



QUICK START GUIDE

NSE 3000

Release 1.1



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About This Guide

This document explains how to configure the NSE 3000 products. It is intended for use by the system designer, system installer, and system administrator.

Purpose

Documents specific to the NSE 3000 products are intended to instruct and assist personnel in the operation, installation, and maintenance of the NSE 3000 device (Cambium Networks) and ancillary devices of NSE 3000 products. It is recommended that all personnel engaged in such activities must be properly trained.

Cambium Networks disclaims all liability, whatsoever, implied or express - for any risk of damage, loss or reduction in system performance arising directly or indirectly out of the failure of the customer, or anyone acting on the customer's behalf - to abide by the instructions, system parameters, or recommendations made in this document.

Cross references

References to external publications are shown in italics. Other cross references, emphasized in blue text in electronic versions, are active links to the references.

This document is divided into topics that are divided into sections. Sections are not numbered and are listed in the table of contents.

Feedback

We appreciate feedback from the users of our documents. This includes feedback on the structure, content, accuracy, or completeness of our documents. To provide feedback, visit our support website - <https://support.cambiumnetworks.com>.

Warnings, cautions, and notes

The following sections describe how warnings, notes, and cautions are used in this document and in all documents of Cambium Networks:

Warnings

Warnings precede instructions that contain potentially hazardous situations. Warnings are used to alert the reader to possible hazards that could cause loss of life or physical injury. A warning has the following format:



Warning

Warning text and consequence for not following the instructions in the warning.

Cautions

Cautions precede instructions and are used when there is a possibility of damage to systems, software, or individual items of equipment within a system. However, this damage presents no danger to personnel. A caution has the following format:



Caution

Caution text and consequence for not following the instructions in the caution.

Notes

A note means that there is a possibility of an undesirable situation or provides additional information to help the reader understand a topic or concept. A note has the following format:



Note

Note text.

Important regulatory information

The NSE 3000 products are certified as an unlicensed device in frequency bands where it is not allowed to cause interference to licensed services (called primary users of the bands).

Complying with rules for the country of operation

USA specific information



Caution

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

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.



Note

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Canada specific information



Caution

This device complies with ISED's license-exempt RSSs. Operation is subject to the following two conditions:

- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device. This device must accept any interference, including interference that may cause undesired operation of the device.

Renseignements spécifiques au Canada



Note

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- L'appareil ne doit pas produire d'interférences; et
- L'utilisateur de l'appareil doit accepter toute interférence radioélectrique, même si elle est susceptible d'en compromettre le bon fonctionnement.

EU Declaration of Conformity

Hereby, Cambium Networks declares that the Cambium Networks NSE 3000 Series complies with the essential requirements and other relevant provisions of Directive 2014/53/EU. The declaration of conformity may be consulted at <https://www.cambiumnetworks.com/>.

Specific expertise and training for professional installers

To ensure that the NSE 3000 series are installed and configured in compliance with the requirements of EU, ISED, and the FCC, installers must have the radio engineering skills and training described in this section.

The Cambium Networks technical training program details can be accessed from the following link:

<https://www.cambiumnetworks.com/training/>

Legal and Open-Source Software statements

Refer to the NSE 3000 Legal and Open-Source Guide for:

- Cambium Networks end user license agreement and
- Open-Source Software Notices.

Problems and warranty

Reporting problems

If any problems are encountered when installing or operating this equipment, follow this procedure to investigate and report:

1. Search this document and the software release notes of supported releases.
2. Visit the [support website](#) (Cambium Networks).
3. Ask for assistance from the Cambium Networks product supplier.
4. Gather information from affected units, such as any available diagnostic downloads.
5. Escalate the problem by emailing or telephoning support.

Repair and service

If unit failure is suspected, obtain details of the Return Material Authorization (RMA) process from the [support website](#).

Hardware warranty

Cambium's standard hardware warranty is for one (1) year from the date of shipment from Cambium Networks or a Cambium distributor. Cambium Networks warrants that hardware will conform to the relevant published specifications and will be free from material defects in material and workmanship under normal use and service. Cambium shall within this time, at its own option, either repair or replace the defective product within thirty (30) days of receipt of the defective product. Repaired or replaced products will be subject to the original warranty period but not less than thirty (30) days.



Caution

Using non-Cambium parts for repair could damage the equipment or void warranty. Contact Cambium for service and repair instructions.

Portions of Cambium equipment may be damaged from exposure to electrostatic discharge. Use precautions to prevent damage.

Security advice

Cambium Networks systems and equipment provide security parameters that can be configured by the operator based on their particular operating environment. Cambium Networks recommends setting and using these parameters following industry recognized security practices. Security aspects to be considered are protecting the confidentiality, integrity, and availability of information and assets. Assets include the ability to communicate, information about the nature of the communications, and information about the parties involved.

In certain instances Cambium Networks makes specific recommendations regarding security practices, however the implementation of these recommendations and final responsibility for the security of the system lies with the operator of the system.

Caring for the environment

The following information describes national or regional requirements for the disposal of Cambium Networks supplied equipment and for the approved disposal of surplus packaging.

In EU countries

The following information is provided to enable regulatory compliance with the European Union (EU) directives identified and any amendments made to these directives when using Cambium Networks equipment in EU countries.

Disposal of Cambium equipment

European Union (EU) Directive 2012/19/EU Waste Electrical and Electronic Equipment (WEEE).

Do not dispose the Cambium Networks equipment at landfill sites. For disposal instructions, refer to <https://www.cambiumnetworks.com/support/compliance/>.

Disposal of surplus packaging

Do not dispose the surplus packaging in landfill sites. In the EU, it is the individual recipient's responsibility to ensure that packaging materials are collected and recycled according to the requirements of EU environmental law.

In non-EU countries

In non-EU countries, dispose of Cambium equipment and all surplus packaging in accordance with national and regional regulations.

Basic information about the products

This section provides basic information about the NSE 3000 products and prerequisite tasks. This information helps you to set up the system before proceeding with the configuration of NSE 3000.

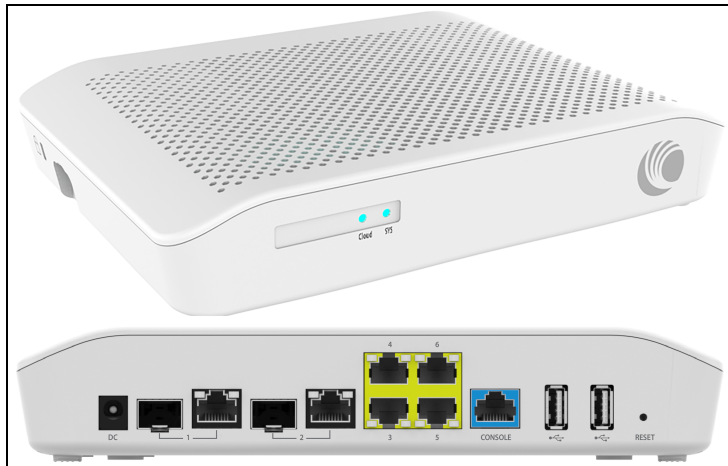
This section covers the following topics:

- [Hardware information](#)
- [Prerequisite tasks](#)

The Network Service Edge (NSE) product delivers advanced security, routing, and SD-WAN policies for small and medium enterprises.

NSE 3000 is the first product offering in the NSE series. It has two WAN ports and four LAN ports, and supports reliable connectivity with WAN throughputs of up to 1 Gbps. It also supports an industry-leading IDS/IPS engine, advanced application, geo-IP firewalls, network security scanners, anti-malware protection, SD-WAN, and cutting-edge application visibility and control.

Figure 1: NSE 3000 device



Hardware information

Table 1 NSE 3000 includes the following hardware platforms:

Table 1: Hardware information

Hardware specification	Hardware platform
WAN Ports	2 x 1 Gbps RJ45/SFP
LAN Ports	4 x 1 Gbps RJ45
Dimensions	175.16 mm x 232.72 mm x 43 mm
Weight	0.65 kg
Max Power consumption	22.8W
Power Supply	40W DC

Hardware specification	Hardware platform
Operating temperature	0°C–40°C
Operating humidity	10%–90%

Prerequisite tasks

Before performing the configuration tasks, ensure that you have met the following hardware requirements (for example):

- A personal computer (PC) or laptop if you want to connect directly to the NSE 3000 device web UI.
- NSE 3000 device with IP address configured.

To put the whole system together, you must perform the following prerequisite tasks:

1. [Install rubber feet](#)
2. [Power supply](#)
3. [LED status](#)

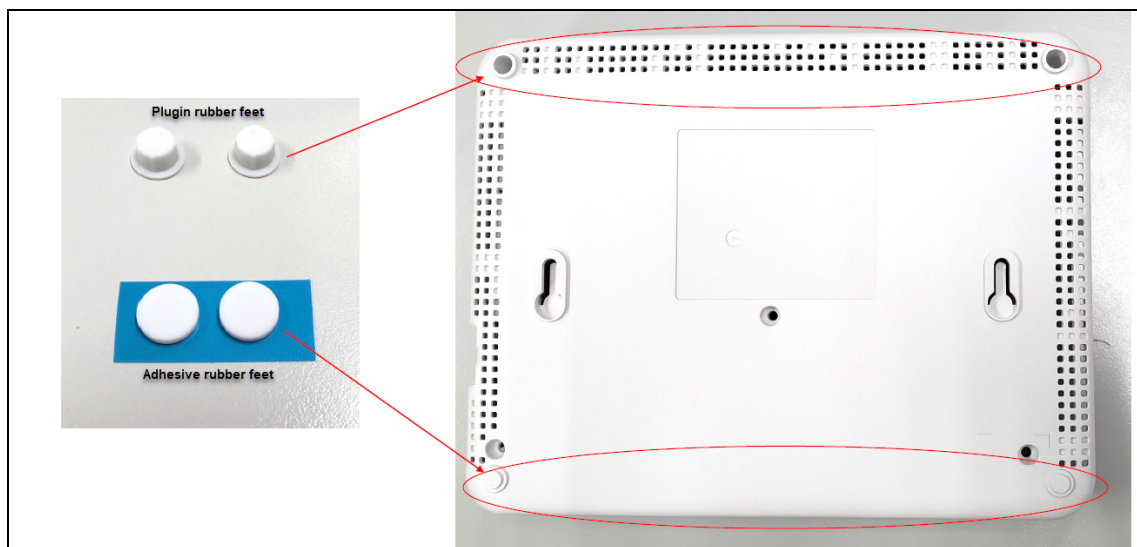
These prerequisite tasks help you to ensure that each component of the system is working before the final integration.

Install rubber feet

This section describes how to install rubber feet on rubber slots of the NSE 3000 device. Following two types of rubber feet are used for installation:

- [Plugin type](#)
- [Adhesive type](#)

Figure 2: Types of rubber feet



To install the rubber feet, perform the following steps:

Plugin type

1. Place the plugin rubber feet on the rubber slots.
2. Press the plugin rubber feet as shown in [Figure 3](#).

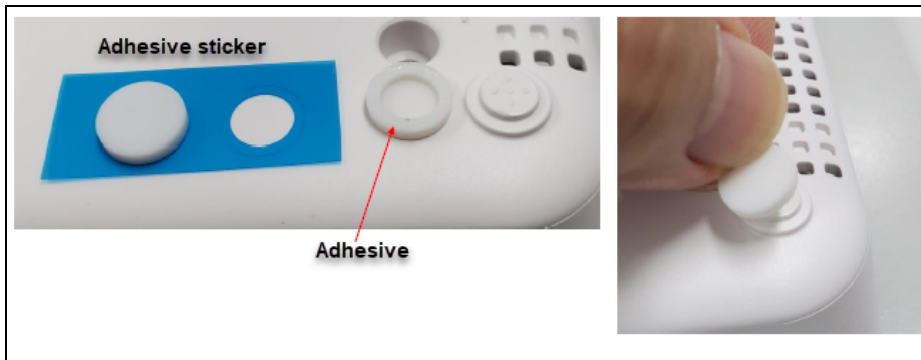
[Figure 3](#): *Placing the Plugin rubber feet type*



Adhesive type

1. Peel the adhesive rubber feet from the sticker.
2. Place the adhesive rubber feet on the rubber slots.
3. Press the adhesive rubber feet as shown in [Figure 4](#).

[Figure 4](#): *Placing the adhesive rubber feet type*



Power supply

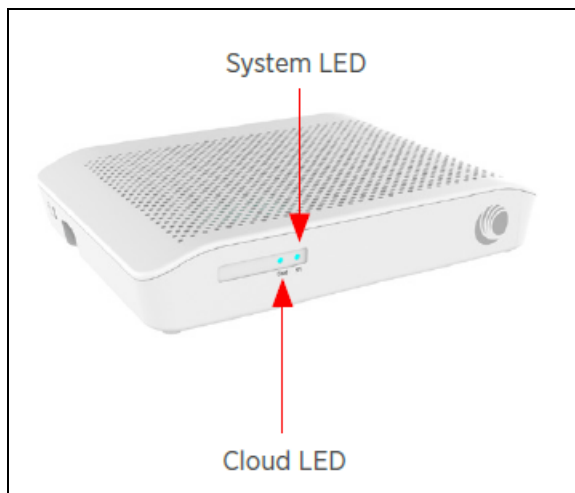
Connect the AC power cords of the power supply to a power inlet and connect the DC plug to the DC jack of the NSE 3000 device.

LED status

LED status of the device displays as shown below:

- When NSE 3000 is booting up, the system LED is amber in color.
- When NSE 3000 is fully up and running, the system LED is green in color.

Figure 5: NSE 3000 LED



Managing NSE 3000 using cnMaestro

NSE 3000 is completely managed by the easy-to-use, secure, and cloud-hosted Cambium Networks cnMaestro Management system. A single-pane-of-glass management to operate and manage all Cambium Networks enterprise products NSE 3000 devices, Enterprise Wi-Fi, and cnMatrix switches.

To manage the NSE 3000 device through cnMaestro, refer to [cnMaestro Cloud User Guide](#).

Advanced onboarding setup

If the device has trouble in connecting to the internet or cnMaestro, you can onboard the device through device UI. For more information, refer to [Logging into the UI](#).

This section covers the following:

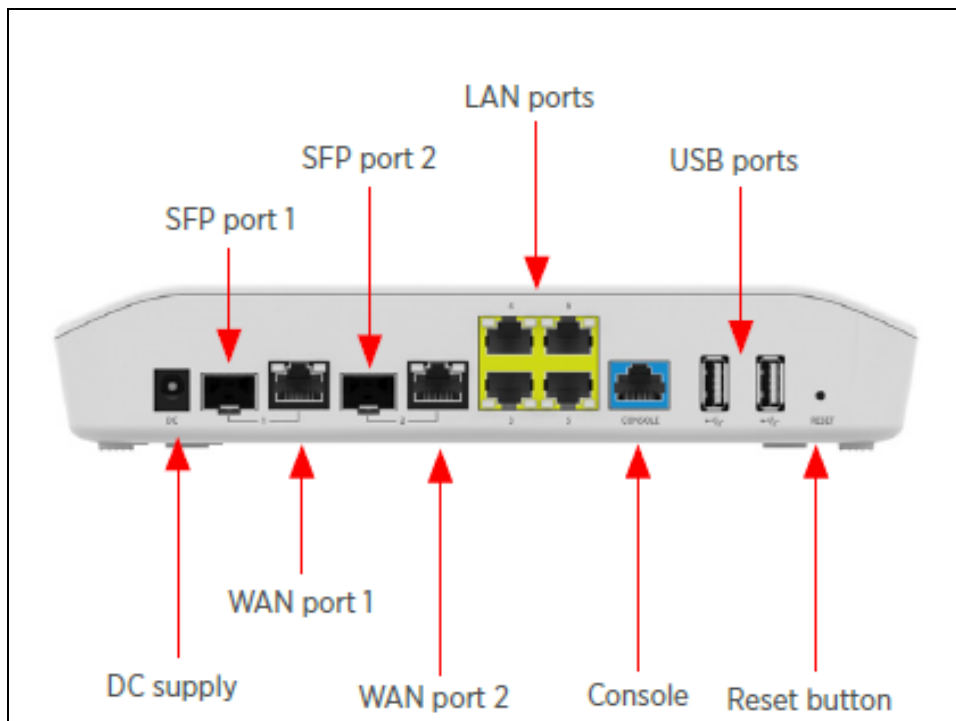
- [Configure the management PC](#)
- [Logging into the UI](#)
- [NSE 3000 Dashboard](#)
- [WAN Configuration](#)
- [Operation](#)
- [Troubleshoot](#)

Configure the management PC

To configure the management PC perform the following steps:

1. Ensure that the Ethernet port on the management PC is configured to use DHCP.
2. Connect the Ethernet port on the management PC to any of the LAN ports.
3. Verify that the management PC obtains an IP address in the 192.168.200.0/24 subnet. Use the `ipconfig` or `ifconfig` command to verify the IP address.

Figure 6: Device Port



Logging into the UI

To access the NSE 3000 using the web UI, perform the following steps:



Note

New user needs to onboard the NSE 3000 device to cnMaestro, refer to [cnMaestro Cloud User Guide](#).

1. Use the default IP address (<http://192.168.200.1>) to connect to the NSE 3000 setup.
2. Ensure that your PC is set up to communicate with the required range of IP addresses.
3. Open a web browser and type the URL - <http://192.168.200.1> - to access the NSE 3000 UI.

The **Sign In** page appears, as shown in [Figure 7](#).

Figure 7: Sign In

Sign In
NSE 3000 - NSE-7003B8
NSE3000

User Name

Password

Sign In

4. Type an appropriate username and password.

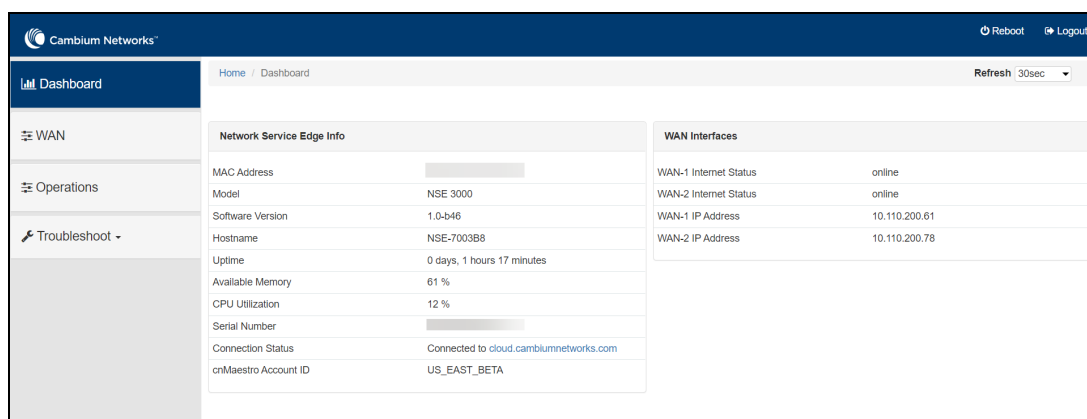
Default username: admin

Default password: admin

5. Click **Sign In**.

The NSE 3000 dashboard page appears, as shown in [Figure 8](#).

Figure 8: The NSE 3000 Dashboard



For more information about the NSE 3000 dashboard page, refer to the [Viewing the dashboard](#).

NSE 3000 Dashboard

This section provides information about UI controls and the main NSE 3000 dashboard page.








This section covers the following topics:

- [UI Controls](#)
- [Viewing the dashboard](#)

UI Controls

Before configuring the UI of NSE 3000, familiarize yourself with the UI controls (as described in [Table 2](#)). These UI controls are required for adding, viewing, and managing NSE 3000 configurations.

Table 2: List of UI controls

UI Control	UI Control name	Description
	Tools	To update firmware and reboot the unit.
	Copyright	To view the copyright information of the product.
Other common UI controls:		
	Expand	To expand the parameters of a section.
	Collapse	To collapse the parameters of a section.
	Table	To view the parameters in a column format.
	Reboot	To reboot the system from the UI.
	Logout	To logout the system from the UI.

Viewing the dashboard

On logging into the NSE 3000 device UI, the main dashboard page, appears as shown in [Figure 9](#). The below figure shows the elements that are displayed on the NSE 3000 Home page.

Figure 9: The NSE 3000 Dashboard

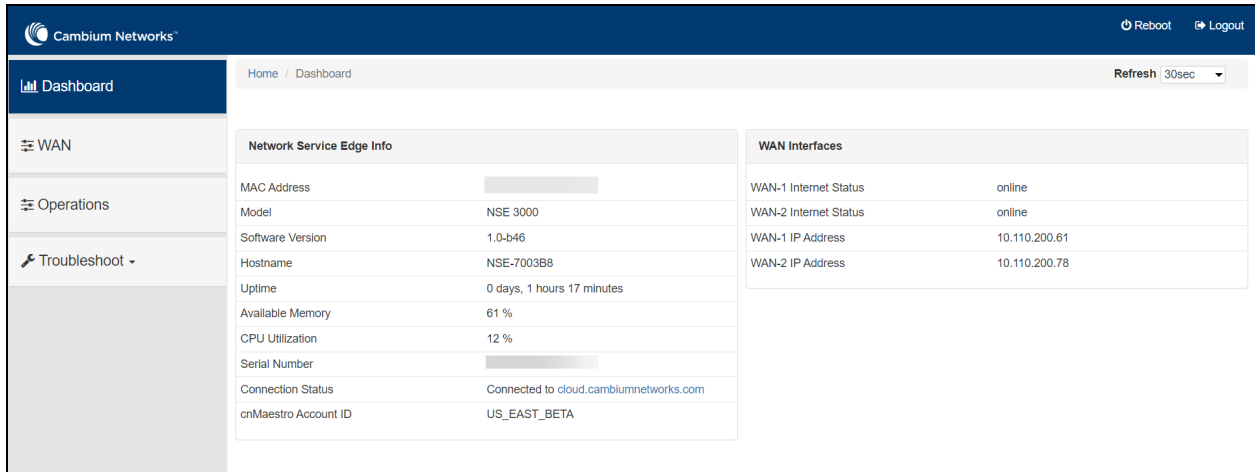


Table 3 provides the details of the parameters on the main dashboard.

Table 3: Dashboard parameters

Parameters	Description
Network Service Edge Info	
MAC Address	Media Access Control (MAC) address. The hardware address that the factory assigns to the module for identification in the Data Link layer interface of the Open Systems Interconnection system. This address serves as an electronic serial number.
Model	Provides information related to the NSE 3000 model number and configured hostname.
Software Version	Provides the information about the software version used by the NSE 3000 device.
Hostname	The unique identifier that serves as name of your computer or server can be as long as 255 characters and consists of numbers and letters.
Uptime	Time period (in seconds) at which the last successful registration of the NSE 3000 device.
Available Memory	Provides the information about the available memory of CPU.
CPU Utilization	This field indicates the current CPU utilization of the device.
Serial Number	Serial number of the device that is used for device identification.
Connection Status	This field indicates the device connectivity.

Parameters	Description
cnMaestro Account ID	This field shows Account ID which is registered with Cambium Networks and it allows operator to manage devices using cnMaestro.
WAN Interfaces	
WAN-1 Internet Status	Indicates the WAN-1 Internet status.
WAN-2 Internet Status	Indicates the WAN-2 Internet status.
WAN-1 IP Address	WAN-1 IP address that is assigned to the network interface and used for the device management.
WAN-2 IP Address	WAN-2 IP address that is assigned to the network interface and used for the device management.

WAN

The **WAN** parameters, for each end-user requirements and type of wireless station in the WAN page. For more information about the **WAN** configuration, refer to the [WAN Configuration](#) section.

Operation

The **Operation** page allows users to perform maintenance tasks of the NSE 3000 devices:

- **Firmware update:** To upgrade of the NSE 3000 devices.
- **System:** To provide different methods of debugging field issues and recovering devices.
- **Configuration:** To configure NSE 3000 device settings.

For more information about the parameters on the **Operation page**, refer to the [Operation](#) section.

Troubleshoot

The **Troubleshoot** page provides users to debug and troubleshoot the system remotely. The Troubleshoot page contains multiple sections, as listed below:

- **Connectivity:** Provides different modes of network reachability for the NSE 3000 device.
- **Logs:** Supports the feasibility to check logs for different modules of NSE 3000 devices. These logs help the customer to debug an issue.

For more information about the parameters on the **Troubleshoot** page, refer to the [Troubleshoot](#) section.

WAN Configuration

The **WAN** page allows the user to configure the device's IP address based on the IP mode.

To view and configure the WAN settings, perform the following steps:

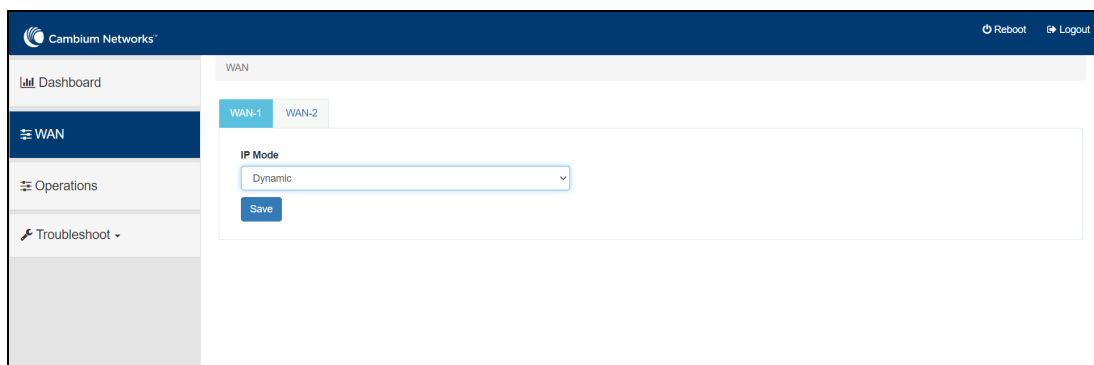
1. From the main NSE 3000 dashboard page, navigate to **WAN** page.

The **WAN** page appears, as shown in [Figure 10](#).



Note
By default, WAN-1 page is displayed. You can configure WAN on WAN-1 or WAN-2.

Figure 10: *The WAN page*



2. Set the values for each parameter, as described in [Table 4](#).

Table 4: WAN configuration parameters

Parameters	Description
IP Mode	Determines the network that must be configured to use IPv4 addresses. The following IP modes are supported: <ul style="list-style-type: none"> • Dynamic • Static • PPPoE
VLAN ID	VLANs are identified by a VLAN ID (a number between 0 – 4094), with the default VLAN on any network being with 1. Each port on a switch or router can be assigned to be a member of a VLAN, to allow receiving and sending traffic on that VLAN.
Following parameters appear only when you select the mode as Static in the IP Mode , as shown in Figure 11 .	
IP Address	Specify the 32-bit binary number that identifies a network element by both network and host.
Subnet Mask	Specify the subnet mask for the destination IP/network for this route.
Gateway	Specify the gateway for the destination IP/network for this route.
DNS	
Primary DNS	Configure the primary DNS server for clients on this network.

Parameters	Description
Secondary DNS	Configure the secondary DNS server for clients on this network.
Following parameters appear only when you select the mode as PPPoE in the IP Mode , as shown in Figure 12 .	
Account Name	Allows to configure Account Name (max 32 characters).
Service Name	Allows to configure Service name (max 32 characters).
User Name	User Name provided to the WAN.
Password	The password used to authentication to the WAN.
MTU	Allows to configure MTU for PPPoE from 500-1492 bytes.
TCP MSS Clamping	Enable or Disable TCP MSS Clamping.

Figure 11: Static Mode

The screenshot displays the WAN configuration page in the Cambium Networks web interface. The page is titled 'WAN' and has two tabs: 'WAN-1' (selected) and 'WAN-2'. The configuration fields are as follows:

- IP Mode:** A dropdown menu set to 'Static'.
- IP Address:** An empty text input field.
- Subnet Mask:** An empty text input field.
- Gateway:** An empty text input field.
- DNS:** A section containing:
 - Primary DNS:** An empty text input field.
 - Secondary DNS:** An empty text input field.
- VLAN ID:** An empty text input field with a note: 'Minimum 1, Maximum 4094'.

A 'Save' button is located at the bottom left of the configuration area. The interface includes a sidebar with 'Dashboard', 'WAN', 'Operations', and 'Troubleshoot' options, and a top navigation bar with 'Reboot' and 'Logout' links.

Figure 12: PPPoE Mode

The screenshot shows the WAN configuration interface for PPPoE mode. The left sidebar contains navigation options: Dashboard, WAN (selected), Operations, Troubleshoot, Connectivity, and Logs. The main content area is titled 'WAN' and has two tabs: 'WAN-1' (active) and 'WAN-2'. The configuration fields are as follows:

- IP Mode:** A dropdown menu set to 'PPPoE'.
- Account Name:** A text input field with a note: 'Configure Account name (max 32 characters)'.
- Service Name:** A text input field with a note: 'Configure Service name (max 32 characters)'.
- User Name:** A text input field.
- Password:** A text input field.
- MTU:** A text input field containing '1492' with a note: 'Configure MTU for PPPoE (500-1492 bytes)'.
- TCP MSS Clamping:** A checkbox labeled 'Enable/Disable TCP MSS Clamping', which is currently unchecked.
- VLAN ID:** A text input field with a note: 'Minimum 1, Maximum 4094'.

A blue 'Save' button is located at the bottom left of the configuration area.

3. Click **Save**.

Operation

This section provides an overview of administrative functionalities for NSE 3000 device such as:

- [Firmware upgrade](#)
- [System](#)
- [Configuration](#)

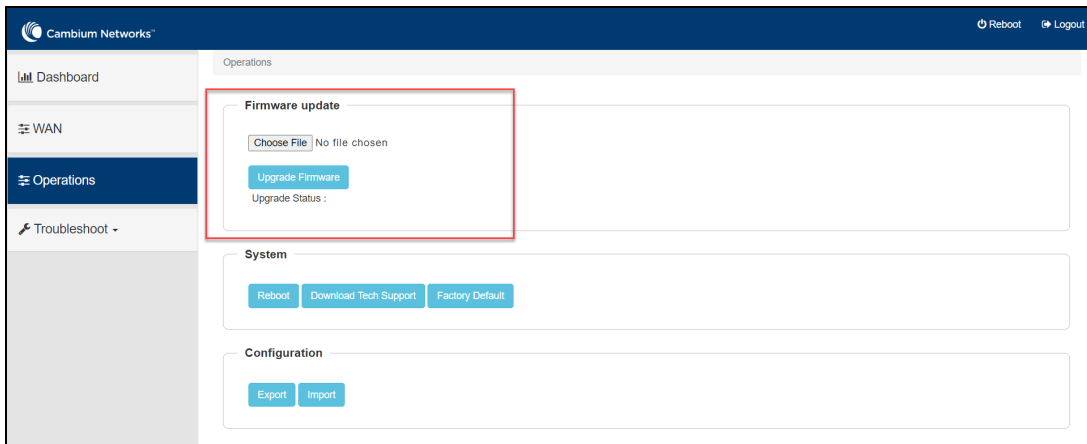
Firmware upgrade

The running software on the NSE 3000 device can be upgraded to newer firmware. When upgrading from the UI, the user can upload the firmware file from the browser. The same process can be followed to downgrade the device to a previous firmware version if required. Configuration is maintained across the firmware upgrade process.

1. From the main NSE 3000 dashboard page, navigate to the **Operation** page > **Firmware update** section.

The **Operation** page appears, as shown in [Figure 13](#).

Figure 13: Firmware update section



2. Set the values for each parameter, as described in Table 5.

Table 5: Firmware update parameters

Parameters	Description
Choose File	To upload a local file (internally), perform the following steps: <ol style="list-style-type: none"> Click Choose File in the choose file field. A file browser window appears. Browse the location where you have saved the Firmware file on your machine locally. Select the file and click Open. The local import file is selected.
Upgrade Firmware	To initiate upgrade once the file is selected.
Upgrade Status	To view the status of the upgrade in the field.

3. Click **Upgrade Firmware**.

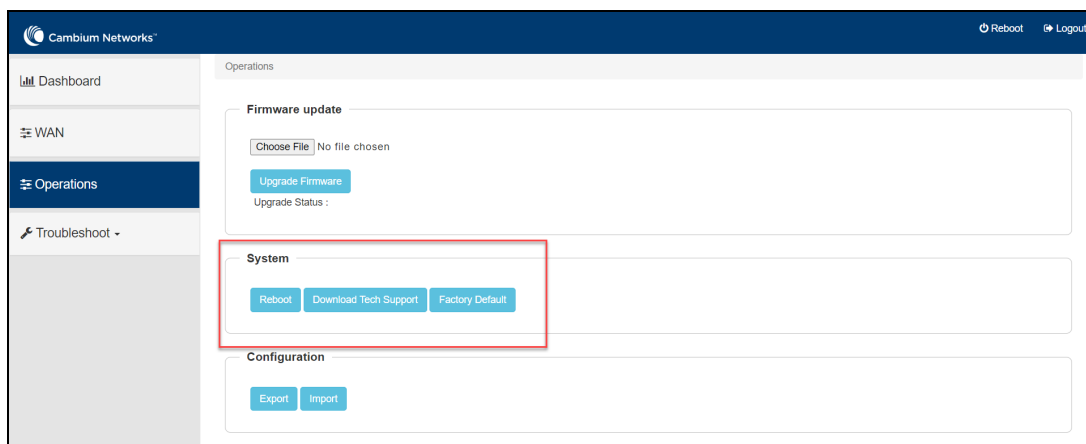
System

This section provides multiple troubleshooting tools provided by NSE 3000.

1. From the main NSE 3000 dashboard page, navigate to the **Operation** page > **System** section.

The **Operation** page appears, as shown in Figure 14.

Figure 14: System section



2. Set the values for each parameter, as described in [Table 6](#).

Table 6: System parameters

Parameters	Description
Reboot	A pop-up window appears requesting confirmation for reboot. If yes, the device reboots.
Download Tech Support	A pop-up window appears requesting permission to download tech support from UI. If yes, the file will be saved in your default download path configured on your system.
Factory Default	A pop-up window appears requesting confirmation for factory defaults. If yes, the device will delete all configurations to factory reset and reboot.

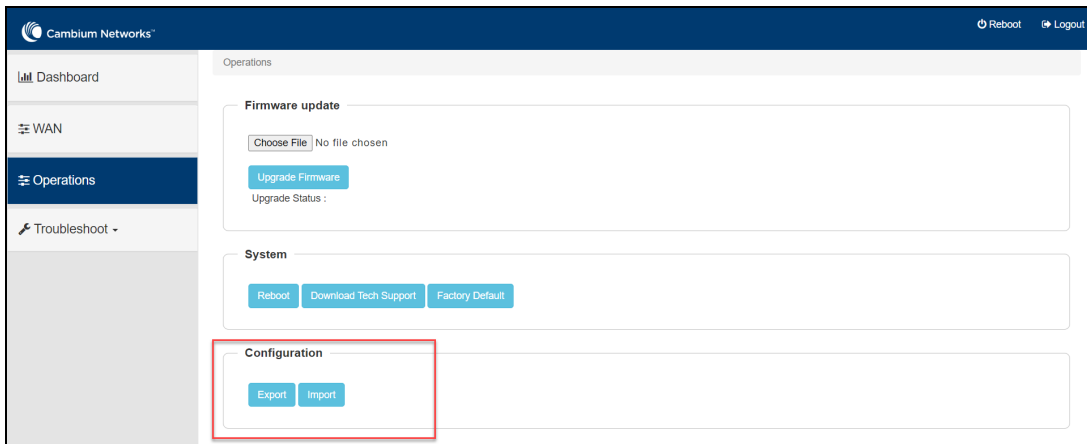
Configuration

The device configuration can either be exported from the device as a text file or imported into the device from a previous backup. Ensure that when a configuration file is imported onto the device, a reboot is necessary to activate that new configuration.

1. From the main NSE 3000 dashboard page, navigate to **Operation** page > **Configuration** section.

The **Operation** page appears, as shown in [Figure 14](#).

Figure 15: Configuration



2. Set the values for each parameter, as described in [Table 7](#).

Table 7: Configuration parameters

Parameters	Description
Export	When you click the Export button, the NSE 3000 model configuration is downloaded by the device.
Import	<p>An option to select a location (stored) from where you to import the required data configuration. A local import file (which is saved locally) is uploaded by the browser.</p> <p>To upload a local file (internally), perform the following steps:</p> <ol style="list-style-type: none"> Click Import in the choose file field. A file browser window appears. Browse the location where you have saved the Import file on your machine locally. Select the file and click Open. The local import file is selected.

Troubleshoot

This chapter provides detailed information about troubleshooting methods supported by NSE. Troubleshooting methods supported by NSE devices as shown below:

- [Connectivity](#)
- [Logs](#)

Connectivity

This tool helps to check the accessibility of remote hosts from NSE devices. Three types of tools are supported under this category:

- [Ping](#)
- [DNS Lookup](#)
- [Traceroute](#)

Ping

To check the Ping result, perform the following steps:

1. Navigate to **Troubleshoot > Connectivity**.
2. Select **Test Type** as **Ping** from the drop-down list as shown in [Figure 16](#).

Figure 16: Ping connectivity

Troubleshoot / Connectivity

Test Type :

IP Address or Hostname :

Number of Packets : Min = 1, Max = 10

Buffer Size : Min = 1, Max = 65507

Ping Result

3. Set the values for each parameter, as described in [Table 8](#).

Table 8: Ping parameters

Parameters	Description
IP Address or Hostname	Validates the IPv4 address or Hostname reachability of the destination host.

Parameters	Description
Number of Packets	Specify the number of packets for this connectivity (Min = 1 and Max = 10).
Buffer Size	Specify the buffer size for this connectivity (Min = 1 and Max = 65507).
Ping Result	Displays the ping results.

4. Click **Start Ping**.

DNS Lookup

To check the DNS test result, perform the following steps:

1. Navigate to **Troubleshoot > Connectivity**.
2. Select **Test Type** as **DNS Lookup** from the drop-down list as shown in [Figure 17](#).

Figure 17: DNS Lookup connectivity

The screenshot shows the 'Troubleshoot / Connectivity' interface. It features a 'Test Type' dropdown menu set to 'DNS Lookup', a 'Host Name' input field, and a blue 'DNS Test' button. Below these fields is a large, empty box labeled 'DNS Test Result'.

3. Set the values for each parameter, as described in [Table 9](#).

Table 9: DNS Lookup parameters

Parameters	Description
Host Name	Specify the hostname of this connectivity.
DNS Test Result	Displays the IPs that are associated with configured Hostname.

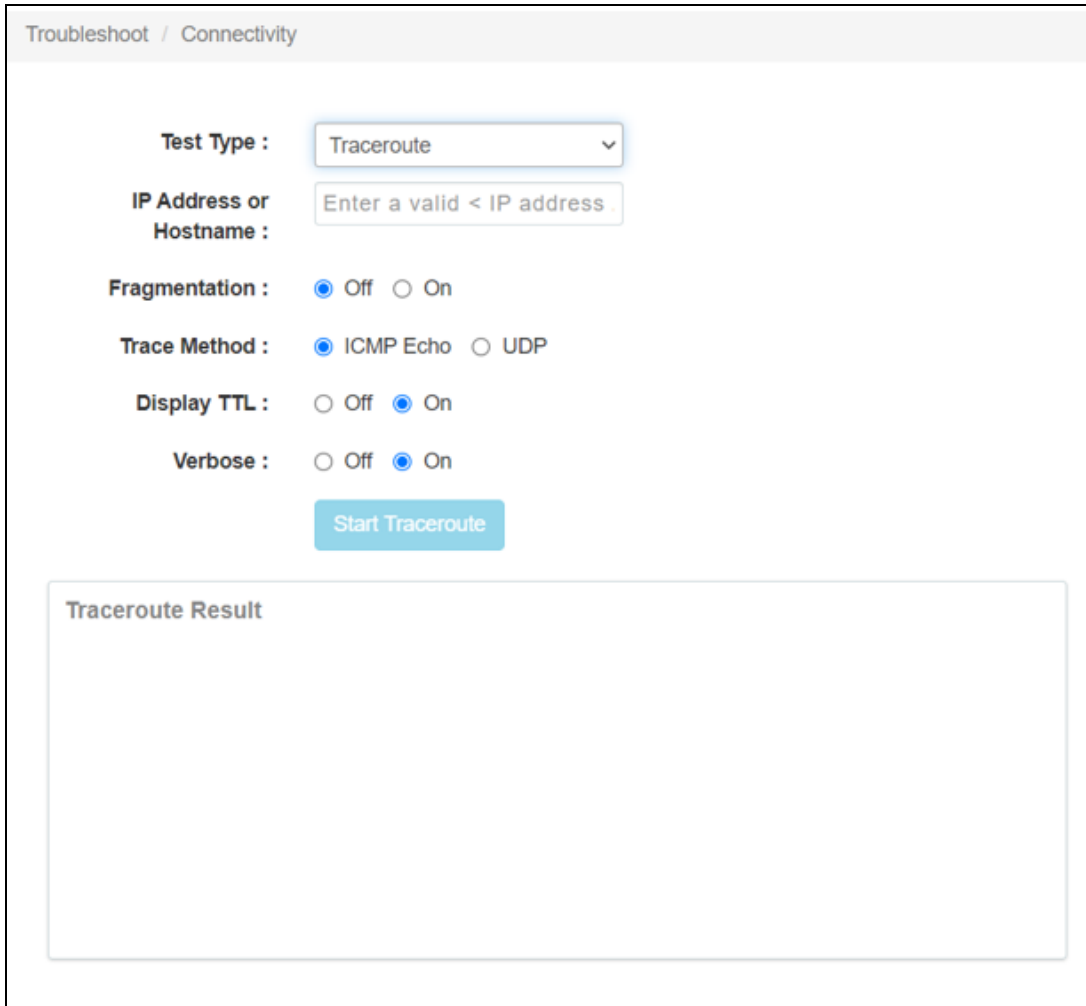
4. Click **DNS Test**.

Traceroute

To check the Traceroute result, perform the following steps:

1. Navigate to **Troubleshoot > Connectivity**.
2. Select **Test Type** as **Traceroute** from the drop-down list as shown in [Figure 18](#).

[Figure 18](#): Traceroute connectivity



The screenshot shows a web interface for configuring a Traceroute test. The breadcrumb navigation at the top reads "Troubleshoot / Connectivity". The configuration options are as follows:

- Test Type :** A dropdown menu with "Traceroute" selected.
- IP Address or Hostname :** A text input field with the placeholder text "Enter a valid < IP address".
- Fragmentation :** Radio buttons for "Off" (selected) and "On".
- Trace Method :** Radio buttons for "ICMP Echo" (selected) and "UDP".
- Display TTL :** Radio buttons for "Off" and "On" (selected).
- Verbose :** Radio buttons for "Off" and "On" (selected).

Below the configuration options is a blue button labeled "Start Traceroute". At the bottom of the form is a large, empty rectangular box labeled "Traceroute Result".

3. Set the values for each parameter, as described in [Table 10](#).

Table 10: Traceroute parameters

Parameters	Description
IP Address or Hostname	Specify the Valid IP address or Hostname for this connectivity.

Parameters	Description
Fragmentation	Allows to on or off fragmentation.
Trace Method	Allows to specify the trace method as ICMP Echo or UDP.
Display TTL	Allows to on or off the display TTL.
Verbose	Allows to on or off the verbose.
Traceroute Result	Displays the result of the traceroute.

4. Click **Start Traceroute**.

Logs

Two types of tools are supported under this category:

- [Events](#)
- [Debug Logs](#)

Events

NSE 3000 devices generate events that are necessary for troubleshooting across. NSE 3000 device generates events for troubleshooting.

1. Navigate to **Troubleshoot > Logs > Events** tab.

The **Events** page appears, as shown in [Figure 19](#).

Figure 19: Events

Date	Severity	Mnemonic	Message
Jun 7 11:31:25	Warning	WANLB-LINK-UP	WAN interface [br0.1] up
Jun 7 11:31:05	Error	WANLB-LINK-DOWN	WAN interface [br0.1] down
Jun 7 11:26:25	Warning	WANLB-LINK-UP	WAN interface [br0.1] up
Jun 7 11:26:21	Error	WANLB-LINK-DOWN	WAN interface [br0.1] down
Jun 7 11:19:25	Warning	WANLB-LINK-UP	WAN interface [br0.1] up
Jun 7 11:19:07	Error	WANLB-LINK-DOWN	WAN interface [br0.1] down
Jun 2 13:09:44	Error	WANLB-LINK-DOWN	WAN interface [br0.2] down
May 25 09:10:06	Warning	WANLB-LINK-UP	WAN interface [br0.1] up

2. View the data of Events device parameters, as described in [Table 11](#).

Table 11: Events parameters

Parameters	Description
Date	Displays the date and time at which the event was created.
Severity	Displays the severity of logs that must be forwarded to the server.
Mnemonic	Displays the mnemonic of the device.
Message	Displays the message that are sent to the NSE 3000 device.
Refresh	Allows to refresh the event logs.

Debug Logs

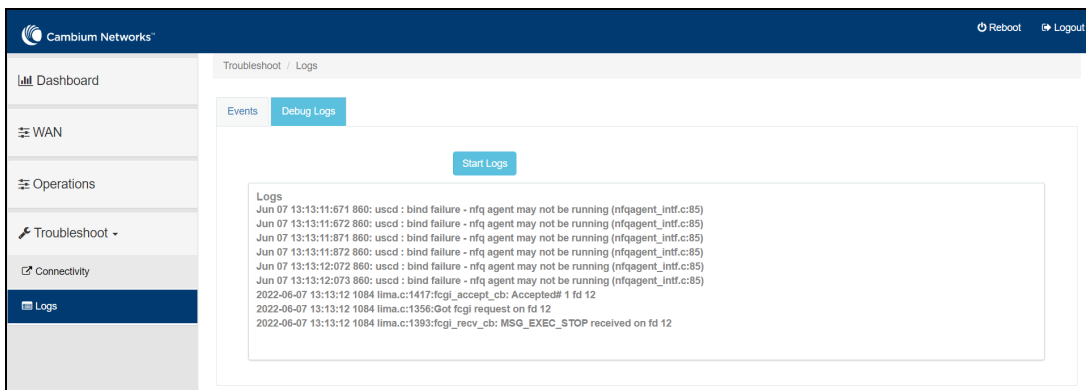
NSE 3000 devices support multi-level logging, which will ease debug issues.

To create a Debug Logs, perform the following steps:

1. Navigate to **Troubleshoot > Logs > Debug Logs** tab.

The Debug Logs page appears, as shown in [Figure 20](#).

Figure 20: Debug Logs page



2. View the data of **Debug Logs** device parameters, as described in [Table 11](#).

Table 12: Events parameters

Parameters	Description
Start Logs	Initiates the Log collection process.
Logs	Displays the logs of the NSE 3000 device.

3. Click **Start Logs**.

Glossary

Term	Description
AP	Access Point Module. One module that distributes network or Internet services to subscriber modules.
API	Application Program Interface
ARP	Address Resolution Protocol. A protocol defined in RFC 826 to allow a network element to correlate a host IP address to the Ethernet address of the host.
BT	Bluetooth
DFS	Dynamic Frequency Selection.
DHCP	Dynamic Host Configuration Protocol defined in RFC 2131. The protocol that enables a device to be assigned a new IP address and TCP/IP parameters, including a default gateway, whenever the device reboots. Thus, DHCP reduces configuration time, conserves IP addresses, and allows modules to be moved to a different network within the system.
Ethernet Protocol	Any of several IEEE standards that define the contents of frames that are transferred from one network element to another through Ethernet connections.
FCC	Federal Communications Commission of the U.S.A.
GPS	Global Positioning System. A network of satellites that provides absolute time to networks on earth, which use the time signal to synchronize transmission and reception cycles (to avoid interference) and to provide reference for troubleshooting activities.
UI	User interface.
HTTP	Hypertext Transfer Protocol, used to make the Internet resources available on the World Wide Web.
HTTPS	Hypertext Transfer Protocol Secure
HT	High Throughput
IP Address	The 32-bit binary number identifies a network element by both network and host. See also Subnet Mask.
IPv4	The traditional version of Internet Protocol, defines 32-bit fields for data transmission.
LLDP	Link Layer Discovery Protocol
MAC Address	Media Access Control address. The hardware address that the factory assigns to the module for identification in the Data Link layer interface of the Open Systems Interconnection system. This address serves as an electronic serial number.
MIB	Management Information Base. Space that allows a program (agent) in the network to relay information to a network monitor about the status of defined variables (objects).
MIR	Maximum Information Rate.
PPPoE	Point to Point Protocol over Ethernet. Supported on SMs for operators who use PPPoE in other parts of their network operators who want to deploy PPPoE to realize per-subscriber authentication, metrics, and usage control.

Term	Description
Proxy Server	Network computer that isolates another from the Internet. The proxy server communicates for the other computer, and sends replies to only the appropriate computer which has an IP address that is not unique or not registered.
PoE	Power over Ethernet.
SLA	Service Level Agreement
VLAN	Virtual local area network. An association of devices through software that contains broadcast traffic, as routers would, but in the switch-level protocol.
VPN	A virtual private network for communication over a public network. One typical use is to connect remote employees, who are at home or in a different city, to their corporate network over the Internet. Any of several VPN implementation schemes are possible. SMs support L2TP over IPsec (Level 2 Tunneling Protocol over IP Security) VPNs and PPTP (Point to Point Tunneling Protocol) VPNs, regardless of whether the Network Address Translation (NAT) feature enabled.

Cambium Networks

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