓘ

1 Mbps

54 Mbps

Lower DensityHigher Density

ⓘ Full device compatibility and range.

☐ Disable CCK Rates (1/2/5.5/11 Mbps)
☐ Require Clients to Use Rates at or Above the Specified Value
☒ Send Beacons at 1 Mbps

5 GHz Data Rate Control

☒ Enable Minimum Data Rate Control ⓘ

6 Mbps

54 Mbps

Lower DensityHigher Density

ⓘ Full device compatibility and range.

☐ Require Clients to Use Rates at or Above the Specified Value
☒ Send Beacons at 6 Mbps

Disable CCK Rates (1/2/5.5/11 Mbps)	Select whether to disable CCK (Complementary Code Keying), the modulation scheme which works with 802.11b devices. Disable CCK Rates (1/2/5.5/11 Mbps) is only available for 2.4 GHz band.
Require Clients to Use Rates at or Above the Specified Value	Select whether or not to require clients to use rates at or above the value specified on the minimum data rate controller slider.
Send Beacons at 1 Mbps/6 Mbps	Select whether or not to send Beacons at the minimum rate of 1Mbps for 2.4 GHz band or 6Mbps for 5 GHz band.

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7.6 Configure MAC Filtering

Overview

MAC Filter allows or blocks connections from wireless clients of specific MAC addresses.

Configuration

Launch the controller and access a site. Go to [Network Config > Network Settings > WLAN](#), click the Edit icon in the ACTION column of the wireless network which you want to configure, and click [MAC Filter](#) to load the following page. Enable MAC Filter and configure the parameters .Then click [Apply](#).

MAC Filter

MAC Filter

☒ Enable

Policy

☐ Allow List

☒ Deny List

MAC Addresses List

Please select a MAC Group.

[Manage MAC Groups](#)

Policy	Allow List: Allow the connection of the clients whose MAC addresses are in the specified MAC Address List, while blocking others. Deny List: Block the connection of the clients whose MAC address are in the specified MAC Addresses List, while allowing others.
MAC Address List	Select the MAC Group which you want to allow or block according to the policy. You can create new MAC group by clicking + Create New MAC Group from the drop-down list of MAC Address List. For details, refer to the network profile configuration section in this guide.

7.7 Configure Multicast/Broadcast Management

Overview

Multicast/Broadcast Management allows packet conversion and multicast filtering.

Configuration

Launch the controller and access a site. Go to [Network Config > Network Settings > WLAN](#), click the Edit icon in the ACTION column of the wireless network which you want to configure, and click [Multicast/Broadcast Management](#) to load the following page. Configure the parameters .Then click [Apply](#).

Multicast/Broadcast Management

Multicast-to-Unicast Conversion

☒ IPv4 ☐ IPv6

Converse multicast to unicast when the channel utilization is below

100

%

ARP-to-Unicast Conversion

☐ Enable

Multicast Filtering

☐ Enable ⓘ

Multicast-to-Unicast Conversion	When the channel utilization is below the set value, the Wireless Device will convert the IPv4/IPv6 multicast packets into unicast packets and send them to the corresponding clients based on the learned multicast relationships. This improves the transmission efficiency of IPv4/IPv6 multicast.
ARP-to-Unicast Conversion	When enabled, the controller will convert ARP packets into unicast packets.
Multicast Filtering	When enabled, the device will filter the multicast packets of the specified protocols. Improper settings may cause network issues
Filtering Protocols	Choose IGMP/mDNS/ND/Others according to your need. Choose Others for MAC-based filtering, which will filter IP multicast packets that are not using IGMP, MLD, mDNS, or ND protocols.
MAC Group	If you want to allow packets from specific addresses to pass through, you can choose MAC Group and Create New MAC Group. Here you can set MAC Group Name and choose different methods to add the MAC Address.

7.8 DHCP Option 82

Overview

DHCP option 82, also known as the DHCP relay agent information option, provides additional security when using DHCP to assign network addresses. It enables the controller to act as a DHCP relay agent to prevent DHCP client requests from untrusted sources.

Configuration

Launch the controller and access a site. Go to [Network Config](#) > [Network Settings](#) > [WLAN](#), click the Edit icon in the ACTION column of the wireless network which you want to configure, and click [DHCP Option 82](#) to load the following page. Configure the parameters. Then click [Apply](#).

— DHCP Option 82

DHCP Option 82 ☒

DHCP Option 82 Format ☒ ASCII ☐ Binary

DHCP Option 82 Delimiter

Circuit-ID

Fields Selected:

Select and drag the fields on the right. Sorting is supported.

Fields Available:

• Wireless VLAN ID

• AP Radio MAC Address

• SSID Type

• SSID Name

• AP Ethernet MAC Address

• Site Name

Remote-ID

Fields Selected:

Select and drag the fields on the right. Sorting is supported.

Fields Available:

• Wireless VLAN ID

• AP Radio MAC Address

• SSID Type

• SSID Name

• AP Ethernet MAC Address

• Site Name

DHCP Option 82	Toggle on to enable DHCP Option 82.
DHCP Option 82 Format	Select the format of DHCP Option 82: ASCII or Binary.
DHCP Option 82 Delimiter	Enter the delimiter of DHCP Option 82 (single punctuation mark).
Circuit-ID	Identifies the circuit (interface or VLAN) on the switching device on which the request was received.
Remote-ID	Identifies the remote host.

7.9 Configure WLAN Optimization

7.9.1 Overview

WLAN Optimization helps improve the wireless network performance. With the WLAN Optimization feature, the controller will detect Wi-Fi interference and monitor the wireless environment. Based on the environmental factors including network topology, deployment size, traffic, and client factors, the controller can determine the optimum wireless configurations (such as channel, bandwidth, power, etc.) for the access points (APs), and thus ensures that wireless clients of each AP can enjoy better Wi-Fi experience.

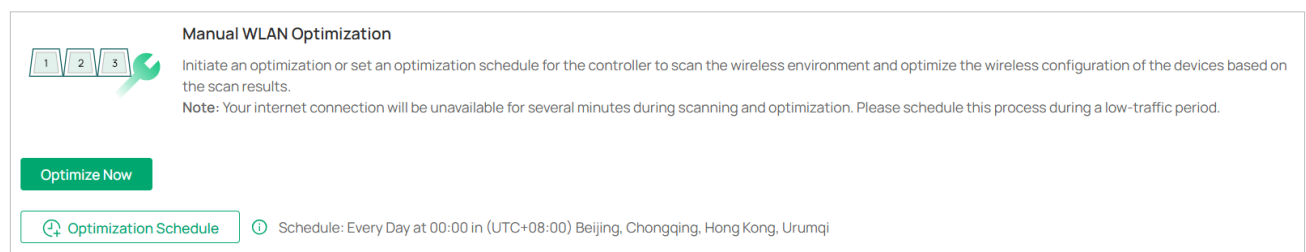
In [WLAN Optimization](#), you can run WLAN optimization manually, schedule it to run at set times, or enable its adaptive mode for automatic optimization.

In [Optimization History](#), the past optimization records are displayed, and you can also restore the previous optimization results if needed.

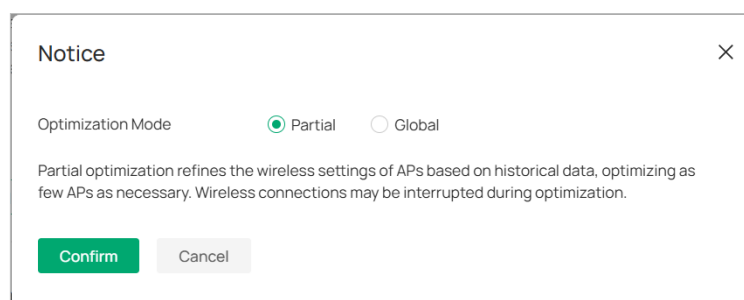
7.9.2 Run a WLAN Optimization Immediately

1. Launch the controller and access a site. Go to [Network Config > Network Settings > WLAN > WLAN Optimization](#).
2. In the [Manual WLAN Optimization](#) section, click [Optimize Now](#) to run a WLAN Optimization.

Note: Internet connection will be unavailable for several minutes during scanning and optimization. You are recommended to run the optimization during a low-traffic period.

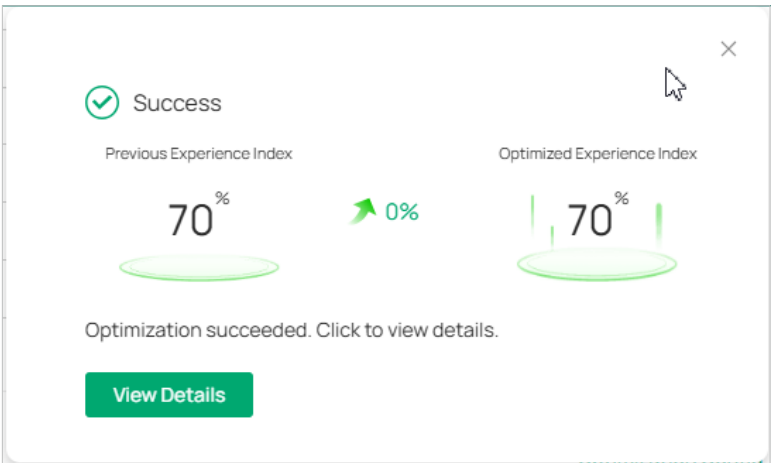


- In the initial optimization, the system will run a Global Optimization to reconfigure the wireless settings of all wireless devices for optimal overall network performance. Wireless connections may be interrupted during optimization.
- In later optimizations, you can click choose an optimization mode to run.



Partial	Refines the wireless settings of APs based on historical data, optimizing as few APs as necessary. Wireless connections may be interrupted during optimization. This optimization option is recommended, but it is only available for non-initial optimizations since it requires historical optimization data.
Global	Global optimization reconfigures the wireless settings of all APs for optimal overall network performance. Wireless connections may be interrupted during optimization.

3. The controller will scan the wireless environment to conclude the optimum WLAN network configurations and display the result after completing the optimization.



4. Click **View Details** to display more info. You can click **Apply Previous Settings** if you want to restore the previous optimization results.

Tip: You can also view the optimization results in the **Optimization History**.

Nov 15, 2025 15:14:50

Succeeded(1)Failed(0)

DEVICE NAME	IP ADDRESS	BAND	PREVIOUS/RECOMMENDED CHANNEL	PREVIOUS/RECOMMENDED CHANNEL WIDTH	PREVIOUS/RECOMMENDED BAND	PREVIOUS/R
OC-EF-	192.168.0.7	2.4 GHz	1 / 1	20 MHz / 20 MHz	✓ / ✓	20 / 20
		5 GHz	116 / 116	160 MHz / 160 MHz	✓ / ✓	28 / 28

Apply Recommended Settings

Apply Previous Settings

7.9.3 Set Up the Optimization Schedule

- Launch the controller and access a site. Go to **Network Config > Network Settings > WLAN > WLAN Optimization**.
- In the **Manual WLAN Optimization** section, click **Optimize Schedule** to schedule when to run optimizations.

Note:

- Internet connection will be unavailable for several minutes during scanning and optimization. You are recommended to set the schedule to run optimizations during a low-traffic period.

2. Optimization schedules do not apply to devices with outdated firmware if they have clients connected. Update the device firmware for optimal wireless performance.

1

2

3

Manual WLAN Optimization

Initiate an optimization or set an optimization schedule for the controller to scan the wireless environment and optimize the wireless configuration of the devices based on the scan results.

Note: Your internet connection will be unavailable for several minutes during scanning and optimization. Please schedule this process during a low-traffic period.

Optimize Now

Optimization Schedule

Schedule: Every Day at 00:00 in (UTC+08:00) Beijing, Chongqing, Hong Kong, Urumqi

Optimization Schedule

Status

☒ Enable

Occurrence

Every Day at 00:00

in (UTC+08:00) Beijing, Chongqing, Hong Kong, Urumqi

Confirm

Cancel

Status	Toggle to enable the optimization schedule.
Occurrence	Specify when to automatically run optimizations. Select Every Day, Week, or Month, then set a time.

3. Apply the settings. WLAN optimizations will automatically run in the scheduled times.

7.9.4 Set Up Adaptive WLAN Optimization

- 1. Launch the controller and access a site. Go to **Network Config > Network Settings > WLAN > WLAN Optimization**.
- 2. In the **Adaptive WLAN Optimization** section, enable this feature. You can enable and set the **Time Window** if needed.

1

2

3

Adaptive WLAN Optimization

The controller adaptively optimizes the wireless network based on the global network monitoring data from the controller and the network conditions reported by the devices.

Status

☒

Time Window

☒ Enable

Action

☐ Run during the selected time range

☒ Run outside the selected time range

Time Range

Please select a Time Range entry

Manage Time Range Entries

Apply

Reset

Status	Toggle to enable Adaptive WLAN Optimization. With Adaptive WLAN Optimization enabled, the controller adaptively optimizes the wireless network based on the global network monitoring data from the controller and the network conditions reported by the devices.
--------	---

Time Window	Enable this option if you want to set up the time window for adaptive optimization. When enabled, configure the following parameters: Action: Controls whether to run the optimization during or outside the selected time range. Time Range: Select a time range entry. If no entry is listed, create one first. Note: - Internet connection will be unavailable for several minutes during scanning and optimization. You are recommended to set the time window to run optimizations during a low-traffic period. - For optimal performance, new devices will run WLAN optimization upon adoption, without time window constraints.
-------------	---

3. Apply the settings. Adaptive optimizations will be automatically triggered during or outside the time window if the topology or Wi-Fi environment changes.

7.9.5 Customize Optimization Config

If you want to custom optimization configurations, click **Optimization Config** on the **WLAN Optimization** page, select the **Custom** mode, then set the parameters according to actual needs.

Optimization Config

Mode

☐ Default

☒ Custom

Automatic Channel Optimization

☒

Automatic Band Optimization

i

☒

Automatic Channel Width Optimization

i

☒

Automatic Power Optimization

☒

-

Advanced Settings

Power Range

i

☒ Auto

☐ Custom

Power Threshold

i

☒ Auto

☐ Custom

Channel Width Selection

i

☐ Enable

Excluded 5 GHz Channels

i

☐ Enable

Save

Cancel

Mode	Specify the optimization mode. Default: The controller will conduct the optimization with the default configurations. Custom: The controller will conduct the optimization with the configurations you set.
Automatic Channel Optimization	Enable this function, and the controller will scan the wireless environment to conclude the optimum operation channels for the APs.
Automatic Band Optimization	Enable this function in a high-density deployment scenario, and the controller will scan the wireless environment and determine whether to turn off some radio bands to reduce network interference, hence improving the performance of the entire network.
Automatic Channel Width Optimization	Enable this function in a high-density deployment scenario, and the controller will scan the wireless environment and determine whether to reduce some radio bandwidth to reduce network interference, hence improving the performance of the entire network.
Automatic Power Optimization	Enable this function, and the controller will scan the wireless environment to conclude the optimum transmission power for the APs.
Power Range	Select Custom if you want to optimize the power within the specified range. You can limit the transmit power range of each wireless device after the power deployment is completed. For high-density deployment, you can try to set a smaller power range. An over-low value may lead to limited coverage, while an over-high value may lead to strong interference. (Note: The deployment may fail if the minimum power you select exceeds the maximum power of the AP to be deployed.)
Power Threshold	Select Custom if you want to optimize the power within the specified threshold. You can adjust the power deployment override threshold according to the actual deployment height and spacing of wireless devices, achieving optimal wireless coverage after RF optimization. The larger the threshold, the larger the adjusted overall power value.
Channel Width Selection	Select the channel width for each band, and the optimization will maintain the selected channel width.
Excluded 5 GHz Channels	When enabled, you can specify the channels so they will not execute the automatic optimization.

7.9.6 Exclude Devices from WLAN Optimization

If you want to exclude certain wireless devices from WLAN optimization, locate the [Excluded Devices List](#) on the [WLAN Optimization](#) page, click [Add](#) to add the devices.

Some wireless devices will be added to the list automatically, including devices in the mesh network and devices with unsupported firmware.

Excluded Devices List ⓘ

×

Search Name

+ Add

Devices	IP Address	Status	Model	Action
 AC-A7-  ⚠	192.168.11.10	● Connected	EAP653 UR(US) v2.0	
 00-78-  ⚠	192.168.11.4	● Connected 	AP9788(US) v1.0	

Chapter 8

Configure Network Authentication

Authentication is a portfolio of features designed to authorize network access to clients, which enhances the network security. Omada provides authentication services covering all the needs to authenticate both wired and wireless clients.

This chapter guides you on how to configure network authentication with the Omada Controller. The chapter includes the following sections:

- [8. 1 Configure Portal Authentication](#)
- [8. 2 Configure 802.1X Authentication](#)
- [8. 3 Configure MAC-Based Authentication](#)

8.1 Configure Portal Authentication

Overview

Portal authentication provides authentication service to the clients that only need temporary access to the network, such as the customers in a restaurant or in a supermarket. To access the network, these clients need to enter the authentication login page and use the correct login information to pass the authentication. In addition, you can customize the authentication login page and specify a URL which the authenticated clients will be redirected to.

Portal authentication takes effect on SSIDs and LAN networks. APs authenticate wireless clients which connect to the SSID with Portal configured, and the gateway authenticates wired clients which connect to the network with Portal configured. To make Portal authentication available for wired and wireless clients, ensure that both the gateway and APs are connected and working properly.

The controller provides several types of Portal authentication:

■ No Authentication

With this authentication type configured, clients can pass the authentication and access the network without providing any login information. Clients just need to accept the terms (if configured) and click the Login button.

■ Simple Password

With this authentication type configured, clients are required to enter the correct password to pass the authentication. All clients use the same password which is configured in the controller.

■ Hotspot

With this authentication type configured, clients can access the network after passing any type of the authentication:

- **Voucher**

Clients can use the unique voucher codes generated by the controller within a predefined time usage. Voucher codes can be printed out from the controller, so you can print the codes and distribute them to your costumers to tie the network access to consumption.

- **Local User**

Clients are required to enter the correct username and password of the login account to pass the authentication.

- **SMS**

Clients can get verification codes using their mobile phones and enter the received codes to pass the authentication.

- **RADIUS**

Clients are required to enter the correct username and password which are stored in the RADIUS server to pass the authentication.

- **Form Auth**

Clients are required to fill in a survey created by the network administrator to pass the authentication. It can be used for collecting feedback from your clients.

- **RADIUS Server**

Clients are required to enter the correct username and password created on the RADIUS server to pass the authentication.

- **External Portal Server**

The option of External Portal Server is designed for the developers. They can customize their own authentication type like Google account authentication according to the interface provided by the Controller.

- **Google**

Clients will be redirected to the Google login page and are required to complete the Google account login to pass the authentication.

Portal authentication can work with Access Control Policy, which grant specific network access to the users with valid identities. You can determine that the clients which didn't pass Portal authentication can only access the network resources allowed by Access Control Policy.

- **Pre-Authentication Access**

Pre-Authentication Access allows unauthenticated clients to access the specific network resources.

- **Authentication-Free Client**

Authentication-Free Clients allows the specific clients to access the specific network resources without authentication.

Create New Portal

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Authentication](#) > [Portal](#).
3. On [Portal](#) tab, click [Create New Portal](#).

← Add Portal

Basic Authentication Design

Portal Name

SSID & Network Please Select... ⓘ

HTTPS Redirection ☐ Enable ⓘ

Landing Page Original URL ⓘ

ⓘ Clients will be directed to their requested URL after passing Portal authentication.

Portal URL —

[Manage Portal URL](#)

ⓘ The device will automatically use the actual IP address of the Controller as the portal URL.

4. Specify the portal name. Select the SSIDs and LAN networks for the portal to take effect. The clients connected to the selected SSIDs or LAN networks will have to log into a web page to establish verification before accessing the network.
5. Configure redirection and landing settings.

HTTPS Redirection	Click the checkbox to enable HTTPS Redirection. With this feature enabled, the unauthorized clients will be redirected to the Portal page when they are trying to browse HTTPS websites. With this feature disabled, the unauthorized clients cannot browse HTTPS websites and are not redirected to the Portal page.
Landing Page	Select which page the client will be redirected to after a successful authentication. The Original URL: Clients are directed to the URL they request for after they pass Portal authentication. The Promotional URL: Clients are directed to the specified URL after they pass Portal authentication. Success Page: Clients will see the Portal success page after passing Portal authentication.
Portal URL	Displays the URL address that will be used for this Portal authentication page.

6. Go to **Authentication** section. Select the Authentication Type and configure authentication settings.

Basic	Authentication	Design
Authentication Type	No Authentication ▼	
Authentication Timeout	8 Hours ▼	
Daily Limit	☐ Enable ?	

■ No Authentication

Authentication Timeout	Select the login duration. Clients will be off-line after the authentication timeout.
Daily Limit	Click the checkbox to enable Daily Limit. With this feature enabled, after authentication times out, clients cannot get authenticated again until the next day. With this feature disabled, after authentication times out, clients can get authenticated again without limit.

■ Simple Password

Password	Specify the password for the portal.
Authentication Timeout	Select the login duration. Clients will be off-line after the authentication timeout.

■ Hotspot

Type	Select one or more authentication types according to your needs. Clients can access the network after passing any type of the authentication.
------	---

With different types of Hotspot selected, configure the related parameters.

• Voucher Portal

Voucher	Select Voucher and click Voucher Manager to manage the voucher codes. Refer to the voucher configuration chapter in this guide for detailed information about how to create vouchers.
---------	--

• Local User Portal

Local User	Select Local User and click User Management to manage the information of the login accounts. Refer to the account configuration chapter in this guide for detailed information about how to create Local Users.
------------	--

• SMS Portal

Select SMS and configure the required parameters in the SMS section.

SMS	Clients can get verification codes using their mobile phones and enter the received codes to pass the authentication.
Twilio SID	Enter the Account SID for Twilio API Credentials.
Auth Token	Enter the Authentication Token for Twilio API Credentials.
Operating Phone Number	Enter the phone number that is used to send verification messages to the clients.
Maximum User Numbers	Click the checkbox and enter the maximum number of users allowed to be authenticated using the same phone number at the same time.
Authentication Timeout	Select the login duration. The client needs to log in again on the web authentication page to access the network.
Preset Country Code	Enter the default country code that will be filled automatically on the authentication page.

- **RADIUS Portal**

Select RADIUS and configure the required parameters in the RADIUS section.

Authentication Timeout	Clients are required to enter the correct username and password which are stored in the RADIUS server to pass the authentication.
RADIUS Profile	Select the RADIUS profile you have created. If no RADIUS profiles have been created, click Create New RADIUS Profile from the drop-down list or Manage RADIUS Profile to create one. The RADIUS profile records the information of the RADIUS server which provides a method for storing the authentication information centrally.
Portal Logout	Check the box to allow clients to log out of the portal by accessing a URL (portal.tplink.net/portal/logout by default). You can change the default URL by editing portal.logout.domain in the omada.properties file. Some devices may require firmware update to support Portal Logout. Please refer to Configuration Result for details.
NAS ID	Configure a Network Access Server Identifier (NAS ID) on the portal. Authentication request packets from the controller to the RADIUS server carry the NAS ID. The RADIUS server can classify users into different groups based on the NAS ID, and then choose different policies for different groups.
Disconnected Requests	With the feature enabled, the controller will listen on the receiver port for disconnect requests from the RADIUS server. When the controller receives the disconnect requests in correct format, the controller will terminate the RADIUS authentication session of the clients. Note that the feature is available only when the controller is accessible to the RADIUS server.
Receiver Port	Specify the port on which the controller listens when there are disconnect requests from the RADIUS server. Make sure that the specified port is not in use.
Status	The entry displays the status of the receiver port, including Running, Disabled, and Error. Running means that the port is available, Disabled means that the port is closed, and Error means that the port is already in use.

- **Configuring Form Authentication**

Select Form Auth and click [Create New Survey](#) in the Form Authentication section. Then follow the on-screen instructions to create a survey by adding the type and number of questions you need. You can click [Preview](#) to view how the survey looks like on website and phone.

Click [Publish](#) and then the created survey can be used for form authentication. A survey cannot be edited after it is published.

Survey Name	Specify a name for the survey for identification.
Duration	Specify how long clients can use the network after they pass the form authentication.

Created surveys will be displayed for you to choose for the form authentication.

- **RADIUS Server**

Authentication Timeout	Select the login duration. Clients will be off-line after the authentication timeout.
RADIUS Profile	Select the RADIUS profile you have created. If no RADIUS profiles have been created, click Create New RADIUS Profile from the drop-down list or click Manage RADIUS Profile to create one. The RADIUS profile records information of the RADIUS server including the IP address, port and so on.
NAS ID	Configure a Network Access Server Identifier (NAS ID) on the portal. Authentication request packets from the controller to the RADIUS server carry the NAS ID. The RADIUS server can classify users into different groups based on the NAS ID, and then choose different policies for different groups.
Disconnected Requests	With the feature enabled, the controller will listen on the receiver port for disconnect requests from the RADIUS server. When the controller receives the disconnect requests in correct format, the controller will terminate the RADIUS authentication session of the clients. Note that the feature is available only when the controller is accessible to the RADIUS server.
Receiver Port	Specify the port on which the controller listens when there are disconnect requests from the RADIUS server. Make sure that the specified port is not in use.
Status	The entry displays the status of the receiver port, including Running, Disabled, and Error. Running means that the port is available, Disabled means that the port is closed, and Error means that the port is already in use.
Authentication Mode	Select the authentication protocol for the RADIUS server.
Portal Customization	Select Local Web Portal or External Web Portal. The authentication login page of Local Web Portal is provided by the built-in portal server of the controller. The External Web Portal is provided by external portal server. Enter the authentication login page's URL provided by the external portal server in the External Web Portal URL field.

■ External LDAP Server

Authentication Timeout	Select the login duration. Clients will be off-line after the authentication timeout.
LDAP Profile	Select the LDAP profile you have created. If no LDAP profiles have been created, click Create New LDAP Profile from the drop-down list or click Manage LDAP Profile to create one. The LDAP profile records information of the LDAP server including the server address, port and so on.
Portal Customization	Select Local Web Portal or External Web Portal. The authentication login page of Local Web Portal is provided by the built-in portal server of the controller. The External Web Portal is provided by external portal server. Enter the authentication login page's URL provided by the external portal server in the External Web Portal URL field.

■ External Portal Server

Custom Portal Server	Specify the IP address or URL that redirect to an external portal server.
----------------------	---

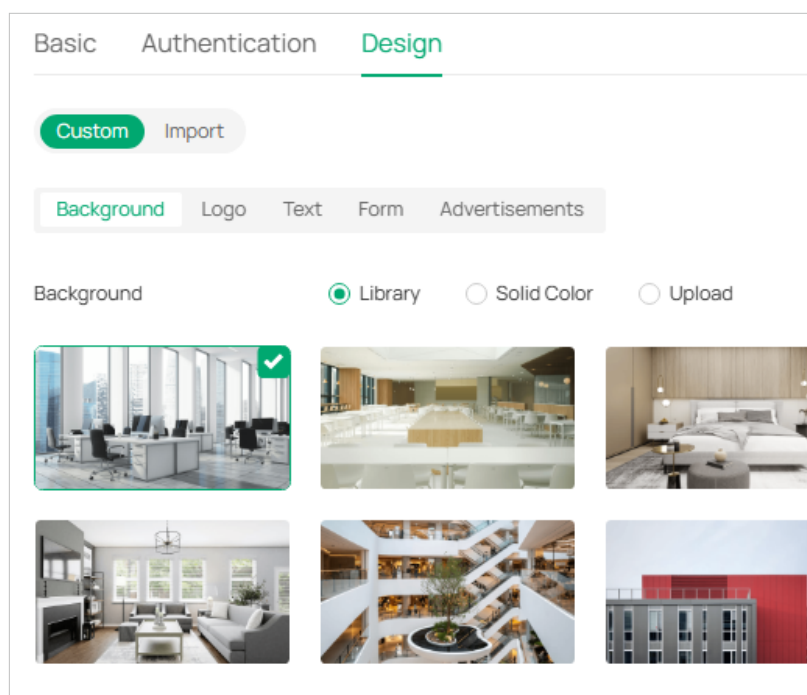
■ Google

Authentication Timeout	Select the login duration. Clients will be off-line after the authentication timeout.
Client ID	Enter the Client ID provided by Google to integrate with Google OAuth 2.0.
Client Secret	Enter the Client Secret provided by Google to integrate with Google OAuth 2.0.

(Optional) Portal Customization

When creating or editing a portal entry, you can customize the Portal page in the [Design](#) section.

Note: Portal Customization is not available when you configure external authentication types.



BasicAuthenticationDesign

CustomImport

i

With Import Customized Page selected, you can upload an HTML or ZIP file to create your own branded Portal page. For details and a template, click [Download the Template](#).

Import

Custom	Edit the related parameters to customize the portal page based on the provided page.
Import	Click Import to import your unique Portal page for branding it as per your business.

■ Background

BasicAuthenticationDesign

CustomImport

BackgroundLogoTextFormAdvertisements

Background

☒ Library

☐ Solid Color

☐ Upload













Background Mask☐ Enable

Background	Select the background type. Library: Select a background picture from the image library. Solid Color: Configure your desired background color by entering the hexadecimal HTML color code manually or through the color picker. Upload: Click Choose and select a picture from your PC as the background. Unified Image: With this feature enabled, the background picture will be the same for both the web and mobile portal pages. With this feature disabled, you can upload separate background pictures for the web and mobile portal pages respectively.
------------	--

Background Mask

Enable the background mask to add a overlay on the background.

■ Logo

BasicAuthenticationDesign

CustomImport

BackgroundLogoTextFormAdvertisements

Logo

Logo Image ⓘ

+

Click or drag a file to this area to upload
PNG, JPG, JPEG, BMP, or GIF up to 2MB

Logo Size

SmallMediumLarge

Logo Position

TopCenterBottom

LeftMiddleRight

Logo	Click the checkbox to enable the log to display on the Portal page.
Logo Image	Select a picture from your PC as the logo.
Logo Size	Adjust the logo size on the Portal page.
Logo Position	Adjust the logo position on the Portal page.

■ Text

The screenshot shows the 'Design' tab of a configuration interface. Under the 'Design' tab, there are two sub-tabs: 'Custom' (selected) and 'Import'. Below these, there are four sub-tabs: 'Background', 'Logo', 'Text' (selected), 'Form', and 'Advertisements'. The 'Text' sub-tab contains four sections, each with a toggle switch:

- Welcome Title**: Toggle switch is off.
- Description Text**: Toggle switch is off.
- Terms of Service**: Toggle switch is off.
- Copyright**: Toggle switch is off.

Welcome Title

Enable the toggle and enter content as the welcome information. You can specify the desired text font size and configure the text color by entering the hexadecimal HTML color code manually or through the color picker.

Description Text

Enable the toggle and enter content as the description information. You can specify the desired text font size and configure the text color by entering the hexadecimal HTML color code manually or through the color picker.

Terms of Service

Enable the toggle and enter text as the terms of service in the following box. Click [Add Terms](#) to enter the name and context of the terms which will appear after a client clicks the link in Terms of Service. You can specify the desired text font size and configure the text color by entering the hexadecimal HTML color code manually or through the color picker.

Copyright

Enable the toggle and enter content as the copyright information. You can specify the desired text font size and configure the text color by entering the hexadecimal HTML color code manually or through the color picker.

■ Form

BasicAuthenticationDesign

CustomImport

BackgroundLogoTextFormAdvertisements

Container

Input Box Position

TopCenterBottom

Button Text

Log In

(1-64 characters)

Button Color

#00A87D

100 %

Button Text Color

#FFFFFF

100 %

Corner Radius

01530

Default Language

English

Multiple Languages

Show Redirection Countdown After Authorization

ApplyCancel

Container	Enable the toggle to add a container to the page. You can select All or Half as the container type. Configure the container color by entering the hexadecimal HTML color code manually or through the color picker, adjust the corner radius, and enable background blur for the container.
Input Box Color	Configure your desired background color for the input box by entering the hexadecimal HTML color code manually or through the color picker.
Input Text Color	Configure your desired text color for the input box by entering the hexadecimal HTML color code manually or through the color picker.
Stroke Color	Configure your desired color for the input box stroke by entering the hexadecimal HTML color code manually or through the color picker.

Corner Radius	Adjust the input box corner radius.
Input Box Position	Adjust the input box position on the Portal page.
Button Text	Enter content as the button text.
Form Auth Button Text	Enter content as the form auth button text.
Button Color	Configure your desired background color for the button by entering the hexadecimal HTML color code manually or through the color picker.
Button Text Color	Configure your desired text color for the button by entering the hexadecimal HTML color code manually or through the color picker.
Corner Radius	Adjust the input box corner radius.
Default Language	Select the default language displayed on the Portal page. The controller automatically adjusts the language displayed on the Portal page according to the system language of the clients. If the language is not supported, the controller will use the default language specified here.
Multiple Languages	With this feature enabled, the portal page will support multiple languages. The default language follows the browser setting, and users can manually switch languages on the page.
Show Redirection Countdown After Authorization	With this feature enabled, a countdown for the redirection will be displayed after successful authentication.

■ Advertisements

Basic

Authentication

Design

Custom

Import

Background

Logo

Text

Form

Advertisements

Enable Advertisements

☒

Images (0/5)

Image Carousel Interval

(1-10)

seconds

Advertisement Duration

(1-30)

seconds

Allow Users to Skip the Advertisements

☐ Enable

Enable Advertisements	Enable the toggle to enable the Advertisement feature. With this feature enabled, you can add advertisement pictures on the authentication page. These advertisement pictures will be displayed before the login page appears.
Images	Select pictures from your PC as the advertisement pictures. When several pictures are added, they will be played in a loop.
Image Carousel Interval	Enter the picture carousel interval. For example, if this value is set as 5 seconds, the first picture will be displayed for 5 seconds, followed by the second picture for 5 seconds, and so on.
Advertisement Duration	Enter the duration time for the advertisement pictures. For this duration, the pictures will be played in a loop. If the duration time is not enough for all the pictures, the rest will not be displayed.
Allow Users to Skip the Advertisements	Click the checkbox to allow users to skip the advertisement.

(Optional) Access Control

On **Access Control** tab, you can configure access control rules if needed.

Access Control

Pre-Authentication Access ☒ Enable ⓘ

Pre-Authentication Access List ⊕ Add

TYPE	INFORMATION	ACTION
URL	www.amazon.com	

Showing 1-1 of 1 records < 1 > Go to page Go

Authentication-Free Client ☒ Enable ⓘ

Authentication-Free Client List ⊕ Add

TYPE	INFORMATION	ACTION
MAC Address	90-8C-43-70-11-12	

Showing 1-1 of 1 records < 1 > Go to page Go

Apply Cancel

Pre-Authentication Access	Click the checkbox to enable Pre-Authentication Access. With this feature enabled, unauthenticated clients are allowed to access the subnets and web resources specified in the Pre-Authentication Access List below.
Pre-Authentication Access List	Click Add to configure the IP range or URL which unauthenticated clients are allowed to access.
Authentication-Free Policy	Click the checkbox to enable Authentication-Free Policy. With this feature enabled, you can allow certain clients to access the internet without Portal authentication.
Authentication-Free Client List	Click Add and enter the IP address or MAC address of Authentication-Free clients.

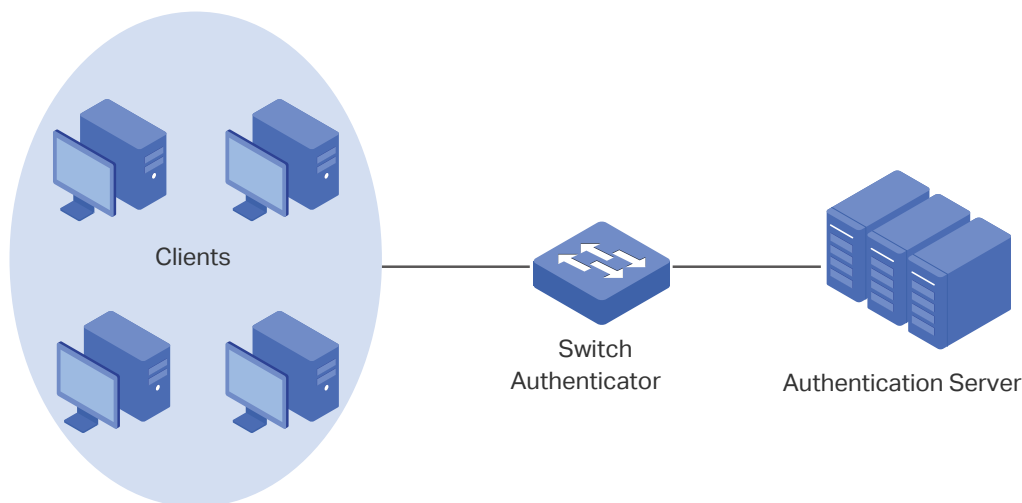
8.2 Configure 802.1X Authentication

8.2.1 Overview

802.1X provides port-based authentication service to restrict unauthorized clients from accessing to the network through publicly accessible switch ports. An 802.1X-enabled port allows only authentication messages and forbids normal traffic until the client passes the authentication.

Based on authenticated identity, 802.1X can also deliver customized services. For example, 802.1X and VLAN Assignment together make it possible to assign different authenticated users to different VLANs automatically.

802.1X authentication uses client-server model which contains three device roles: client/supplicant, authenticator and authentication server. This is described in the figure below:



■ Client

A client, usually a computer, is connected to the authenticator via a physical port. We recommend that you install TP-Link 802.1X authentication client software on the client hosts, enabling them to request 802.1X authentication to access the LAN.

■ Authenticator

An authenticator is usually a network device that supports 802.1X protocol. As the above figure shows, the switch is an authenticator.

The authenticator acts as an intermediate proxy between the client and the authentication server. The authenticator requests user information from the client and sends it to the authentication server; also, the authenticator obtains responses from the authentication server and sends them to the client. The authenticator allows authenticated clients to access the LAN through the connected ports but denies the unauthenticated clients.

■ Authentication Server

The authentication server is usually the host running the RADIUS server program. It stores information of clients, confirms whether a client is legal and informs the authenticator whether a client is authenticated.

Based on authenticated identity, 802.1X can also deliver customized services. For example, 802.1X and VLAN Assignment together make it possible to assign different authenticated users to different VLANs automatically.

8.2.2 Configure Switch 802.1X

To complete the 802.1X configuration for a switch, follow these steps:

- 1) Enable 802.1X.
- 2) Select the RADIUS profile you have created and configure other parameters.
- 3) Select the ports on which 802.1X Authentication will take effect.

Step 1: Enable 802.1X

Launch the controller and access a site. Go to [Network Config > Authentication > Switch 802.1X](#). Enable [802.1X](#).

802.1X

802.1X

!

Omada Switch required. Not supported by Agile (Easy Managed) Switch.

Step 2: Configure RADIUS Profile and Parameters

Select the RADIUS profile you have created. If no RADIUS profiles have been created, click [Create New RADIUS Profile](#) from the drop-down list or [Manage RADIUS Profile](#) to create one. The RADIUS profile records the information of the RADIUS server which acts as the authentication server during 802.1X authentication.

Basic Info

RADIUS Profile

Manage RADIUS Profile

NAS ID

(Optional)

Authentication Protocol

PAP

EAP

Authentication Type

Port Based

MAC Based

VLAN Assignment

Enable

Guest Vlan

None

MAB Auth Format

aabbccddeeff

NAS ID

(Optional) Configure a Network Access Server Identifier (NAS ID) for authentication. Authentication request packets from the controller to the RADIUS server carry the NAS ID. The RADIUS server can classify users into different groups based on the NAS ID, and then choose different policies for different groups.

Authentication Protocol	Select the authentication protocol for exchanging messages between the switch and RADIUS server. As a bridge between the client and RADIUS server, the switch forwards messages for them. It uses AP packets to exchange messages with the client, and processes the messages according to the specified authentication protocol before forwarding them to the RADIUS server. PAP: The AP packets are converted to other protocol (such as RADIUS) packets, and transmitted to the RADIUS server. EAP: The AP packets are encapsulated in other protocol (such as RADIUS) packets, and transmitted to the authentication server. To use this authentication mechanism, the RADIUS server should support AP attributes.
Authentication Type	Select the 802.1X authentication type. Port Based: After a client connected to the port gets authenticated successfully, other clients can access the network via the port without authentication. MAC Based: Clients connected to the port need to be authenticated individually. The RADIUS server distinguishes clients by their MAC addresses.
VLAN Assignment	This feature allows the RADIUS server to send the VLAN configurations to the port dynamically. After the port is authenticated, the RADIUS server assigns the VLAN based on the username of the client connecting to the port. The username-to-VLAN mappings must be already stored in the RADIUS server database.
Guest Vlan	Assign a VLAN for guest clients whose authentication fails or times out.
MAB Auth Format	Select clients' MAC address format which the controller uses for authentication. Then configure the MAC addresses in the specified format as usernames for the clients on the RADIUS server.

Step 3: Select the Ports

1. Click + Add to select the switch.

Authentication Ports

+ Add

DEVICE	AUTHENTICATION SERVER VRF	ACCOUNTING SERVER VRF	SELECT PORT	ACTION
No entry in the table.				

Select Switch Device

Search Switch/Stack Name

Device

Menu

✓	DEVICE	IP ADDRESS	MODEL
✓	AB-29-10 10 10 10	192.168.124.100	SG2210MP v5.20

2. Select the ports to enable 802.1X authentication or MAB for them.

To enable 802.1X authentication for switch ports, click **802.1X** and select the corresponding ports. The ports will be marked as .

To enable MAB for switch ports, click **MAB** and select the corresponding ports. The ports will be marked as **MAB**.

To enable both 802.1X and MAB for switch ports, click **Both** and select the corresponding ports. The ports will be marked as **Both**.

Note: You can enable MAB only on 802.1X-enabled ports.

Note:

- You are not recommended to enable 802.1X authentication on the switch ports which connects to network devices without 802.1X capability like the gateway.
- The switch authenticates wired clients which connect to the port with 802.1X enabled. And the gateway authenticates wired clients which connect to the network with Portal configured. Wired clients should pass Portal and 802.1X authentication to access the internet when both are configured.

8.2.3 Configure EAP 802.1X

To complete the 802.1X configuration for an AP, follow these steps:

- 1) Enable 802.1X.
- 2) Select the RADIUS profile you have created and configure other parameters.
- 3) Select the ports on which 802.1X Authentication will take effect.

Step 1: Enable 802.1X

Launch the controller and access a site. Go to [Network Config > Authentication > EAP 802.1X](#). Enable 802.1X.

802.1X ⓘ ☒

Step 2: Configure RADIUS Profile and Parameters

RADIUS Profile

Manage RADIUS Profile

ⓘ

EAP 802.1X RADIUS does not support accounting function currently.

Guest VLAN

☒ None ☐ By Network ☐ By VLAN ID

MAC Address Format

ⓘ

RADIUS Profile	Select the RADIUS profile you have created. If no RADIUS profiles have been created, click Create New RADIUS Profile from the drop-down list or Manage RADIUS Profile to create one. The RADIUS profile records the information of the RADIUS server which acts as the authentication server during 802.1X authentication.
Guest VLAN	Assign a VLAN for guest clients whose authentication fails or times out. None : Using untagged transmission. By Network : Modifying the VLAN ID by binding a network. By VLAN ID : Modifying the VLAN ID by manually entering a VLAN ID.
MAC Address Format	Select clients' MAC address format which the controller uses for authentication. Then configure the MAC addresses in the specified format as usernames for the clients on the RADIUS server.

Step 3: Select the Ports

Select the ports to enable 802.1X authentication for them.

Authentication Ports

☐	DEVICE NAME	PORTS	STATUS
☐	58-04-	Port ETH1 ETH2 ETH3 ☒☒☐	CONNECTED

8.3 Configure MAC-Based Authentication

Overview

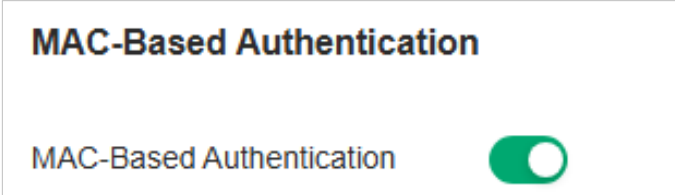
MAC-Based Authentication allows or disallows clients access to wireless networks based on the MAC addresses of the clients. In this authentication method, the controller takes wireless clients' MAC addresses as their usernames and passwords for authentication. The RADIUS server authenticates the MAC addresses against its database which stores the allowed MAC addresses. Clients can access the wireless networks configured with MAC-based authentication after passing authentication successfully.

Note:

Both MAC-Based Authentication and Portal authentication can authenticate wireless clients. If both are configured on a wireless network, a wireless client needs to pass MAC-Based Authentication first and then Portal authentication for internet access. You can enable MAC-Based Authentication Fallback to allow clients bypass MAC-Based Authentication, which means the client needs to pass either of the two authentication. The client tries MAC-Based Authentication first, and is allowed to try portal authentication if it failed the MAC-Based Authentication.

Configuration

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Authentication](#) > [MAC-Based Authentication](#). Click  to enable MAC-Based Authentication.



3. In the Basic Info, select the SSIDs, RADIUS Profile and other required parameters. Refer to the following table to configure the required parameters and click [Apply](#).

Basic Info		
SSID	Please Select...	
RADIUS Profile		Manage RADIUS Profile
NAS ID		(Optional)
MAC-Based Authentication Fallback	☐ Enable	
MAC Address Format	aa:bb:cc:dd:ee:ff	
Empty Password	☐ Enable	

SSID	Select one or more SSIDs for MAC-based authentication to take effect.
RADIUS Profile	Select the RADIUS profile you have created. If no RADIUS profiles have been created, click Create New RADIUS Profile from the drop-down list or Manage RADIUS Profile to create one. The RADIUS profile records the information of the RADIUS server which acts as the authentication server during MAC-Based Authentication.
NAS ID	Configure a Network Access Server Identifier (NAS ID) for the authentication. Authentication request packets from the controller to the RADIUS server carry the NAS ID. The RADIUS server can classify users into different groups based on the NAS ID, and then choose different policies for different groups.
MAC-Based Authentication Fallback	For the wireless network configured with both MAC-Based Authentication and Portal, if you enable this feature, a wireless client needs to pass only one authentication. The client tries MAC-Based Authentication first, and is allowed to try Portal authentication if it failed the MAC-Based Authentication. If you disable this feature as default, a wireless client needs to pass both the MAC-Based Authentication and portal authentication for internet access, and will be denied if it fails either of the authentication.
MAC Address Format	Select clients' MAC address format which the controller uses for authentication. Then configure the MAC addresses in the specified format as usernames for the clients on the RADIUS server.
Empty Password	Click to allow a blank password for MAC-Based Authentication. With this option disabled, the password will be the same as the username.

Chapter 9

Configure VPN Networks

VPN (Virtual Private Network) provides a means for secure communication between remote computers across a public wide area network (WAN), such as the internet. The gateway supports various VPN types.

This chapter guides you on how to configure VPN networks with the Omada Controller. The chapter includes the following sections:

- [9.1 VPN Overview](#)
- [9.2 Configure VPN Server](#)
- [9.3 Configure VPN Client](#)
- [9.4 User Management](#)
- [9.5 Configure the Site-to-Site VPN](#)
- [9.6 View VPN Status](#)

9.1 VPN Overview

VPN (Virtual Private Network) gives remote LANs or users secure access to LAN resources over a public network such as the internet. Virtual indicates the VPN connection is based on the logical end-to-end connection instead of the physical end-to-end connection. Private indicates users can establish the VPN connection according to their requirements and only specific users are allowed to use the VPN connection.

The core of VPN connection is to realize tunnel communication, which fulfills the task of data encapsulation, data transmission and data decompression via the tunneling protocol. The gateway supports common tunneling protocols that a VPN uses to keep the data secure:

■ IPsec

IPsec (IP Security) can provide security services such as data confidentiality, data integrity and data authentication at the IP layer. IPsec uses IKE (Internet Key Exchange) to handle negotiation of protocols and algorithms based on the user-specified policy, and to generate the encryption and authentication keys to be used by IPsec. IPsec can be used to protect one or more paths between a pair of hosts, between a pair of security gateways, or between a security gateway and a host.

■ PPTP

PPTP (Point-to-Point Tunneling Protocol) is a network protocol that enables the secure transfer of data from a remote client to a private enterprise server by creating a VPN across TCP/IP-based data networks. PPTP uses the username and password to validate users.

■ L2TP

L2TP (Layer 2 Tunneling Protocol) provides a way for a dial-up user to make a virtual Point-to-Point Protocol (PPP) connection to an L2TP network server (LNS), which can be a security gateway. L2TP sends PPP frames through a tunnel between an L2TP access concentrator (LAC) and the LNS. Because of the lack of confidentiality inherent in the L2TP protocol, it is often implemented along with IPsec. L2TP uses the username and password to validate users.

■ OpenVPN

OpenVPN uses OpenSSL for encryption of UDP and TCP for traffic transmission. OpenVPN uses a client-server connection to provide secure communications between a server and a remote client over the internet. One of the most important steps in setting up OpenVPN is obtaining a certificate which is used for authentication. The controller supports generating the certificate which can be downloaded as a file on your computer. With the certificate imported, the remote clients are checked out by the certificate and granted access to the LAN resources.

■ WireGuard VPN

WireGuard VPN is a secure, fast and modern VPN protocol. It is based on the UDP protocol and uses modern encryption algorithms to improve work efficiency.

■ SSL VPN

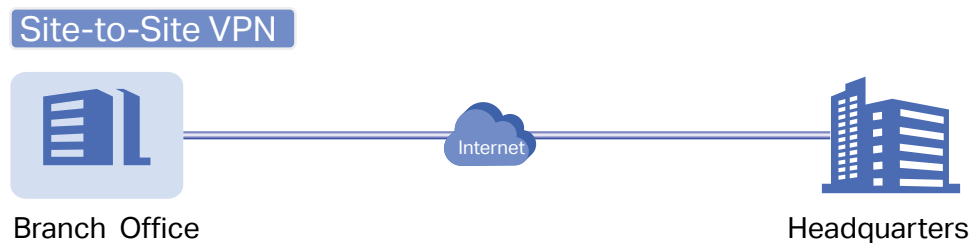
SSL VPN uses username and password for authentication and login. A network administrator can assign different resources to different types of users, and meanwhile associate the users with

multiple resources, making it easy to manage and limit the services the users can access through the VPN.

There are many variations of virtual private networks, with the majority based on two main models:

■ Site-to-Site VPN

A Site-to-Site VPN creates a connection between two networks at different geographic locations. Typically, headquarters set up Site-to-Site VPN with the subsidiary to provide the branch office with access to the headquarters' network.



The gateway supports the following types of Site-to-Site VPNs:

- Auto WireGuard

The controller automatically creates a WireGuard VPN tunnel between two sites on the same controller. The VPN connection is bidirectional. That is, creating an Auto WireGuard VPN from site A to site B also provides connectivity from site B to site A, and nothing is needed to be configured on site B.

- Manual WireGuard

Create a WireGuard VPN tunnel between two peer gateways over internet, from a local gateway to a remote gateway that supports WireGuard. Omada managed gateway on this site is the local peer gateway.

- Auto IPsec

The controller automatically creates an IPsec VPN tunnel between two sites on the same controller. The VPN connection is bidirectional. That is, creating an Auto IPsec VPN from site A to site B also provides connectivity from site B to site A, and nothing is needed to be configured on site B.

- Manual IPsec

You create an IPsec VPN tunnel between two peer gateways over internet manually, from a local gateway to a remote gateway that supports IPsec. The gateway on this site is the local peer gateway.

■ Client-to-Site VPN

A Client-to-Site VPN creates a connection to the LAN from a remote host. It is useful for teleworkers and business travelers to access their central LAN from a remote location without compromising privacy and security.

The first step to build a Client-to-Site VPN connection is to determine the role of the gateways and which VPN tunneling protocol to use:

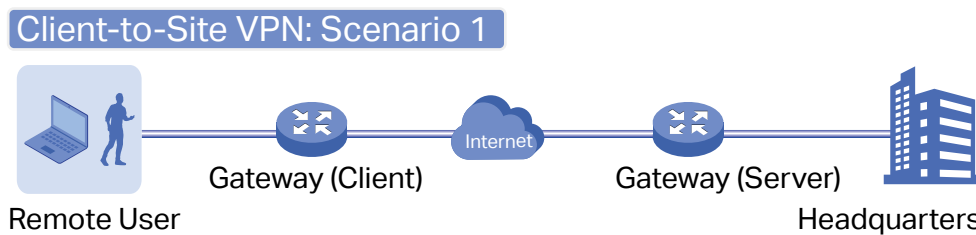
- VPN Server

The gateway on the central LAN works as a VPN server to provide a remote host with access to the local network. The gateway which functions as a VPN server can use WireGuard, OpenVPN, IPSec, SSL VPN, L2TP, or PPTP as the tunneling protocol.

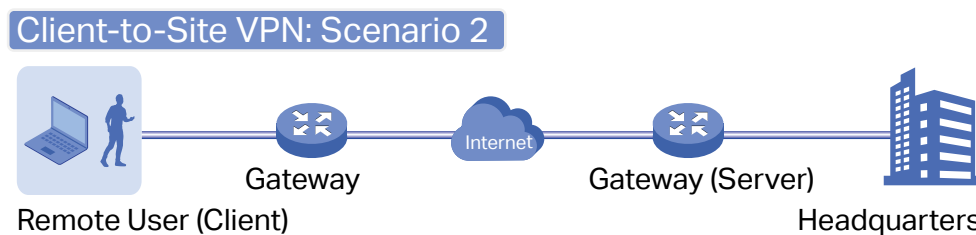
- VPN Client

Either the remote user's gateway or the remote user's laptop or PC works as the VPN client.

When the remote user's gateway works as the VPN client, the gateway helps create VPN tunnels between its connected hosts and the VPN server. The gateway which functions as a VPN client can use WireGuard, OpenVPN, L2TP, or PPTP as the tunneling protocol.



When the remote user's laptop or PC works as the VPN client, the laptop or PC uses a VPN client software program to create VPN tunnels between itself and the VPN server. The VPN client software program can use WireGuard, L2TP, PPTP, IPSec, or OpenVPN as the tunneling protocol.



Note:

In scenario 1, you need to configure VPN client and VPN server separately on the gateways, while remote hosts can access the local networks without running VPN client software.

In scenario 2, you need to configure VPN server on the gateway, and then configure the VPN client software program on the remote user's laptop or PC, while the remote user's gateway doesn't need any VPN configuration.

9. 2 Configure VPN Server

A VPN server provides secure network access for VPN clients. The gateway works as a VPN server to provide a remote host with access to the local network via tunneling protocols, including WireGuard, OpenVPN, IPsec, SSL VPN, L2TP and PPTP.

9. 2. 1 Configuring the gateway as a WireGuard VPN server

9. 2. 2 Configuring the gateway as an OpenVPN server

9. 2. 3 Configuring the gateway as an IPsec VPN server

9. 2. 4 Configuring the gateway as an SSL VPN server

9. 2. 5 Configuring the gateway as an L2TP VPN server

9. 2. 6 Configuring the gateway as a PPTP VPN server

9. 2. 1 Configuring the gateway as a WireGuard VPN server

1. Launch the controller and access a site.
2. Go to **Network Config > VPN > VPN**. Click **Create New VPN Server** to load the following page.

3. Select the VPN type as **WireGuard**. Refer to the following table to configure the required parameters.

Name	Enter a name to identify the VPN server.
Status	Click the checkbox to enable the VPN server.
Interface	Select a WAN interface whose IP will serve as the client's endpoint and be written into the client's configuration file. The client will access the WireGuard Server through this WAN interface and establish a connection.
Service Port	Specify the port number that the WireGuard interface listens to.

Local Network Type	Specify whether to apply the VPN policy to specific local networks or IP addresses. Network: Specify the local networks of the VPN tunnel. The VPN policy will be only applied to the selected local networks. Custom IP: Specify the IP addresses of the VPN tunnel. The VPN policy will be only applied to the specified IP addresses.
Private Key	Specify the private key of the WireGuard interface. The value will be automatically generated on the device.
Public Key	Specify the public key of the WireGuard interface. This field will be automatically generated based on the private key.

4. In the Clients section, click **Add Client**, configure the following parameters, and click **Apply**.

Add WireGuard Client

Name

Client_1

Authorization

AutoManual

Interface IP

10.0.0.2

Public Key

L+SD08AmtolUhtY2jwoYa0+tzWY7axa9k80ZANPyRi



Configuration File

To automatically connect a client scan the QR code or download the VPN's configuration file.

[Download File](#)

Multiple WireGuard clients should not share the same VPN configuration file.

Pre-Shared Key

(Optional)

Allowed Address

☐ Enable

Apply

Cancel

Name	Specify the name that identifies the WireGuard client.
Authorization	Choose to automatically generate a WireGuard client configuration, or manually customize the client entries. If you choose to manually customize the client entries, you need to configure the Interface IP, Public Key, Pre-Shared Key and Allowed Address.
Interface IP	Specify the IP address of the WireGuard client. The IP address is automatically assigned in sequence by the IP Pool.
Public Key	Specify the public key of the client.
Preshared Key	Check the box to specify an optional shared key.
Allowed Address	Check the box to specify the address segment that allows traffic to pass through. Generally, you can fill in the subnet address of the peer. If this option is not enabled, the system will use the client's Interface IP.

5. Click **Advanced** to configure the following parameters as needed, and click **Apply**.

Advanced

Custom Server ⓘ

☐ Enable

IP Pool Type

☒ IP Address/Mask ☐ IP Address Range

IP Pool

10000

/

24

↺

MTU

1420

(576-1440)

Persistent Keepalive

25

(0-65535 seconds)

DNS Server

☒ Auto

10001

Custom Server	When enabled, the customized server address (IP address or domain name) can be written into the certificate for the client to identify and connect to the WireGuard server.
IP Pool Type	Specify the format of the IP pool.
IP Pool	If you select IP Address/Mask type, enter the IP Address and subnet Mask to decide the range of VPN IP pool. If you select IP Address Range type, enter the start and end IP addresses of the VPN IP pool.
MTU	Specify the MTU value of the WireGuard interface. The recommended value is as follows: For static/dynamic dialing: 1420 For PPPoE/L2TP/PPTP dialing: WAN port MTU - 80
Persistent Keepalive	Specify the tunnel keepalive packet interval.
DNS Server	When enabled, the system will automatically generate the DNS server information and send it to the client. By default, the device's default LAN gateway (IPsec, L2TP, PPTP) or the virtual IP assigned to the current server by IP Pool (OpenVPN, SSL VPN, WireGuard) will be used as the DNS address.
Primary/Secondary DNS Server	Specify the DNS address to be assigned to the VPN client (e.g., 8.8.8.8). You can enter the gateway's LAN IP.

9.2.2 Configuring the gateway as an OpenVPN server

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [VPN](#) > [VPN](#). Click [Create New VPN Server](#) to load the following page.

← Create New VPN Server

VPN Type

☐ WireGuard

☒ OpenVPN

☐ IPsec

☐ SSLVPN

☐ L2TP

☐ PPTP

Name

OpenVPN_Server_1

Status

☒ Enable

Interface

WAN2

Account Password

☒ Enable

Authentication Mode

☒ Local

☐ LDAP

Service Port

1194

(1-65535)

Local Network Type

☒ Network

☐ Custom IP

Local Networks

Default

×

▼

VPN User

(Optional) Please select...

▼

User Management

+ Advanced

Apply

Cancel

3. Select the VPN type as **OpenVPN**. Refer to the following table to configure the required parameters.

Name	Enter a name to identify the VPN server.
Status	Click the checkbox to enable the VPN server.
Interface	Select the WAN port on which the VPN tunnel is established. Each WAN port supports only one OpenVPN tunnel when the gateway works as a OpenVPN server.
Account Password	Specify whether VPN clients need to enter a user account to access the VPN tunnel. When enabled, you need to create accounts on the User Management page.
Authentication Mode	Specify the authentication method used by the OpenVPN server. Local: Use a built-in authentication server to authenticate when the tunnel is created. If you don't have an additional external server, you can choose local authentication. LDAP: Use an external LDAP server to authenticate when the tunnel is created. When this option is specified, select an LDAP entry that you have configured in Profiles > LDAP Profile.

Service Port	Enter a VPN service port to which a VPN device connects.
Local Network Type	Specify whether to apply the VPN policy to specific local networks or IP addresses. Network: Specify the local networks of the VPN tunnel. The VPN policy will be only applied to the selected local networks. Custom IP: Specify the IP addresses of the VPN tunnel. The VPN policy will be only applied to the specified IP addresses.
VPN User	Select a user associated to the VPN server. Click Add User to add a new user. You can manage the users on the User Management page.
Click Advanced to configure the following parameters as needed.	
Tunnel Mode	Select the tunnel mode: Split or Full. Split: Only the traffic of the specified local network can pass through the tunnel. Full: Allow all client traffic to pass through the tunnel..
IP Pool	Enter the IP address and subnet mask to decide the range of the VPN IP pool. The VPN server will assign IP address to the remote host when the tunnel is established. You can specify any reasonable IP address that will not cause overlap with the IP address of the LAN on the local peer gateway.
Primary DNS Server	Enter the IP address of the primary DNS server provided by your ISP.
Secondary DNS Server	(Optional) Enter the IP address of the secondary DNS server, which provides redundancy in case the primary DNS server goes down.
Change UDP Protocol to TCP	Enable this option so the OpenVPN protocol will switch from the default UDP protocol to the TCP protocol.

- a. Click **Apply** to save the settings. After clicking **Apply** to save the VPN server configuration, you will see the server entry and click the export icon in the Action column to export the OpenVPN file that ends in .ovpn which is to be used by the remote client. The exported OpenVPN file contains the certificate and configuration information.

VPN Server

VPN Client

Site-to-Site VPN

Server

User Management

Search VPN Name

+ Create New VPN Server

☐	NAME	STATUS	VPN TYPE	LOCAL NETWORK	INTERFACE	USER COUNT	ACTIVE CLIENTS	ACTION
☐	OpenVPN_Server_1		OpenVPN	Default	WAN2	0	0	

9.2.3 Configuring the gateway as an IPsec VPN server

1. Launch the controller and access a site.
2. Go to **Network Config > VPN > VPN**. Click **Create New VPN Server** to load the following page.

← Create New VPN Server

VPN Type

☐ WireGuard

☐ OpenVPN

☒ IPsec

☐ SSL VPN

☐ L2TP

☐ PPTP

Name

IPsec_Server_1

Status

☒ Enable

Interface

WAN2

Remote Host

0.0.0.0

Local Network Type

☒ Network

☐ Custom IP

Local Networks

Default

×

Pre-Shared Key

.....

🔒

↻

⊕ Advanced

Apply

Cancel

3. Select the VPN type as **IPsec VPN**. Refer to the following table to configure the required parameters and click **Apply**.

Name	Enter a name to identify the VPN server.
Status	Click the checkbox to enable the VPN server.
Interface	Specify the WAN port on which the IPsec tunnel is established.
Remote Host	Enter an IP address or a domain name of the host on the remote peer of the VPN tunnel. 0.0.0.0 represents any IP address.
Local Network Type	Specify whether to apply the VPN policy to specific local networks or IP addresses. Network: Specify the local networks of the VPN tunnel. The VPN policy will be only applied to the selected local networks. Custom IP: Specify the IP addresses of the VPN tunnel. The VPN policy will be only applied to the specified IP addresses.

Pre-Shared Key	Enter the pre-shared key(PSK). Both peer gateways must use the same pre-shared secret key for authentication. A pre-shared key is a string of characters that is used as an authentication key. Both VPN peers create a hash value based on the same pre-shared key and other information. The hash values are then exchanged and verified to authenticate the other party. The pre-shared keys should be long and random for security. Short or predictable pre-shared keys can be easily broken in brute-force attacks. To maintain a high level of security, administrators are recommended to update the pre-shared key periodically.
-----------------------	--

4. Click **Advanced** to configure the following parameters as needed.

IP Pool	Enter the IP address and subnet mask to decide the range of the VPN IP pool. The VPN server will assign IP address to the remote host when the tunnel is established. You can specify any reasonable IP address that will not cause overlap with the IP address of the LAN on the local peer gateway.
Primary DNS Server	Enter the IP address of the primary DNS server provided by your ISP.
Secondary DNS Server	(Optional) Enter the IP address of the secondary DNS server, which provides redundancy in case the primary DNS server goes down.

Besides, Advanced settings include Phase-1 settings and Phase-2 settings. Phase-1 is used to set up a secure encrypted channel which the two peers can negotiate Phase-2, and then establish the IKE Security Associations (IKE SA). Phase-2 is used to negotiate about a set of parameters that define what traffic can go through the VPN, and how to encrypt and authenticate the traffic, then establish the IPsec Security Associations (IPsec SA).

Refer to the following table to complete the configurations according to your actual needs and click **Apply**.

For Phase-1 Settings:

Phase-1 Settings	The IKE version you select determines the available Phase-1 settings and defines the negotiation process . Both VPN gateways must be configured to use the same IKE version and Phase-1 settings.
Internet Key Exchange Version	Select the version of Internet Key Exchange (IKE) protocol which is used to set up security associations for IPsec. Both IKEv1 and IKEv2 are supported with gateways, but IKEv1 is available only when the VPN policy is applied to a single Remote Subnet and a single Local Network. Note that both VPN peers must be configured to use the same IKE version.

Proposal	Specify the proposal for IKE negotiation phase-1. An IKE proposal lists the encryption algorithm, authentication algorithm and Diffie-Hellman (DH) groups to be negotiated with the remote IPsec peer. Authentication algorithms verify the data integrity and authenticity of a message. Encryption algorithms protect the data from being read by a third-party. Diffie-Hellman (DH) groups determine the strength of the key used in the key exchange process. Note that both VPN peers must be configured to use the same Proposal.
Exchange Mode	Specify the IKE Exchange Mode when IKEv1 is selected. Main Mode: This mode provides identity protection and exchanges more information, which applies to scenarios with higher requirements for identity protection. Aggressive Mode: This mode establishes a faster connection but with lower security, which applies to scenarios with lower requirements for identity protection.
Negotiation Mode	Specify the IKE Negotiation Mode as Initiator Mode or Responder Mode. Initiator Mode: This mode means that the local device initiates a connection to the peer. Responder Mode: This mode means that the local device waits for the connection request initiated by the peer.
Local ID Type	Specify the type of Local ID which indicates the authentication identifier sent to the peer for IKE negotiation. IP Address: Select IP Address to use the IP address for authentication. Name: Select Name, and then enter the name in the Local ID field to use the name as the ID for authentication. Note that the type and value of Local ID should be the same as Remote ID given for the remote peer of the VPN tunnel.
Local ID	When the Local ID Type is configured as Name, enter a name for the local device as the ID in IKE negotiation. The name should be in the format of FQDN (Fully Qualified Domain Name).
Remote ID Type	Specify the type of Remote ID which indicates the authentication identifier received from the peer for IKE negotiation. IP Address: Select IP Address to use the IP address for authentication. Name: Select Name, and then enter the name in the Remote ID field to use the name as the ID for authentication. Note that the type and value of Remote ID should be the same as Local ID given for the remote peer of the VPN tunnel.

Remote ID	When the Remote ID Type is configured as Name, enter a name of the remote peer as the ID in IKE negotiation. The name should be in the format of FQDN (Fully Qualified Domain Name).
SA Lifetime	Specify ISAKMP SA (Security Association) Lifetime in IKE negotiation. If the SA lifetime expired, the related ISAKMP SA will be deleted.
DPD	Check the box to enable DPD (Dead Peer Detect) function. If enabled, the IKE endpoint can send a DPD request to the peer to inspect whether the IKE peer is alive.
DPD Interval	Specify the interval between sending DPD requests with DPD enabled. If the IKE endpoint receives a response from the peer during this interval, it considers the peer alive. If the IKE endpoint does not receive a response during the interval, it considers the peer dead and deletes the SA.
For Phase-2 Settings:	
Phase-2 Settings	The purpose of Phase 2 negotiations is to establish the Phase-2 SA (also called the IPsec SA). The IPsec SA is a set of traffic specifications that tell the device what traffic to send over the VPN, and how to encrypt and authenticate that traffic.
Encapsulation Mode	Specify the Encapsulation Mode as Tunnel Mode or Transport Mode. When both ends of the tunnel are hosts, either mode can be chosen. When at least one of the endpoints of a tunnel is a security gateway, such as a gateway or firewall, Tunnel Mode is recommended to ensure safety.
Proposal	Specify the proposal for IKE negotiation phase-2. An IPsec proposal lists the encryption algorithm, authentication algorithm and protocol to be negotiated with the remote IPsec peer. Note that both peer gateways must be configured to use the same Proposal.
PFS	Select the DH group to enable PFS (Perfect Forward Security) for IKE mode, then the key generated in phase-2 will be irrelevant with the key in phase-1, which enhance the network security. With None selected, it means PFS is disabled and the key in phase-2 will be generated based on the key in phase-1.
SA Lifetime	Specify IPsec SA (Security Association) Lifetime in IKE negotiation. If the SA lifetime expired, the related IPsec SA will be deleted.

9.2.4 Configuring the gateway as an SSL VPN server

1. Launch the controller and access a site. Go to **Network Config > VPN > VPN**. Click **Create New VPN Sever** to load the following page.

← Create New VPN Server

VPN Type

☐ OpenVPN ☐ IPsec ☒ SSL VPN ☐ L2TP ☐ PPTP

Name

SSLVPN_Server_1

Status

☒ Enable

Interface

WAN2

Listen on Port

1194

(1-65535)

Advanced

IP Pool Type

☒ IP Address/Mask ☐ IP Address Range

IP Pool

10 . 0 . 0 . 0 / 24

Primary DNS Server

.

Secondary DNS Server

.

(Optional)

Authentication Type

☒ Local ☐ RADIUS

Username Lockout

☐ Enable

IP Lockout

☐ Enable

Idle Timeout

☐ Enable

Full Mode

☐ Enable

Apply

Cancel

2. Configure the VPN Server.

- a. Select the VPN type as **SSL VPN**. Refer to the following table to configure the required parameters.

Name	Enter a name to identify the VPN server.
Status	Click the checkbox to enable the VPN server.
Interface	Select the port for the SSL VPN server to listen on, and the VPN tunnel will take effect on the port.
Listen on Port	Specify the port for the SSL VPN server to listen on.

- b. Click **Advanced** to configure the following parameters as needed.

IP Pool Type	Specify the format of the IP pool, and then specify the IP pool address. If you select IP Address/Mask , enter the IP Address and subnet Mask to decide the range of VPN IP pool. If you select IP Address Range , enter the start and end IP addresses of the VPN IP pool.
Primary/Secondary DNS Server	Specify the DNS address to be assigned to the VPN client (e.g., 8.8.8.8). You can enter the gateway's LAN IP.
Authentication Type	Select the authentication for the clients: Local or RADIUS. If you selected RADIUS, configure the following parameters: User Group: Specify the default user group in radius authentication mode. When the VPN server cannot find the value of the CLASS attribute in the authentication success message, it will assign the default resource permissions according to the user group. You can manage the VPN user group on the User Management > User Group page. RADIUS Server: Select a RADIUS server profile. Authentication Type: Select the authentication protocol for the RADIUS server. Max Requests: Specify the maximum number of requests sent when no response is received. Request Timeout: Specify the maximum interval for request timeout. After timeout, the request will be sent again. NAS IP: Specify the IP address for the gateway to communicate with the RADIUS server.
Username Lockout	When enabled, you can lock out a username in case of excessive login attempts. Max Login Attempts: Specify the maximum failed login attempts for a username. If the number of attempts reaches this amount, the username will be locked out. Lockout Duration: Specify how long the username will be locked out.
IP Lockout	When enabled, you can lock out an IP address in case of excessive login attempts. Max Login Attempts: Specify the maximum failed login attempts for a login IP. If the number of attempts reaches this amount, the login IP will be locked out. Lockout Duration: Specify how long the login IP will be locked out.
Idle Timeout	When enabled, the VPN tunnel will close automatically if there is no traffic for the specified amount of time.
Full Mode	When enable, all traffic will go through the SSL VPN tunnel. When disabled, only the resource-related traffic will go through the tunnel.

c. Click **Apply** to save the settings.

3. Configure the Resource Management

In Tunnel Resources, you can configure the resources the clients can access through the VPN tunnel, including IP range and domain name.

In Resource Group, you can add the multiple tunnel resources to a group for better management. By default, two resource groups are provided: Group_ALL (indicates all resources) and Group_LAN (indicates all LAN resources).

- a. Launch the controller and access a site. Go to [Network Config > VPN > VPN Server > User Management > User Group](#), and click [Resource Management](#).
- b. In [Tunnel Resources](#), click [Create New Tunnel Resource](#) to load the following page. Configure the parameters and click [Confirm](#).

Create New Tunnel Resource

Name

Resource Type

IP Address

IP/Mask

Protocol

ALL

Confirm

Cancel

Name	Specify a name for the entry.
Resource Type	Select the type for the resources: IP Address or Domain Name. If you selected IP Address, configure the following parameters: IP/Mask: Specify IP range the clients can access. Protocol: Select the protocol type that the client can access in the IP range, and the gateway will filter illegal packets through firewall rules. By default, the value is ALL, and it means there is no restriction on the client. If you selected Domain Name, specify domain name the clients can access.

- c. In [Resource Group](#), click [Create New Resource Group](#) to load the following page. Configure the parameters and click [Confirm](#).

Create New Resource Group

Resource Group

Resources

Please Select...

Confirm

Cancel

Resource Group	Specify a name for the resource group.
Resources	Select the resources for the group.

4. Configure the User Group

In User Group, you can add multiple users to a group for better management.

- a. Launch the controller and access a site. Go to [Network Config > VPN > VPN Server > User Management > User Group](#).
- b. Click [Create New User Group](#) to load the following page. Configure the parameters and click [Confirm](#).

Create New User Group

Group Name

Resource Group List

Please Select...

Radius Attribute

(Optional)

Confirm

Cancel

Group Name	Specify a name for the user group.
Resource Group List	Select the resource group for the user group.
Radius Attribute	Only valid in radius authentication mode. It maps the user group with radius grouping information (which is carried by the CLASS attribute 25).

5. Configure the User List

In User List, you can view and configure all user settings of the SSL VPN.

- Launch the controller and access a site. Go to [Network Config > VPN > VPN Server > User Management > User List](#).
- Click [Create New User](#) to load the following page. Configure the parameters and click [Confirm](#).

Username	Specify the username a client used for login.
Password	Specify the password a client used for login.
VPN Type	Choose the VPN Type as SSL VPN.
Expiration Date	Specify when the user account will expire.
User Group	Select which group the user belongs to. A user can only be added to one user group.
Status	Click the checkbox to enable this entry.
Max Concurrent Users	Specify the maximum number of clients using the username for login concurrently. If the number reaches this amount, new login attempts will be rejected.

6. Configure the Locked Out User.

In Locked Out User, you can view the currently locked out users, and add, delete or edit an entry.

- Launch the controller and access a site. Go to [Network Config > VPN > VPN Server > User Management > Locked Out User](#).

- b. Click [Add Locked Out User](#) to load the following page. Configure the parameters and click [Confirm](#).

Add Locked Out User

Type

Username

Username

(1-20 characters, using a combination of letters, digits and underscores)

Locked Out Duration

0h

01m

Confirm

Cancel

Type	Specify the locked out type. If you selected Username , specify the username of a locked out user. If you selected IP Address , specify the IP address of a locked out user.
Lockout Duration	Specify how long the entry will be locked out.

- 7. Go to [Network Config > VPN > VPN Server](#), and click the [Export](#) icon to export the VPN configuration file. The VPN configuration file will be exported for clients to access the VPN.

Server	User Management	Search VPN Name							+ Create New VPN Server
☐	NAME	STATUS	VPN TYPE	LOCAL NETWORK	INTERFACE	USER COUNT	ACTIVE CLIENTS	ACTION	
☐	SSL_VPN_Server_1		SSL VPN	-	WAN2		-		

9. 2. 5 **Configuring the gateway as an L2TP VPN server**

- 1. Launch the controller and access a site.
- 2. Go to [Network Config > VPN > VPN](#). Click [Create New VPN Sever](#) to load the following page.

← Create New VPN Server

VPN Type

☐ WireGuard

☐ OpenVPN

☐ IPsec

☐ SSL VPN

☒ L2TP

☐ PPTP

Name

L2TP_Server_1

Status

☒ Enable

Interface

WAN2

IPsec Encryption

☒ Encrypted

☐ Unencrypted

☐ Auto

Authentication Mode

☒ Local

☐ LDAP

Local Network Type

☒ Network

☐ Custom IP

Local Networks

Default

Pre-Shared Key

.....

VPN User

(Optional) Please select...

User Management

Advanced

Apply

Cancel

3. Select the VPN type as **L2TP**. Refer to the following table to configure the required parameter, and click **Apply** to save the settings..

Name	Enter a name to identify the VPN server.
Status	Click the checkbox to enable the VPN server.
Interface	Specify the WAN port used for L2TP tunnel.
IPsec Encryption	Specify whether to enable the encryption for the tunnel. Encrypted: Select Encrypted to encrypt the L2TP tunnel by IPsec (L2TP over IPsec). With Encrypted selected, enter the Pre-shared Key for IKE authentication. VPN server and VPN client must use the same pre-shared secret key for authentication. Unencrypted: With Unencrypted selected, the L2TP tunnel will not be encrypted by IPsec. Auto: With Auto selected, the L2TP server will determine whether to encrypt the tunnel according to the client 's encryption settings. And enter the Pre-shared Key for IKE authentication. VPN server and VPN client must use the same pre-shared secret key for authentication.

Authentication Mode	Select the authentication mode: Local or LDAP. Local: Use a built-in authentication server to authenticate when the tunnel is created. If you don't have an additional external server, you can choose local authentication. LDAP: Use an external LDAP server to authenticate when the tunnel is created.
Local Network Type	Specify whether to apply the VPN policy to specific local networks or IP addresses. Network: Specify the local networks of the VPN tunnel. The VPN policy will be only applied to the selected local networks. Custom IP: Specify the IP addresses of the VPN tunnel. The VPN policy will be only applied to the specified IP addresses.
Pre-shared Key	Enter the pre-shared secret key when IPsec Encryption is selected as Encrypted and Auto. Both peer gateways must use the same pre-shared secret key for authentication.
VPN User	Select a user associated to the VPN server. Click Add User to add a new user. You can manage the users on the User Management page..
Click Advanced to configure the following parameters as needed.	
IP Pool Type	Specify the format of the IP pool.
IP Pool	If you selected IP Address/Mask type, enter the IP address and subnet mask to decide the range of the VPN IP pool. If you select IP Address Range type, enter the start and end IP addresses of the VPN IP pool.
DNS Sever	When Auto is checked, the system will automatically generate the DNS server information and send it to the client. By default, the device's default LAN gateway (IPsec, L2TP, PPTP) or the virtual IP assigned to the current server by IP Pool (OpenVPN, SSL VPN, WireGuard) will be used as the DNS address.
Primary DNS Server	Enter the IP address of the primary DNS server provided by your ISP.
Secondary DNS Server	(Optional) Enter the IP address of the secondary DNS server, which provides redundancy in case the primary DNS server goes down.

9.2.6 Configuring the gateway as a PPTP VPN server

1. Launch the controller and access a site.
2. Go to **Network Config > VPN > VPN**. Click **Create New VPN Sever** to load the following page.

← Create New VPN Server

VPN Type

☐ WireGuard

☐ OpenVPN

☐ IPsec

☐ SSL VPN

☐ L2TP

☒ PPTP

Name

PPTP_Server_1

Status

☒ Enable

Interface

WAN2

MPPE Encryption

☒ Encrypted

☐ Unencrypted

Authentication Mode

☒ Local

☐ LDAP

Local Network Type

☒ Network

☐ Custom IP

Local Networks

Default

VPN User

(Optional) Please select...

User Management

Advanced

IP Pool Type

☒ IP Address/Mask

☐ IP Address Range

IP Pool

10

.

0

.

0

.

0

/

24

DNS Server

☒ Auto

192

.

168

.

124

.

1

Apply

Cancel

3. Select the VPN type as **PPTP**. Refer to the following table to configure the required parameter, and click **Apply** to save the settings..

Name	Enter a name to identify the VPN policy.
Status	Click the checkbox to enable the VPN policy.
Interface	Specify the WAN port used for L2TP tunnel.
MPPE Encryption	Specify whether to enable MPPE (Microsoft Point-to-Point Encryption) for the tunnel. Encrypted: With Encrypted selected, the PPTP tunnel will be encrypted by MPPE. Unencrypted: With Unencrypted selected, the PPTP tunnel will be not encrypted by MPPE.
Authentication Mode	Select the authentication mode: Local or LDAP. Local: Use a built-in authentication server to authenticate when the tunnel is created. If you don't have an additional external server, you can choose local authentication. LDAP: Use an external LDAP server to authenticate when the tunnel is created.

Local Network Type	Specify whether to apply the VPN policy to specific local networks or IP addresses. Network: Specify the local networks of the VPN tunnel. The VPN policy will be only applied to the selected local networks. Custom IP: Specify the IP addresses of the VPN tunnel. The VPN policy will be only applied to the specified IP addresses.
VPN User	Select a user associated to the VPN server. Click Add User to add a new user. You can manage the users on the User Management page..
Click Advanced to configure the following parameters as needed.	
IP Pool Type	Specify the format of the IP pool.
IP Pool	If you selected IP Address/Mask type, enter the IP address and subnet mask to decide the range of the VPN IP pool. If you select IP Address Range type, enter the start and end IP addresses of the VPN IP pool.
DNS Sever	When Auto is checked, the system will automatically generate the DNS server information and send it to the client. By default, the device's default LAN gateway (IPsec, L2TP, PPTP) or the virtual IP assigned to the current server by IP Pool (OpenVPN, SSL VPN, WireGuard) will be used as the DNS address.
Primary DNS Server	Enter the IP address of the primary DNS server provided by your ISP.
Secondary DNS Server	(Optional) Enter the IP address of the secondary DNS server, which provides redundancy in case the primary DNS server goes down.

9.3 Configure VPN Client

A VPN client securely connects to the VPN server. The gateway works as a VPN client to help create VPN tunnels between its connected hosts and the VPN server via tunneling protocols, including WireGuard, OpenVPN, L2TP and PPTP. Remote hosts connected to the gateway can access the local networks without running VPN client software.

[9.3.1 Configuring the gateway as an L2TP VPN client](#)

[9.3.2 Configuring the gateway as a PPTP VPN client](#)

[9.3.3 Configuring the gateway as a WireGuard client](#)

[9.3.4 Configuring the gateway as an OpenVPN client](#)

9.3.1 Configuring the gateway as an L2TP VPN client

1. Launch the controller and access a site.
2. Go to [Network Config > VPN > VPN Client](#). Click [Create New VPN Client](#) to load the following page.

← Create New VPN Client

VPN Type

☐ WireGuard

☐ OpenVPN

☒ L2TP

☐ PPTP

Name

L2TP_Client_1

Status

☒ Enable

Interface

WAN2

Working Mode

☒ NAT

☐ Routing

Username

Password

Password

IPsec Encryption

☒ Encrypted

☐ Unencrypted

Pre-Shared Key

.....

Remote Server

Remote Subnets

0 . 0 . 0 . 0 / 0

+ Add Subnet

Local Network Type

☒ Network

☐ Custom IP

Local Networks

Default

Apply

Cancel

3. Select the VPN type as **L2TP**. Refer to the following table to configure the required parameter, and click **Apply** to save the settings.

Name	Enter a name to identify the VPN client.
Status	Click the checkbox to enable the VPN client.
Interface	Specify the WAN port used for L2TP tunnel..

Working Mode	Specify the Working Mode as NAT or Routing. NAT: With NAT (Network Address Translation) mode selected, the L2TP client uses the assigned IP address as its source addresses of original IP header when forwarding L2TP packets. Routing: With Routing selected, the L2TP client uses its own IP address as its source addresses of original IP header when forwarding L2TP packets.
Username	Enter the username used for the VPN tunnel. This username should be the same as that of the L2TP server.
Password	Enter the password of user. This password should be the same as that of the L2TP server.
IPsec Encryption	Specify whether to enable the encryption for the tunnel. Encrypted: Select Encrypted to encrypt the L2TP tunnel by IPsec (L2TP over IPsec). With Encrypted selected, enter the Pre-shared Key for IKE authentication. VPN server and VPN client must use the same pre-shared secret key for authentication. Unencrypted: With Unencrypted selected, the L2TP tunnel will be not encrypted by IPsec.
Pre-shared Key	When the IPsec Encryption is configured as Encrypted, specify the Pre-shared Key for IKE authentication.
Remote Server	Enter the IP address or domain name of the L2TP server.
Remote Subnets	Enter the LAN Subnets of VPN Server which you can access via VPN connection. You can click Add Subnet to add multiple subnets.
Local Network Type	Specify whether to apply the VPN policy to specific local networks or IP addresses. Network: Specify the local networks of the VPN tunnel. The VPN policy will be only applied to the selected local networks. Custom IP: Specify the IP addresses of the VPN tunnel. The VPN policy will be only applied to the specified IP addresses.

9.3.2 Configuring the gateway as a PPTP VPN client

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [VPN](#) > [VPN Client](#). Click [Create New VPN Client](#) to load the following page.

← Create New VPN Client

VPN Type

☐ WireGuard

☐ OpenVPN

☐ L2TP

☒ PPTP

Name

PPTP_Client_1

Status

☒ Enable

Interface

WAN2

Working Mode

☒ NAT

☐ Routing

Username

Password

Password

MPPE Encryption

☒ Encrypted

☐ Unencrypted

Remote Server

Remote Subnets

0 . 0 . 0 . 0 / 0

+ Add Subnet

Local Network Type

☒ Network

☐ Custom IP

Local Networks

Default

Apply

Cancel

3. Select the VPN type as **PPTP**. Refer to the following table to configure the required parameter, and click **Apply** to save the settings.

Name	Enter a name to identify the VPN policy.
Status	Click the checkbox to enable the VPN policy.

Interface	Specify the WAN port used for PPTP tunnel..
Working Mode	Specify the Working Mode as NAT or Routing. NAT: With NAT (Network Address Translation) mode selected, the PPTP client uses the assigned IP address as its source addresses of original IP header when forwarding PPTP packets. Routing: With Routing selected, the PPTP client uses its own IP address as its source addresses of original IP header when forwarding PPTP packets.
Username	Enter the username used for the VPN tunnel. This username should be the same as that of the PPTP server.
Password	Enter the password of user. This password should be the same as that of the PPTP server.
MPPE Encryption	Specify whether to enable the encryption for the tunnel. Encrypted: Select Encrypted to encrypt the PPTP tunnel by MPPE. Unencrypted: With Unencrypted selected, the PPTP tunnel will be not encrypted by MPPE.
Remote Server	Enter the IP address or domain name of the PPTP server.
Remote Subnets	Enter the LAN Subnets of VPN Server which you can access via VPN connection. You can click Add Subnet to add multiple subnets.
Local Network Type	Specify whether to apply the VPN policy to specific local networks or IP addresses. Network: Specify the local networks of the VPN tunnel. The VPN policy will be only applied to the selected local networks. Custom IP: Specify the IP addresses of the VPN tunnel. The VPN policy will be only applied to the specified IP addresses.

9.3.3 Configuring the gateway as a WireGuard client

1. Launch the controller and access a site.
2. Go to [Network Config > VPN > VPN Client](#). Click [Create New VPN Client](#) to load the following page.

← Create New VPN Client

VPN Type

☒ WireGuard ☐ OpenVPN ☐ L2TP ☐ PPTP

Name

WireGuard_Client_1

Status

☒ Enable

Set Up

☒ File ☐ Manual

Configuration File ⓘ

↑ Import

MTU

1420

(576-1440)

Persistent Keepalive

25

(0-65535 seconds)

+ Connection

Apply

Cancel

3. Select the VPN type as **WireGuard**. Refer to the following table to configure the required parameter, and click **Apply** to save the settings.

Name	Enter a name to identify the VPN client.
Status	Click the checkbox to enable the VPN client.
Set Up	Choose to set up the client via a configuration file or manually. If you choose to set up the client manually, you need to manually configure the Connection parameters.
Configuration File	If you choose to set up the client via a configuration file, click the Import button to import the WireGuard file that ends in .conf generated by the WireGuard server. Only one file can be imported.

MTU	Specify the MTU value of the WireGuard interface. The recommended value is as follows: For static/dynamic dialing: 1420 For PPPoE/L2TP/PPTP dialing: WAN port MTU - 80
Persistent Keepalive	Specify the tunnel keepalive packet interval
Click Connection to expand the parameters.	
Private Key	Specify the private key of the WireGuard interface. The value will be automatically generated on the device, and you can also modify it manually.
Public Key	Specify the public key of the WireGuard interface. This field will be automatically generated based on the private key.
Tunnel IP	Specify the IP address of the WireGuard interface.
Remote Server	Specify the IP address or domain name of the server.
Public Server Key	Specify the public key of the server.
Pre-Shared Key	Specify an optional shared key.
Primary/Secondary DNS Server	Specify the DNS dns server.
Allowed Server Address	Specify the address segment that allows traffic to pass through. Generally, you can fill in the subnet address of the peer.
Local Network Type	Select the type to set the local network for VPN Policy, there are two types: Network and Custom IP.
Local Networks	Select the local networks to apply the VPN Policy. The VPN Policy will only apply to the selected or filled local network.
Client Port	Specify the port number that the WireGuard interface listens to.

9.3.4 Configuring the gateway as an OpenVPN client

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [VPN](#) > [VPN Client](#). Click [Create New VPN Client](#) to load the following page.

← Create New VPN Client

VPN Type

☐ WireGuard ☒ OpenVPN ☐ L2TP ☐ PPTP

Name

OpenVPN_Client_1

Status

☒ Enable

Configuration File ⓘ

Import

Mode

☒ Certificate ☐ Certificate+Account

Interface

WAN2

Remote Server

IP Address or Domain Name : (1-65535)

Local Network Type

☒ Network ☐ Custom IP

Local Networks ⓘ

Default x

Apply

Cancel

3. Select the VPN type as **OpenVPN**. Refer to the following table to configure the required parameter, and click **Apply** to save the settings.

Name	Enter a name to identify the VPN client.
Status	Click the checkbox to enable the VPN client.
Configuration File	Click the Import button to import the OpenVPN file that ends in .ovpn generated by the OpenVPN server. Only one file can be imported. If the certificate file and configuration file are generated singly by the OpenVPN server, combine two files and import the whole file.

Mode	Select the access mode according to VPN requirements. Certificate: Select this option if the VPN tunnel only requires the certificate. Certificate+Account: Select this option if the VPN tunnel requires the certificate and VPN user account. If selected, configure the following parameters: Username: Enter the username for the VPN tunnel. Password: Enter the password for the VPN tunnel.
Remote Server	Enter the IP address or domain name of the OpenVPN server.
Local Network Type	Specify whether to apply the VPN policy to specific local networks or IP addresses. Network: Specify the local networks of the VPN tunnel. The VPN policy will be only applied to the selected local networks. Custom IP: Specify the IP addresses of the VPN tunnel. The VPN policy will be only applied to the specified IP addresses.

9.4 User Management

After configuring the gateway as an OpenVPN, SSL VPN, L2TP or PPTP server, you can create VPN connection accounts for remote devices to connect to the VPN server.

To configure the users, follow these steps:

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [VPN](#) > [VPN Server](#) > [User Management](#). Click [Create New User](#) to add a new entry of VPN User.

Create New User

Username

Password

Password

VPN Type

☒ OpenVPN
 ☐ SSL VPN
 ☐ L2TP/PPTP

VPN Server

Please Select...

(Optional)

Confirm

Cancel

3. Specify the parameters and click [Confirm](#).

Username	Specify the account name used for the VPN tunnel.
Password	Specify the account password used for the VPN tunnel. Your VPN clients will use the account name and password for authentication.
VPN Type	Choose the VPN user you want to add.
For OpenVPN type	
VPN Server	Select the OpenVPN server to which the user belongs. Only the server with the username and password authentication option enabled can be selected.
For SSL VPN type	
Expiration Date	Specify when the user will expire.
User Group	Select which group the user belongs to. A user can only be added to one user group.
Status	Toggle on to enable the user entry.
Max Concurrent Users	Specify the maximum number of clients using the username for login concurrently. After the maximum number is reached, new login attempts will be rejected.
For L2TP/PPTP type	

VPN Server	Select the L2TP/PPTP server to which the user belongs. Only the server with the username and password authentication option enabled can be selected.
Local IP Address	Specify the local virtual IP address for the VPN server. Please avoid using the IP address in the DHCP range, which may cause IP conflict, you can enter the LAN IP of the gateway. To find out the DHCP Range, go to Network Settings > LAN > VLAN and view the information of the desired network.
Mode	Specify the network mode. There are two modes: Client: Select this option when the L2TP/PPTP client is a single host. It's commonly used to access the internal service from outside. Network Extension Mode: Select this option when the L2TP/PPTP client is a VPN gateway. The tunneling request is always initiated by a device. It's commonly used for access between two offices.
Max Concurrent Users	Specify the maximum number of connections that the tunnel can support. When Client Mode is enabled, it can be used to limit the number of devices connected at the same time.
Remote Subnets	Specify a remote network. (This is the IP address range of the LAN on the remote peer of the L2TP/PPTP tunnel.) It's the combination of IP address and subnet mask. It takes effect when Network Extension Mode is enabled.

To edit or delete the VPN users, click the icon in the Action column. You can further filter the entries based on the VPN Server.

9.5 Configure the Site-to-Site VPN

You can establish a secure connection between two locations to enable communication between networks. The gateway supports the following types of Site-to-Site VPNs.

[9.5.1 Configuring Auto IPsec VPN](#)

[9.5.2 Configuring Manual IPsec VPN](#)

[9.5.3 Configuring Auto WireGuard VPN](#)

[9.5.4 Configuring Manual WireGuard VPN](#)

9.5.1 Configuring Auto IPsec VPN

- 1. Launch the controller and access a site.
- 2. Go to [Network Config > VPN > VPN](#). Click [Create New Site-to-Site VPN](#) to load the following page.

← Create New Site-to-Site VPN

VPN Type

☐ WireGuard

☒ IPsec

Name

Status

☒ Enable

Mode

Auto

Manual

Remote Site

- 3. Select the VPN type as IPsec and refer to the following table to configure the required parameters and click [Apply](#).

Name	Enter a name to identify the VPN tunnel.
Status	Click the checkbox to enable the VPN tunnel.
Mode	Select the Mode as Auto. The controller automatically creates an IPsec VPN tunnel between two sites on the same controller. The VPN connection is bidirectional. That is, creating an Auto IPsec VPN from site A to site B also provides connectivity from site B to site A, and nothing is needed to be configured on site B.
Remote Site	Select the site on the other end of the Auto IPsec VPN tunnel. Make sure that the selected remote site has an Omada managed gateway within the same controller.

9.5.2 Configuring Manual IPsec VPN

- 1. Launch the controller and access a site.
- 2. Go to [Network Config > VPN > VPN](#). Click [Create New Site-to-Site VPN](#) to load the following page.

← Create New Site-to-Site VPN

VPN Type

☐ WireGuard

☒ IPsec

Name

Status

☒ Enable

Mode

Auto

Manual

Interface

WAN2

IPsec Failover

☐ Enable

Remote Gateway

Remote Subnets

/

+ Add Subnet

Pre-Shared Key

.....

Local Network Type

☒ Network

☐ Custom IP

Local Networks

Default

+ Advanced

3. Select the VPN type as IPsec and refer to the following table to configure the required parameters and click [Apply](#).

Name	Enter a name to identify the VPN tunnel.
Status	Click the checkbox to enable the VPN tunnel.
Mode	Select the Mode as Manual. Create an IPsec VPN tunnel between two peer gateways over internet, from a local gateway to a remote gateway that supports IPsec. Omada managed gateway on this site is the local peer gateway.
Interface	Specify the WAN port on which the IPsec tunnel is established.

IPsec Failover	Check the box to enable the IPsec Failover as needed. Backup WAN: Specify the IPsec secondary interface. Automatic Fallback: Select this function to automatically switch back to the primary connection when it is reachable. Gateway Failover Timeout: When selected, the system will query whether the primary connection is reachable within the configured time, and if yes, it will switch back to the primary connection.
Remote Gateway	Enter an IP address or a domain name (1 to 253 characters) as the remote gateway. 0.0.0.0 represents any IP address. Only when the negotiation mode is set to Responder Mode in Phase-1 Settings can you enter 0.0.0.0.
Remote Subnets	Specify the remote network. It's always the IP address range of LAN on the remote peer of the VPN tunnel. It's the combination of IP Address and subnet mask. Traffic to the remote network will be forwarded via IPsec tunnel.
Pre-Shared Key	Enter the pre-shared key(PSK). Both peer gateways must use the same pre-shared secret key for authentication. A pre-shared key is a string of characters that is used as an authentication key. Both peer gateways create a hash value based on the same pre-shared key and other information. The hash values are then exchanged and verified to authenticate the other party. The pre-shared keys should be long and random for security. Short or predictable pre-shared keys can be easily broken in brute-force attacks. To maintain a high level of security, administrators are recommended to update the pre-shared key periodically.
Local Network Type	Specify whether to apply the VPN policy to specific local networks or IP addresses. Network: Select the local networks to apply the VPN Policy. The VPN Policy will only apply to the selected or filled local network. Custom IP: Specify the IP addresses of the VPN tunnel. The VPN policy will be only applied to the specified IP addresses.

- Click **Advanced Settings** to load the following page.

Phase-1 Settings

Key Exchange Version

☐ IKEv1 ☒ IKEv2 i

Proposal

SHA1 - AES256 - DH2 ▼

Negotiation Mode

☒ Initiator Mode ☐ Responder Mode

Local ID Type

☒ IP Address ☐ Name

Remote ID Type

☒ IP Address ☐ Name

SA Lifetime

28800 seconds (60-604800)

DPD

☒ Enable

DPD Interval

10 seconds (1-300)

Phase-2 Settings

Encapsulation Mode

☒ Tunnel Mode ☐ Transport Mode

Proposal

ESP - SHA1 - AES256 ▼

PFS

None ▼

SA Lifetime

28800 seconds (120-604800)

Create

Cancel

Advanced settings include Phase-1 settings and Phase-2 settings. Phase-1 is used to set up a secure encrypted channel which the two peers can negotiate Phase-2, and then establish the IKE Security Associations (IKE SA). Phase-2 is used to negotiate about a set of parameters that define what traffic can go through the VPN, and how to encrypt and authenticate the traffic, then establish the IPsec Security Associations (IPsec SA).

Refer to the following table to complete the configurations according to your actual needs and click **Create**.

For Phase-1 Settings:

Phase-1 Settings	The IKE version you select determines the available Phase-1 settings and defines the negotiation process. Both VPN gateways must be configured to use the same IKE version and Phase-1 settings.
Internet Key Exchange Version	Select the version of Internet Key Exchange (IKE) protocol which is used to set up security associations for IPsec. Both IKEv1 and IKEv2 are supported with gateways, but IKEv1 is available only when the VPN policy is applied to a single Remote Subnet and a single Local Network. Note that both peer gateways must be configured to use the same IKE version.
Proposal	Specify the proposal for IKE negotiation phase-1. An IKE proposal lists the encryption algorithm, authentication algorithm and Diffie-Hellman (DH) groups to be negotiated with the remote IPsec peer. Authentication algorithms verify the data integrity and authenticity of a message. Encryption algorithms protect the data from being read by a third-party. Diffie-Hellman (DH) groups determine the strength of the key used in the key exchange process. Note that both peer gateways must be configured to use the same Proposal.
Exchange Mode	Specify the IKE Exchange Mode when IKEv1 is selected. Main Mode: This mode provides identity protection and exchanges more information, which applies to scenarios with higher requirements for identity protection. Aggressive Mode: This mode establishes a faster connection but with lower security, which applies to scenarios with lower requirements for identity protection.
Negotiation Mode	Specify the IKE Negotiation Mode as Initiator Mode or Responder Mode. Initiator Mode: This mode means that the local device initiates a connection to the peer. Responder Mode: This mode means that the local device waits for the connection request initiated by the peer.
Local ID Type	Specify the type of Local ID which indicates the authentication identifier sent to the peer for IKE negotiation. IP Address: Select IP Address to use the IP address for authentication. Name: Select Name, and then enter the name in the Local ID field to use the name as the ID for authentication. Note that the type and value of Local ID should be the same as Remote ID given for the remote peer of the VPN tunnel.

Local ID	When the Local ID Type is configured as Name, enter a name for the local device as the ID in IKE negotiation. The name should be in the format of FQDN (Fully Qualified Domain Name).
Remote ID Type	Specify the type of Remote ID which indicates the authentication identifier received from the peer for IKE negotiation. IP Address: Select IP Address to use the IP address for authentication. Name: Select Name, and then enter the name in the Remote ID field to use the name as the ID for authentication. Note that the type and value of Remote ID should be the same as Local ID given for the remote peer of the VPN tunnel.
Remote ID	When the Remote ID Type is configured as Name, enter a name of the remote peer as the ID in IKE negotiation. The name should be in the format of FQDN (Fully Qualified Domain Name).
SA Lifetime	Specify ISAKMP SA (Security Association) Lifetime in IKE negotiation. If the SA lifetime expired, the related ISAKMP SA will be deleted.
DPD	Check the box to enable DPD (Dead Peer Detect) function. If enabled, the IKE endpoint can send a DPD request to the peer to inspect whether the IKE peer is alive.
DPD Interval	Specify the interval between sending DPD requests with DPD enabled. If the IKE endpoint receives a response from the peer during this interval, it considers the peer alive. If the IKE endpoint does not receive a response during the interval, it considers the peer dead and deletes the SA.
For Phase-2 Settings:	
Phase-2 Settings	The purpose of Phase 2 negotiations is to establish the Phase-2 SA (also called the IPsec SA). The IPsec SA is a set of traffic specifications that tell the device what traffic to send over the VPN, and how to encrypt and authenticate that traffic.
Encapsulation Mode	Specify the Encapsulation Mode as Tunnel Mode or Transport Mode. When both ends of the tunnel are hosts, either mode can be chosen. When at least one of the endpoints of a tunnel is a security gateway, such as a gateway or firewall, Tunnel Mode is recommended to ensure safety.
Proposal	Specify the proposal for IKE negotiation phase-2. An IPsec proposal lists the encryption algorithm, authentication algorithm and protocol to be negotiated with the remote IPsec peer. Note that both peer gateways must be configured to use the same Proposal.
PFS	Select the DH group to enable PFS (Perfect Forward Security) for IKE mode, then the key generated in phase-2 will be irrelevant with the key in phase-1, which enhance the network security. With None selected, it means PFS is disabled and the key in phase-2 will be generated based on the key in phase-1.
SA Lifetime	Specify IPsec SA (Security Association) Lifetime in IKE negotiation. If the SA lifetime expired, the related IPsec SA will be deleted.

9.5.3 Configuring Auto WireGuard VPN

1. Launch the controller and access a site.
2. Go to [Network Config > VPN > VPN](#). Click [Create New Site-to-Site VPN](#) to load the following page.

← Create New Site-to-Site VPN

VPN Type

☒ WireGuard ☐ IPsec

Name

Status

☒ Enable

Mode

Auto

Manual

Remote Site

3. Select the VPN type as WireGuard and refer to the following table to configure the required parameters and click [Apply](#).

Name	Enter a name to identify the VPN tunnel.
Status	Click the checkbox to enable the VPN tunnel.
Mode	Select the Mode as Auto. The controller automatically creates a WireGuard VPN tunnel between two sites on the same controller. The VPN connection is bidirectional. That is, creating an Auto WireGuard VPN from site A to site B also provides connectivity from site B to site A, and nothing is needed to be configured on site B.
Remote Site	Select the site on the other end of the Auto WireGuard VPN tunnel. Make sure that the selected remote site has an Omada managed gateway within the same controller.

9.5.4 Configuring Manual WireGuard VPN

1. Launch the controller and access a site.
2. Go to [Network Config > VPN > VPN](#). Click [Create New Site-to-Site VPN](#) to load the following page.

← Create New Site-to-Site VPN

VPN Type

☒ WireGuard ☐ IPsec

Name

Status

☒ Enable

Mode

Auto

Manual

MTU

1420

(576-1440)

Listen on Port

51820

(1-65535)

Local Network Type

☒ Network ☐ Custom IP

Local Networks

Default

Local IP Address

172

.

16

.

0

.

2

Private Key

Public Key

Copy

Peer List

Search Name

+ Add Peer

NAME

STATUS

PUBLIC KEY

ENDPOINT

ENDPOINT PORT

ALLOWED ADDRESS

PRESHARED KEY

PERSISTENT KEEPALIVE

COMMENT

ACTION

No items

3. Select the VPN type as WireGuard and refer to the following table to configure the required parameters and click **Apply**.

Name	Enter a name to identify the VPN tunnel.
Status	Click the checkbox to enable the VPN tunnel.
Mode	Select the Mode as Manual. Create a WireGuard VPN tunnel between two peer gateways over internet, from a local gateway to a remote gateway that supports WireGuard. Omada managed gateway on this site is the local peer gateway.
MTU	Specify the MTU value of the WireGuard interface. The recommended value is as follows: For static/dynamic dialing: 1420 For PPPoE/L2TP/PPTP dialing: WAN port MTU - 80
Listen on Port	Specify the port number that the WireGuard interface listens to.
Local Network Type	Specify whether to apply the VPN policy to specific local networks or IP addresses. Network: Select the local networks to apply the VPN Policy. The VPN Policy will only apply to the selected or filled local network. Custom IP: Specify the IP address of the WireGuard interface. Select a reserved address to avoid IP conflicts.
Private Key	Specify the private key of the WireGuard interface. The value will be automatically generated on the device, and you can also modify it manually.
Public Key	Specify the public key of the WireGuard interface. This field will be automatically generated based on the private key.

4. In the Peer List, click **Add Peer** and configure the following parameters, and then click **Apply**.

Add Peer

Name

Peer_1

Status

☒ Enable

Endpoint

IP Address or Domain Name

(Optional)

Endpoint Port

(Optional)

Allowed Address

.

.

.

/

+ Add Subnet

Persistent Keepalive

25

(0-65535 seconds)

Comment

(Optional, 0-128 characters)

Public Key

Pre-Shared Key

(Optional)

Apply

Cancel

Name	Enter a name to identify the WireGuard peer.
Status	Specify whether to enable the peer.
Endpoint	Specify the IP address or domain name of the peer..
Endpoint Port	Specify the port number of the peer.
Allowed Address	Specify the address segment that allows traffic to pass through. Generally, you can fill in the subnet address of the peer.
Persistent Keepalive	Specify the tunnel keepalive packet interval.
Comment	Enter the description of the peer.
Public Key	Specify the public key of the peer.
Pre-Shared Key	Specify an optional shared key.

5. Click **Apply** to save the settings.

9.6 View VPN Status

Once the VPN tunnel is established, you can check the VPN status.

To view the VPN status, follow these steps:

1. Launch the controller and access a site.
2. Go to **Network Config > VPN > VPN Status**.

VPN Status										
VPN Server VPN Client Site-to-Site VPN WireGuard OpenVPN IPsec SSLVPN L2TP PPTP										
NAME	SPI	DIRECTION	TUNNEL ID	DATA FLOW	PROTOCOL	AH AUTHENTICATION	ESP AUTHENTICATION	ESP ENCRYPTION	ACTION	
IPsec_Server_1	3242354939	in	192.168.0.103 192.168.0.233	192.168.1.0 / 24 10.0.0.1 / 32	ESP	-	HMAC_SHA2_256_128	AES-256		
IPsec_Server_1	51578254	out	192.168.0.103 192.168.0.233	192.168.1.0 / 24 10.0.0.1 / 32	ESP	-	HMAC_SHA2_256_128	AES-256		

3. Click the desired tab to display the connection status and information of the VPN tunnel.

VPN Server-WireGuard

NAME	Displays the name of the VPN policy.
IP POOL	The IP Pool of each VPN policy.
SERVER ADDRESS	Displays the address of the VPN server. By default, it is bound to the selected WAN IP.
PORT	Displays the service port currently monitored by the VPN server.
ACTIVE CLIENTS	Displays the number of active clients currently connected to the VPN server.
CLIENTS	Click to display the details client information.

VPN Server-OpenVPN

USER	Displays the account name of OpenVPN client.
INTERFACE	INTERFACE: The WAN port used by the VPN tunnel.
LOCAL IP	Displays the assigned virtual local IP address of the tunnel.
REMOTE LOCAL IP	Displays the assigned virtual remote local IP address of the tunnel.
DNS	Displays the DNS address of the tunnel.
DOWNLOAD PKTS	Displays the number of packets received by the VPN server.
DOWNLOAD BYTES	Displays the downstream throughput.
UPLOAD PKTS	Displays the number of packets sent by the VPN server.
UPLOAD BYTES	Displays the upstream throughput.
UPTIME	Displays how long the tunnel has been up.

ACTION	TERMINATE: Disconnects a client.
VPN Server-IPsec	
NAME	Displays the name of the VPN policy.
SPI	Displays the SPI (Security Parameter Index) of the SA, including outgoing SPI and incoming SPI. The SPI of each SA is unique.
DIRECTION	Displays the direction (in: incoming/out: outgoing) of the SA.
TUNNEL ID	Displays the IP addresses of the local and remote peers.
DATA FLOW	Displays the Local Subnet and Remote Subnet/host covered by the SA.
PROTOCOL	Displays the authentication protocol and encryption protocol used by the SA.
AH AUTHENTICATION	Displays the AH authentication algorithm used by the SA.
ESP AUTHENTICATION	Displays the ESP authentication algorithm used by the SA.
ESP ENCRYPTION	Displays the ESP encryption algorithm used by the SA.
VPN Server-SSL VPN	
USERNAME	Displays the username a client used for login.
LOGIN IP	Displays the IP address of a client.
VIRTUAL IP	Displays the virtual IP address assigned to a client by the SSL VPN server.
LOGIN TIME	Displays the time when a client logged in.
STATISTICS	Displays the total upload and download traffic of a client.
ACTION	Lock or disconnect a client. LOCK: Disconnects the client and adds them to Locked Out Users. Locked-out users cannot log in again. To enable Username Lockout or IP Lockout, go to the VPN > VPN Server Page. DISCONNECT: Disconnects a client.
VPN Server-L2TP/PPTP	
USER	Displays the account name of the VPN tunnel.
INTERFACE	The WAN port used by the VPN tunnel.
LOCAL IP	Displays the assigned virtual local IP address of the tunnel.
REMOTE LOCAL IP	Displays the assigned virtual remote local IP address of the tunnel.
DNS	Displays the DNS address of the tunnel.

DOWNLOAD PKTS	Displays the number of packets received by the VPN server.
DOWNLOAD BYTES	Displays the downstream throughput.
UPLOAD PKTS	Displays the number of packets sent by the VPN server.
UPLOAD BYTES	Displays the upstream throughput.
UPTIME	Displays how long the tunnel has been up.
ACTION	TERMINATE: Disconnects a client.
VPN Client-WireGuard	
NAME	Displays the name of the VPN policy.
REMOTE SERVER	The IP address or domain name of VPN server.
LISTEN PORT	The port number that the WireGuard interface listens to.
SERVER	Click to check the detailed information of the connected VPN server.
VPN Client-OpenVPN/L2TP/PPTP	
INTERFACE	The WAN port used by the VPN tunnel.
TUNNE	Displays the name of the VPN policy.
REMOTE LOCAL IP	Displays the remote local IP address of the tunnel.
DNS	Displays the DNS address of the tunnel.
DOWNLOAD PKTS	Displays the number of packets received by the peer.
DOWNLOAD BYTES	Displays the amount of data received by the peer.
UPLOAD PKTS	Displays the number of packets sent by the peer.
UPLOAD BYTES	Displays the amount of data sent by the peer.
UPTIME	Displays how long the tunnel has been up.
Site-to-Site VPN-WireGuard	
NAME	Displays the name of the VPN policy.
LISTEN PORT	The port number that the WireGuard interface listens to.
PEER CONNECTED/ DISCONNECTED	The number of connected/disconnected peers.
PEERS	Click to display the detailed information of the peers.

Site-to-Site VPN-IPsec	
NAME	Displays the name of the VPN policy.
SPI	Displays the SPI (Security Parameter Index) of the SA, including outgoing SPI and incoming SPI. The SPI of each SA is unique.
DIRECTION	Displays the direction (in: incoming/out: outgoing) of the SA.
TUNNEL ID	Displays the IP addresses of the local and remote peers.
DATA FLOW	Displays the Local Subnet and Remote Subnet/host covered by the SA.
PROTOCOL	Displays the authentication protocol and encryption protocol used by the SA.
AH AUTHENTICATION	Displays the AH authentication algorithm used by the SA.
ESP AUTHENTICATION	Displays the ESP authentication algorithm used by the SA.
ESP ENCRYPTION	Displays the ESP encryption algorithm used by the SA.

Chapter 10

Configure Network Transmission Settings

Transmission helps you control network traffic in multiple ways. You can add policies and rules to control transmission routes and limit the session and bandwidth.

This chapter guides you on how to configure network transmission settings with the Omada Controller. The chapter includes the following sections:

- [10. 1 Configure Routing Settings](#)
- [10. 2 Configure NAT Settings](#)
- [10. 3 Configure DHCP Reservation](#)
- [10. 4 Configure Bandwidth Control](#)
- [10. 5 Configure Session Limit](#)
- [10. 6 Configure Gateway QoS](#)
- [10. 7 Configure Switch QoS](#)
- [10. 8 Configure OUI Based VLAN](#)

10.1 Configure Routing Settings

Overview

■ Static Route

Network traffic is oriented to a specific destination, and Static Route designates the next hop or interface where to forward the traffic.

■ Policy Routing

Policy Routing designates which WAN port the gateway uses to forward the traffic based on the source, the destination, and the protocol of the traffic.

Configuration

■ Static Route

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Transmission](#) > [Routing](#) > [Static Route](#).
3. Click [Create New Route](#) to load the following page and configure the parameters.

Create New Route ⓘ

Name

Status

☒ Enable

Destination IP/Subnet

.

.

.

/

[+ Add Subnet](#)

Route Type

☒ Next Hop ☐ Interface

Next Hop

.

.

.

ⓘ

Metric

0

(0-15)

ⓘ Static routes are prioritized in the order of subnet mask length (longest prefix matching principle). If the subnet mask lengths are the same, Metric is used to determine the priority.

Create

Cancel

Name	Enter the name to identify the Static Route entry.
Status	Enable or disable the Static Route entry.
Destination IP/Subnet	Destination IP/Subnet identifies the network traffic which the Static Route entry controls. Specify the destination of the network traffic in the format of 192.168.0.1/24. You can click Add Subnet to specify multiple Destination IP/Subnets and click the Delete icon to delete them.

Route Type	Next Hop: With Next Hop selected, your devices forward the corresponding network traffic to a specific IP address. You need to specify the IP address as Next Hop. Interface: With Interface selected, your devices forward the corresponding network traffic through a specific interface. You need to specify the Interface according to your needs.
Metric	Define the priority of the Static Route entry. A smaller value means a higher priority. If multiple entries match the Destination IP/Subnet of the traffic, the entry of higher priority takes precedence. In general, you can simply keep the default value.

4. Click **Create**. The new Static Route entry is added to the table. You can click the Edit icon to edit the entry. You can click the Delete icon to delete the entry.

Search Static Route Entry							+ Create New Route
NAME	ENABLED	DESTINATION IP	TYPE	INTERFACE	NEXT HOP	METRIC	ACTION
test	☒	192.168.2.3 / 24	Next Hop	--	192.168.3.1	0	Edit Delete
Showing 1-1 of 1 records < 1 > 10 / page Go to page Go							

■ **Policy Routing**

1. Launch the controller and access a site.
2. Go to **Network Config > Transmission > Routing > Policy Routing**.

3. Click [Create New Routing](#) to load the following page and configure the parameters.

Create New Routing

Name

Status

☒ Enable

Protocols

Please Select...

WAN

Please Select...

Use the other WAN port if the current one is down

☒ Enable

Routing Legend

Source

Type

Network

☐ Default

0/1 Items

Destination

Type

IP Group

☐ IPGroup_Any

0/1 Items

+ Create

Create

Cancel

Name	Enter the name to identify the Policy Routing entry.
Status	Enable or disable the Policy Routing entry.
Protocols	Select the protocols of the traffic which the Policy Routing entry controls. The Policy Routing entry takes effect only when the traffic matches the criteria of the entry including the protocols.
WAN	Select the WAN port to forward the traffic through. If you want to forward the traffic through the other WAN port when the current WAN is down, enable Use the other WAN port if the current WAN is down .

Routing Legend

The Policy Routing entry takes effect only when the traffic using specified protocols matches the source and destination which are specified in the Routing Legend.

Select the type of the traffic source and destination.

Network: Select the network interfaces for the traffic source or destination.

IP Group: Select the IP Group for the traffic source or destination. You can click + Create to create a new IP Group.

IP-Port Group: Select the IP-Port Group for the traffic source or destination. You can click + Create to create a new IP-Port Group.

Location Group: Select the Location Group for the traffic destination. You can click + Create to create a new Location Group.

Domain Group: Select the Domain Group for the traffic destination. You can click + Create to create a new Domain Group.

4. Click **Create**. The new Policy Routing entry is added to the table. You can click the Edit icon to edit the entry. You can click the Delete to delete the entry.

Tip: Drag :: to re-order rows.

+ Create New Routing

NAME	ENABLED	PROTOCOL	SOURCE	DESTINATION	WAN	ACTION
:: test		All	Default	IPGroup_Any	WAN2	

10.2 Configure NAT Settings

Overview

■ Port Forwarding

You can configure Port Forwarding to allow internet users to access local hosts or use network services which are deployed in the LAN.

Port Forwarding helps establish network connections between a host on the internet and the other in the LAN by letting the traffic pass through the specific port of the gateway. Without Port Forwarding, hosts in the LAN are typically inaccessible from the internet for the sake of security.

■ ALG

ALG (Application Layer Gateway Service) manages specific application protocols and serves as an intermediary between the internet and an application server. ALG ensures that certain application-level protocols function appropriately through your gateway.

■ One-to-One NAT

One-to-One NAT will establish a correspondence between a private IP and a public IP, allowing access to the device with the private IP through the corresponding public IP.

■ Disable NAT

Disable NAT allows internal devices to obtain public IP addresses.

Configuration

■ Port Forwarding

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Transmission](#) > [NAT](#) > [Port Forwarding](#).

3. Click **Create New Rule** to load the following page and configure the parameters.

Create New Rule

Name

Status

☒ Enable

Source IP

☒ Any ☐ Limited IP Address

Interface

Please Select...

▼

WAN IP

Please Select...

▼

(Optional) ⓘ

DMZ

☐ Enable

Source Port

(1-65535. e.g. 80 or 80-100) ⓘ

Destination IP

. . .

Destination Port

(1-65535. e.g. 80 or 80-100) ⓘ

Protocol

☒ All ☐ TCP ☐ UDP

Create

Cancel

Name	Enter the name to identify the Port Forwarding rule.
Status	Enable or disable the Port Forwarding rule.
Source IP	Any: The rule applies to traffic from any source IP address. Limited IP Address: The rule only applies to traffic from specific IP addresses. With this option selected, specify the IP addresses and subnets according to your needs.
Interface	Select the interface which the rule applies to. Traffic which is received through the interface is forwarded according to the rule.
DMZ	With DMZ enabled, all the traffic is forwarded to the Destination IP in the LAN, port to port. You need to specify the Destination IP . With DMZ disabled, only the traffic which matches the Source Port and the Protocol is forwarded. The traffic is forwarded to the Destination Port of the Destination IP in the LAN. You need to specify the Source Port , Destination IP , Destination Port , and Protocol .
Source Port	The gateway uses the Source Port to receive the traffic from the internet. Only the traffic which matches the Source Port and the Protocol is forwarded.
Destination IP	The traffic is forwarded to the host of the Destination IP in the LAN.

Destination Port	The traffic is forwarded to the Destination Port of the host in the LAN.
Protocol	Network traffic is transmitted using either TCP or UDP protocol. Only the traffic which matches the Source Port and the Protocol is forwarded. If you want both TCP traffic and UDP traffic to be forwarded, select All.

4. Click Create. The new Port Forwarding entry is added to the table. You can click the Edit icon to edit the entry. You can click the Delete icon to delete the entry.

Search Port Forwarding Rule

Q

+ Create New Rule

NAME	ENABLED	SOURCE IP	INTERFACE	WAN IP	DMZ	SOURCE PORT	DESTINATION IP:PORT	PROTOCOL	ACTION
test		0.0.0.0/0	WAN2	--	--	85	192.168.2.31:90	All	

Showing 1-1 of 1 records

<1>

10 / page

Go to page

Go

■ ALG

1. Launch the controller and access a site.
2. Go to Network Config > Transmission > NAT > ALG.
3. Enable or disable certain types of ALG based on needs and click Apply.

ALG ⓘ

FTP ALG

FTP ALG

☒ Enable

FTP Signaling Ports

21

(1-65535)

+ Add

SIP ALG

SIP ALG

☒ Enable

SIP Signaling Ports

5060

(1-65535)

5061

(1-65535)

+ Add

Protocol

☒ TCP ☒ UDP

☒ Restrict Peer to Peer Signaling Connection

☐ Restrict Peer to Peer Media Connection

☐ Enable Configure SIP Inactivity Timeout

SIP Signaling Inactivity Timeout

3600

seconds

(1-86400)

FTP ALG	FTP (File Transfer Protocol) ALG allows the FTP server and client to transfer data using the FTP protocol in the following scenarios: • The FTP server is in the LAN, while the FTP client is on the internet. • The FTP server is on the internet, while the FTP client is in the LAN.
FTP Signaling Ports	If you want to change the listening port for FTP signaling messages, configure this item. You can add new listening ports by clicking the + button (up to 8 ports are supported).
SIP	If the SIP client or server modifies the IP and port of SIP signaling messages, disable this feature.
SIP ALG	SIP (Session Initiation Protocol) ALG allows the IP phones and multimedia devices to set up connections using the SIP protocol in the following scenarios: • One of the endpoints is in the LAN, while the other is on the internet. • The endpoints are in different LANs.
SIP Signaling Ports	If you want to modify the listening ports for SIP signaling messages, configure this item. You can add new listening ports by clicking the + button (up to 8 ports supported).
TCP	Enable this option if your SIP signaling uses the TCP protocol and the device needs to modify the IP address and port in SIP messages. This helps subsequent media data traverse the device's NAT and establish a session.
UDP	Enable this option if your SIP signaling uses the UDP protocol and the device needs to modify the IP address and port in SIP signaling messages. This helps subsequent media data traverse the device's NAT and establish a session.
Restrict Peer to Peer Signaling Connection	Enable this option if you want SIP signaling connections to only arrive from registered IP addresses. SIP signaling connections from unregistered IP addresses will be discarded.
Restrict Peer to Peer Media Connection	Enable this option if you want SIP media connections to only arrive from registered IP addresses. SIP media connections from unregistered IP addresses will be discarded. The restriction may become invalid if you actively send media streams to unregistered IP addresses.
Enable Configure SIP Inactivity Timeout	Enable this option if you want to apply timeout limits to SIP signaling and media connections on the device. These timeout settings will override the SIP session timeout specified in SIP registration response packets.
SIP Signaling Inactivity Timeout	Modify this item if you want to adjust the timeout duration for SIP signaling sessions (1 – 86,400 seconds). Most SIP clients periodically send registration packets to the SIP server to keep sessions active. If your SIP client lacks this mechanism and no calls are made during the timeout period, the device will delete the signaling session after the timeout expires. This item only takes effect for remote clients and UDP protocol.
SIP Media Inactivity Timeout	Modify this item if you want to adjust the timeout duration for SIP media sessions (1 – 86,400 seconds). If no media packets are transmitted during the timeout period, the device will terminate the media session. Afterward, you will lose audio and must initiate a new call to resume communication. This item only takes effect for remote clients.

H.323 ALG	H.323 ALG allows the IP phones and multimedia devices to set up connections using the H.323 protocol in the following scenarios: • One of the endpoints is in the LAN, while the other is on the internet. • The endpoints are in different LANs.
PPTP ALG	PPTP (Point-to-point Tunneling Protocol) ALG allows the PPTP server and client to set up a PPTP VPN in the following scenarios: • The PPTP server is in the LAN, while the PPTP client is on the internet. • The PPTP server is on the internet, while the PPTP client is in the LAN. • The PPTP server and PPTP client are in different LANs.
IPsec ALG	IPsec (IP Security Protocol) ALG allows the IPsec endpoints to set up an IPsec VPN in the following scenarios: • One of the endpoints is in the LAN, while the other is on the internet. • The endpoints are in different LANs.

■ One-to-One NAT

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Transmission](#) > [NAT](#) > [One-to-One NAT](#).
3. Click [Create New Rule](#) to load the following page and configure the parameters.

Create New Rule

Name

Status

☒ Enable

Interface

Please Select... ▾

Original IP

Translated IP

DMZ Forwarding

☐ Enable

Description

(Optional)

Create

Cancel

Name	Enter the name to identify the one-to-one NAT rule.
Status	Enable or disable the one-to-one NAT rule.
Interface	Specify the effective interface for the rule only when the connection type is Static IP.

Original IP	Specify the original IP address for the rule, which means the device's private IP. The original IP address cannot be the broadcast address, network segment or interface IP. With One-to-One NAT enabled, the original IP will map to the translated IP.
Translated IP	Specify the translated IP address for the rule, which means the public IP of device. The translated IP address cannot be the broadcast address, network segment or interface IP. With One-to-One NAT enabled, the original IP will map to the translated IP.
DMZ Forwarding	Choose to enable DMZ Forwarding. The packets transmitted to the translated IP address will be forwarded to the host with the original IP address if DMZ Forwarding is enabled.
Description	(Optional) Enter a description for identification.

4. Click **Create** to add the one-to-one NAT rule.

■ **Disable NAT**

1. Launch the controller and access a site.
2. Go to **Network Config > Transmission > NAT > Disable NAT**.
3. Click **Create New Rule** to load the following page and configure the parameters.

Create New Rule

Name

Interface

LAN

Please Select...

Description

(Optional)

Status

☒ Enable

Save

Cancel

Name	Enter a name to identify the port forwarding rule.
Status	Click the checkbox to enable the port forwarding rule.
Interface	Select the interface to which the rule applies. When the traffic is received through the selected WAN port, it will be forwarded according to the rule.
LAN	Specify the effective LAN network for the rule.
Description	(Optional) Enter a description for identification.

4. Click **Create** to add the Disable NAT rule.

10.3 Configure DHCP Reservation

Overview

DHCP Reservation allows you to reserve specific IP addresses for devices/clients in your network, and centrally manage the IP addresses. Besides the gateway, the switch now also supports the DHCP reservation function; meanwhile, for gateways with this function, the DHCP Options field content can be reserved for clients/devices.

Configuration

- To manually add DHCP Reservation entries:
 1. Launch the controller and access a site.
 2. Go to [Network Config](#) > [Transmission](#) > [DHCP Reservation](#).
 3. Click [Manual Add](#) and configure the parameters. Then click [Apply](#).

Manual Add DHCP Reservation

Network

IP Address

MAC Address

Name

(Optional)

Description

(Optional)

Status

☒ Enable

Apply

Cancel

Network	Select the network the DHCP reservation entry is used for.
Server Device	Specify the server that assigns IP addresses. If the selected network has multiple servers, select the server closest to clients. If the selected network has only one server, no selection is required.
MAC Address	Specify the MAC address of the device for which you want to reserve an IP address.
Name	Identify the client/device for which the IP or DHCP Option is reserved.
IP Address	Specify the fixed IP address for the device.
Description	Enter a description for the entry for identification.

Status	Enable or disable the entry.
Advanced DHCP Options	Configure the advanced DHCP Option. The IP is not required after filling in the DHCP Option field. Option 60: Enter the value for DHCP Option 60. DHCP clients use this field to optionally identify the vendor type and configuration of a DHCP client. Mostly it is used in the scenario where the APs apply for different IP addresses from different servers according to the needs. Option 66: Enter the value for DHCP Option 66. It specifies the TFTP server information and supports a single TFTP server IP address. Option 138: Enter the value for DHCP Option 138. It is used in discovering the devices by the Omada Central System.
Export to IP-MAC Binding	Enter TRUE or FALSE to select whether to import the reserved entries into IP-MAC binding. Entries with Option reserved should be filled as FALSE.
Server Type	Specify the type of the server, which is either gateway or switch.
Server Mac	MAC address of the server. If the server is a stackable switch, fill in the MAC address of the primary switch.
Server Stack Name	Fill in the stack group name if the server is a stackable switch.

■ To import DHCP Reservation List:

1. Launch the controller and access a site.
2. Go to **Network Config > Transmission > DHCP Reservation**.
3. Click **Import** and import the customized template. You can download the template, then edit and upload it for batch import.

Import DHCP Reservation List

Download the [template](#) and fill in your DHCP Reservation information. Then import the file.

Choose File

Please select a file.

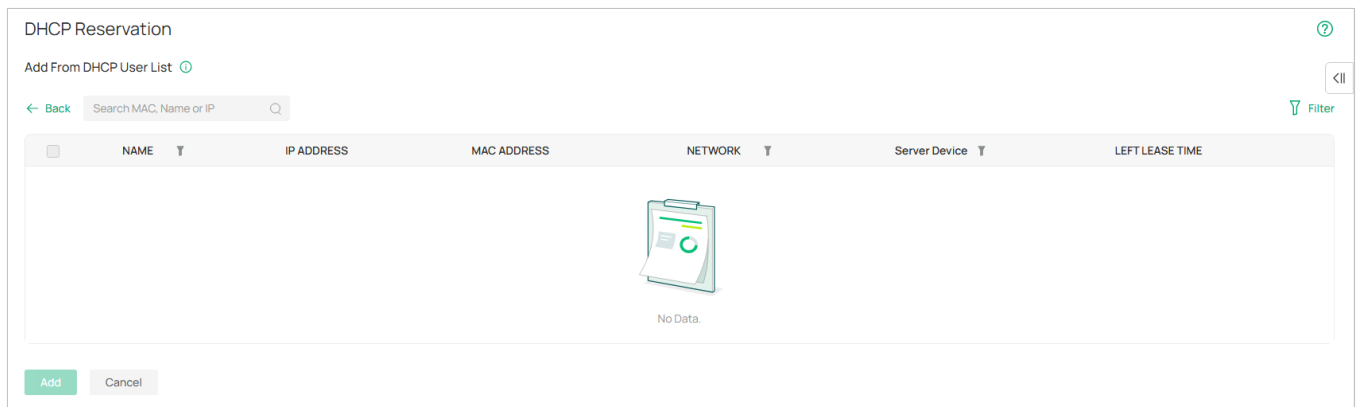
Browse

Import

Cancel

■ To add from DHCP user list:

1. Launch the controller and access a site.
2. Go to **Network Config > Transmission > DHCP Reservation**.
3. Click **Add From DHCP User List** and select from the list. Then click **Add**.



■ **To filter DHCP Reservation List:**

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Transmission](#) > [DHCP Reservation](#).
3. Click [Filter](#) and filter the list by type or network.

10.4 Configure Bandwidth Control

Overview

Bandwidth Control optimizes network performance by limiting the bandwidth of specific sources.

Configuration

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Transmission](#) > [Bandwidth Control](#).
3. In [Bandwidth Control](#), enable Bandwidth Control globally and configure the parameters. Then click [Apply](#).

Bandwidth Control ⓘ

Bandwidth Control

☒

Threshold Control

☒ Enable Bandwidth Control when bandwidth usage reaches

80

%

SFP WAN/LAN1

Upstream Bandwidth

Kbps

▼

(100-1000000)

Downstream Bandwidth

Kbps

▼

(100-1000000)

WAN2

Upstream Bandwidth

Kbps

▼

(100-1000000)

Downstream Bandwidth

Kbps

▼

(100-1000000)

Apply

Threshold Control

With Threshold Control enabled, Bandwidth Control takes effect only when total bandwidth usage reaches the specified percentage. You need to specify the total Upstream Bandwidth and Downstream Bandwidth of the WAN ports. It's recommended to use the [Test Speed](#) tool to decide the actual Upstream Bandwidth and Downstream Bandwidth.

4. In [Bandwidth Control Rule List](#), click [Create New Rule](#) to load the following page and configure the parameters.

283

Create New Rule

Name

Status

☒

Enable

Source Type

☒Network

☐IP Group

Network

Please Select...

WAN

Please Select...

Upstream Bandwidth

Kbps

(100-9999999)

Downstream Bandwidth

Kbps

(100-9999999)

Mode

☒Shared

☐Individual

Create

Cancel

Name	Enter the name to identify the Bandwidth Control rule.
Status	Enable or disable the Bandwidth Control rule.
Source Type	Network: Limit the maximum bandwidth of specific LAN networks. With this option selected, select the networks, which you can customize in Wired Networks > LAN Networks. For detailed configuration, refer to the wired network configuration chapter in this guide. IP Group: Limit the maximum bandwidth of specific IP Groups. With this option selected, select the IP Groups, which you can customize in Profiles > Groups. For detailed configuration of IP groups, refer to the network profile configuration section in this guide.
WAN	Select the WAN port which the rule applies to.
Upstream Bandwidth	Specify the limit of Upstream Bandwidth, which the specific local hosts use to transmit traffic to the internet through the gateway.
Downstream Bandwidth	Specify the limit of Downstream Bandwidth, which the specific local hosts use to receive traffic from the internet through the gateway.
Mode	Specify the bandwidth control mode for the specific local hosts. Shared: The total bandwidth for all the local hosts is equal to the specified values. Individual: The bandwidth for each local host is equal to the specified values.

5. Click **Create**. The new Bandwidth Control rule is added to the list. You can click the Edit icon to edit the rule. You can click the Delete icon to delete the rule.

Bandwidth Control Rule List

Tip: Drag to re-order rows.

+ Create New Rule

NAME	ENABLED	SOURCE	WAN	UPSTREAM BANDWIDTH	DOWNSTREAM BANDWIDTH	MODE	ACTION
test	☒	Network: Default	WAN2	2000Kbps	4000Kbps	Shared	

10.5 Configure Session Limit

Overview

Session Limit optimizes network performance by limiting the maximum sessions of specific sources.

Configuration

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Transmission](#) > [Session Limit](#).
3. In [Session Limit](#), enable Session Limit globally and click [Apply](#).

Session Limit

Session Limit 

Apply

4. In [Session Limit Rule List](#), click [Create New Rule](#) to load the following page and configure the parameters.

Create New Rule

Name

Status

☒ Enable

Source Type

☒ Network ☐ IP Group ☐ IP Address

Network

Please Select... 

Maximum Sessions



Name	Enter the name to identify the Session Limit rule.
Status	Enable or disable the Session Limit rule.
Source Type	Network: Limit the maximum sessions of specific LAN networks. With this option selected, select the networks, which you can customize in Wired Networks > LAN Networks. For detailed configuration, refer to the wired network configuration chapter in this guide. IP Group: Limit the maximum sessions of specific IP Groups. With this option selected, select the IP Groups, which you can customize in Profiles > Groups. For detailed configuration of IP groups, refer to the network profile configuration section in this guide.

Maximum Sessions

Enter the maximum sessions of the specific sources.

5. Click **Save**. The new Session Limit rule is added to the list. You can click the Edit icon to edit the rule. You can click the Delete icon to delete the rule.

Session Limit Rule List					+ Create New Rule
NAME	ENABLED	SOURCE	MAXIMUM SESSIONS	Action	
test	☒	Network Default	50000	 	
Showing 1-1 of 1 records					< 1 > 10 / page Go to page Go

10.6 Configure Gateway QoS

■ Gateway QoS Service

In Gateway QoS Service, you can define service entries that will appear as matching conditions for you to choose when configuring the rules of related modules like QoS. The default entries cannot be edited or deleted. You can add other entries if your service is not in the list.

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Transmission](#) > [Gateway QoS](#).
3. Click [Create New Gateway QoS Service](#).

Create New Gateway QoS Service

Service Name

Protocol

TCP

Source Port Range

-

(0-65535)

Destination Port Range

-

(0-65535)

Description

(Optional)

Apply

Cancel

Service Name	Enter a name for the service. Only letters, digits or underscores are allowed.
Protocol	Specify the protocol for the service. The system predefined protocols include TCP, UDP, TCP/UDP and ICMP. For other protocols, select the option Other.
Source Port Range	Specify the source port range for the service. Packets whose source port and destination port are both in the range are considered as the target packets.
Destination Port Range	Specify the destination port range for the service. Packets whose source port and destination port are both in the range are considered as the target packets.
Description	Enter a brief description for the service to facilitate your management.

■ Bandwidth Control

This page allows you to configure rules to limit various data flows. In this way, you can optimize the network performance by reasonably utilizing the bandwidth.

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Transmission](#) > [Gateway QoS](#) > [Bandwidth Control](#).
3. Click [Create New Rule](#).

Create New Rule

WAN Interface

▼

Status

☐ Enable

UDP Bandwidth Control

☐ Enable

Limited Bandwidth Ratio

0

%

Outbound TCP ACK Prioritize

☐ Enable

Direction

Both

▼

Inbound Bandwidth

1000000

Kbps

(100-1000000)

Outbound Bandwidth

1000000

Kbps

(100-1000000)



Class 1

25

%

Class 2

25

%

Class 3

25

%

Others

25

%

Create

Cancel

4. Configure the parameters and click **Apply**.

WAN Interface	Select the WAN port. You can configure the QoS rule for a WAN port only when the port is enabled.
Status	Enable or disable QoS for the current entry.
UDP Bandwidth Control	Check the box to enable UDP bandwidth control.
Limited Bandwidth Ratio	When UDP Bandwidth Control is enabled, specify the bandwidth ratio of UDP at each level of class1/2/3/other.
Outbound TCP ACK Prioritize	Check the box to prioritize outbound TCP ACK packets. This function ensures that traffic is not slowed down by remote hosts waiting for ACK packets before sending further traffic.
Direction	Specify the direction of the controlled traffic. "out" means control sending packets. "in" means receiving packets. "both" means both are controlled.

Inbound/Outbound Bandwidth	Enter the maximum threshold of the inbound/outbound bandwidth.
Class1/Class2/Class3/Others	Specify the proportion of the maximum bandwidth that Class1, Class2, Class3 and Others can occupy to limit the bandwidth usage of specific classification traffic.

■ Class Rule

This page allows you to add or delete class rules. Rules will be matched from top to bottom according to the rule sequence number. When the traffic matches a rule, it will be assigned to the corresponding class and will not continue to match down.

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Transmission](#) > [Gateway QoS](#) > [Class Rule](#).
3. Click [Create New Class Rule](#).

Create New Class Rule

Status

☒ Enable

IP Version

☒ IPv4 ☐ IPv6

Local Address

Remote Address

DSCP

Service Name

Qos Class

Create

Cancel

4. Configure the parameters and click [Apply](#).

Status	Check the box to enable the rule.
IP Version	Specify the protocol version: IPv4 or IPv6.
Local Address	Match the source IP address of the traffic. For IPv4 protocol, you can use the IP Group object configured in the Profiles > Groups module. For the IPv6 protocol, you can use the IPv6 Group object configured in the Profiles > Groups module.
Remote Address	Match the destination IP address of the traffic. For IPv4 protocol, you can use the IP Group object configured in the Profiles > Groups module. For the IPv6 protocol, you can use the IPv6 Group object configured in the Profiles > Groups module.

DSCP	Match the DSCP value of the traffic: BE, CS, AF, or EF.
Service Name	Match the port number of the traffic. Select the service type object defined in the Preference > Service Type module.
QoS Class	Select the category of traffic that meets the rule.

■ VoIP Prioritization

This page allows you to configure VoIP prioritization.

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Transmission](#) > [Gateway QoS](#) > [VoIP Prioritization](#).
3. Enable the first priority for VoIP SIP/RTP and enter the SIP UDP port. Then apply the settings.

VoIP Prioritization

Enable the First Priority for VoIP SIP/RTP ☒

SIP UDP Port

Enable the First Priority for VoIP SIP/RTP	Check the box to enable prioritize VoIP traffic.
SIP UDP Port	Enter the UDP port ID of the VoIP traffic.

■ Tag Outbound Traffic

This page allows you to add a DSCP or Precedence value for traffic in different classes.

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Transmission](#) > [Gateway QoS](#) > [Tag Outbound Traffic](#).
3. Check the box for your desired class and select the DSCP or Precedence value.

Tag Outbound Traffic

Class 1 ☐ Add DSCP or Precedence value

Class 2 ☐ Add DSCP or Precedence value

Class 3 ☐ Add DSCP or Precedence value

Others ☐ Add DSCP or Precedence value

Class 1/2/3/Others	Check the box and select the DSCP or Precedence value for traffic.
--------------------	--

10.7 Configure Switch QoS

Overview

Switch Qos intelligently schedules network resources by configuring traffic categories (queues). When network bandwidth contention occurs, the system will prioritize forwarding high-priority data to prevent key applications such as voice and video from being affected by congestion.

Configuration

1. Launch the controller and access a site.
2. Go to **Network Config > Transmission > Switch QoS**.



Switch QoS

Intelligently schedule network resources by configuring traffic categories (queues). When network bandwidth contention occurs, the system will prioritize forwarding high-priority data to prevent key applications such as voice and video from being affected by congestion.

[DSCP Mapping](#) [Queue Scheduling](#)

Search Name

+ Add New Rule

	Name	Status	Queue	Type	Remark DSCP	Action
⋮	bbb	☒	7	Network	Auto	
⋮	aaa	☒	7	Network	Auto	

3. Click **DSCP Mapping** to view or edit the mapping relationships between DSCP values and Queues.

DSCP Mapping

×

You can drag and drop to sort DSCP queues.

[Reset Default](#)

Queue 7	Queue 6	Queue 5	Queue 4	Queue 3	Queue 2	Queue 1	Queue 0
56 (CS7)	48 (CS6)	40 (CS5)	32 (CS4)	24 (CS3)	16 (CS2)	0 (BE)	8 (CS1)
57	49	41	33	25	17	1	9
58	50	42	34 (AF41)	26 (AF31)	18 (AF21)	2	10 (AF11)
59	51	43	35	27	19	3	11
60	52	44	36 (AF42)	28 (AF32)	20 (AF22)	4	12 (AF12)
61	53	45	37	29	21	5	13
62	54	46 (EF)	38 (AF43)	30 (AF33)	22 (AF23)	6	14 (AF13)
63	55	47	39	31	23	7	15

Confirm

Cancel

DSCP Mapping

DSCP is a 6-bit field in the IP header, with a value range of 0 to 63. It labels packets with a “service class” marker, allowing network devices to implement QoS policies. By default, Omada maps DSCP values to different Queues according to industry standards to enforce QoS policies.

4. Click **Queue Scheduling** to view or edit the priority scheduling method for Queues.

Queue Scheduling

Reset Default

Agile models will retain the [default scheduling ratio](#) and will not apply customized configurations.

Queue ID	Schedule Type	Weight (1-127)
7	☐ SP ☒ WRR	15
6	☐ SP ☒ WRR	13
5	☐ SP ☒ WRR	9
4	☐ SP ☒ WRR	5
3	☐ SP ☒ WRR	4
2	☐ SP ☒ WRR	3

Confirm

Cancel

Queue Scheduling

Used to configure the scheduling method for different queues when congestion occurs.

SP (Strict Priority):

When congestion occurs, packets in the queue with higher priority occupies the whole bandwidth. Packets in the queue with lower priority are sent only when the queue with higher priority is empty.

WRR (Weighted Round Robin):

When congestion occurs, all the traffic will be transmitted, but the bandwidth that each traffic queue occupies will be allocated based on the queue weight.

Note:

When a queue is configured as SP, the queues above it must also be SP mode.

5. Click **Add New Rule**. Configure rules based on your needs for network, port, or custom types.

← Add New Rule

Rule Name

IP Version

☒ IPv4 ☐ IPv6

Queue

7

6

5

4

3

2

1

0

HighMiddleLow

Type

☒ Network ☐ Port ☐ Custom

Select Network

Please Select...

Remark DSCP Value

☒ Enable

Auto

[DSCP Mapping](#)

Rule Name	Specify the name of the rule.
IP Version	Select whether the rule applies to IPv4 or IPv6 packets.
Queue	Select the queue to which the rule is mapped.

Type	Select the type of rule. When Network is selected, you can choose the corresponding network. When Port is selected, you can choose the corresponding port. When Custom is selected, you can configure matching conditions such as Network, Protocol, Source Port, Destination Port, and DSCP to identify traffic. You can also specify the switch ports where the rule applies.
Remark DSCP Value	It is recommended to enable this feature. Modifying the DSCP value of traffic ensures that its forwarding priority across the entire network aligns with the configured Queue value. When set to Auto, the appropriate DSCP value is automatically adjusted based on the Queue value configured in the Rule.

6. Apply the settings. The rule will be displayed in the rule list. You can hover over the  icon of a rule, then drag and drop to sort the priority order of rules.

	Name	Status	Queue	Type	Remark DSCP	Action
	bbb		7	Network	Auto	 
	aaa		7	Network	Auto	 

10.8 Configure OUI Based VLAN

10.8.1 Overview

The OUI Based VLAN function can perform VLAN and priority division and processing on device data packets starting with specific MAC addresses based on OUIs (organizationally unique identifiers).

10.8.2 Configure Switch Rules

1. Launch the controller and access a site.
2. Go to **Network Config > Transmission > OUI Based VLAN > Switch Rules**.
3. Click **Create New Switch Rule**.
4. Specify the rule name and enable the function.

Note: On supported ES switches, OUI-Based VLAN requires compatible firmware and Automatic VLAN ID Addition to be enabled.

Create New Switch Rule

Rule Name

11

Enable

☒

Select Device Port

☐ Device Name	Ports/LAGS	Status	Model
☐  00-0A-E3-AB-D8-B8	1 3 5 7 9 11 13 15 17 19 21 23 25 27 1 2 2 2 4 6 8 10 12 14 16 18 20 22 24 26 28	Connected	TL-SL2428P v4.20
☐  B8-FB-B3-AB-7C-6C	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 1 2 2 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54	Connected	S6500-48G6XF v1.0

OUI Based VLAN List

+ Add

OUI Profile	VLAN ID	Priority	Action

Apply

Cancel

- Specify the effective ports for the rule to take effect.
- In the **OUI Based VLAN List**, click **Add** to add one or more OUI Based VLANs. Save the settings.

Add OUI Based VLAN

OUI Based VLAN 1

OUI Profile

Please Select...

Manage OUI Profile

VLAN ID

Please Select...

Manage LAN

Priority

+ Add OUI Based VLAN

Save

Cancel

OUI Profile	Specify the corresponding OUI Profile. Note: ES switches currently support the XX-XX-XX OUI Type format.
VLAN ID	Specify the corresponding OUI Based VLAN ID. You can click Manage LAN to manage created VLANs.
Priority	Specify the priority, and the corresponding data packet will be marked with this priority for transmission.

7. Apply the settings.

Starting with Controller V6.3, Automatic VLAN ID Addition is supported for OUI-Based VLAN. After an OUI-Based VLAN rule is bound to a port, the controller can automatically add the corresponding VLAN ID to the port’s Untagged Network, eliminating the need to manually configure the port under the VLAN settings. This feature is only supported on Access ports and requires compatible switch firmware.

If you are using a controller earlier than V6.3, or switch firmware prior to the one adapted to Controller V6.3, you will need to manually add the VLAN to that interface.

10.8.3 Configure EAP Rules

- 1. Launch the controller and access a site.
- 2. Go to [Network Config](#) > [Transmission](#) > [OUI Based VLAN](#) > [EAP Rules](#).
- 3. Click [Create New EAP Rule](#). Configure the parameters.

← Create New EAP Rule

?

Rule Name

Enable

Select SSID

test_ssid_1 × Floor 2 ×

Office_Staff × Office_Manager ×

OUI Based VLAN List

+ Add

OUI Profile	VLAN ID	Priority	Action
No OUI Based VLAN have been configured.			

Apply

Cancel

Rule Name	Specify the rule name.
Enable	Enable this function.
Select SSID	Specify the effective SSIDs for the rule to take effect. You can choose one or more SSIDs, and the configuration will be applied to all EAP devices to which the SSIDs are applied.

4. In the **OUI Based VLAN List**, click **Add** to add one or more OUI Based VLANs. Save the settings.

Add OUI Based VLAN

×

OUI Based VLAN 1

OUI Profile

Please Select...

▼

Manage OUI Profile

VLAN ID

(1-4094)

Priority

▼

+ Add OUI Based VLAN

Save

Cancel

OUI Profile	Specify the corresponding OUI Profile. If no OUI profile has been created, click Create New OUI Profile in the drop-down list to create one first. You can click Manage OUI Profile to manage created profiles.
VLAN ID	Specify the corresponding OUI Based VLAN ID.

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Priority	Specify the priority, and the corresponding data packet will be marked with this priority for transmission.
Add OUI Based VLAN	Click to add more OUI Based VLANs.

5. Apply the settings.

Chapter 11

Configure Network Profiles

Profiles section is used to configure and record your custom settings for site configurations. After creating the profiles, you can apply them to multiply configurations for different sites, saving you from repeatedly setting up the same information.

This chapter guides you on how to configure network profiles with the Omada Controller. The chapter includes the following sections:

- [11. 1 Create Groups](#)
- [11. 2 Create Time Range Profiles](#)
- [11. 3 Create Rate Limit Profiles](#)
- [11. 4 Create PPSK Profiles](#)
- [11. 5 Create RADIUS Profile Profiles](#)
- [11. 6 Create LDAP Profiles](#)
- [11. 7 Configure APN Profiles](#)

11.1 Create Groups

Overview

Groups section allows you to customize client groups based on IP, IP-Port, MAC Address, or Domain. You can set different rules for the groups profiles which can be shared and applied to ACL, Routing, NAT, etc. in site configuration.

Configuration

To configure the group profiles, follow these steps:

1. Launch the controller and access a site.
2. Go to [Network Config > Profile > Groups](#).
3. Click [Create New Group](#) to add a new group profile.

NAME	TYPE	COUNT	ACTION
DomainGroup_Any	Domain Group	1	
IPGroup_Any	IP Group	1	
IPv6Group_Any	IPv6 Group	1	

Showing 1-3 of 3 records < 1 > 10 / page Go

4. Enter a name, select the type, and configure the corresponding parameters for the new group profile.
- **To create an IP group:**
Choose the [IP Group](#) type and specify IP subnets.
 - **To create an IPv6 group:**
Choose the [IPv6 Group](#) type and specify IPv6 addresses.
 - **To Create an IP-Port group:**
Choose the [IP-Port Group](#) type and specify the IP-Port type and ports, while it is optional to specify IP subnets. If you only specify ports without entering any IP subnets, it means the group contains the specified ports for all IP addresses.
 - **To create an IPv6-Port group:**
Choose the [IPv6-Port Group](#) type and specify the IP-Port type and ports, while it is optional to specify IPv6 addresses. If you only specify ports without entering any IPv6 addresses, it means the group contains the specified ports for all IPv6 addresses.

- **To configure a MAC group:**

Choose the **MAC Group** type and add MAC addresses in the MAC Address List.

- **To configure a location group:**

Choose the **Location Group** type and select locations. You can enter a description for identification.

- **To configure a domain group:**

Choose the **Domain Group** type and specify the domain names. You can specify up to 16 domain names for the group. The domain name can be complete, such as `www.baidu.com` and `www.twitter.com`; it can also contain wildcards, such as `*.google.com`, which will match domain names such as `www.google.com`, `pam.google.com` and `google.com` in special cases.

- **To configure an OUI profile group:**

Choose the **OUI Profile Group** type and add OUIs in the OUI List.

5. Click **Apply** to save the entry.

You can view and edit the list, and export the MAC group if needed. You can apply the customized profiles during site configuration.

NAME	TYPE	COUNT	ACTION
DomainGroup_Any	Domain Group	1	
IP Group_1	IP Group	1	 
IPv6Group_Any	IPv6 Group	1	
IPGroup_Any	IP Group	1	

11.2 Create Time Range Profiles

Overview

Time Range section allows you to customize time-related configurations. You can set different time range templates which can be shared and applied to wireless schedule, PoE schedule, etc. in site configuration.

Configuration

To configure the time range profiles, follow these steps:

1. Launch the controller and access a site.
2. Go to **Network Config > Profile > Time Range**.
3. Click **Create New Time Range** to add a new time range entry. By default, there is no entry in the list.

Create New Time Range

Name

Day Mode

☒ Every Day

☐ Weekday

☐ Weekend

☐ Customized

Every Day

08:00 am

06:00 pm

+

Add

Save

Cancel

4. Enter a Name for the new entry, select the Day Mode, and specify the time range. Click **+Add** to add a new time period.

Name Enter a name for the new entry, and it is a string with 1 to 64 ASCII symbols.

Day Mode

Select **Every Day**, **Weekday**, **Weekend**, or **Customized** first before specifying the time range for each day.

Every Day: You only need to set the time range once, and it will repeat every day.

Weekday: You only need to set the time range once, and it will repeat every weekday from Monday to Friday.

Weekend: You only need to set the time range once, and it will repeat every Saturday and Sunday.

Customized: You are able to set different time range for the chosen day(s) based on your needs. When a day is not chosen, the Wi-Fi is open all day by default.

5. Save the entry. Now you can apply them to site configuration. Now you can apply the customized profiles during site configuration.

NAME	DAY MODE	TIME RANGE	ACTION
Time Range 1	Every Day	08:00 am-06:00 pm	 

Showing 1-1 of 1 records < 1 > 10 / page Go to page Go

11.3 Create Rate Limit Profiles

Overview

Rate Limit allows you to customize rate-related configurations. You can set different rate limit templates. They can be bound with wireless network to limit the upload/download rate of clients connected the SSID, and applied to specific types of Portal, such as Local User and Voucher. After creating the profiles, you can apply them to multiple configurations, saving you from repeatedly setting up the same information.

Configuration

To configure the rate limit profiles, follow these steps:

1. Launch the controller and access a site.
 2. Go to [Network Config > Profile > Rate Limit](#).
 3. By default, there is an entry with no limits, and it can not be deleted. You can click [Create New Rate Limit Profile](#) to add a new group entry.
- Create New Rate Limit Profile

The rate limit profile can be applied to settings of SSID, Client, and Portal (Hotspot > Local User and Hotspot > Voucher). When a client matches multiple rate limit rules, the rule with the minimum value will take effect.

Name

Download Limit

Enable

Kbps

(1-10485760)

Upload Limit

Enable

Kbps

(1-10485760)

Apply

Cancel
4. Enter a name and specify the download/upload rate limit for the new entry. After saving the newly added entry, you can apply them to other configurations such as Portal and Wireless Settings.
- | | |
|----------------|--|
| Name | Enter a name to identify the created rate limit profile. |
| Download Limit | Enable the download limit, and specify the rate limit correspondingly in Kbps or Mbps. |
| Upload Limit | Enable the upload limit, and specify the rate limit correspondingly in Kbps or Mbps. |
5. Click [Apply](#) to save the entry. Now you can apply the customized profiles during site configuration.

11.4 Create PPSK Profiles

Overview

PPSK is a security solution for you to manage individual client devices without much complexity. With PPSK, each user is assigned with a unique passphrase for authentication. Also, it allows the binding of a passphrase and the device MAC address(es), and thus only the specified device can be authenticated using the passphrase. In PPSK, you can create a PPSK list and apply it to multiple wireless networks, saving you from repeatedly setting up the same information.

Configuration

To configure the PPSK profiles, follow these steps:

- 1. Launch the controller and access a site.
- 2. Go to **Network Config > Profile > PPSK**. Click **Create New PPSK Profile** to add a new PPSK profile .

PPSK

Create New PPSK Profile

Name

PPSK Expiration

Permanent

PPSK Rate Limit Profile

Default

PPSK List

+

Add

↑

Import

↗

Export

🗑

Delete All

NAME	PASSPHRASE	MAC ADDRESS	VLAN ASSIGNMENT	ACTION
No PPSK have been configured.				

Apply

Cancel

- 3. Enter a name for the new profile. Set the PPSK expiration and specify the PPSK Rate Limit Profile.

Name	Enter a name to identify the RADIUS entry.
------	--

PPSK Expiration	Sets the time range during which clients can access the network via PPSK. Permanent: Clients can permanently access the network via PPSK. Valid Dates: Clients can access the network via PPSK during the specified dates. Start: Time when access begins. End: Time when access ends. Validity Length: Clients can access the network via PPSK for a set time period. Validity After ID Creation: Time when access begins. Daily: Clients can access the network via PPSK during a set time period each day. Start Time: Time when access begins each day. End Time: Time when access ends each day.
PPSK Rate Limit Profile	Specify a profile to limit the upload and download rates of clients accessed via PPSK, ensuring balanced bandwidth usage. You can use the default profile or create a custom one. Download Limit: Set the download rate for each client accessed via PPSK to receive traffic. Upload Limit: Set the upload rate for each client accessed via PPSK to transmit traffic.

4. Add new entries to the PPSK profile.

- **Method 1: Add entries manually**

Click **Add** and select **Manually** for PPSK Generation. Configure the parameters.

Add New PPSK

PPSK Generation

☒ Manually

☐ Auto

PPSK 1

Name

Passphrase

Password

MAC Address

- - - - -

(Optional)

VLAN Assignment

(Optional, 1-4094)

Add New PPSK

Apply

Cancel

Name	Enter a name to identify the created PPSK.
Passphrase	Enter a passphrase, and the client will use the passphrase for authentication.
MAC Address	(Optional) Enter the MAC address of the device that can use the passphrase for authentication.

VLAN Assignment	(Optional) Enter the VLAN ID, and the client who uses the passphrase for authentication will be assigned to the specified VLAN.
-----------------	---

Apply the settings. The new PPSK entry will be created.

• **Method 2: Add entries automatically**

Click **Add** and select **Auto** for PPSK Generation. Configure the parameters and apply the settings.

Add New PPSK

PPSK Generation

☐ Manually ☒ Auto

Number of PPSK

(1-1024)

PPSK Name Prefix

(1-60 characters)

Passphrase Length

(8-63)

VLAN Assignment

(Optional, 1-4094)

VLAN Interval

(Optional, 0-4093)

Apply

Cancel

Number of PPSK	Enter the number of PPSK entries to create.
PPSK Name Prefix	Enter the prefix of the names for the created PPSK entries.
Passphrase Length	Enter the passphrase length.
VLAN Assignment	(Optional) Enter the VLAN ID, and the client who uses the passphrase for authentication will be assigned to the specified VLAN.
VLAN Interval	(Optional) Specify the step size between VLAN IDs.

Apply the settings. New PPSK entries will be created automatically.

• **Method 3: Export and Import entries in batch**

After creating PPSK entries, you can click **Export** to save them to a file locally, then access another site and click **Import** to import them in batches from the file.

Import PPSK

Download the [template](#) and fill in your PPSK information. Then import the file.

Choose File

Please select a file.

Browse

Import

Cancel

5. Click **Apply** to save the entry. Now you can apply the customized profiles during site configuration.

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11.5 Create RADIUS Profile Profiles

Overview

RADIUS (Remote Authentication Dial In User Service) is a client/server protocol that provides for the AAA (Authentication, Authorization, and Accounting) needs of modern IT environments.

In authentication services including 802.1X, Portal and MAC-Based Authentication, compatible devices operate as clients of RADIUS to pass user information to designated RADIUS servers.

A RADIUS server maintains a database which stores the identity information of legal users. It authenticates users against the database when the users are requesting to access the network, and provides authorization and accounting services for them.

A RADIUS profile records your custom settings of a RADIUS server. After creating a RADIUS profile, you can apply it to multiple authentication policies like Portal and 802.1X, saving you from repeatedly entering the same information.

Configuration

■ Configure the Built-in RADIUS Profile (for on-premise controllers only)

- a. Launch the controller and access a site.
- b. Go to [Network Config](#) > [Profile](#) > [RADIUS Profile](#).
- c. An on-premise controller provides a Built-in RADIUS Profile. Click the edit icon of the profile, then add or import RADIUS users.

To add a new RADIUS user, click [Add New RADIUS User](#) and configure the parameters.

Create New RADIUS User

Authentication Type

☒ User Authentication ☐ MAC Authentication

Name

Password

Password 

Description

 (Optional)

VLAN ID

[Manage Built-in RADIUS](#)

(Optional, 1-4094) 

Session-Timeout

 Seconds (Optional) 

Rate Limit

☐ 

Traffic Limit

☐ 

Apply

Cancel

Authentication Type	Select the Authentication Type. User Authentication: Select this option and enter the user Name, Password and Description for authentication. MAC Authentication: Select this option and enter the MAC Address and Description for authentication.
VLAN ID	Enter a VLAN ID to assign VLANs to users.
Session-Timeout	Configure the authentication expiration time for users.
Rate Limit	When enabled, you can set limits for Uplink Rate and Downlink Rate of each client to balance bandwidth usage. This function applies to the portal service only.
Traffic Limit	When enabled, you can set limits for Uplink Traffic and Downlink Traffic of each client. This function applies to the portal service only.

To import RADIUS users in batches, click **Import**, download the template and fill in your Radius User information. Then import the file.

Import Radius User List

×

Download the [template](#) and fill in your Radius User information. Then import the file.

Choose File

User Info.xls

Browse

Import

Cancel

■ Create New RADIUS Profile

- Launch the controller and access a site.
- Go to **Network Config > Profile > RADIUS Profile**.
- Click **Create New RADIUS Profile**. Configure the parameters and save the settings.

RADIUS Profile

Create New RADIUS Profile

Name

VLAN Assignment

☐ Enable VLAN Assignment for Wireless Network ⓘ

Require Message-Authenticator

☒ Enable ⓘ

Authentication Server

Authentication Server 1

Authentication Server IP/URL

RadSec

☐ Enable ⓘ

Authentication Port

1812 (1-65535)

Authentication Password

Password ⓘ

+ Add New Authentication Server

Accounting Server

RADIUS Accounting ☐ Enable

RADIUS Proxy ☐ Enable ⓘ

Name	Enter a name to identify the RADIUS profile.
VLAN Assignment	This feature allows the RADIUS server to place a wireless user into a specific VLAN based on the credentials supplied by the user. To use the feature, you should create the specific VLAN first. And the user-to-VLAN mappings must be already stored in the RADIUS server database. Note: 1. VLAN Assignment is not currently supported when a client is authenticated by Portal with External RADIUS Server or RADIUS Hotspot. 2. VLAN Assignment is applicable only when the device supports the feature. To make this feature work properly, it is recommended to upgrade your devices to the latest firmware version.
Require Message-Authenticator	When enabled, the Client verifies the Message-Authenticator field in requests to enhance authentication security. Please ensure the server supports Message Authenticator.
Authentication Server IP/URL	Enter the IP/URL address of the authentication server.

RadSec	RadSec secures RADIUS communications. If enabled, a TLS-encrypted transmission tunnel will be established between the client and the RADIUS server to transmit RADIUS messages. RadSec is applicable only when the device supports the feature. To make this feature work properly, it is recommended to upgrade your devices to the latest firmware version. If there are old devices in the device list that do not support this feature, it is recommended to configure a backup server that is not enabled with this feature.
Authentication Port	Enter the UDP destination port on the authentication server for authentication requests.
Authentication Password	Enter the password that will be used to validate the communication between network devices and the RADIUS authentication server.
RADIUS Accounting	Click the checkbox to enable RADIUS Accounting to meet billing needs. This feature is only available for APs with Portal to account for wireless clients.
Interim Update	Click the checkbox to enable Interim Update. By default, the RADIUS accounting process needs only start and stop messages to the RADIUS accounting server. With Interim Update enabled, network devices will periodically send an Interim Update (a RADIUS Accounting Request packet containing an "interim-update" value) to the RADIUS server. An Interim Update updates the user's session duration and current data usage.
Interim Update Interval	Enter an appropriate interval between the updates of users' session duration and current data usage.
Accounting Server IP	Enter the IP address of the RADIUS accounting server.
Accounting Port	Enter the UDP destination port on the RADIUS server for accounting requests.
Accounting Password	Enter the password that will be used to validate the communication between network devices and the RADIUS accounting server.
Radius Proxy	With this option enabled, the Controller will act as a proxy to forward the device's authentication messages to the corresponding RADIUS server.
RADIUS CoA	If enabled, TP-Link devices will act as a RADIUS Dynamic Authorization Server and will respond to RADIUS Change-of-Authorization and Disconnect messages sent by the RADIUS servers. This option is only supported by AP PPSK, AP MAC-Based Authentication, and AP WPA-Enterprise.
CoA Password	CoA password is used to authenticate CoA and Disconnect messages sent by the RADIUS servers. The password must be the same as the secret used by RADIUS servers to send the CoA and Disconnect messages.

11.6 Create LDAP Profiles

Overview

The Lightweight Directory Access Protocol (LDAP) is an industry standard protocol for maintaining and accessing directory information over a network. LDAP Authentication allows you to bind the device to an LDAP server and use that server to authenticate LAN clients. Google LDAP profile is designed for use with Google Workspace's Secure LDAP.

Configure a Common LDAP Profile

- 1. Launch the controller and access a site.
- 2. Go to [Network Config](#) > [Profile](#) > [LDAP Profile](#).
- 3. Click [Create New LDAP Profile](#) to add a new profile .

Create New LDAP Profile

Status

☐ Enable

Name

Bind Type

Simple Mode

Server Address

ldap://

Destination Port

389

Use SSL

☐ Enable

Common Name Identifier

Base Distinguished Name

Q

Apply

Cancel

- 4. Configure the parameters.

Status	Check the box to enable LDAP Authentication.
Name	Specify the profile name.
Bind Type	Select the LDAP Authentication mode: Anonymous Mode, Simple Mode, or Regular Mode.
Server Address	Enter the IP address of the LDAP server.
Destination Port	Enter the port ID of the LDAP server. By default, the port ID is 389 when SSL is disabled and 636 when SSL is enabled.
Use SSL	Determine whether to use SSL for LDAP communication.

Regular DN	Specify the distinguished name (DN) of the administrator account. This parameter is required in Regular mode.
Regular Password	Specify the password of the administrator account. This parameter is required in Regular mode.
Common Name Identifier	Specify the common name for user authentication. It is usually "cn". Determine based on the actual situation of the directory.
Base Distinguished Name	Specify the user identifier for user authentication. You can click the icon next to it to search and select from the LDAP directory tree.
Additional Filter	Specify the filter for user authentication. It is not supported in Simple Mode and is optional in other modes.
Group Distinguished Name	Specify the group identifier for user authentication. It is not supported in Simple Mode and is optional in other modes.

- Click **Apply** to save the profile. Now you can select the predefined entry of LDAP profile when configuring rules of related modules like LDAP Server.

Configure a Google LDAP Profile

- Download the Google Certificate.
 - Sign in to your Google Admin console.
 - Go to **Apps > LDAP**.
 - Select a client.
 - Click the Authentication card.
 - Click GENERATE NEW CERTIFICATES.
 - Download the certificate from the Certificates window.
- Launch the controller and access a site.
- Go to **Network Config > Profile > LDAP Profile > Google LDAP Profiles**.
- Click **Create Google LDAP Profile** to add a new profile .

Create Google LDAP Profile

Status

☐ Enable

Name

Bind Type

Simple Mode

▼

Server Address

ldaps://

Destination Port

636

Common Name Identifier

Base Distinguished Name

🔍

Google Certificate

Please select a file.

Browse

Create

Cancel

5. Configure the parameters.

Status	Check the box to enable LDAP Authentication.
Name	Specify the profile name.
Bind Type	Select the LDAP Authentication mode: Simple Mode or Regular Mode.
Server Address	Enter the IP address of the LDAP server.
Destination Port	Enter the port ID of the LDAP server. By default, the port ID is 636.
Common Name Identifier	Specify the common name for user authentication. It is usually "uid". Determine based on the actual situation of the directory.
Base Distinguished Name	Specify the user identifier for user authentication. You can click the icon next to it to search and select from the LDAP directory tree.
Google Certificate	Upload the Google certificate you downloaded.

6. Click **Apply** to save the profile. Now you can select the predefined entry of LDAP profile when configuring rules of related modules like LDAP Server.

11.7 Configure APN Profiles

Overview

APN is a network access technology required when using the SIM card to access the internet. It determines which access method the SIM card uses to access the internet.

Configuration

To configure the APN profiles, follow these steps:

1. Launch the controller and access a site.
2. Go to [Network Config > Profile > APN Profile](#). You can also go to [Network Config > Network Settings > Internet > LTE](#) if a LTE model has been adopted or pre-configured.
3. Click [Create New APN Profile](#) to add a new profile .

Create New APN Profile

Profile Name

PDP Type

IPv4

APN Type

Static

APN

Username

(Optional)

Password

Password

(Optional)

Authentication Type

None

Apply

Cancel

4. Configure the parameters.

Profile Name	Specify the name of the profile.
PDP Type	Select the PDP (Packet Data Protocol) type: IPv4, IPv6, or IPv4 & IPv6.
APN Type	Select the APN type: Static or Dynamic.
APN	When APN Type is Static, specify the APN (access point name) provided by your ISP.
Username	Enter the username provided by your ISP. This field is case-sensitive.
Password	Enter the password provided by your ISP. This field is case-sensitive.

Authentication Type	Some ISPs need a specific authentication type, please confirm it with your ISP or keep the default value. None: No authentication is required. PAP: Password Authentication Protocol. The protocol allows a device to establish authentication with a peer using a two-way handshake. Select this option if your ISP requires this authentication type. CHAP: Challenge Handshake Authentication Protocol. The protocol allows a device to establish authentication with a peer using a three-way handshake and periodically checking the peer's identity. Select this option if your ISP requires this authentication type.
Apply to SIM	(For models with dual SIM cards) Select the SIM card to which the APN profile will be applied.

5. Click **Apply** to save the profile. Now you can select the predefined entry of APN profile when configuring rules of related modules.

Chapter 12

Configure Network Security

Network Security is a portfolio of features designed to improve the usability and ensure the safety of your network and data. It implements policies and controls on multiple layers of defenses in the network.

This chapter guides you on how to configure network security with the Omada Controller. The chapter includes the following sections:

- [12. 1 Configure ACL](#)
- [12. 2 Configure URL Filtering](#)
- [12. 3 Configure Application Control](#)
- [12. 4 Configure IDS/IPS for Threat Management](#)
- [12. 5 Configure Wireless IDS/IPS](#)
- [12. 6 Configure the Firewall](#)
- [12. 7 Configure Attack Defense](#)
- [12. 8 Configure DAI](#)
- [12. 9 Configure DHCP Snooping](#)

12.1 Configure ACL

Overview

ACL (Access Control List) allows a network administrator to create rules to restrict access to network resources. ACL rules filter traffic based on specified criteria such as source IP addresses, destination IP addresses, and port numbers, and determine whether to forward the matched packets. These rules can be applied to specific clients or groups whose traffic passes through the gateway, switches and APs.

The system filters traffic against the rules in the list sequentially. The first match determines whether the packet is accepted or dropped, and other rules are not checked after the first match. Therefore, the order of the rules is critical. By default, the rules are prioritized by their created time. The rule created earlier is checked for a match with higher priority. To reorder the rules, select a rule and drag it to a new position. If no rules match, the device forwards the packet because of an implicit Permit All clause.

The system provides three types of ACL:

■ Gateway ACL

After Gateway ACLs are configured on the controller, they can be applied to the gateway to control traffic which is sourced from LAN ports and forwarded to the WAN ports.

You can set the Network, IP address, port number of a packet as packet-filtering criteria in the rule.

■ Switch ACL

After Switch ACLs are configured on the controller, they can be applied to the switch to control inbound and outbound traffic through switch ports.

You can set the Network, IP address, port number and MAC address of a packet as packet-filtering criteria in the rule.

■ EAP ACL

After EAP ACLs are configured on the controller, they can be applied to the APs to control traffic in wireless networks.

You can set the Network, IP address, port number and SSID of a packet as packet-filtering criteria in the rule.

Configuration

To complete the ACL configuration, follow these steps:

- 1) Create an ACL with the specified type.
- 2) Define packet-filtering criteria of the rule, including protocols, source, and destination, and determine whether to forward the matched packets.

■ Configuring Gateway ACL

1. Launch the controller and access a site.

2. Go to **Network Config > Security > ACL**. On Gateway ACL tab, click **Create New Rule** to load the following page.

Create New Rule

Description

Status

☒ Enable

Direction

Please Select...

Policy

☒ Deny ☐ Permit

Protocols

All

Rule ⓘ

Source

Type



Please Select the type

Deny

Destination

Type



Please Select the type

+ Advanced Settings

Create

Cancel

3. Define packet-filtering criteria of the rule, including protocols, source, and destination, and determine whether to forward the matched packets. Refer to the following table to configure the required parameters and click **Create**.

Description	Enter a description to identify the ACL.
Status	Click the checkbox to enable the ACL.
Direction	Select the direction of ACL application traffic. LAN->LAN: Control packet forwarding between LAN side devices. LAN->WAN: Control packet forwarding in the LAN-WAN direction. [SFP WAN/LAN1] IN / [WAN2] IN / [USB Modem] IN: Control packet coming in from a specific WAN port. The options vary by model.

Policy	Select the action to be taken when a packet matches the rule. Permit: Forward the matched packet. Deny: Discard the matched packet.
Protocols	Select one or more protocol types to which the rule applies from the drop-down list. The default is All, indicating that packets of all protocols will be matched. When you select one of TCP and UDP or both of them, you can set the IP address and port number of a packet as packet-filtering criteria in the rule.

From the Source drop-down list, choose one of these options to specify the source of the packets to which this ACL applies:

Network	Select the network you have created. If no networks have been created, you can select the default network (LAN), or go to Network Config > Network Settings > LAN to create one. The gateway will examine whether the packets are sourced from the selected network.
! Network	Select a network you have created and the settings will not applied to that network.
SSID	Select the SSID you have created. If no SSIDs have been created, go to Network Config > Network Settings > WLAN to create one. The system will examine whether the SSID of the packet is the SSID selected here.
IP Group	Select the IP Group you have created. If no IP Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The gateway will examine whether the source IP address of the packet is in the IP Group.
! IP Group	Select an IP group you have created and the settings will not applied to that IP group.
IP-Port Group	Select the IP-Port Group you have created. If no IP-Port Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The gateway will examine whether the source IP address and port number of the packet are in the IP-Port Group.
! IP-Port Group	Select an IP-Port group you have created and the settings will not applied to that IP-Port group.
IPv6 Group	Select the IPv6 Group you have created. If no IPv6 Groups have been created, click + Create on this page or go to Network Config > Profile > Groups to create one. The system will examine whether the source IPv6 address of the packet is in the IPv6 Group.
! IPv6 Group	Select an IPv6 group you have created and the settings will not applied to that IPv6 group.
IPv6-Port Group	Select the IPv6-Port Group you have created. If no IPv6-Port Groups have been created, click + Create on this page or go to Network Config > Profile > Groups to create one. The system will examine whether the source IPv6 address and port number of the packet are in the IPv6-Port Group.
! IPv6-Port Group	Select an IPv6-Port group you have created and the settings will not applied to that IPv6-Port group.

Location	Select one or multiple locations from the list as the source address, and the system will judge whether the source IP of the data packet belongs to the selected locations.
Location Group	Select a location group you have created, and the system will judge whether the source IP of the data packet belongs to this location group. If no location group has been created, click the create button to create one, or go to Network Config > Profile > Groups to create one.

From the Destination drop-down list, choose one of these options to specify the destination of the packets to which this ACL applies:

IP Group	Select the IP Group you have created. If no IP Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The gateway will examine whether the destination IP address of the packet is in the IP Group.
! IP Group	Select an IP group you have created and the settings will not applied to that IP group.
IP-Port Group	Select the IP-Port Group you have created. If no IP-Port Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The gateway will examine whether the destination IP address and port number of the packet are in the IP-Port Group.
! IP-Port Group	Select an IP-Port group you have created and the settings will not applied to that IP-Port group.
IPv6 Group	Select the IPv6 Group you have created. If no IPv6 Groups have been created, click + Create on this page or go to Network Config > Profile > Groups to create one. The system will examine whether the destination IPv6 address of the packet is in the IPv6 Group.
! IPv6 Group	Select an IPv6 group you have created and the settings will not applied to that IPv6 group.
IPv6-Port Group	Select the IPv6-Port Group you have created. If no IPv6-Port Groups have been created, click + Create on this page or go to Network Config > Profile > Groups to create one. The system will examine whether the destination IPv6 address and port number of the packet are in the IPv6-Port Group.
! IPv6-Port Group	Select an IPv6-Port group you have created and the settings will not applied to that IPv6-Port group.
Location	Select one or multiple locations from the list as the destination address, and the system will judge whether the destination IP of the data packet belongs to the selected locations.
Location Group	Select a location group you have created, and the system will judge whether the destination IP of the data packet belongs to this location group. If no location group has been created, click the create button to create one, or go to Network Config > Profile > Groups to create one.
Gateway Management Page	This option will allow/block LAN network devices to access the gateway management page.

Domain Group

Select a domain group you have created, and the system will judge whether the destination domain of the data packet belongs to this domain group. If no domain group has been created, click the create button to create one, or go to [Network Config > Profile > Groups](#) to create one.

Set the advanced settings according to your needs:

Time Range

Select the checkbox to enable time-based ACL. You can create a time range or select an existing time range for the ACL rule to take effect.

Bi-Directional

When **Direction** is **LAN->LAN**, you can enable this option to configure bi-directional traffic rule.

States Type

Determine the type of stateful ACL rule. It is recommended to use the default Auto type.

Auto (Match State New/Established/Related): Match the new, established, and related connection states.

Manual: If selected, you can manually specify the connection states to match.

Match State New: Match the connections of the initial state. For example, a SYN packet arrives in a TCP connection, or the gateway only receives traffic in one direction.

Match State Established: Match the connections that have been established. In other words, the firewall has seen the bidirectional communication of this connection.

Match State Invalid: Match the connections that do not behave as expected.

Match State Related: Match the associated sub-connections of a main connection, such as a connection to a FTP data channel.

■ Configuring Switch ACL

1. Launch the controller and access a site.
2. Go to [Network Config > Security > ACL](#). Under the Switch ACL tab, click [Create New Rule](#) to load the following page.

Create New Rule

Description

Status

☒ Enable

Policy

☒ Deny ☐ Permit

Protocols

All

Rule ⓘ

Source

Type



Please Select the type

Deny

Destination

Type



Please Select the type

+ ACL Binding

+ Advanced Settings

Create

Cancel

3. Define packet-filtering criteria of the rule, including protocols, source, and destination, and determine whether to forward the matched packets. Refer to the following table to configure the required parameters.

Description	Enter a description to identify the ACL.
Status	Click the checkbox to enable the ACL.
Policy	Select the action to be taken when a packet matches the rule. Permit: Forward the matched packet. Deny: Discard the matched packet.

322

Protocols	Select one or more protocol types to which the rule applies from the drop-down list. The default is All, indicating that packets of all protocols will be matched. When you select one of TCP and UDP or both of them, you can set the IP address and port number of a packet as packet-filtering criteria in the rule.
Time Range	Select the checkbox to enable time-based ACL. You can create a time range or select an existing time range for the ACL rule to take effect.
Ethertype	Click the checkbox if you want the switch to check the ethertype of the packets, and configure the Ethertype based on needs.
Bi-Directional	Click the checkbox to enable the switch to create another symmetric ACL with the name "xxx_reverse", where "xxx" is the name of the current ACL. The two ACLs target at packets with the opposite direction of each other.

From the Source drop-down list, choose one of these options to specify the source of the packets to which this ACL applies:

Network	Select the network you have created. If no networks have been created, you can select the default network (LAN), or go to Network Config > Network Settings > LAN to create one. The switch will examine whether the packets are sourced from the selected network.
IP Group	Select the IP Group you have created. If no IP Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The switch will examine whether the source IP address of the packet is in the IP Group.
IP-Port Group	Select the IP-Port Group you have created. If no IP-Port Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The switch will examine whether the source IP address and port number of the packet are in the IP-Port Group.
MAC Group	Select the MAC Group you have created. If no MAC Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The switch will examine whether the source MAC address of the packet is in the MAC Group.
IPv6 Group	Select the IPv6 Group you have created. If no IPv6 Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The switch will examine whether the source IP address of the packet is in the IPv6 Group.
IPv6-Port Group	Select the IPv6-Port Group you have created. If no IPv6-Port Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The switch will examine whether the source IP address and port number of the packet are in the IPv6-Port Group.

From the Destination drop-down list, choose one of these options to specify the destination of the packets to which this ACL applies:

Network	Select the network you have created. If no networks have been created, you can select the default network (LAN), or go to Network Config > Network Settings > LAN to create one. The switch will examine whether the packets are forwarded to the selected network.
---------	---

IP Group	Select the IP Group you have created. If no IP Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The switch will examine whether the destination IP address of the packet is in the IP Group.
IP-Port Group	Select the IP-Port Group you have created. If no IP-Port Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The switch will examine whether the destination IP address and port number of the packet are in the IP-Port Group.
MAC Group	Select the MAC Group you have created. If no MAC Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The switch will examine whether the destination MAC address of the packet is in the MAC Group.
IPv6 Group	Select the IPv6 Group you have created. If no IPv6 Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The switch will examine whether the destination IP address of the packet is in the IPv6 Group.
IPv6-Port Group	Select the IPv6-Port Group you have created. If no IPv6-Port Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The switch will examine whether the destination IP address and port number of the packet are in the IPv6-Port Group.

4. Bind the switch ACL to a switch port or a VLAN and click [Create](#). Note that a switch ACL takes effect only after it is bound to a port or VLAN.

Binding Type

Specify whether to bind the ACL to ports or a VLAN.

Ports:

Select All Ports or Custom Ports as the interfaces to be bound with the ACL. With All ports selected, the rule is applied to all ports of the switch. With Custom ports selected, the rule is applied to the selected ports of the switch. Click the ports from the Device List to select the binding ports.

	DEVICE NAME	PORTS/LAGS	STATUS	MODEL	FIRMWARE VERSION
☐	B0-19-21-7E-80-8A	Port 1 2 3 4 5 6 7 8 9 10 ☒ ☒ ☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐			

 CONNECTED | SG2210MP | 5.0.1 Build 2024 0418 Rel.51164 |

VLAN:

Select a VLAN and specify the switches as the interface to be bound with the ACL. If no VLANs have been created, you can select the default VLAN 1 (LAN), or go to Network Config > Network Settings > LAN to create one.

■ **Configuring EAP ACL**

1. Launch the controller and access a site.
2. Go to [Network Config > Security > ACL](#). Under the E tab, click [Create New Rule](#) to load the following page.

Create New Rule

Description

Status

☒ Enable

Policy

☒ Deny ☐ Permit

Protocols

All ▾

Rule ⓘ

Source ⓘ

Type

▾



Please Select the type

Destination

Type

▾



Please Select the type

Deny



Create

Cancel

3. Define packet-filtering criteria of the rule, including protocols, source, and destination, and determine whether to forward the matched packets. Refer to the following table to configure the required parameters and click **Create**.

Description	Enter a description to identify the ACL.
Status	Click the checkbox to enable the ACL.
Policy	Select the action to be taken when a packet matches the rule. Permit: Forward the matched packet. Deny: Discard the matched packet.

Protocols	Select one or more protocol types to which the rule applies from the drop-down list. The default is All, indicating that packets of all protocols will be matched. When you select one of TCP and UDP or both of them, you can set the IP address and port number of a packet as packet-filtering criteria in the rule.
-----------	---

From the Source drop-down list, choose one of these options to specify the source of the packets to which this ACL applies:

Network	Select the network you have created. If no networks have been created, you can select the default network (LAN), or go to Network Config > Network Settings > LAN to create one. The AP will examine whether the packets are sourced from the selected network.
IP Group	Select the IP Group you have created. If no IP Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The AP will examine whether the source IP address of the packet is in the IP Group.
IP-Port Group	Select the IP-Port Group you have created. If no IP-Port Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The AP will examine whether the source IP address and port number of the packet are in the IP-Port Group.
SSID	Select the SSID you have created. If no SSIDs have been created, go to Network Config > Network Settings > WLAN to create one. The AP will examine whether the SSID of the packet is the SSID selected here.
IPv6 Group	Select the IPv6 Group you have created. If no IPv6 Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The AP will examine whether the source IP address of the packet is in the IPv6 Group.
IPv6-Port Group	Select the IPv6-Port Group you have created. If no IPv6-Port Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The AP will examine whether the source IP address and port number of the packet are in the IPv6-Port Group.

From the Destination drop-down list, choose one of these options to specify the destination of the packets to which this ACL applies:

Network	Select the network you have created. If no networks have been created, you can select the default network (LAN), or go to Network Config > Network Settings > LAN to create one. The AP will examine whether the packets are forwarded to the selected network.
IP Group	Select the IP Group you have created. If no IP Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The AP will examine whether the destination IP address of the packet is in the IP Group.
IP-Port Group	Select the IP-Port Group you have created. If no IP-Port Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The AP will examine whether the destination IP address and port number of the packet are in the IP-Port Group.
IPv6 Group	Select the IPv6 Group you have created. If no IPv6 Groups have been created, click +Create on this page or go to Network Config > Profile > Groups to create one. The AP will examine whether the destination IP address of the packet is in the IPv6 Group.

IPv6-Port Group

Select the IPv6-Port Group you have created. If no IPv6-Port Groups have been created, click [+Create](#) on this page or go to [Network Config > Profile > Groups](#) to create one. The AP will examine whether the destination IP address and port number of the packet are in the IPv6-Port Group.

12.2 Configure URL Filtering

Overview

URL Filtering allows a network administrator to create rules to block or allow certain websites, which protects it from web-based threats, and deny access to malicious websites.

In URL filtering, the system compares the URLs in HTTP, HTTPS and DNS requests against the lists of URLs that are defined in URL Filtering rules, and intercepts the requests that are directed at a blocked URLs. These rules can be applied to specific clients or groups whose traffic passes through the gateway and APs.

The system filters traffic against the rules in the list sequentially. The first match determines whether the packet is accepted or dropped, and other rules are not checked after the first match. Therefore, the order of the rules is critical. By default, the rules are prioritized based on the sequence they are created. The rule created earlier is checked for a match with a higher priority. To reorder the rules, select a rule and drag it to a new position. If no rules match, the device forwards the packet because of an implicit Permit All clause.

Note that URL Filtering rules take effects with a higher priority over ACL rules. That is, the system will process the URL Filtering rule first when the URL Filtering rule and ACL rules are configured at the same time.

Configuration

To complete the URL Filtering configuration, follow these steps:

- 1) Create a new URL Filtering rule with the specified type.
 - 2) Define filtering criteria of the rule, including source, and URLs, and determine whether to forward the matched packets.
- **Configuring Gateway Rules**
1. Launch the controller and access a site.
 2. Go to [Network Config](#) > [Security](#) > [URL Filtering](#).
 3. Under the Gateway Rules tab, configure the parameters.

General Config

Block Page

☒

Block Page Message

(Optional)

Safe Search

☐

Apply

Cancel

URL Filtering List

Tip: Drag :: to re-order rows.

+ Create New Rule

NAME	ENABLED	POLICY	SOURCE	MODE	FILTERING CONTENT	ACTION
No entry in the table.						

- Block Page

When enabled, users attempting to access blocked websites will be redirected to a specific page indicating that the website is blocked by access policy.
- Block Page Message

When a user tries to access a blocked URL, the block page message will display to tell why access is denied. This can effectively remind users to comply with network usage regulations.
- Safe Search

Check this option to enable Safe Search globally. This feature can filter search results to block inappropriate content. It is suitable for family and educational environments.

5. Click **Create New Rule** to load the following page.

Create New Rule

Name

Status

☒ Enable

Policy

☒ Deny ☐ Permit

Source Type

Network

Network

Please Select...

Time Schedule

☐ Enable

Mode

☒ URL Category ☐ Custom URLs

Content Filtering

☐ Family ☐ Work ☐ Education ☐ Public Network ☒ Custom

☒ 0 of 81 URL Categories Enabled

☐ Adult & Explicit Content ⓘ

☐ Lingerie ⓘ

☐ Sex Toys ⓘ

☐ Business & Finance ⓘ

☐ Bank ⓘ

☐ Real Estate ⓘ

☐ Mature Content ⓘ

☐ Sexual Content ⓘ

☐ Business ⓘ

☐ Nudity ⓘ

☐ Sexual Education ⓘ

☐ Financial Services Websites ⓘ

☐ Porn ⓘ

☐ Online Pay ⓘ

- Define filtering criteria of the rule, including source and URLs, and determine whether to forward the matched packets. Refer to the following table to configure the required parameters and click **Save**.

Name	Enter a name to identify the URL Filtering rule.
Status	Click the checkbox to enable the URL Filtering rule.
Policy	Select the action to be taken when a packet matches the rule. Deny: Discard the matched packet and the clients cannot access the URLs. Permit: Forward the matched packet and clients can access the URLs.
Source Type	Select the source of the packets to which this rule applies. Network: With Network selected, select the network you have created from the Network drop-down list. If no networks have been created, you can select the default network (LAN), or go to Network Config > Network Settings > LAN to create one. The gateway will filter the packets sourced from the selected network. IP Group: With IP Group selected, select the IP Group you have created from the IP Group drop-down list. If no IP Groups have been created, click +Create New IP Group on this page or go to Network Config > Profile > Groups to create one. The gateway will examine whether the source IP address of the packet is in the IP Group.
Time Schedule	Enable this option and set a time schedule if needed.
Mode	Choose a mode for the filtering content to match the URL. URL Category: Frequently used URLs such as news, entertainment, and shopping are divided into different categories. This mode is suitable for most common scenarios, but if you find that the required URLs are not in the filtering category, you can add the specific URLs in the custom URL mode. Custom URLs: Manually enter the URL you want to filter. This mode lets you precisely control content access.
Content Filtering	Select a preset scenario. Family: Suitable for homes Work: Suitable for offices. Education: Suitable for schools and educational institutions. Public Network: Suitable for public places. Custom: You can customize filtering rules according to the specific needs of different scenarios.

■ Configuring AP Rules

- Launch the controller and access a site.
- Go to [Network Config > Security > URL Filtering](#). On EAP Rules tab, click [Create New Rule](#) to load the following page.

Create New Rule

Name

Status

☒ Enable

Policy

☒ Deny ☐ Permit

Source Type

SSID ▾

SSID

Please Select... ▾

URL Path

www.google.com

www.youtube.com

1. Use the Enter key to divide different filtering contents.

2. The domain name which contains a wildcard (*) is supported, like *.google.com. One domain name with a wildcard (*) can match multiple subdomains.

Save

Cancel

3. Define filtering criteria of the rule, including source and URLs, and determine whether to forward the matched packets. Refer to the following table to configure the required parameters and click **Save**.

Name	Enter a name to identify the URL Filtering rule.
Status	Click the checkbox to enable the URL Filtering rule.
Policy	Select the action to be taken when a packet matches the rule. Deny: Discard the matched packet and the clients cannot access the URLs. Permit: Forward the matched packet and clients can access the URLs.
Source Type	Select the SSID of the packets to which this rule applies.
URL Path	Enter the URL address using up to 128 characters. URL address should be given in a valid format. The URL which contains a wildcard(*) is supported. One URL with a wildcard(*) can match multiple subdomains. For example, with *.tp-link.com specified, community.tp-link.com will be matched.

12.3 Configure Application Control

Overview

DPI (Deep Packet Inspection) helps you identify, analyze, and control the traffic at the application layer in the network. DPI engine includes the latest application identification signatures to track which applications are using the most bandwidth. You can better manage and distribute network traffic usage through DPI.

Configuration

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Security](#) > [Application Control](#).
3. On the [Deep Packet Inspection](#) page, enable [Deep Packet Inspection](#) and [Logging Traffic](#), then apply the settings.

Deep Packet Inspection

Deep Packet Inspection

☒

Logging Traffic

☒ ⓘ

Apply

Cancel

Deep Packet Inspection	When enabled, the device will send the forwarded traffic to a professional local DPI engine for analysis, so as to judge and identify the type of traffic.
Logging Traffic	When enabled, the device will collect and save the results of traffic analysis. You can check the results on the Insights > Application Analytics page.

4. Apply the settings.
5. On the [Rules Management](#) page, click [Create New Rule](#). You can predefine one or more rules, and APP control strategy that can be referenced, and realize block or QoS actions for specified Apps within a specified time period.

Create New Rule

Rules Name

Schedule

Please select a Time Range entry.

Manage Time Range Entries

Policy

☒ QoS

☐ Deny

QoS Class

Manage QoS Class

Select Apps

Search Name

	NAME	CATEGORY	DESCRIPTION	ACTION
☐	1-clickshare-com	Sharehosting	The application 1-clickshare-com was used to classify traffic from the hoster with the same name. It was deprecated because t...	
☐	1-upload-com	Sharehosting	The application 1-upload-com was used to classify traffic from the hoster with the same name. It was deprecated because the ...	
☐	1-upload-to	Sharehosting	The application 1-upload-to was used to classify traffic from the hoster with the same name. It was deprecated because the we...	
☐	10upload-com	Sharehosting	The application 10upload-com was used to classify traffic from the hoster with the same name. It was deprecated because the ...	
☐	123VPN	Tunnel	123VPN is a free VPN application provided by Amplusnet SRL.	
☐	123upload	Sharehosting	The application 123upload was used for traffic from the hoster with the same name. It was deprecated because the website is n...	
☐	123upload-pl	Sharehosting	The application 123upload-pl was used to classify traffic from the hoster with the same name. It was deprecated because the w...	
☐	139pan-com	Sharehosting	The application 139pan-com was used to classify traffic from the hoster with the same name. It was deprecated because the w...	
☐	163pan-com	Sharehosting	The application 163pan-com was used to classify traffic from the hoster with the same name. It was deprecated because the w...	
☐	1clickshare-net	Sharehosting	The application 1clickshare-net was used to classify traffic from the hoster with the same name. It was deprecated because th...	

Apply

Cancel

Rules Name Specify the name of the rule.

Schedule Specify the time period when the rule takes effect. You can create new time range according to your needs.

Policy Select a policy to process the traffic of the selected apps.

QoS: Select this option if you want to apply a QoS strategy to the selected apps.

Deny: Select this option if you want to block the traffic of the selected apps.

QoS Class Select the corresponding QoS class for the selected apps. The traffic of the selected apps will be forwarded based on the specific percentage of bandwidth.

Select Apps Select the Apps for the rule.

6. On the **Application Filter** page, click **Create New Application Filter**. You can apply the defined rules and divide multiple rules into one filter set for easy management.

Create New Application Filter

Name

Description

Select Rules

+ Add

	RULES NAME	APP NUMBER	QOS STATUS	SCHEDULE	ACTION
	No entry in the table.				

Create

Cancel

Name Specify the name of the filter.

Description	Enter a description for identification.
Select Rules	Select the rules for the filter.

7. On the **Deep Packet Inspection** page, click **Create New Assign Restriction**. Select a network to apply a pre-defined filter.

Create New Assign Restriction

Network

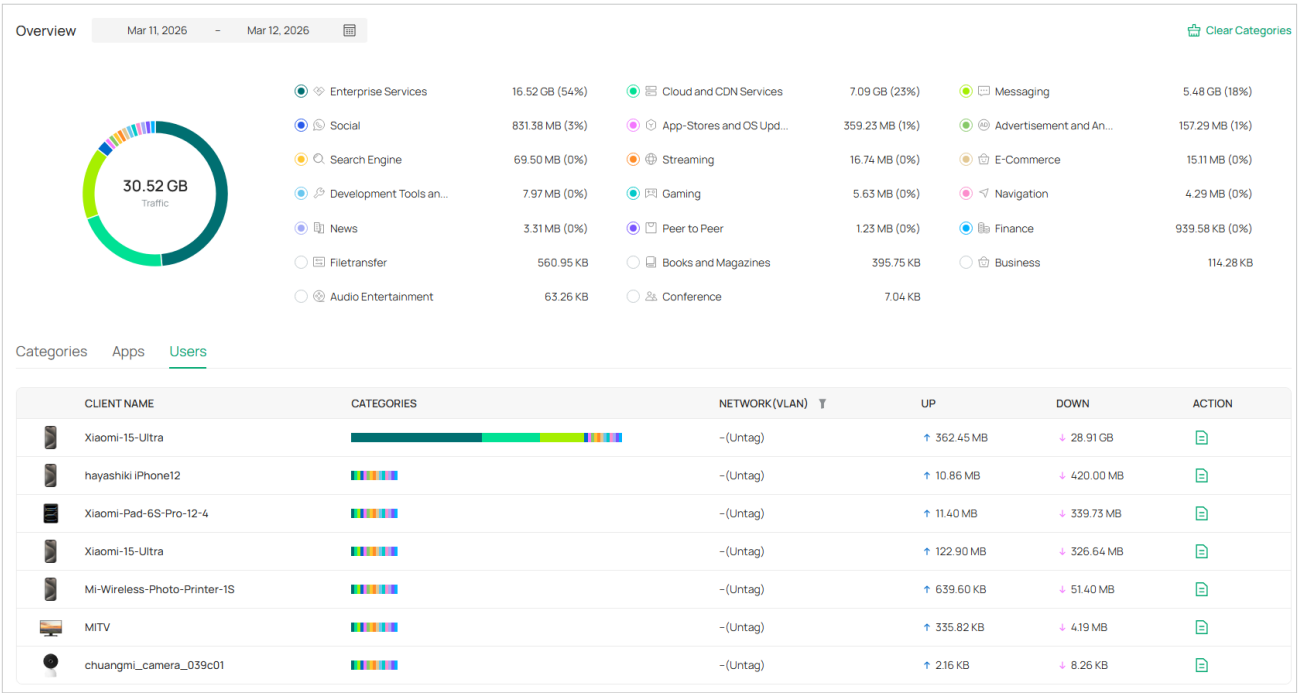
Filter

Confirm

Cancel

Network	Select a network to apply the filter.
Filter	Select a pre-defined filter.

8. Save the settings. You can view the results of traffic analysis on the **Insights > Application Analytics** page.



If you want to clear DPI data of a time period, go to the **Deep Packet Inspection** page, click the **Clear Data** button and specify the period.

12.4 Configure IDS/IPS for Threat Management

IDS/IPS is a security mechanism that detects intrusions based on attack characteristics. It can detect malware, Trojan horses, worms, ActiveX and other attacks to protect the network security of users.

Note: Using Intrusion Detection/Prevention may reduce maximum throughput speeds.

12.4.1 Configure IDS/IPS

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Security](#) > [IDS/IPS](#).
3. Enable [Intrusion Detection/Prevention](#) and configure the parameters.

IDS/IPS ⓘ

Intrusion Detection/Prevention ☒

Type ☒ Detect Only (IDS) ☐ Detect and Prevent (IPS)

ⓘ

 Using Intrusion Detection/Prevention may reduce maximum throughput speeds.

GEO Enforcer ☐ Enable ⓘ

Security Level

Low ⓘ

✔

 5 of 12 Threat Categories Enabled.

Effective Time ☐ Enable

Apply

Cancel

Type	Specify the working mode. In IDS mode, the system will only report the threat log. In IPS mode, the system will block the corresponding connection for 300s after a threat is detected.
GEO Enforcer	Enable geographic location identification of threat logs.
Security Level	Choose the protection level. A higher protection level means more threat types are detected, while a lower protection level only detects some important threats. You can also customize the protection level.
Effective Time	Specify the effective time period of the IDS/IPS module.

4. Apply the settings.

When the system discovers a threat, the corresponding threat log will be displayed on the [Threat Management](#) page in the current site and the [Security](#) page in Global View.

335

12. 4. 2 Manage Threats in a Site

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Security](#) > [IDS/IPS](#) > [Threat Management](#).
3. Click a threat that the system discovered, then you can choose a specified response strategy for the corresponding attack IP: Block, Isolate Device, Signature Suppression, or Allow.

View threat logs and set countermeasures for specific threats.

Search Threat Description, Cla... Q

Feb 08, 2026 - Feb 09, 2026

Unarchived Archived

Export

Select 1 of 353 items

Block Isolate Device Signature Suppression Allow

☐	DATE TIME	SOURCE LOCATION ⓘ	THREAT DESCRIPTION	SEVERITY ▾	CATEGORY	CLASSIFICATION	CLASSIFICATION DESCRIPTION
☒	Feb 09, 2026 10:09:17 am	-	GPL P2P BitTorrent transfer	Low	P2P ⓘ	policy-violation	Potential Corporate Privacy Violation
☐	Feb 09, 2026 10:09:17 am	-	GPL P2P BitTorrent transfer	Low	P2P ⓘ	policy-violation	Potential Corporate Privacy Violation
☐	Feb 09, 2026 10:09:11 am	-	GPL P2P BitTorrent transfer	Low	P2P ⓘ	policy-violation	Potential Corporate Privacy Violation
☐	Feb 09, 2026 10:08:37 am	-	GPL P2P BitTorrent transfer	Low	P2P ⓘ	policy-violation	Potential Corporate Privacy Violation
☐	Feb 09, 2026 10:08:34 am	-	ET P2P BitTorrent Traffic	Low	P2P ⓘ	policy-violation	Potential Corporate Privacy Violation
☐	Feb 09, 2026 10:08:13 am	-	GPL P2P BitTorrent transfer	Low	P2P ⓘ	policy-violation	Potential Corporate Privacy Violation
☐	Feb 09, 2026 10:08:13 am	-	ET P2P BitTorrent Announce	Low	P2P ⓘ	policy-violation	Potential Corporate Privacy Violation
☐	Feb 09, 2026 10:06:46 am	-	GPL P2P BitTorrent transfer	Low	P2P ⓘ	policy-violation	Potential Corporate Privacy Violation
☐	Feb 09, 2026 10:06:31 am	-	ET P2P BitTorrent Traffic	Low	P2P ⓘ	policy-violation	Potential Corporate Privacy Violation
☐	Feb 09, 2026 10:04:20 am	-	ET P2P BitTorrent Traffic	Low	P2P ⓘ	policy-violation	Potential Corporate Privacy Violation

Showing 1-10 of 353 records < 1 2 3 4 5 ... 36 > 10 /page

Block	Drop traffic to/from the external IP address and the specific internal IP address. If you block an entry, it will be added to the Block List at Network Config > Security > IDS/IPS.
Isolate Device	Drop traffic to/from the external IP address and any internal IP address.
Signature Suppression	Mute the alerting on certain signatures. This will also disable blocking on traffic matching the designated suppression rule. If you suppress the signature of an entry, it will be added to the Signature Suppression list at Network Config > Security > IDS/IPS.
Allow	Trust the IP address so that the traffic, depending on the direction selected, will not get blocked to or from the identified IP address. If you allow an entry, it will be added to the Allow List at Network Config > Security > IDS/IPS.

4. You can further check and edit processed entries at [Network Config](#) > [Security](#) > [IDS/IPS](#).

■ **Block List**

The Block List page displays all block entries added through the [Threat Management](#) page. You can choose to block all traffic of the source IP in the threat log, or block all traffic between the source IP and the destination IP in the threat log.

■ **Allow List**

On the Allow List page, you can add, view, and edit the exemption entries of IDS/IPS detection, so that the specified objects will no longer trigger threat logs.

Click [Create New Allow List](#) and configure the parameters.

Create New Allow List

Direction

Source

Track By

IP Address

IP Address

Submit

Cancel

Direction	Specify the location of the object (target) exempt from triggering the threat: source, destination, or both directions.
Track By	Specify the type of object (target) exempt from triggering the threat: IP address, Network, or Subnet.
IP Address/Network/ Subnet	Specify the value of the object.

■ **Signature Suppression**

The Signature Suppression page displays all the signature suppression entries added through the Threat Management page, and the objects with signature suppressed will no longer trigger specific threat logs.

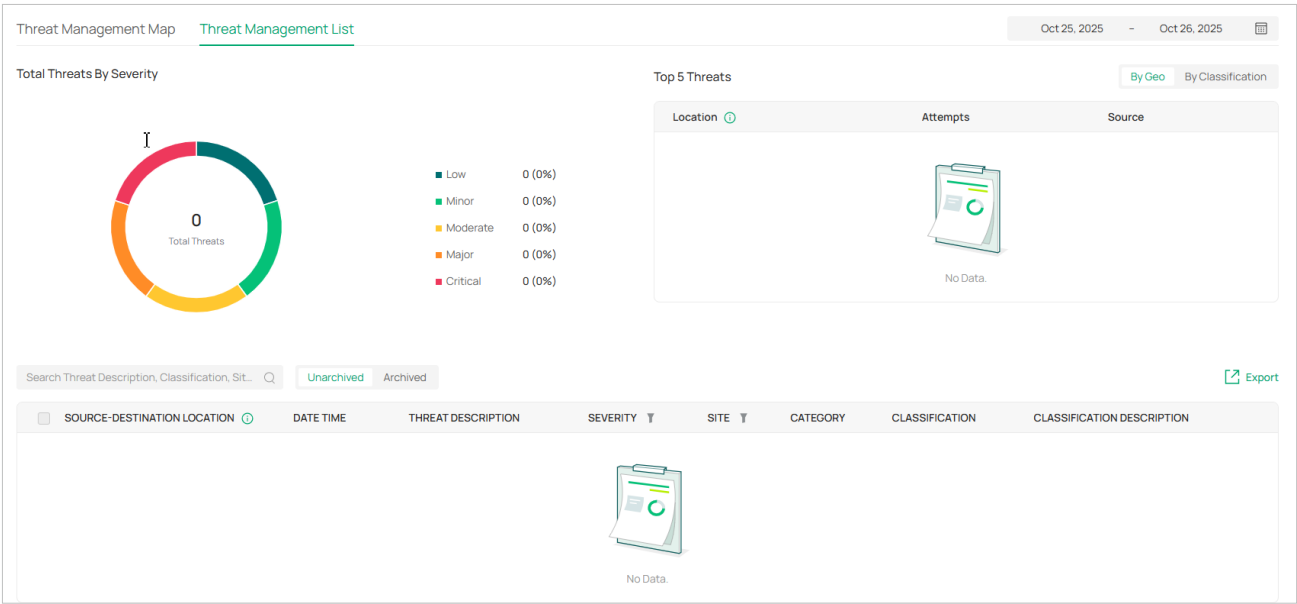
12. 4. 3 **Manage Threats Globally**

The Security page allows you to manage threats that the controller discovered to ensure network security.

To manage threats globally, go to [Security](#) in Global view. You can manage threats in a list or map.

■ **Threat Management List**

In the [Threat Management List](#), you can check top threats by severity, locations of top threats, and unarchived and archived threats.



In the unarchived threat list, click an entry, then you can choose a specified response strategy for the corresponding attack IP: Block, Isolate Device, Signature Suppression, or Allow.

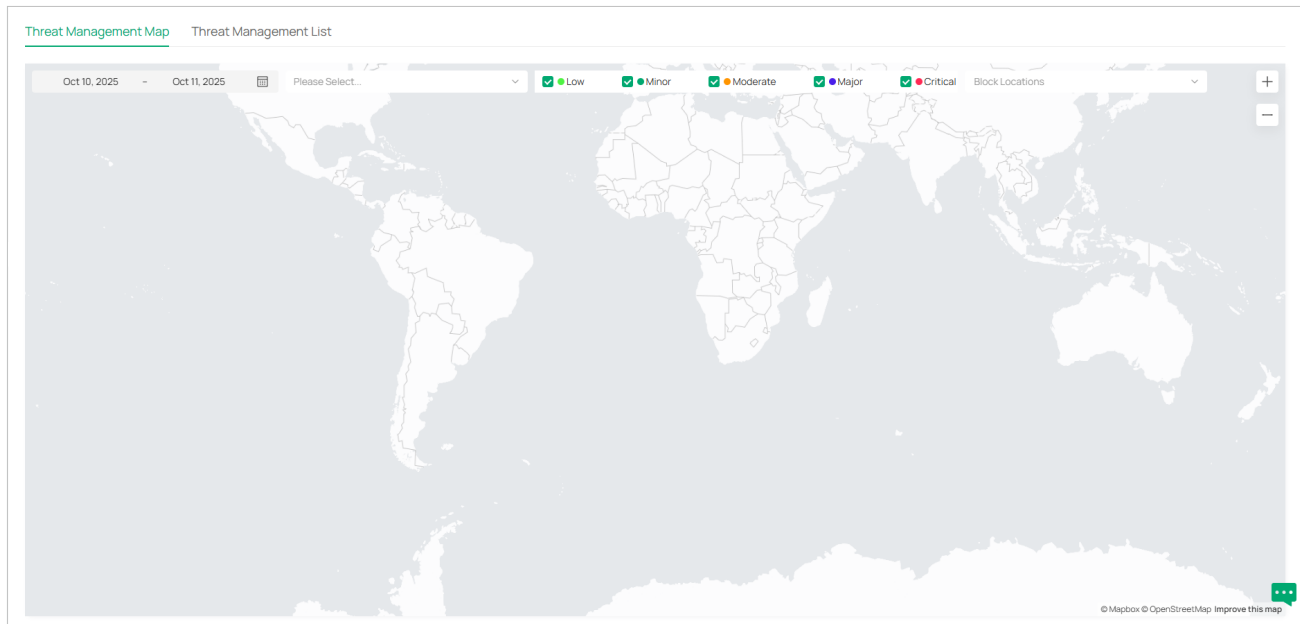
Block	Drop traffic to/from the external IP address and the specific internal IP address. If you block an entry, it will be added to the Block List at Network Config > Security > IDS/IPS.
Isolate Device	Drop traffic to/from the external IP address and any internal IP address.
Signature Suppression	Mute the alerting on certain signatures. This will also disable blocking on traffic matching the designated suppression rule. If you suppress the signature of an entry, it will be added to the Signature Suppression list at Network Config > Security > IDS/IPS.
Allow	Trust the IP address so that the traffic, depending on the direction selected, will not get blocked to or from the identified IP address. If you allow an entry, it will be added to the Allow List at Network Config > Security > IDS/IPS.

■ Threat Management Map

In the [Threat Management Map](#), you can view the threat sources and numbers of attacks that the system has discovered. You can click a number in the map to view attack details.

You can right-click a location to block its attack events and manage the Block Locations list.

If excessive attacks have been detected, you can choose specific severity levels to display.



12.5 Configure Wireless IDS/IPS

12.5.1 Overview

With Wireless IDS (Intrusion Detection System), APs will regularly detect wireless signals of the devices in the network to check for malicious or illegal network behaviors.

With Wireless IPS (Intrusion Prevention System), APs can take corresponding preventions and countermeasures against detected malicious devices and attackers.

12.5.2 Configure Wireless IDS

1. Launch the controller and access a site.
2. Go to **Network Config > Security > Wireless IDS/IPS > Wireless IDS**.
3. Enable the function and specify the detection level. You can customize the detection level and select your desired detection types.

Wireless IDS

Status

☒

Detection Level

☐ High ☐ Low ☒ Custom

Detection Type

☒ Signature_disassociation_broadcast
☒ Detect_apspoofing
☒ Detect_malformed_large_duration
☒ Detect_ap_impersonation
☒ Detect_incomplete_ie
☒ Detect_malformed_frame_auth
☒ Detect_valid_ssid_misuse
☒ Detect_client_flood
☒ Detect_violence_break

☒ Signature_deauth_broadcast
☒ Detect_adhoc_using_valid_ssid
☒ Detect_overflow_eapol_key
☒ Detect_ht_greenfield
☒ Detect_malformed_htie
☒ Detect_malformed_assoc_req
☒ Detect_adhoc_network
☒ Detect_power_save_dos_flood_attack

Apply

Cancel

4. Save the settings. When the device discovers a threat, the corresponding threat log will be displayed on the **Monitor** page.

Wireless IDS

Search Station Mac, Detecting AP Mac or Event Ty... Q

Jul 21, 2026 - Jul 22, 2026

Export

Station MAC	Detecting AP MAC	Channel (Band)	Start Time	Event Type	Level
a8-29-78- f2-0d-78- ee-0d-78- 06-f1-06- 06-f1-06- 3c-52-06- nn-f1-06-	ac-a7-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78-	11 (2.4 GHz)	Jul 22, 2026 06:17:24 pm	Signature_deauth_broadcast	Major
f2-0d-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78-	ac-a7-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78-	7 (2.4 GHz)	Jul 22, 2026 06:14:49 pm	Signature_deauth_broadcast	Major
10-5e-78- d8-0d-78- e2-0d-78- 76-04-78- 78-78-78- 78-78-78- 78-78-78-	ac-a7-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78-	6 (2.4 GHz)	Jul 22, 2026 06:14:29 pm	Signature_deauth_broadcast	Major
d8-0d-78- e2-0d-78- 76-04-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78-	ac-a7-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78- 78-78-78-	5 (2.4 GHz)	Jul 22, 2026 06:14:08 pm	Signature_deauth_broadcast	Major

12.5.3 Configure Wireless IPS

1. Launch the controller and access a site.

- 2. Go to [Network Config](#) > [Security](#) > [Wireless IDS/IPS](#) > [Wireless IPS](#).
- 3. Enable the function and configure the parameters.

Wireless IPS

Status

Deauthenticate

✓

Enable

i

Dynamic Block List

✓

Enable

i

Device Locking Duration

1000

Seconds

(300-36000)

Apply

Cancel

Deauthenticate	When enabled, APs will counteract the detected malicious APs, so that clients will disconnect from those APs. To use this function, make sure you have enabled detection of events Detect_adhoc_using_valid_ssid and Detect_valid_ssid_misuse . Otherwise the configuration will not take effect.
Dynamic Block List	When enabled, once an AP detects a malicious attack such as brute force cracking, it will add the attacker to the block list and will not deal with packets from this attacker for a period of time. To use this function, make sure you have enabled detection of events Detect_client_flood , Detect_violence_break , and Detect_power_save_dos_flood_attack . Otherwise the configuration will not take effect.
Device Locking Duration	Specify the duration for the attacker to stay in the dynamic block list after being added.

- 4. Save the settings. When the device discovers a threat, it will take corresponding preventions and countermeasures against detected malicious devices and attackers. You can check the Dynamic Block List on the [Monitor](#) page.

12.6 Configure the Firewall

Overview

Firewall is used to enhance the network security.

In State Timeouts, you can specify a number of timeouts for sessions including TCP, UDP, and ICMP connection. The packets will be forwarded within the specified timeout. When there is no response after the specified time, the session or status will be closed. State timeout will help close inactive sessions and thus avoid network malfunction.

In Firewall Options, you can further configure the gateway to prevent attacks like SYN flood attacks and broadcast ping.

Configuring State Timeouts

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Security](#) > [Firewall](#).
3. In the [State Timeouts](#), set the time limit for the different sessions.

State Timeouts ⓘ			
ICMP	30	Seconds	(1-2097151, default 30) ⓘ
Other	600	Seconds	(1-2097151, default 600) ⓘ
TCP Close	10	Seconds	(1-2097151, default 10) ⓘ
TCP Close Wait	60	Seconds	(1-2097151, default 60) ⓘ
TCP Established	7440	Seconds	(1-2097151, default 7440) ⓘ
TCP FIN Wait	120	Seconds	(1-2097151, default 120) ⓘ
TCP Last ACK	30	Seconds	(1-2097151, default 30) ⓘ
TCP SYN Recv	60	Seconds	(1-2097151, default 60) ⓘ
TCP SYN Sent	120	Seconds	(1-2097151, default 120) ⓘ
TCP Time Wait	120	Seconds	(1-2097151, default 120) ⓘ
UDP Other	60	Seconds	(1-2097151, default 60) ⓘ
UDP Stream	180	Seconds	(1-2097151, default 180) ⓘ

ICMP	The ICMP session will be closed if there is no response after the set time.
Other	The sessions for protocols excluding TCP, UDP, and ICMP will be closed if there is no response after the set time.

TCP Close	The TCP Close status will be closed if there is no response after the set time.
TCP Close Wait	The TCP Close Wait status will be closed if there is no response after the set time.
TCP Established	The TCP Established status will be closed if there is no response after the set time.
TCP FIN Wait	The TCP FIN Wait status will be closed if there is no response after the set time.
TCP Last ACK	The TCP Last ACK status will be closed if there is no response after the set time.
TCP SYN Recv	The TCP SYN (Synchronize) Recv status will be closed if there is no response after the set time.
TCP SYN Sent	The TCP SYN (Synchronize) Sent status will be closed if there is no response after the set time.
TCP Time Wait	The TCP Time Wait status will be closed if there is no response after the set time.
UDP Other	The UDP connections with traffic in only one direction will be stopped if there is no response after the set time.
UDP Stream	The UDP connections with bidirectional traffic will be stopped if there is no response after the set time.

Configuring Firewall Options

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Security](#) > [Firewall](#).
3. In the [Firewall Options](#), set the time limit for the different sessions.

Firewall Options ⓘ

Broadcast Ping

☐

ⓘ

Receive Redirects

☐

ⓘ

Send Redirects

☒

ⓘ

SYN Cookies

☒

ⓘ

Broadcast Ping	With it enabled, the gateway will reply to broadcast pings.
Receive Redirects	With it enabled, the gateway will accept ICMP redirects.

Send Redirects

With it enabled, the gateway will send ICMP redirects.

SYN Cookies

With it enabled, the SYN cookies will be used to resist SYN flood attacks that want to open ports on the gateway.

12.7 Configure Attack Defense

Overview

Attacks initiated by utilizing inherent bugs of communication protocols or improper network deployment have negative impacts on networks. In particular, attacks on a network device can cause the device or network paralysis.

With the Attack Defense feature, the gateway can identify and discard various attack packets in the network, and limit the packet receiving rate. In this way, the gateway can protect itself and the connected network against malicious attacks.

The gateway provides two types of Attack Defense:

■ Flood Defense

If an attacker sends a large number of fake packets to a target device, the target device is busy with these fake packets and cannot process normal services. Flood Defense detects flood packets in real time and limits the receiving rate of the packets to protect the device.

Flood attacks include TCP SYN flood attacks, UDP flood attacks, and ICMP flood attacks.

■ Packet Anomaly Defense

Anomalous packets are packets that do not conform to standards or contain errors that make them unsuitable for processing. Packet Anomaly Defense discards the illegal packets directly.

Configuring Flood Defense

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Security](#) > [Firewall](#) > [Attack Defense](#).
3. In the [Flood Defense](#), click the checkbox and set the corresponding limit of the rate at which specific packets are received.

Flood Defense ⓘ

☐ Multi-Connections TCP SYN Flood	10000	Pkt/s	(100-99999)
☐ Multi-Connections UDP Flood	12000	Pkt/s	(100-99999)
☐ Multi-Connections ICMP Flood	1500	Pkt/s	(100-99999)
☐ Stationary Source TCP SYN Flood	4000	Pkt/s	(100-99999)
☐ Stationary Source UDP Flood	6000	Pkt/s	(100-99999)
☐ Stationary Source ICMP Flood	600	Pkt/s	(100-99999)

Multi-Connections TCP SYN Flood	A TCP SYN flood attack occurs when the attacker sends the target system with a succession of SYN (synchronize) requests. When the system responds, the attacker does not complete the connections, thus leaving the connection half-open and flooding the system with SYN messages. No legitimate connections can then be made. With this feature enabled, the gateway limits the rate of receiving TCP SYN packets from all the clients to the specified rate.
Multi-Connections UDP Flood	A UDP flood attack occurs when the attacker sends a large number of UDP packets to a target host in a short time, the target host is busy with these UDP packets and cannot process normal services. With this feature enabled, the gateway limits the rate of receiving UDP packets from all the clients to the specified rate.
Multi-Connections ICMP Flood	If an attacker sends many ICMP Echo messages to the target device, the target device is busy with these Echo messages and cannot process other data packets. Therefore, normal services are affected. With this feature enabled, the system limits the rate of receiving ICMP packets from all the clients to the specified rate.
Stationary Source TCP SYN Flood	A TCP SYN flood attack occurs when the attacker sends the target system with a succession of SYN (synchronize) requests. When the system responds, the attacker does not complete the connections, thus leaving the connection half-open and flooding the system with SYN messages. No legitimate connections can then be made. With this feature enabled, the gateway limits the rate of receiving TCP SYN packets from a single client to the specified rate.
Stationary Source UDP Flood	A UDP flood attack occurs when the attacker sends a large number of UDP packets to a target host in a short time, the target host is busy with these UDP packets and cannot process normal services. With this feature enabled, the gateway limits the rate of receiving UDP packets from a single client to the specified rate.
Stationary Source ICMP Flood	If an attacker sends many ICMP Echo messages to the target device, the target device is busy with these Echo messages and cannot process other data packets. Therefore, normal services are affected. With this feature enabled, the system limits the rate of receiving ICMP packets from a single clients to the specified rate.

Configuring Packet Anomaly Defense

1. Launch the controller and access a site.
2. Go to **Network Config > Security > Firewall > Attack Defense**.
3. In the **Packet Anomaly Defense**, click the checkbox and set the corresponding limit of the rate at which specific packets are received.

Packet Anomaly Defense ⓘ

- ☒ Block TCP Scan (Stealth FIN/Xmas/Null)
- ☐ Block TCP Scan with RST
- ☒ Block Ping of Death
- ☐ Block Large Ping
- ☒ Block Ping from WAN
- ☒ Block ICMP Timestamp Request Remote Date Disclosure
- ☒ Block WinNuke Attack
- ☒ Block TCP Packets with SYN and FIN Bits Set
- ☒ Block TCP Packets with FIN Bit but No ACK Bit Set
- ☒ Block Packets with Specified Options
 - ☒ Security Option
 - ☒ Record Route Option
 - ☒ Stream Option
 - ☒ Timestamp Option
 - ☒ No Operation Option

Block TCP Scan (Stealth FIN/Xmas/Null)

With this option enabled, the gateway will block the anomalous packets in the following attack scenarios:

Stealth FIN Scan: The attacker sends the packet with its SYN field and the FIN field set to 1. The SYN field is used to request initial connection whereas the FIN field is used to request disconnection. Therefore, the packet of this type is illegal.

Xmas Scan: The attacker sends the illegal packet with its TCP index, FIN, URG and PSH field set to 1.

Null Scan: The attacker sends the illegal packet with its TCP index and all the control fields set to 0. During the TCP connection and data transmission, the packets with all control fields set to 0 are considered illegal.

Block TCP Scan with RST	With this option enabled, the gateway will respond to RST messages. It is disabled by default.
Block Ping of Death	With this option enabled, the gateway will block Ping of Death attack. Ping of Death attack means that the attacker sends abnormal ping packets which are smaller than 64 bytes or larger than 65535 bytes to cause system crash on the target computer.
Block Large Ping	With this option enabled, the gateway will block the ping packets which are larger than the specified value (1024 packets by default) to protect the system from Large Ping attack.
Block Ping from WAN	With this option enabled, the gateway will block the ICMP request from WAN.
Block ICMP Timestamp Request Remote Date Disclosure	With this option enabled, the device will block all ICMP Timestamp (Type 13) packets.
Block WinNuke Attack	With this option enabled, the gateway will block WinNuke attacks. WinNuke attack refers to a remote DoS (denial-of-service) attack that affects some Windows operating systems, such as the Windows 95. The attacker sends a string of OOB (Out of Band) data to the target computer on TCP port 137, 138 or 139, causing system crash or Blue Screen of Death.
Block TCP Packets with SYN and FIN Bits Set	With this option enabled, the gateway will filter the TCP packets with both SYN Bit and FIN Bit set.
Block TCP Packets with FIN Bit but No ACK Bit Set	With this option enabled, the gateway will filter the TCP packets with FIN Bit set but without ACK Bit set.
Block Packets with Specified Options	With this option enabled, the gateway will filter the packets with specified IP options including Security Option, Loose Source Route Option, Strict Source Route Option, Record Route Option, Stream Option, Timestamp Option, and No Operation Option. You can choose the options according to your needs.

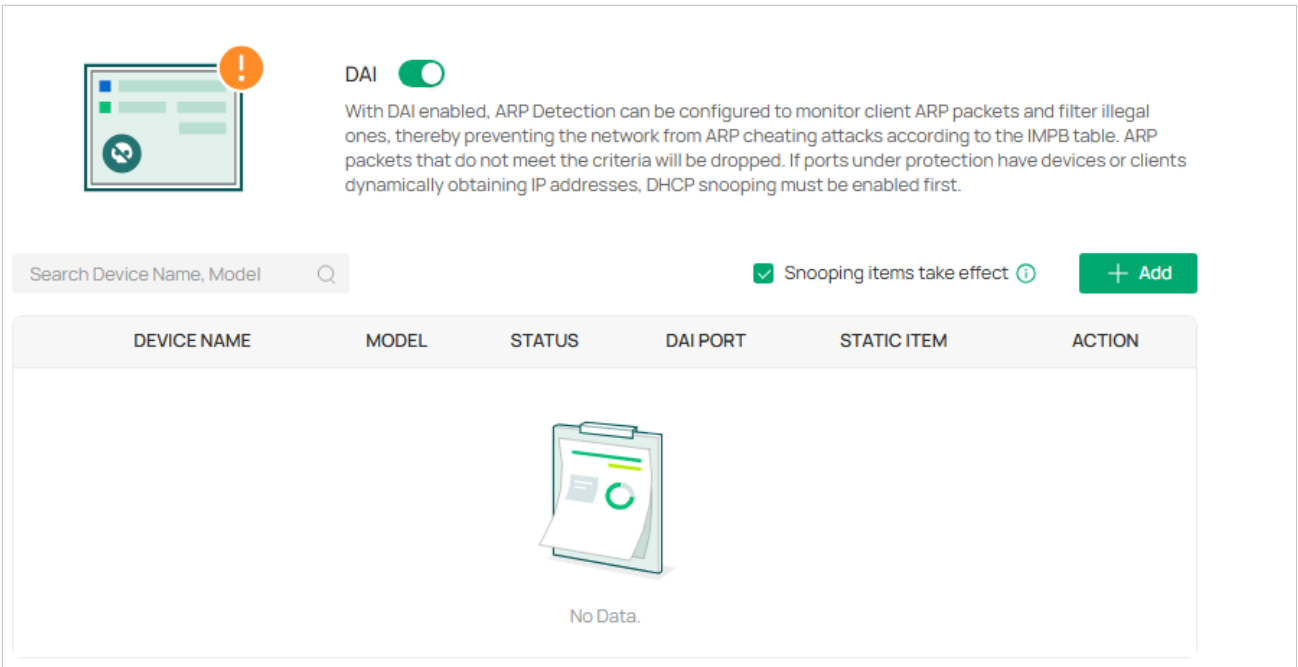
12.8 Configure DAI

Overview

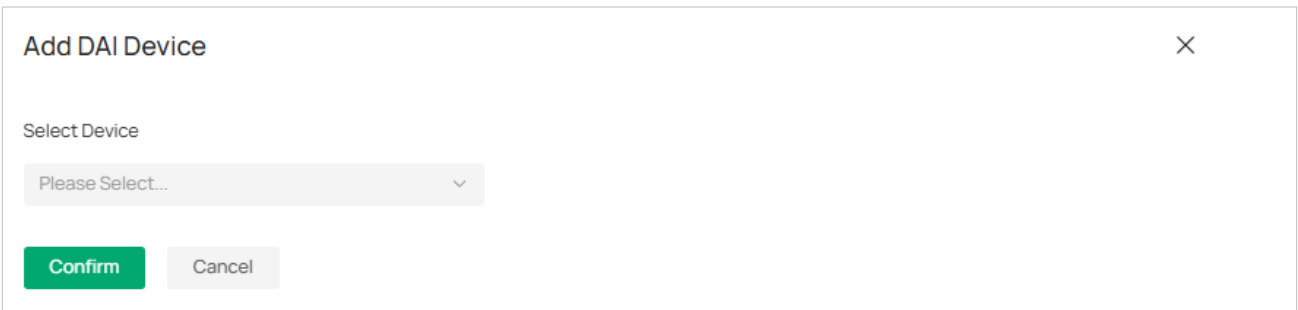
With DAI (Dynamic ARP Inspection) enabled, ARP Detection can be configured to monitor client ARP packets and filter illegal ones, thereby preventing the network from ARP cheating attacks according to the IMPB table. ARP packets that do not meet the criteria will be dropped. If ports under protection have devices or clients dynamically obtaining IP addresses, DHCP snooping must be enabled first.

Configuring DAI

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Security](#) > [IMPB](#) > [DAI](#).
3. Enable [DAI](#). Click [Add](#) to add devices that need to enable the DAI functionality.



4. Select the desired device from the drop-down list.



5. Set the ports on the selected device that require DAI enabled. If you have already enabled DHCP snooping, you can click to choose all ports with DHCP snooping enabled. Click [Confirm](#)
6. Click the Edit icon to modify the protection ports. If a static IP client is connected to a port with protection enabled, you must add its Port, IP Address, MAC Address, Client Name, and VLAN

ID to the static entries; otherwise, this client will be unable to access the network normally. This supports manual addition and batch import.

7. Click [Add Item](#) to add entries one by one by manually entering entry details.
8. Click [Import](#) to import multiple entries via a spreadsheet template.

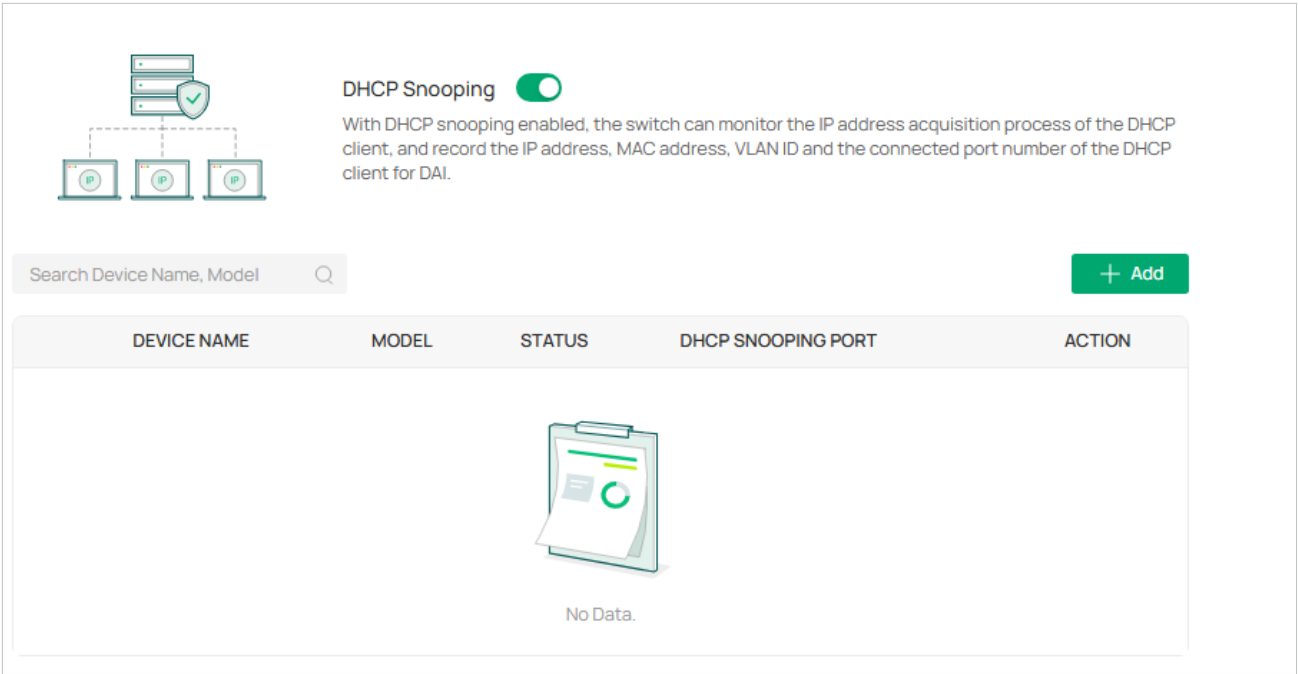
12.9 Configure DHCP Snooping

Overview

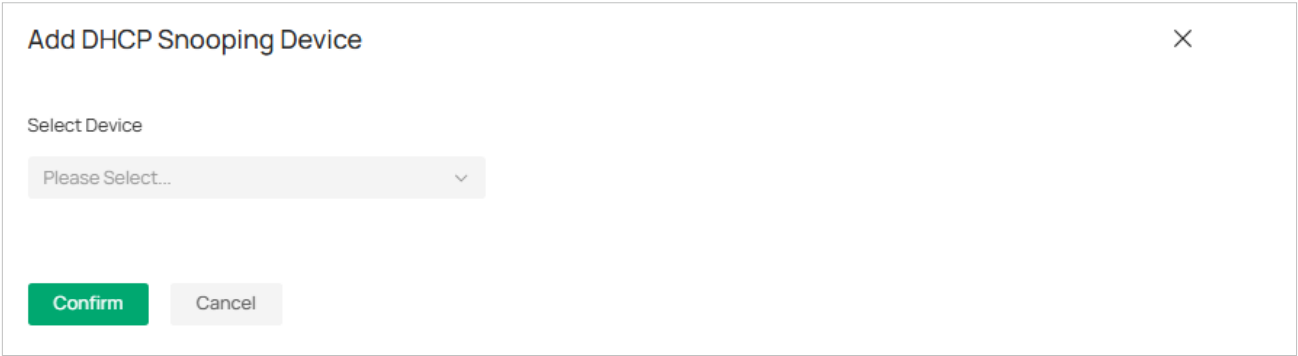
With DHCP snooping enabled, the switch can monitor the IP address acquisition process of the DHCP client, and record the IP address, MAC address, VLAN ID, and the connected port number of the DHCP client for DAI.

Configuring DHCP Snooping

1. Launch the controller and access a site.
2. Go to [Network Config](#) > [Security](#) > [IMPB](#) > [DHCP Snooping](#).
3. Enable [DHCP Snooping](#). Click [Add](#) to add devices that need to enable the DHCP snooping functionality.



4. Select the desired device from the drop-down list.



5. Set the ports on the selected device that need to enable snooping. Click [Confirm](#)

Chapter 13

Configure General Device Settings

This chapter guides you on how to centrally configure general device settings by device type, improving device performance and stability. The chapter includes the following sections:

- [13. 1 Configure Gateway Settings](#)
- [13. 2 Configure Switch Settings](#)
- [13. 3 Configure AP Settings](#)

13.1 Configure Gateway Settings

This chapter introduces how to configure general gateway settings. For more instructions about how to manage the gateway, refer to: [Manage the Gateway via the Omada Controller](#)

13.1.1 Dynamic DNS

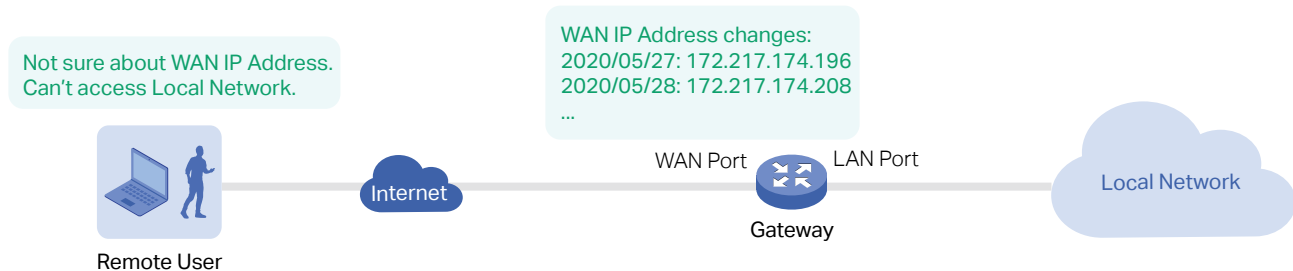
Overview

WAN IP Address of your gateway can change periodically because your ISP typically employs DHCP among other techniques. This is where Dynamic DNS comes in. Dynamic DNS assigns a fixed domain name to the WAN port of your gateway, which facilitates remote users to access your local network through WAN Port.

Let's illustrate how Dynamic DNS works with the following figures.

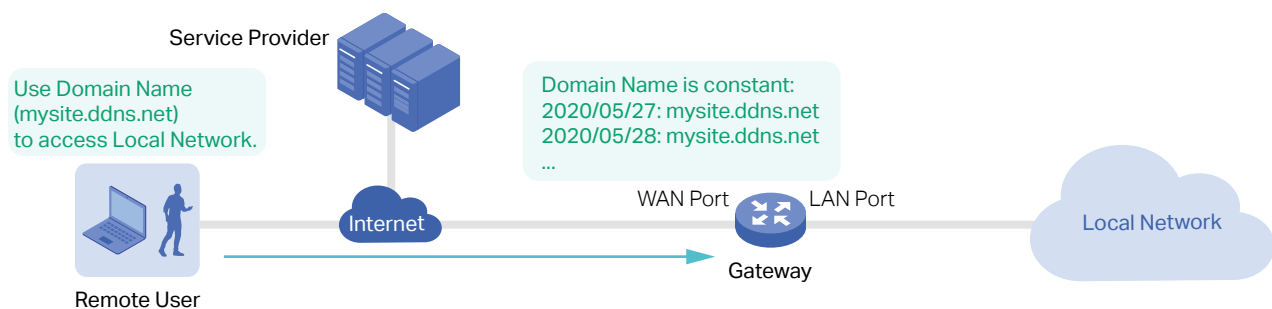
Before:

- WAN IP Address can change periodically, if it's dynamically assigned by the ISP using DHCP among other techniques.
- Remote User doesn't know what WAN IP Address is exactly at the moment, and cannot access Local Network.



After:

- Remote User can simply use Domain Name to access Local Network through WAN Port. In this example, Domain Name is mysite.ddns.net.

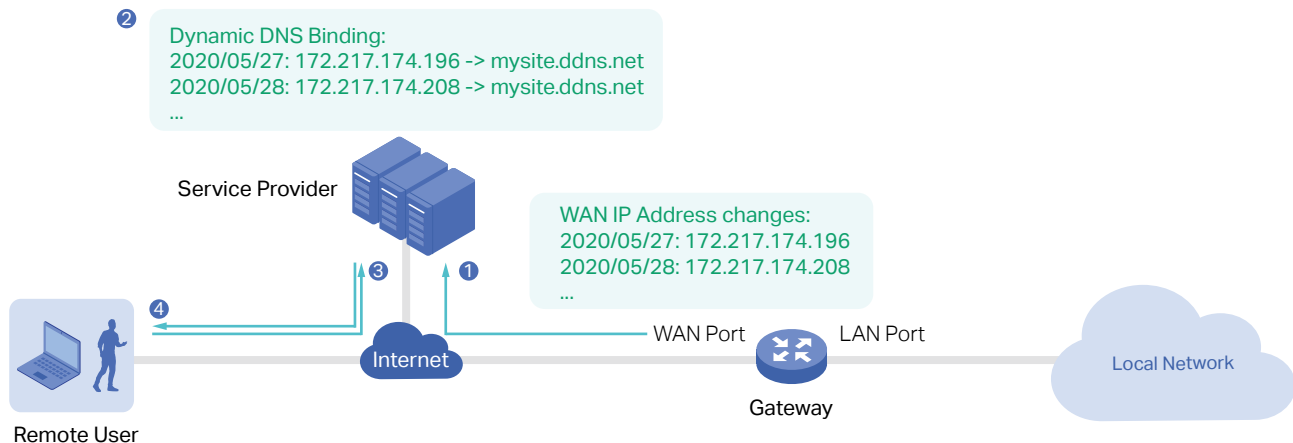


Prerequisite:

- Choose one [Service Provider](#) from the four that the controller supports, i.e. [DynDNS](#), [No-IP](#), [Peanuthull](#), [Comexe](#), [TP-Link Dynamic DNS](#).
- Register at your [Service Provider](#), then you get your [Username](#) and [Password](#).
- Get your [Domain Name](#) from your [Service Provider](#).

How Dynamic DNS works:

- 1 Gateway informs [Service Provider](#) of [WAN IP Address](#).
- 2 [Service Provider](#) binds [WAN IP Address](#) with [Domain Name](#) and keeps it updated as WAN IP Address changes.
- 3 Remote User requests for [WAN IP Address](#) by sending [Domain Name](#) to [Service Provider](#).
- 4 [Service Provider](#) replies with [WAN IP Address](#), which Remote User actually uses to access Local Network through [WAN Port](#).



Configuration

1. Launch the controller and access a site.
2. Go to [Device Config](#) > [Gateway](#) > [DNS](#) > [Dynamic DNS](#).
3. Click [Create New Dynamic DNS Entry](#), to load the following page. Configure the parameters.

Create New Dynamic DNS Entry ⓘ

Service Provider

DynDNS

▼

Status

☒ Enable

Interface

▼

Username

Password

👁

Domain Name

Interval Mode

☒ Fixed ☐ Custom

Update Interval

▼

Go To Register

 ⓘ

Apply

Cancel

Service Provider	Select your service provider of Dynamic DNS. The Controller supports DynDNS, NO-IP, Peanuthull, Comexe and Custom.
Status	Enable or disable the Dynamic DNS entry.
Interface	Select the WAN Port which the Dynamic DNS entry applies to.
Username	Enter your username for the service provider. If you haven't registered at the service provider, click Go To Register .
Password	Enter your password for the service provider.
Domain Name	Enter the Domain Name which is provided by your service provider. Remote users can use the Domain Name to access your local network through WAN port.
Interval Mode	Choose to use fixed or custom interval.
Update Interval	Specify the update interval to report the changes of the WAN IP address for the DDNS service.
Update URL	Enter the URL provided by your DDNS service provider in format of "http://[USERNAME]:[PASSWORD]@api.cp.easydns.com/dyn/tomato.php?hostname=[DOMAIN]&myip=[IP]". The gateway will automatically update user information to the service provider.

4. Click **Create**. The new entry will be listed. You can check the Dynamic DNS status in the STATUS column.

SERVICE PROVIDER	INTERFACE	STATUS	USERNAME	DOMAIN NAME	IP	UPDATE INTERVAL	LAST UPDATED	ENABLED	ACTION
DynDNS	WAN2	disconnect	■@yopmail.net	■	■	1 hour	Oct 26, 2025 11:44:47	☒	🔗 🗑

13.1.2 DNS Proxy

Overview

DNS Proxy provides the LAN side clients with the DNS query service. It forwards the DNS request from the LAN side clients to the selected upstream DNS server and forwards the DNS reply accordingly.

DNSSEC (DNS Security Extensions), DoT (DNS over TLS), DoH (DNS over Https), and DNS Override are security options for DNS Proxy. DNSSEC will verify the integrity of DNS records, and DoT / DoH will encrypt the query. DNS Override lets you choose your preferred DNS servers.

All the options need an upstream DNS server that supports them.

Configuration

1. Launch the controller and access a site.
2. Go to **Device Config > Gateway > DNS > DNS Proxy**.
3. Enable **DNS Proxy** and configure the parameters, then save the settings.

DNS Proxy

DNS Proxy

☒ Enable

Proxy Type

☒ DNSSEC ☐ DoH ☐ DoT ☐ DNS Override

DNS Server

.

.

.

+

Add

Bogus DNS Reply

Pass

Save

Cancel

Proxy Type	Specify a security option to apply.
DNS Server	Specify the upstream DNS server which the DNS requests will be forwarded to. For DoT and DoH, the system provides some known public DNS servers that support these security options. For DoH, the upstream DNS servers are usually websites with https URLs. For DNSSEC and DoT, servers are usually IP address.
Bogus DNS Reply	This is an special option for DNSSEC. Choose to pass/drop the bogus reply if the integrity of DNS records failed to be verified (which means the DNS record may be modified and is not trustable).
Primary DNS Server	Specify the primary upstream DNS server.
Secondary DNS Server	Specify the secondary upstream DNS server.
Apply Network	Specify the effective LAN network to apply DNS Override.

13. 1. 3 DNS Cache

Overview

DNS caching further speeds up domain name translation/resolution by handling it for recently visited addresses before the request is sent to the internet. Even if your network can use a large number of public DNS servers for translation/resolution, it's still faster to have a local copy.

Configuration

- 1. Launch the controller and access a site.
- 2. Go to [Device Config](#) > [Gateway](#) > [DNS](#) > [DNS Cache](#).
- 3. Enable [DNS Cache](#) and set a TTL value according to your needs. Then save the settings.

DNS Cache

Enable DNS Cache

☒ Enable

TTL

seconds

(Optional, 1 - 86400)

Save

Cancel

TTL

Specify the time to live (TTL) value in seconds. When the life cycle of the DNS entry exceeds the TTL value, the DNS cache will be automatically cleared. The range is 1-86400. If it's not specified, the system will use the default TTL value of each DNS message.

- 4. Refresh the DNS Cache Table and check the DNS cache status. You can clear the cache information if necessary.

DNS Cache Table

IPv4

IPv6

Refresh

Clear

DOMAIN NAME	IP ADDRESS	TTL
a.root-servers.net		4

13. 1. 4 MAC Filtering

Overview

MAC Filtering can drop or allow packets from certain devices passing through the gateway based on the MAC address of the devices. After the MAC filtering policy and MAC filtering list are configured, the gateway will apply the filter policy to the packets matching the MAC address, and thus limit network traffic and manage network access behaviors.

Configuration

1. Launch the controller and access a site.
2. Go to **Device Config > Gateway > MAC Filtering**.
3. Enable **MAC Filtering** and configure the parameters.

General

MAC Filtering

Type

Allow packets with the MAC addresses listed below and deny the rest

Deny packets with the MAC addresses listed below and allow the rest

Direction

ALL

Apply

Cancel

Type	Select the mode of MAC Filtering. Allow packets with the MAC addresses listed below and deny the rest: Select to allow packets with the listed MAC address to pass through the gateway, and packets with other MAC addresses will be dropped. Deny packets with the MAC addresses listed below and allow the rest: Select to drop packets with the listed MAC address, and packets with other MAC addresses will be allowed to pass through the gateway.
Direction	Select All when you want to apply the policy to traffic both from LAN to LAN and from LAN to WAN. Select LAN -> WAN when you want to apply the policy only to traffic from LAN to WAN.

4. Click **Add MAC Filtering** to add MAC addresses or groups to the list.

Add MAC Filtering

Name

Policy

MAC Group

MAC Address

MAC Group

Please Select...

Create

Cancel

Name	Specify the name for the entry.
Policy	Choose MAC Group and specify the MAC groups of devices, then the MAC filtering policy will be applied to traffic with the MAC groups. Choose MAC Address and specify the MAC addresses of devices, then the MAC filtering policy will be applied to traffic with the MAC addresses.

13. 1. 5 IP-MAC Binding

Overview

ARP (Address Resolution Protocol) is used to map IP addresses to the corresponding MAC addresses so that packets can be delivered to their destinations. However, if attackers send ARP spoofing packets with false IP address-to-MAC address mapping entries, the device will update the ARP table based on the false ARP packets and record wrong mapping entries, which results in a breakdown of normal communication.

Anti ARP Spoofing can protect the network from ARP spoofing attacks. It works based on the IP-MAC Binding. These entries record the correct one-to-one relationships between IP addresses and MAC addresses. When receiving an ARP packet, the gateway checks whether it matches any of the IP-MAC Binding entries. If not, the gateway will ignore the ARP packets. In this way, the gateway maintains the correct ARP table.

Configuration

- 1. Launch the controller and access a site.
- 2. Go to [Device Config > Gateway > IP-MAC Binding](#).
- 3. Enable [ARP Spoofing Defense](#) and configure general settings. Click [Apply](#).

General

ARP Spoofing Defense

☒ Enable

☒ Permit the packets matching the IP-MAC Binding entries only

☒ Send GARP packets when ARP attack is detected

Interface

Please Select...

Interval

1000ms

(1-10000)

Apply

Cancel

ARP Spoofing Defense	Check the box to globally enable ARP Spoofing Defense.
Permit the packets matching the IP-MAC Binding entries only	With this option enabled, when receiving a packet, the gateway will check whether the IP address, MAC address and receiving interface match any of the IP-MAC Binding entries. Only the matched packets will be forwarded. This feature can be enabled only when ARP Spoofing Defense is enabled.
Send GARP packets when ARP attack is detected	With this option enabled, the gateway will send GARP packets to the hosts if it detects ARP spoofing packets on the network. The GARP packets will inform the hosts of the correct ARP information, which is used to replace the wrong ARP information in the hosts. This feature can be enabled only when ARP Spoofing Defense is enabled.
Interface	Select the interface on which the entries will take effect.
Interval	Specify the time interval for sending GARP packets. The valid values are from 1 to 10000.

4. Click **Create New IP-MAC Binding Entry** and add an IP-MAC binding entry. Click **Apply**.

Create New IP-MAC Binding Entry

IP Address

MAC Address

Interface

Please Select...

Description

(Optional)

Export to DHCP Address Reservation

☒ Enable

Status

☒ Enable

Apply

Cancel

IP Address	Specify the IP address to be bound.
MAC Address	Specify the MAC address to be bound.
Interface	Select the interface on which the entries will take effect.
Description	Enter a description for identification.
Export to DHCP Address Reservation	When enabled, the newly created IP-MAC Binding entry will be synchronized to DHCP Reservation list
Status	Enable the entry. Only when the status is enabled will the entry take effect.

13. 1. 6 UPNP

Overview

UPnP (Universal Plug and Play) is essential for applications including multiplayer gaming, peer-to-peer connections, real-time communication (such as VoIP or telephone conference) and remote assistance, etc. With the help of UPnP, the traffic between the endpoints of these applications can freely pass the gateway, thus realizing seamless connections.

Configuration

1. Launch the controller and access a site.
2. Go to **Device Config > Gateway > UPnP**.
3. Enable UPnP globally and configure the parameters. Then click **Apply**.

UPnP ⓘ

UPnP

Interface

☐ USB Modem

☐ SFP WAN/LAN1

☐ WAN2

Networks

Please Select...

▼

Apply

Reset

Interface	Select the WAN port where UPnP takes effect.
Networks	Select the LAN interface where UPnP takes effect.

13. 1. 7 IPTV

Overview

IPTV includes two sections: IGMP and IPTV. In IGMP settings, you can enable IGMP proxy to detect multicast group membership information and thus the gateway is able to forward multicast packets based upon the information. IPTV settings allows you to enable Internet/IPTV/Phone service provided by your ISP.

Configuration

1. Launch the controller and access a site.
2. Go to [Device Config](#) > [Gateway](#) > [IPTV](#).
3. Enable [IGMP Proxy](#) and configure the parameters.

IGMP

IGMP Proxy

IGMP Version

v2

▼

IGMP Interface

WAN2

▼

IGMP Proxy	Enable IGMP Proxy. IGMP Proxy sends IGMP querier packets to the LAN ports to detect if there is any multicast member connected to the LAN ports.
IGMP Version	Select the IGMP version as V2 or V3. The default is IGMP V2.

IGMP Interface	Select the WAN port on which the IGMP Proxy takes effect.
----------------	---

- If you want to configure the IPTV settings, enable **IPTV** and choose the mode as Bridge or Custom according to your ISP. Then configure the corresponding parameters.

Note: The IPTV section will be hidden if your device is an earlier version that does not support this feature.

IPTV

IPTV

Mode ☒ Bridge ☐ Custom ⓘ

WAN Port ▼

LAN

WAN/LAN3	Internet ▼	ⓘ
WAN/LAN4	Internet ▼	ⓘ
WAN/LAN5	Internet ▼	ⓘ
WAN/LAN6	Internet ▼	ⓘ

IPTV	Enable IPTV feature.
Mode	Select the appropriate Mode according to your ISP. Bridge: Select this mode if your ISP requires no other parameters. Custom: Select this mode if your ISP provides necessary parameters, and configure the parameters according to the requirements of your ISP.
WAN Port	Select the WAN port on which the IPTV settings take effect.
Port Mode	Select the appropriate Port Mode of the LAN ports to determine which port is used to support Internet service, IPTV service, or IP Phone service.

5. Click **Save**.

13.2 Configure Switch Settings

This chapter introduces how to configure general switch settings. For more instructions about how to manage switches, refer to: [Manage Switches via the Omada Controller](#)

13.2.1 Port Profile

Overview

The Switch Port Profile allows you to create port configuration profiles for fast, bulk configuration of switch port parameters.

Note: The port network configurations previously included in the Switch Port Profile have been removed. To configure these settings, please go to [Port Settings](#) or switch's [Properties Window](#) > [Manage Device](#) > [Ports](#).

Configuration

1. Launch the controller and access a site.
2. Go to [Device Config](#) > [Switch](#) > [Switch Ports](#) > [Port Profile](#).

Three port profiles are preconfigured on the controller: Default, Disable, and All. You can click the view icon to check the Disable profile, or click the edit icon to view and edit the Default or All profile.

3. If you want to create a profile, click [Add Profile](#) and configure the parameters.

← Add Profile

NAME

PoE

☒ Keep the Device's Settings

☐ Enable

☐ Disable

ⓘ Agile (Easy Managed) Switch does not support Voice Network, 802.1X Control, EEE, Loopback Control, LLDP-MED, DHCP L2 Relay nor the Trust Mode function. It only supports 32 networks.

802.1X Control

☐ Force Unauthorized

☐ Force Authorized

☒ Auto ⓘ

Port Isolation

☐ Enable ⓘ

Flow Control

☐ Enable

EEE

☐ Enable ⓘ

Multicast Fast Leave

☐ IGMP (IPv4)

☐ MLD (IPv6)

Loopback Control ⓘ

Spanning Tree

+ Spanning Tree Config ⓘ

SaveReset

Name	Enter a name to identify the port profile.
PoE	Select the PoE mode for the ports. Keep the Device's Settings: PoE keep enabled or disabled according to the switches' settings. By default, the switches enable PoE on all PoE ports. Enable: Enable PoE on PoE ports. Disable: Disable PoE on PoE ports.

802.1X Control	Select 802.1X Control mode for the ports. To configure the 802.1X authentication globally, enter the site view and go to Network Config > Authentication > 802.1X. Auto: The port is unauthorized until the client is authenticated by the authentication server successfully. Force Authorized: The port remains in the authorized state, sends and receives normal traffic without 802.1X authentication of the client. Force Unauthorized: The port remains in the unauthorized state, ignoring all attempts by the client to authenticate. The switch cannot provide authentication services to the client through the port.
Port Isolation	Click the checkbox to enable Port Isolation. An isolated port cannot communicate directly with any other isolated ports, while the isolated port can send and receive traffic to non-isolated ports.
Flow Control	With this option enabled, when a device gets overloaded it will send a PAUSE frame to notify the peer device to stop sending data for a specified period of time, thus avoiding the packet loss caused by congestion.
EEE	Click the checkbox to enable EEE (Energy Efficient Ethernet) to allow power reduction.
Multicast Fast Leave	After selecting the corresponding protocol, the multicast fast leave feature can be enabled for the port. This allows the switch to immediately stop forwarding multicast traffic to a port when detecting that the last multicast receiver has left the group, improving network bandwidth utilization.
Loopback Control	Loopback refers to the routing of data streams back to their source in the network. You can disable loopback control for the network or choose a method to prevent loopback happening in your network. Off: Disable loopback control on the port. Loopback Detection Port Based: Loopback Detection Port Based helps detect loops that occur on a specific port. When a loop is detected on a port, the port will be blocked. Loopback Detection VLAN Based: Loopback Detection VLAN Based helps detect loops that occur on a specific VLAN. When a loop is detected on a VLAN, the current port will be removed from the VLAN. Spanning Tree: Select STP (Spanning Tree Protocol) to prevent loops in the network. STP helps block specific ports of the switches to build a loop-free topology and detect topology changes and automatically generate a new loop-free topology.

Spanning Tree Config

If you set **Loopback Control** to **Spanning Tree**, configure the following parameters:

Priority: Set the port priority. A smaller value indicates higher priority, reducing the likelihood of the port being blocked.

Path Cost: Enter the value of the external path cost and internal path cost. External Path Cost determines the root port selection (lowest cost path to the root bridge). Internal Path Cost is used in MSTP to select the root port within an IST (Internal Spanning Tree).

Edge Port: Select Enable to set the port as an edge port. Edge ports transition directly from blocking to forwarding during topology changes. Configure ports connected to end devices (e.g., PCs) as edge ports.

P2P Link: Select the status of the P2P (Point-to-Point) link to which the ports are connected. During the regeneration of the spanning tree, if the port of P2P link is elected as the root port or the designated port, it can transit its state to forwarding directly. By default, it is Auto.

- **Auto:** The switch automatically checks if the port is connected to a P2P link, then sets the status as Open or Closed.
- **Open(Force):** A port is set as the one that is connected to a P2P link. You should check the link first.
- **Close(Force):** A port is set as the one that is not connected to a P2P link. You should check the link first.

STP Security: STP Security prevents the loops caused by wrong configurations or BPDU attacks. It contains the following options:

- **Loop Protect:** Ports with Root/Alternate/Backup roles enter error-disabled blocking if no BPDUs are received. Automatically recovers when BPDUs resume. Enable this on Root/Alternate/Backup ports.
- **Root Protect:** Ports enter error-disabled blocking upon receiving superior BPDUs. Automatically recovers when superior BPDUs stop. Enable on Designated ports; avoid enabling on Root/Alternate/Backup ports (may cause device unmanageability).
- **TC Guard:** When enabled, ports do not flush MAC address tables upon receiving TC (Topology Change) notifications.
- **BPDU Protect:** Manually configured edge ports enter error-disabled blocking upon receiving BPDUs. Requires manual recovery. Enable on Edge Ports.
- **BPDU Filter:** When enabled, ports neither send nor process BPDUs, disabling loop prevention. Use only on network-edge ports with no loop risk. Enabling on Root/Alternate/Backup ports risks broadcast storms.
- **BPDU Forward:** BPDU Forward will take effect only when the Spanning Tree is disabled for the entire device.

LLDP-MED

Click the checkbox to enable LLDP-MED (Link Layer Discovery Protocol-Media Endpoint Discovery) for device discovery and auto-configuration of VoIP devices.

Bandwidth Control	Select the type of Bandwidth Control functions to control the traffic rate and traffic threshold on each port to ensure network performance. Off: Disable Bandwidth Control for the port. Rate Limit: Select Rate limit to limit the ingress/egress traffic rate on each port. With this function, the network bandwidth can be reasonably distributed and utilized. Storming Control: With this feature enabled, Omada switches can control the traffic rate or the percentage of total bandwidth used on each port, and set traffic thresholds to ensure network performance (the Kbps value entered must be a multiple of 64).
Ingress Rate Limit	When Rate Limit selected, click the checkbox and specify the upper rate limit for receiving packets on the port.
Egress Rate Limit	When Rate Limit selected, click the checkbox and specify the upper rate limit for sending packets on the port.
Rate Mode	Specifies the rate threshold measurement for storm control. Kbps: Sets an absolute rate threshold in kilobits per second. Ratio: Sets a relative threshold as a percentage of total bandwidth.
Broadcast Threshold	When Storming Control selected, click the checkbox and specify the upper rate limit for receiving broadcast frames. The broadcast traffic exceeding the limit will be processed according to the Action configurations.
Multicast Threshold	When Storming Control selected, click the checkbox and specify the upper rate limit for receiving multicast frames. The multicast traffic exceeding the limit will be processed according to the Action configurations.
Unknown Unicast Threshold	When Storming Control selected, click the checkbox and specify the upper rate limit for receiving unknown unicast frames. The traffic exceeding the limit will be processed according to the Action configurations.
Action	When Storming Control selected, select the action that the switch will take when the traffic exceeds its corresponding limit. Drop: The port will drop the subsequent frames when the traffic exceeds the limit. Shutdown: The port will be shutdown when the traffic exceeds the limit.
Recover Time	With Shutdown selected as the Action , specify the recover time, and the port will be opened after the specified time.
DHCP L2 Relay	Click the checkbox to enable DHCP L2 Relay for the network.
Format	Select the format of option 82 sub-option value field. Normal: The format of sub-option value field is TLV (type-length-value). Private: The format of sub-option value field is just value.

802.1p Priority	Specify the port-to-802.1p priority mapping for the desired port. The ingress packets are first mapped to 802.1p priority, then to TC queues according to the 802.1p queue mappings.
Trust Mode	Select the trusted priority mode for the desired port. The switch will process the ingress packets according to the trusted priority mode. Untrusted: In this mode, the packets will be processed according to the port priority configuration. Trust 802.1p: In this mode, the packets will be processed according to the 802.1p priority configuration. Trust DSCP: In this mode, the packets will be processed according to the DSCP priority configuration.

- Click **Save**. The new port profile will be added to the profile list.

13.2.2 Port Settings

Overview

The Port Settings page allows you to monitor and manage the ports of all adopted switches in the Site.

Configuration

- Launch the controller and access a site.
- Go to **Device Config > Switch > Switch Ports > Port Settings**.
- Switch between **Overview**, **PoE**, and **Counters** to view the general, PoE-related, and traffic-related information of the ports.
- To configure a single port, click the edit icon of the port entry. To configure ports in batches, select the ports and then click **Edit Selected**.

Note: When configuring ports in batches, only common configuration items can be configured and all settings are **Keep Existing** by default.

Port Settings

Port Profile

Search Switch, Name, Tag, Profile

OverviewPoECountersAllConnected

Select 1 of 86 items

PORT	SWITCH	NAME	CONNECTION
☒	1	3C-6A-1StackPort1	98-03-8E-9A-D0-08
☐	2	3C-6A-1StackPort2	-
☐	3	3C-6A-1StackPort3	-
☐	4	3C-6A-1StackPort4	-
☐	5	3C-6A-1StackPort5	-
☐	6	3C-6A-1StackPort6	-
☐	7	3C-6A-1StackPort7	-
☐	8	3C-6A-1StackPort8	-

Edit Port 1

Name

Port1

Port Labels

Please Select...

(Optional)

Native Network

Default(1)

Manage VLAN

Network Tags Setting

☒ Allow All☐ Block All☐ Custom

Tagged VLAN

98-03-8E-9A-D0-08+ 71 ...

(Optional)

Untagged VLAN

Default(1)

Voice Network

☐ Enable

Link Speed

☒ Auto☐ Manual

Profile

All

Manage Profiles

Profile Overrides

☐

Apply

Cancel

Name Specify the name of the port.

Port Labels Set a user-defined label for port identify.

Native Network Select the native network from all networks. The native network determines the Port VLAN Identifier (PVID) for switch ports. When a port receives an untagged frame, the switch inserts a VLAN tag to the frame based on the PVID, and forwards the frame in the native network. Each physical switch port can have multiple networks attached, but only one of them can be native.

Network Tags Setting Select a network communication mode for the port.

Allow All: The port will be automatically tag the configured VLANs. Any tagged traffic with a non existent VLAN ID will be dropped.

Block All: The port will be automatically block all VLAN traffic except for the Native Network(PVID).Any tagged traffic with a other VLAN ID will be dropped.

Custom: VLAN Management can be customized to either tag specific VLANs only.

If you select **Custom**, set the following parameters:

Tagged VLAN: Select the Tagged Networks. Frames sent out of a Tagged Network are kept with VLAN tags. Usually networks that connect the switch to network devices like gateways and other switches, or VoIP devices like IP phones should be configured as Tagged Networks.

Untagged VLAN: Select the Untagged Networks. Frames that sent out of an Untagged Network are stripped of VLAN tags. Usually networks that connect the switch to endpoint devices like computers should be configured as Untagged Networks. Note that the native network is untagged.

Voice Network Enable this option and select a network that connects VoIP devices like IP phones as the Voice Network. The Voice Network feature configures IP Phones via the LLDP-MED protocol to ensure their transmitted packets carry a specific VLAN tag, directing voice traffic through the designated VLAN.

Enabling this feature will automatically activate LLDP-MED on the port.

Link Speed	Select the speed mode for the port. Auto: The port negotiates the speed and duplex automatically. Manual: Specify the speed and duplex from the drop-down list manually.
Profile	Set the switch port configuration file to quickly batch configure switch port parameters.
Profile Overrides	Click the checkbox to override the applied profile if needed. The parameters to be configured vary in Operation modes,

5. If you enable **Profile Overrides**, select an operation mode and configure the parameters.

- **Override the Applied Profile**

If you select **Switching** for Operation, configure the following parameters and click **Apply** to override the applied profile. To discard the modifications, click **Remove Overrides** and all profile configurations will become the same as the applied profile.

PoE Mode	(Only for PoE ports) Select the PoE (Power over Ethernet) mode for the port. Off: Disable PoE function on the PoE port. 802.3bt/at/af: Enable PoE function on the PoE port.
802.1X Control	Select 802.1X Control mode for the ports. To configure the 802.1X authentication globally, go to Network Config > Authentication > 802.1X . Auto: The port is unauthorized until the client is authenticated by the authentication server successfully. Force Authorized: The port remains in the authorized state, sends and receives normal traffic without 802.1X authentication of the client. Force Unauthorized: The port remains in the unauthorized state, and the client connected to the port cannot authenticate with any means. The switch cannot provide authentication services to the client through the port.
Port Isolation	Click the checkbox to enable Port Isolation. An isolated port cannot communicate directly with any other isolated ports, while the isolated port can send and receive traffic to non-isolated ports.
Flow Control	With this option enabled, when a device gets overloaded it will send a PAUSE frame to notify the peer device to stop sending data for a specified period of time, thus avoiding the packet loss caused by congestion.
EEE	Click the checkbox to enable EEE (Energy Efficient Ethernet) to allow power reduction.
Multicast Fast Leave	Select IGMP (IPv4) and/or MLD (IPv6) to allow the port to immediately stop forwarding multicast traffic to a client when it receives an IGMP and/or MLD Leave message, instead of waiting for the next group-specific query. This process improves network efficiency by saving bandwidth and resources, especially in networks with many hosts or frequent group departures.

Loopback Control

Loopback refers to the routing of data streams back to their source in the network. You can disable loopback control for the network or choose a method to prevent loopback happening in your network.

Off: Disable loopback control on the port.

Loopback Detection Port Based: Loopback Detection Port Based helps detect loops that occur on a specific port. When a loop is detected on a port, the port will be blocked.

Loopback Detection VLAN Based: Loopback Detection VLAN Based helps detect loops that occur on a specific VLAN. When a loop is detected on a VLAN, the current port will be removed from the VLAN.

Spanning Tree: Select STP (Spanning Tree Protocol) to prevent loops in the network. STP helps block specific ports of the switches to build a loop-free topology and detect topology changes and automatically generate a new loop-free topology. To make sure Spanning Tree takes effect on the port, go to the Config tab and enable Spanning Tree on the switch.

Spanning Tree Config

If you set **Loopback Control** to **Spanning Tree**, configure the following parameters:

Priority: Set the port priority. A smaller value indicates higher priority, reducing the likelihood of the port being blocked.

Path Cost: Enter the value of the external path cost and internal path cost. External Path Cost determines the root port selection (lowest cost path to the root bridge). Internal Path Cost is used in MSTP to select the root port within an IST (Internal Spanning Tree).

Edge Port: Select Enable to set the port as an edge port. Edge ports transition directly from blocking to forwarding during topology changes. Configure ports connected to end devices (e.g., PCs) as edge ports.

P2P Link: Select the status of the P2P (Point-to-Point) link to which the ports are connected. During the regeneration of the spanning tree, if the port of P2P link is elected as the root port or the designated port, it can transit its state to forwarding directly. By default, it is Auto.

- **Auto:** The switch automatically checks if the port is connected to a P2P link, then sets the status as Open or Closed.
- **Open(Force):** A port is set as the one that is connected to a P2P link. You should check the link first.
- **Close(Force):** A port is set as the one that is not connected to a P2P link. You should check the link first.

STP Security: STP Security prevents the loops caused by wrong configurations or BPDU attacks. It contains the following options:

- **Loop Protect:** Ports with Root/Alternate/Backup roles enter error-disabled blocking if no BPDUs are received. Automatically recovers when BPDUs resume. Enable this on Root/Alternate/Backup ports.
- **Root Protect:** Ports enter error-disabled blocking upon receiving superior BPDUs. Automatically recovers when superior BPDUs stop. Enable on Designated ports; avoid enabling on Root/Alternate/Backup ports (may cause device unmanageability).
- **TC Guard:** When enabled, ports do not flush MAC address tables upon receiving TC (Topology Change) notifications.
- **BPDU Protect:** Manually configured edge ports enter error-disabled blocking upon receiving BPDUs. Requires manual recovery. Enable on Edge Ports.
- **BPDU Filter:** When enabled, ports neither send nor process BPDUs, disabling loop prevention. Use only on network-edge ports with no loop risk. Enabling on Root/Alternate/Backup ports risks broadcast storms.
- **BPDU Forward:** BPDU Forward will take effect only when the Spanning Tree is disabled for the entire device.

LLDP-MED

Click the checkbox to enable LLDP-MED (Link Layer Discovery Protocol-Media Endpoint Discovery) for device discovery and auto-configuration of VoIP (Voice over Internet Protocol) devices.

Bandwidth Control	Select the type of Bandwidth Control functions to control the traffic rate and specify traffic threshold on each port to make good use of network bandwidth. Off: Disable Bandwidth Control for the port. Rate Limit: Select Rate limit to limit the ingress/egress traffic rate on each port. With this function, the network bandwidth can be reasonably distributed and utilized. Storming Control: With this feature enabled, Omada switches can control the traffic rate or the percentage of total bandwidth used on each port, and set traffic thresholds to ensure network performance (the Kbps value entered must be a multiple of 64).
Ingress Rate Limit	When Rate Limit selected, click the checkbox and specify the upper rate limit for receiving packets on the port.
Egress Rate Limit	When Rate Limit selected, click the checkbox and specify the upper rate limit for sending packets on the port.
Rate Mode	Specifies the rate threshold measurement for storm control. Kbps: Sets an absolute rate threshold in kilobits per second. Ratio: Sets a relative threshold as a percentage of total bandwidth.
Broadcast Threshold	When Storming Control selected, click the checkbox and specify the upper rate limit for receiving broadcast frames. The broadcast traffic exceeding the limit will be processed according to the Action configurations.
Multicast Threshold	When Storming Control selected, click the checkbox and specify the upper rate limit for receiving multicast frames. The multicast traffic exceeding the limit will be processed according to the Action configurations.
Unknown Unicast Threshold	When Storming Control selected, click the checkbox and specify the upper rate limit for receiving unknown unicast frames. The traffic exceeding the limit will be processed according to the Action configurations.
Action	When Storming Control selected, select the action that the switch will take when the traffic exceeds its corresponding limit. Drop: The port will drop the subsequent frames when the traffic exceeds the limit. Shutdown: The port will be shutdown when the traffic exceeds the limit.
Recover Time	With Shutdown selected as the Action , specify the recover time, and the port will be opened after the specified time.

DHCP L2 Relay	Click the checkbox to enable DHCP L2 Relay for the network, which takes the Layer 2 DHCP communications (Discover, Request, etc.) and forwards them to a specified IP address (your DHCP server). Format: Select the format of option 82 sub-option value field. • Normal: The format of sub-option value field is TLV (type-length-value). • Private: The format of sub-option value field is just value. Circuit ID: Omada switches preset a default Circuit ID in TLV (Type, Length, and Value) format. You can also customize it if needed. Remote ID: Omada switches preset a default Remote ID in TLV (Type, Length, and Value) format. You can also customize them if needed.
802.1p Priority	Specify the port-to-802.1p priority mapping for the desired port. The ingress packets are first mapped to 802.1p priority, then to TC queues according to the 802.1p queue mappings.
Trust Mode	Select the trusted priority mode for the desired port. The switch will process the ingress packets according to the trusted priority mode. Untrusted: In this mode, the packets will be processed according to the port priority configuration. Trust 802.1p: In this mode, the packets will be processed according to the 802.1p priority configuration. Trust DSCP: In this mode, the packets will be processed according to the DSCP priority configuration.
• Configure a Mirroring Port If you select Mirroring as Operation, the edited port can be configured as a mirroring port. Specify other ports as the mirrored port, and the switch sends a copy of traffics passing through the mirrored port to the mirroring port. You can use mirroring to analyze network traffic and troubleshoot network problems. To configure Mirroring, select the mirrored port or LAG, specify the following parameters, and click Apply. To discard the modifications, click Remove Overrides and all profile configurations become the same as the applied profile. Note: The mirroring ports and the member ports of LAG cannot be selected as mirrored ports.	
PoE Mode	(Only for PoE ports) Select the PoE mode for the port. Off: Disable PoE on the PoE port. 802.3bt/at/af: Enable PoE on the PoE port.
Flow Control	With this option enabled, when a device gets overloaded it will send a PAUSE frame to notify the peer device to stop sending data for a specified period of time, thus avoiding the packet loss caused by congestion.
EEE	Click the checkbox to enable EEE (Energy Efficient Ethernet) to allow power reduction.

Bandwidth Control	Bandwidth control optimizes network performance by limiting the bandwidth of specific sources. Off: Disable bandwidth control on the port. Rate Limit: Enable bandwidth control on the port, and you need to specify the ingress and/or egress rate limit.
Ingress Rate Limit	With Rate Limit selected, click the checkbox and specify the upper rate limit for receiving packets on the port. With this function, the network bandwidth can be reasonably distributed and utilized.
Egress Rate Limit	With Rate Limit selected, click the checkbox and specify the upper rate limit for sending packets on the port. With this function, the network bandwidth can be reasonably distributed and utilized.
802.1p Priority	Specify the port-to-802.1p priority mapping for the desired port. The ingress packets are first mapped to 802.1p priority, then to TC queues according to the 802.1p queue mappings.
Trust Mode	Select the trusted priority mode for the desired port. The switch will process the ingress packets according to the trusted priority mode. Untrusted: In this mode, the packets will be processed according to the port priority configuration. Trust 802.1p: In this mode, the packets will be processed according to the 802.1p priority configuration. Trust DSCP: In this mode, the packets will be processed according to the DSCP priority configuration.

- **Configure a LAG**

If you select **Aggregating** as Operation, you can aggregate multiple physical ports into a logical interface, which can increase link bandwidth and enhance the connection reliability.

Configuration Guidelines:

- Ensure that both ends of the aggregation link work in the same LAG mode. For example, if the local end works in LACP mode, the peer end should also be set as LACP mode.
- Ensure that devices on both ends of the aggregation link use the same number of physical ports with the same speed, duplex, jumbo and flow control mode.
- A port cannot be added to more than one LAG at the same time.
- LACP does not support half-duplex links.
- One static LAG supports up to eight member ports. All the member ports share the bandwidth evenly. If an active link fails, the other active links share the bandwidth evenly.
- One LACP LAG supports multiple member ports, but at most eight of them can work simultaneously, and the other member ports are backups. Using LACP protocol, the switches negotiate parameters and determine the working ports. When a working port fails, the backup port with the highest priority will replace the faulty port and start to forward data.
- The member port of an LAG follows the configuration of the LAG but not its own. Once removed, the LAG member will be configured as the default All profile and Switching operation.
- The port enabled with Port Security, Port Mirror, MAC Address Filtering or 802.1X cannot be added to an LAG, and the member port of an LAG cannot be enabled with these functions.

To configure a new LAG, select other ports to be added to the LAG, specify the LAG ID, and choose a LAG type. Click **Apply**. To discard the modifications, click **Remove Overrides** and all profile configurations become the same as the applied profile. For other parameters, configure them under the LAG tab.

LAG ID	Specify the LAG ID of the LAG. Note that the LAG ID should be unique. The valid value of the LAG ID is determined by the maximum number of LAGs supported by your switch. For example, if your switch supports up to 14 LAGs, the valid value ranges from 1 to 14.
Static LAG	In Static LAG mode, the member ports are added to the LAG manually.
Active LACP / Passive LACP	LACP extends the flexibility of the LAG configurations. In LACP, the switch uses LACPDU (Link Aggregation Control Protocol Data Unit) to negotiate the parameters with the peer end. In this way, the two ends select active ports and form the aggregation link. Active LACP: In this mode, the port will take the initiative to send LACPDU. Passive LACP: In this mode, the port will not send LACPDU before receiving the LACPDU from the peer end.

13.2.3 VRRP

Overview

VRRP or Virtual Routing Redundancy Protocol is a function on the switch that dynamically assigns responsibility for a virtual router to one of the VRRP routers on a LAN. The VRRP router that controls the IP address associated with a virtual router is called the primary router and will forward packets sent to this IP address. This will allow any Virtual Router IP address on the LAN to be used as the default first hop router by end hosts.

Configuration

1. Launch the controller and access a site.
2. Go to [Device Config](#) > [Switch](#) > [VRRP](#).
3. Click [Create VRRP Rules](#). Configure the parameters.

VRRP Rules Config

VRRP Name

VRID

(1-255)

Device List

+ Add

☐	NAME	MAC	PRIORITY	INTERFACE	NETWORK	TRACKED INTERFACE	REDUCED PRIORITY	ACTION
No Data.								

Virtual IP

IPv4

+ Add

+ Optional Settings

Apply

Cancel

VRRP Name	Enter a name to identify the rule.
VRID	Enter the VRID to create a new VRRP. The VRID ranges from 1 to 255.

Device List	Click Add to select a switch and configure device VRRP. The switch you add will display in the Device List. Device Name: Name of the device. MAC: MAC address of the device. Priority: Priority associated with the VRRP. It ranges from 1 to 254. Interface: Interface ID associated with the VRRP. Network: Intersection of device network (IP/mask). Tracked Interface: Interface to be tracked. Reduced Priority: Priority to reduce if the associated interface is down.
Virtual IP	Add virtual IP addresses associated with the VRRP.

4. Expand and configure **Optional Settings** if needed.

Advertise Timer	Enter the advertise timer associated with the VRRP. It ranges from 1 to 255.
Preempt Mode	Select Enable or disable the preempt Mode from the pull-down list. If you select Enable, a backup router will preempt the primary router if it has a priority greater than the primary virtual router's priority. The Preempt Mode is enabled by default.
Delay Time	Enter the delay time associated with the VRRP. It ranges from 0 to 255.
Authentication	Select the type of Authentication for the Virtual Router from the pull-down list. The default is None. None: No authentication will be performed. Simple: Authentication will be performed using a text password. If you select this mode, enter the Key. MD5: Authentication of MD5 will be performed using a text password. If you select this mode, enter the Key.

5. Apply the settings.

13.3 Configure AP Settings

This chapter introduces how to configure general AP settings. For more instructions about how to manage APs, refer to: [Manage APs via the Omada Controller](#)

13.3.1 EoGRE Tunnel

Overview

On this page, you can configure the EoGRE (Ethernet over GRE) Tunnel function of the AP. Set the IP address to the gateway IP of the peer-end EoGRE Server. Ensure that the topology meets the point-to-point structure and that the two points are connected across Layer 3 wired connections. In this configuration, the following two conditions must be met to make the AP tunnel interface up:

- The function is enabled.
- There is a client connection.

Configuration

1. Launch the controller and access a site.
2. Go to [Device Config > AP > EoGRE Tunnel](#).
3. Enable [EoGRE Tunnel](#) and configure the parameters.

EoGRE Tunnel

EoGRE Tunnel

1500

Bytes

(850-1500)

60

Seconds

(10-600)

3

(3-10)

Primary Gateway IP Address

Secondary Gateway IP Address

(Optional)

Save

Cancel

Tunnel MTU	Specify the MTU (Maximum Transmission Unit) of the tunnel.
Keep Interval	Specify the time interval for the device to send Keepalive packets to confirm the link status.
Max Keepalive Skip Count	Specify the maximum number of times the keepalive message is not replied. If the number of times exceeds this value, the device will consider the peer to be offline.
Primary Gateway IP Address	Specify the Gateway IP address of the peer.

Secondary Gateway IP Address

Specify the secondary Gateway IP address of the peer. This field is optional.

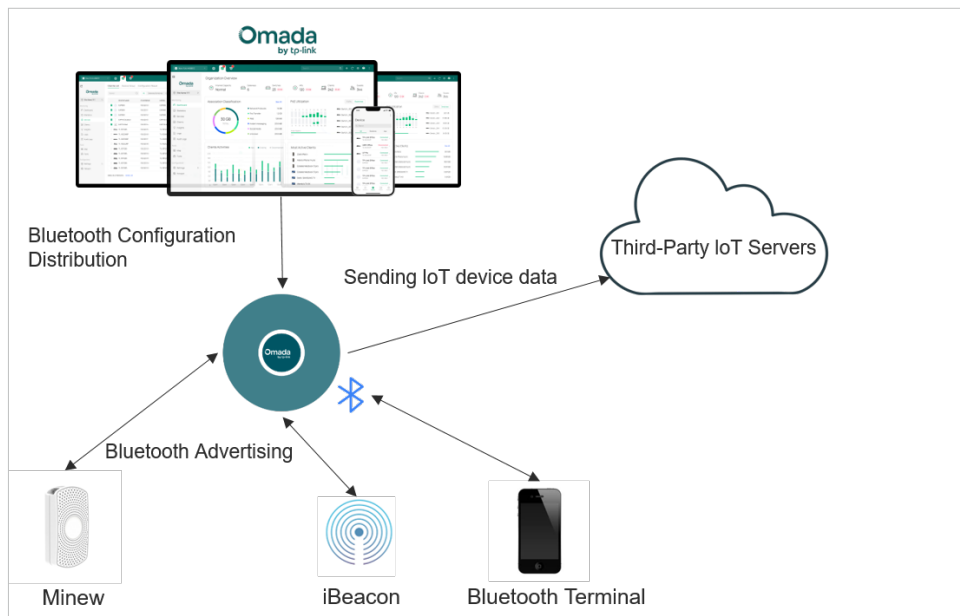
13.3.2 Bluetooth Settings

Overview

Omada supports Bluetooth settings to provide IoT (Internet of Things) solutions compatible with the AP for applications in healthcare, nursing homes, and more.

The Bluetooth Advertising with iBeacon technology turns the AP into a Bluetooth beacon, enabling location features for iOS apps using the Apple Core Location API.

Bluetooth IoT utilizes the AP Bluetooth module to easily collect Bluetooth data from third-party beacons and sensors, seamlessly connecting to external IoT servers for improved applications.



Configure Radio Settings

The Radio Settings module allows you to configure the broadcasting and connection behavior of Bluetooth devices. By adjusting these parameters, you can control the effective transmission power of Bluetooth broadcasts, device aging time, and other Bluetooth-related settings to optimize the network performance and connection stability of Bluetooth devices.

To configure radio settings of Bluetooth devices, follow the steps below:

1. Launch the controller and access a site.
2. Go to **Device Config > AP > Bluetooth > Radio Settings**.

3. Configure the parameters.

Radio Settings

Status

☒ Enable

Console

Auto

▼

Passcode

137531

Transmit Power

0

▼

Override

Aging Time

30

Seconds

▼

Status	Toggle to enable Bluetooth radio. Configurations on the IoT Transport Streams and Bluetooth Advertising pages are effective only when this option is enabled. When disabled, Bluetooth disables all TX and RX activities.
Console	A Bluetooth Console allows you to communicate with a device over a wireless Bluetooth connection using serial protocols. Set the Bluetooth console mode: Auto: Automatically enables the Bluetooth console if a network error or device disconnection occurs and disables it when the device reconnects normally. On: Always on. Off: Always off.
Passcode	Specify the 6-digit pairing code used to establish a Bluetooth connection.
Transmit Power	Specify the broadcast transmission power (dB).
Aging Time	Set the time in seconds, minutes, or hours to control the aging time of devices. If an AP does not receive the data sent by a device within the aging time, it will delete the device entry and no longer forward it to the IoT application server. If the AP receives the data sent by the device again, it will re-add the device entry and continue to report the Bluetooth data of the device.

Configure IoT Transport Streams

IoT Transport Streams allow Bluetooth-enabled APs to scan BLE Advertising frames in its surrounding environment, collect the required BLE data, and then report the data to the designated third-party IoT server. IoT Transport Streams can be divided into two functions: BLE Periodic Telemetry and BLE Data Forwarding.

BLE Periodic Telemetry: The APs will parse the scanned BLE Advertising frames, extract the valid data, and save the data to their BLE device lists. They will populate BLE device list data into the messages at set intervals and report to the designated third-party IoT server.

BLE Data Forwarding: The APs will automatically forward the scanned BLE Advertising frames of the specified protocol. The forwarded data is the raw data received by the APs, which is forwarded in real time.

To configure IoT Transport Streams, follow the steps below:

- 1. Launch the controller and access a site.
- 2. Go to [Device Config](#) > [AP](#) > [Bluetooth](#) > [IoT Transport Streams](#).
- 3. Click [Create New Entry](#) to create a new IoT Transport Streams profile.
- 4. Configure basic information.

← Create New Entry

Name

Status

Name	Enter the name of the profile.
Status	Toggle on to enable this profile on Bluetooth-enabled APs.

- 5. Configure server settings.

Server Settings

Server Type

HTTP Websocket MQTT AMQP

Server URL

Authentication

Use Token Off

Access Token

Client ID

SSL/TLS

CA File

Client Certificate File

(Optional)

Server Type	Specify the type of server receiving IoT data. Available options include HTTP, WebSocket, MQTT, and AMQP.
Server URL	Enter the server address for IoT data reporting. Currently, the URL path with http as the prefix is supported.
Authentication	Specify the authentication method. Currently, token authentication is supported.
Access Token	Specify the token used for identity authentication.
Client ID	Specify the ID used for identity authentication.
SSL/TLS	Specify whether to enable SSL/TLS.
CA File	Upload the certificate from a CA authority or a self-signed certificate.

Client Certificate File	Upload the certificate issued by a CA authority or generated locally, which will be sent to the server to authenticate the client's identity.
-------------------------	---

6. Configure transport settings.

Transport Settings

Format Type

☒ Json ☐ Plaintext

Device Class

☐ Minew ☐ iBeacon ☐ Eddystone ☐ Unclassified

BLE Periodic Telemetry

☒ Enable

Reporting Interval

1

Seconds

(1-3600)

Report Device Counts Only

☐ Enable

BLE Data Forwarding

☐ Enable

RSSI Reporting Format

Average

Filters

☐ Company Identifier ☐ Vendor ☐ Local Name ☐ Service UUID ☐ MAC OUI ☐ iBeacon UUID ☐ UID ☐ URL

Format Type	Specify the format type of the reported data. Available options are Json, Plaintext.
-------------	--

Device Class	Specify the vendors and protocols. Currently, only iBeacon, Eddystone, and Minew protocols are supported. More protocols will be supported in the future.
--------------	---

BLE Periodic Telemetry	Toggle on if you want to enable the periodic reporting of the AP.
------------------------	---

Reporting Interval	Specify the interval period for the AP to report IoT data.
--------------------	--

Report Device Counts Only	When enabled, the AP only reports the number of IoT devices.
---------------------------	--

BLE Data Forwarding	Toggle on if you want to enable the transparent transmission of the AP data.
---------------------	--

RSSI Reporting Format	Specify the signal strength reporting format. Currently, Average, Max, Last, Smooth, and Bulk are supported.
-----------------------	--

Filters	Specify the custom configuration items that control the AP to filter IoT devices. Currently, Company Identifier, Vendor, Local Name, Service UUID, MAC OUI, iBeacon UUID, UID, and URL are supported.
---------	---

7. Click **Apply**. The profile will be added and applied to Bluetooth-enabled APs. You can go to **Devices > Configuration Result** to check whether the configuration is applied to the corresponding APs successfully.

Configure Bluetooth Advertising

The Bluetooth Advertising function allows Bluetooth-enabled APs to send out specific BLE broadcast frames according to the set configuration. Currently, it only supports broadcasting iBeacon frames, and more protocols will be supported in the future. There is a default rule in the initial interface, which can be turned off but cannot be deleted. You can also add Advertising rules and apply them to specific APs.

To configure Bluetooth Advertising, follow the steps below:

1. Launch the controller and access a site.
2. Go to **Device Config > AP > Bluetooth > Bluetooth Advertising**.
3. Click **Create New Profile** to create a Bluetooth Advertising profile. Configure the parameters.

Create New Profile

Name

Status

☐ Enable

UUID Value In Advertising Packets

(32 hexadecimal digits)

Major Value In Advertising Packets

(4 hexadecimal digits)

Minor Value In Advertising Packets

(4 hexadecimal digits)

Advanced Settings

RSSI Calibration Value

-65

dBm

(-97-0)

Advertising Interval

500

ms

(100-10000)

Device List

+ Add

DEVICE NAME	MODEL	MAC ADDRESS	STATUS	ACTION

Name	Enter the name of the profile.
Status	Toggle on to enable this profile on Bluetooth-enabled APs.
UUID Value In Advertising Packets	Specify the Universally Unique Identifier (UUID) of the broadcast iBeacon device, which is the unique identifier of the universal device.
Major Value In Advertising Packets	Specify the major value of the broadcast iBeacon device, used to mark larger groups.
Minor Value In Advertising Packets	Specify the minor value of the broadcast iBeacon device, used to mark smaller groups.
RSSI Calibration Value	Specify the RSSI calibration value (dB).
Advertising Interval	Specify the interval of advertising frames.

Device List

Click **Add** and select devices to apply this profile. Only Bluetooth-enabled APs will be listed for selection.

- Notes:
- 1. The default site-level entry does not have this configuration item. Only custom entries support the configuration of specific devices.
 - 2. Currently, a single device is supported to configure a Bluetooth Custom configuration entry for advertising.

- 4. Click **Create**. The profile will be added and applied to the Bluetooth-enabled APs you selected. You can go to **Devices > Configuration Result** to check whether the configuration is applied to the corresponding APs successfully.

13.3.3 Wi-Fi Calling

Wi-Fi Calling (VoWiFi) transmits voice and SMS messages over a Wi-Fi network. It utilizes an intermediate wireless access point to establish an IPsec-based encrypted tunnel between the terminal and the carrier’s core network, converting voice signals into data packets carried by the enterprise Wi-Fi network to maintain stable voice service even when cellular coverage is poor.

You can create Wi-Fi Calling profiles based on your carriers and their evolved packet data gateways (ePDGs), then apply them across wireless networks to avoid repeated configuration.

To configure Wi-Fi Calling, follow the steps below:

- 1. Launch the controller and access a site.
- 2. Go to **Device Config > AP > Wi-Fi Calling > Wi-Fi Calling Profile**.
- 3. Click **Create New Wi-Fi Calling Profile** and configure the parameters.

← Create New Wi-Fi Calling Profile

Profile Name

Description

(Optional)

Carrier 1

Carrier Name

ePDG List

Type	Information	Priority	Action
Domain		Voice	-

+ Add ePDG

+ Add Carrier

Apply

Cancel

Profile Name

Specify the name of the profile.

Description	Enter a description for identification.
Carrier Name	Enter the name of a carrier.
Type	Select Domain Name or IP Address to define the evolved packet data gateway (ePDG) address.
Information	Enter the ePDG address in the form of the selected type.
Priority	Set the priority of the ePDG. Voice: Highest priority, used for real-time audio streaming. Recommended for Wi-Fi calls. Video: Second highest priority, used for video streaming. Best Effort: Third highest priority, used for normal data traffic. Background: Lowest priority, used for background tasks.
Add ePDG	Click to add a new ePDG.
Add Carrier	Click to add a new carrier.

4. Save the profile. Now you can apply the profile to wireless networks on the [Network Config > Network Settings > WLAN](#) page.

You can go to [Wi-Fi Calling Summary](#) to view top SSIDs and carrier ePDGs by Wi-Fi call traffic, as well as recent call records and their details. You can filter the displayed information range by date and search the Wi-Fi call history by client name, client MAC address, client IP address, SSID, and carrier name.

Chapter 14

Manage Network Devices

This chapter guides you on how to configure and monitor controller-managed devices, including gateways, switches, APs, and OLTs. You can configure the devices individually or in batches to modify device configurations. The chapter includes the following sections:

- [14. 1 Manage the Device List](#)
- [14. 2 Manage a Device](#)
- [14. 3 Create and Manage Stack Groups](#)
- [14. 4 Create and Manage Bridge Groups](#)
- [14. 5 Create and Manage MLAG Groups](#)
- [14. 6 View the Configuration Result](#)

14.1 Manage the Device List

Overview

The Omada Controller provides 100% centralized management of Omada network devices, including gateways, switches, access points, OLTs, and more.

To manage network devices, go to [Devices > Device List](#) in Global View or Site View. In Global View, network devices of all sites will be listed; in Site view, network device of the current site will be listed.

You can manage the network devices in the list and manage each device in its Properties window and Device Management window.

For an easy monitoring of the devices, you can customize the column and filter the devices for a better overview of device information. Also, quick operations and Batch Edit are available for configurations.

DEVICE NAME	SERIAL NUMBER	MAC ADDRESS	IP ADDRESS	STATUS	HEALTH	ACTION
6C-4C-...	...	...	192.168.124.1	CONNECTED	Good - 9	[Power Icon]
A8-2S-...	...	...	192.168.124.100	CONNECTED	Good - 10	[Refresh] [Power] [Code]
B8-FB-...	...	...	192.168.124.101	CONNECTED	Good - 10	[Refresh] [Power]
B8-FB-...	...	...	192.168.124.112	CONNECTED	Good - 10	[Refresh] [Power]

Device Overview

On the top of the device list, get an overview of the types, quantity, and health scores of managed devices. Hover over a device type to view health statistics.

Monitor Device Health

The Health column displays the health scores of devices, indicating how well they are performing.

Good (8 - 10)	The device is operating at or near its optimal performance.
Fair (4 - 7)	The device is functional.
Poor (1 - 3)	The device may have encountered some issues.
No data	No data has been obtained.

Note: OLT and devices with outdated firmware do not support health statistics.

Monitor Connection Status

The Status column explains the connection status of devices.

Preconfigured	The device is added via Manual Add or Import but has not been powered on. After the device is powered on, the controller will attempt to adopt the device automatically.
Pending	The device is in Standalone Mode or with factory settings, and has not been adopted by the controller. To adopt the device, click the Adopt icon in the Action column, and the controller will use the default username and password to adopt it. When adopting, its status will change from Adopting, Provisioning, Configuring, to Connected eventually.
Isolated	(For APs in the mesh network) The AP once managed by the controller via a wireless connection now cannot reach the gateway. You can rebuild the mesh network by connecting it to a wireless device in the Connected status, then the isolated AP will turn into a connected one.
Connected	The device has been adopted by the controller and you can manage it centrally. A connected device will turn into a pending one after you forget it.
Managed by Others	The device has already been managed by another controller. You can reset the device or provide the username and password to unbind it from another controller and adopt it in the current controller.
Heartbeat Missed	A transition status between Connected and Disconnected. Once connected to the controller, the device will send inform packets to the controller in a regular interval to maintain the connection. If the controller does not receive its inform packets in 30 seconds, the device will turn into the Heartbeat Missed status. For a heartbeat-missed device, if the controller receives an inform packet from the device in 5 minutes, its status will become Connected again; otherwise, its status will become Disconnected.
Disconnected	The connected device has lost connection with the controller for more than 5 minutes.
Adopt Failed	The device has failed to be adopted.
	(For APs in the mesh network) When this icon appears with a status icon, it indicates the AP with mesh function and no wired connection is detected by the controller. You can connect it to an uplink AP through Mesh.
	When this icon appears with a status icon, it indicates the device in the Connected, Heartbeat Missed, Isolated, or Disconnected status is migrating. For more information, refer to the Migration section of this guide.

Customize the Column

To customize the columns, click the ellipsis icon next to **Action** and check the boxes of information type.

To change the list order, click the upside-down triangle icon next to the column head, which indicates the ascending or descending order.

Filter the Devices

Use the search box and tab bar above the table to filter the devices.

To search for devices, enter the text in the search box.

To filter the devices, a tab bar is above the table to filter the devices by device type. You can also filter the devices by their status by clicking the filter icon in the **Status** column.

Quick Operations

Click the icons in the table header or the **Action** column to quickly operate the device.

	Click to check if there is new firmware for the managed devices.
	(For pending devices) Click to adopt the device.
	(For connected APs and Switches) Click this icon and the device's LEDs and the peer switch port's LED will flash to indicate the device's location. The LEDs will keep flashing for 10 minutes, or you can click the  icon to stop the flashing.
	(For connected devices) Click to reboot the device.
	Click to upgrade the device's firmware version. This icon appears when the device has a new firmware version.
	Displays the current running configuration. Operators or Administrators or local user group members with execution rights for this command.
	(Only for the Main AP) Click to change the AP's role to a Client AP.
	(Only for the Main AP) Click to move the APs in the current bridge group to another site. Note: Bridge APs only support the Move to Site function on the Bridge Group page.

Batch Action

Search Name, SN, MAC, IPv4, Model or Label

All (4)

Gateway/Switches (3)

OLTs (0)

APs (1)

All (4)

Good (0)

Fair (0)

Poor (0)

No Data (4)

Export

Batch Action

+ Add Devices

DEVICE NAME	MAC ADDRESS	IP ADDRESS	STATUS	HEALTH	MODEL	
 00-1D-	00-1D-	-	DISCONNECTED	No Data	ER706W-4G v1.0	
 00-FF-	00-FF-	192.168.0.101	DISCONNECTED	No Data	ES205G v1.0	
 98-BA-	98-BA-	192.168.0.100	DISCONNECTED	No Data	SG3428MP v6.20	
 98-BA-	98-BA-	192.168.0.105	DISCONNECTED	No Data	EAP620 HD(EU) v3.0	1.4.0

Showing 1-4 of 4 records

1

10 / page

■ Batch Adopt

You can adopt devices in batches. Batch Adopt is available only for the devices in the Pending/Managed By Others state.

To batch adopt devices, click [Batch Action](#) > [Batch Adopt](#), select devices, and click [Adopt](#). If the selected devices are all in the Pending state, the controller will adopt them with the default username and password. If not, enter the username and password manually to adopt the devices.

■ Batch Config

You can configure the same type of devices in batches. Batch Config is available only for the devices in Preconfigured/Connected/Disconnected/Heartbeat Missed/Isolated state.

To batch configure devices, click [Batch Action](#) > [Batch Config](#), select devices, and click an action. You can batch configure device settings, perform custom upgrade, move them to a site, or forget them.

■ Batch Activate (For Cloud-Based Controller)

You can activate devices in batches. Batch Activate is available only for unactivated devices.

To batch activate devices, click [Batch Action](#) > [Batch Activate](#), select unactivated devices, and click [Activate](#). If there are sufficient licenses, the controller will activate them. For more information about licenses, refer to the [Omada License Configuration Guide](#).

■ Batch Unbind (For Cloud-Based Controller)

You can unbind licenses from devices in batches. Batch Unbind is available only for activated devices.

To batch unbind licenses from devices, click [Batch Action](#) > [Batch Unbind](#), select activated devices, and click [Unbind](#). The controller will unbind license from them. For more information about licenses, refer to the [Omada License Configuration Guide](#).

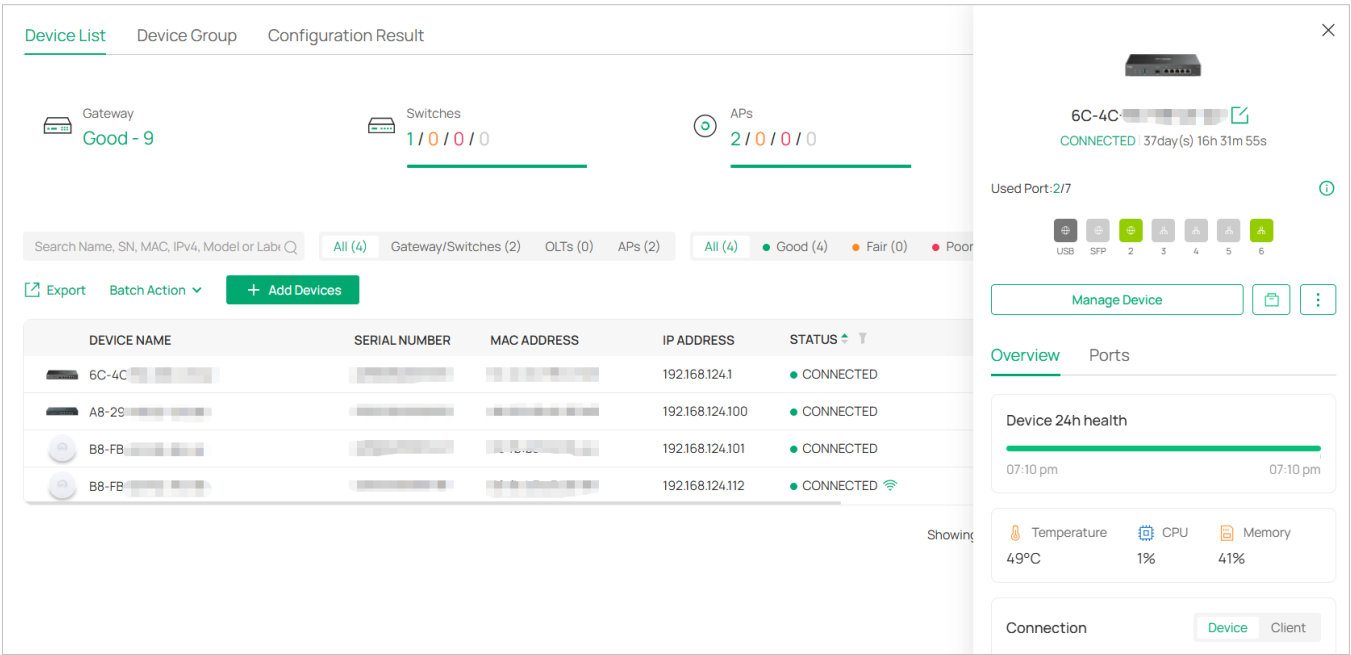
14.2 Manage a Device

Launch the controller and access a site. Go to **Devices > Device List**. In the device list, click a device, then you can monitor and manage it in the Properties window and Device Management window.

14.2.1 Properties Window

The Properties window displays the device's basic information, port status, health status, connection information, and more.

Note: The available functions in the window may vary by device type, model, and status.



Quick Operations

Click the  icon and choose an operation to quickly operate the device.

Note: The available functions may vary by device type, model, and status.

Custom Upgrade	Click Browse and choose a file from your computer to upgrade the device. After upgraded, the device will reboot and be readopted by the controller.
Copy Configuration	Select another device at the current site to copy its configurations. Note: Only devices of the same model as the current device will be displayed.
Download Device Info	If the device has an abnormality, you can download the device information and provide it to our R&D personnel to analyze the problem. Note: Firmware updates are required for earlier devices to obtain complete information.
Move to Site	Select a site which the device will be moved to. After moving to another site, device configurations on the prior site will be replaced by that on the new site, and its traffic history will be cleared.

Force Provision	Click Force Provision to synchronize the configurations of the device with the controller. The device will lose connection temporarily, and be adopted to the controller again to get the configurations from the controller.
Forget This Device	Click Forget and then the device will be removed from the controller. Once forgotten, all configurations and history related to the device will be wiped out.
IntelliRecover	(Only for the AP directly connected to the PoE switch) Click to enable the IntelliRecover function for the device so that it can be added to the IntelliRecover monitoring list. IntelliRecover can help you monitor the status of PoE devices, automatically repairing abnormal devices.
ISP Upgrade	(Only for 4G gateways) Click Browse to select the ISP upgrade file and click Upgrade to upgrade the ISP information. You can download the latest ISP upgrade file from https://support.omadanetworks.com .

Network Tools

Click the  icon and choose a network tool to analyze the network.

Note: The available tools may vary by device type, model, and status.

Network Check	Test the device connectivity via ping or traceroute.
Terminal	Open Terminal to execute CLI or Shell commands.
Cable Test	Perform cable test to check cable issues.
Packet Capture	Capture packets for network troubleshooting.
Link Speed Test	(Only for Bridge APs supporting link speed test and already form a bridge group) Click to test the link speed between the Main AP and Client AP.

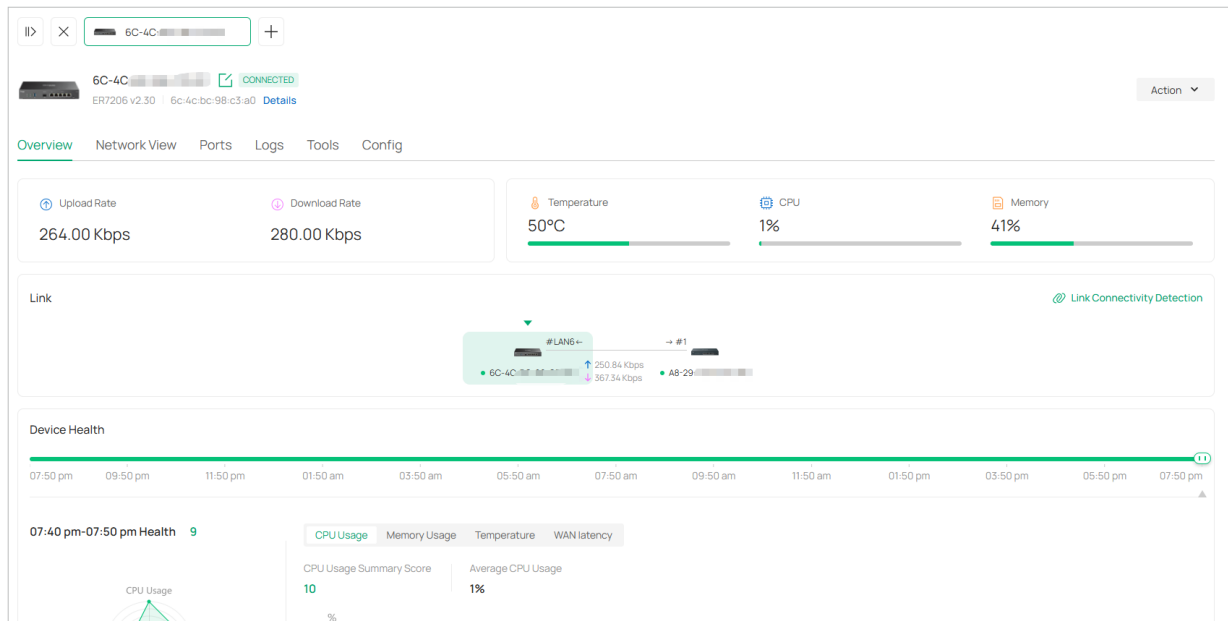
14.2.2 Device Management Window

Click **Manage Device** to open the Device Management window to view more device details and change device settings.

In the management window, you can click + and select one or more devices to open new management windows, click the  icon in the top left to minimize the windows to the  icon in the right side, and click the  icon to reopen the minimized windows.

You can also click each tab to monitor and manage the device.

Note: The available tabs and configurations may vary by device type, model, and status.



For instructions about how to manage each type of devices via the Omada Controller, refer to the relevant user guides:

- [Manage the Gateway via the Omada Controller](#)
- [Manage Switches via the Omada Controller](#)
- [Manage APs via the Omada Controller](#)
- [Manage the OLT via the Omada Controller](#)

14.3 Create and Manage Stack Groups

14.3.1 Introduction to Stack

Stack is a device virtualization technology that connects two and above switches supporting stack features via Ethernet cables through their stack ports, which logically virtualize them to one device as a whole to forward data in the network. Through this feature, switches can be stacked to improve reliability, expand port numbers, increase bandwidth, simplify networking, and etc.

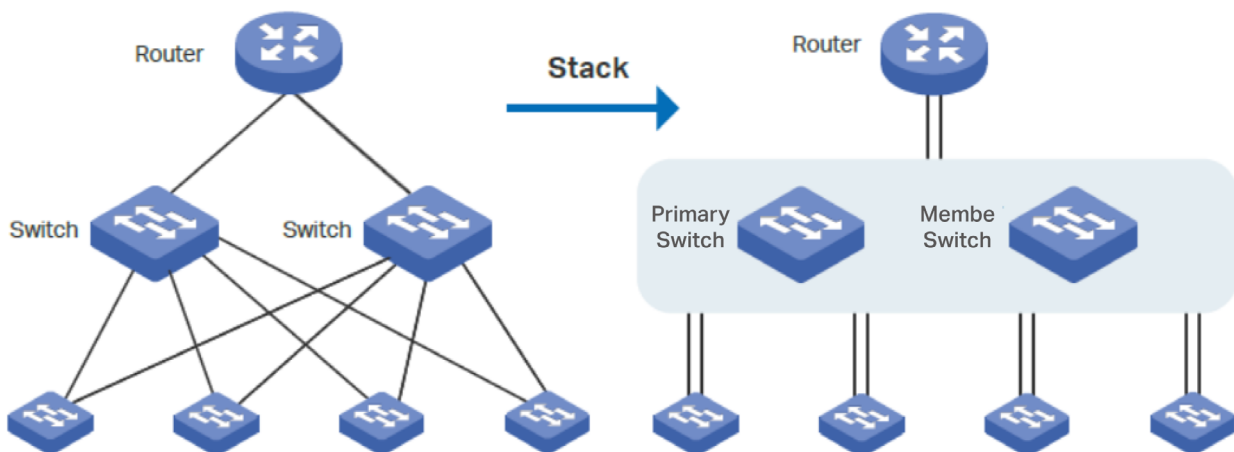
In a stack system, the switches can be categorized mainly into two roles:

- **Primary Switch**

A stack system has only one primary switch. It manages and controls devices in the whole stack system.

- **Member Switch**

A stack system may have one or several member switches. They only forward data as standby devices of the primary switch. When the primary switch fails, a member switch will be re-elected as the new primary switch.



14.3.2 Create a Stack Group

1. Launch the controller and access a site.
2. Go to [Devices > Device Group > Stack Group](#).

3. Click **Create New Stack**. Configure the parameters.

Create New Stack Group

Stack Name

MAC Delay

Select Member (0/1)

☐	DEVICE NAME	STATUS	MODEL	UNIT	PRIORITY (1-255)	CONFIG STACK PORT GROUP
☐		CONNECTED	SG5428XMPP v1.0	Unit2	-	Port 25 26 27 28

Add

Cancel

Stack Name	Enter a name to identify the stack group.
Select Member	Select the switches to be stacked, and configure the following parameters: Unit: Specify the unit ID of the switch. Each switch in the stack has a unique unit ID for device management. Priority: Specify the stack priority of the switch. The higher the stack priority, the more likely the switch is to be elected as the Primary Switch. A smaller value means a higher priority. Config Stack Port Group: Click the port to be stacked and choose the group ID. A port can join only one group. Note: To change the stacking mode of a port, please link down it first. After a port is switched to stacking mode, it can no longer be used as a service port.

4. Apply the settings. Now you can connect the stack ports configured with the same group ID via Ethernet cables to stack the switches.

Note:

- Do not connect a stack port to a non-stack port. Otherwise, device operation may be affected.
- Connect stack ports only when they are set to the same group ID.

14. 3. 3 **Configure and Monitor the Stack Group**

The stack group logically virtualizes switches to one device as a whole. You can configure and monitor stack groups in a similar way as configuring and monitoring switches. For details, refer to [Manage Switches via the Omada Controller](#).

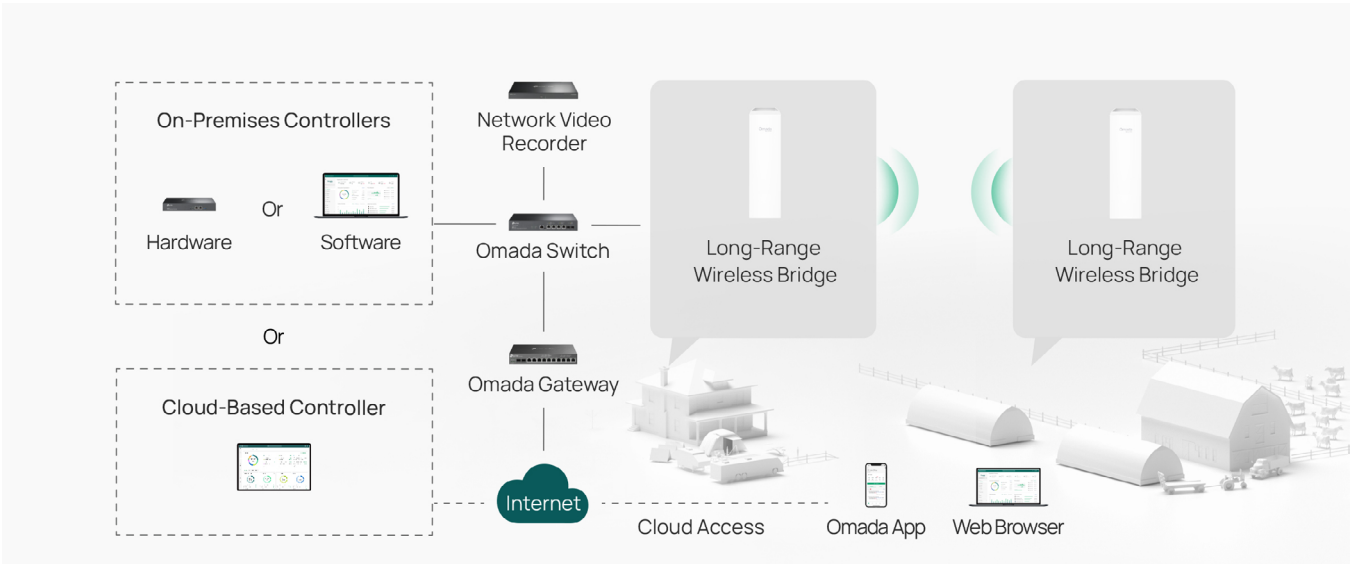
14.4 Create and Manage Bridge Groups

14.4.1 Introduction to Bridge

Outdoor Bridge easily builds point-to-point and point-to-multi-point long range wireless connections. In practical application, it can help users to conveniently deploy APs over long range.

In a bridge system, the APs can be categorized mainly into two roles:

- Main AP
The Main AP connects to your gateway for network access. A bridge system generally has only one Main AP.
- Client AP
Client APs connect to the Main AP via wireless bridge. A bridge system may have one or several Client APs.



14.4.2 Create a Bridge Group

1. Obtain bridge APs and set up a bridge network by referring to the relevant AP Installation Guide.
2. Launch your controller and access a site.
3. Go to **Devices > Device Group > Bridge Group**. The controller will detect the bridge APs and show them in the Grouped list.

Search Name, SN, MAC, IPv4, Model or Tag									
Stack Group		Bridge Group		GPON Group		Grouped		Ungrouped	
DEVICE NAME	IP ADDRESS	STATUS	MODEL	VERSION					ACTION
30-68- Main AP	192.168.0.4	CONNECTED	EAP215-Bridge(US) v2.0	1.0.4 1.2.2	2				
30-68- Client AP	192.168.0.2	CONNECTED	EAP215-Bridge(US) v2.0	1.0.4 1.2.2	2				
Showing 1-2 of 2 records < 1 > 10 /page									

If you have ungrouped bridge APs, locate the AP in the Ungrouped list and click the Adopt icon to adopt it.

Search Name, SN, MAC, IPv4, Model or Tag

Stack Group

Bridge Group

GPON Group

Grouped

Ungrouped

Batch Action

+ Add Devices

DEVICE NAME	IP ADDRESS	STATUS	MODEL	VERSION	UPTIME	ACTION
	192.168.0.2	MANAGED BY OTHERS	EAP115-Bridge(US) v3.0	1.0.0	2day(s)	

Showing 1-1 of 1 records

< 1 >

10 /page

14. 4. 3 Configure and Monitor the Bridge Group

In the grouped bridge group list, you can configure and monitor the APs in the group.

Search Name, SN, MAC, IPv4, Model or Tag

Stack Group

Bridge Group

GPON Group

Grouped

Ungrouped

Export

Batch Action

+ Add Devices

	DEVICE NAME	IP ADDRESS	STATUS	MODEL	VERSION		ACTION
	30-68- Main AP	192.168.0.4	CONNECTED	EAP215-Bridge(US) v2.0	1.0.4 1.2.2	2	
	30-68- Client AP	192.168.0.2	CONNECTED	EAP215-Bridge(US) v2.0	1.0.4 1.2.2	2	

Showing 1-2 of 2 records

<1>

10 /page



(For connected APs) Click this icon and the device’s LEDs and the peer switch port’s LED will flash to indicate the device’s location. The LEDs will keep flashing for 10 minutes, or you can click the icon to stop the flashing.



(For connected devices) Click to reboot the device.



Click to upgrade the device’s firmware version. This icon appears when the device has a new firmware version.



(Only for the Main AP)
Click to change the AP’s role to a Client AP.



(Only for the Main AP)
Click to move the APs in the current bridge group to another site.

Note: Bridge APs only support the Move to Site function on the Bridge Group page.

Click the AP in the bridge group, then you can configure and monitor it in a similar way as configuring and monitoring a common AP. For details, refer to [Manage APs via the Omada Controller](#).

14.5 Create and Manage MLAG Groups

14.5.1 Introduction to MLAG

MLAG (Multi-Chassis Link Aggregation) enables two network switches to act as a single logical entity, bonding their physical links into a shared aggregated connection. This setup enhances redundancy and bandwidth while preventing traffic disruption if one switch fails. Commonly used in data centers, MLAG ensures seamless failover, simplifies network management, and avoids single points of failure without requiring complex protocols like stacking.

14.5.2 Create a MLAG Group

1. Launch your controller and access a site.
2. Go to [Devices > Device Group > MLAG Group](#).
3. Click [Create New MLAG](#).
4. Set the [MLAG Name](#), select two member switches to establish the MLAG connection, set their [Priority](#) to determine which switch will take over all the traffic forwarding if the MLAG connection encounters a problem.

Device List

Device Group

Configuration Result

← Create New MLAG

MLAG Name

M-LAG1

Select Member(2/2)

M-LAG Switch 1 ×

M-LAG Switch 2 ×

▼

Member Device Name	Status	IP Address	IPv6 ADDRESS	Model	MLAG Version	Priority (1-255)
 M-LAG Switch 1	● Connected	192.168.0.101	-	S6500-24G4XF v1.0	1.0.0	1
 M-LAG Switch 2	● Connected	192.168.0.102	-	S6500-24GP4XF v1.0	1.0.0	100

5. Scroll right, select the DAD Link ports on both member switches, then set the corresponding DAD Local IP and DAD Peer IP, The DAD Local IP and DAD Peer IP should match each other while not

conflicting with any existing subnets.

Device List **Device Group** Configuration Result

← Create New MLAG

MLAG Name

Select Member(2/2) ▼

DAD ENABLE	DAD Link	DAD Local IP	DAD Peer IP																												
☒	<table><tr><td>1</td><td>3</td><td>5</td><td>7</td><td>9</td><td>11</td><td>13</td><td>15</td><td>17</td><td>19</td><td>21</td><td>23</td><td>25</td><td>27</td></tr><tr><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td><td>14</td><td>16</td><td>18</td><td>20</td><td>22</td><td>24</td><td>26</td><td>28</td></tr></table>	1	3	5	7	9	11	13	15	17	19	21	23	25	27	2	4	6	8	10	12	14	16	18	20	22	24	26	28	192 . 168 . 100 . 1	192 . 168 . 100 . 2
1	3	5	7	9	11	13	15	17	19	21	23	25	27																		
2	4	6	8	10	12	14	16	18	20	22	24	26	28																		
☒	<table><tr><td>1</td><td>3</td><td>5</td><td>7</td><td>9</td><td>11</td><td>13</td><td>15</td><td>17</td><td>19</td><td>21</td><td>23</td><td>25</td><td>27</td></tr><tr><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td><td>14</td><td>16</td><td>18</td><td>20</td><td>22</td><td>24</td><td>26</td><td>28</td></tr></table>	1	3	5	7	9	11	13	15	17	19	21	23	25	27	2	4	6	8	10	12	14	16	18	20	22	24	26	28	192 . 168 . 100 . 2	192 . 168 . 100 . 1
1	3	5	7	9	11	13	15	17	19	21	23	25	27																		
2	4	6	8	10	12	14	16	18	20	22	24	26	28																		

6. Scroll right, choose the ports you want to use to connect peer link. Click **Add** after finishing the configuration.

Device List **Device Group** Configuration Result

← Create New MLAG

MLAG Name

Select Member(2/2) ▼

DAD Peer IP	DAD Local IPv6	DAD Peer IPv6	Config Peerlink Port								
192 . 168 . 100 . 2			<table><tr><td>25</td><td>27</td></tr><tr><td>☒</td><td>☐</td></tr><tr><td>26</td><td>28</td></tr><tr><td>☒</td><td>☐</td></tr></table>	25	27	☒	☐	26	28	☒	☐
25	27										
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26	28										
☒	☐										
192 . 168 . 100 . 1			<table><tr><td>25</td><td>27</td></tr><tr><td>☒</td><td>☐</td></tr><tr><td>26</td><td>28</td></tr><tr><td>☒</td><td>☐</td></tr></table>	25	27	☒	☐	26	28	☒	☐
25	27										
☒	☐										
26	28										
☒	☐										

7. Now peer-link and DAD-link configuration is complete. Please connect the peer-link and DAD-link cables according to the ports configured.

14. 5. 3 Configure and Monitor the MLAG Group

You can configure and monitor MLAG members in a similar way as configuring and monitoring switches. For details, refer to [Manage Switches via the Omada Controller](#).

14.6 View the Configuration Result

The Configuration Result page displays abnormal configuration results for devices excluding the OLT. If a device's configuration is entirely successful, it will not be displayed.

Launch the controller and access a site, then go to [Devices > Configuration Result](#).

The OLT does not support Configuration Result query currently. You can go to the OLT configuration page to check its configurations.

All (1)

Gateway/Switches (0)

APs (1)

Failed (1)

Preconfigure (6)

Incompatible (6)

Expand

OC-EF

OC-EF

< 1 >

UI Configuration

Search Feature

FEATURE	ACTION	TIME	FAILURE CAUSES
Digit Map	Apply	Sep 17, 2025 16:32:59	Device response timed out. (ErrorCode: ap_-6)
QoS - 5 GHz	Apply	Sep 17, 2025 16:32:59	Device response timed out. (ErrorCode: ap_-6)
+ Scheduler Associated (6)	Apply	Sep 17, 2025 16:32:59	Device response timed out. (ErrorCode: ap_-6)
Radios - 2.4 GHz	Apply	Sep 17, 2025 16:32:59	Device response timed out. (ErrorCode: ap_-6)
+ IP Group (1)	Apply	Sep 17, 2025 16:32:59	Device response timed out. (ErrorCode: ap_-6)
+ IPv6 Group (1)	Apply	Sep 17, 2025 16:32:59	Device response timed out. (ErrorCode: ap_-6)
+ Scheduler List (1)	Apply	Sep 17, 2025 16:32:59	Device response timed out. (ErrorCode: ap_-6)
+ ETH POE Out (3)	Apply	Sep 17, 2025 16:32:59	Device response timed out. (ErrorCode: ap_-6)

You can switch tabs based on the device type (All Devices, Gateway/Switches, and APs) or configuration result (Failed, Preconfigured, and Incompatible).

- **Failed:** The configuration is not delivered. For the failure cause of device response timeout, force provision the configuration or restart the device. For other failure causes, check the failed configuration, correct and save it, then deliver it to the device. If the problem still exists, contact our technical support.
- **Preconfigured:** The configuration may not be delivered because the device is offline. If your device is in connected state, force provision configuration or restart the device. If the problem still exists, contact our technical support. (This status does not affect the management and use of the device.)
- **Incompatible:** The configuration is not supported by the current device's firmware.

You can click [Expand](#) on the right to search by Device Name and MAC Address.

Click on a device in the device list on the left to display its detailed configuration and failure causes.

Chapter 15

Manage Clients

This chapter guides you on how to monitor and manage the clients using the Clients page and the Hotspot system. This chapter includes the following sections:

- [15. 1 Manage the Client List](#)
- [15. 2 Manage a Client](#)
- [15. 3 Manage Client Authentication in Hotspot](#)

15.1 Manage the Client List

The Clients page offers a straight-forward way to manage and monitor clients. It displays wired and wireless clients in the chosen site and their general information.

To manage clients, go to the [Clients](#) page in Site View.

You can manage clients in the client list. You can switch pages based on the client status (Online, Offline, Blocked, and All).

3

Online Clients

1

Smart Home

1

Network

1

Others

Search Name, IP or MAC

All (3)

Wireless (0)

Wired (3)

IPCs/NVRs

All (3)

Good (3)

Fair (0)

Poor (0)

No Data (0)

Batch Config

Filter

Name	IP Address	Authentication Type	Status	Experience	Incidents	SSID	Network	AP/Port	Action
NBS3100-24GT4SFP-P-6E6BDD	192.168.11.2	-	Connected	Good - 10	0	-	Default1	00-0A-F	
Omada Controller	192.168.11.3	-	Connected	Good - 10	0	-	Default1	00-FF-	
RAP72Pro-638E78	192.168.11.7	-	Connected	Good - 10	0	-	Default1	00-0A-	

Client Overview

On the top of the client list, get an overview of the types and quantity of clients.

Monitor Client Health

The Health column displays the health scores of clients, calculated based on access status and link health.

Good (8 - 10)	The device has a good connection.
Fair (4 - 7)	The device has a fair connection.
Poor (1 - 3)	The device has a poor connection.
No data	No data has been obtained.

Monitor Connection Status

The Status column explains the connection status of clients.

Pending	The client has not passed the authentication and it is not connected to the internet.
Authorized	The client has been authorized and is connected to the internet.
Connected	The client is connected to internet via non-portal network.
Authentication-Free	The client does not need to be authorized and it is connected to the internet.
Blocked	The client is blocked.

Customize the Column

To customize the columns, click the ellipsis icon next to **Action** and check the boxes of information type.

To change the list order, click the upside-down triangle icon next to the column head, which indicates the ascending or descending order.

When this icon  appears in the Wireless Connection column, it indicates the client is in the power-saving mode.

Filter the Clients

Use the search box and tab bar above the table to filter clients.

To search for clients, enter the text in the search box.

To filter clients, a tab bar is above the table to filter the clients by client type. You can also filter clients by their status, connected SSID, network, AP/port by clicking the filter icons in the table header.

Quick Operations

For quick operations on a single client, click the icons in the Action column. The available icons vary according to the client status and connection type.

	Click to block the client in the chosen site.
	Click to forget the client in the chosen site.
	(With portal authentication enabled) Click to manually authorize the client that has not passed the portal authentication.
	(With portal authentication enabled) Click to unauthorize the client that has passed the portal authentication.
	(For wireless clients) Click to reconnect the wireless client to the wireless network.
	(For clients connected to switches) Click this icon and the peer switch port's LED will flash to indicate the client's location. The LED will keep flashing for 10 minutes, or you can click the  icon to stop the flashing.

Batch Config

You can configure clients in batches. Click **Batch Config**, select clients, and click **Done**. Then you can configure settings for the selected clients in batch.

15.2 Manage a Client

To manage a client, go to the [Clients](#) page in Site View. In the client list, click a client, then you can monitor and manage it in the Properties window and Client Management window.

Properties Window

The Properties window displays the basic information of the client. You can click the edit icon to edit the client name and information.

OnlineOfflineBlockedAll

3Online Clients

1Smart Home

1Network

Search Name, IP or MAC

All (3)Wireless (0)Wired (3)IPC/NVRs

All (3)Good (3)Fair (0)Poor (0)No

Name	IP Address	Authentication Type	Status	Experience	Incidents	SSID
NBS3100-24GT4SFP-P-6E6BDD	192.168.11.2	-	Connected	Good - 10	0	-
Omada Controller	192.168.11.3	-	Connected	Good - 10	0	-
RAP72Pro-638E78	-	-	Connected	Good - 10	0	-

C8-CD-Connected

Manage Client

Client 24h health

07:00 pm07:00 pm

Uplink Switch

00-0A-

Port23

Upload/Download Negotiation Rate0 bps0 bps

Pkts/Bytes0 KB0 KB

Info

MAC Addressc8-cd-

IP Address192.168.11

■ Edit Client Info

Click the edit icon next to the client name to edit the client information. You can set the client name, type, vendor, and model.

■ Quick Operations

Click the icon and choose an operation to quickly operate the client.

Block	Click to block the client from accessing the site network.
Forget	Click to remove the client from the site network. Once forgotten, client settings will be wiped out.
Reconnect	(For wireless clients) Click to reconnect the wireless client to the wireless network.
Authorize	(With portal authentication enabled) Click to manually authorize the client that has not passed the portal authentication.
IntelliRecover	(Only for the client directly connected to the PoE switch) Click to enable the IntelliRecover function for the client so that it can be added to the IntelliRecover monitoring list. IntelliRecover can help you monitor the status of PoE devices, automatically repairing abnormal devices.

■ **Network Tools**

Click the  icon and choose a network tool to analyze the network.

Network Check	Test the network connectivity via ping or traceroute.
Remote Access	(For clients identified as IPCs/NVRs only) Allows easy access to internal network devices from an external network using adopted Omada devices. To ensure privacy and security, connections are time-limited and expire automatically.

Client Management Window

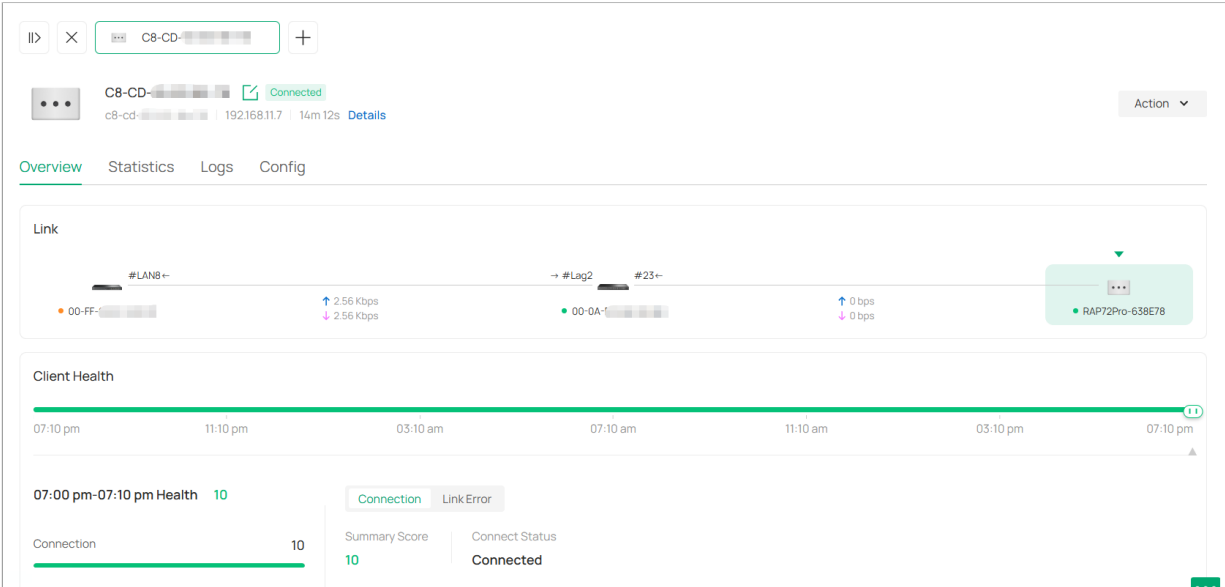
Click **Manage Client** to open the Client Management window to view more client details and change client settings.

In the management window, you can click + and select one or more clients to open new management windows, click the  icon in the top left to minimize the windows to the  icon in the right side, and click the  icon to reopen the minimized windows.

You can also click each tab to monitor and manage the client.

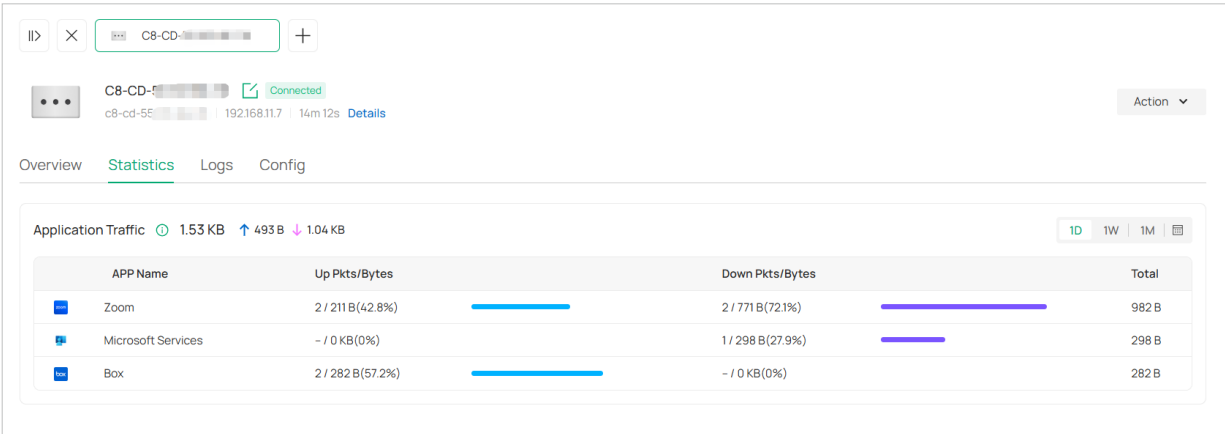
■ **Overview**

In **Overview**, you can get an overview of the client, such as link status, client health, online time, and more.



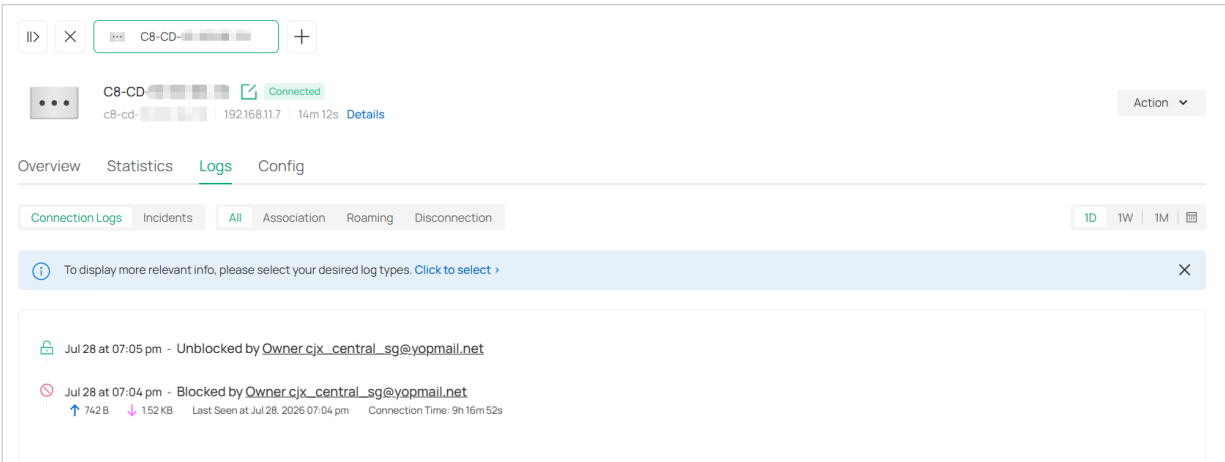
■ **Statistics**

In **Statistics**, you can check the DPI traffic statistics of the client.



■ **Logs**

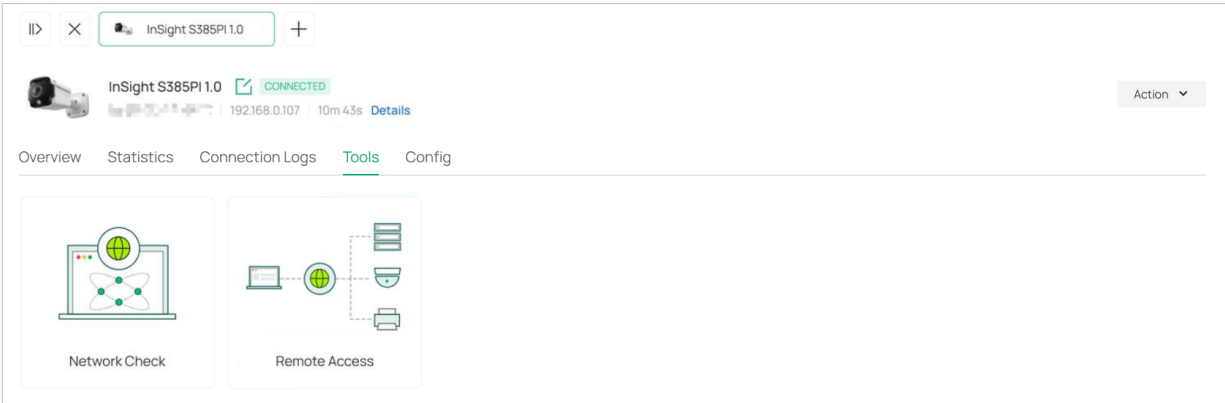
In **Logs**, you can check the logs of the client, including connection logs (association, roaming, and disconnection), and incidents.



■ **Tools**

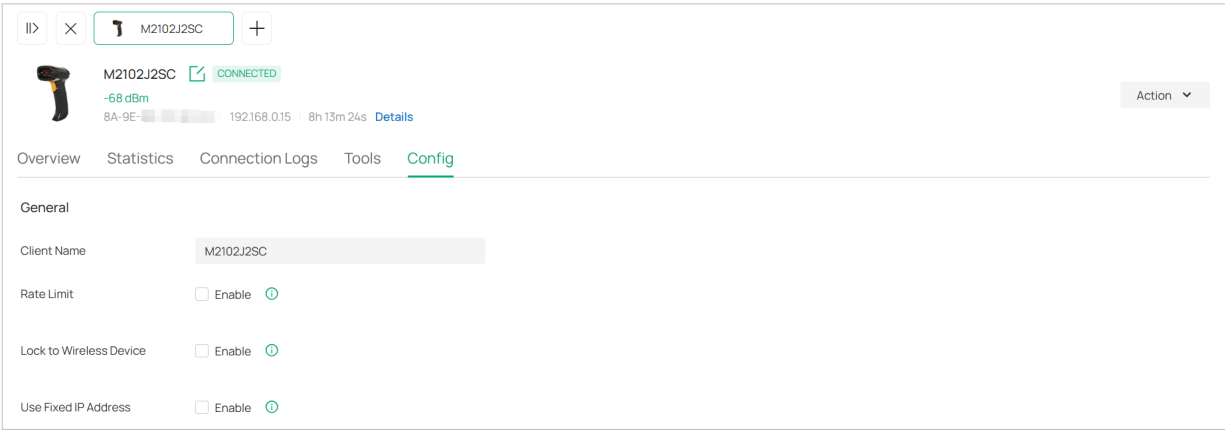
In **Tools**, you can use the network tool to test the network connectivity. For clients identified as IPCs/NVRs, you can configure Remote Access so you can easily access them from an external network.

For detailed instructions, refer to [17. 7 Maintain the Network with Tools](#).



■ **Config**

In **Config**, you can edit client settings.



Client Name

Specify the client's name to better identify different clients, and the name is used as the client's username in the table on the Clients page.

Rate Limit

Enable this function if you want to limit the download and upload rate of each client to balance bandwidth usage.

When enabled, select an existing rate limit profile, create a new rate limit profile or customize the rate limit.

Custom: Specify the [Download Limit](#) and [Upload Limit](#) based on needs.

Note: Rate Limit on this page is only available for the clients connected to the APs. To limit the rate of the clients connected to the gateway or switch, go to the Bandwidth Control page.

Lock to Wireless Device

When enabled, you can lock the device to a specific wireless device for stable connection. To use this function, ensure your device is using the device MAC rather than a random MAC. Otherwise, the function may not take effect. Only 11ac and above products support this function.

Use Fixed IP Address

Click the checkbox to configure a fixed IP address for the client. With this function enabled, select a network and specify an IP address for the client.

Note: A gateway is required for this function. Otherwise, you cannot set a fixed IP address for the client.

15.3 Manage Client Authentication in Hotspot

Hotspot is a portal management system for centrally monitoring and managing the clients authorized by portal authentication. The following tabs are provided in the system for a easy and direct management.

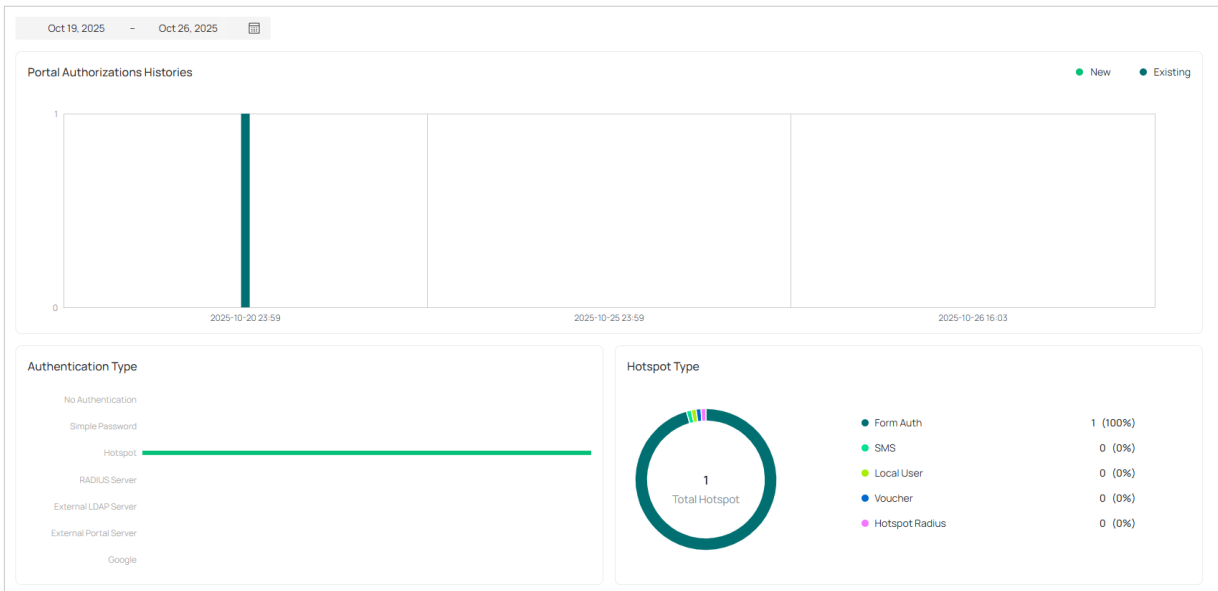
Dashboard	Monitor portal authorizations at a glance through different visualizations.
Authorized Clients	View the records of the connected and expired portal clients.
Vouchers	Create vouchers for Portal authentication, and view and manage the related information.
Local Users	Create local user accounts for Portal authentication, view their information, and manage them.
Form Auth Data	Customize your survey contents and publish it to collect data.
Operators	Create operator accounts for Hotspot management, view their information, and manage them.

To access the system, click **Hotspot** in the sidebar of the **Site** interface.

15.3.1 Dashboard

In the Dashboard, you can monitor portal authorizations at a glance through different visualizations.

To open the dashboard, launch the controller and access a site, click **Hotspot** in the sidebar, then click **Dashboard**. Specify the time period to view portal authorization histories.



15.3.2 Authorized Clients

The Authorized Clients tab is used to view and manage the clients authorized by portal system, including the expired clients and the clients within the valid period.

To open the list of Authorized Clients, launch the controller and access a site, click **Hotspot** in the sidebar, then click **Authorized Clients**. You can search certain clients using the search box, view their detailed information in the table, and manage them using the action column.

Search Name, MAC, SSID/Network or Authorized By

Name	MAC ADDRESS	SSID/NETWORK	AUTHORIZED BY	DOWNLOAD	UPLOAD	START TIME	STATUS	EXPIRATION TIME	ACTION
NOH-AN01		YYYYHHNNNN	Local User - 1	4.06MB	331.16KB	Mar 07, 2025 12:03:27 pm	valid	Mar 08, 2025 12:09:03 pm	

Showing 1-1 of 1 records

1

10 /page

Go to page

GO



Click to extend the valid period of the authorized client. You can choose the preset time length or set a customized period based on needs.



Click to disconnect the authorized client(s). If you disconnect an authorized client, the client needs to be re-authenticated for the next connection.



Click to delete the expired client from the list.

15.3.3 Vouchers

The Vouchers tab is used to create vouchers and manage unused voucher codes. With voucher configured and codes created, you can distribute the voucher codes generated by the controller to clients for them to access the network via portal authentication.

Follow the steps below to create vouchers for authentication:

- 1. Launch the controller and access a site, click **Hotspot** in the sidebar, then click **Vouchers > Voucher Groups**.
- 2. Click **Create Vouchers Group** on the upper-right.
- 3. Configure general voucher settings and click **Save**.

Vouchers Group Name

Portal Privilege

☒ All (Including all newly created portals)

☐ Portal

Code Length

6

(6-10)

Code Format

Number

x

Amount

10

(1-5000)

Portal Logout

☒ Allow clients to log out of the portal by accessing a URL (portal.tplink.net/portal/logout by default)

i

Type

☒ Limited Usage Counts

1

(1-999)

i

☐ Limited Online Users

☐ Unlimited For Usage

Voucher Validity

Fixed Dates

v

Voucher Effective Time

2025-Nov-18

📅

Voucher Expiration Time

2026-Nov-18

📅

i

Vouchers take effect at 2025-Nov-18 and expire at 2026-Nov-18. Voucher Effective Time and Voucher Expiration Time will depend on the time zone set by the Controller.

Duration Type

☒ Voucher Duration ⓘ

☐ Client Duration ⓘ

Timing

☒ By Time ⓘ

☐ By Usage ⓘ

Duration

8 Hours

ⓘ The voucher will be effective for 8 Hours since authentication.

ⓘ Download Limit, Upload Limit, and Traffic Limit on this page are only available for wireless clients connected to the SSIDs with Portal authentication enabled. To limit the rate of wired clients connected to the switch and gateway, go to the Settings-Transmission-Bandwidth Control page.

Rate Limit

Default

Traffic Limit

☐ Enable ⓘ

Unit Price

AUD

(Optional)

Description

(Optional)

Vouchers Group Name	Enter a name to identify the group.
Portal Privilege	All: The vouchers will take effect for all voucher type portals, including newly created ones. Portal: Select the portal for which the vouchers will take effect.
Code Length	Specify the length of the code(s) from 6 to 10 digits.
Code Format	Choose whether the voucher code is generated by numbers, letters, or a mixture.
Amount	Specify the number of voucher codes you want to create.
Portal Logout	Check the box to allow guests to log out of the portal by accessing a URL (portal.tplink.net/portal/logout by default). You can change the default URL by editing portal.logout.domain in the omada.properties file. Note: Some devices may require firmware update to support Portal Logout.
Type	Select a type to limit the usage counts or the number of authorized users of a voucher code. Limited Usage Counts: The voucher code can only be used for a limited number of times within its valid period. Limited Online Users: The voucher code can be used for an unlimited number of times within its valid period, but only a limited number of wireless clients can access the network with this voucher code at the same time. Unlimited For Usage: The voucher code can be used for an unlimited number of times within its valid period.
Voucher Validity	Specify the validity of vouchers in the group: Permanent: Vouchers will be valid permanently. Fixed Dates: Vouchers will be valid during the start and end dates you specify. Scheduled: Vouchers will be valid according to the schedule you set.

Duration Type	Specify whether to limit the voucher duration or client duration. Voucher Duration: Configure the duration for the voucher. Clients can use the voucher for the specified time duration (e.g., 8 hours after the first use). After reaching the voucher duration, the voucher will expire whether used or not. Client Duration: Configure the duration for the client. The client can use vouchers for the specified time duration (e.g., 8 hours after the first use). After reaching the client duration, the client will expire and cannot use the vouchers to access the network.
Timing	By time: The voucher code takes effect within a fixed period of time after authentication. By Usage: The voucher code takes effect according to the actual time used by the client.
Duration	Select the valid period for the voucher code(s).
Rate Limit	Select an existing rate limit profile, create a new rate limit profile or customize the rate limit for the voucher codes. Custom: Specify the download/upload rate limit based on needs. Download/Upload Limit: Click the checkbox and specify the rate limit for download/upload for wireless clients using the voucher code(s). The value of the download and upload rate can be set in Kbps or Mbps. Note: Rate Limit on this page are only available for wireless clients connected to the SSIDs with Portal authentication enabled. To limit the rate of wired clients connected to the switch and gateway, go to Network Config > Transmission > Bandwidth Control.
Traffic Limit	Click the checkbox and specify the daily/weekly/monthly/total traffic limit for the voucher, and the value of the traffic limit can be set in MB or GB. Once the limited is reached, the client(s) can no longer access the network using the voucher. Note: Traffic Limit on this page are only available for wireless clients connected to the SSIDs with Portal authentication enabled. To limit the rate of wired clients connected to the switch and gateway, go to Network Config > Transmission > Bandwidth Control.
Unit Price (Optional)	Set the amount and currency type for the voucher (for statistical purposes only).
Description (Optional)	Enter notes for the created voucher code(s), and the input description is displayed in the voucher list under the voucher tab.

4. Configure voucher pattern settings, preview it, then click **Save**.

Logo/Title

☒ Logo ☐ Title ☐ Disabled

Upload Logo

Browse

Logo Size

SmallMediumLarge

SSID & Network

☐ Enable

Duration

☐ Enable

Limit Counts

☐ Enable

Print Comments

(Optional)

Position

☒ Left ☐ Right ☐ Center

Preview

383378

Omada

00:00-23:59 every day

Logo/Title

Choose whether to display a logo or title on the vouchers.

Logo: Upload a logo and adjust its size to display the logo on the vouchers.

Title: Enter a title and adjust its size to display the title on the vouchers.

Disabled: No logo or title will be displayed on the vouchers.

SSID & Network

Enable this option and select the SSID or network to display if needed.

Duration

Enable this option to display the voucher validity duration if needed.

Limit Counts

Enable this option to display the voucher limit counts if needed.

Print Comments

Enter print comments if needed and the comments will be printed when you print the created voucher codes.

Position

Choose the position to display the voucher code.

5. The voucher group is generated.

Search Name or Voucher Code

Print Selected Unused Vouchers

Clear Selected Expired Vouchers

Delete

Export

Create Vouchers Group

Start date

-

End date

Printing Language

English

Currency

AUD

	GROUP NAME	CREATED TIME	CREATOR	USED/TOTAL AMOUNT	UNIT PRICE	TOTAL PRICE	DURATION	PORTAL	ACTION
☐	Canteen	Mar 12, 2026 05:21:17 pm	smbtest_...	0/10	-	-	Voucher - 8h - By Usage	Enabled	
☒	Office	Mar 12, 2026 05:06:04 pm	smbtest_...	0/10	-	-	Voucher - 8h - By Time	Enabled	

Select 1 of 2 items [Select All](#)

Showing 1-2 of 2 records

1

10 / page



The voucher code can be used for an unlimited number of times within its valid period, but only a limited number of wireless clients can access the internet with this voucher code at the same time. The number on the right shows the limited number of users.



The voucher code can only be used for a limited number of times within its valid period. The number on the right shows the limited number of authentication times.

In the voucher group list, you can:

- Click the Details icon in the Action column to view the voucher codes. If you want to change the voucher pattern settings, click [Edit Voucher](#).

1111

Created Time

Nov 18, 2025 02:04:53

Creator

controller_cloud_uat_test@yopmail.com

Portal

All portals

Portal Logout

Enabled

Description

-

910665

0-0:00-23:59:59 every day

Omada

10.2.1.1

Statistics

10

Total Vouchers

0

Total Amount

Search Code

Q

All (10)

Unused (10)

In-use (0)

Expired (0)

Clear All Expired Vouchers

Print All Unused Vouchers

Print Selected Vouchers

Delete

☐	CODE	STATUS	REMAINING TRAFFIC	DOWNLOAD LIMIT	UPLOAD LIMIT	USED TIME	LEFT TIME	ACTION
☐	910665	Unused	-	-	-	0	8h	
☐	080764	Unused	-	-	-	0	8h	
☐	668831	Unused	-	-	-	0	8h	
☐	483022	Unused	-	-	-	0	8h	
☐	685863	Unused	-	-	-	0	8h	
☐	826305	Unused	-	-	-	0	8h	
☐	822186	Unused	-	-	-	0	8h	
☐	430298	Unused	-	-	-	0	8h	
☐	960443	Unused	-	-	-	0	8h	
☐	752403	Unused	-	-	-	0	8h	

Select 0 of 10 items

Select All

Showing 1-10 of 10 records

<

1

>

10 /page

- Click the Print icon to print unused vouchers of a voucher group, or select multiple voucher groups and click [Print Selected Unused Vouchers](#) for print them in batches.

082439

Omada

2025-10-26 -- 2026-10-26

885191

Omada

2025-10-26 -- 2026-10-26

864806

Omada

2025-10-26 -- 2026-10-26

732768

Omada

2025-10-26 -- 2026-10-26

504143

Omada

2025-10-26 -- 2026-10-26

697108

Omada

2025-10-26 -- 2026-10-26

548549

Omada

2025-10-26 -- 2026-10-26

938362

Omada

2025-10-26 -- 2026-10-26

529473

Omada

2025-10-26 -- 2026-10-26

215420

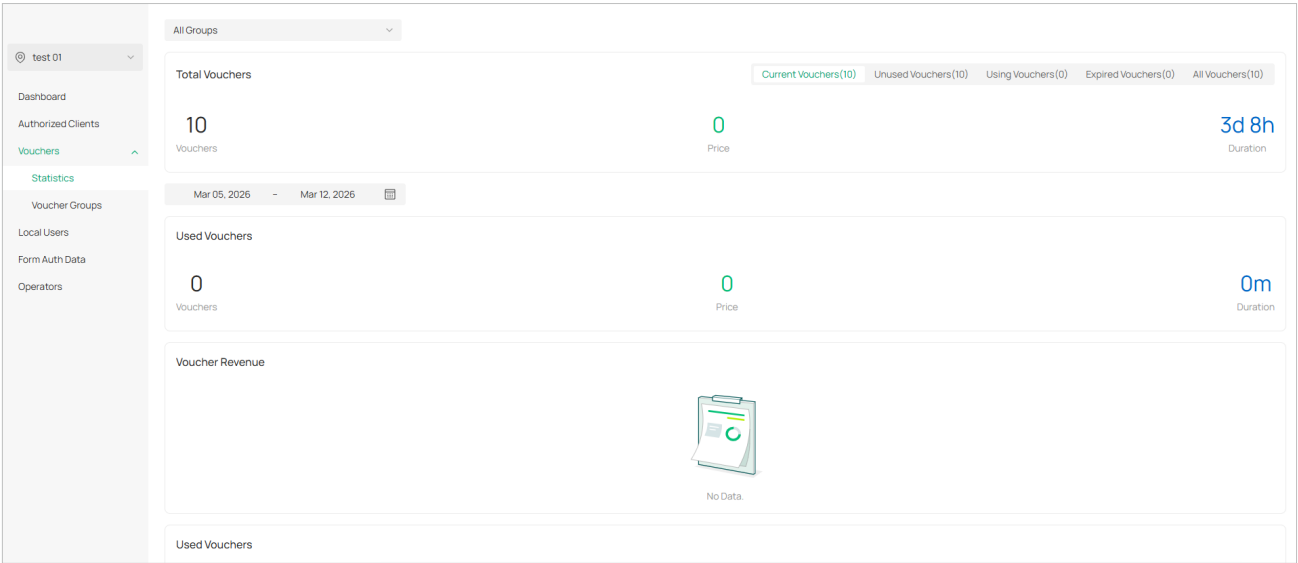
Omada

2025-10-26 -- 2026-10-26

- Click the Clear icon to clear expired vouchers of a single group, or select multiple groups and click [Clear Selected Expired Vouchers](#) for batch clear.
- Click the Delete icon to delete a single group, or select multiple groups and click [Delete](#) for batch delete.
- Select multiple groups and click Export Vouchers to export their vouchers.

6. Distribute the vouchers to clients, and then they can use the codes to pass authentication. If a voucher code expires, it will be automatically removed from the list.

7. Go to the [Vouchers > Statistics](#) page. You can select [All Groups](#) or a specific group from the drop-down list to view voucher statistics.



15.3.4 Local Users

The Local Users tab is used to create user accounts for authentication. With the Local User configured, clients are required to enter the username and password to pass the authentication. You can create multiple accounts and assign them to different users.

There are two ways to create local user accounts: create accounts on the page and import from a file.

To create local user accounts, follow the steps below.

1. Launch the controller and access a site, click [Hotspot](#) in the sidebar, then click [Local Users](#).
2. Create Local User accounts through either of the following ways.

■ Create Local User accounts

Click **Create User** on the upper-right, and the following window pops up. Configure the following parameters and click **Save**.

Create User

Portal

Please Select...

▼

Username

Password

⌵

Status

☒ Enable

Portal Logout

☒ Allow clients to log out of the portal by accessing a URL (portal.tplink.net/portal/logout by default) ⓘ

Authentication Timeout

Dec 31, 2025

📅

In Pacific Time (US & Canada)

MAC Address Binding Type

No Binding

▼

Maximum Users

1

(1-2048)

Name

(Optional)

Telephone

(Optional, For example: +17704505791)

ⓘ

Download Limit, Upload Limit, and Traffic Limit on this page are only available for wireless clients connected to the SSIDs with Portal authentication enabled.To limit the rate of wired clients connected to the switch and gateway, go to the Settings-Transmission-Bandwidth Control page.

Rate Limit

Default

▼

Traffic Limit

☐ Enable ⓘ

Save

Cancel

Portal	Select the portal for which the local users will take effect.
Username	Specify the username. The username should be different from the existing ones, and it is not editable once it is created.
Password	Specify the password. Local users are required to enter the username and password to pass authentication and access the network.
Status	When the status is enabled, it means the user account is valid. You can disabled the user account, and enable it later when needed.
Portal Logout	Check the box to allow guests to log out of the portal by accessing a URL (portal.tplink.net/portal/logout by default). You can change the default URL by editing portal.logout.domain in the omada.properties file. Note: Some devices may require firmware update to support Portal Logout.
Authentication Timeout	Specify the authentication timeout for local users. After timeout, the users need to log in again on the authentication page to access the network.

MAC Address Binding Type	There are three types of MAC binding: No Binding, Static Binding and Dynamic Binding. No Binding: No MAC address is bound to the local user account. Static Binding: Bind a MAC address to this user account manually. Then only the user with the this MAC address can use the username and password to pass the authentication. Dynamic Binding: The MAC address of the first user that passes the authentication will be bound to this account. Then only this user can use the username and password to pass the authentication.
Maximum Users	Specify the maximum number of users that can use this account to pass the authentication.
Name (optional)	Specify a name for identification.
Telephone (optional)	Specify a telephone number for identification.
Rate Limit	Select an existing rate limit profile, create a new rate limit profile or customize the rate limit for the local users. Custom: Specify the Download Limit and Upload Limit based on needs.
Traffic Limit	Click the checkbox and specify the daily/weekly/monthly/total traffic limit for the local user account, and the value of the traffic limit can be set in MB or GB. Once the limited is reached, the user(s) can no longer access the network using this account. Note: Traffic Limit on this page are only available for wireless clients connected to the SSIDs with Portal authentication enabled. To limit the rate of wired clients connected to the switch and gateway, go to the Network Config > Transmission > Bandwidth Control.

■ Create Local User accounts from files

Click [Import Users](#) on the upper-right, and the following window pops up. Select a file in the format of CVS or Excel, and click [Import](#). To see required parameters and corresponding explanation, refer to [Create Local User accounts](#). Note that the imported file will override the current user data.

Import Users

Portal

Please Select...

i

Choose File

Please select a file.

Browse

Only CSV ,XLS and XLSX file types are supported.
Username conflicting data will be overridden.

import

Cancel

Portal Select the portal to which the local users will be imported.

3. The local user account(s) will be created and displayed in the module. You can view the information of the created local users, search certain accounts through the name, and use icons for management.

Search Name or Username

Import Users

Export Users

+ Create User

USERNAME	ENABLED	EXPIRATION TIME	MAXIMUM USERS	DOWNLOAD	UPLOAD	TRAFFIC	ACTION
user1		Dec 31, 2025 11:59:59 pm	1	--	--	--	
user2		Dec 31, 2025 11:59:59 pm	1	--	--	--	

Showing 1-2 of 2 records

<1>

10 /page

Go to page

GO

Import Users Click to add local user(s) from files in the format of CVS or Excel. It is recommended when you need to create local users in batches. Select the portals based on needs, and the local users will be imported to the chosen portal.

Note that the imported file will override the current user data.

Export Users Click to export the local user(s) to files in the format of CVS or Excel. Select the portals based on needs, and the local users of the chosen portal will be exported.

Click to edit the parameters for the local user.

Click to delete the local user.

15.3.5 Form Auth Data

The Form Auth Data tab is used to create and manage surveys. You can customize your survey contents and publish it to collect data.

To create surveys, follow the steps below.

1. Launch the controller and access a site, click **Hotspot** in the sidebar, then click **Form Auth Data**.
2. Click **Create New Survey** and the following window pops up.

3. Specify the survey name and duration, then customize the contents.
4. Preview and save the settings or publish the survey.
5. The surveys are created and displayed in the table. You can use icons for management and click the ellipse icon for more management options.

FORM AUTH NAME	PORTAL	CREATED TIME	RESPONSES	ACTION
Survey1 Unpublished	● Not in Use	Feb 11, 2025 09:47:11 pm	0	

15.3.6 Operators

The Operators tab is used to manage and create operator accounts that can only be used to remotely log in to the Hotspot system and manage vouchers and local users for specified sites. The operators have no privileges to create operator accounts, which offers convenience and ensures security for client authentication.

To create operator accounts, follow the steps below.

1. Launch the controller and access a site, click **Hotspot** in the sidebar, then click **Operators**.

2. Click **Create Operator** on the lower-left, and the following window pops up.

Create Operator

Username

Password

Role

Admin

Description

(Optional)

Site Privileges

Please Select...

Save

Cancel

3. Specify the username, password, and role for the operator account. Admin role has read and write permissions, while Viewer role has read-only permissions.
4. (Optional) Enter a description for identification.
5. Select sites from the drop-down list of **Site Privileges**. Click **Save**.
6. The operator accounts are created and displayed in the table. You can view the information of the create operator accounts on the page, search certain accounts through the name and notes, and use icons for management.

USERNAME	PASSWORD	ROLE	SITE PRIVILEGES	NOTES	ACTION
User1		Admin	test	-	 

7. Then you can use an operator account to log in to the Hotspot system:

■ **For software controller**

Visit the URL **https://Controller Host's IP Address:8043/ControllerID/login/#hotspot** (for example: **https://192.168.0.174:8043/4d4ede7983bb983545d017c628feaa3d/login/#hotspot**), and use the operator account to enter the Hotspot system.

■ **For hardware controller**

Visit the URL **https://Controller Host's IP Address:443/ControllerID/login/#hotspot** (for example: **https://192.168.0.174:443/4d4ede7983bb983545d017c628feaa3d/login/#hotspot**), and use the operator account to enter the Hotspot system.

■ **For cloud-based controller**

Visit the URL **https://URL of the controller/ControllerID/login/#hotspot**, and use the operator account to enter the Hotspot system.

Chapter 16

Manage Accounts

This chapter gives an introduction to different user levels of controller accounts and guides you on how to create and manage them. It includes the following sections:

- [16. 1 Introduction to User Accounts](#)
- [16. 2 Create and Manage Roles](#)
- [16. 3 Create and Manage Local User Accounts](#)
- [16. 4 Create and Manage Cloud User Accounts](#)
- [16. 5 Manage User Accounts Across Controllers](#)

16.1 Introduction to User Accounts

The Controller offers multiple levels of access available for users: **Owner**, **Super Admin**, **Admin**, and **Viewer**. You can also create new account roles and customize their permissions to access different features.

Since the controller can be accessed both locally and via cloud access, users can be further grouped into local users and cloud users.

Multi-level administrative account presents a hierarchy of permissions for different levels of access to the controller as required. This approach ensures security and gives convenience for management.

Moreover, in the user accounts list of the Owner/Super Admin, all accounts it created will be displayed. The accounts created by each administrator will be hidden by default, making the interface more systematic and to the point.

■ Owner

The Owner has access to all features.

The account who first launches the controller will be the Owner (used to be recognized as Main Admin in earlier controller versions). It cannot be changed and deleted.

■ Super Admin

The Super Admin can manage all the other roles (except Owner) and the privileges of most features.

■ Admin

Admins have no permission to some modules, mainly including cloud access, migration, auto-backup and global view logs. They have read-only permission to some modules, such as global view license management and custom account roles.

Admins can be created and deleted by the Owner/Super Admin and Admins.

■ Viewer

Viewers can view the status and settings of the network, and change the settings in Hotspot Manager.

The entrance to Account page is hidden for viewers, and they can be created or deleted by the administrators.

■ Custom roles

Custom roles can be configured to access different features.

They can be created or deleted only by the Owner/Super Admin.

Note:

Please upgrade Omada APP to version 4.6 or later, otherwise you may not be able to log in with the accounts bound with customized roles.

16.2 Create and Manage Roles

1. Launch the controller and access the Global View.
2. Go to [Accounts > Role](#). The Controller offers four levels of default roles: **Owner**, **Super Admin**, **Admin**, and **Viewer**.
3. If you want to create a custom role, click [Add New Role](#).
4. Specify the role type name and customize the permissions for the role. Click [Create](#).

← Add New Role

Role Type Name

Global

Dashboard Page

Modify

View Only

Block

Site Template Page

Modify

View Only

Block

Devices Page ⓘ

Modify

View Only

Block

Logs & Audit Logs Pages

Modify

View Only

Block

Firmware Page

Modify

View Only

Block

Security Page ⓘ

Modify

View Only

Block

SD-WAN Page

Modify

View Only

Block

User Page

Modify

View Only

Block

Role Page

Modify

View Only

Block

SAML User Page

Modify

View Only

Block

SAML User Group Page

Modify

View Only

Block

Webhooks Page

Modify

View Only

Block

Site

Dashboard Page

Modify

View Only

Block

Devices Page

Modify

View Only

Block

Clients Page

Modify

View Only

Block

Insights-Application Analytics Page

View Only

Block

Insights-reports Page

Modify

View Only

Block

Logs & Audit Logs Pages

Modify

View Only

Block

Map Page

Modify

View Only

Block

Network Tools Page

Modify

View Only

Block

IntelliRecover Page

Modify

View Only

Block

Network Config Page

Modify

View Only

Block

Device Config Page

Modify

View Only

Block

Hotspot

Modify

View Only

Block

Create

Cancel

5. The new role will be displayed in the role list.

ROLE	SOURCE	ACTION
Owner	Default	
Super Admin	Default	
Admin	Default	
Viewer	Default	
role_1	Controller	

If you want to edit/delete a custom role, click the Edit/Delete icon in the ACTION column.

16.3 Create and Manage Local User Accounts

By default, the Controller automatically sets up a local user with the role called Owner as the primary administrator. The username and password of the Owner are the same as that of the controller account by default. The Owner cannot be deleted, and it can create, edit, and delete other levels of user accounts.

16.3.1 Edit the Local Owner Account

To view basic information and edit the Local Owner account, follow these steps:

1. Launch the controller and access the Global View.
2. Go to **Accounts > User**.
3. Click the Edit icon in the ACTION column and enter the account password to view or change the account.
4. Check and edit the account information. Click **Save**.

■ **If you access the controller locally:**

Basic Information

Role

Owner

Permission Transfer

Site Privileges

All Sites

← Edit User

?

Username

admin

Change Password

☐ Enable

Email

Alert/Event/Incident Notification

☐ Enable ⓘ

Two-Factor Authentication (2FA)

☐

With Two-factor authentication (2FA) enabled, you'll need both a password login and a 6-digit token automatically generated by the Google Authenticator App when logging into the Omada Controller. This provides a much higher level of security.

Note: Please download authenticator app on your phone first.

...

Permission Transfer	Click this button and select an account to transfer the Local Owner permissions of the current account to the new account. After transferred, the current account will be downgraded as Local Admin.
Username	Displays the username of the account. You can change it if needed.
Change Password	Check the box to change the password of the account.
Email	Enter the email address to receive notification emails.
Alert/Event/Incident Notification	Check the box if you want the user to receive notification emails about alerts/events/incidents of the privileged sites.

Two-Factor Authentication (2FA)

With Two-factor authentication (2FA) enabled, you'll need both a password login and a 6-digit token automatically generated by the Google Authenticator App when logging into the Omada Controller with this account. This provides a much higher level of security.

Note: Please download authenticator app on your phone first.

■ If you access the controller via cloud:

Basic Information

Role

Owner

Site Privileges

All Sites

← Edit User

Username

admin

Change Password

☐ Enable

Email

Alert/Event/Incident Notification

☐ Enable ⓘ

Username	Displays the username of the account. You can change it if needed.
Change Password	Check the box to change the password of the account.
Eamil	Enter the email address to receive notification emails.
Alert/Event/Incident Notification	Check the box if you want the user to receive notification emails about alerts/events/incidents of the privileged sites.

16.3.2 Create and Manage Other Local Accounts

To create and manage a local user account, follow these steps:

- 1. Launch the controller and access the Global View.
- 2. Go to **Accounts > User**. Click **Add New User**.

3. Select **Local User** for the administrator type. Specify the parameters and click **Create**.

← Add New User

Administrator Type

☒ Local User

☐ Cloud User

Valid Period

☒ Permanent

☐ Temporary

Username

Password

Role

Manage Role

Site Privileges

☒ All sites (including newly created sites)

☐ Specific sites

Email

(Optional)

Alert/Event/Incident Notification

☐ Enable

Create

Cancel

Valid Period	Set the validity period of the user. Permanent: The user account will have permissions permanently unless modified or deleted. Temporary: The user account will have permissions only in the period you set.
Username	Specify the username. The username should be different from the existing ones.
Password	Specify the password.
Role	Select a role for the created user account. Super Admin: This role can manage all the other roles (except Owner) and the privileges of most features. Admin: This role has permissions to adopt and/or manage devices of the sites chosen in the site privileges, edit itself, create/edit/delete viewer accounts in its privileged sites. However, it cannot delete itself or edit/delete Owner/Super Admin. Viewer: This role can view the information of the sites chosen in the site privileges. It can only edit itself. Custom roles: If you have created custom roles, they will be displayed in the list. To create custom roles, refer to 16.2 Create and Manage Roles.
Site Privileges	Assign the site permissions to the created local user. All sites (including newly created sites): The created user has device permissions in all sites, including all new-created sites. Specific sites: The created user has device permission in the sites that are selected. Select the sites by checking the box before them.

Email (optional)	Enter an email address for receiving notification emails.
Alert/Event/Incident Notification	Check the box if you want the user to receive notification emails about alerts/events/incidents of the privileged sites.

16.4 Create and Manage Cloud User Accounts

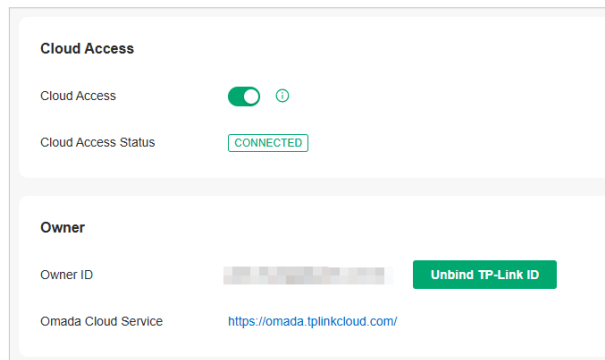
A Cloud-Based Controller enables cloud access by default and automatically sets up the cloud Owner. An on-premise controllers automatically sets up the cloud Owner if you have enabled cloud access and bound the controller account with a TP-Link ID in the quick setup. The username and password is the same as that of the TP-Link ID. The cloud Owner is cannot be deleted, and it can create, edit, and delete other levels of user accounts.

16.4.1 Set Up the Cloud Owner Account

For an on-premise controller, if you have not enabled the cloud access and bound the controller with a TP-Link ID in quick setup, you can follow the steps below to set up the Cloud Owner:

1. Launch the controller and access the Global View.
2. Go to **Settings > Cloud Access** to enable Cloud Access and bind your TP-Link ID.

If you have bound a TP-Link ID and no longer need it, you can click **Unbind TP-Link ID** to unbind it.



3. Go to **Accounts > User**. A cloud Owner with the same username as the TP-Link ID will be automatically created. The Cloud Owner cannot be deleted. You can log in with the Cloud Owner when the cloud access is enabled.

16.4.2 Edit the Cloud Owner Account

To view basic information and edit the Cloud Owner account, follow these steps:

1. Launch the controller and access the Global View.
2. Go to **Accounts > User**.
3. Click the Edit icon in the ACTION column and enter the account password to view or change the account.
4. Check and edit the account information. Click **Save**.

■ If you access the controller locally:

Basic Information

Role

Owner

Permission Transfer

TP-Link ID

Site Privileges

All Sites

Go to Cloud Access

← Edit User

Alert/Event/Incident Notification

☐ Enable ⓘ

Permission Transfer

Click this button and select an account to transfer the Cloud Owner permissions of the current account to the new account. After transferred, the current account will be downgraded as Cloud Admin.

Go to Cloud Access

Click to go to the Cloud Access page.

Alert/Event/Incident Notification

Check the box if you want the user to receive notification emails about alerts/events/incidents of the privileged sites.

■ If you access the controller via cloud:

Basic Information

Role

Owner

TP-Link ID

Site Privileges

All Sites

← Edit User

Alert/Event/Incident Notification

☐ Enable ⓘ

Alert/Event/Incident Notification

Check the box if you want the user to receive notification emails about alerts/events/incidents of the privileged sites.

16. 4. 3 Create and Manage Other Cloud Accounts

To create and manage cloud user account, follow these steps:

1. Launch the controller and access the Global View.
2. Go to **Accounts > User**. Click **Add New User**.

3. Select **Cloud User** for the administrator type. Specify the parameters and click **Invite**.

← Add New User

Administrator Type

☐ Local User

☒ Cloud User

Valid Period

☒ Permanent

☐ Temporary

TP-Link ID

i

Role

▼

Manage Role

Site Privileges

☒ All sites (including newly created sites)

☐ Specific sites

Alert/Event/Incident Notification

☐ Enable

i

Invite

Cancel

Valid Period	Set the validity period of the user. Permanent: The user account will have permissions permanently unless modified or deleted. Temporary: The user account will have permissions only in the period you set.
TP-Link ID	Enter an email address of the created cloud user, and then an invitation email will be sent to the email address. If the email address has already been registered as a TP-Link ID, it will become a valid cloud user after accepting the invitation. If the email address has not been registered, it will receive an invitation email for registration. After finishing registration, it will automatically becomes a valid cloud user.
Role	Select a role for the created cloud user. Super Admin: This role can manage all the other roles (except Owner) and the privileges of most features. Admin: This role has permissions to adopt and/or manage devices of the sites chosen in the site privileges, edit itself, create/edit/delete viewer accounts in its privileged sites. However, it cannot delete itself or edit/delete Owner/Super Admin and other Admin accounts. Viewer: This role can view the information of the sites chosen in the site privileges. It can only edit itself. Custom roles: If you have created custom roles, they will be displayed in the list. To create custom roles, refer to 16. 2 Create and Manage Roles.

Site Privileges	Assign the site permissions to the created local user.
	All sites (including newly created sites): The created user has device permissions in all sites, including all new-created sites.
	Specific sites: The created user has device permission in the sites that are selected. Select the sites by checking the box before them.

Alert/Event/Incident Notification	Check the box if you want the user to receive emails about alerts/events/incidents of the privileged sites.
-----------------------------------	---

16.5 Manage User Accounts Across Controllers

Overview

If you have multiple controller, Account Manager allows you to centrally manage user accounts across controllers, assign users, enforce permissions, and streamline onboarding through Cloud Portal.

To use Account Manager, ensure your controllers meet the following requirements:

Controller Type: Omada On-Premises Networking Controllers only.

Version Required: v5.15.20 or later.

Status: Controllers must be online.

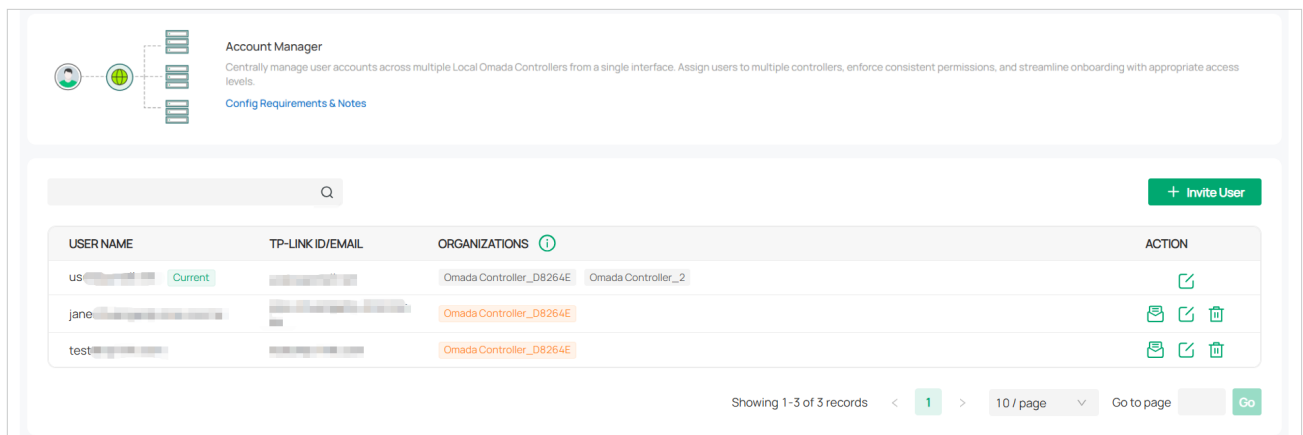
Cloud Access: Must be enabled.

Notes:

- For MSP Controllers, permissions are applied at the MSP level.
- Account Manager currently supports Full Management (Super Admin) and View Only (Viewer) permissions.

Configuration

1. Launch a web browser and visit <https://omada.tplinkcloud.com>. Enter your TP-Link ID and password to log in. If you do not have a TP-Link ID, create a TP-Link ID first.
2. Go to [Account Manager](#). The user accounts of all controllers managed by the current TP-Link ID will be listed. The organization column displays the status of organization invitation: yellow text indicates that the user has been invited but not yet agreed, and gray text indicates that the user has agreed to join.



The screenshot displays the 'Account Manager' interface. At the top, there is a header with a user profile icon, a search bar, and a '+ Invite User' button. Below the header, a table lists user accounts. The table has four columns: 'USER NAME', 'TP-LINK ID/EMAIL', 'ORGANIZATIONS', and 'ACTION'. The 'ORGANIZATIONS' column shows the status of organization invitations, with yellow text indicating 'Invited' and gray text indicating 'Agreed'. The 'ACTION' column contains icons for editing, deleting, and inviting users.

USER NAME	TP-LINK ID/EMAIL	ORGANIZATIONS	ACTION
us[redacted] Current	[redacted]	Omada Controller_D8264E Omada Controller_2	[Edit]
jane[redacted]	[redacted]	Omada Controller_D8264E	[Invite] [Edit] [Delete]
test[redacted]	[redacted]	Omada Controller_D8264E	[Invite] [Edit] [Delete]

Showing 1-3 of 3 records < 1 > 10 / page Go to page Go

3. If you want to invite a user to help manage a controller organization, click [Invite User](#) and configure the parameters.

← Invite User

TP-Link ID

Privileges

Select Organizations

Please Select... ▾

Organization Specific

☐ ⓘ

Organization

Role

Full Management ▾

Alert Emails

☐ ⓘ

Save

Cancel

TP-Link ID	Enter the TP-Link ID of the user you want to invite. If the email address has already been registered as a TP-Link ID, it will become a valid cloud user after accepting the invitation. If the email address has not been registered, it will receive an invitation email for registration. After finishing registration, it will automatically becomes a valid cloud user.
Select Organizations	Select one or multiple controller organization that the invited user can manage.
Organization Specific	Enable this option if you selected multiple controller organizations and want to configure the roles and alert settings for them separately.
Role	Set the permissions for the user: Full Management (Super Admin) or Viewer (View Only).
Alert Emails	With Alert Emails enabled, the organization will send the user emails about alerts.

Chapter 17

Monitor and Maintain the Network

This chapter guides you on how to monitor and maintain the network to ensure the stability and security of network operations. This chapter includes the following sections:

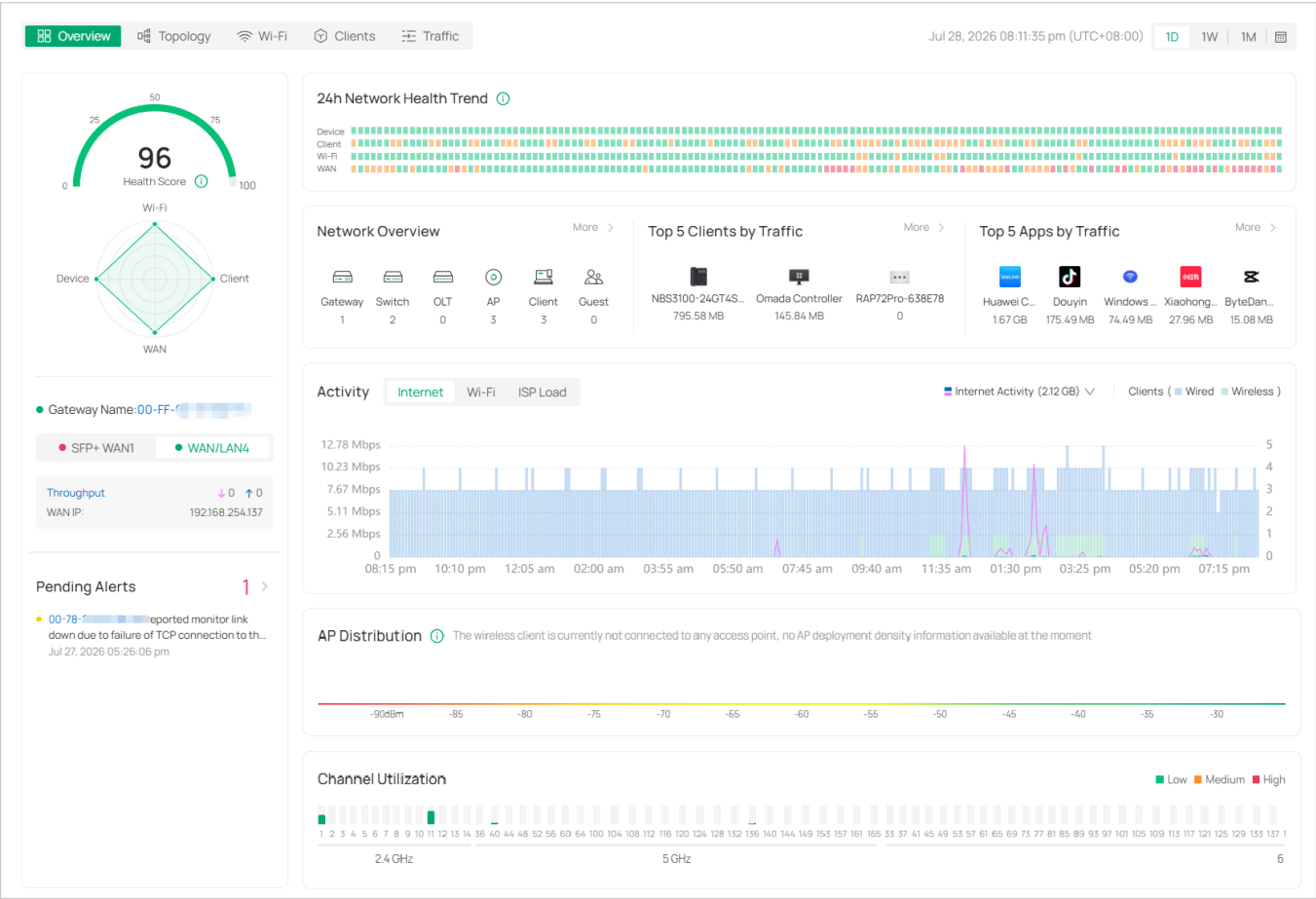
- [17. 1 Monitor the Network with Dashboard](#)
- [17. 2 Monitor the Network with Map](#)
- [17. 3 Monitor the Network with Insights](#)
- [17. 4 Monitor the Network with Logs](#)
- [17. 5 Maintain the Network with Incidents](#)
- [17. 6 Maintain PoE Devices with IntelliRecover](#)
- [17. 7 Maintain the Network with Tools](#)
- [17. 8 Maintain the Network with Site Backup and Restore](#)

17.1 Monitor the Network with Dashboard

Dashboard is designed for a quick real-time monitor of the site network. It is divided into four sections: Overview, Topology, Clients, and Traffic

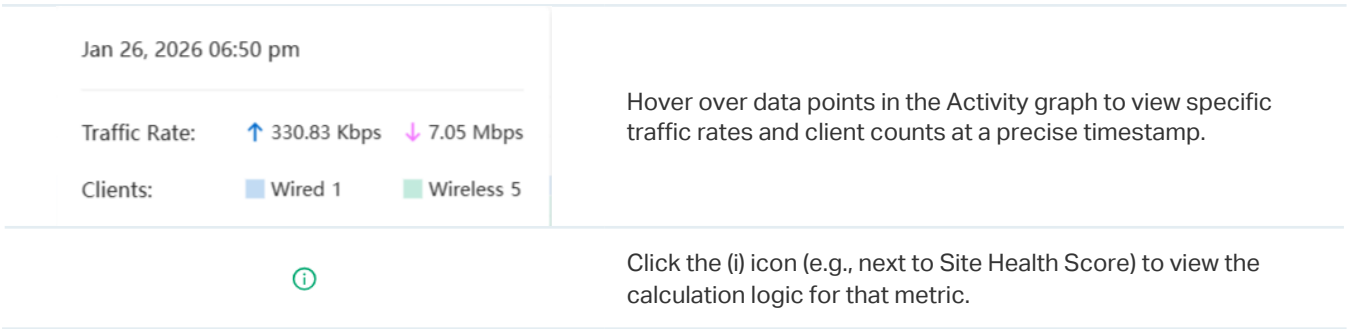
17.1.1 Overview

The Overview page provides a high-level summary of network health, client traffic, and hardware status. Use this dashboard to monitor real-time performance and identify potential bottlenecks at a glance.



■ Interactive Elements & Navigation

Element	Function
	Switch between Overview, Topology, Wi-Fi, Clients, and Traffic views.
	Filter data by 1D (Day), 1W (Week), or 1M (Month).
	Select More > on widgets like Network Overview or Top 5 Clients to view detailed lists.



■ **Monitoring Site Health**

To assess the current state of your network, follow these steps:

1. Check the Site Health Score: Locate the semicircular gauge on the left. A score of 100 indicates optimal performance across Wi-Fi, Device, WAN, and Client categories.
2. Review the 24h Site Health Trend: Scan the green grid. Each block represents a time interval; look for color shifts (e.g., yellow or red) which indicate historical outages or performance dips.
3. Test WAN Port Speed: Run a speed test on a single WAN port and the results will be available in a few seconds. You can also view historical speed test results.
4. Analyze Traffic Spikes: Observe the Activity chart. Compare the blue shaded area (Internet Activity) against the purple line (Clients) to see if high traffic correlates with specific user surges.
5. Identify High-Bandwidth Users: Consult the Top 5 Clients by Traffic and Top 5 Apps by Traffic cards to see which devices or applications (e.g., BitTorrent, NetEase) are consuming the most resources.
6. Evaluate Radio Environment: Scroll to AP Density and Channel Utilization to ensure your access points are operating on clear channels with minimal interference.

Note:

- You can quickly identify hardware failures in the Network Overview widget. If a device count (e.g., AP or Switch) appears lower than your known inventory, click the icon to jump directly to the device management page for troubleshooting.
- The ISP Activity metrics on the left sidebar show real-time throughput. If the Load Balancing Weight is set to 1:1, the controller is distributing traffic equally across multiple WAN ports.
- The dashboard automatically preserves your workspace preferences, including chart filter selections and table pagination settings. These core configurations persist after you leave the page, ensuring that your previous edits are automatically reloaded upon your next visit to eliminate repetitive setup.

17.1.2 Topology

The Topology page provides a real-time map of your network’s physical and logical connections. Use this view to visualize device relationships, monitor port speeds, and identify configuration redundancies like MLAG or VRRP.



In the diagram, you can:

- Use the (+) or (-) icons on connection branches to expand or collapse sub-trees.
- Click the icon of the client group to view clients connected to the same device.
- Click any device or client icon to open its Overview window for granular monitoring and configuration.
- Hover your cursor over any device icon to reveal a quick-view summary of its status and hardware information.

In the lower left:

Adjust the size of the topology, change the horizontal/vertical orientation of the topology, and view the legends.

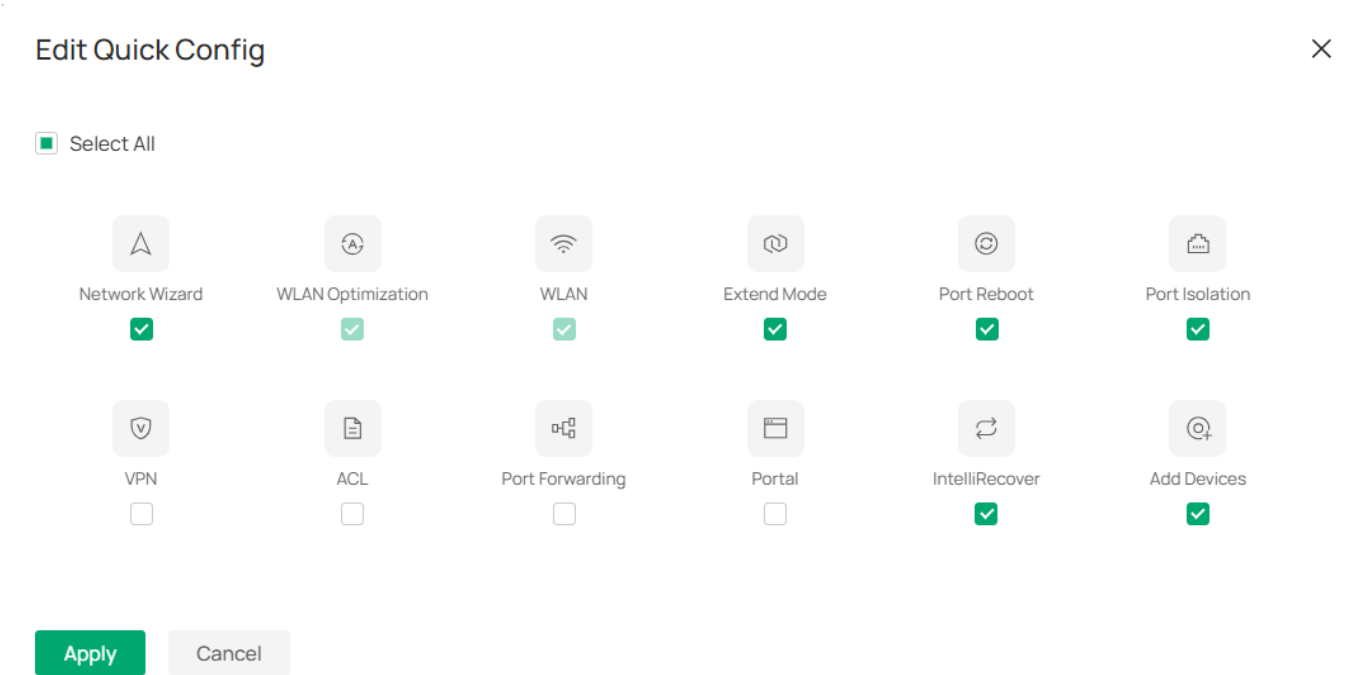
In the upper right:

- When Traffic (🔍) is enabled, the map displays the communication rate between devices. If using a third-party gateway, manually select your root node to ensure correct connectivity logic.
- Use the Network Filter (🔍) in the left panel to isolate specific LAN or wireless networks (SSIDs) within the visual map.

The left-side panel of the Topology page provides the device statistics chart, Network Filter, and Quick Config.

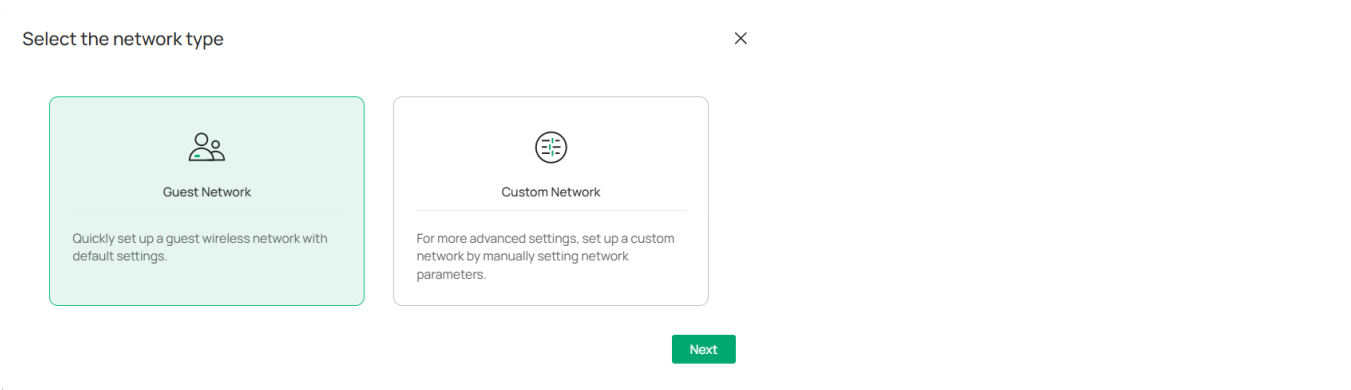
In **Network Filter**, you can filter the LAN and wireless network to display.

In **Quick Config**, you can click a configuration icon to quickly configure your network. To customize this section, you can click the edit icon and select the configuration icons to display.



■ Network Wizard

In Network Wizard, you can quickly set up a guest wireless network with default settings or a custom network by manually setting network parameters.



■ WLAN

In WLAN, you can quickly create an SSID and set up a basic wireless network.

Quick Add SSID

×

Select WLAN Group

Default

ⓘ

Network Name (SSID)

Device Type

☒ EAP

☐ Gateway

Band

☐ 2.4 GHz

☐ 5 GHz

☐ 6 GHz

ⓘ

Note: The number of SSIDs on 2.4 GHz, 5 GHz, 6 GHz is up to limit.

Guest Network

☐ Enable

ⓘ

Security

WPA-Personal

⌵

Password

Password

🔒

Apply

Cancel

■ Extend Mode

In Extend Mode, you can quickly extend network cable transmission for switch ports. With this feature enabled, the Link Speed/Duplex will be downgraded to 10 Mbps/Auto and the Flow Control feature will be disabled.

Extend Mode

×

ⓘ Extend mode is used to extend network cable transmission. With this feature enabled, the Link Speed/Duplex will be downgraded to 10 Mbps/Auto and the Flow Control feature will be disabled.

Search Name

🔍

☐	NAME	SELECT PORTS TO ENABLE EXTEND MODE	STATUS
☐	 SW#1-RF	1 3 5 7 9 11 13 15 17 19 21 23 25 27 2 4 6 8 10 12 14 16 18 20 22 24 26 28	● DISCONNECTED
☐	 	1 3 5 7 9 11 13 15 17 19 2 4 6 8 10 12 14 16 18 20	● DISCONNECTED
☐	 	1 3 5 7 9 11 13 15 17 19 21 23 25 27	● CONNECTED

Apply

Cancel

- Port Reboot

In Port Reboot, you can quickly reboot the powered devices that are connected to the switch ports.

Port Reboot

Port Reboot is used to reboot the powered devices that are connected to the ports.

Search Name

☐	NAME	SELECT PORTS TO ENABLE PORT REBOOT	STATUS
☐		1 3 5 7 9 11 13 15 17 19 21 23 25 27 2 4 6 8 10 12 14 16 18 20 22 24 26 28	CONNECTED

Select 0 of 1 items

Showing 1-1 of 1 records

< 1 >

10 /page

Apply

Cancel

- Port Isolation

In Port Isolation, you can quickly isolate the selected ports so that the ports cannot communicate with any other isolated port.

With this feature enabled, this port becomes an isolated port and cannot communicate with any other isolated port. Please configure this feature carefully.

Search Name

	NAME	SELECT PORTS TO ENABLE PORT ISOLATION	STATUS
SW#1-RF	13 1 3 5 7 9 11 15 17 19 21 23 25 27 2 4 6 8 10 12 14 16 18 20 22 24 26 28	DISCONNECTED	
	1 3 5 7 9 11 13 15 17 19 21 23 25 27 2 4 6 8 10 12 14 16 18 20 22 24 26 28	DISCONNECTED	

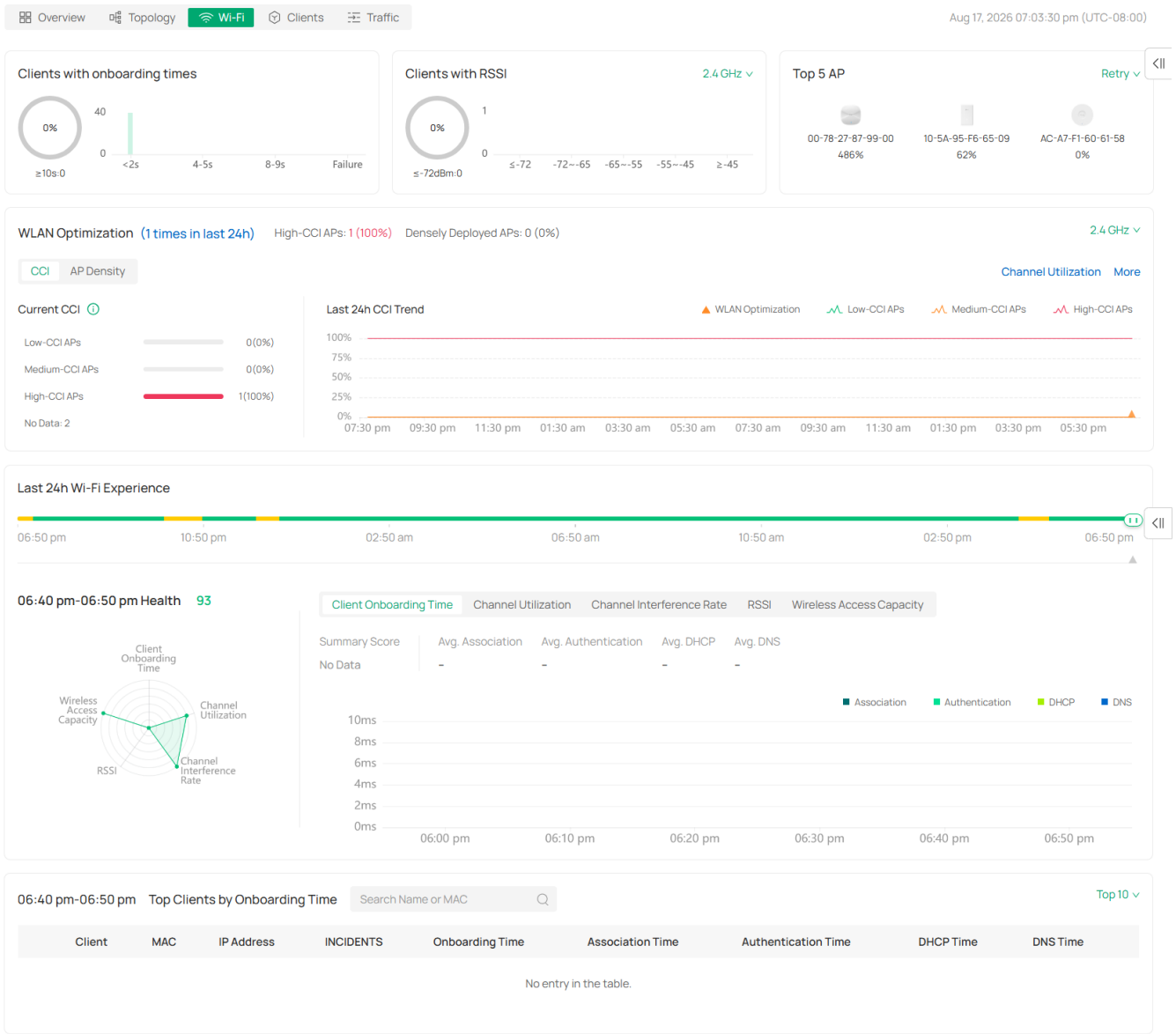
- Others

Other Quick Config functions, including WLAN Optimization, VPN, ACL, Port Forwarding, Portal, and IntelliRecover, will guide you to the configuration page. Refer to the corresponding chapter in this

manual for detailed guidance.

17.1.3 Wi-Fi

The Wi-Fi page offers a specialized overview of the wireless environment, highlighting connection efficiency, signal strength distribution, and radio resource management.

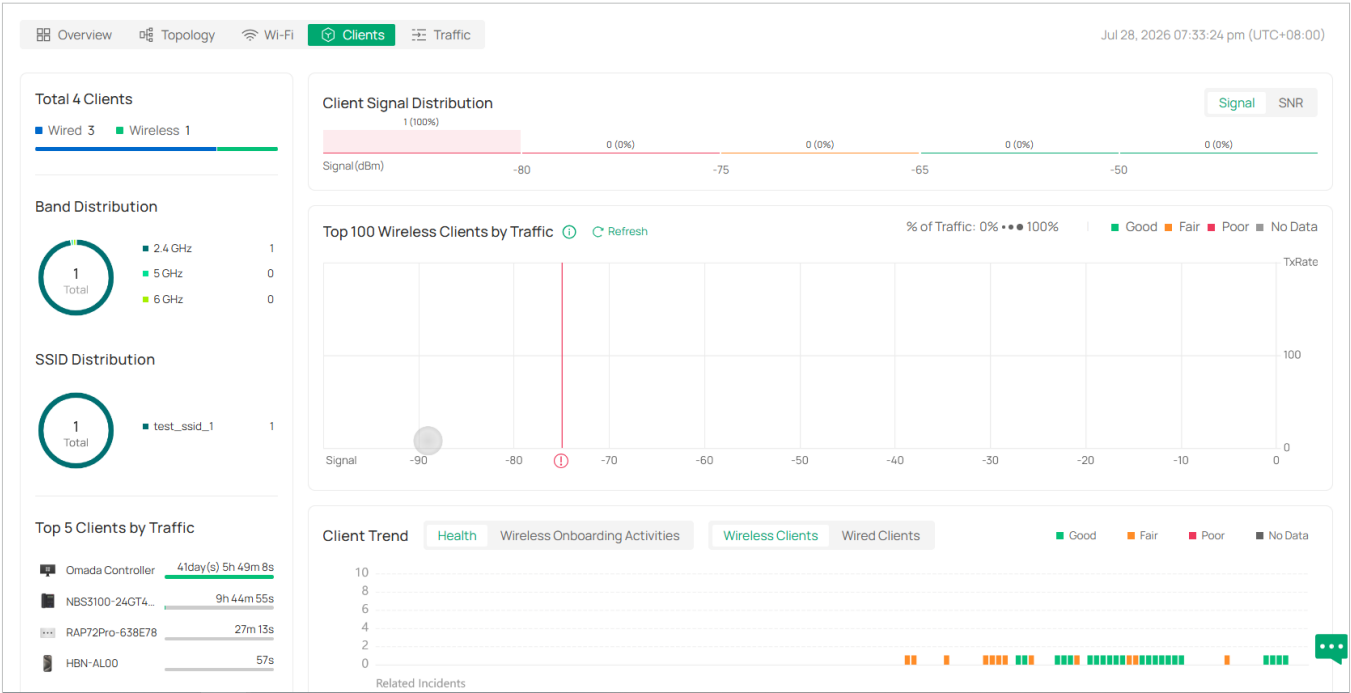


Widget	Function
Clients with onboarding times	Tracks how long wireless clients take to connect. Metrics are categorized from <2s to ≥10s or Failure.
Clients with RSSI	Displays the distribution of signal strength across the network. Filterable by frequency band (2.4GHz, 5GHz, or 6GHz).
Top 5 AP	Identifies the most active Access Points based on client load or traffic percentage.

WLAN Optimization	Displays the information about current CCI (Co-Channel Interference) and AP density. Click Channel Utilization to view the channel utilization chart in Overview and click More to go to the WLAN Optimization page.
Last 24h Wi-Fi Experience	A chronological health timeline. Use the playback/pause controls to review performance at specific time intervals. You can check the Wi-Fi health score, evaluated based on Client Onboarding Time, Channel Utilization, Channel Interference Rate, RSSI, and Wireless Access Capacity. You can also check the Top APs by Load.

17.1.4 Clients

The Clients dashboard provides a comprehensive view of all devices connected to the network. Use this page to monitor client health, track signal distribution, and identify high-bandwidth users across both wired and wireless segments.

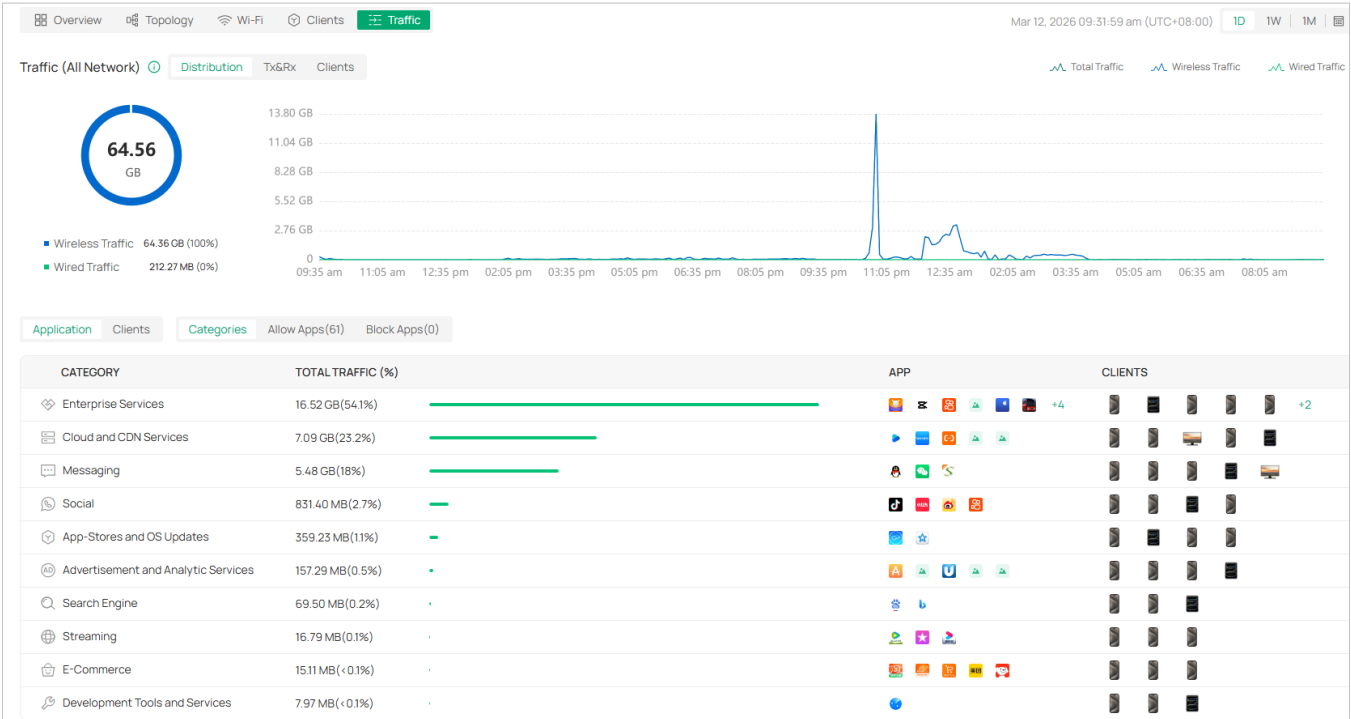


Element	Function
Clients Summary	Displays the total number of active clients, with a breakdown of Wired vs. Wireless connections.
Client Distribution	Displays visualizations for client distribution by band and by SSID.
Top 5 Clients by Traffic	Displays the top 5 clients ranked by traffic volume.

Client Signal Distribution	Displays distribution of client signals and SNRs (Signal-to-Noise Ratio).
Top 100 Wireless Clients by Traffic	Displays the top 100 wireless clients ranked by traffic volume.
Client Trend	Switches the historical view between Health status and Association Activities.

17.1.5 Traffic

The Traffic page provides a deep-dive analysis of network usage, categorized by application type, client device, and connection medium. Use this dashboard to identify bandwidth-heavy applications and monitor data distribution between wired and wireless networks.



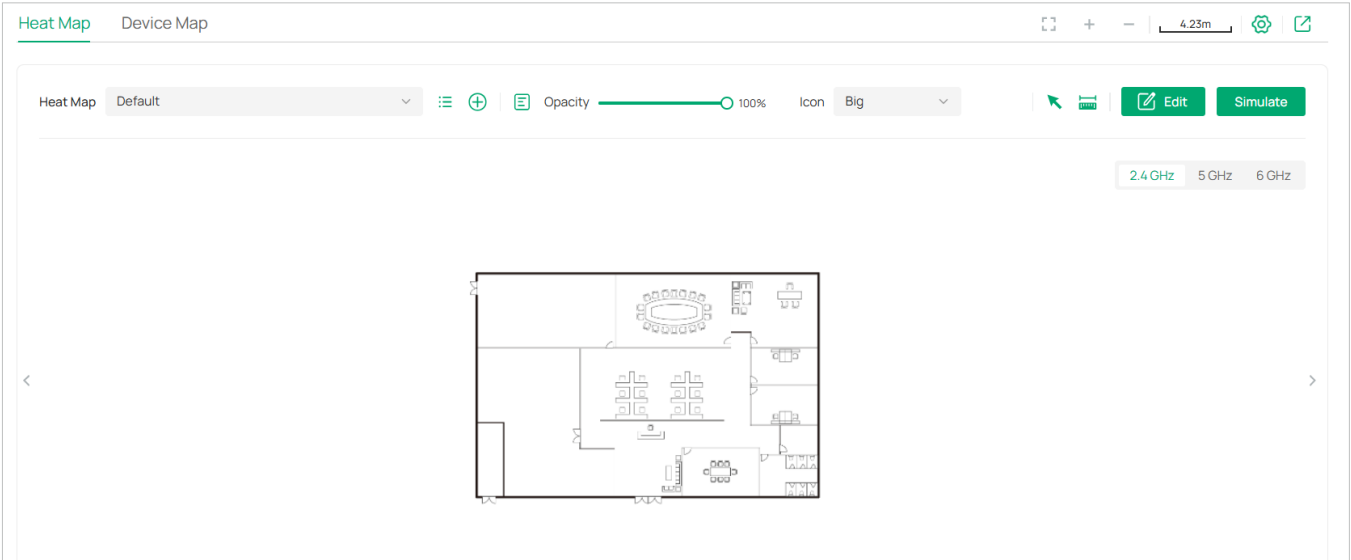
Element	Function
Primary Metric Tabs	Switch between Distribution, Tx&Rx, and Clients views to change the primary graph's data focus.
Category/App Filter	Toggle between Application, Clients, and Categories to view specific traffic breakdowns.
App Control Tabs	Access Allow Apps and Block Apps lists to manage application-specific network permissions.
Pagination Control	Navigate through multiple pages of records or change the rows displayed per page.

17.2 Monitor the Network with Map

With the Map function, you can customizes a visual representation of your network in [Heat Map](#) and visually display the geographic location of each device and site in [Device Map](#) and [Site Map](#).

17.2.1 Heat Map

Go to [Map > Heat Map](#), and a default map is shown as below. You can upload your local map images and add devices and different types of walls to customize a visual representation of your network.



Click the following icons to add, edit, and select the map. After selecting a map, click and drag in the devices from the [Devices](#) list to place it on the map according to the actual locations.

	Click to select a map from the drop-down list to place the devices.
	Click to edit maps in the pop-up window.
	Click the edit icon to edit the description and layout of the map.
	Click the delete icon to delete the map.
	Click to add a map. In the pop-up window, enter the description, select the layout, and upload an image in the .jpg, .jpeg, .gif, .png, .bmp, .tiff format.
	Adjust the opacity of the map.
	Click to select the icon size displayed on the map.
	Click to use the selection tool to select the elements including walls and devices on the map.
	Click to use the measurement tool. Draw a line on the map to measure the actual distance according to the map scale.

 Edit	Click to edit the elements including walls and devices on the map.
Simulate	Click to simulate the network heat map. Note: It is required to click Simulate to generate a new heat map after editing elements on the map.
	Click to fit the map to the web page.
	Click to zoom in the map.
	Click to zoom out the map.
	Click to set the map scale. Draw a line on the map by clicking and dragging, and then define the distance of the line.
	Click to set the default height of the added devices and the information displayed on the map.
	Click to export the network coverage report.

Configuration

To generate a visual representation and heat map of your network, follow these steps:

- 1) Add a map and configure the general parameters for the map.
- 2) Add devices and walls, and configure the parameters.
- 3) View simulation results.

Step 1: Add Map

7. Go to **Map > Heat Map** and click  to add a new map. Then click **Add**.

Add Map

1. Provide a description for the map and browse for an image on your computer
2. The imported image should be less than 8M.
3. The image file name cannot contain characters [?^.*+\${}()]

Description

Layout

☒ Indoors
☐ Outdoors

Open-Plan Space (Office, Factory, etc.)

*.jpg, *.jpeg, *.gif, *.png, *.bmp, *.tiff, *.dxf

Browse

Add
Cancel

Description Enter a description for the map.

Layout Select the general layout of the map, which will make the simulation more accurate and the upload the map in the .jpg, .jpeg, .gif, .png, .bmp, .tiff, .dxf format.

Tip: You can upload a CAD (.dxf) file, and the controller will automatically identify the walls in the layout.

- Click the scale icon on the upper right to set a map scale. Draw a line on the map by clicking and dragging, and then define the distance of the line.

Set Map Scale

Enter the actual distance of the line to create a map scale.

Unit

☒ m
☐ ft

Distance

10
m

Confirm
Set Again

- Click the settings icon to set the default height of the added devices and the information displayed on the map. Then click **Confirm**.

Settings ✕

Default Height Display Information

Ceiling Mounting

2.8m

(0-50, default 2.8)

Desktop

1m

(0-50, default 1)

Wall Plate Mounting

0.3m

(0-50, default 0.3)

Wall Mounting

2.6m

(0-50, default 2.6)

Outdoors

10m

(0-200, default 10)

Client Device

1m

(0-50, default 1)

Confirm

Cancel

Settings ✕

Default Height Display Information

Display Information

☒ Devices Name

☐ MAC

☐ IP

☐ Status

☒ Model

☐ Version

☐ Uptime

☐ Clients

☐ Traffic

☐ Channel

☐ Transmission Power

☐ Height

Default Height

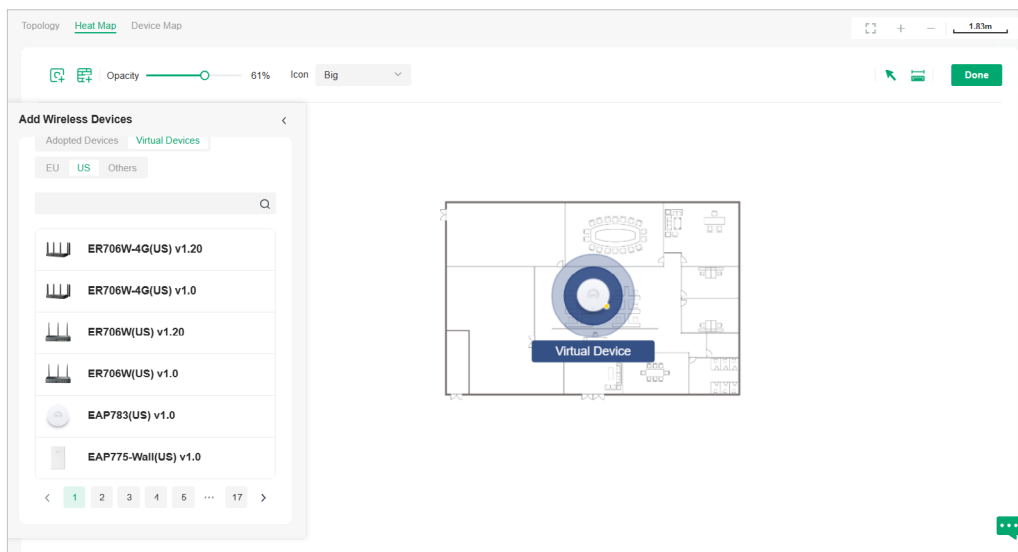
Specify the default height for devices. You can change the height for individual device later.

Display Information

Select the information you want to see on the map.

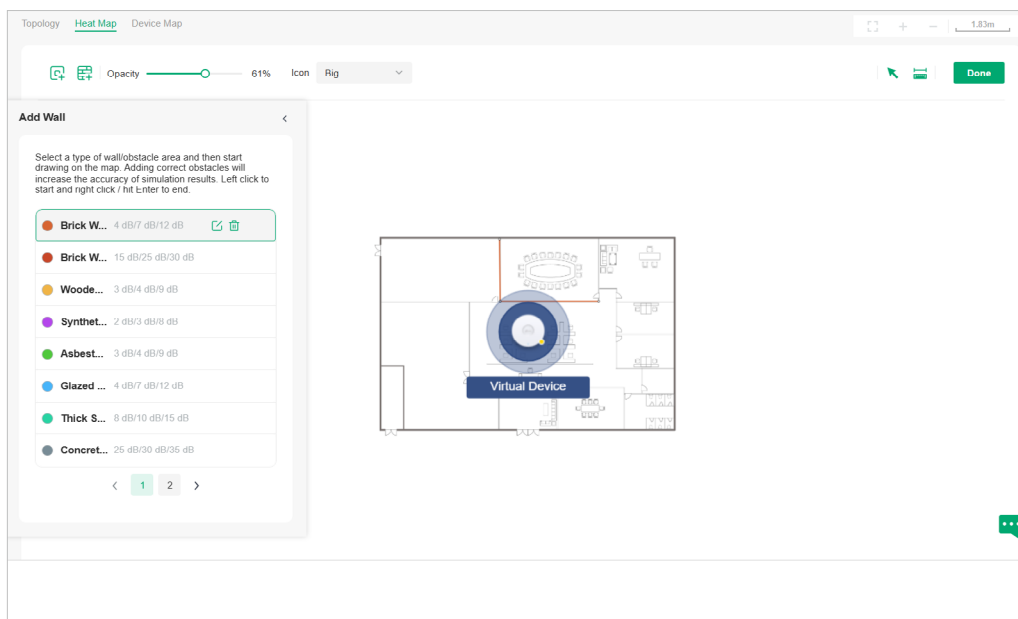
Step 2: Add Devices and Walls

1. Click the Edit icon to enter the editing status of the map.
2. Click the Add Wireless Devices icon on the upper left, and the list of adopted devices and virtual devices will appear. Drag the devices to the desired place on the map.



3. Click the Add Wall icon on the upper left. Select a type of wall/obstacle area and then start drawing on the map. Left click to start and right click / hit Enter to end.

You can also edit the details parameters of the walls and obstacles, delete, and add walls. Adding correct obstacles will increase the accuracy of simulation results.



4. Click the Done icon to exit the editing status of the map.

Step 3: View and Export Results

It is required to click **Simulate** to generate a new heat map after editing elements on the map.

1. Click the Simulate icon to generate the heat map. You can adjust the receiver sensitivity, show signal strength, and view the simulation results according to your needs.



Show Signal Strength ☐	Enable the feature, and you can move the cursor to view the signal strength of a specific location.
Show Simulation ☒	Enable or disable the display of simulation results on the map.
2.4 GHz 5 GHz-1 5 GHz-2 6 GHz	Select 2.4GHz or 5GHz to view the simulation results of the band.
	Click and follow the instruction to specify an area to view the signal strength and the corresponding percentage.
	Adjust the receiver sensitivity, and the new settings will take effect after refreshing the simulation.

2. (Optional) If you want to export a network coverage report, click the Export icon on the upper right to export a report in .docx format.

17.2.2 Device Map

Prerequisite

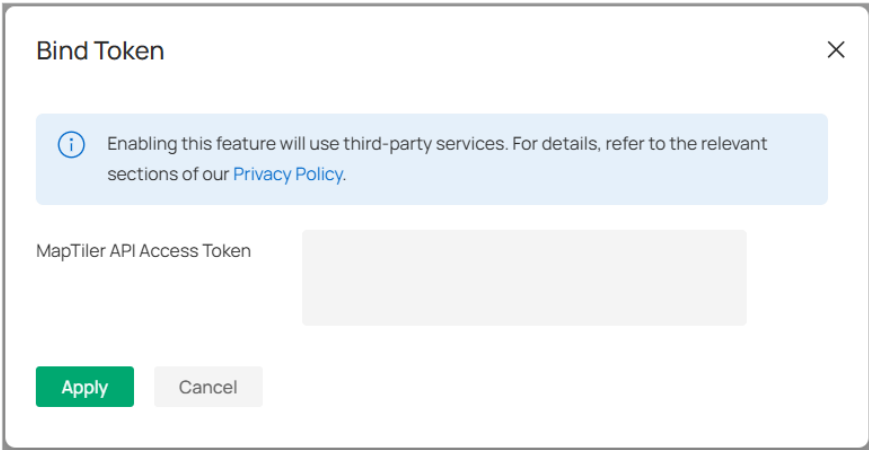
A valid MapTiler API Access Token is required to use the Device Map function. Visit <https://www.maptiler.com/> to register for a token.

Note:

Starting from Omada Controller V6.3, Omada supports MapTiler as the map data source. The existing Mapbox token you configured can still work currently but will no longer be supported starting with Omada Controller V6.5.

Configuration

1. Launch the controller and access a site. Go to **Map > Device Map**.
2. Click **Bind Token**, enter the MapTiler API Access Token you obtained, then click **Apply**.



3. Use the map to manage your devices.

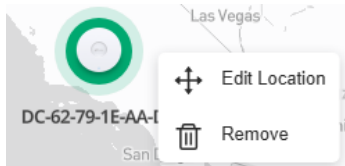


Unplaced Device List	Display a list of sites that are not marked on the map. You can drag and drop a site to add it to the map.
Search bar	Select a category and enter the keyword to search for a site or address.
	Click to change or unbind the API Access Token.
	Zoom in and zoom out the map.

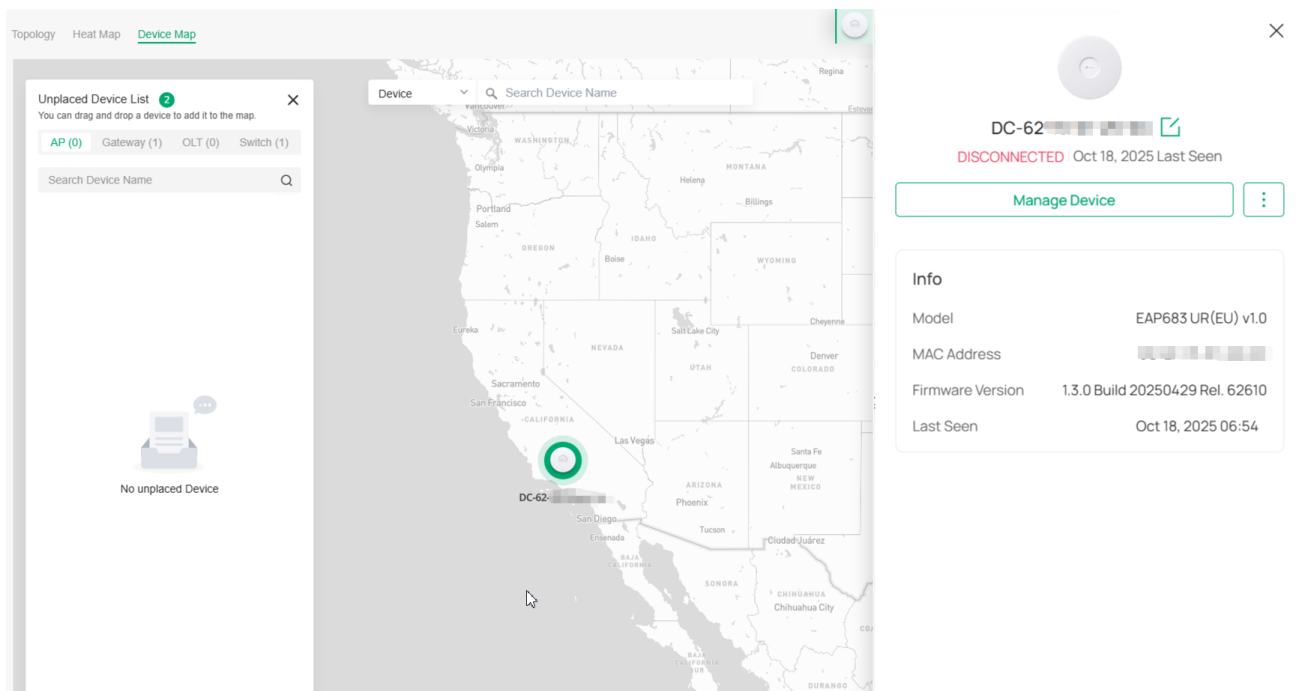


Locate to current location.

Right-click a device icon to edit location or remove it from the map.



Click a device icon to view device info and edit settings.



17.2.3 Site Map

Prerequisite

A valid MapTiler API Access Token is required to use the Site Map function. Visit <https://www.maptiler.com/> to register for a token.

Note:

Starting from Omada Controller V6.3, Omada supports MapTiler as the map data source. The existing Mapbox token you configured can still work currently but will no longer be supported starting with Omada Controller V6.5.

Configuration

1. Launch the controller and access the Global View. Go to **Dashboard > Site Map**.
2. Click **Bind Token**, enter the MapTiler API Access Token you obtained, specify the sites that can share the token, then click **Apply**.

Bind Token

Enabling this feature will use third-party services. For details, refer to the relevant sections of our [Privacy Policy](#).

MapTiler API Access Token

Select the sites that can share the MapTiler Maps API Access Token.

Site Privileges

☐ All sites (including newly created sites)

☒ Specific sites

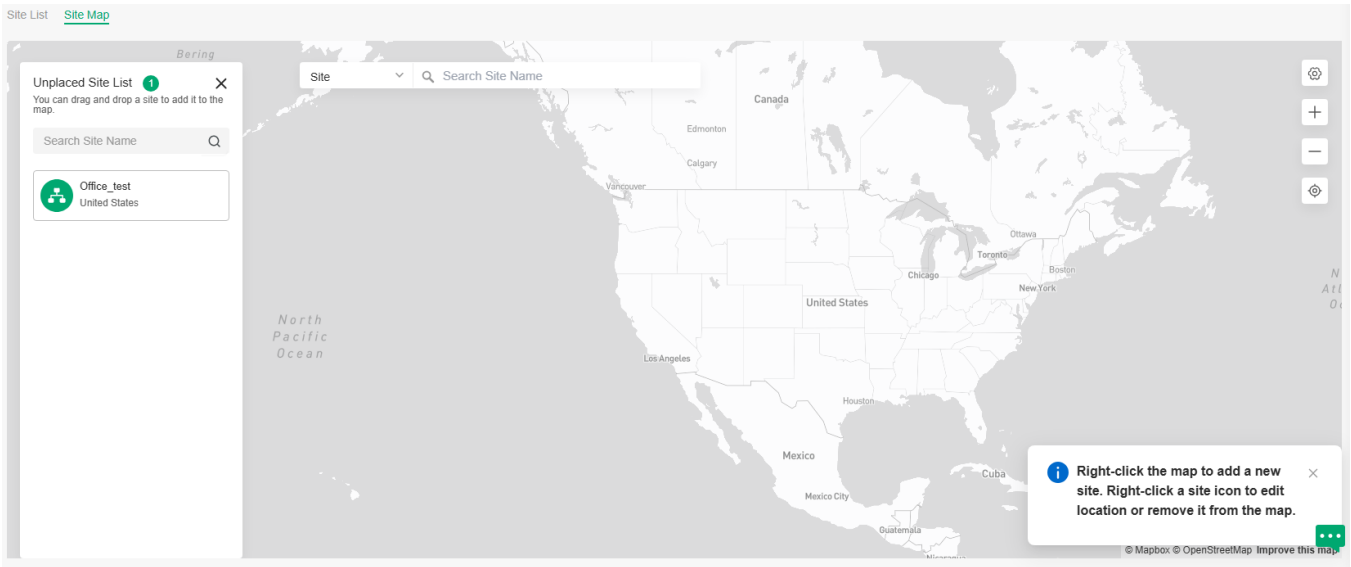
Choose Sites

None

Apply

Cancel

3. Use the map to manage your sites.

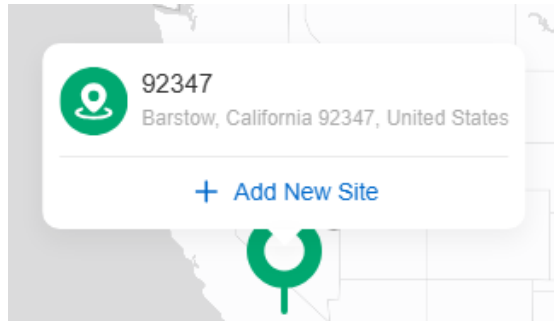


Unplaced Site List	Display a list of sites that are not marked on the map. You can drag and drop a site to add it to the map.
Search bar	Select a category and enter the keyword to search for a site or address.
	Click to change or unbind the API Access Token.
	Zoom in and zoom out the map.

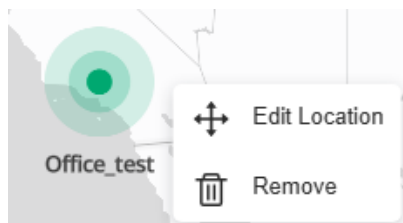


Locate to current location.

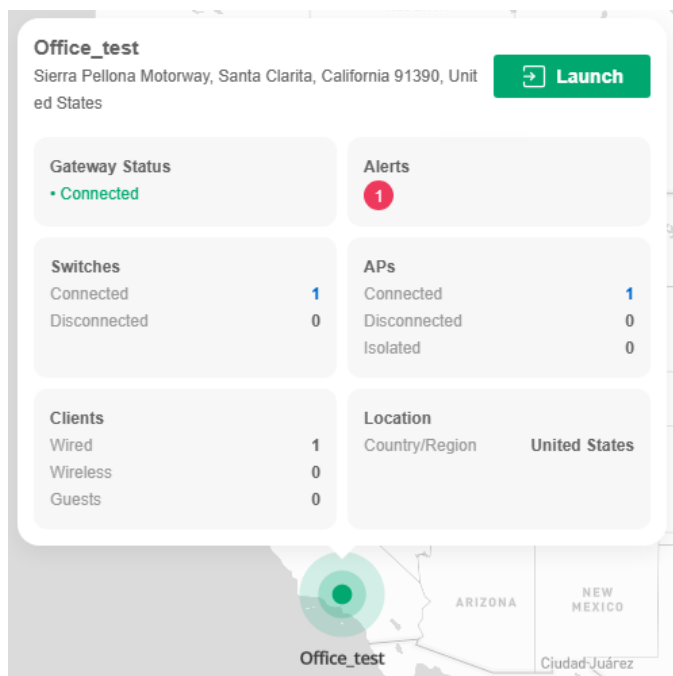
Right-click the map to add a new site.



Right-click a site icon to edit location or remove it from the map.



Click a site to view site info, and click Launch to access the site.

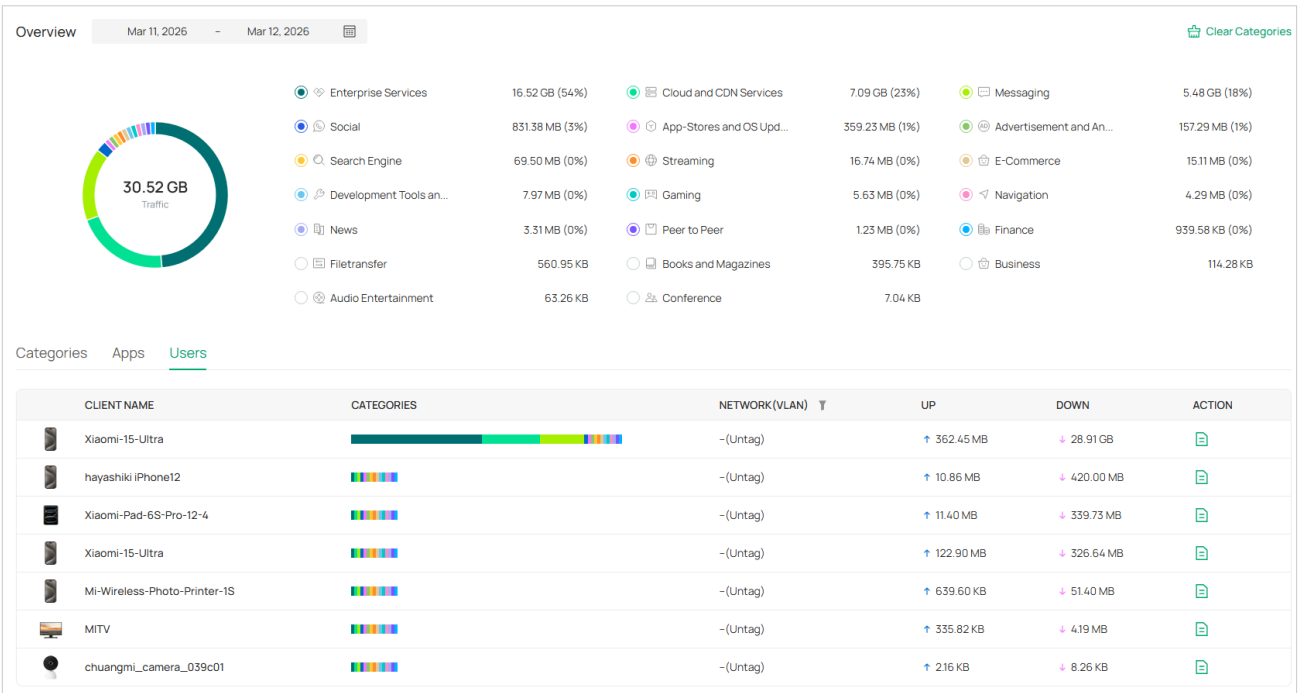


17.3 Monitor the Network with Insights

17.3.1 Application Analytics

You can view detailed traffic information if you have adopted a gateway that supports DPI and enabled DPI in Application Control.

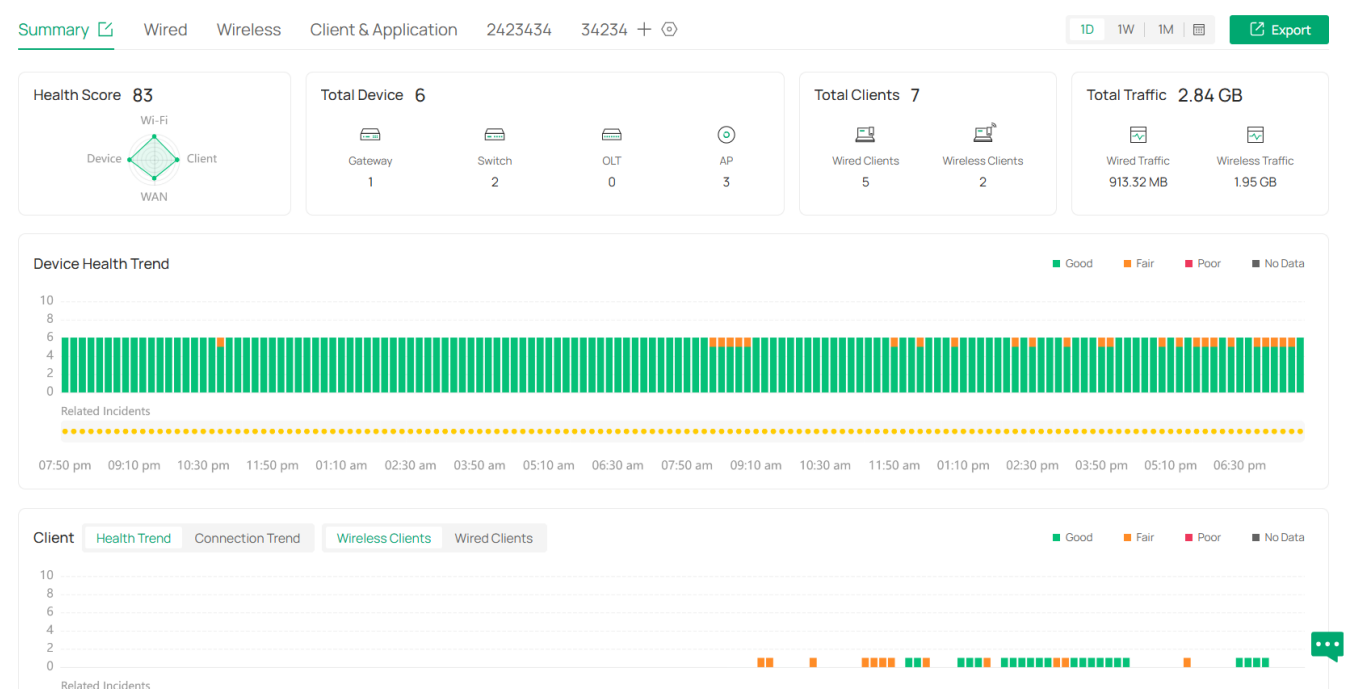
In Site View, go to **Insights > Application Analytics**, then you can monitor the network traffic at the application layer.



17.3.2 Reports

Network Report shows the statistics of various network indicators and their changes over time, helping network administrators to intuitively and comprehensively understand the current and historical operating status of their network. Thus, it facilitates network administrators to decide whether the controller and devices needs to be upgraded and optimized. It also provides network administrators and SI with data support for reporting network conditions.

In Site View, go to **Insights > Reports**, then you can view the connection data of the devices in the topology and the statistics of various network indicators and their changes over time.



Click the tabs on the top to view the statistics of specific section of the network.

Summary	Monitors the site health score (radar chart for Wi-Fi, Client, WAN, and Device) and overview statistics of devices, clients, and traffic. You can click the edit icon next to the tab name to customize the statistics to display.
Wired	Monitors gateway alerts and utilization, WAN/switch health trend, ISP load, and switch status, and more. You can click the edit icon next to the tab name to customize the statistics to display.
Wireless	Monitors wireless traffic statistics, Wi-Fi/AP health, AP status, top SSIDs, and more. You can click the edit icon next to the tab name to customize the statistics to display.
Client & Application	Monitors client overview statistics, client distribution, application categories, and more. You can click the edit icon next to the tab name to customize the statistics to display.

Behind the tabs, you can click the + icon to add new tabs and click the setting icon to configure tab settings.

In the upper right, you can click the time control to specify the time period of data to display and click **Export** to save the network report.

Note: For Linux system, please install Chromium before exporting the network report and make sure you can run Chromium as root.

17.4 Monitor the Network with Logs

The controller uses logs to record the activities of the system, devices, users and administrators, which provides powerful supports to monitor operations and diagnose anomalies.

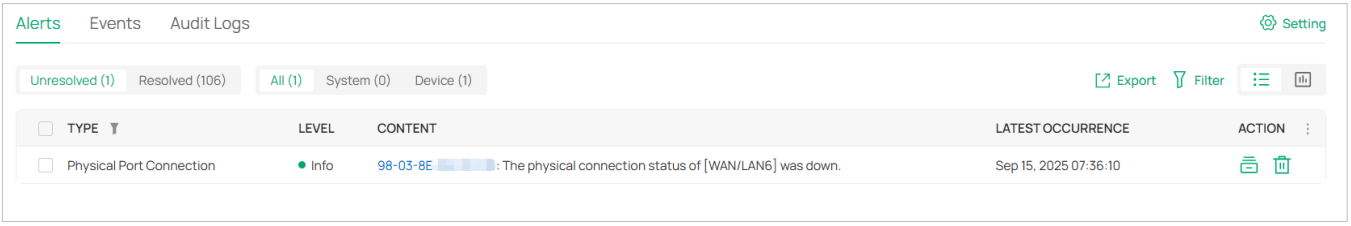
All logs can be classified from the following four aspects.

- **Occurred Hierarchies**
Two categories in occurred hierarchies are Controller and Site, which indicate the log activities happened, respectively, at the controller level and in the certain site. Only Main Administrators can view the logs happened at the controller level.
- **Notifications**
Three categories in notifications are Alerts, Events, and Audit logs, and you can classify the logs into them by yourself.
- **Severities**
Four levels in alert severities are Critical, Error, Warning, and Info, whose influences are ranked from high to low.
- **Contents**
Four types in contents are Operation, System, Device, and Client, which indicate the log contents relating to.

17.4.1 Manage Alerts

Alerts are the logs that need to be noticed and archived specially.

To manage alerts, go to [Logs > Alerts](#). All the alerts will be listed for you to search, filter, and resolve.



	Click to export the logs in .CSV or .XLSX format.
	Click the filter the logs to display.
	Click to change the view mode for a better overview.
	: Displays the logs in a table.
	: Displays the logs in graphs.
	Click the tab to filter the unresolved and resolved logs. You can click the Resolved icon or Batch Resolved to resolve a single log and all, respectively.
	Click All to display all types of logs. Click System or Device to display the corresponding type of logs only.

	Click to resolve the log entry.
	Click to delete the log entry. Once deleted the logs cannot be recovered.
Batch Resolved	Select multiple entries and click Batch Resolved to resolve them in batches.
Batch Delete	Select multiple entries and click Batch Delete to delete them in batches.

17.4.2 Manage Events

Events are the logs of state or activity changes within the system.
To manage events, go to **Logs > Events**. All the events will be listed for you to search and filter.

AlertsEventsAudit Logs

Setting

All (8147)System (0)Device (6645)Client (1502)

ExportFilter

TYPE	CONTENT	TIME	ACTION
☐ Gateway DHCP Server Module Information	DHCP Server allocated IP address 192.168.0.135 for the 00-FF-00-...	Sep 17, 2025 12:04:29	
☐ Gateway DHCP Server Module Information	DHCP Server allocated IP address 192.168.0.136 for the 00-FF-00-...	Sep 17, 2025 12:04:21	
☐ Gateway DHCP Server Module Information	DHCP Server allocated IP address 192.168.0.100 for the CC-28-AA-...	Sep 17, 2025 12:01:03	
☐ Gateway DHCP Server Module Information	DHCP Server allocated IP address 192.168.0.135 for the 00-FF-00-...	Sep 17, 2025 11:59:27	
☐ Gateway DHCP Server Module Information	DHCP Server allocated IP address 192.168.0.136 for the 00-FF-00-...	Sep 17, 2025 11:59:19	
☐ Gateway DHCP Server Module Information	DHCP Server allocated IP address 192.168.38.2 for the E0-D3-61-...	Sep 17, 2025 11:58:58	
☐ Gateway DHCP Server Module Information	DHCP Server allocated IP address 192.168.0.135 for the 00-FF-00-...	Sep 17, 2025 11:54:25	
☐ Gateway DHCP Server Module Information	DHCP Server allocated IP address 192.168.0.136 for the 00-FF-00-...	Sep 17, 2025 11:54:17	
☐ Client Offline (Wired)	EA-29-48-... went offline from network "Default" on 98-03-8E-... (connected time: 11m connected, traffic: 0Bytes).	Sep 17, 2025 11:54:05	
☐ Gateway DHCP Server Module Information	DHCP Server allocated IP address 192.168.0.115 for the 0C-EF-11-...	Sep 17, 2025 11:53:26	

Feb 05, 2025 – Feb 12, 2025	Filter the logs based on Start Time. Click the selector to open the calendar. Click a specific date twice in the calendar to display the logs on the day. To display the logs during a time range, click the start date and end date in the calendar.
All (59)System (0)Device (59)Client (0)	All/System/Device/Client: Click All to display all types of logs. Click System or Device or Client to display the corresponding type of logs only.
Export	Click to export the logs in .CSV or .XLSX format.
Filter	Click the filter the logs to display.
	Click to delete the corresponding event logs.
Batch Delete	Select multiple entries and click Batch Delete to delete them in batches.

17. 4. 3 Manage Audit Logs

Audit log records information about which accounts have accessed the system or site, and what operations they have performed during a given period of time.

To manage audit logs, go to [Logs > Audit Logs](#). All the audit logs will be listed for you to search and filter.

If you want to export audit logs, check the boxes to select entries, click [Export](#) in the upper right corner, and specify the file type to download.

Alerts Events Audit Logs Setting

Search Operation Date All Successful Failed All Error Warning Info Export

TIME	OPERATOR	CATEGORY	STATUS	OPERATION	ACTION
Sep 17, 2025 09:45:58		Network Settings	Successful	Lan Network 98-03-8E-... edited successfully.	
Sep 17, 2025 09:29:01		Devices	Successful	Main ap: 00-FF-00-..., client ap: 00-FF-00-... succee...	
Sep 17, 2025 09:22:09		Devices	Successful	Main ap: 00-FF-00-..., client ap: 00-FF-00-... succee...	
Sep 17, 2025 09:08:37		Clients	Successful	Magic7-lin blocked successfully.	
Sep 17, 2025 08:28:57		Clients	Successful	3A-D6-AE-... unblocked successfully.	
Sep 17, 2025 08:26:46		Clients	Successful	3A-D6-AE-... blocked successfully.	
Sep 17, 2025 08:22:13		Clients	Successful	3A-D6-AE-... configured successfully.	
Sep 17, 2025 08:21:42		Clients	Successful	The clients configured successfully in batch.	
Sep 17, 2025 08:19:05		Clients	Successful	The clients configured successfully in batch.	
Sep 17, 2025 07:13:11		Clients	Successful	iPhone reconnected successfully.	

Showing 1-10 of 67 records < 1 2 3 4 5 6 7 > 10 /page

17. 4. 4 Configure Alert/Event Notifications

To configure alert/event notifications, follow the steps below:

Step 1: Enable Mail Server

Launch the controller and access the Global View. Go to [Settings > Server Settings](#) to enable Mail Server. For detailed configuration, refer to [4. 5. 1 Mail Server](#).

Step 2: Enable Alert/Event Emails in Accounts

In Global View, go to [Accounts > User](#) and configure Alert/Event Emails for the desired user accounts to receive the emails. Click [Add New Account](#) to create an account or click the Edit icon to edit an account. Enter the email address in [Email](#) and enable [Alert/Event/Incident Notification](#). Save the settings.

Add New User

Administrator Type

☒ Local User
☐ Cloud User

Valid Period

☒ Permanent
☐ Temporary

Username

Password

Role

Manage Role

Site Privileges

☒ All sites (including newly created sites)
☐ Specific sites

Email

(Optional)

Alert/Event/Incident Notification

☐ Enable ⓘ

Create

Cancel

Step 3: Enable Notification in Site

1. Launch the controller and access a site.
2. Go to **Logs**, click the **Setting** icon in the upper right, then go to the **Alerts** or **Events** page.
3. Check the activity logs classified by the content and specify their notification categories as Alert or Event for the current site. Enable Email notification and/or Webhook notification for the logs if needed.

Logs Setting

Alerts
Events
Audit Logs
Advanced

Notifications Settings

Notification Recipients

Manage Recipients

Aggregate Alert Emails

☐ Send similar alerts within the specified time period in one email.

Webhook

☐

Content Settings

System (7)
Device (89)
Reset to Default

Type	Enable	Level	Email Notification	Webhook Notification
DST configuration error.	☒ Enable	Error	☒ Enable	☐ Enable
IntelliRecover - Reboot Recovery Initiated	☒ Enable	Info	☐ Enable	☐ Enable
IntelliRecover - Reboot Recovery Failed	☒ Enable	Error	☐ Enable	☐ Enable
IntelliRecover - Retry Limit Exceeded	☒ Enable	Error	☐ Enable	☐ Enable
Gateway's LAN segment is modified	☒ Enable	Warning	☐ Enable	☐ Enable
Report export Schedule Failure	☒ Enable	Warning	☐ Enable	☐ Enable
The mDNS rules are not working	☒ Enable	Error	☒ Enable	☐ Enable

← Logs Setting

AlertsEventsAudit LogsAdvanced

Notifications Settings

Notification Recipients

test@tp-link.com

Manage Recipients

Aggregate Event Emails☐ Send similar alerts within the specified time period in one email.

Webhook☐

Content Settings

System (20)Device (52)Client (16)

Reset to Default

Type	Enable	Email Notification	Webhook Notification
Site Logs Sent to Log Server	☐ Enable	-	☐ Enable
Sending Site Logs to Log Server Failed	☒ Enable	-	☐ Enable
Logs Mailed Automatically	☒ Enable	-	☐ Enable
Automatic Logs Mail Failed	☒ Enable	-	☐ Enable
Reboot Schedule Executed	☒ Enable	☐ Enable	☐ Enable
Reboot Schedule Execution Failed	☒ Enable	☒ Enable	☐ Enable
PoE Schedule Executed	☒ Enable	☐ Enable	☐ Enable
PoE Schedule Execution Failed	☒ Enable	☒ Enable	☐ Enable

Notification Recipients	Displays the recipients of notification emails. The email addresses of the users accounts with Alert/Event/Incident Notification enabled will be displayed. You can also click Manage Recipients to edit notification settings for user accounts.
Aggregate Alert Emails/ Aggregate Event Emails	Enable this option and specify the time period. Similar alerts within the specified time period will be collected and sent in one email.
Webhook	Enable Webhook and choose a Webhook for the active push function of alerts/ events.
Reset to Default	Click to reset all notification configurations in the current site to the default.
SystemDevice SystemDeviceClient	Click the tabs to display the configurations of corresponding log types.
Enable	Check the box to specify an activity log as alert/event log.
Email Notification	Check the box to enable Email notification. The controller will send emails to notify the administrators and viewers of the site's logs once generated.
Webhook Notification	Check the box to enable Webhook notification. The controller will push alerts/ events once generated.

4. Save the settings.

17. 4. 5 Configure Audit Log Notifications

To configure audit log notifications, follow the steps below:

Step 1: Create Webhooks

Launch the controller and access the Global View. Go to [Settings > Platform Integration > Webhooks](#) and create webhooks. For detailed configuration, refer to [4.7.2 Webhooks](#).

Step 2: Enable Webhook for Audit Logs

1. Launch the controller and access a site.
2. Go to [Logs](#), click the [Setting](#) icon in the upper right, then go to the [Audit Logs](#) page.
3. Enable [Webhook](#) and choose webhooks.
4. Specify which categories will be sent to the corresponding log server via Webhook.

5. Save the settings.

17.4.6 Configure Remote Logging

With Remote Logging configured, the Controller will send the system logs to the specified log server once it is generated.

To configure Remote Logging, follow the steps below:

1. Launch the controller and access a site.
2. Go to [Logs](#), click the [Setting](#) icon in the upper right, then go to the [Advanced](#) page.
3. Enable [Remote Logging](#) and configure the parameters.

Syslog Server IP/ Hostname	Enter the IP address or hostname of the log server.
Syslog Server Port	Enter the port of the server.
More Detail Logs	With the feature enabled, the logs of AP clients and switch system will be sent to the Syslog Server.

17.5 Maintain the Network with Incidents

Incident detection keeps you informed about network abnormalities and helps you troubleshoot with optimization recommendations. The system automatically identifies network issues, analyzes root causes, and provides troubleshooting recommendations. It helps you efficiently identify network problems, providing a simple, intuitive, and reliable solution.

Incident Categories

Detectable incidents are categorized as follows: Access, Authentication, Roaming, Wireless Network, Wired Network, Link, WAN & Services, Device Status, and Security.

Incident Status

Incidents are marked with different states for further processing.

Ongoing	Continuously occurring incidents detected by the controller. When the controller detects that such an incident ends, it will set the incident to "Resolved".
Unresolved	Non-persistent incidents detected by the controller.
Resolved	Incidents that have been resolved.
Ignored	Incidents that have been ignored.

Incident Severity

Incidents are marked with different severity levels to help you prioritize work, reduce noise, and respond consistently.

Critical	Incidents that are immediate and high impact (for example, security events or conditions that can quickly cause widespread service disruption). Critical incidents typically require immediate action and may justify paging/on-call escalation.
Error	Confirmed failures or conditions that prevent functions from working as intended, but they may be more localized or less time-sensitive than Critical. Errors usually require remediation, but not always a "drop everything" response.
Warning	Potential problems or degrading conditions (for example, high utilization, intermittent link quality, or approaching a limit). Warnings are actionable, but they often allow time to investigate, tune, or plan capacity before users are affected.
Info	Notable but non-problem conditions. Info incidents help with visibility and troubleshooting without implying urgency.

17.5.1 Analyze Network Incidents

Launch the controller and access a site. Go to [Incidents](#) > [Incident Analysis](#).

Incident AnalysisNotificationSettings

All (25)Ongoing (5)Unresolved (11)Resolved (9)Ignored (0)1D1W1M

Overview25

Access8

Authentication0

Roaming0

Wireless Network6

Wired Network1

Link4

WAN & Services0

Device Status6

Security0

Content: Device Name or MAC

All (25)Critical (0)Error (2)Warning (14)Info (9)

Incidents	Level	Status	Last Occurred	First Occurred	Root Cause Analysis	Improvement Suggestions	Affected Clients	Occurrence	Action
L3 48G port 49 detected error packets	Error	Resolved	Aug 07, 2026 02:25:00 pm	Aug 05, 2026 03:45:00 pm	The cables are not securely connected	Check whether the cables are securely connected.	-	50	 
P AP 1 experienced high channel utilization	Warning	Ongoing	Aug 07, 2026 02:00:00 pm	Aug 07, 2026 02:00:00 pm	1. APs deployed too densely and on the same channel 2. Network interference	1. Click the Detect button to check whether there are APs that are deployed too densely. 2. Use the AP P AP 1's another channel or band.	-	1	  

On this page, you can view the incident list, displaying the incident name, severity level, status, occurrence time, root cause, improvement suggestions, and more.

Filter Incidents

You can use the search box to search for incidents by prompted criteria or use the tabs/cards to filter incidents by various conditions.

- Use the category cards on the top to display incidents of specific category.
- Use the status tabs on the top to display incidents of specific status.
- Use the time tabs in the top right corner to filter incidents occurred within specific time period: 1D (Day), 1W (Week), or 1M (Month). Click the Calendar icon and specify other periods to display incidents.
- Use the severity level tabs next to the search box to display incidents of specific severity level.

Customize the List

To customize the columns, click the ellipsis icon next to Action and customize the display options.

To change the list order, hover on a column header (such as First Occurred) and click the up/down triangle icon next to it.

Process Incidents

In an incident entry, click the Solve icon in the Action column to mark it as “Resolved”, click the Ignore icon to mark it as “Ignored”, and click the Delete icon to delete it.

Incident AnalysisNotificationSettings

All (25)Ongoing (5)Unresolved (11)Resolved (9)Ignored (0)1D1W1M

Overview25

Access8

Authentication0

Roaming0

Wireless Network6

Wired Network1

Link4

WAN & Services0

Device Status6

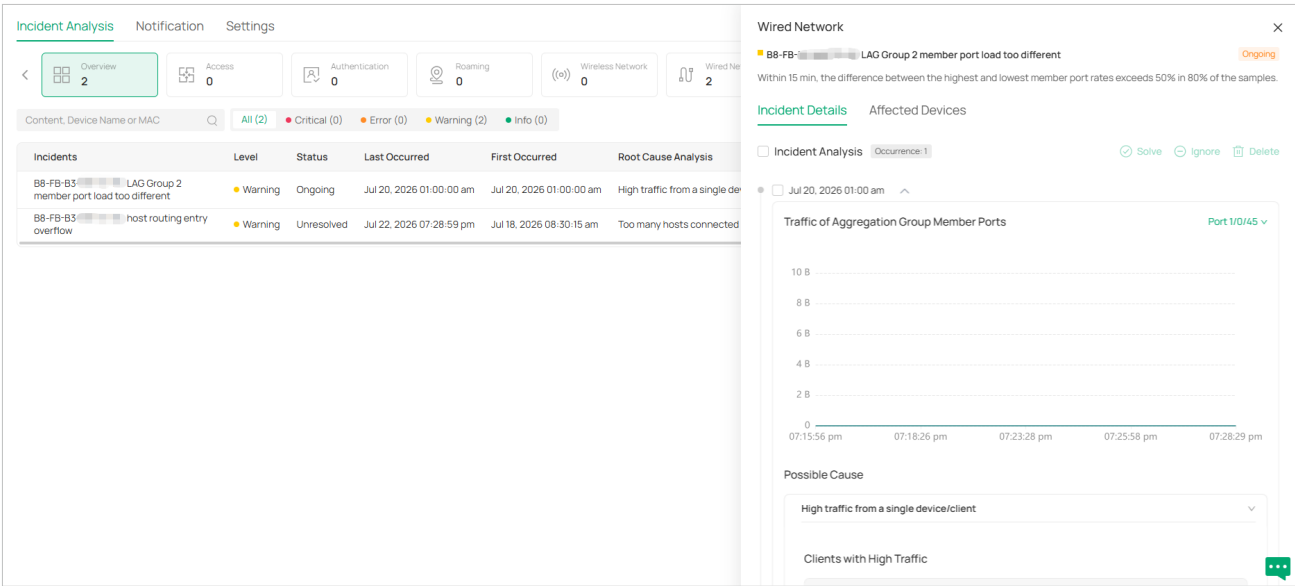
Security0

Content: Device Name or MAC

All (25)Critical (0)Error (2)Warning (14)Info (9)

Incidents	Level	Status	Last Occurred	First Occurred	Root Cause Analysis	Improvement Suggestions	Affected Clients	Occurrence	Action
L3 48G port 49 detected error packets	Error	Resolved	Aug 07, 2026 02:25:00 pm	Aug 05, 2026 03:45:00 pm	The cables are not securely connected	Check whether the cables are securely connected.	-	50	 
P AP 1 experienced high channel utilization	Warning	Ongoing	Aug 07, 2026 02:00:00 pm	Aug 07, 2026 02:00:00 pm	1. APs deployed too densely and on the same channel 2. Network interference	1. Click the Detect button to check whether there are APs that are deployed too densely. 2. Use the AP P AP 1's another channel or band.	-	1	  

To check incident details, click an incident entry to display the details page. You can view the incident content and explanation, occurrence details, affected devices, possible cause, and improvement suggestions.



17.5.2 Configure Incident Notifications

You can configure incident notification settings according to actual needs.

Follow the steps below:

- 1. Launch the controller and access a site.
- 2. Go to **Incidents > Notification**.

Notifications Settings

Notification Recipients

@tp-link.com

Manage Recipients

Aggregate Alert Emails

☒ Send similar alerts within the specified time period in one email.

Time Period

60

seconds

Email Alerts

Incident Object

☒ Gateway☒ Switch☒ AP☒ Wired Clients☒ Wireless Clients

Incident Category

☒ Access☒ Authentication☒ Roaming☒ Wireless Network☒ Wired Network☒ Link☒ WAN & Services☒ Device Status☒ Security

Incident Level

☒ Critical☒ Error☒ Warning☐ Info

- 3. Configure the parameters.

Notification Recipients	Displays the recipients of incident notification emails. The email addresses of the users accounts with Alert/Event/Incident Notification enabled will be displayed. You can also click Manage Recipients to edit notification settings for user accounts.
-------------------------	--

Aggregate Alert Emails

With this option enabled, specify the **Time Period**, and the controller will send similar incident alerts within this period in one email.

Note: when the number of incidents reaches 100, the log will be sent immediately.

Email Alerts

Choose the incident objects, categories, and severity levels for email notifications.

17.5.3 Configure Incident Settings

You can check and change incident settings.

Follow the steps below:

1. Launch the controller and access a site.
2. Go to **Incidents > Settings**.

All(47) Enable(38) Disable(9) All(47) Critical(6) Error(0) Warning(31) Info(10)							
Category	T	Incident Name	Incident Definition	Incident Object	Incident Level	Enable	Action
Access		Client failed to connect	The client connection failed.	Wireless Clients	Warning	☐	
Access		Client failed to obtain IP	The client failed to obtain an IP address.	Wireless Clients	Warning	☐	
Access		Interface IP address conflict	An interface IP address conflict was detected.	Switch	Warning	☒	
Access		DHCP server conflicted	A DHCP server conflict was detected.	Switch	Warning	☒	
Access		Client slow to connect	The client takes ≥ 1000 ms to complete association and authentication.	Wireless Clients	Info	☐	
Access		Client slow to obtain IP	The client takes ≥ 1000 ms to obtain an IP address.	Wireless Clients	Info	☐	
Access		Gateway client limit reached	The number of connected clients has reached the device's limit.	Gateway	Info	☒	
Authentication		Switch 802.1X authentication failure	Switch 802.1X authentication failed.	Wired Clients	Warning	☒	
Authentication		Client Portal authentication failure	Client Portal authentication failed.	Wireless Clients	Warning	☐	
Authentication		Switch 802.1X authentication took too long	Switch 802.1X authentication took too long.	Wired Clients	Info	☒	

Showing 1-10 of 47 records < 1 2 3 4 5 > 10/page

3. Check the incident name and definition. You can use the tabs above the list or click the Filter icon next to the column header Category to filter incidents.
4. Enable or disable alerts of the incidents according to actual needs.
5. Click the Edit icon of an incident to customize its severity level. For some incidents, you can also customize its threshold.

Incident Definition

×

The client connection failed.

Level Warning

Confirm

Reset

Cancel

Incident Definition

×

The client takes ≥ 1000 ms to obtain an IP address.

Level Info

Confirm

Reset

Cancel

17.6 Maintain PoE Devices with IntelliRecover

Overview

IntelliRecover is a self-healing feature designed to automatically recover frozen or unresponsive PDs (Powered Devices), such as PoE switches or APs, by power cycling the specific PoE port they are connected to.

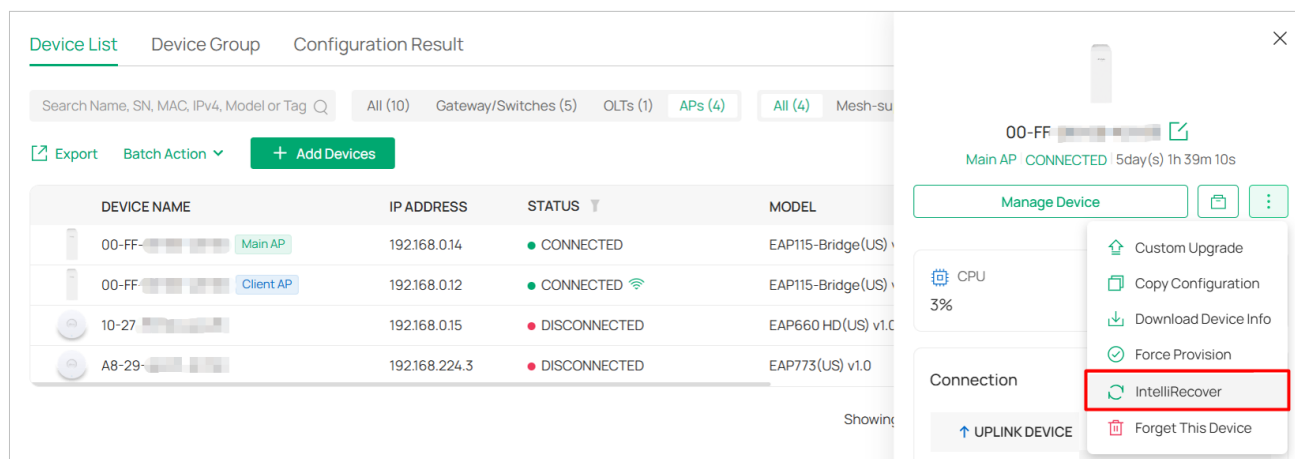
Network Preparation:

- A PoE Switch that can be managed by Omada Controller;
- APs, security devices, or clients powered by the PoE switch.

Configuration

To configure IntelliRecover, follow these steps:

1. Launch the controller and access a site.
2. Go to **Devices**. After adopting the PoE switch, and the AP or security device directly connected to the PoE switch, click the AP or security device to open its Properties window. Click  then click **IntelliRecover** to enable the function for the device so that it can be added to the monitoring list.



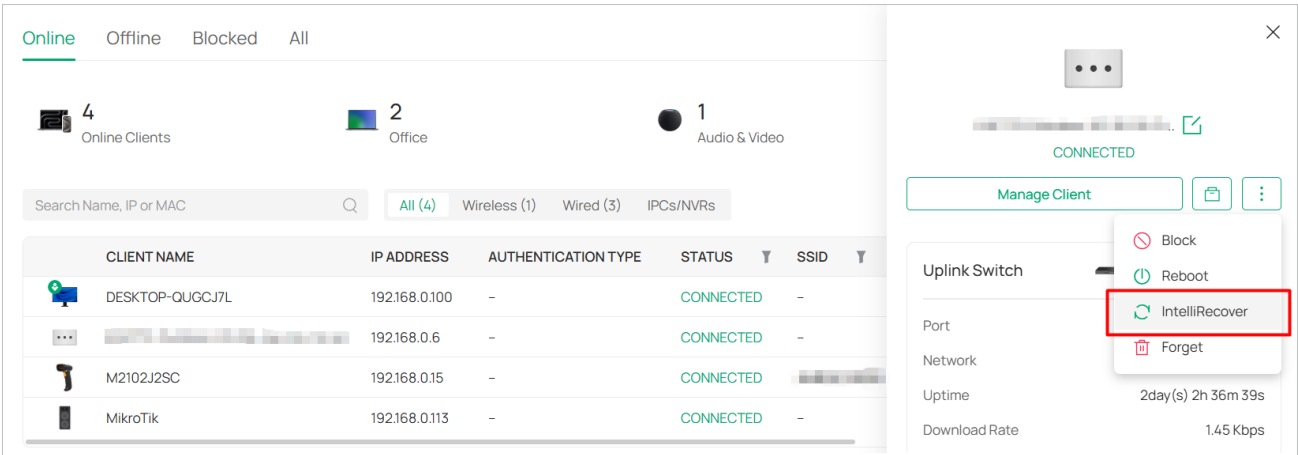
The screenshot displays the Omada Controller interface. On the left, the 'Device List' tab is active, showing a table of devices. On the right, the 'Properties' window for a selected device is open, with the 'IntelliRecover' option highlighted in the 'Connection' section.

DEVICE NAME	IP ADDRESS	STATUS	MODEL
00-FF-... Main AP	192.168.0.14	CONNECTED	EAP115-Bridge(US)
00-FF-... Client AP	192.168.0.12	CONNECTED	EAP115-Bridge(US)
10-27-...	192.168.0.15	DISCONNECTED	EAP660 HD(US) v1.0
A8-29-...	192.168.224.3	DISCONNECTED	EAP773(US) v1.0

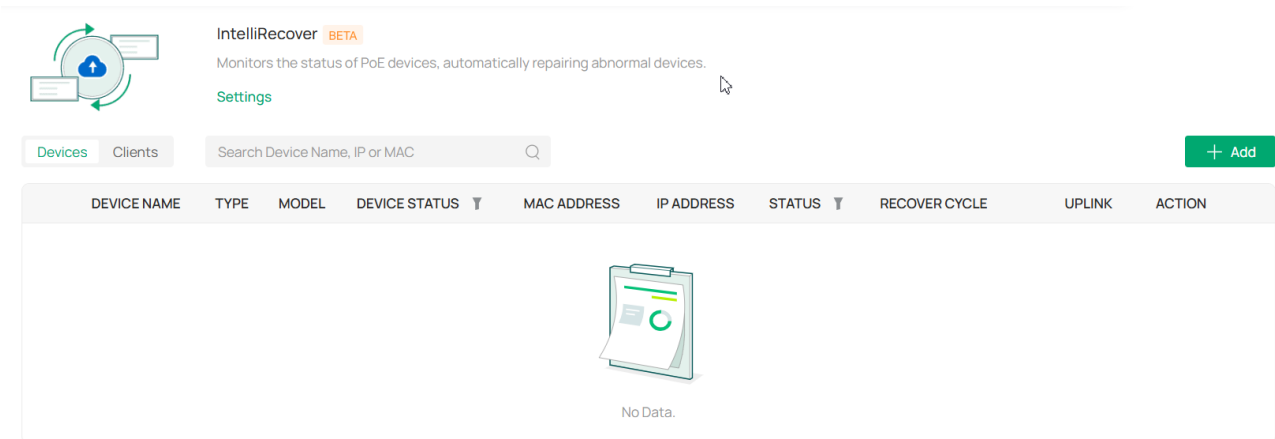
The 'Properties' window for the selected device shows the following details:

- Device ID: 00-FF-...
- Status: Main AP CONNECTED 5day(s) 1h 39m 10s
- Manage Device button
- CPU usage: 3%
- Connection section with the following options:
 - Custom Upgrade
 - Copy Configuration
 - Download Device Info
 - Force Provision
 - IntelliRecover** (highlighted with a red box)
 - Forget This Device

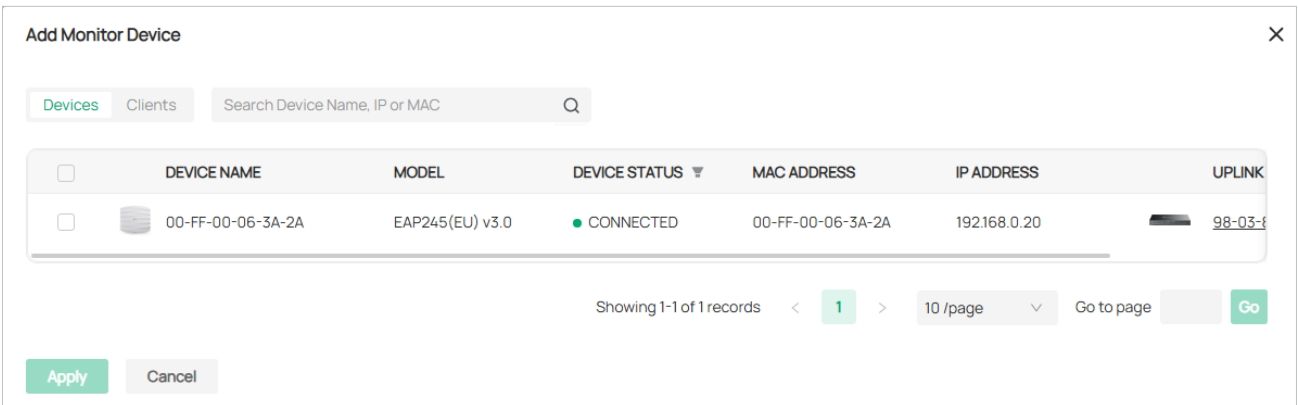
3. Go to **Clients**. Click the client device to open its Properties window. Click  then click **IntelliRecover** to enable the function for the client so that it can be added to the monitoring list.



4. Go to the **IntelliRecover** page. Click **Add** to add the devices or clients to the monitoring list.

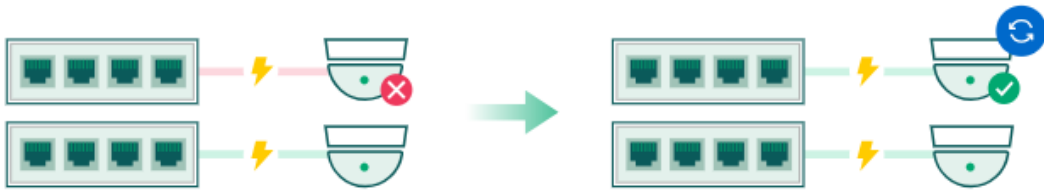


5. Select the devices or clients to be monitored and click **Apply**.



6. Enable **IntelliRecover** and enter the Settings window.

IntelliRecover Setting



 **Important Notes:**

This feature only works for devices directly connected to PoE-enabled switch ports.

PoE power cycling will temporarily interrupt device power and may disrupt critical services.

The connection status of non-Omada/VIGI devices may not be identified accurately. Use the feature with caution.

If devices use alternative power sources, remove the devices from monitoring to prevent disruption.

The system will attempt recovery but cannot guarantee a 100% success rate.

Auto Reboot Timeout 

15

Minutes

(5-30)

Retry Interval 

15

Minutes

(5-30)

Max Retry Times 

3

Times

(3-10)

☐ I understand the risks and limitations.

Save

Cancel

Auto Reboot Timeout	Defines the duration the system waits after detecting a device failure before initiating an automatic reboot. Enter a value between 5–30 minutes.
Retry Interval	Specifies the waiting period between consecutive reboot attempts if the initial recovery fails. Enter a value between 5–30 minutes.
Max Retry Times	Sets the maximum number of automatic power-cycle attempts the system will perform before ceasing recovery efforts. Enter a value between 3–10 times.

7. After the configuration, when the monitored device goes offline, the switch PoE port connected to the device will be automatically rebooted and a log will be generated. You can also click the **Reboot PoE Port** icon in the Action column to manually reboot the PoE Port.

Devices

Clients

00-FF-00-06-3A-2A

Q

+ Add

DEVICE NAME	TYPE	MODEL	DEVICE STATUS ▾	MAC ADDRESS	IP ADDRESS	STATUS ▾	RECOVER CYCLE	UPLINK	
 00-FF-00-06-3A-2A	AP	EAP245(EU) v3.0	● CONNECTED	00-FF-00-06-3A-2A	192.168.0.20	Monitoring	0	 98-03-8E-EC-57-53 - Port 2	Reboot PoE Port   

Showing 1-1 of 1 records < 1 > 10 /page ▾ Go to page Go

17.7 Maintain the Network with Tools

The controller provides many tools for you to analyze your network:

- **Network Check**

Test the device connectivity via ping, traceroute, or DNSLookup.

- **Packet Capture**

Capture packets for network troubleshooting.

- **Terminal**

Open Terminal to execute CLI or Shell commands.

- **Cable Test**

Perform cable test to check the cable issues.

- **Interference Detection**

Scan for interference in the environment and obtain channel occupancy information.

- **Remote Access**

Allows easy access to internal network devices from an external network using adopted Omada devices.

Note:

Firmware updates are required for earlier devices to support these tools.

17.7.1 Network Check

1. Launch the controller and access a site.
2. Go to [Network Tools](#) > [Network Check](#).
3. Configure the test parameters.

Network Check

Device Type

EAP

▼

Test

Ping

▼

Sources

Please Select...

▼

Destination Type

Domain/IP Address

▼

Domain/IP Address

Advanced Test Settings

Packet Size

32

(10-2000)

Count

4

(1-100)

 Devices which are already running commands shall not execute newly added commands. Output history of device with buffer space issues shall be automatically cleared.

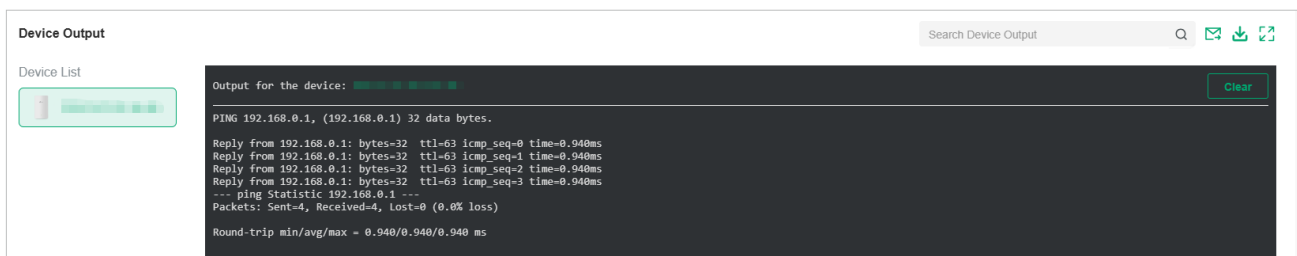
Run

Device Type	Select the device type to perform a test.
Test	Choose a tool to test the device connectivity. Ping: Tests the connectivity between the specified sources and destination, and measures the round-trip time. Traceroute: Displays the route (path) the specified sources have passed to reach the specified destination, and measures transit delays of packets across an Internet Protocol network. DNS Lookup: Helps find DNS records of a domain name. ARP Table: Helps check the ARP table of the device.
Sources	Select one or multiple devices to perform a test.
Destination Type	Select the destination type and specify the destination to test. The options vary with the test type. For the Ping test, you can specify the Domain/IP Address or Client. For the Traceroute test, you can specify the Domain/IP Address. For the DNSLookup test, you can specify the Domain.
Advanced Test Settings	(Only for the Ping test) Packet Size: Specify the size of ping packets. Count: Specify the number of ping packets.

Note:

- Devices which are already running commands shall not execute newly added commands.
- Output history of device with buffer space issues shall be automatically cleared.

4. Click **Run** to perform the test. You can view the test result in the **Device Output** section.



You can click the Email/Download/Zoom icons above the test result field to email the test logs to a mailbox, download the test logs locally, or zoom in/out the display area.

17.7.2 Packet Capture

1. Launch the controller and access a site.

2. Go to **Network Tools > Packet Capture**.
3. Configure the parameters for packet capture.

Device Type

EAP

Sources

Please Select...

Duration

seconds

(1-300)

Single Packet Size

1000

Bytes

(68-1000)

Packet Capture Filters

1. The file will be kept for 10 minutes only and can only be downloaded three times.

2. Switches only support capturing packets trapped/mirrored to CPU, like ssh, ssl, icmp, icmpv6, http, etc.

3. Warning: Configuring other SSIDs in the same band during packet capture may cause abnormal packet capture results.

Start Packet Capture

Download .pcap Files

Device Type	Select the device type to capture packets.
Sources	Select one or multiple devices to capture packets.
Interface Type	Select the interface type to capture packets. Wired: If selected, select the Port to capture packets and select the Capture Mode. Wireless: If selected, select Band and SSID / Interface to capture packets. Note: The following configurations will affect packet capturing on a wireless interface : • If a certain band is turned off, packets on the SSIDs of the corresponding band will not be captured. • If a WLAN schedule is configured, packets outside the schedule will not be captured. • If a certain SSID is turned off, packets on the SSID will not be captured.
Capture Mode	Select a mode to capture packets: Local: The device executes the packet capture locally. The captured packets are packaged and stored in the internal directory of the device. You can download the file from the controller web page. Stream: The device does not save the packet capture files to the device's internal storage, thereby avoiding memory consumption. Packets captured by the device can be displayed in real-time using packet capture tools such as Wireshark, enabling real-time viewing and analysis of the captured packets.
Duration	Specify the duration for packet capture.
Single Packet Size	Specify the size of a single captured packet. It cannot exceed 1 MB.

Packet Capture Filters

(Optional) Enter the filters to capture packets. Supported filters include:

host, src, dst, tcp port, tcp src port, tcp dst port, udp port, udp src port, udp dst port, ether host, ether src, ether dst

Combination of operators "and", "or", "(" and ")" is supported between multiple filter items. For example:

(src 192.168.0.1 and tcp port 80) or (src 192.168.0.1 and tcp port 90)

(src 192.168.0.1 and tcp src port 80) or (dst 192.168.0.1 and tcp dst port 90)

ether src A0:00:00:04:C5:84 and ether dst A0:00:00:04:C5:85

Note:

host: host address, src: source, dst: destination, ether: ethernet address (MAC address)

4. Click **Start Packet Capture** to capture packets. After packets are captured, you can click **Download .pcap Files** to download them.

- Note:**
- The file will be kept for 10 minutes only and can only be downloaded three times.
 - Switches only support capturing packets trapped/mirrored to CPU, like ssh, ssl, icmp, icmpv6, http, etc.
 - Warning: Configuring other SSIDs in the same band during packet capture may cause abnormal packet capture results.

17.7.3 Terminal

1. Launch the controller and access a site.
1. Go to **Network Tools > Terminal**.
2. Configure the parameters.

Remote Control Terminal Session

Device Type

EAP

Sources

Please Select...

Open Terminal

- Device Type

Select the device type to run CLI or Shell commands.
- Sources

Select one or multiple devices to test.

3. Click **Open Terminal**. Now you can run CLI or Shell commands.

Sessions

Search Sessions

Device List

Output for the device: 192.168.0.1

Clear

BusyBox v1.29.2 (2024-01-02 17:17:16 PST) built-in shell (ash)
Enter 'help' for a list of built-in commands.

/bin \$

You can click the Email/Download/Zoom icons above the test result field to email the test logs to a mailbox, download the test logs locally, or zoom in/out the display area.

17.7.4 Cable Test

1. Launch the controller and access a site.
2. Go to **Network Tools > Cable Test**.
3. Configure the parameters.

Device

Please Select Device

Select Port

Select All


Please Select Device

Device	Select the device in the pop-up window to run the cable test.
Select Port	Select the port of the device to run the cable test.

4. After running the cable test, you can check the diagnostic process and results below.

Diagnostic Process


No Diagnostic Process

Diagnosis Result

PORT	STATUS	CABLE LENGTH(m)	DIAGNOSIS RESULT	UPDATE TIME
 No Data.				

17.7.5 Interference Detection

Interference Detection is used to scan for interference in the environment and obtain channel occupancy information. After the scan is complete, it generates scan results that include channel utilization information and Wi-Fi interference source information.

There are two ways to configure the interference detection function: one for a single device and the other for multiple devices.

Method 1: Configure Interference Detection for Multiple Devices

Note: After the scan is complete, a scan result entry will be generated and retained as a historical record that can be exported.

1. Launch the controller and access a site.
2. Go to **Network Tools > Interference Detection**.
3. Click the **Interference Detection** button.
4. In the pop-up window, select the devices to scan, and click **Scan Now** to start scanning.

Select APs

Search Name, Mac or IP

☐	DEVICE NAME	STATUS	IP ADDRESS	MAC ADDRESS	MODEL	VERSION
☒	00-FF-00-	CONNECTED	192.168.0.136	00-FF-00-	EAP115-Bridge	3.0
☒	00-FF-00-	CONNECTED	192.168.0.135	00-FF-00-	EAP115-Bridge	3.0
☐	0C-EF-15-	CONNECTED	192.168.0.115	0C-EF-15-	EAP683 UR	1.0
☐	20-36-26-	CONNECTED	192.168.0.104	20-36-26-	EAP772-Outdoor	1.0
☐	A8-29-48-	CONNECTED	192.168.0.112	A8-29-48-	EAP773	1.0
☐	E0-D3-62-	CONNECTED	192.168.0.18	E0-D3-62-	EAP655-Wall	1.0

Select 2 of 6 items [Select All](#)

Showing 1-6 of 6 records < 1 > 10 /page

Scan Now

Cancel

The **Interference Detection** page will display the detection records. You can click the Export icon of a record to export it if needed.

Detection Records

Aug 20, 2025 - Sep 19, 2025

TIME	DEVICE QUANTITY	DEVICE LIST	ACTION
Aug 21, 2025 06:48:20	1	0C-EF-15-	
Sep 19, 2025 08:57:51	2	00-FF-00- 00-FF-0C-	
Sep 19, 2025 09:01:18	6	00-FF-00- 00-FF-00- 0C-EF-15- + 3...	

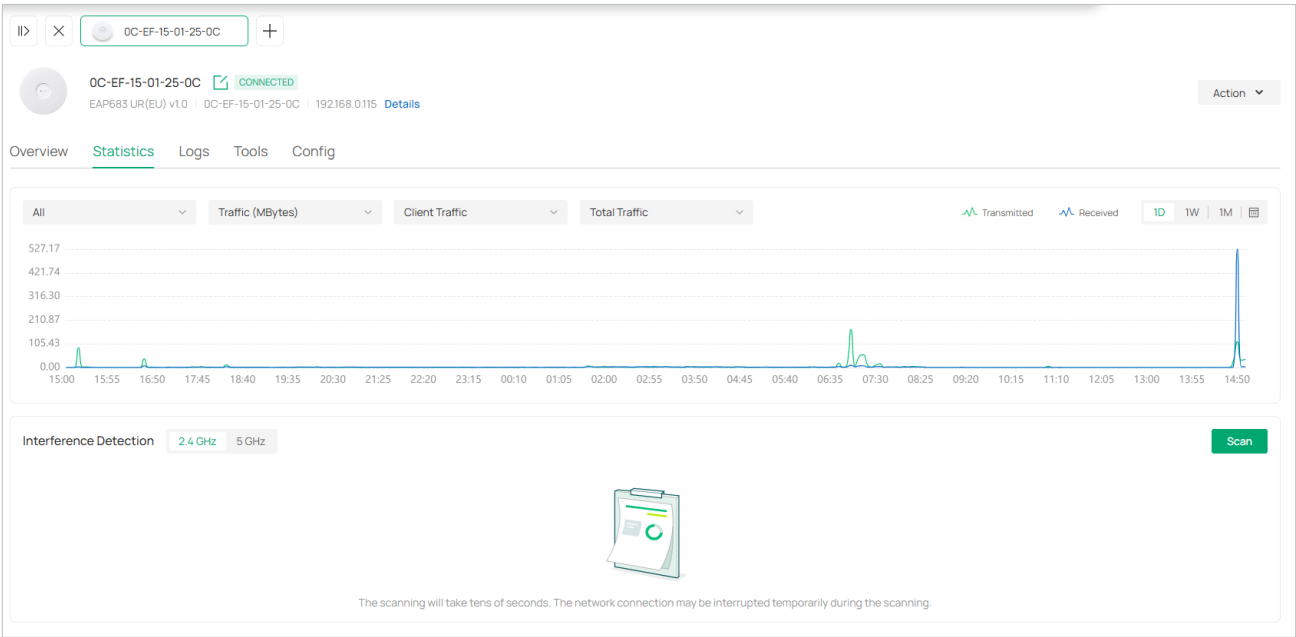
Note: Up to 10 interference detection records can be saved.

5. Click the Detail icon of a record to view the detailed results.
- You can select **All AP** to view all device results or select a specific device to view its result. Click the band to view each band’s result.

Method 2: Configure Interference Detection for a Single Device

Note: After the scan is complete, a scan result entry will be generated and overwrite the old entry, and the historical scan results will not be retained.

1. Launch the controller and access a site.
2. Go to **Devices > Device List**, click the target AP, and click **Manage Device**.
3. Go to **Statistics > Interference Detection**. Click **Scan** to start scanning.



4. Wait for the scan to complete and the results will be displayed.

17.7.6 Remote Access

Remote Access allows easy access to internal network devices from an external network using adopted Omada devices. To ensure privacy and security, connections are time-limited and expire automatically.

- 1. Launch the controller and access a site.
- 2. Go to **Network Tools > Remote Access**.
- 3. In the **Device** tab, you can click the button in the TUNNEL column or the  icon to enable the remote access for a specified device and configure the parameters. After editing and saving the configuration, the tunnel's valid period will be recalculated.



Remote Access

Allows easy access to internal network devices from an external network using adopted Omada devices. To ensure privacy and security, connections are time-limited and expire automatically.

[View examples](#)

Device

Custom

Search Name, MAC, IPv4, Model

Q

All (6)

Gateway/Switches (3)

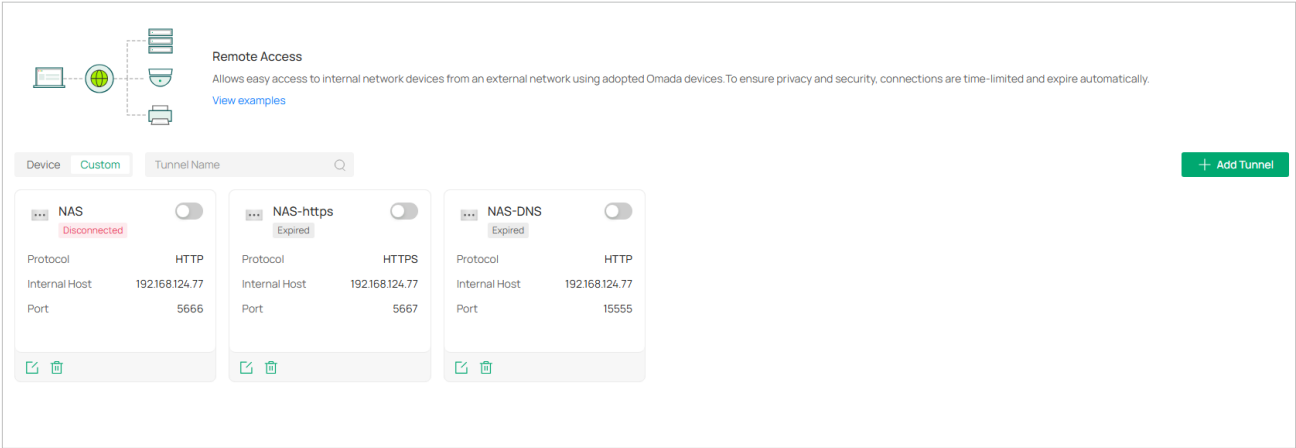
APs (3)

OLTs (0)

DEVICE	TYPE	STATUS	IP ADDRESS	MAC	MODEL	PROTOCOL	PORT	Remaining Time	TUNNEL	ACTION
 192.168.124.1	Gateway	CONNECTED	192.168.124.1	88:88:88:88:88:88	ER7206 v2.30	HTTPS	443	-		 
 192.168.124.100	Switch	CONNECTED	192.168.124.100	88:88:88:88:88:88	SG2210MP v5.20	-	-	-		 
 192.168.124.101	AP	CONNECTED	192.168.124.101	88:88:88:88:88:88	EAP723(US) v2.0	-	-	-		 
 192.168.124.112	AP	CONNECTED	192.168.124.112	88:88:88:88:88:88	EAP660 HD(US) v2.0	-	-	-		 
 172.20.0.171	Switch	PENDING	172.20.0.171	88:88:88:88:88:88	SG3452XMPP v1.0	-	-	-		 
 172.20.0.116	AP	MANAGED BY OTHERS	172.20.0.116	88:88:88:88:88:88	EAP670(US) v2.0	-	-	-		 

4. In the **Custom** tab, you can click **Add Tunnel** to create a tunnel manually and configure the parameters. You can also edit or delete an existing tunnel. After editing and saving the

configuration, the tunnel’s valid period will be recalculated.



Tunnel Name	Specify the name of the Tunnel.
Status	Enable/Disable the Tunnel.
Protocol	For Software Controller/Hardware Controller, the protocol types include HTTP and HTTPS. For Cloud-Based Controller, the protocol types include HTTP, HTTPS, SSH, and Telnet.
Internal Host	You can manually enter an IP address, or use Select Online Clients to automatically enter the IP of the currently online client.
Port	Each protocol has a default port, which will be automatically filled in after selection. If the device uses a non-default port, you can manually modify the port value.
Valid Period	By default, the tunnel is valid for 3 hours. It can be manually set to any duration between 1 and 24 hours.

17.8 Maintain the Network with Site Backup and Restore

You can back up the configuration and data of a site to prevent any loss of important information. If necessary, restore the site to a previous status using the backup file.

17.8.1 Backup

Launch the controller and access a site. Go to **Maintenance**. In **Backup**, select the backup contents and export the backup file.

Backup

Backup Contents

☒ Settings

☒ Authenticated Clients ⓘ

☒ Firmware Update Logs

Export

☒ Export to Local File

☐ Export to File Server

☐ Export to Local Disk

Export ⓘ

Backup Contents	Select the data contents to back up. Settings: All the site settings will be backed up. Authenticated Clients: The authenticated client information will be backed up and can be used to verify clients for portal authentication. It is recommended to select this option if your network uses portal authentication. Firmware Update Logs: The firmware update logs will be backed up.
Export	Select where you want to export the data to. Export to Local File: Export and save the data locally. It is not supported when accessing the controller via cloud. Export to File Server: Export and save the data to a file server. Select the desired file server type (FTP / TFTP / SFTP / SCP) and configure the parameters. Note: Backup to file server does not support file names with special characters. The site name in the backup file name will be base64-encoded and displayed if it contains special characters. Export to Local Disk: Export and save the data to the controller's installation directory.

If you export backup files to local disk, you can view them in **Backup Files List**.

Backup Files List

File Name	Backup Time	Size	Action
sitebackup_Omada Network_9835BE_2026-07-24_18-54-42.cfg	2026-07-24 06:54:42 pm	139.45 KB	  

You can click the icons in the **Action** column to restore or delete the backup file.

	Restore the configurations and data in the backup file. All current configurations will be replaced after the restoration. To keep the backup data safe, wait until the operation is finished. This will take several minutes.
	Delete the backup file.

17.8.2 Restore

If you want to restore using the configuration file stored in the local PC or a file server, follow the steps below:

Launch the controller and access a site. Go to [Maintenance](#). In [Restore](#), upload a backup file from your computer (local file) or file server, then click [Restore](#).

Restore

Import

☒ Import from Local File ☐ Import from File Server

Retain Device Info

☒ Enable ⓘ

Restore

Please select a file.

Browse

Restore ⓘ

Note:	- Site Restore can import the configuration file of only the current site. If you want to import the configuration file of another site, please use the Import Site function. - The site will be restored to the selected file, and all current configurations will be lost.
-------	--

Import	Select where you store the restore file. Import from Local File: Import the data locally. It is not supported when accessing the controller via cloud. Import from File Server: Import the data from a file server. Select the desired file server type (FTP / TFTP / SFTP / SCP) and configure the parameters.
Retain Device Info	Select this option if you want to retain device information. If selected, the device list information in the configuration file will be imported, including the device entries and their configurations. After importing, if the devices can communicate with the controller normally, they will be automatically adopted; otherwise, they will be offline.
Restore	Select the backup file to restore the information.

If you want to restore using the configuration file saved in the local disk, follow the steps below:

Launch the controller and access a site. Go to [Maintenance](#). In [Backup](#), click [Export to Local Disk](#) to

display the **Backup Files List**. Select a backup file and click the Restore icon in the **Action** column to restore it.

Backup

Backup Contents

☒ Settings

☒ Authenticated Clients ⓘ

☒ Firmware Update Logs

Export

☐ Export to Local File

☐ Export to File Server

☒ Export to Local Disk

Export ⓘ

Backup Files List

File Name	Backup Time	Size	Action
sitebackup_Omada Network_98358E_2026-07-24_18-54-42.cfg	2026-07-24 06:54:42 pm	139.45 KB	 

Chapter 18

Update Device Firmware

This chapter introduces how to update device firmware. It includes the following sections:

- [18.1 Introduction](#)
- [18.2 Configure Update Settings](#)
- [18.3 Configure One-Time Update](#)
- [18.4 Configure Periodic Update](#)
- [18.5 Upload Firmware for Update](#)
- [18.6 Roll Back Device Firmware](#)

18.1 Introduction

The Omada system relies on a tight handshake between the controller and managed devices (gateways, switches, APs, and OLTs). Upgrading device firmware is essential to get new features, optimize performance, patch security vulnerabilities, and fix bugs. It ensures the devices operate efficiently, maintain compatibility with controller updates, and prevents potential system failures, ultimately ensuring network performance and reliability.

Omada offers different firmware updates to meet different needs:

- **Stable Version:**

A fully tested and verified official release version. It is recommended for use in production environments to ensure system reliability and stability.

Available in the Stable channel.

- **Release Candidate:**

A version before the official version is released, which is close to the official released version, but may still have some undiscovered or unresolved issues. It is suitable for users who want to use new features in advance, but not suitable for use in critical business environments.

Available in the Release Candidate channel.

- **Beta Version:**

A preliminary release version, whose functions may not be completely stable yet. It is mainly used for testing and feedback, suitable for users who want to be the first to try out new features and willing to take potential risks. It is not recommended for use in production environments.

Available in the Beta channel.

18.2 Configure Update Settings

1. Launch the controller and access the Global View.
2. Go to **Firmware > Overview**.
3. In **Update Settings**, configure the parameters.

Update Settings

Join Early Access Program

By joining this program, you can be the first to try out the latest features with the firmware in the Beta and Release Candidate channels. Please use the firmware with caution since it may be unstable.

Channel

Beta

Device Update Notifications

Device Update Email Notifications

Mail Server is required for notification settings to take effect.

[Go to Mail Server Settings](#)

Join Early Access Program	By joining this program, you can be the first to try out the latest features with the firmware in the Beta and Release Candidate channels. Please use the firmware with caution since it may be unstable.
Channel	Select a channel for the early access program: Stable, Beta, or Release Candidate.
Device Update Notifications	With this option enabled, the system will query the cloud for device firmware updates.
Device Update Email Notifications	With this option enabled, the system will send emails to notify the administrators when new device firmware is available in the Stable channel (by default) or the channel selected for the early access program. Mail Server is required for notification settings to take effect. For instructions, refer to 4. 5. 1 Mail Server.

18.3 Configure One-Time Update

If you want to update device firmware via Omada Cloud for one time only, follow the steps below:

1. Launch the controller and access the Global View.
2. Go to **Firmware > One-Time Update**.
3. In the device model list, locate a device model whose firmware status is “New Version Available” and click the setting icon in the Action column. For batch updates, select multiple models and click **Set Update Rule**.

Search Model

Set Update Rule

☐	Model	Current Version	Firmware Status	Action
☐	AP9778(US) v1.0	11.0 Build	Up-to-date	
☐	DR3650v v1.0	11.1 Build	Up-to-date	
☐	EAP610(US) v4.0	11.0 Build	Up-to-date	
☐	EAP653 UR(US) v1.0	1.5.1 Build 1.4.1 Build 1.4.0 Build	New Version Available	
☐	EAP653(US) v1.0	11.3 Build 11.2 Build 1.3.0 Build	New Version Available	
☐	EAP660 HD(EU) v2.0	1.4.3 Build 1.6.0 Build	Up-to-date	
☐	EAP660 HD(US) v2.0	1.6.0 Build 1.4.5 Build 1.6.4 Build	Up-to-date	
☐	EAP668-Outdoor HD(US) v1.0	1.0.3 Build	Up-to-date	
☐	EAP673(EU) v1.0	1.0.4 Build	New Version Available	
☐	EAP720(US) v1.0	11.3 Build	New Version Available	

Select 0 of 36 items

Select All

Showing 1-10 of 36 records

1
2
3
4

10 /page

4. Select a channel to get the target version. The Stable channel is recommended for use in production environments. You can click the Release Note icon to view new firmware details. Click **Next**.

Set Update Rule

×

Model	Current Version	Target Version Channel	Target Version	Action
EAP653 UR(US) v1.0	1.4.1 Build 1.4.0 Build	Stable	1.4.2 Build	
EAP653(US) v1.0	11.2 Build	Stable	11.3 Build	

Showing 1-2 of 2 records

1

10 /page

Next

Cancel

5. Select one or multiple sites for firmware update and set the update time. It is recommended to schedule the update for a time of lowest traffic.

Notes:

- This rule only takes effect on connected devices.
- An update will take a long time to execute if it involves many sites or devices.

Set Update Rule

×

Select the site for firmware update.

Site

Please Select...

Set the time for firmware update.

☐ Perform the update now

☒ Schedule the update

Select date

at

Select time

Site local time

Note:

- After saving settings, please go to the Overview page to view the update schedules and logs.
- This rule only takes effect on connected devices.
- An update will take a long time to execute if it involves many sites or devices.

Save

Cancel

6. Save the settings. The devices of the specified model(s) in the select site(s) will be updated at the time you set.

You can go to the [Overview](#) page to view the update/rollback schedules and logs.

Update Logs

Search Model

Model	Sites	Previous Version	Current Version	Update Time	Operator	Action
EAP770(EU) v2.0	2026_UX	1.3.13 Build 20251222	EAP787v1_110.93_[20260724-rel36821]_up_s...	Jul 30, 2026 11:25:12 pm		
EAP770(EU) v2.0	2026_UX	110.91 Build 20260723	EAP787v1_110.93_[20260724-rel36821]_up_s...	Jul 29, 2026 11:21:36 am		
SG2210MP v5.20	2026_UX	5.20.6 Build 20260509	SG2016Pv12_en_6.4.0_[20260714-rel29010]_...	Jul 24, 2026 12:06:34 pm		

Update Schedules

Search Model

Model	Sites	Current Version	Target Version	Scheduled Update Time	Operator	Action
EAP653 UR(US) v1.0	2025_UX_01, 2025_UX_02	1.4.2 Build 20251208 Rel. 43830	1.4.1 Build 20250321	Mar 21, 2026 03:00:00 am		

18.4 Configure Periodic Update

If you want to update device firmware via Omada Cloud periodically, follow the steps below:

1. Launch the controller and access the Global View.
2. Go to **Firmware > Periodic Update**. Click **Add Auto Update Schedule**.
3. Select one or multiple sites for firmware update. Click **Next**.

Add Auto Upgrade Schedule

Site

2025_UX_01

2025_UX_02

Next

Cancel

4. Select your desired models and set the update time. It is recommended to schedule the update for a time of lowest traffic. Select a channel to get the target version. The Stable channel is recommended for use in production environments.

Notes:

- This rule only takes effect on connected devices.
- An update will take a long time to execute if it involves many sites or devices.

Add Auto Upgrade Schedule

Model

EAP653 UR(US) v1.0

EAP653(US) v1.0

Occurrence

Every

Week

 on

Saturday

 at

03:00

Site local time

Channel

Stable

Note:

- This rule only takes effect on connected devices.
- An upgrade will take a long time to execute if it involves many sites or devices.

Confirm

Back

5. Save the settings. The schedule will be added to the list. The devices of the specified model(s) in the select site(s) will be updated at the time you set.

SITES	MODEL	CHECK TIME	UPGRADE CHANNEL	ACTION
MDU_Solution:SZ_dormitory_B1, MDU_Solution:SZ_dormitory_B2	EAP653 UR(US) v1.0, EAP653(US) v1.0	Mar 21, 2026 03:00:00 am	STABLE	 

18.5 Upload Firmware for Update

If you want to upload firmware for update, follow the steps below:

1. Go to <https://support.omadanetworks.com/download/firmware/> and obtain your desired firmware file.
2. Launch the controller and access the Global View.
3. Go to **Firmware > Upload Firmware for Update**. Click **Upload Firmware**.
4. Upload the firmware file you obtained and select the device model matching the firmware file. Enable **Application Sites** and select your desired site(s).

Upload Firmware

Firmware File

EAP653v1_1.3.5_..._up_signe...

Browse

Model Name

EAP653(US) v1.0

Description

(Optional)

Application Sites

☒

i

In the application sites you set, offline and newly-added devices of the corresponding model will automatically update to the target firmware version once they go online. They will no longer execute upgrade schedules and auto upgrade.

Site

2025_UX_01 × 2025_UX_02 ×

Confirm

Cancel

- 5. Save the settings. The devices of the specified model in the select site(s) will be updated to the firmware you uploaded.

Note:

In the application sites you set, offline and newly-added devices of the corresponding model will automatically update to the target firmware version once they go online. They will no longer execute update schedules and auto update.

You can go to the [Overview](#) page to view the update/rollback logs.

Update Logs

Search Model

Model	Sites	Previous Version	Current Version	Update Time	Operator	Action
EAP770(EU) v2.0	2026_UX	1.3.13 Build 20251222	EAP787v1_110.93_[20260724-rel36821]_up_s...	Jul 30, 2026 11:25:12 pm		1
EAP770(EU) v2.0	2026_UX	1.10.91 Build 20260723	EAP787v1_110.93_[20260724-rel36821]_up_s...	Jul 29, 2026 11:21:36 am		
SG2210MP v5.20	2026_UX	5.20.6 Build 20260509	SG2016Pv12_en_6.4.0_[20260714-rel29010]_...	Jul 24, 2026 12:06:34 pm		

18.6 Roll Back Device Firmware

In case you want to roll back device firmware after firmware update, follow the steps below:

1. Launch the controller and access the Global View.
2. Go to **Firmware > Overview**.
3. In **Update Logs**, locate the device model that you want to roll back device firmware, then click the Roll Back icon in the Action column.

Note:

Only the firmware updated within 14 days can be rolled back.

Update Logs

Search Model

Model	Sites	Previous Version	Current Version	Update Time	Operator	Action
EAP770(EU) v2.0	2026_UX	1.13 Build 20251222	EAP787v1_110.93_[20260724-rel36821]_up_s...	Jul 30, 2026 11:25:12 pm		
EAP770(EU) v2.0	2026_UX	110.91 Build 20260723	EAP787v1_110.93_[20260724-rel36821]_up_s...	Jul 29, 2026 11:21:36 am		
SG2210MP v5.20	2026_UX	5.20.6 Build 20260509	SG2016Pv12_en_6.4.0_[20260714-rel29010]_...	Jul 24, 2026 12:06:34 pm		

5. Select the firmware to roll back and set the rollback time. It is recommended to schedule the rollback for a time of lowest traffic.

Notes:

- This rule only takes effect on connected devices.
- An rollback will take a long time to execute if it involves many sites or devices.

Set Rollback Rule ×

Select the firmware to roll back.

Firmware

1.1.2 Build 20241103

Set the time for firmware upgrade.

☐ Perform the upgrade now ☒ Schedule the upgrade

2026-03-21

 at

03:00

Site local time

Note:

- After saving settings, please go to the Overview page to view the upgrade schedules and logs.
- This rule only takes effect on connected devices.
- An upgrade will take a long time to execute if it involves many sites or devices.

Save

Cancel

- 6. Save the settings. The devices corresponding to the update log will be rolled back at the time you set.

You can go to the [Overview](#) page to view the update/rollback schedules and logs.

Update Logs

Search Model

Model	Sites	Previous Version	Current Version	Update Time	Operator	Action
EAP770(EU) v2.0	2026_UX	1.3.13 Build 20251222	EAP787v1_110.93_[20260724-rel36821]_up_s...	Jul 30, 2026 11:25:12 pm		 
EAP770(EU) v2.0	2026_UX	110.91 Build 20260723	EAP787v1_110.93_[20260724-rel36821]_up_s...	Jul 29, 2026 11:21:36 am		
SG2210MP v5.20	2026_UX	5.20.6 Build 20260509	SG2016Pv12_en_6.4.0_[20260714-rel29010]_...	Jul 24, 2026 12:06:34 pm		

Update Schedules

Search Model

Model	Sites	Current Version	Target Version	Scheduled Update Time	Operator	Action
EAP653 UR(US) v1.0	2025_UX_01, 2025_UX_02	1.4.2 Build 20251208 Rel. 43830	1.4.1 Build 20250321	Mar 21, 2026 03:00:00 am		 

Chapter 19

Configure the SD-WAN

This chapter will introduce how to configure the SD-WAN to easily connect multiple gateways of sites.

It includes the following sections:

- [19.1 Introduction to SD-WAN](#)
- [19.2 Configure the SD-WAN](#)

19.1 Introduction to SD-WAN

SD-WAN, or Software-Defined Wide Area Network, allows you to easily connect multiple gateways together without complicated VPN configuration. It helps reduce wide area network expenses, improve network connection flexibility, and provide secure and reliable interconnection services for enterprise networks and data center networks scattered across a wide geographical range.

Omada Controller implements SD-WAN networking based on the Hub-Spoke mode, which allows you to quickly establish network connections between multiple sites; it also supports setting up direct channels between specified sites to improve communication efficiency.

Requirements

To use SD-WAN, ensure the following:

- At least one gateway in your network is configured with a public IP address.
- The WAN networks of the gateways have not enable DMZ.
- The network segments in the network do not conflict with each other or the LAN of other sites.

19.2 Configure the SD-WAN

1. Adopt the gateway that is configured with a public IP address through the LAN side.
2. Configure port forwarding on the adopted gateway for adoption of other gateways.
 - a. Access the site where the gateway is adopted. Go to **Network Config > Transmission > NAT > Port**.
 - b. Add a Port Forwarding rule for the controller port, as shown in the following figure:

The screenshot displays the 'Port Forwarding' configuration window. At the top, there are tabs: 'Port Forwarding' (selected), 'ALG', 'One-to-One NAT', and 'Disable NAT'. Below the tabs is a 'Create New Rule' section. The configuration details are as follows:

- Name:** to_controller
- Status:** ☒ Enable
- Source IP:** ☒ Any ☐ Limited IP Address
- Interface:** WAN2 (highlighted with a red box) with a dropdown showing 'WAN with public IP'
- WAN IP:** Please Select... (Optional) ⓘ
- DMZ:** ☐ Enable
- Source Port:** 29810-29816 (highlighted with a red box) with a dropdown showing 'Controller port' and a hint '(1-65535, e.g. 80 or 80-100)'
- Destination IP:** 192 . 168 . 0 . 2 (highlighted with a red box) with a dropdown showing 'Controller PC IP'
- Destination Port:** 29810-29816 (highlighted with a red box) with a hint '(1-65535, e.g. 80 or 80-100)'
- Protocol:** ☒ All ☐ TCP ☐ UDP

At the bottom, there are 'Create' and 'Cancel' buttons.

- c. If you need to upgrade devices through the controller, add a port forwarding rule for upgrade port 8043, as shown in the following figure:

Port Forwarding | ALG | One-to-One NAT | Disable NAT

Create New Rule

Name: to_upgrade

Status: ☒ Enable

Source IP: ☒ Any ☐ Limited IP Address

Interface: WAN2 x WAN with public IP

WAN IP: Please Select... (Optional) ⓘ

DMZ: ☐ Enable

Source Port: 8043 Upgrade port (1-65535, e.g. 80 or 80-100)

Destination IP: 192 . 168 . 0 . 2 Controller PC IP

Destination Port: 8043 (1-65535, e.g. 80 or 80-100)

Protocol: ☒ All ☐ TCP ☐ UDP

Create **Cancel**

3. Adopt other gateways through the WAN side.

- a. On the standalone page of each gateway, set the Controller Inform URL/IP to the public IP of the gateway adopted on the LAN side, as shown in the following figure:

Controller Settings

Cloud-Based Controller Management

Connection Status: Disabled

Cloud-Based Controller Management: ☐ Enable

☐ I accept the [Terms of Use](#) and confirm that I have fully read and understood the [Privacy Policy](#).

Save

Controller Inform URL

Inform URL/IP Address: 192.168.0.2 Public IP of the Gateway adopted on LAN side

Save

- b. On the controller page, create a site for each gateway and adopt them to the sites.

4. Configure SD-WAN.

- a. In Global View, go to **SD-WAN**. Add a SD-WAN group.
- b. Configure basic settings. It is recommended to enable **Subnet Conflicts Solution**. Click **Next**.

1 Basic Settings

2 Set Network Topology

3 Select WAN & Network

Basic Info

Group Name

1

(1-64)

Description

Please enter no more than 50 characters.

(Optional)

Subnet Conflicts Solution

1

Select Gateway Devices

Hub Device

Select

00-FF-

for_703222

Spoke Device

Select

00-1A-

for_703WP

6C-4C-

2026_UX_YJX

CC-BA-F

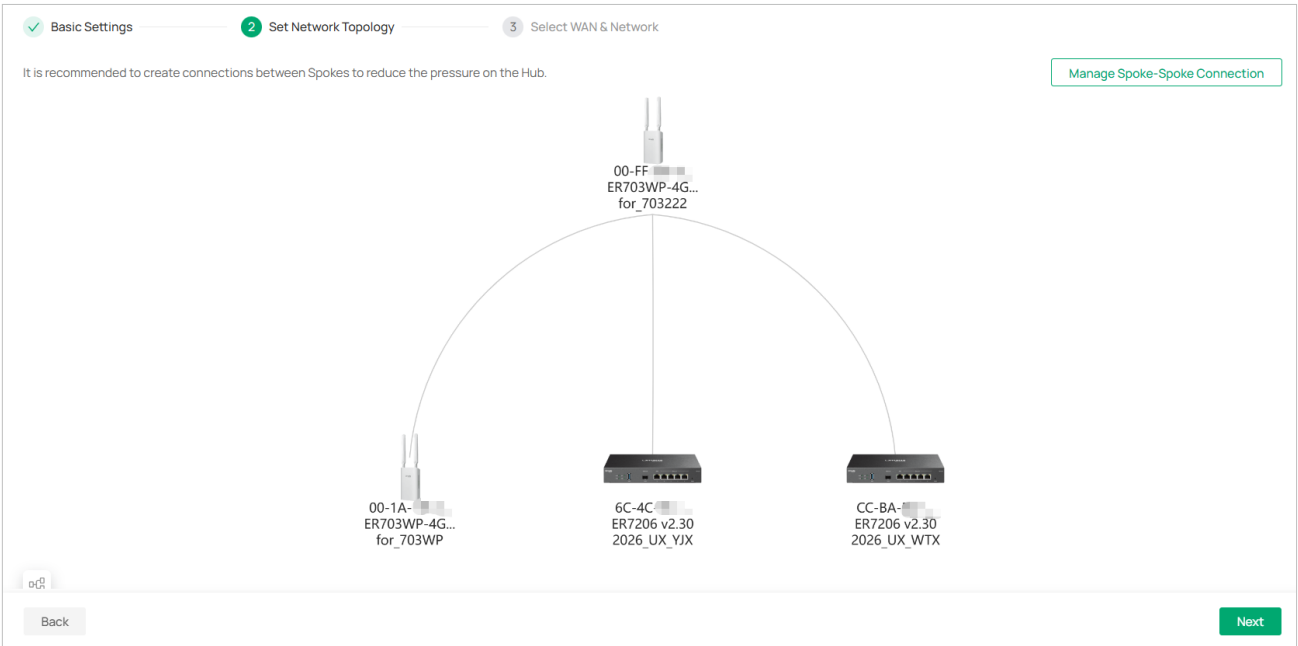
2026_UX_WTX

Back

Next

Group Name	Specify the name of the group.
Description	Enter a description for identification.
Subnet Conflicts Solution	With this feature enabled, NAT will be used to solve subnet conflicts.
Hub Device	Click to select a hub device from the listed gateways. Only the gateways with public IP addresses will be listed. This device works in the core site of the SD-WAN network, connecting all spokes and responsible for network control, routing, and traffic forwarding.
Spoke Device	Click to select one or multiple spoke devices from the listed gateways. The devices work in the branch sites of the SD-WAN network, connected to the hub but not directly connected to each other.

- c. Set the network topology. If there are two or more spoke devices, it is recommended to click **Manage Spoke-Spoke Connection** to create connections between spokes to reduce the pressure on the hub and save the settings. Click **Next**.



Manage Spoke-Spoke Connection

Please Select... Please Select...

00-1A-ER703WP-4G... for_703WP	☐	☒	☐
6C-4C-ER7206 v2.30 2026_UX_YJX	☒	☐	☒
CC-BA-ER7206 v2.30 2026_UX_WTX	☐	☒	☐
00-1A-ER703WP-4G... for_703WP		6C-4C-ER7206 v2.30 2026_UX_YJX	CC-BA-ER7206 v2.30 2026_UX_WTX

Batch Connections ⓘ

- ☒ 00-1A-ER703WP-4G... for_703WP 1/15
- ☒ 6C-4C-ER7206 v2.30 2026_UX_YJX 2/15
- ☒ CC-BA-ER7206 v2.30 2026_UX_WTX 1/15

Save Cancel

- d. Select WAN and network. For interconnected spoke devices, it is recommended to select a WAN port with a public IP for at least one device. You can click [Auto Select WAN Port](#) for auto selection. Save the settings.

Basic Settings

Set Network Topology

3 Select WAN & Network

Search Device Name

Auto Select WAN Port

00-FF- for_703222

WAN2

00-1A- for_703WP

LTE

6C-4C- 2026_UX_YJX

WAN2

CC-BA- 2026_UX_WTX

WAN2

Default

VLAN 1 192.168.33.1/24

Default

VLAN 1 192.168.0.1/24

Default

VLAN 1 192.168.115.1/24

Default

VLAN 1 192.168.0.1/24

Back

Save

WAN Port

Click **Auto Select WAN Port** and the controller will automatically select a WAN with a public IP or a WAN with the smallest number of ports and an IP for each gateway. You can also customize the configuration for each gateway.

Network Segment

This controller automatically adds the Default LAN of each gateway to the Network Segment. You can also customize the configuration for each gateway. Ensure all network segments in the network do not conflict with LANs in other sites.

If there are subnet conflicts, deselect or modify the conflicting network segments.

Basic Settings

Set Network Topology

3 Select WAN & Network

Search Device Name

Auto Select WAN Port

The networks you selected have 2 subnet conflicts.If you **Enabled** Subnet Conflict Solution in Step 1 and all conflicting devices support this feature and use network masks of at least 20 bits, you can save the settings directly. In other cases, **Deselect** or modify the conflicting network segments. [View details](#)

00-FF- for_703222

WAN2

00-1A- for_703WP

LTE

6C-4C- 2026_UX_YJX

WAN2

CC-BA- 2026_UX_WTX

WAN2

Default

VLAN 1 192.168.33.1/24

Default

VLAN 1 192.168.0.1/24

Subnet Conflict.

Default

VLAN 1 192.168.115.1/24

Default

VLAN 1 192.168.0.1/24

Subnet Conflict.

Back

Save

If you have enabled **Subnet Conflict Solution** in the previous step and all conflicting devices support this feature and use network masks of at least 20 bits, you can save the settings directly. Conflicted

496

network segments will be mapped to a virtual network segment. Confirm the mapping and save the settings.

Virtual Network Segment Mapping

The IP addresses in the original network segment are mapped one-to-one to the IP addresses in the mapping network segment; for example, 192.168.1.0/24 is mapped to 10.168.1.0/24, and 192.168.2.0/24 is mapped to 10.168.2.0/24.

Note: The following network segments conflict with other network segments and have been mapped to a virtual network segment.

Mapping Network Segment Range

10.0.0.0/8

172.16.0.0/12

192.168.0.0/16

Remap

Search Site Name

SITE NAME	NETWORK SEGMENT	MAPPED NETWORK SEGMENT
1	192.168.0.1/24	10.0.0.0/24
2	192.168.0.1/24	10.0.1.0/24

Save

Cancel

e. The SD-WAN group will be added.

SD-WAN Group

Please enter group name

1

2 Device

Site Name, Device Name, WAN IP

Manage

DEVICE NAME	HUB-SPOKE TUNNEL	SITE NAME	WAN PORT	WAN IP	LOCAL NETWORK	STATUS	ACTION
00-FF-	Hub	for_703222	LTE		Default	Offline	
00-1A-	Disconnected	for_703WP	LTE		Default	Offline	

You can click **Manage** to edit or delete the group or click the control icons in the top right to switch the topology/list/map view.

Chapter 20

Manage Customer Networks in MSP Mode

This chapter will introduce how to enable MSP mode and manage customer networks in MSP view. It includes the following sections:

- [20. 1 Overview](#)
- [20. 2 Quick Start](#)
- [20. 3 Add and Manage MSP Accounts](#)

20.1 Overview

MSP (Managed Service Provider) mode allows you to know the status of your customers at a glance, and manage customers in the Omada platform.

- **Customer Monitoring**

Keep you informed of accurate, real-time status of every customer.

- **Customer Management**

Manage all customers to deploy the whole network.

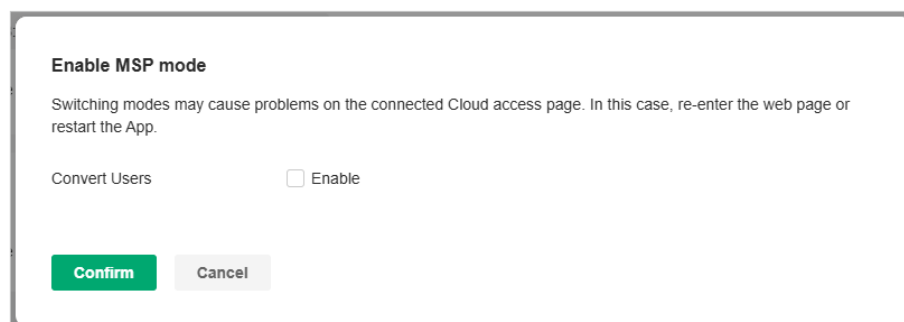
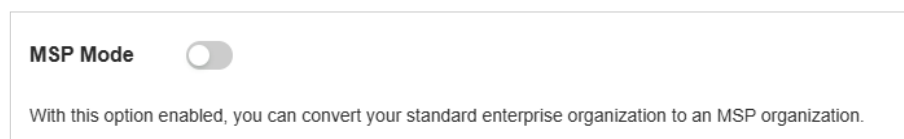
- **Account Settings**

Manage all administrative accounts.

20.2 Quick Start

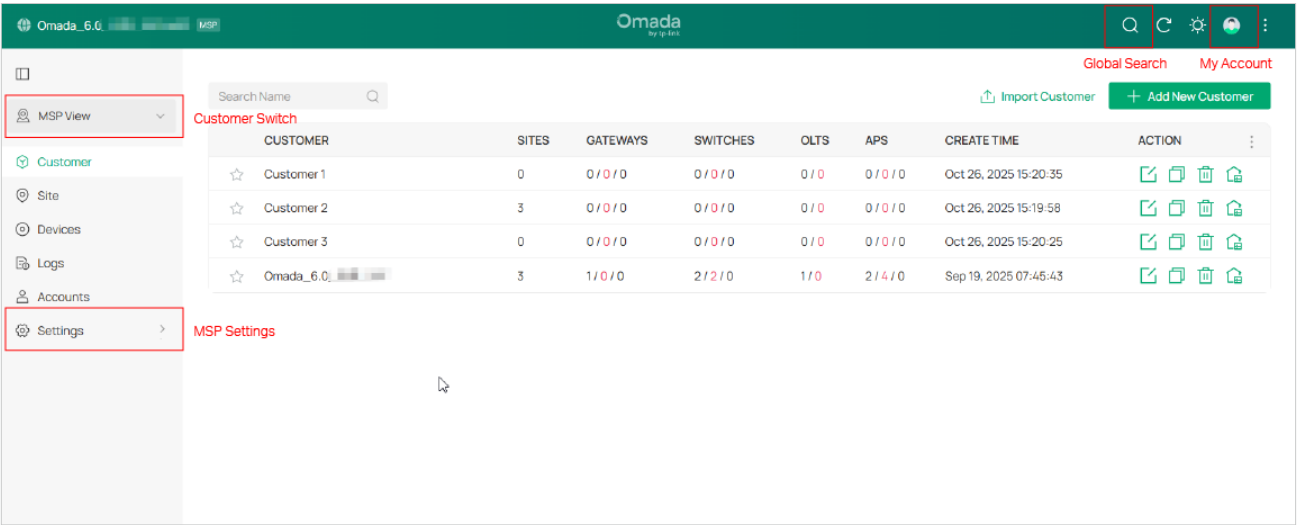
20.2.1 Enable the MSP Mode

1. Launch the controller and access the Global View.
2. Go to [Settings](#) > [Controller Settings](#). Enable [MSP Mode](#) and confirm the action to convert your standard controller system to an MSP system.



Note: Enabling or disabling MSP mode may cause problems on the connected Cloud access page. In this case, re-enter the web page.

You will enter the MSP view.



20.2.2 Add and Manage Customers

- In MSP View, go to the **Customer** page.
- Add customers by using one of the following methods:
 - Add a new customer**

Click **Add New Customer** above the customer list. Specify the customer name and enter a description. Then save the settings.

Add New Customer

Customer Name:

Description

(Optional)

Confirm

Cancel

- Copy an existing customer**

Click the Copy icon of a customer entry. Specify the customer name and enter a description. Then save the settings.

Copy New Customer

Customer Name:

Description

(Optional)

Confirm

Cancel

- **Import customers from another controller**

Click **Import Customer** above the customer list. Specify the customer name and enter a description. Determine whether to retain device info according to your needs. Then import customer from a local file or from a file server.

Import Customer

For controller v5.13.11.41 and above, only the configuration file from the controller with the same or smaller first-three-part version number (Major.Minor.Patch) can be imported.

Name

Description

(Optional)

Retain Device Info

☒ Enable

Import

☒ Import from Local File

☐ Import from File Server

Choose File

Please select a file.

Browse

Import

Cancel

3. The new customers will be added to the customer list and the drop-down list of **Customers**.
- In the customer list, you can view the customer information, and click the icons in the ACTION column to manage customer entries and launch the controller of each customer.

CUSTOMER	SITES	GATEWAYS	SWITCHES	OLTS	APS	CREATE TIME	ACTION	
☆ Customer_1	0	0 / 0	0 / 0	0 / 0	0 / 0	Feb 12, 2025 10:57:44 am	   	
☆ Customer_2	0	0 / 0	0 / 0	0 / 0	0 / 0	Feb 12, 2025 10:57:54 am	   	
☆ Customer_3	0	0 / 0	0 / 0	0 / 0	0 / 0	Feb 12, 2025 10:58:13 am	   	
☆ Omada Controller_Office	3	0 / 0	0 / 0	0 / 0	0 / 0	Feb 11, 2025 10:09:10 am	   	

Showing 1-4 of 4 records

< 1 >

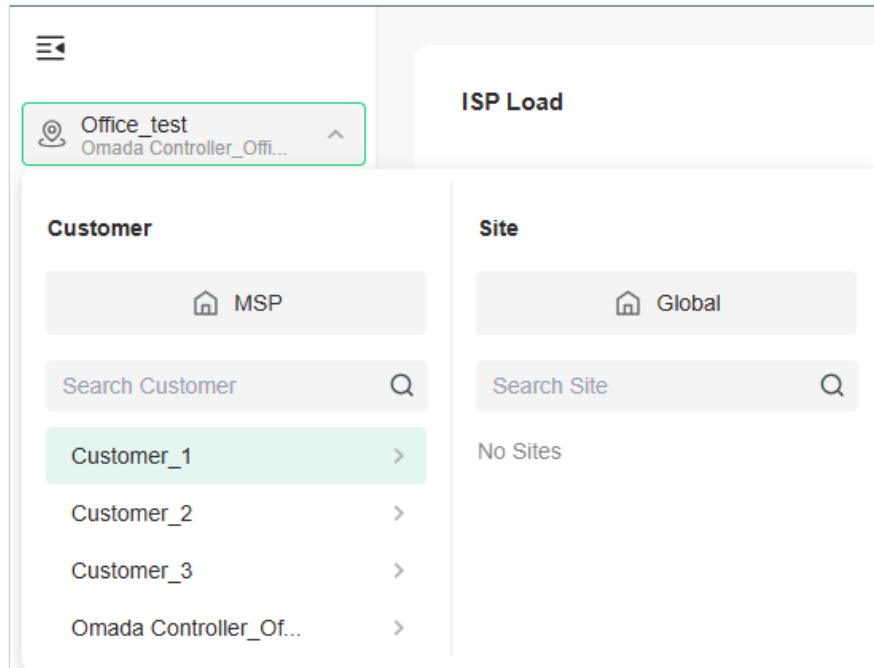
10 / page

Go to page

Go

20.2.3 Add Sites and Devices

1. Select a customer then click **Global** from the **Customer** drop-down list in the left of the page.



2. Add sites and adopt devices by referring to [3 Get Started with Omada Network](#).

20.3 Add and Manage MSP Accounts

Similar as a common controller, the controller in MSP mode offers multiple levels of access available for users: **MSP Owner**, **MSP Super Administrator**, **MSP Administrator**, and **MSP Viewer**. You can also create new account roles and customize their permissions to access different features.

You can use the MSP roles and user accounts on a controller in MSP mode in the same way as using the roles and user accounts on a standard controller. For more information, refer to [16 Manage Accounts](#).

Chapter 21

Configure Multi-Controller Clusters

This chapter will introduce how to configure multi-controller clusters.

It includes the following sections:

- [21. 1 Introduction to Multi-Controller Clusters](#)
- [21. 2 Configure Hot-Standby Backup Clusters](#)
- [21. 3 Configure Distributed Clusters](#)

21.1 Introduction to Multi-Controller Clusters

A multi-controller cluster is a group of interconnected controllers that work together as a single system to enable high availability and can be recognized as a Cluster System. Each controller (node) in the cluster works on a part of the task. If one controller fails, others will take over tasks, preventing system interruptions. This reduces the impact of controller failures on authentication and other online services and facilitates centralized management across multiple controllers.

Omada Controller supports two cluster modes:

■ Hot-Standby Backup Mode

In this mode, there is a primary node and a secondary node. Generally, the primary node is responsible for network management and process running, while the secondary node synchronizes data with the primary node. If the primary node goes down, the secondary node will take over network and clients management. During the failover, the devices will go offline for a short time, then they will reconnect to the new primary node when the devices get connected again, all services will run normally. If the previous primary node recovers from failover, it will continue to run as a secondary node.

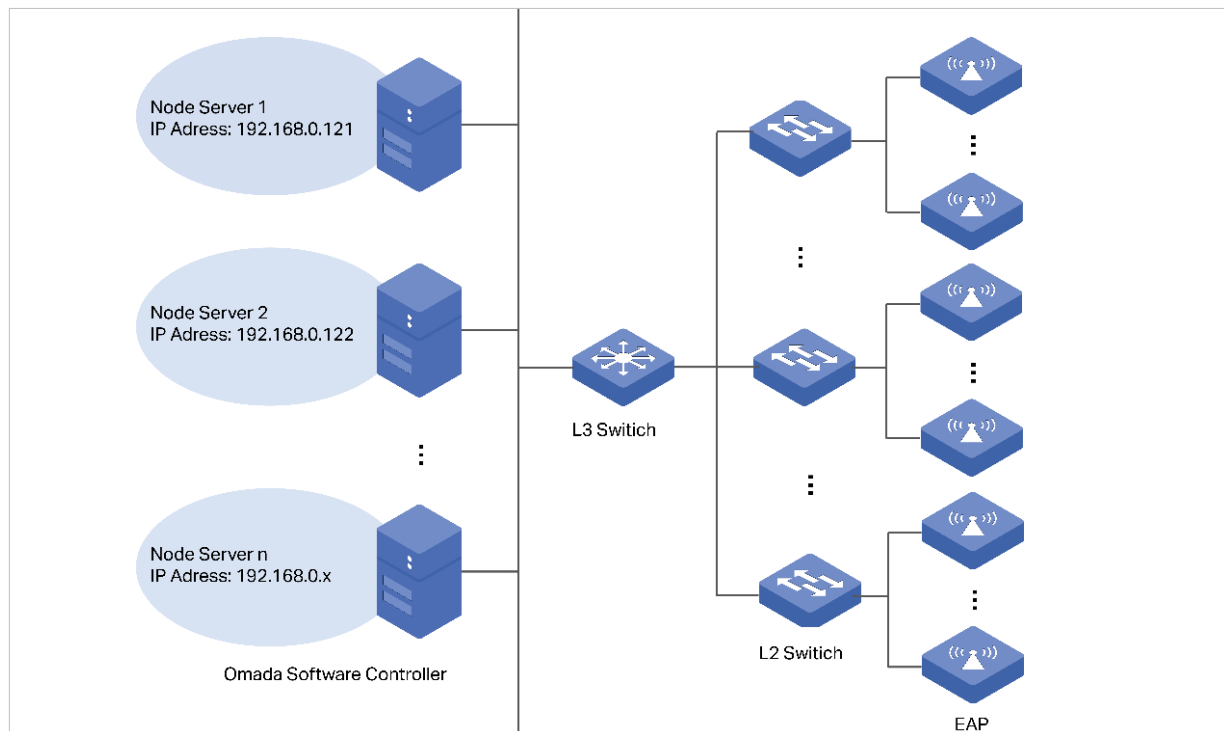
Notes:

- For OC300, the management scale will be reduced to half its original size after enabling Hot-Standby Backup Mode.
- For Linux system, ensure the primary node and secondary node server configurations are the same. The new primary node after switching nodes will remain unchanged until the next switch.

■ Distributed Cluster Mode.

In this mode, multiple nodes collaborate to manage Omada devices. This collaborative approach not only significantly increases the upper limit of the number of devices that the Controller can manage, but also, through the coordinated operation of multiple nodes, ensures the high - availability of the entire network. If a node failure occurs, automatic load balancing will be triggered, and the services of the failed node will be taken over by other nodes. During the failover period, the devices under the site managed by the original failed node will be briefly offline and then automatically reconnect to other nodes. Once the devices resume the "Connected" state, all services will operate normally.

Below is a typical distributed cluster deployment topology, where multiple nodes (three nodes or more) can jointly manage Omada devices.



21.2 Configure Hot-Standby Backup Clusters

Requirements

- Omada Software Controller (Linux, v5.15.20 and above) / Omada Hardware Controller (OC300 / OC400, Built-in Controller v5.15.20 and above)
- Linux System (Ubuntu 20.04/22.04)

Prerequisites and Precautions

- Ensure the JDK and MongoDB versions are consistent across all nodes.
- Set static IP addresses for your controllers. For Linux Controller, it is recommended to set static IP before enabling Cluster Mode to avoid abnormalities in the connections between nodes due to dynamic IP changes. For Hardware Controller, it's a mandatory requirement that the IP of nodes should be static under Cluster Mode.
- It is recommended to deploy all nodes within the same network segment.
- The original data of the secondary node will be overwritten by the data of the primary node. The settings will take effect after rebooting. This process involves data synchronization and may take a long time.
- If you are using hardware controller, during startup, the secondary node needs to successfully connect to the primary node before it can continue to startup, and the web page of Hardware

Controller may be unresponsive for a long time.

Configuration

1. (For Linux Controller) Modifying the handle count of the system is a prerequisite for using the Controller Hot-Standby Backup Mode. Edit `/etc/security/limits.conf`, add the following parameters, save the file, log out and log back in to make the changes take effect.

*** soft nfile 65535**

*** hard nfile 65535**

Note: The methods of modifying handle number may vary by Linux version. Please modify the handle number according to Linux version.

2. Set static IP addresses for your controllers, and keep them in the same subnet.
 - For Linux Controller, it is recommended to set static IP before enabling Cluster Mode to avoid abnormalities in the connections between nodes due to dynamic IP changes.
 - For Hardware Controller, it's a mandatory requirement that the IP of nodes should be static under Cluster Mode.
3. Configure cluster settings.
 - a. In Global View, go to **Settings > Cluster**, and enable **Cluster**.
 - b. For the primary node, select the mode as **Hot-Standby Backup**. Input the IP address of the primary node in the Local IP/Hostname field and the IP address of the secondary node in the Remote IP/Hostname field. Choose **Primary** as **Initial Status**. Customize the **Key** and remember it.

- c. For the secondary node, select the mode as **Hot-Standby Backup**. Input the IP address of the secondary node in the Local IP/Hostname field and the IP address of the primary node in the Remote IP/Hostname field. Choose **Secondary** as **Initial Status**. Input the same **Key** as the primary node's.

Note: If you are going to set one running controller as the secondary node, migrate all the devices of this controller to the primary node or forget them all. It is recommended to back up your configuration before cluster configuration. After it's set as secondary node, its data will be overwritten by the data of the primary node.

4. Reboot the primary node and the secondary node.

- For Hardware Controller, just reboot the Controller with the Reboot feature.
- For Linux Controller, use the **sudo tpeap restart** command on your Linux System:

The cluster will be established after the nodes reboot.

For more instructions and related FAQs, refer to [How to Configure Hot-Standby Backup Mode on Omada Controller](#).

21.3 Configure Distributed Clusters

Requirements

- Omada Software Controller (Linux, v5.15.20 and above)
- Ubuntu 22.04
- JAVA17
- MongoDB v7.0

Prerequisites and Precautions

- The Distributed cluster mode requires at least three nodes. Prepare to deploy at least three controllers before setting it up.
- Installing the distributed cluster mode requires Java 17. Use the **sudo apt install openjdk-17-jre-headless** command to install Java 17.
- Modifying the handle count of the system is a prerequisite for using the Controller distributed cluster mode. Edit **/etc/security/limits.conf**, add the following parameters, save the file, log out and

log back in to make the changes take effect.

* **soft nofile 65535**

* **hard nofile 65535**

- The methods of modifying handle number may vary by Linux version. Please modify the handle number according to Linux version.
- Ensure the system time of each node is consistent, with a time difference of less than 20 seconds.
- Ensure the JDK and MongoDB versions are consistent across all nodes.
- Node IPs only support static IPs. If you need to modify the IP/port, you will need to re-initialize.
- It is recommended to deploy all nodes within the same network segment.

21.3.1 Configure an Existing Controller via Web

1. In **Global View**, go to **Settings > Cluster** and enable **Cluster**. Then select the mode as **Distributed Cluster**.
2. Click **Add Node** to add at least three nodes.

Cluster Node List Check Connection Add Node

NAME	NODE MANAGEMENT HOSTNAME/IP	DEVICE MANAGEMENT HOSTNAME/IP	DEVICE MANAGEMENT PORT	DEVICE DISCOVERY PORT	DEVICE MONITOR PORT	ROLE	ACTION
node1	Current 192.168.0.189					Mixed	
node2	192.168.0.190					Mixed	
node3	192.168.0.191					Mixed	

Input these nodes' name and node management hostname/IP. Here, hostnames/IPs should correspond to different servers.

Specify the device management hostname/IP of the management device. This IP address will be used to establish a connection and communicate with the device. If it is not specified, the node management hostname/IP will be used by default.

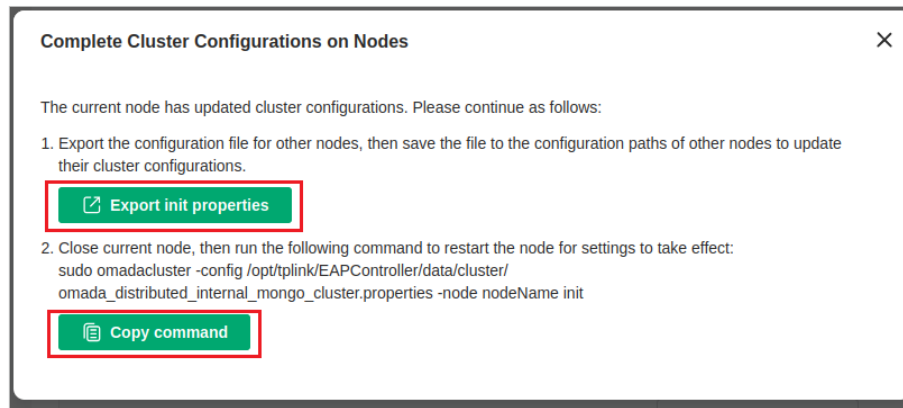
Specify the device management port, device discovery port, and device monitor port. Ensure they don't conflict with ports already used by the PC.

Then click **Apply**.

After that, Controller will pop up a prompt window and the init properties file. Download the init properties file and reboot the Controller for the settings to take effect.

Notes:

- Please reboot nodes as soon as possible to prevent device disconnection or other problems.
- Nodes added offline will be considered down - state nodes, which will affect the disaster recovery capability. Please initiate them as soon as possible.



3. Replace the properties file you downloaded at each node respectively. The path to the properties file is:

/opt/tplink/EAPController/data/cluster/omada_distributed_internal_mongo_cluster.properties

4. Execute the initialization command on each node respectively. When initializing nodes, set the account and password for all nodes. When initializing nodes, first initialize the primary node (the one exporting init properties). Otherwise, initialization may fail.

sudo omadacluster -config

**/opt/tplink/EAPController/data/cluster/omada_distributed_internal_mongo_cluster.properties
-nodeName init**

```
tplink@tplink-PC1:~$ sudo omadacluster -config /opt/tplink/EAPController/data/cluster/omada_distributed_internal_mongo_cluster.properties -node node1 init
check omada
Omada Controller is already running.
Stopping Omada Controller
Stop successfully.
Number of mixed members: 3
Check node ips: 192.168.0.189 192.168.0.190 192.168.0.191
Check node device hosts:
Please set the cluster account, which will be used for authentication between cluster nodes. Please keep it consistent on all nodes.
Please enter your cluster username: admin
Please enter your cluster password:
Please confirm your cluster username (admin), and enter your cluster password again:
```

5. After the deployment is successful, go to the Cluster page to confirm. And when the distributed cluster mode is running properly, you can access the Controller through any node.

Cluster Settings

Cluster ☒

Mode **Distributed Cluster**
In this mode, all cluster nodes work together to manage devices.

For configuration instructions, refer to [How to Configure Distributed Cluster Mode on Linux Controller](#). For the compatible device list, refer to [Omada Cluster Deployment Product List](#).

Load Balance ☒ Auto ☐ Custom

Cluster Account [Show Account](#)

Cluster Node List Rebalance Check Connection Add Node

NAME	NODE MANAGEMENT HOST NAME/IP	DEVICE MANAGEMENT HOST NAME/IP	ROLE	STATUS	MANAGED SITES	MANAGED DEVICES	CPU USE	ACTION
node3	192.168.0.201		Mixed	CONNECTED	0	0		
node2	192.168.0.200		Mixed	CONNECTED	0	0		
node1	192.168.0.199	Custom	Mixed	CONNECTED	0	0		

21.3.2 Configure a New Controller via Commands

- Select cluster mode installation (does not automatically start after installation).

- Install using deb

echo "omadac omadac/init-cluster-mode boolean true" | sudo debconf-set-selections

sudo dpkg -i /path/to/controller_installation_package

```
root@node3-VirtualBox:/home/node3# echo "omadac omadac/init-cluster-mode boolean true" | sudo debconf-set-selections
root@node3-VirtualBox:/home/node3# dpkg -i omada_v5.15.20.7_linux_x64_20250113193653.deb
```

- Install using tar.gz

After decompression, deploy the cluster mode via the shell installation script. Enter **./install.sh init - cluster - mode**, the system will not start automatically after installation, and relevant prompt information for setting up the cluster will be printed.

```
root@node3-VirtualBox:/home/node3/Omada_SDN_Controller_v5.15.20.7_x64# sudo ./install.sh init-cluster-mode
```

- Start installing the Controller and edit the properties file as prompted.

```
root@node1-VirtualBox:/home/node1# dpkg -i omada_v5.15.20.10_linux_x64_20250119195257.deb
Selecting previously unselected package omadac.
(Reading database ... 160648 files and directories currently installed.)
Preparing to unpack omada_v5.15.20.10_linux_x64_20250119195257.deb ...
Start controller distributed cluster mode.
Cannot locate Java Home
Unpacking omadac (5.15.20.10) ...
Setting up omadac (5.15.20.10) ...
Start controller distributed cluster mode.
Install Omada Controller succeeded!
=====
current data is empty
Before enabling the cluster mode, first configure the system environment by referring to the Cluster UG(https://www.omadanetworks.com/en/support/faq/4347/). Then please edit the properties file that specifies the cluster mode in directory /opt/tplink/EAPController/data/cluster and use command 'sudo omadacluster -config <properties_path> -node <node_name> init' to initialize the cluster node.
Controllers that have not completed cluster initialization will still start in normal mode.
Usage: /usr/bin/omadacluster [<option> ...] <command>

Commands:
  help                                - this screen
  -config <properties_file> -node <node_name> init - Initialize a specific cluster node using a specified configuration file

Options:
  -config                             - cluster properties file
  -node                               - node name
=====
Processing triggers for systemd (245.4-4ubuntu3.20) ...
```

Modify each node's properties file `/opt/tplink/EAPController/data/cluster/omada_distributed_internal_mongo_cluster.properties`

```

1 ## local cluster config
2 # Cluster mode, distributed: Distributed Cluster
3 omada.cluster.mode=distributed
4 # internal: internal mongodb server
5 omada.cluster.distributed.mongo.mode=internal
6
7 ## Distributed Cluster Config
8 ## Please edit:
9 omada.cluster.distributed.mongo.replset.name=omadaReplSet
10 # Cluster member names list
11 omada.cluster.distributed.names=node1,node2,node3
12
13 # To preserve the data node, if not configured, it defaults to 'node1'.
14 # It can only be a node with a mixed node role.
15 omada.cluster.distributed.primary.data.node=node1
16 omada.cluster.distributed.node1.host=192.168.0.189
17 # node1.role:mixed or service. mixed: node that provides service with data(At least 3 mixed
18 # nodes); service: node that only provides service without data
19 omada.cluster.distributed.node1.role=mixed
20 omada.cluster.distributed.node1.device.host=
21
22 omada.cluster.distributed.node2.host=192.168.0.190
23 omada.cluster.distributed.node2.role=mixed
24 omada.cluster.distributed.node2.device.host=
25
26 omada.cluster.distributed.node3.host=192.168.0.191
27 omada.cluster.distributed.node3.role=mixed
28 omada.cluster.distributed.node3.device.host=

```

3. Execute the initialization command on each node respectively.

sudo omadacluster -config /opt/tplink/EAPController/data/cluster/omada_distributed_internal_mongo_cluster.properties -node <nodeName> init

4. After the deployment is successful, log in to the Controller and set the username and password, and other nodes will synchronize the username and password.

Then go to the Cluster page to confirm. And when the distributed cluster mode is running properly, you can access the Controller through any node.

Cluster Settings

Cluster: ☒

Mode: Distributed Cluster
In this mode, all cluster nodes work together to manage devices.

For configuration instructions, refer to [How to Configure Distributed Cluster Mode on Linux Controller](#). For the compatible device list, refer to [Omada Cluster Deployment Product List](#).

Load Balance: ☒ Auto ☐ Custom

Cluster Account: [Show Account](#)

Cluster Node List

NAME	NODE MANAGEMENT HOST NAME/IP	DEVICE MANAGEMENT HOST NAME/IP	ROLE	STATUS	MANAGED SITES	MANAGED DEVICES	CPU USE	ACTION
node3	192.168.0.201		Mixed	CONNECTED	0	0		
node2	192.168.0.200		Mixed	CONNECTED	0	0		
node1	192.168.0.199	Custom	Mixed	CONNECTED	0	0		

For more instructions and related FAQs, refer to [How to Configure Distributed Cluster Mode on Linux Controller](#).