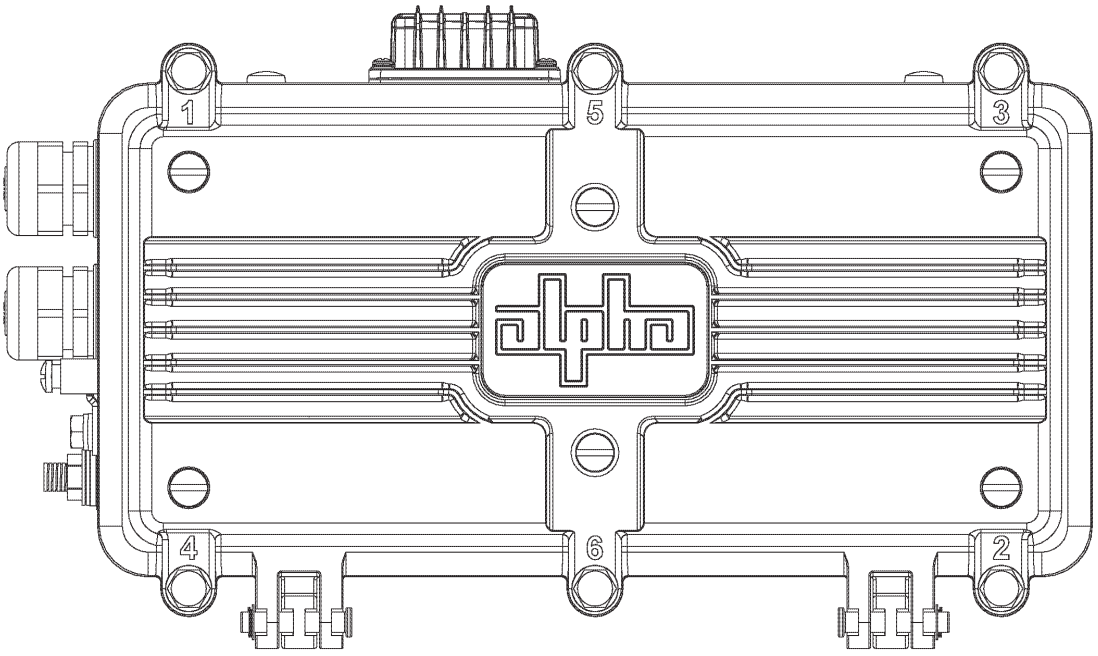
an EnerSys company

AlphaGateway SMG-HP

Model AG100D-PoE+

Technical Manual

Effective: August 2019



Safety Notes

Alpha considers customer safety and satisfaction its most important priority. To reduce the risk of injury or death and to ensure continual safe operation of this product, certain information is presented differently in this manual. Alpha tries to adhere to ANSI Z535 and encourages special attention and care to information presented in the following manner:

WARNING! GENERAL HAZARD

GENERAL HAZARD WARNING provides safety information to PREVENT INJURY OR DEATH to the technician or user.

WARNING! ELECTRICAL HAZARD

ELECTRICAL HAZARD WARNING provides electrical safety information to PREVENT INJURY OR DEATH to the technician or user.

WARNING! FUMES HAZARD

FUMES HAZARD WARNING provides fumes safety information to PREVENT INJURY OR DEATH to the technician or user.

WARNING! FIRE HAZARD

FIRE HAZARD WARNING provides flammability safety information to PREVENT INJURY OR DEATH to the technician or user.

There may be multiple warnings associated with the call out. Example:

WARNING! ELECTRICAL & FIRE HAZARD

This WARNING provides safety information for both Electrical AND Fire Hazards

CAUTION!

CAUTION provides safety information intended to PREVENT DAMAGE to material or equipment.

***NOTICE**:*

NOTICE provides additional information to help complete a specific task or procedure.

ATTENTION:

ATTENTION provides specific regulatory/code requirements that may affect the placement of equipment and /or installation procedures.

The following sections contain important safety information that must be followed during the installation and maintenance of the equipment and batteries. Read all of the instructions before installing or operating the equipment, and save this manual for future reference.

AlphaGateway SMG-HP

Model AG100D-PoE+

Technical Manual

018-357-B0-001, Rev. A

Effective: August 2019

Disclaimer

Images contained in this manual are for illustrative purposes only. These images may not match your installation. Operator is cautioned to review the drawings and illustrations contained in this manual before proceeding. If there are questions regarding the safe operation of this powering system, please contact Alpha Technologies or your nearest Alpha representative.

Alpha shall not be held liable for any damage or injury involving its enclosures, power supplies, generators, batteries or other hardware if used or operated in any manner or subject to any condition not consistent with its intended purpose or is installed or operated in an unapproved manner or improperly maintained.

Contact Information

Sales information and customer service in USA (7AM to 5PM, Pacific Time):	1 800 322 5742
Complete Technical Support in USA (7AM to 5PM, Pacific Time or 24/7 emergency support):	1 800 863 3364
Sales information and Technical Support in Canada:	1 888 462 7487
Website:	www.alpha.com

Notice of FCC Compliance

Per FCC CFR 47 PART 15:

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.
- Consult the dealer or an experienced radio/TV technician for help.

Table of Contents

Figures and Tables

Figures and Tables, *continued*

AlphaGateway SMG-HP Safety Notes

Safety Precautions

CAUTION!

Only qualified personnel should service the Gateway.

Verify the voltage requirements of the equipment to be protected (load), the AC input voltage to the Gateway (line) and the output voltage of the system prior to installation.

When connecting the load, DO NOT exceed the output rating of the Power Supply.

WARNING! ELECTRICAL HAZARD

The unit contains hazardous voltage. Only qualified personnel should service the Gateway.

WARNING! ELECTRICAL & FIRE HAZARD

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE:

F2 2AG, Slo-Blo® Fuse Littlefuse 229/230 Series Type 0229 007. Rated 125V, 7A or equivalent.

WARNING! GENERAL HAZARD

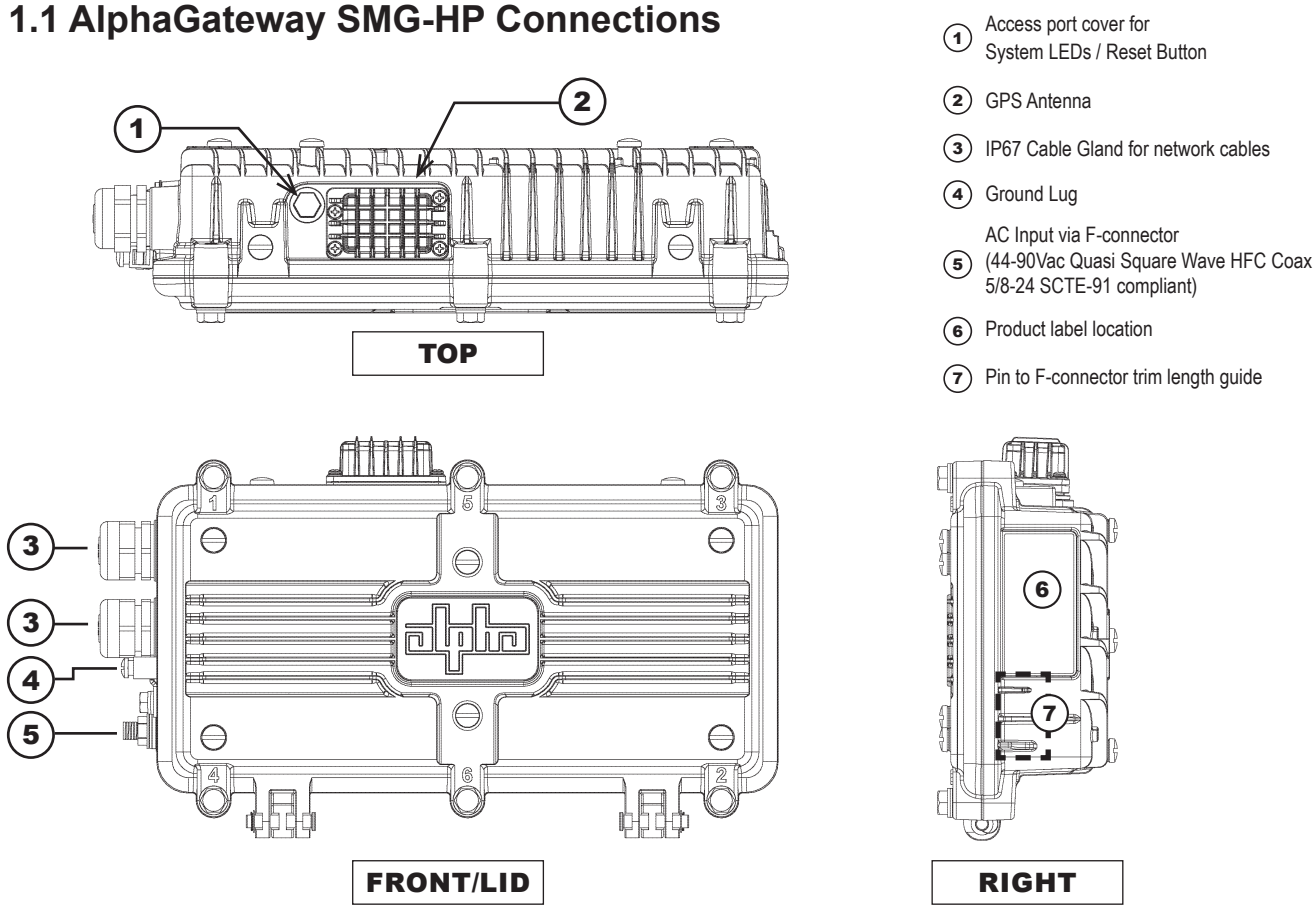
Observe the safety information contained in the technical manuals for the various system components (Gateways, Antennas, Power Passing Tap, Cables and Connectors) as well as local codes for servicing electrical systems and working at height.

1.0 Introduction

The AlphaGateway SMG-HP AG100D-PoE+ provides 2 x 10/100/1000 BASE-T Ethernet ports with support for IEEE802.3af/at PoE/PoE+, with a power output of 30W per port. The included DOCSIS 3.1 cable modem provides power system status monitoring and up to 1 Gigabit connectivity.

The unit connects to the HFC Coaxial Access network through a power-passing tap at any location within the HFC voltage range (44–90Vac Quasi Square Wave), and transforms the HFC power to a voltage suitable for connected devices.

1.1 AlphaGateway SMG-HP Connections



1. Access port cover for System LEDs / Reset Button
2. GPS Antenna
3. IP67 Cable Gland for network cables
4. Ground Lug
5. AC Input via F-connector (44-90Vac Quasi Square Wave HFC Coax 5/8-24 SCTE-91 compliant)
6. Product label location
7. Pin to F-connector trim length guide

Fig. 1-1, Connections and Ports

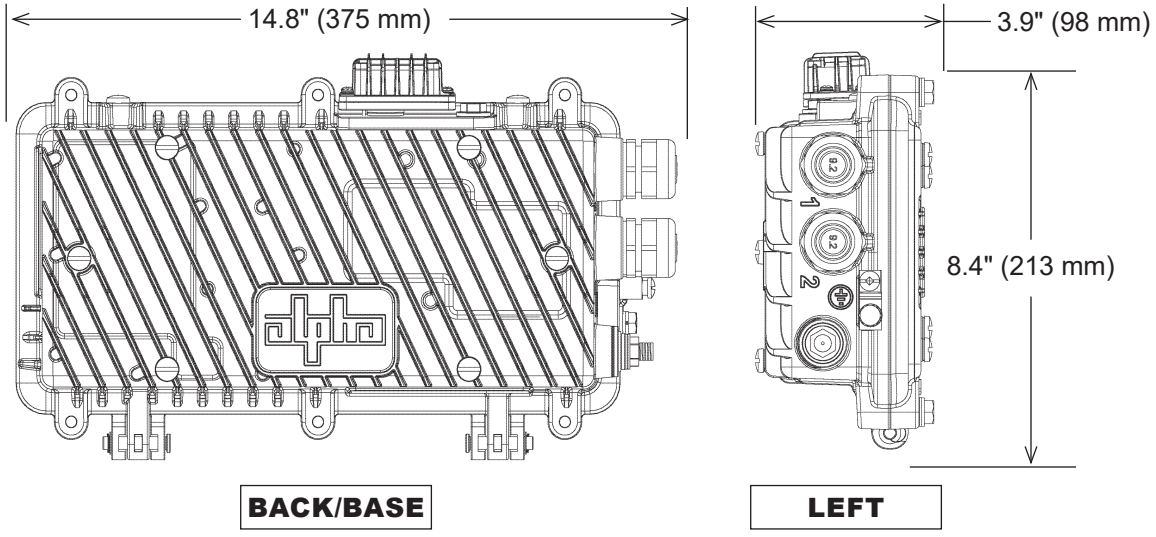


Fig. 1-2, Dimensioned Views

1.2 Pre-Installation

***NOTICE**:*

Each connected Ethernet device will register as a distinct CPE device; these may need fixed IP addresses depending upon the usage model.
Ensure that unused ports are covered with plugs. Remove only the plugs necessary for installation.

Tools Required (User-Supplied):

Torque Wrench with:

7/16" (11 mm) Socket

1/2" (13 mm) Socket

Open-ended 7/16" (11 mm) torque wrench

Flat blade screwdriver (to remove nylon screws during bracket installation)

1.3 SMG-HP Grounding

1. Locate the ground lug mounting location **[1]** and install the ground lug hardware as shown in Fig. 1-4. Tighten the hex head nut to 44 in-lbs (5 Nm).

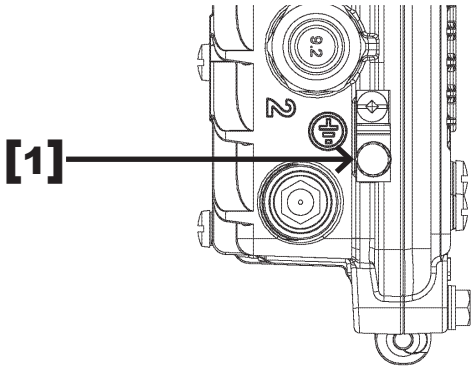


Fig. 1-3, Ground Lug Location

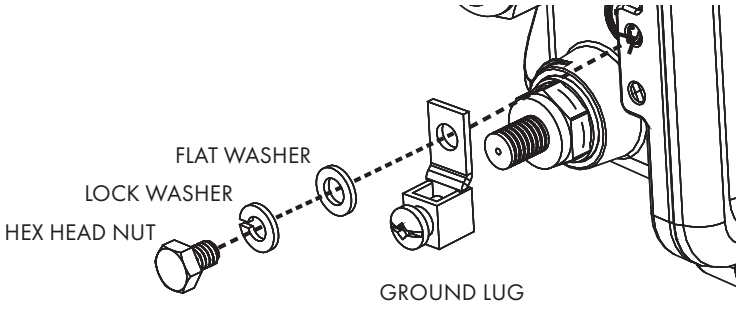


Fig. 1-4, Ground Lug Hardware Stack-up

2. Properly ground the SMG-HP by connecting a #6 AWG wire from the grounding lug on the body of the unit to the strand ground in accordance with local electrical codes. Apply anti-oxidant compound (e.g., Noalox® or equivalent) to the ground connection. Bond the grounding system to other grounded electrical equipment located within 20 ft using #6 AWG bonding conductor.

***NOTICE**:*

Alpha Technologies Services, Inc. assumes no responsibility or liability for failure of the installer to comply with the requirements of applicable local and national codes. Where allowed, exothermic welding may be used as an alternative to compression grounding methodologies.

***NOTICE**:*

Follow national, local and MSO / employer grounding standards.

***NOTICE**:*

For 24/7 Technical Support, call:

1 800 863 3364

2.0 Installation

2.1 Strand Mount Installation Procedure

Vertical Configuration

1. Remove the two nylon screws from the top (or back, e.g., if hanging the SMG-HP horizontally) of the enclosure.
2. Take the two strand mount brackets from the strand bracket installation kit (3" bracket kit, *Alpha p/n 746-627-25,* 2.5" bracket kit, *Alpha p/n 746-627-27* or 2" bracket kit, *Alpha p/n 746-627-22*), and attach the strand mounting clamp hardware as shown in the stack-up below **[2]**. The clamp may be reversed to accommodate either 1/4" or 3/8" diameter strand. Repeat for the second bracket.
3. Verify the proper orientation as shown below and fasten the bracket with the hex head bolts, lock washers, and flat washers as shown in **[3]**, torquing both brackets to 46 in-lbs (5.25 Nm).
4. Verify the clamp is oriented to fit the strand and hang the SMG-HP on the strand torquing to 84 in-lbs (9.5 Nm). Repeat for the second bracket.

***NOTICE**:*

For installations of units in confined spaces *(e.g., vault installations)* the unit may be fastened to the steel mounting rod via the hardware stack-up shown in item **[4]**.

***NOTICE**:*

When hung vertically, the SMG-HP must hang from the strand with the hinges facing down.

5. Refer to Section 2.4, "Connection and Start-Up" and follow the procedures to connect, start-up and verify operation of the SMG-HP.

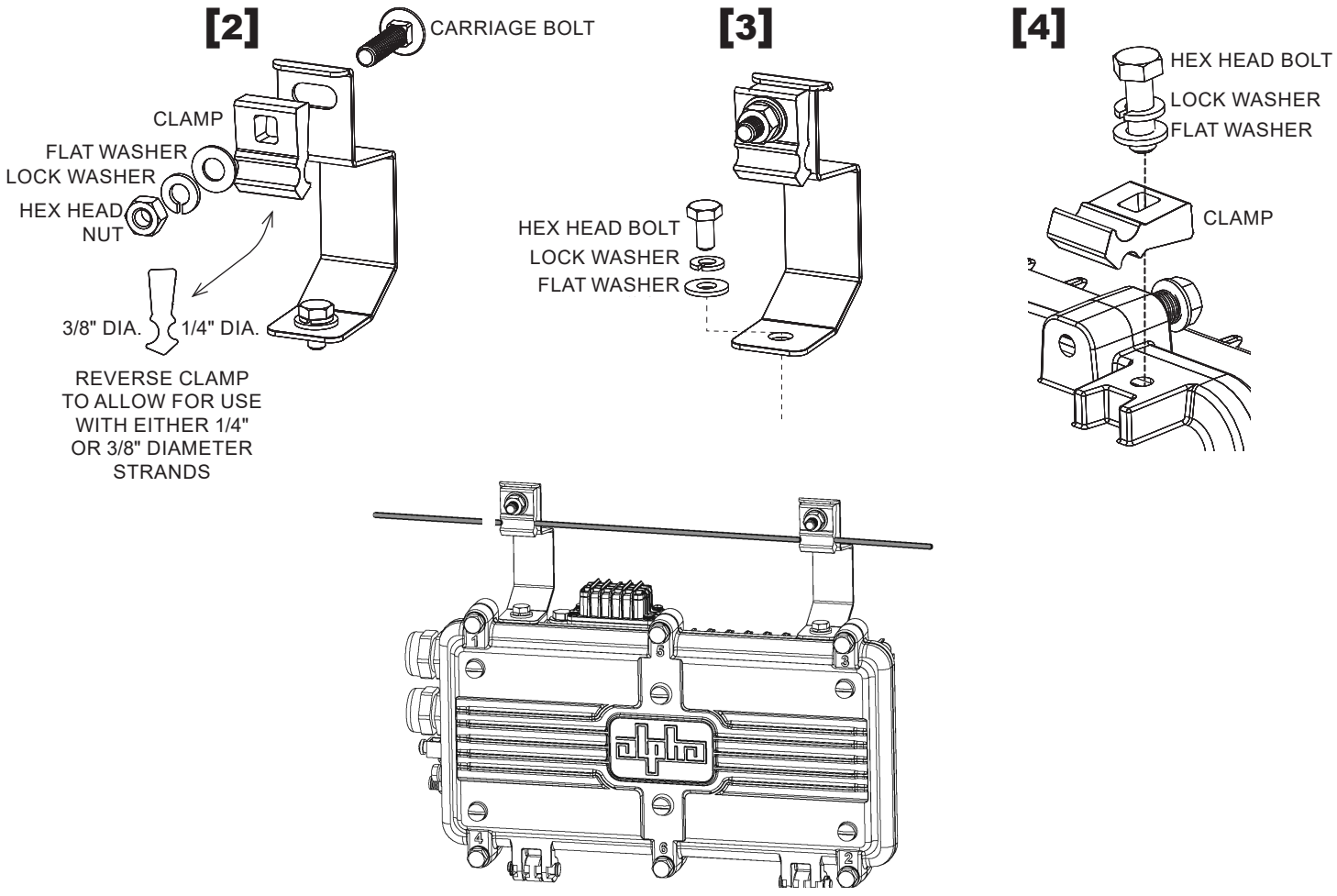


Fig. 2-1, Strand Mounting Bracket Installation, Vertical Configuration

Horizontal Configuration

This method is recommended for installations in areas with space limitations within the communications space between poles, or when a connected application device (e.g., WiFi AP, camera) is mounted directly to the SMG-HP's lid.

1. Remove the two nylon screws from the back of the enclosure.
2. Take the two strand mount brackets from the strand bracket installation kit (3" bracket kit, *Alpha p/n 746-627-25,* 2.5" bracket kit, *Alpha p/n 746-627-27* or 2" bracket kit, *Alpha p/n 746-627-22*), and attach the strand mounting clamp hardware as shown in the stack-up below **[1]**. The clamp may be reversed to accommodate either 1/4" or 3/8" diameter strand. Repeat for the second bracket.
3. Verify the proper orientation as shown below and fasten the bracket with the hex head bolts, lock washers, and flat washers as shown in **[2]**, torquing both brackets to 46 in-lbs (5.25 Nm).
4. Verify the clamp is oriented to fit the strand and hang the SMG-HP on the strand torquing to 84 in-lbs (9.5 Nm). Repeat for the second bracket.
5. Properly ground the SMG-HP by connecting a #6 AWG wire from the ground lug mount to the strand ground per local code. Apply anti-oxidant compound (e.g., Noalox® or equivalent) to the ground connection.
6. Refer to Section 2.4, "Connection and Start-Up" and follow the procedures to connect, start-up and verify operation of the SMG-HP.

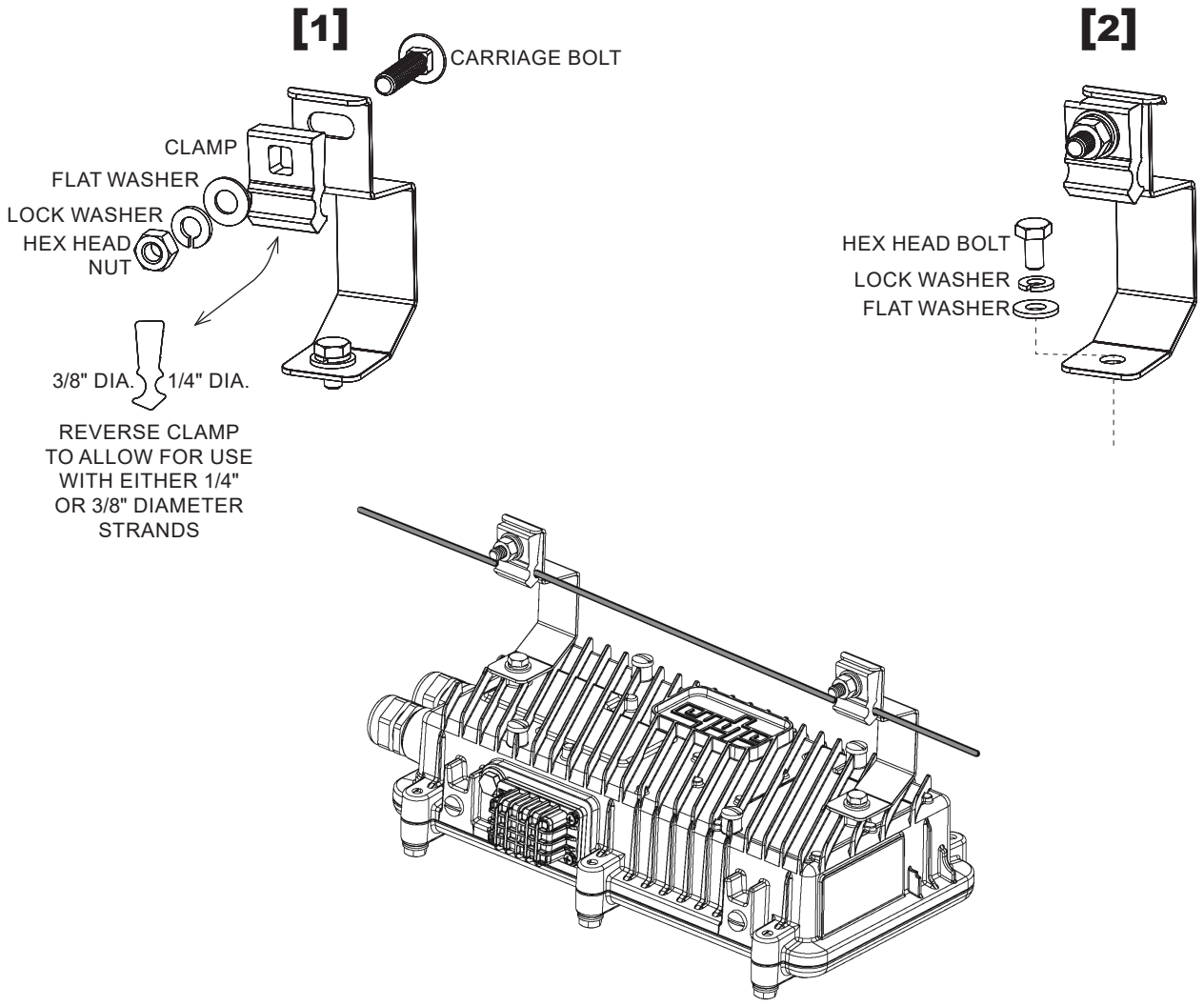


Fig. 2-2, Strand Mounting Bracket Installation, Horizontal Configuration

2.2 Surface Mount Installation Procedure

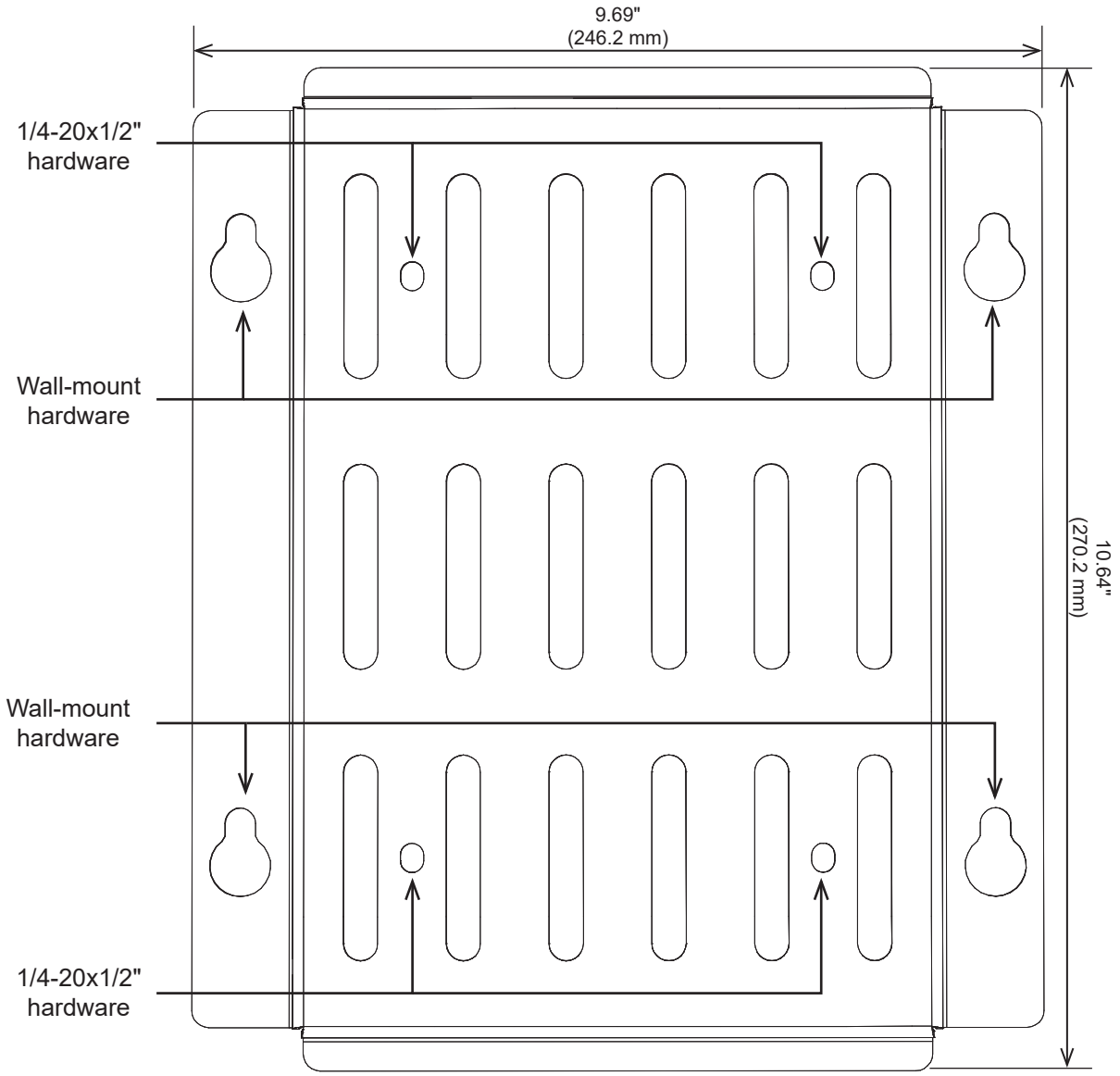


Fig. 2-3, Gateway Wall Mount Bracket

Tools Required (user-supplied):

Torque Wrench with:

7/16" (11 mm) Socket

1/2" (13 mm) Socket

Open-ended 7/16" (11mm) wrench

Flat blade screwdriver (to remove nylon screws during bracket installation)

Hand Drill

1. Align the bracket *(Alpha p/n 746-645-20)* into the desired installation position on the wall. Mark the four holes where the 5/16" (M8) hex head screws will be drilled into the wall.
2. Drill four pilot holes into the wall using the wall mount bracket as a template. If mounting to drywall, a stud should be located and used to secure any two of the hex head screws.
3. Attach the SMG-HP to the surface mount bracket per the following procedure:

***NOTICE**:*

Note the orientation of the bracket. The SMG-HP must be installed on the bracket as shown

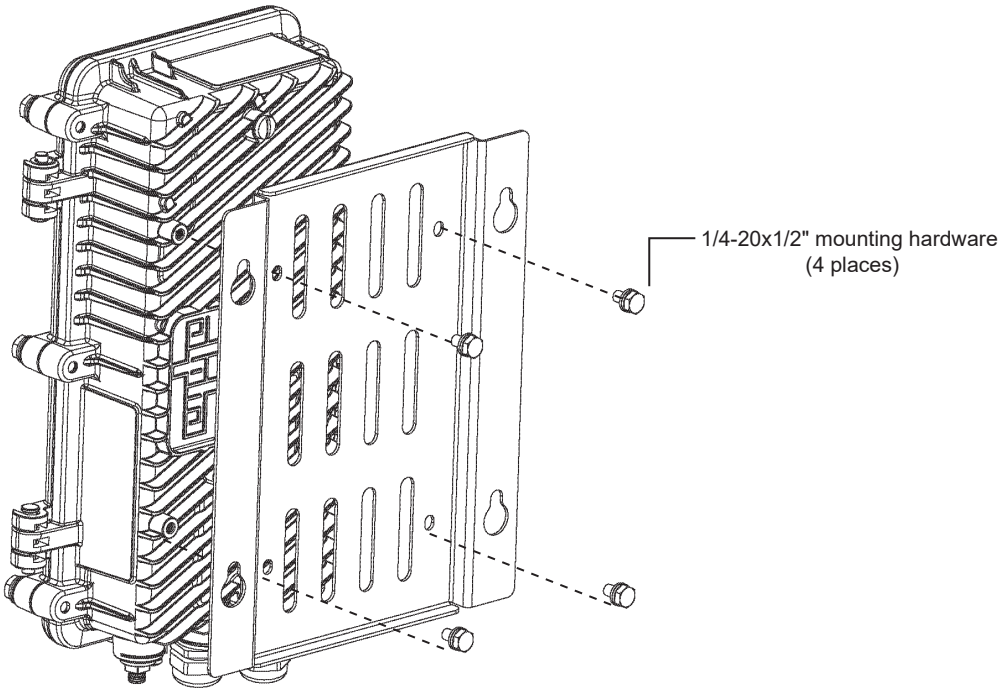


Fig. 2-4, Attaching the SMG-HP to the Bracket

1. If in place, use a standard screwdriver to remove the four nylon protection screws from the back of the enclosure.
2. Using the four 1/4-20x1/2" bolts and flat/lock washers, mount the unit to the surface mount bracket.
3. Use the 7/16" (11 mm) socket to torque each to a value between 44 and 53 in-lbs (5 to 6 Nm). The F-connector must be facing down with the hinges on the enclosure facing right.
4. Mount the unit and bracket on the surface by partially screwing in the top two 5/16” lag bolts without washers and hang the unit by the bracket with the key-holes. Install the other two lag bolts with washers and tighten all four.
5. Properly ground the SMG-HP by connecting a #6 AWG wire from the ground lug mount to the strand ground per local code. Apply anti-oxidant compound (e.g., Noalox® or equivalent) to the ground connection.
6. Refer to Section 2.4, "Connection and Start-Up" and follow the procedures to connect, start-up and verify operation of the SMG-HP.

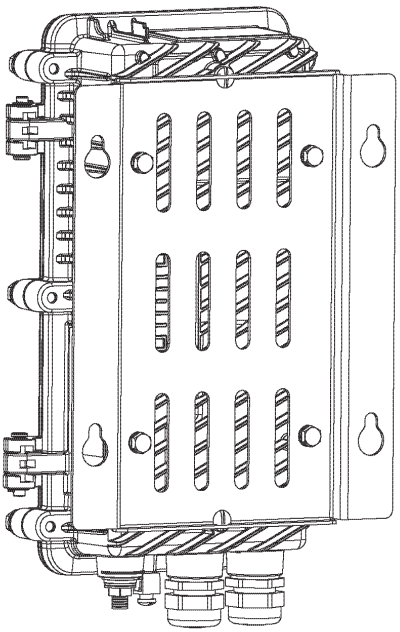


Fig. 2-5, SMG-HP and Bracket ready for surface mounting

2.3 Pole Mount Installation Procedure

***NOTICE**:*

Note the orientation of the bracket. The SMG-HP must be installed on the bracket as shown.

Tools Required (user-supplied):

Torque Wrench with:

7/16" (11 mm) Socket

1/2" (13 mm) Socket

Open-ended 7/16" (11mm) wrench

Flat blade screwdriver (to remove nylon screws during bracket installation)

Customer-supplied stainless steel (or better) banding equipment.

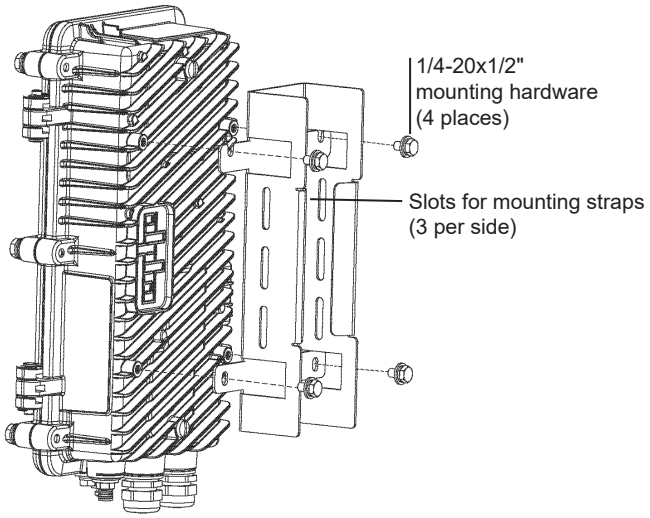


Fig. 2-6, Pole Mount Installation Configuration

1. Secure the pole mount bracket (*Alpha p/n 746-861-20*) to the pole using the metal straps.
2. In the top two mounting bracket holes of the SMG-HP, partially tighten two of the 1/4"-20 bolts, split washers, and flat washers, leaving a few millimeters of space between the flat washer and the enclosure.
3. Line up the unit and place it so that the 1/4"-20 bolts rest on the top slots of the bracket. Then secure it to the bracket by tightening the four 1/4"-20 bolts, split washers, and flat washers using the 7/16" (11 mm) socket, torquing to a value between 44 – 53 in-lbs (5 – 6 Nm). The Pin to F connector must be facing down with the hinges on the enclosure facing right.

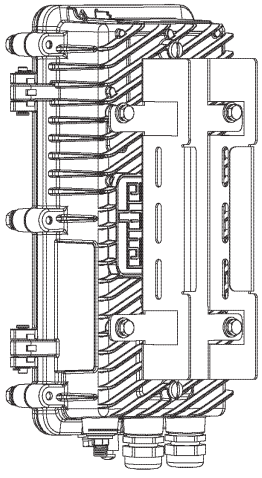


Fig. 2-7, SMG-HP and Bracket Installed

4. Attach SMG-HP and bracket to the pole with stainless steel (or better) banding.
5. Properly ground the SMG-HP by connecting a #6 AWG wire from the ground lug mount to the strand ground per local code. Apply anti-oxidant compound (e.g., Noalox® or equivalent) to the ground connection.
6. Refer to Section 2.4, “Connection and Start-Up” and follow the procedures to connect, start-up and verify operation of the SMG-HP.

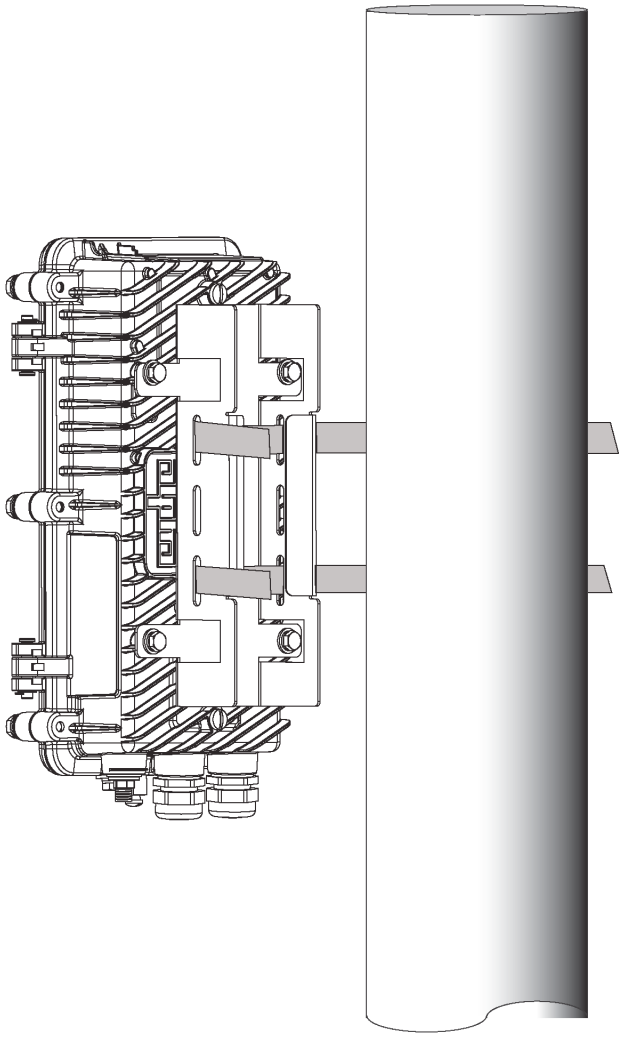


Fig. 2-8, SMG-HP, Bracket and Pole

2.4 Connection and Start-Up

WARNING! ELECTRICAL HAZARD

Low impedance grounding is mandatory for personnel safety and critical for the proper operation of the cable system.

WARNING! ELECTRICAL HAZARD

Prior to connection, the technician must verify the coax cable being connected to the SMG-HP is not energized.

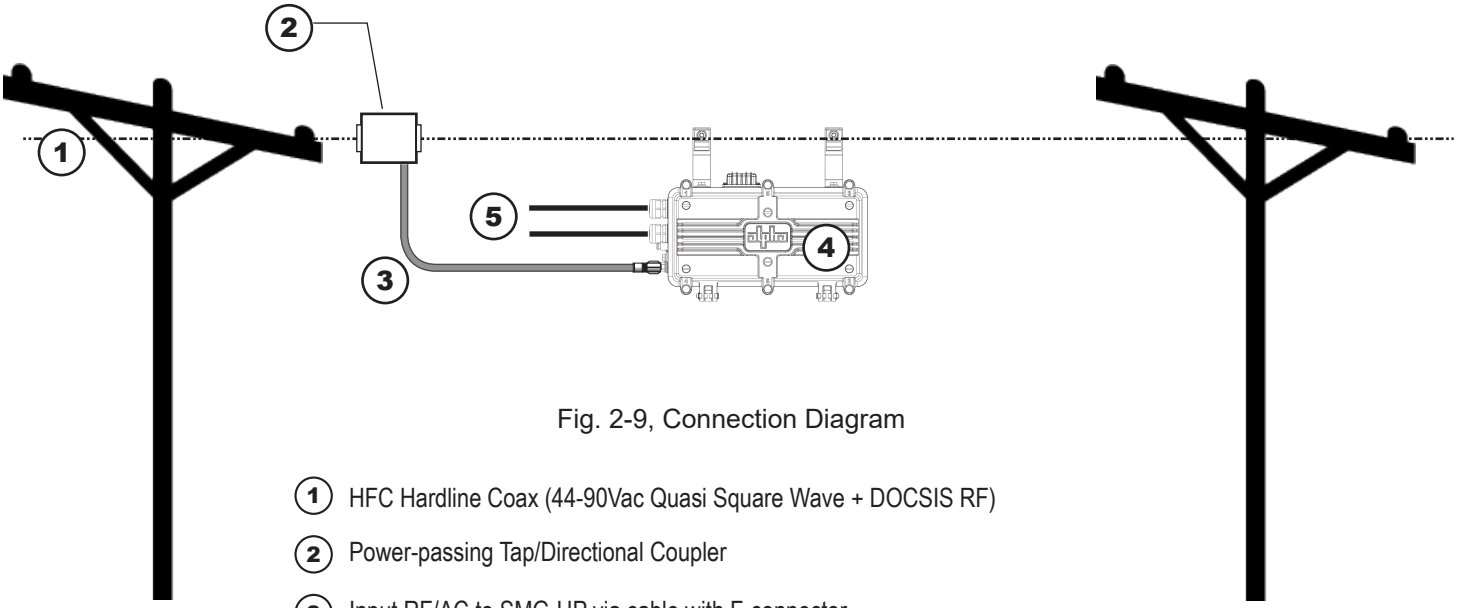


Fig. 2-9, Connection Diagram

1. HFC Hardline Coax (44-90Vac Quasi Square Wave + DOCSIS RF)
2. Power-passing Tap/Directional Coupler
3. Input RF/AC to SMG-HP via cable with F-connector
4. Strand-mounted unit
5. Power over Ethernet (PoE+) Network Connections (2)

Connection Procedure

NOTICE:

To ensure no power issues are encountered, such as shorting the center conductor, connect the drop cable to the SMG-HP first, then connect the drop cable to the power passing tap.

1. Connect the coax to the Pin to F-connector, and with an open-ended torque wrench, torque to 35 in-lbs (4.0 Nm).
2. Connect the other end of the coax cable to the Power-passing tap.
3. The unit will power up at this time.

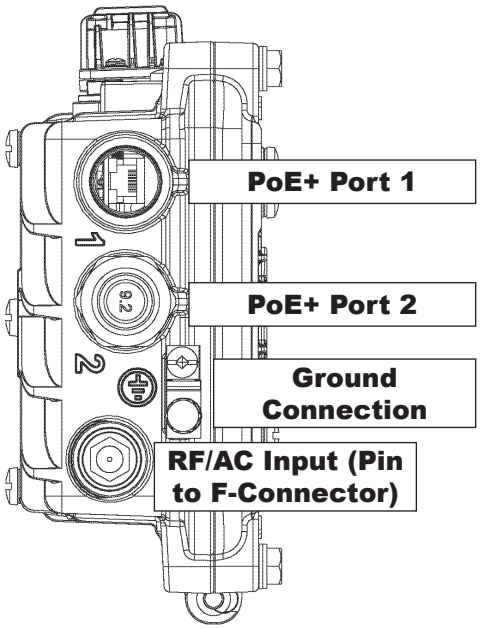


Fig. 2-10, Input/Output Ports

Inspection Port

1. Use a torque wrench with 1/2" (13mm) socket to remove the inspection port cover and observe the system LEDs (See Fig. 2-11).
2. After applying power, the Power LED will light, followed by the DS (Downstream) LED, followed by the US (Upstream) LED and finally the OL (Online) LED. The indicators (all Green, on solid) should all be illuminated. (See Fig. 2-11)
3. Once verified, replace the inspection port cover; tighten to 44 in-lbs.

NOTICE:

For 24/7 Technical Support, call:
1 800 863 3364

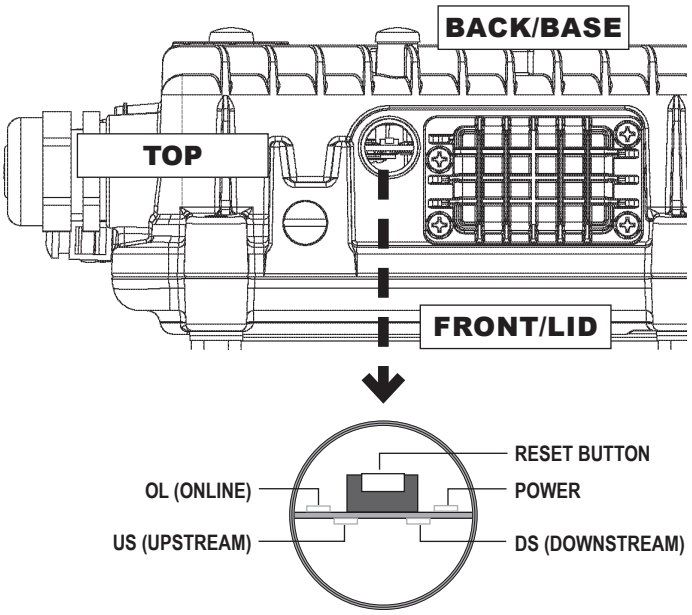


Fig. 2-11, Inspection Port Location and System LED detail

2.5 Verification of Ethernet Status

The PoE controller will disable power to the Ethernet connection ports until a valid PoE powered device is connected to the port. When such a connection is made, the Link/Activity LED (green) will either be on solid (indicating Link), or blinking to indicate activity and the PoE+ Status LED (orange) will be illuminated.

NOTICE:

The Ethernet activity green LED is independent of the orange PoE LED, and will function with standard Ethernet connectivity, even if the orange LED is off.

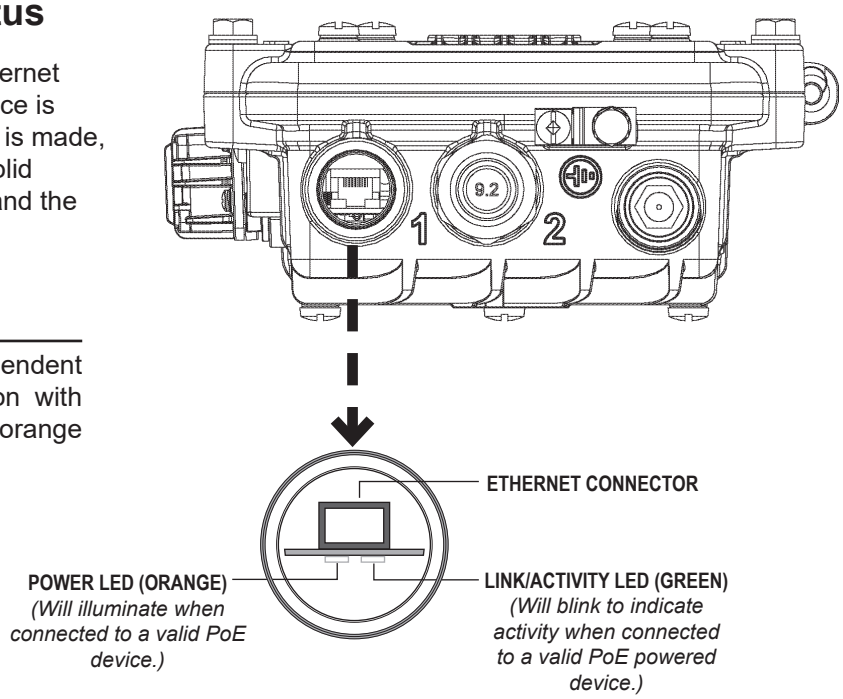


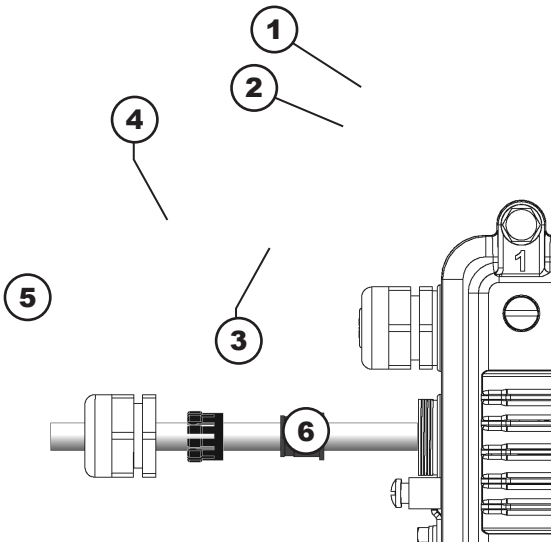
Fig. 2-12, Ethernet Connector LEDs
(Applicable to both Ports)

2.6 Ethernet Cable Connector Assembly

***NOTICE**:*

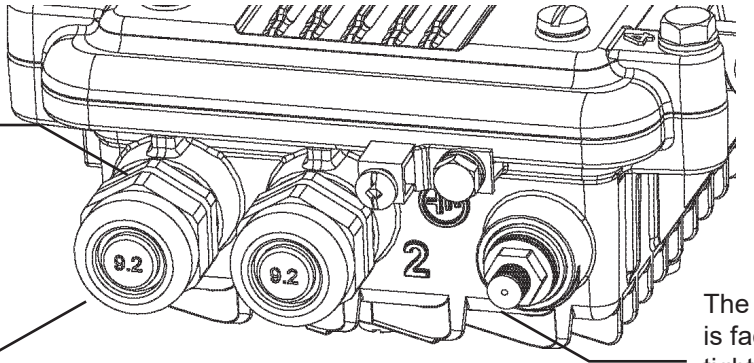
Verify all pieces of the assembly are present and used in the correct sequence to prevent the ingress of water into the SMG-HP.

1. Remove (and save) the sealing plug from the sealing nut. Remove the sealing nut, insert and cage from the port.
2. Route the cable through the sealing nut **[5]** and clamping cage **[4]** and connect to Ethernet connector.
3. Open the split sealing insert **[3]** and place it over the cable after the cage in order shown.
4. Slide the clamping cage **[4]** over the sealing insert.
5. Verify Ethernet connectivity LEDs are active, then slide the assembly into the fixed cable port. Verify the sealing insert has fit flush into the fixed cable port.
6. Tighten the sealing nut to 44 in-lbs (5 Nm) to fasten the assembly together.
7. Repeat for each port used.
8. Re-torque nuts of unused ports.



1. Unused Cable Gland Assembly
2. Sealing Plug
3. Sealing Insert
4. Clamping Cage
5. Sealing Nut
6. Input Power Cable

Fig. 2-13, Grommet Assembly, Input and Output Cables



The cable gland base is factory-installed and tightened to 70 in-lbs (8 Nm). **Do not remove.**

Tighten the cable gland sealing nut to 44 in-lbs (5 Nm).

The Pin to F-connector is factory-installed and tightened to 70 - 85 in-lbs (8 - 9.6 Nm).

Fig. 2-14, Torque Values for Cable Glands

2.7 Coax to Pin to F-Connector Replacement Procedure

WARNING! ELECTRICAL HAZARD

Prior to performing this procedure, the technician must verify the SMG-HP is not energized.

To replace the Pin to F-connector, follow the procedure below:

1. Disconnect the drop cable from the SMG-HP.
2. Use the 1/2" (13 mm) socket to loosen the six 5/16" enclosure bolts and open the SMG-HP.
3. With a Phillips screwdriver, loosen the pin seizure screw (Fig. 2-15) to release stinger.
4. Use a 3/4" (19 mm) socket to remove the Pin to F-connector.
5. Prior to installing the new connector, verify the stinger has been trimmed per the stinger trim guide on the side of the enclosure (Fig. 2-16) or the label inside the enclosure.
6. Install the new connector by hand (to avoid cross-threading) and tighten it to the enclosure with a torque of 70 – 85 in-lbs (7.9 – 9.6 Nm).
7. Torque the Pin Seizure screw to 12 in-lbs (1.3 Nm).
8. Close and secure the enclosure using the 1/2" (13 mm) socket to tighten each of the six 5/16" bolts to 44 – 53 in-lbs (5 – 5.5 Nm) following the order of the numbers on the enclosure cover.
9. Reconnect the drop cable to the SMG-HP and torque to 35 in-lbs (4.0 Nm).

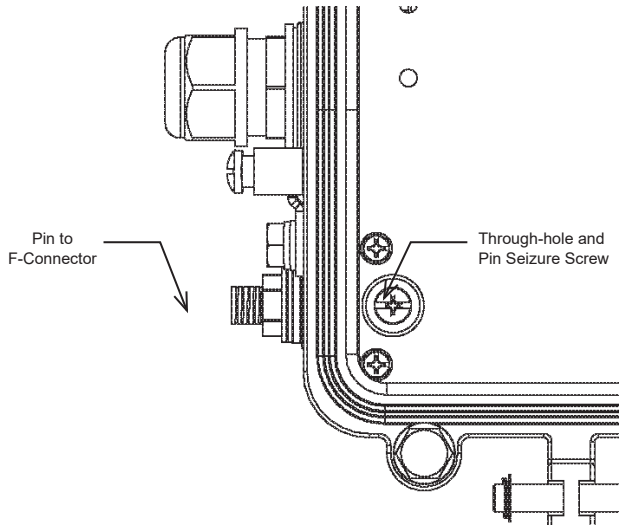


Fig. 2-15, Seizure Screw Through-hole Location

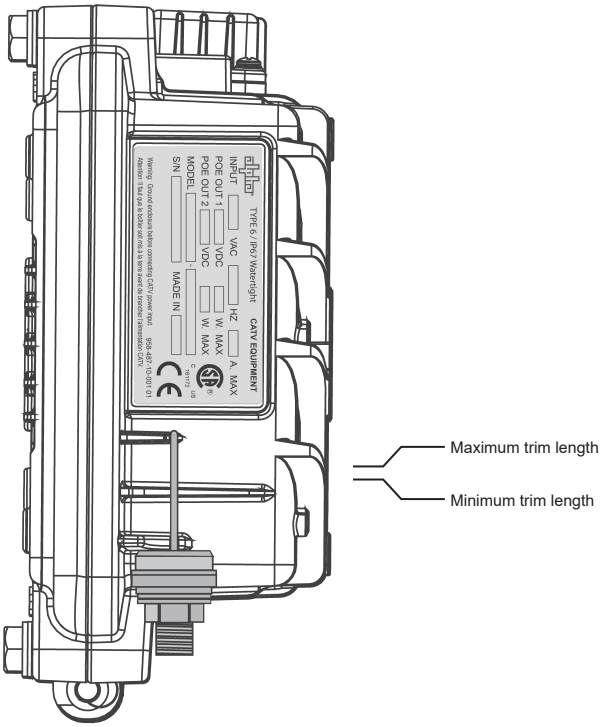


Fig. 2-16, Stinger Trim Guide

3.0 Managing the SMG-HP (Router Mode)

3.1 Web Interface — Remote Access

The AlphaGateway SMG-HP provides embedded Ethernet communications (as well as Power over Ethernet), allowing the user to view and configure settings via a web interface. Either output port may be used as a local port for on-site service (a PC's Ethernet port) or as a Network connection. The Ethernet ports on the SMG-HP is a fully functional standard Ethernet port, capable of providing all the functionality of any standard Ethernet connection.

***NOTICE**:*

- For web server (HTTP) access, port 80 must not be blocked and the computer must have access to the private cable modem network.
- The SMG-HP supports SNMPv1, v2C and v3. Contact Alpha Tech Support to obtain the supported MIBs.

To access the SMG-HP's web interface remotely via web browser, use the following procedure:

1. Connect the laptop or computer's network interface port to the company's Ethernet network.
2. Open a web browser.
3. Enter the DHCP designated IP address into the web browser's address field (Use square brackets when entering IPv6 addresses: [FC00:168:40::124]).
4. The SMG-HP web page will load.

The Gateway web pages will follow this approximate road map. Detailed information is listed in the following section.

Gateway

- At a Glance
- Connection
  - LAN Status
  - WAN Network
  - Local IP Network
  - WAN
  - Ethernet
- Firewall
  - IPv4
  - IPv6
- Software
- Hardware
  - System Hardware
  - GPS
  - DSA

Connected Devices

- Devices

Advanced

- Services
- Port Forwarding
- Port Triggering
- DMZ
- Routing

Troubleshooting

- Logs
- Diagnostic Tools
- Reset / Restore Gateway

Login

To access the Gateway, login with “mso” as the Username and use the Password Of The Day (POTD) configured to work with the POTD utility.

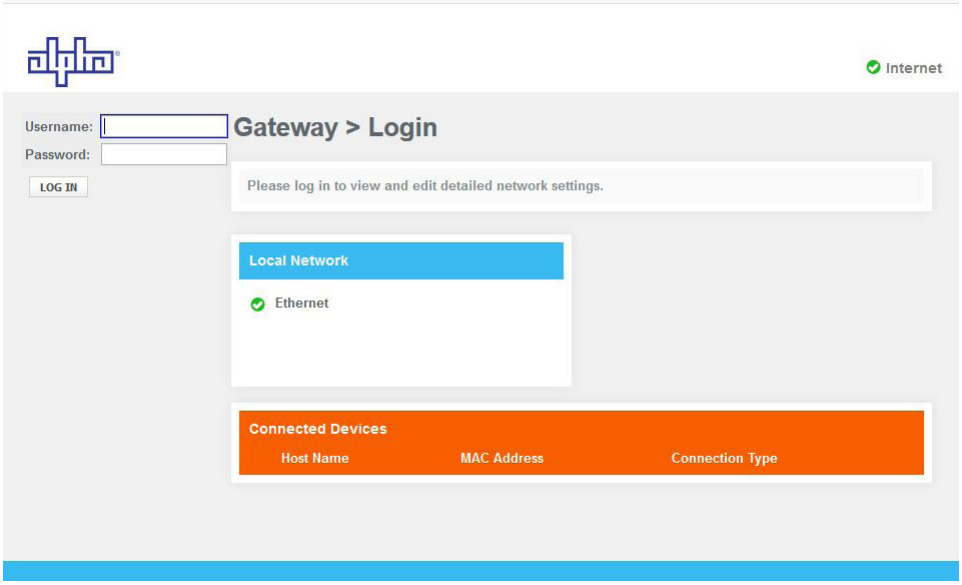


Fig. 3-1, Login Window

3.2 Navigating the SMG-HP Web Pages

The home page offers a brief summary of the primary elements of the SMG-HP. Detailed system information, history logs, and analytical tools can be accessed via the navigation pane in the left column.

Selecting the drop-down arrow next to Gateway will open the “At a Glance “ screen. Here the operator can view status with regard to Bridge Mode [Enabled/Disabled] as well as the Local Network and any Connected Devices.

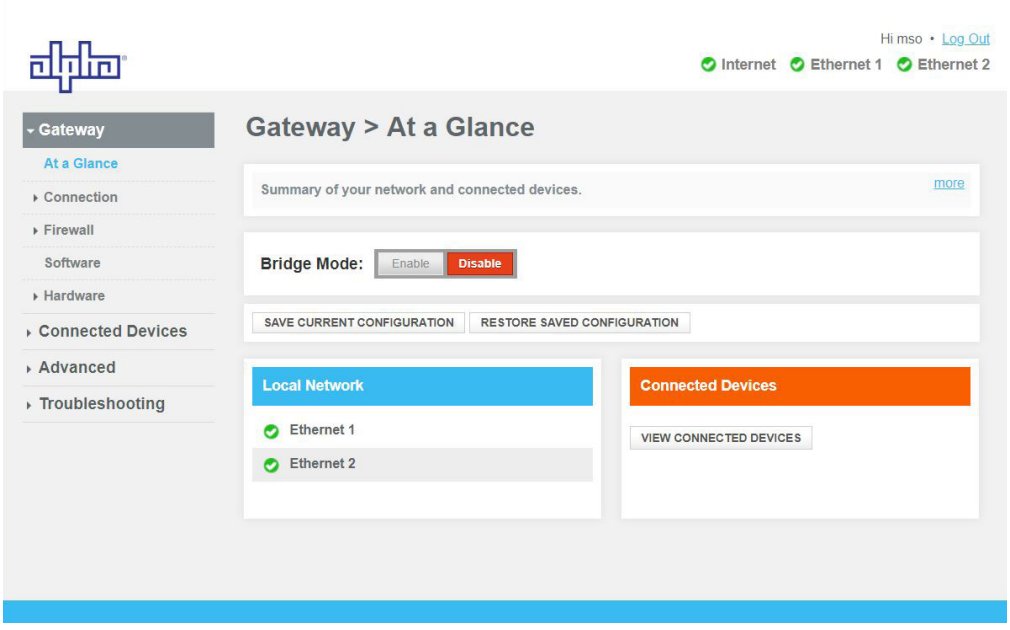


Fig. 3-2, At a Glance Window

Select a link in the navigation panel and the page specific to the topic will open, enabling real-time data and parameters to be observed and configured.

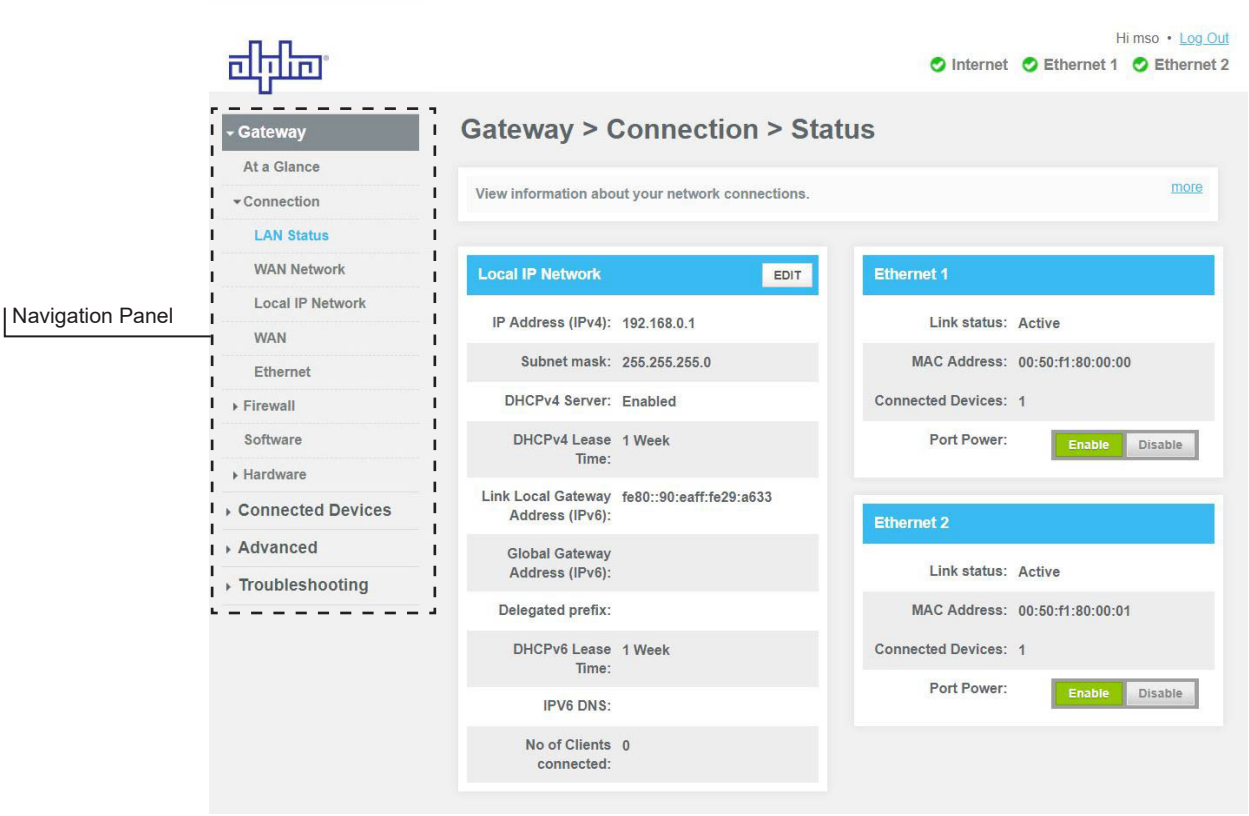


Fig. 3-3, LAN Status Information

Connections

Selecting the Connections drop down menu in the navigation panel enables the user to access three areas:

- LAN Status - View local area network connections.
- WAN Network - View wide area network connection.
- Local IP Network - Manage network settings.

LAN Status

To access the LAN Status page, select Gateway > Connection > LAN Status. Here you can find information about the Local IP Network and Ethernet Ports. See Fig. 3-3 for detail.

WAN Network

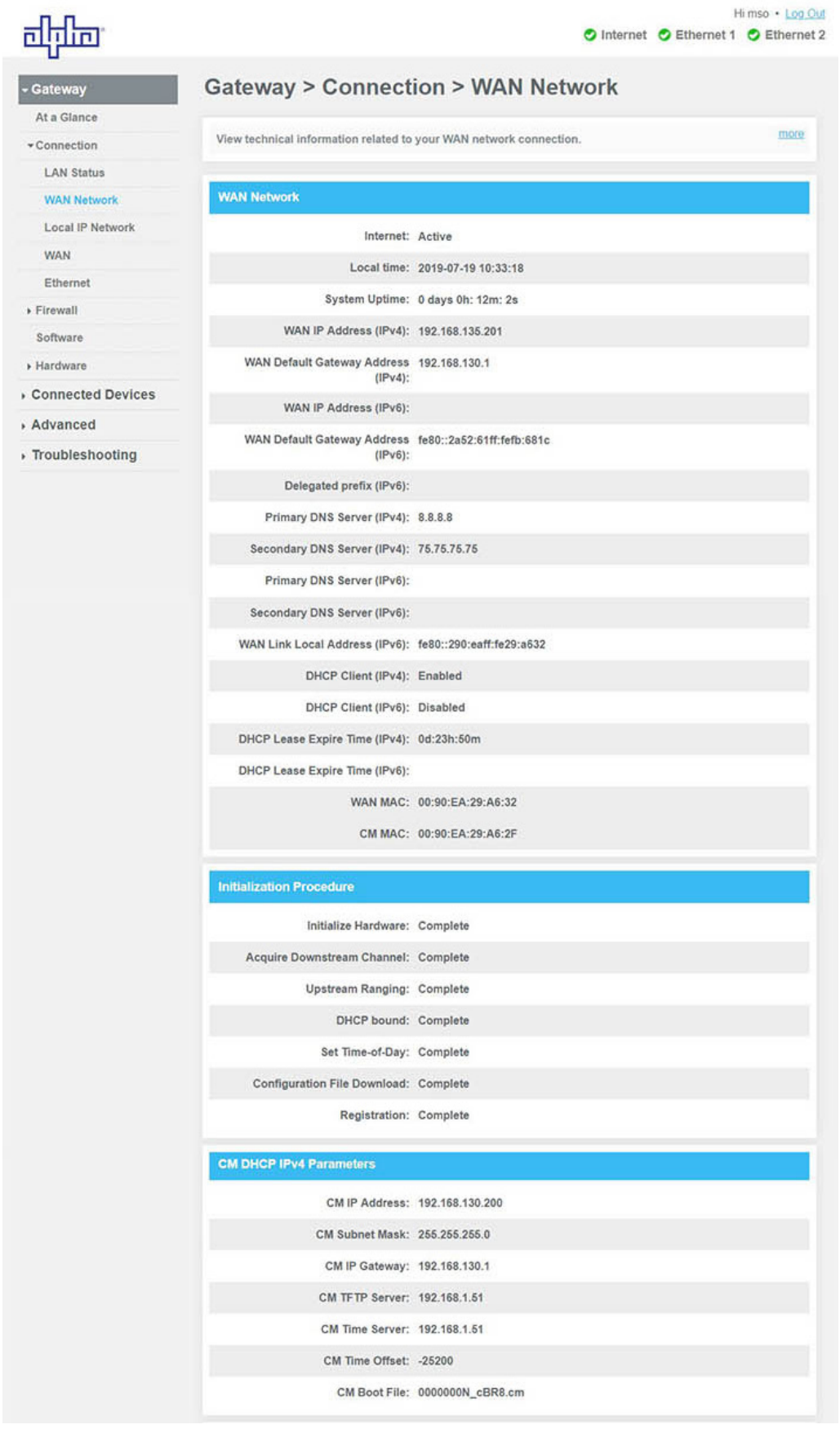
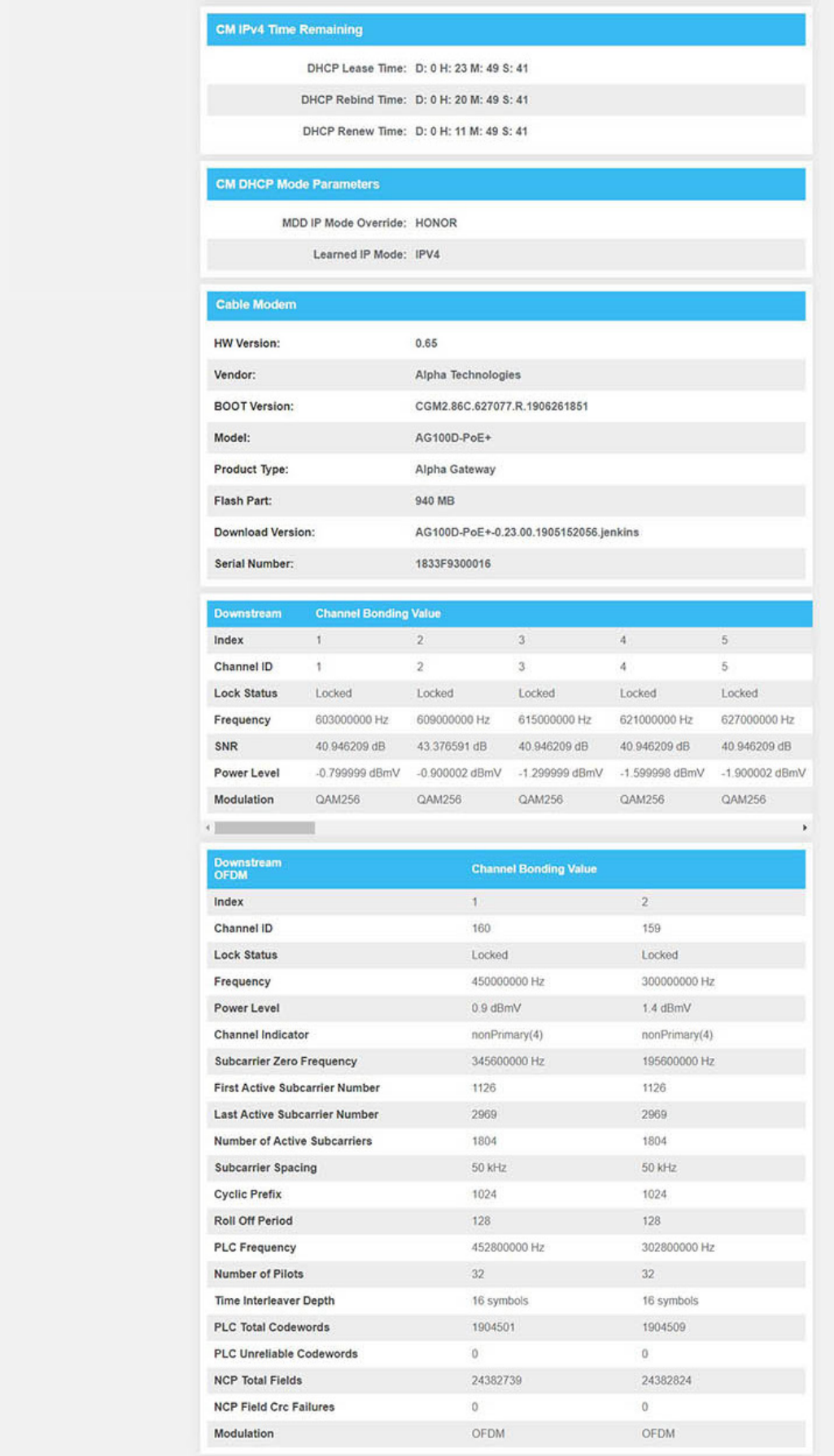


Fig. 3-4, Connection, WAN Network



CM IPv4 Time Remaining

DHCP Lease Time:	D: 0 H: 23 M: 49 S: 41
DHCP Rebind Time:	D: 0 H: 20 M: 49 S: 41
DHCP Renew Time:	D: 0 H: 11 M: 49 S: 41

CM DHCP Mode Parameters

MDD IP Mode Override:	HONOR
Learned IP Mode:	IPV4

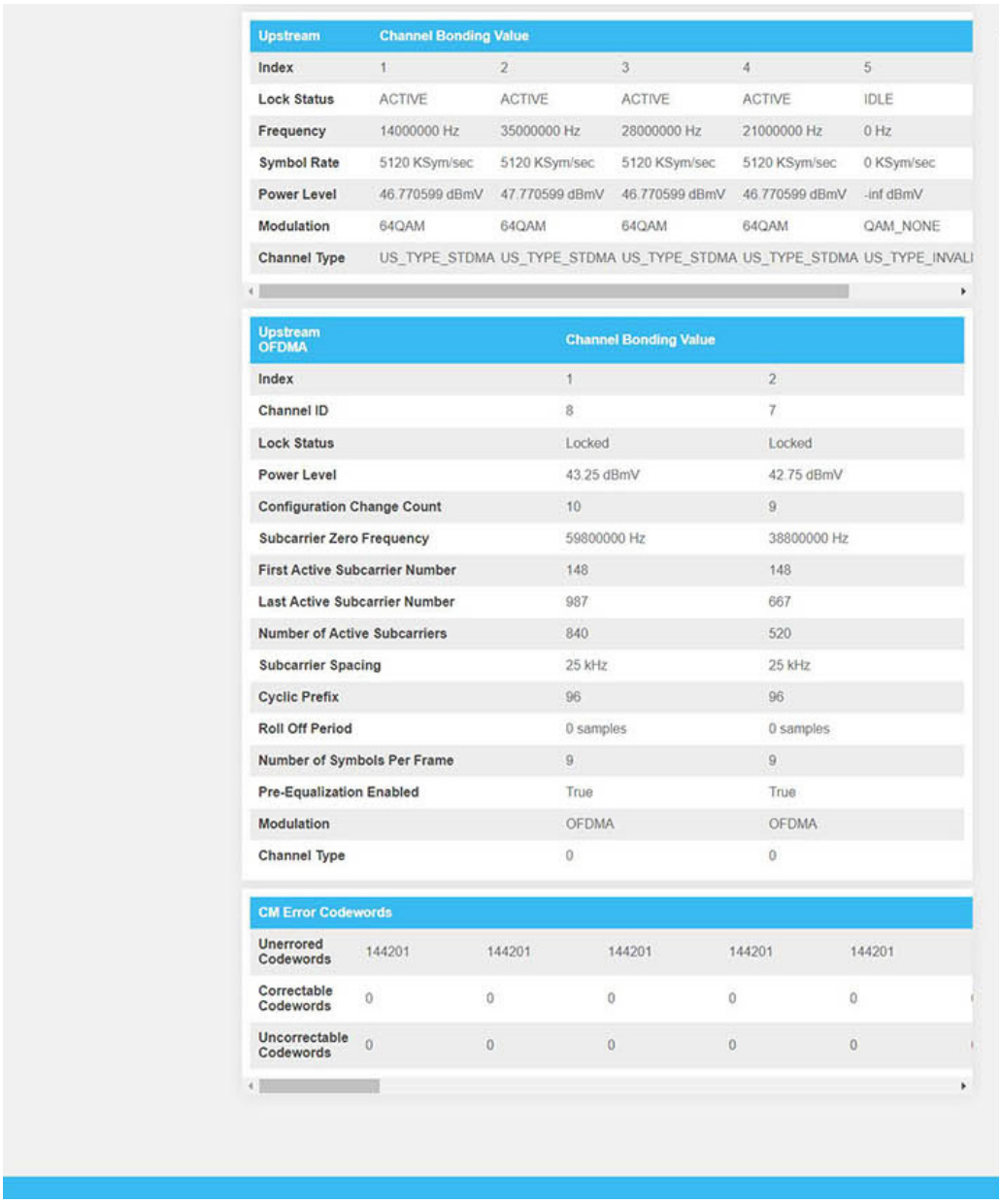
Cable Modem

HW Version:	0.65
Vendor:	Alpha Technologies
BOOT Version:	CGM2.86C.627077.R.1906261851
Model:	AG100D-PoE+
Product Type:	Alpha Gateway
Flash Part:	940 MB
Download Version:	AG100D-PoE+-0.23.00.1905152056.jenkins
Serial Number:	1833F9300016

Downstream	Channel Bonding Value				
Index	1	2	3	4	5
Channel ID	1	2	3	4	5
Lock Status	Locked	Locked	Locked	Locked	Locked
Frequency	603000000 Hz	609000000 Hz	615000000 Hz	621000000 Hz	627000000 Hz
SNR	40.946209 dB	43.376591 dB	40.946209 dB	40.946209 dB	40.946209 dB
Power Level	-0.799999 dBmV	-0.900002 dBmV	-1.299999 dBmV	-1.599998 dBmV	-1.900002 dBmV
Modulation	QAM256	QAM256	QAM256	QAM256	QAM256

Downstream OFDM	Channel Bonding Value	
Index	1	2
Channel ID	160	159
Lock Status	Locked	Locked
Frequency	450000000 Hz	300000000 Hz
Power Level	0.9 dBmV	1.4 dBmV
Channel Indicator	nonPrimary(4)	nonPrimary(4)
Subcarrier Zero Frequency	345600000 Hz	195600000 Hz
First Active Subcarrier Number	1126	1126
Last Active Subcarrier Number	2969	2969
Number of Active Subcarriers	1804	1804
Subcarrier Spacing	50 kHz	50 kHz
Cyclic Prefix	1024	1024
Roll Off Period	128	128
PLC Frequency	452800000 Hz	302800000 Hz
Number of Pilots	32	32
Time Interleaver Depth	16 symbols	16 symbols
PLC Total Codewords	1904501	1904509
PLC Unreliable Codewords	0	0
NCP Total Fields	24382739	24382824
NCP Field Crc Failures	0	0
Modulation	OFDM	OFDM

Fig. 3-4, Connection, WAN Network *(continued)*



Upstream	Channel Bonding Value				
Index	1	2	3	4	5
Lock Status	ACTIVE	ACTIVE	ACTIVE	ACTIVE	IDLE
Frequency	14000000 Hz	35000000 Hz	28000000 Hz	21000000 Hz	0 Hz
Symbol Rate	5120 KSym/sec	5120 KSym/sec	5120 KSym/sec	5120 KSym/sec	0 KSym/sec
Power Level	46.770599 dBmV	47.770599 dBmV	46.770599 dBmV	46.770599 dBmV	-inf dBmV
Modulation	64QAM	64QAM	64QAM	64QAM	QAM_NONE
Channel Type	US_TYPE_STDMA	US_TYPE_STDMA	US_TYPE_STDMA	US_TYPE_STDMA	US_TYPE_INVALI

Upstream OFDMA	Channel Bonding Value	
Index	1	2
Channel ID	8	7
Lock Status	Locked	Locked
Power Level	43.25 dBmV	42.75 dBmV
Configuration Change Count	10	9
Subcarrier Zero Frequency	59800000 Hz	38800000 Hz
First Active Subcarrier Number	148	148
Last Active Subcarrier Number	987	667
Number of Active Subcarriers	840	520
Subcarrier Spacing	25 kHz	25 kHz
Cyclic Prefix	96	96
Roll Off Period	0 samples	0 samples
Number of Symbols Per Frame	9	9
Pre-Equalization Enabled	True	True
Modulation	OFDMA	OFDMA
Channel Type	0	0

CM Error Codewords					
Unerrored Codewords	144201	144201	144201	144201	144201
Correctable Codewords	0	0	0	0	0
Uncorrectable Codewords	0	0	0	0	0

Fig. 3-4, Connection, WAN Network *(continued)*

Local IP Configuration

To view the Local IP Network, select Connection > Local IP Network. The user can access and input an IP address to the device.

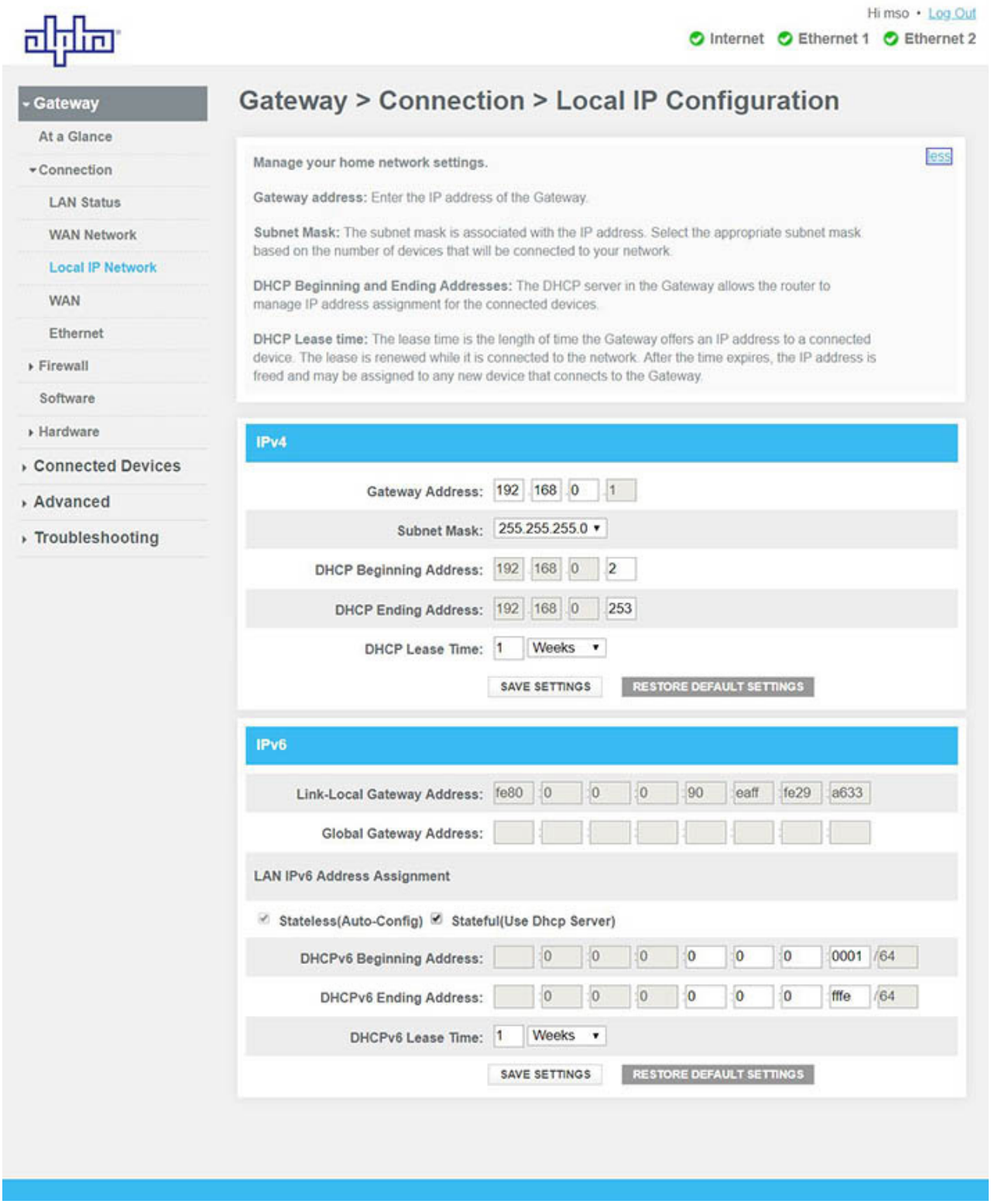


Fig. 3-5, Connection, Local IP Configuration

Ethernet

To view the Ethernet information, select Connection > Ethernet.

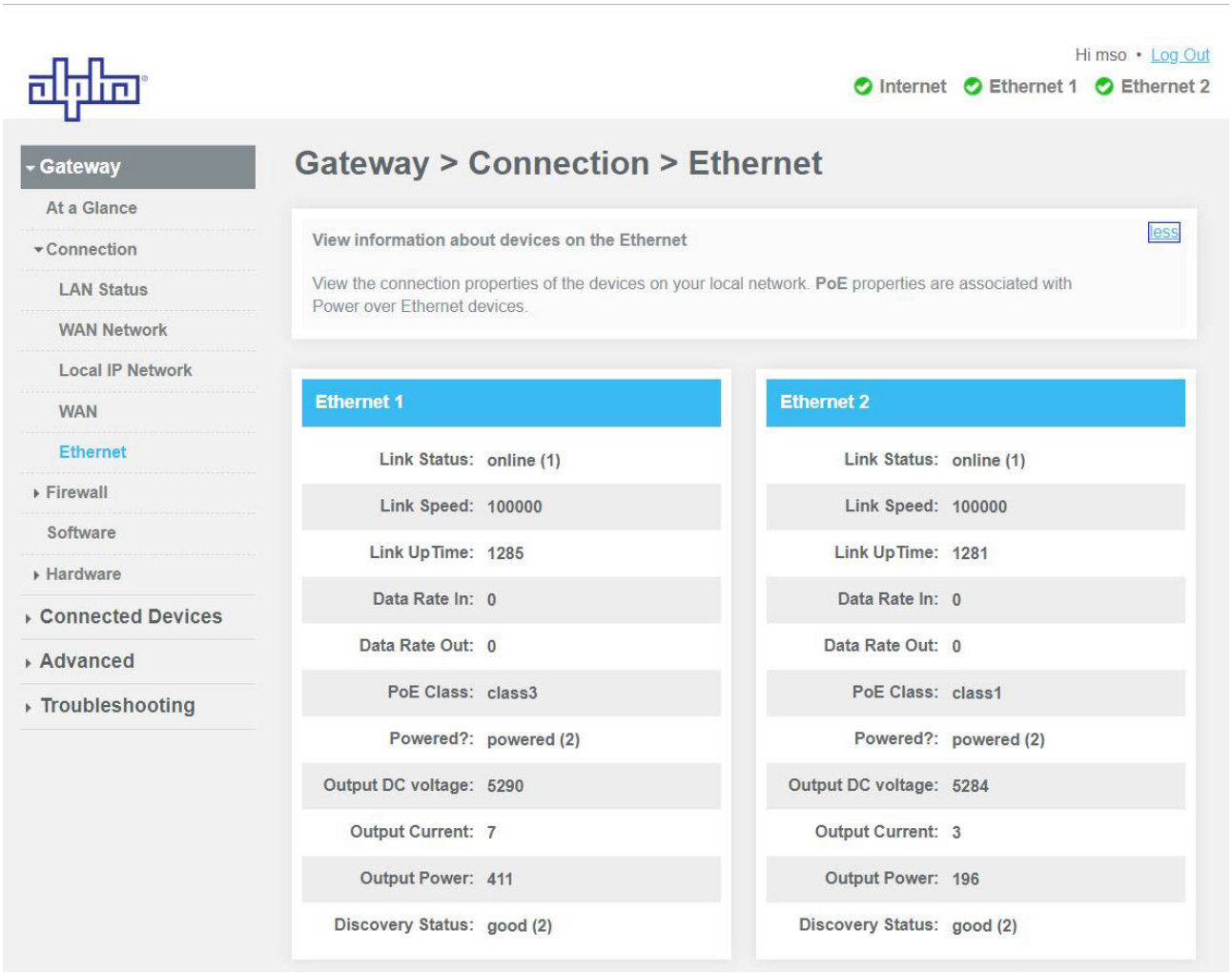


Fig. 3-6, Connection, Ethernet

Firewall

To change the firewall settings and security level, select Firewall > IPv4 or > IPv6, whichever corresponds to the user's internet protocol settings.

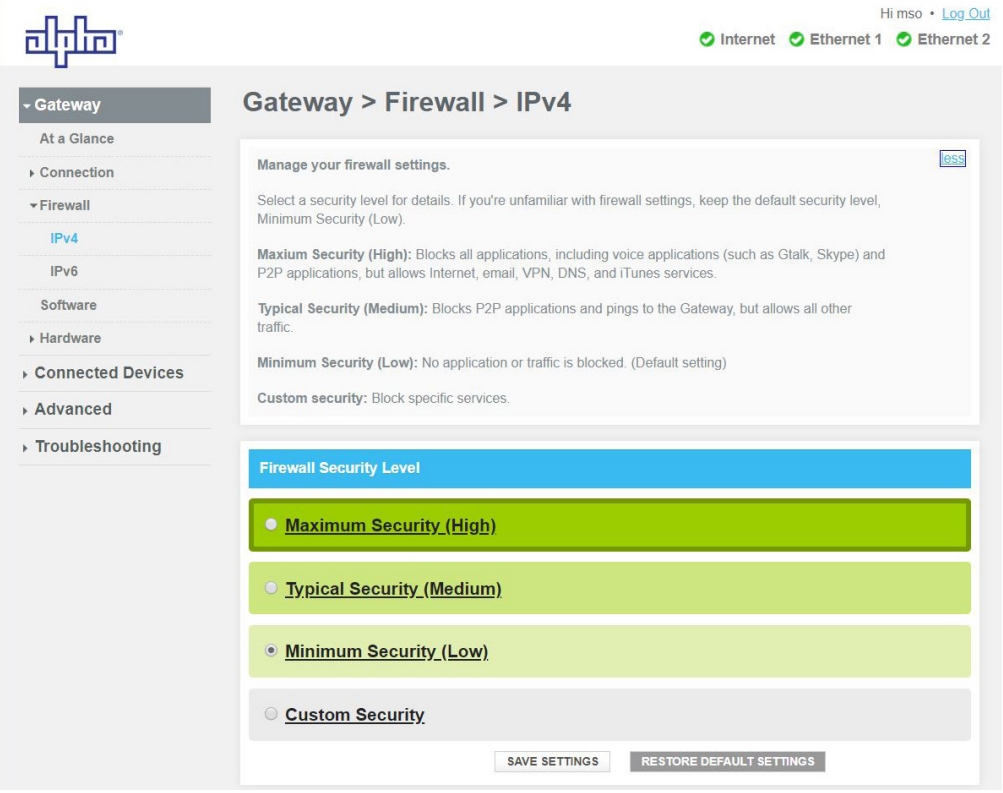


Fig. 3-7, IPv4 Firewall Settings

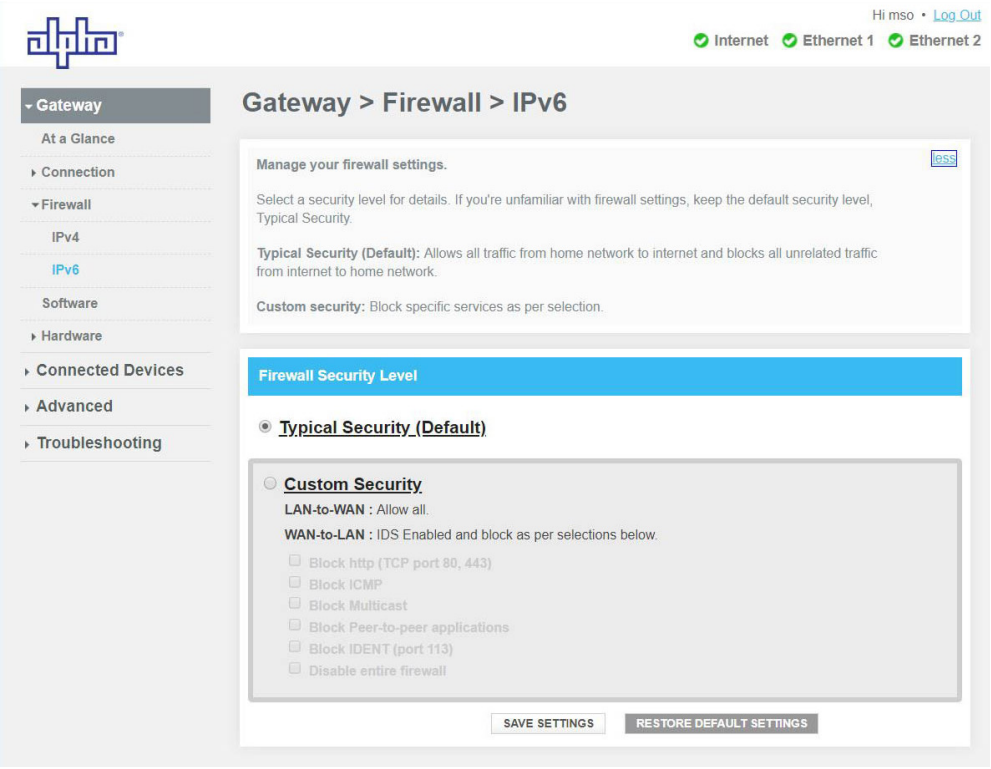


Fig. 3-8, IPv6 Firewall Settings

Software Page

To view the current version of system software, select Gateway > Software. This page displays the software version of various components of the product.

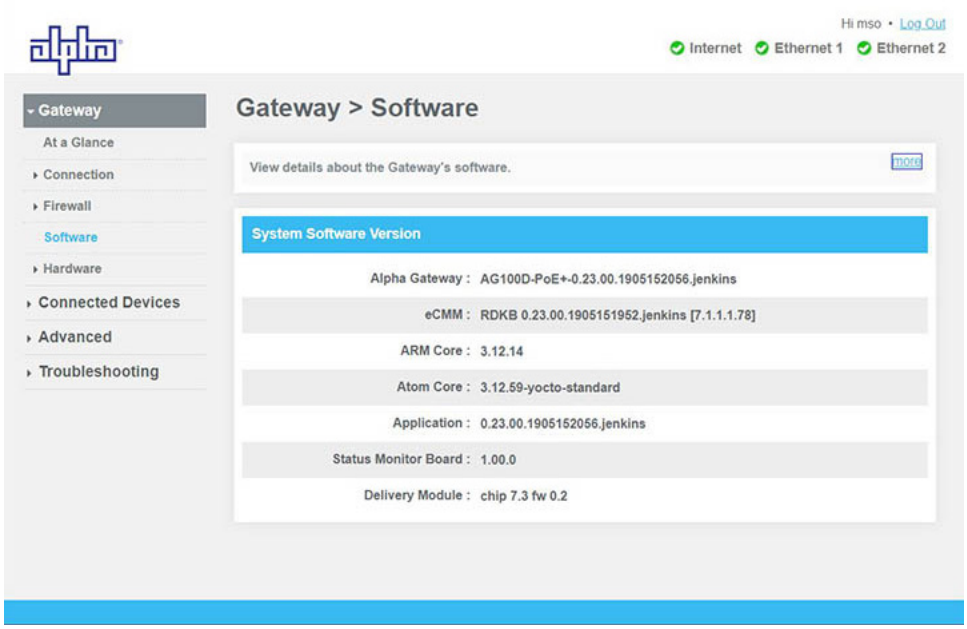


Fig. 3-9, Software Information Page

Hardware Pages

To view hardware information, select Gateway > Hardware. From the Hardware dropdown menu in the navigation pane choose from System Hardware, GPS or DSA to view the desired data.

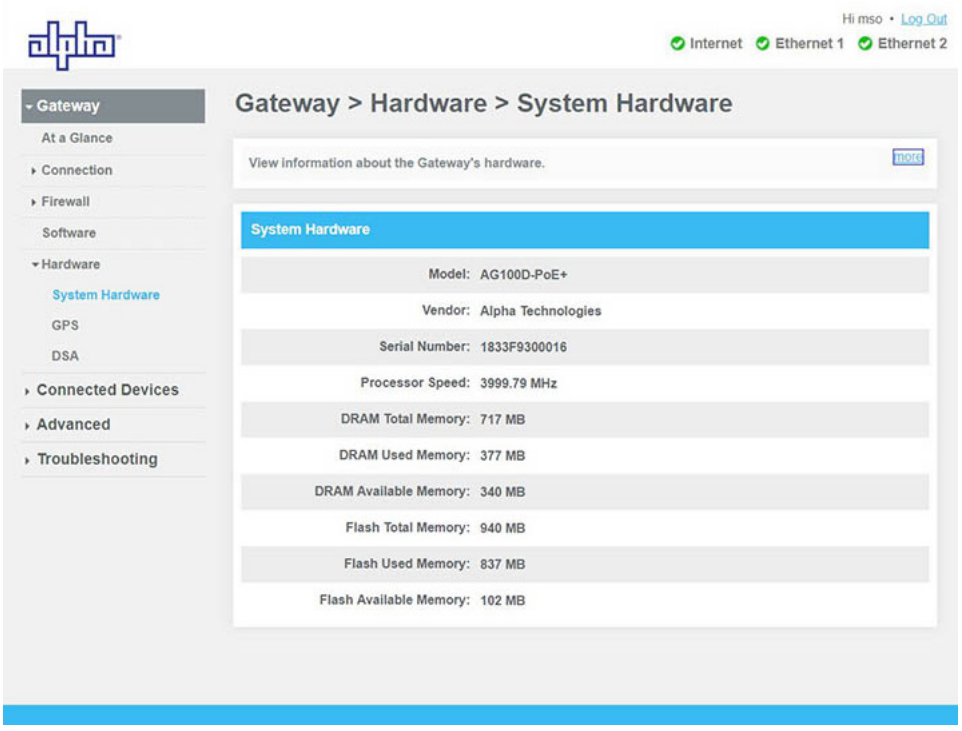


Fig. 3-10, System Hardware Page

GPS

To view the Gateway's location, select Gateway > Hardware > GPS.

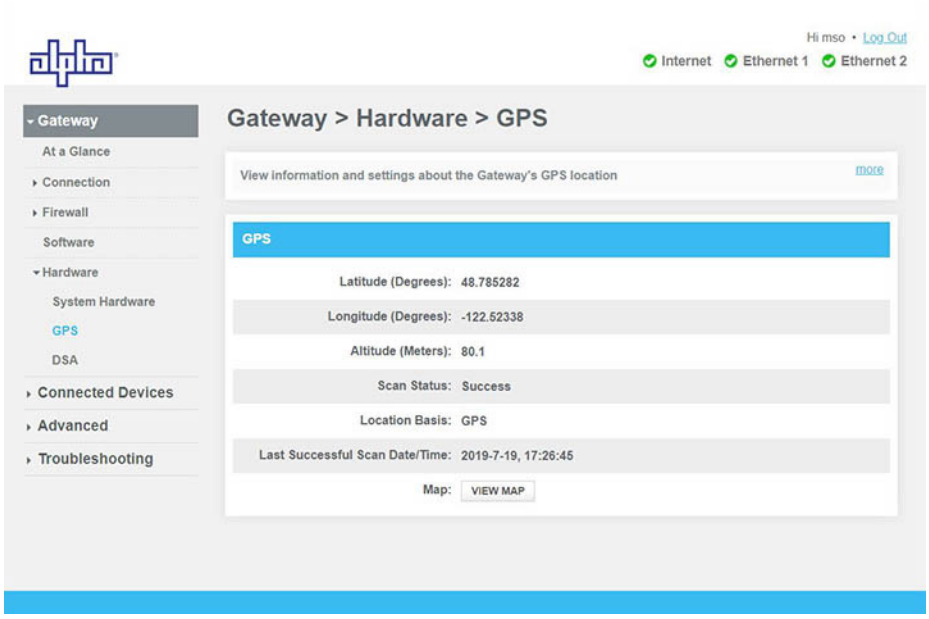


Fig. 3-11, GPS Page

DSA

To view the Gateway's Dynamic Signal Attenuation, select Gateway > Hardware > DSA. Downstream and Upstream settings such as Current Mode can be adjusted.

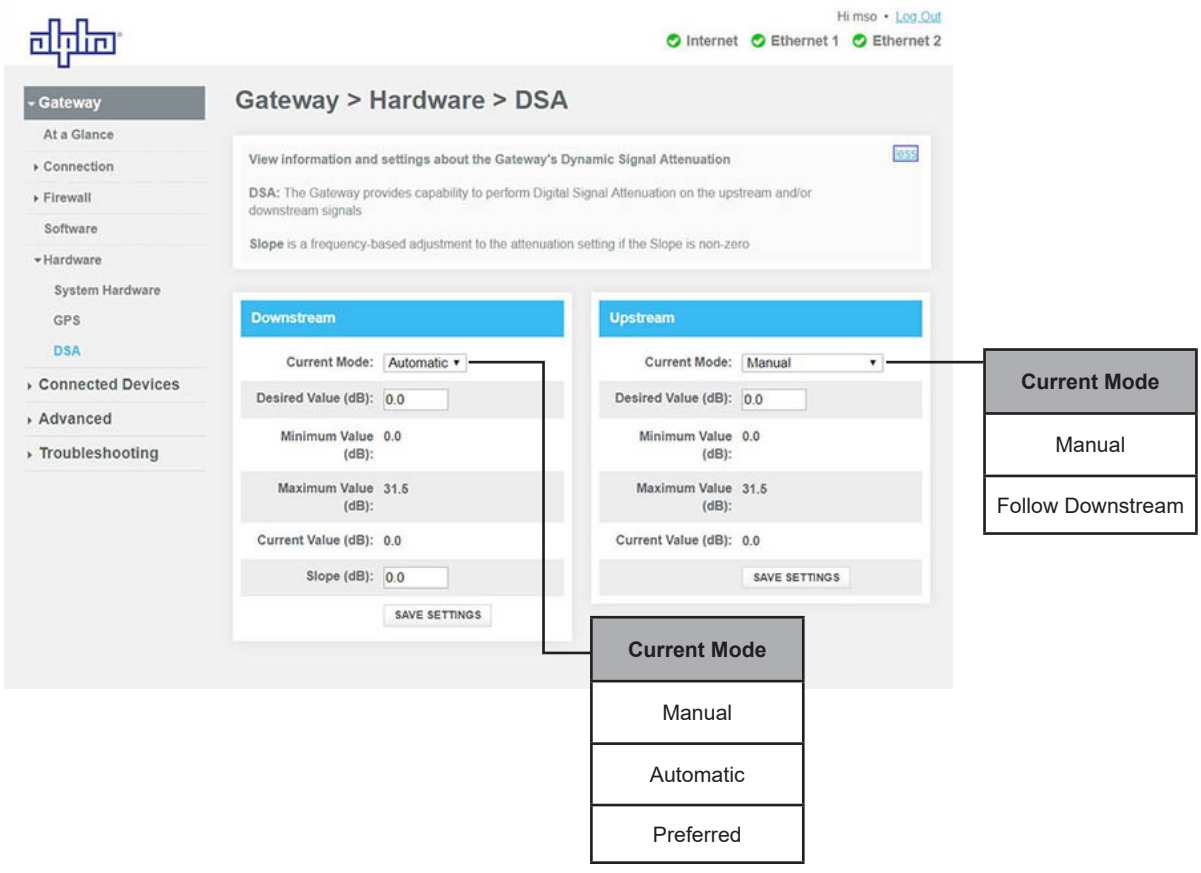


Fig. 3-12, Dynamic Signal Attenuation (DSA) Page

Connected Devices

To view information about devices connected to your network, select Connected Devices > Devices. Current online devices may be edited or new devices may be added by using a reserved IP address.

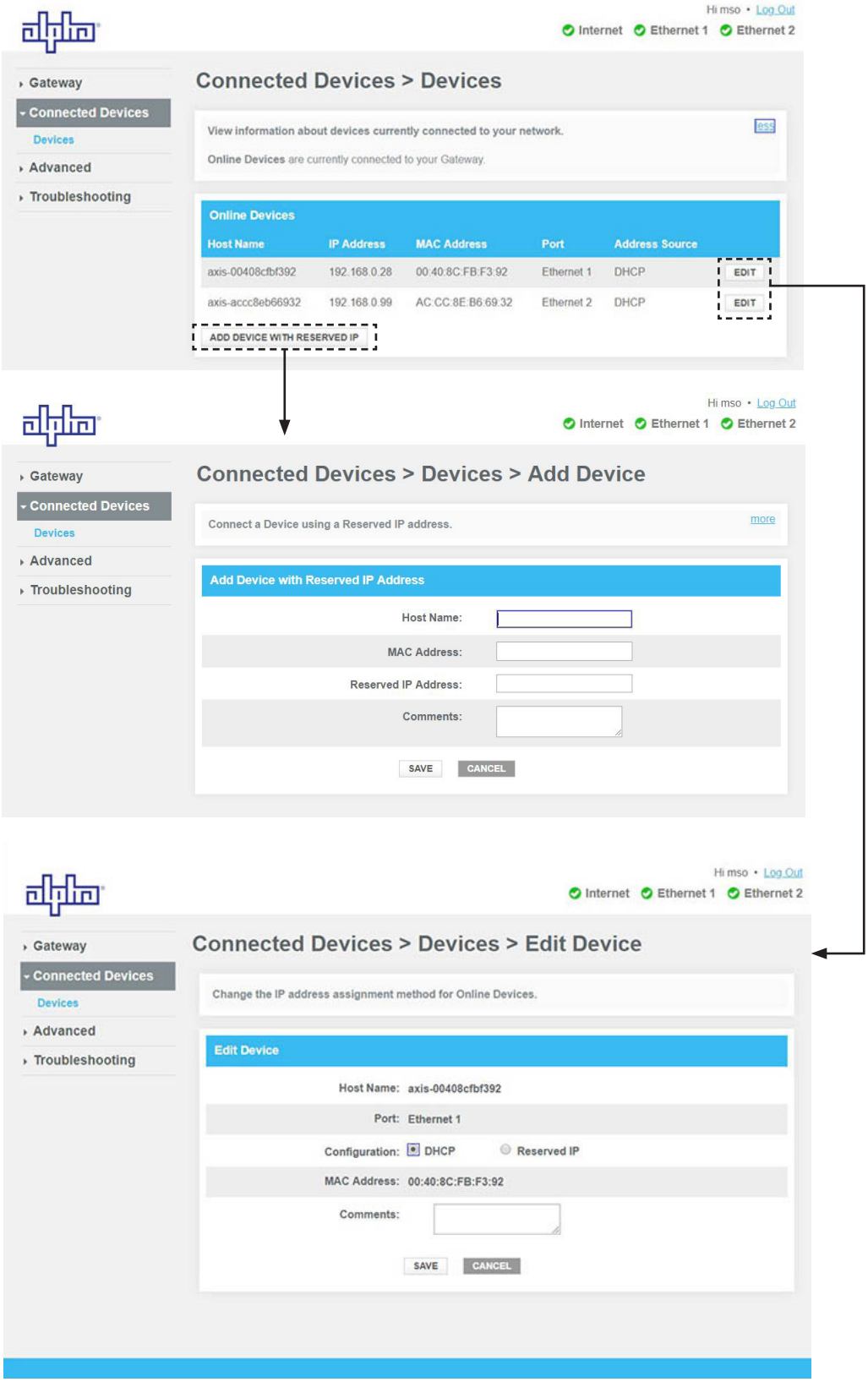


Fig. 3-13, Connected Devices Pages

Advanced

To view advanced settings, select the Advanced dropdown menu. From here you can access the Services, Port Forwarding, Port Triggering, Managed Services, DMZ, Routing, Dynamic DNS and Device Discovery pages.

Services

To enable or disable SSH or IPsec service settings, go to Advanced > Services. After adjusting the settings, click “SAVE.”

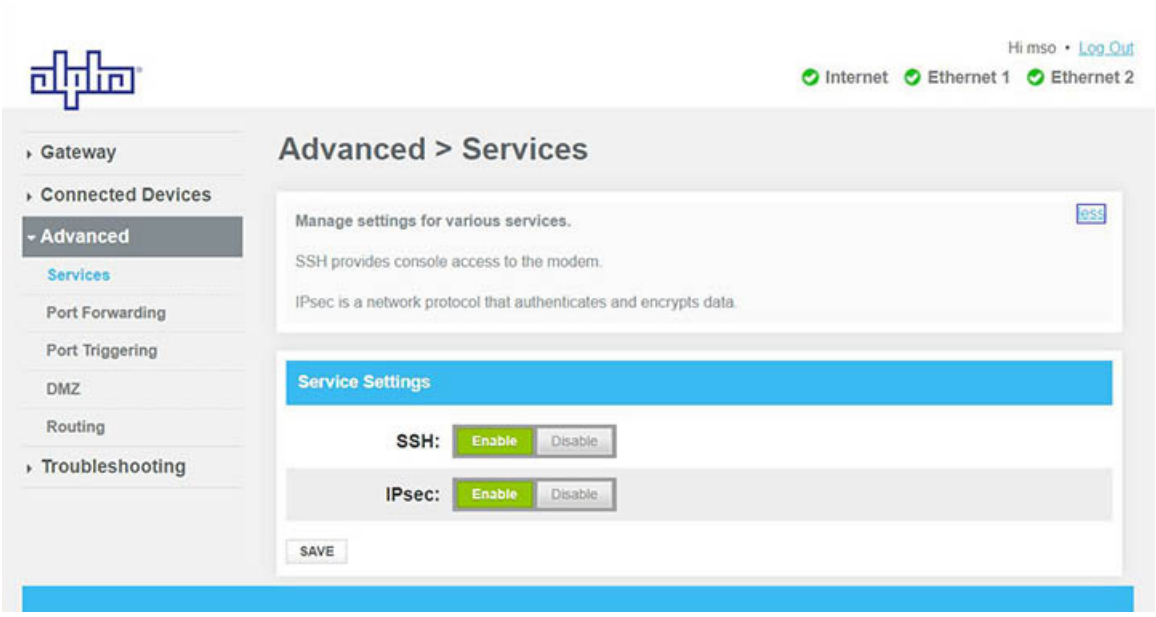


Fig. 3-14, Advanced, Services

Port Forwarding

To view and manage external access to certain ports on your network, select Advanced > Port Forwarding. By default Port Forwarding will disabled.

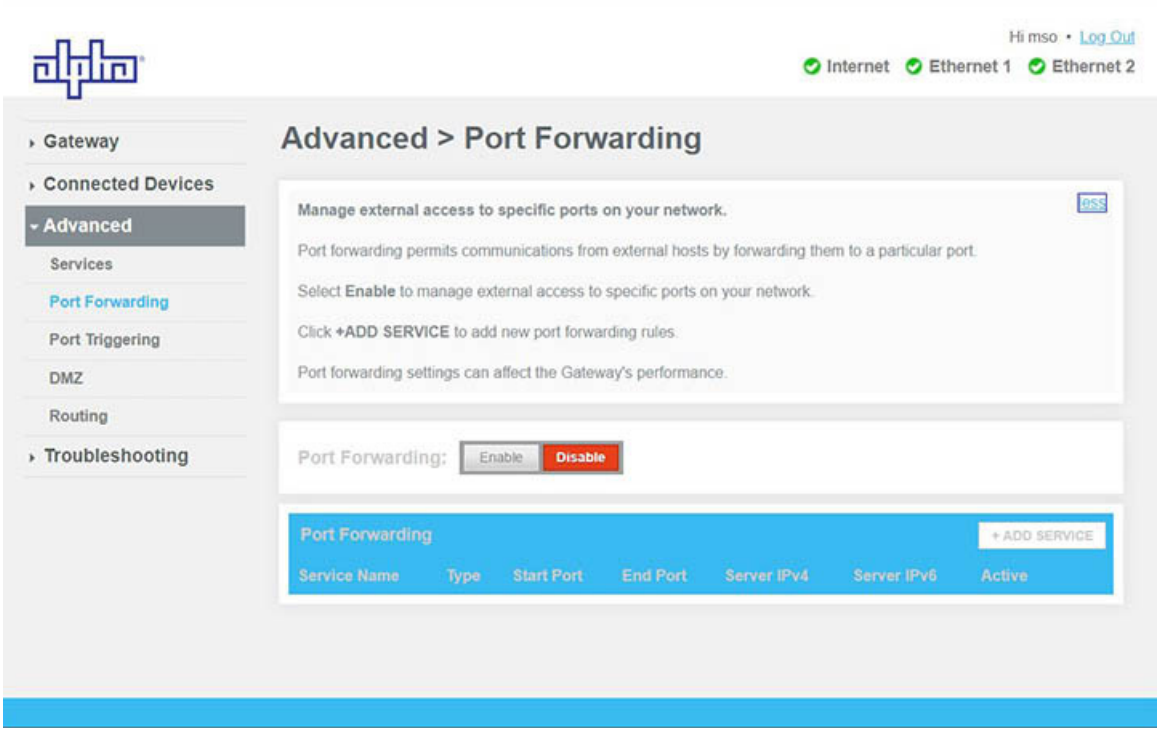


Fig. 3-15, Advanced, Port Forwarding Page, Disabled

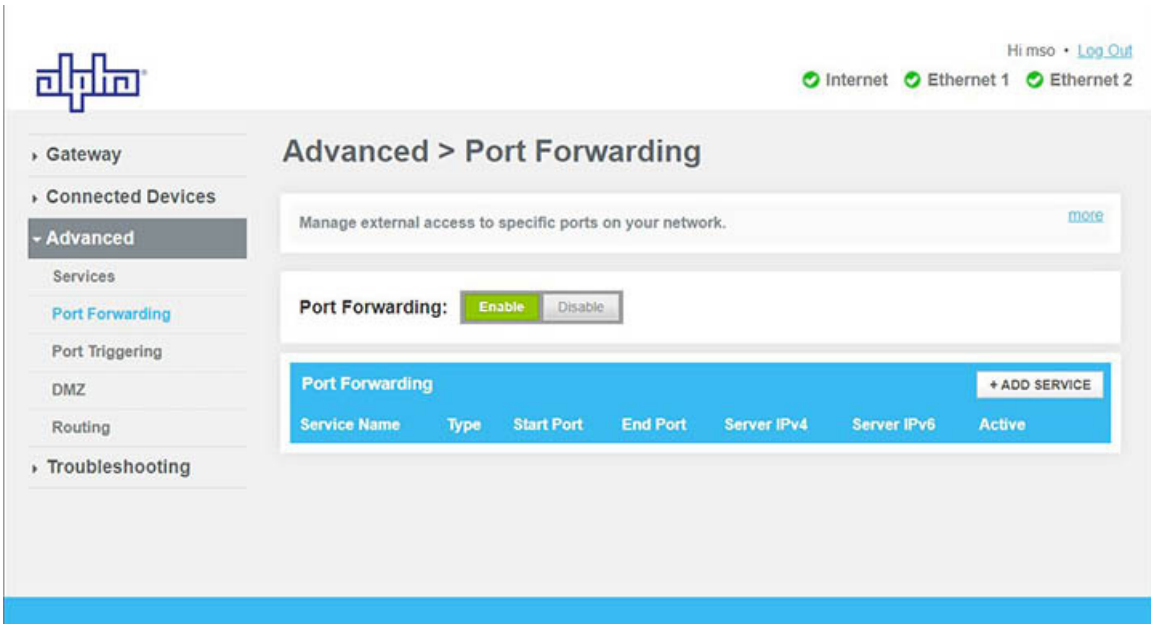
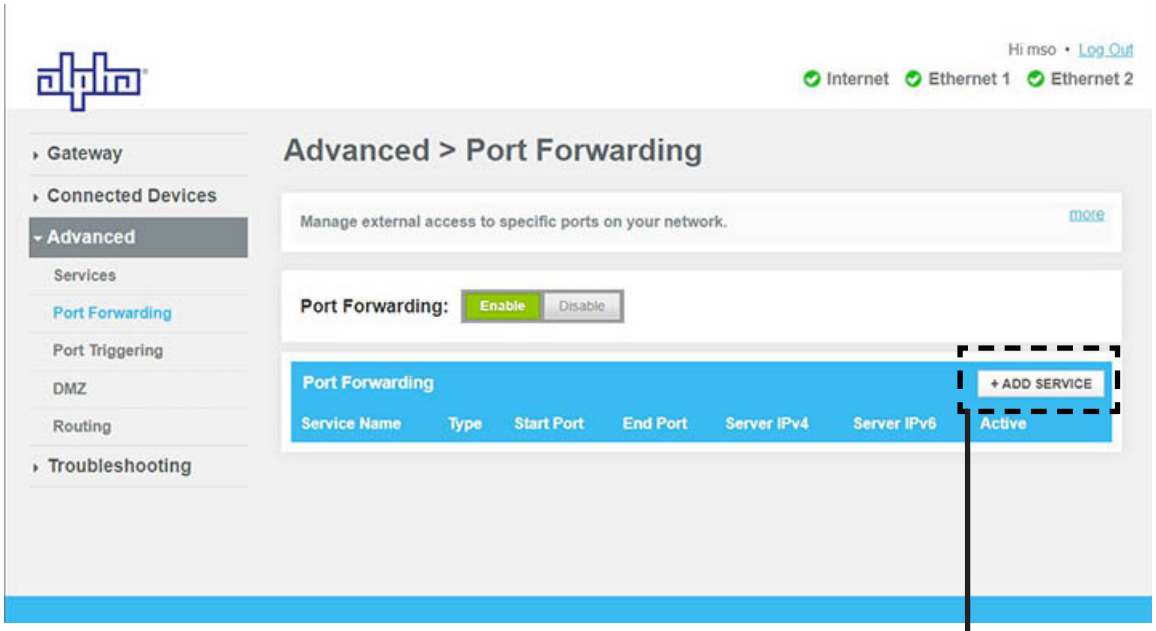


Fig. 3-16, Advanced, Port Forwarding Page, Enabled

To give access to an external host via a particular port, make sure Port Forwarding is enabled and click +ADD SERVICE (see below).



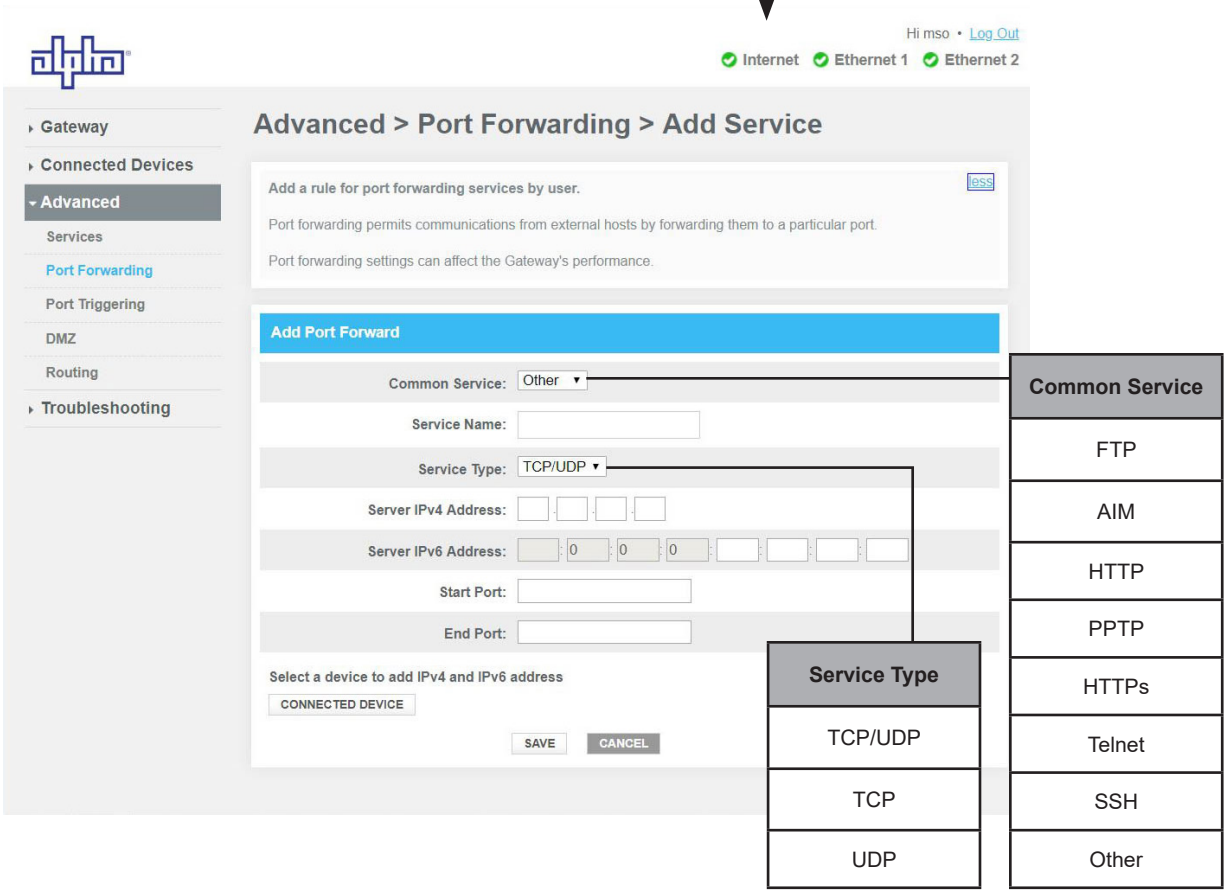


Fig. 3-17, Advanced, Port Forwarding Page, Add Service

To add an IPv4 or IPv6 address to a device, enter it into the appropriate text fields, or click on the CONNECTED DEVICE button to select one of the existing devices. From the popup window, select the device you want to add via the “Add” check box and click the Add button. Click Save to save your settings.

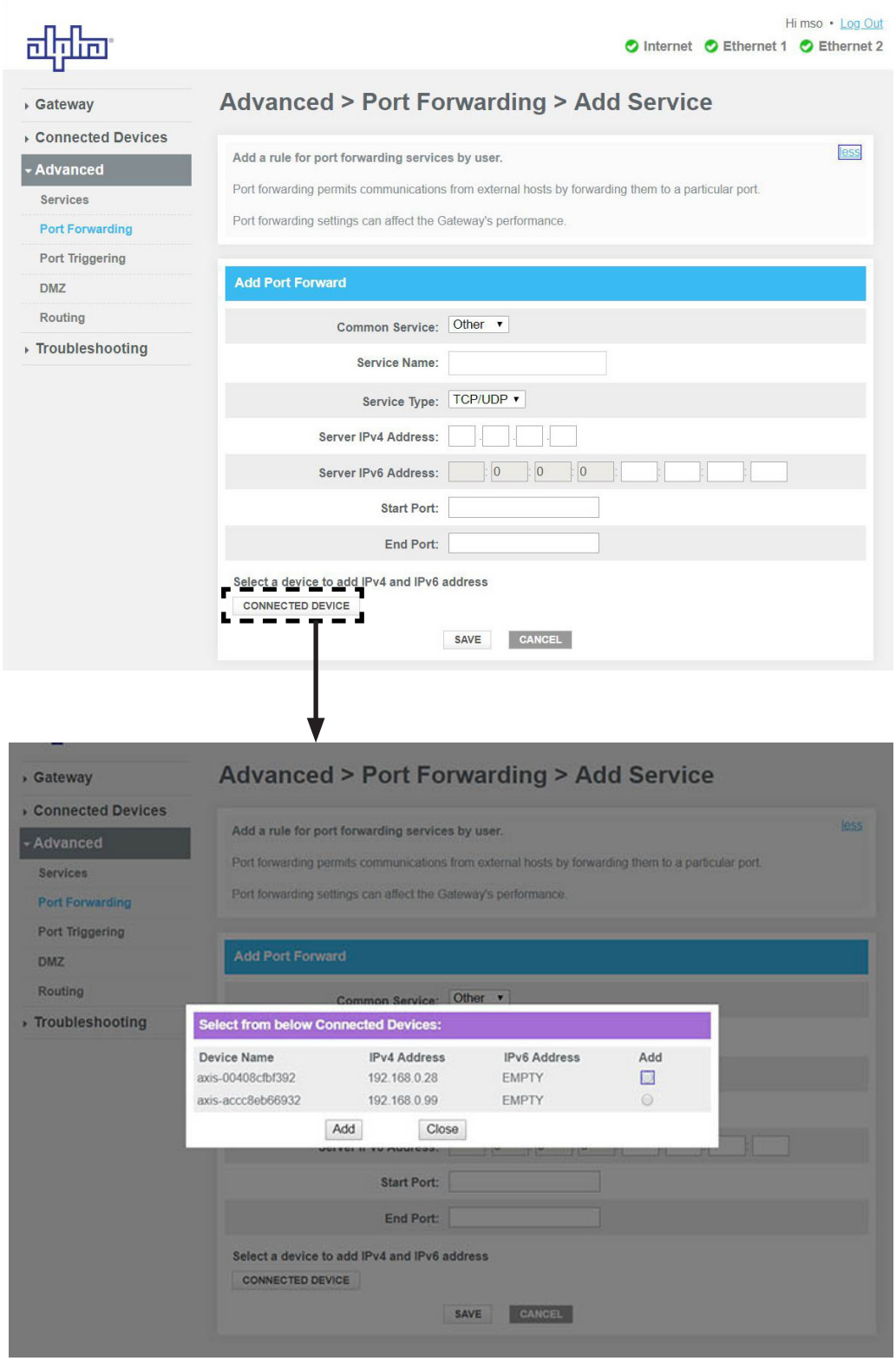


Fig. 3-18, Advanced, Port Forwarding Page, Add Service Pop Up

Port Triggering

To manage external access to specific ports on your network, select Advanced > Port Triggering.

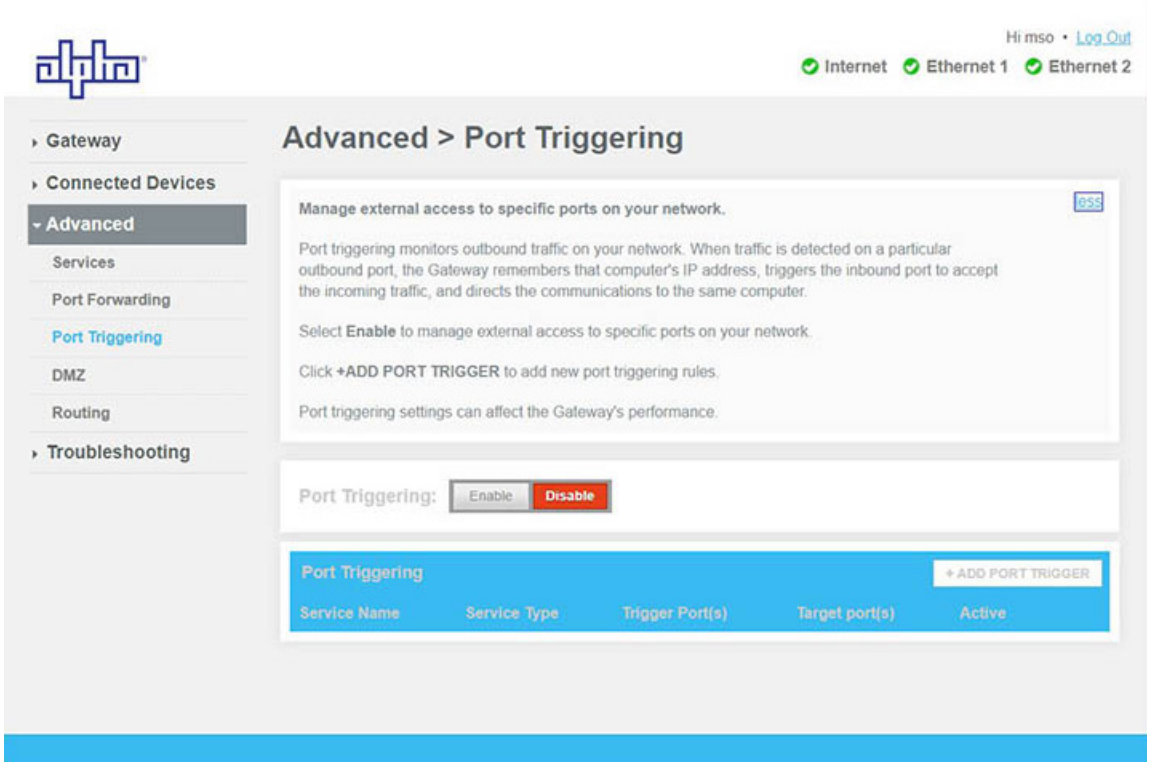


Fig. 3-19, Advanced, Port Triggering Page

To add a port trigger, verify Port Triggering is enabled. Click +ADD PORT TRIGGER (Fig. 3-20) to go to the Add Port Trigger page (Fig. 3-21).

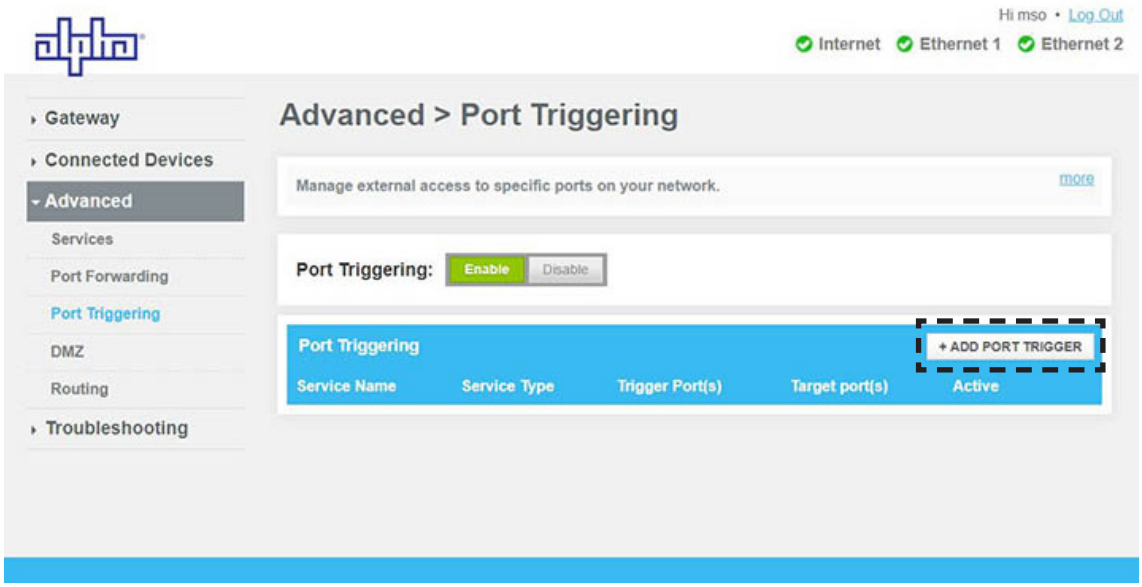


Fig. 3-20, Advanced, Port Triggering Page, Enabled

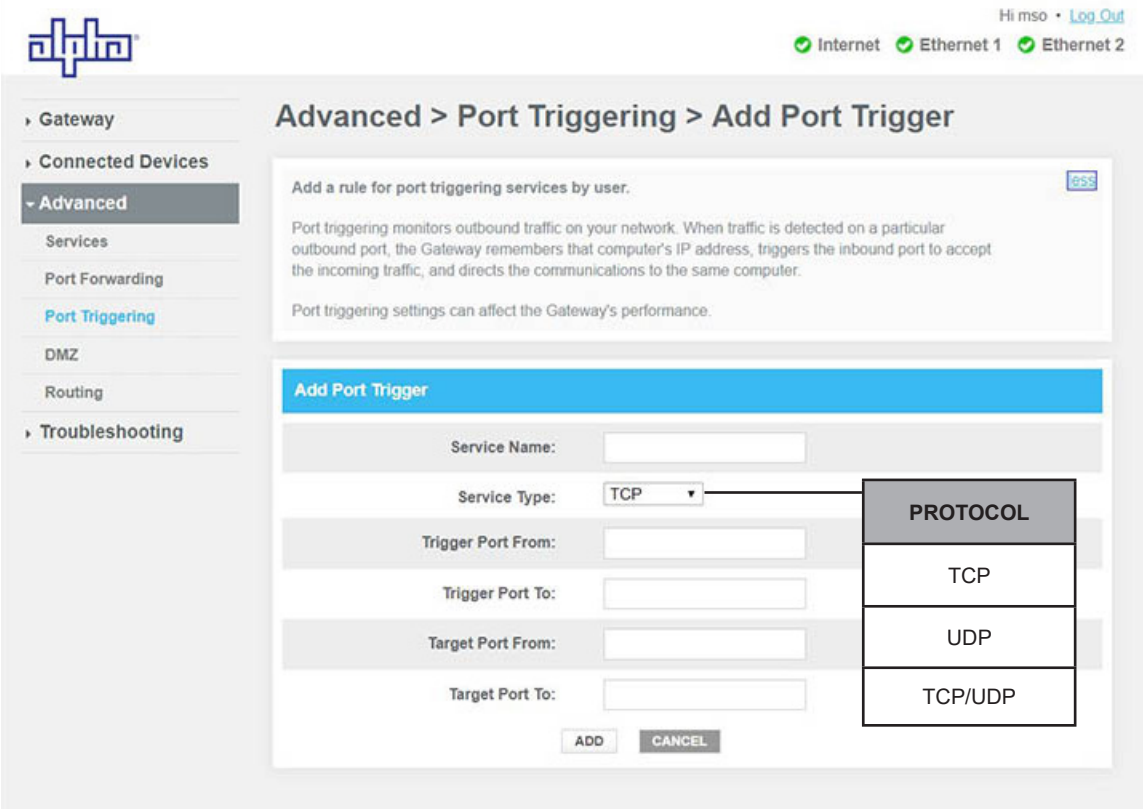


Fig. 3-21, Advanced, Add Port Trigger Page

DMZ

To configure a demilitarize zone (DMZ) to allow one computer on your LAN network to open all of its ports, select Advanced > DMZ.

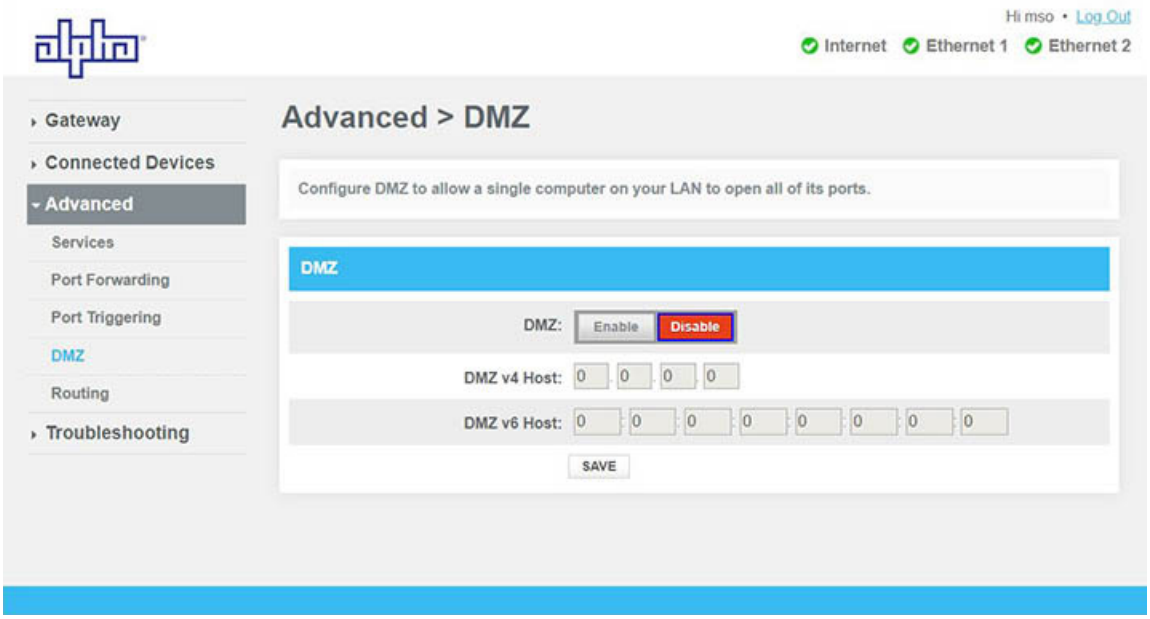


Fig. 3-22, Advanced, DMZ Page, Disabled

To set a DMZ v4 Host or DMZ v6 Host, click Enable and input the appropriate IP address (see Fig. 3-23).

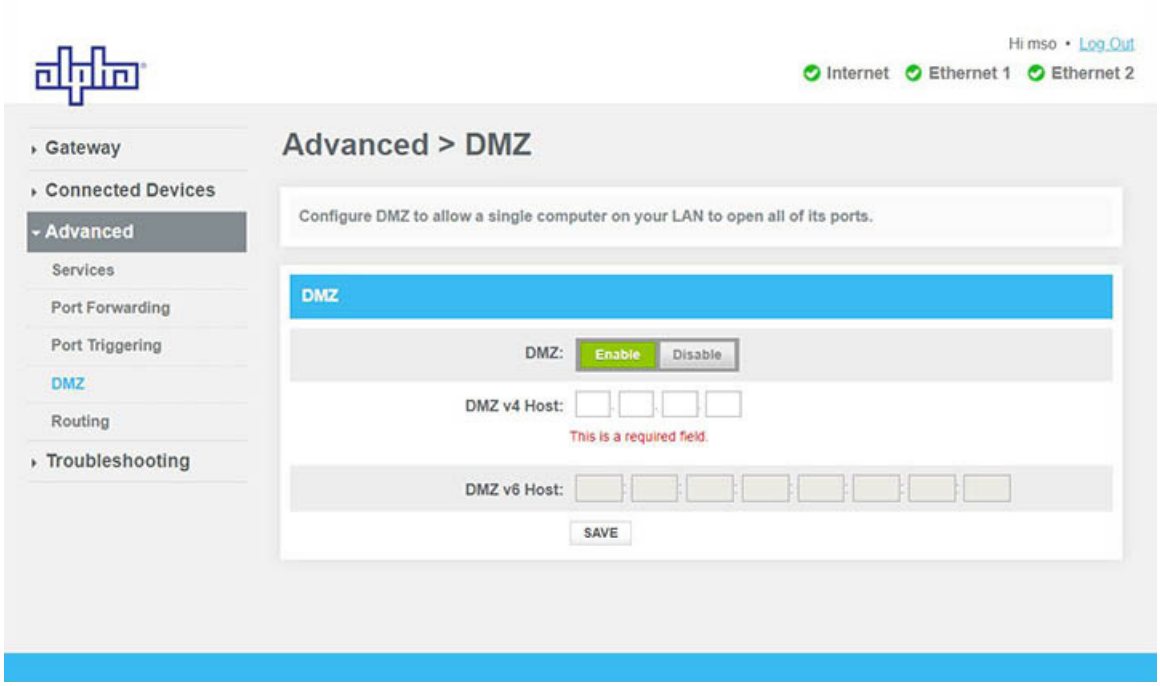
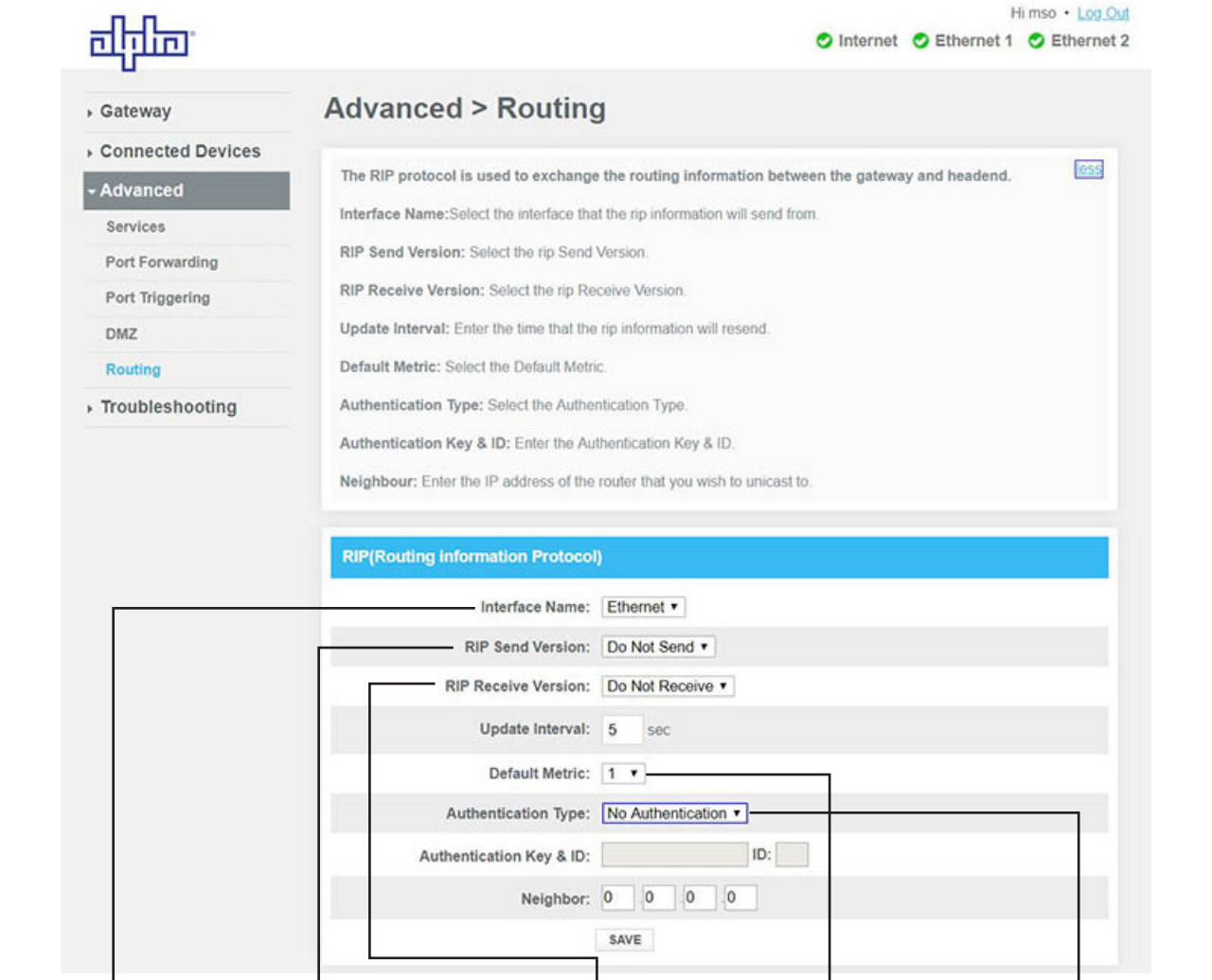


Fig. 3-23, Advanced, DMZ Page, Enabled

Routing

To see routing information, select Advanced > Routing. On the Routing Page you can select a variety of options for Interface Name, RIP Send Version, RIP Receive Version, Default Metric and Authentication Type. See Fig. 3-24 below for the available options. For the Update Interval, input a value to set a time (in seconds) between updates.



INTERFACE NAME	RIP SEND VERSION	RIP RECEIVE VERSION	DEFAULT METRIC	AUTHENTICATION TYPE
CABLE	DO NOT SEND	DO NOT RECEIVE	1 TO 15	NO AUTHENTICATION
ETHERNET	RIP1	RIP1		SIMPLE PASSWORD
	RIP2	RIP2		MD5
	RIP1/2	RIP1/2		

Fig. 3-24, Advanced, Routing Page and Drop Down Menu Options

Troubleshooting

Logs, Diagnostic Tools and Rest/Restore Gateway pages can be accessed via the Troubleshooting drop down menu.

Logs

To view logs, set the log filter type and time frame (See Fig. 3-25 for available options) and click SHOW LOGS. Logs can also be printed or downloaded for offline viewing.

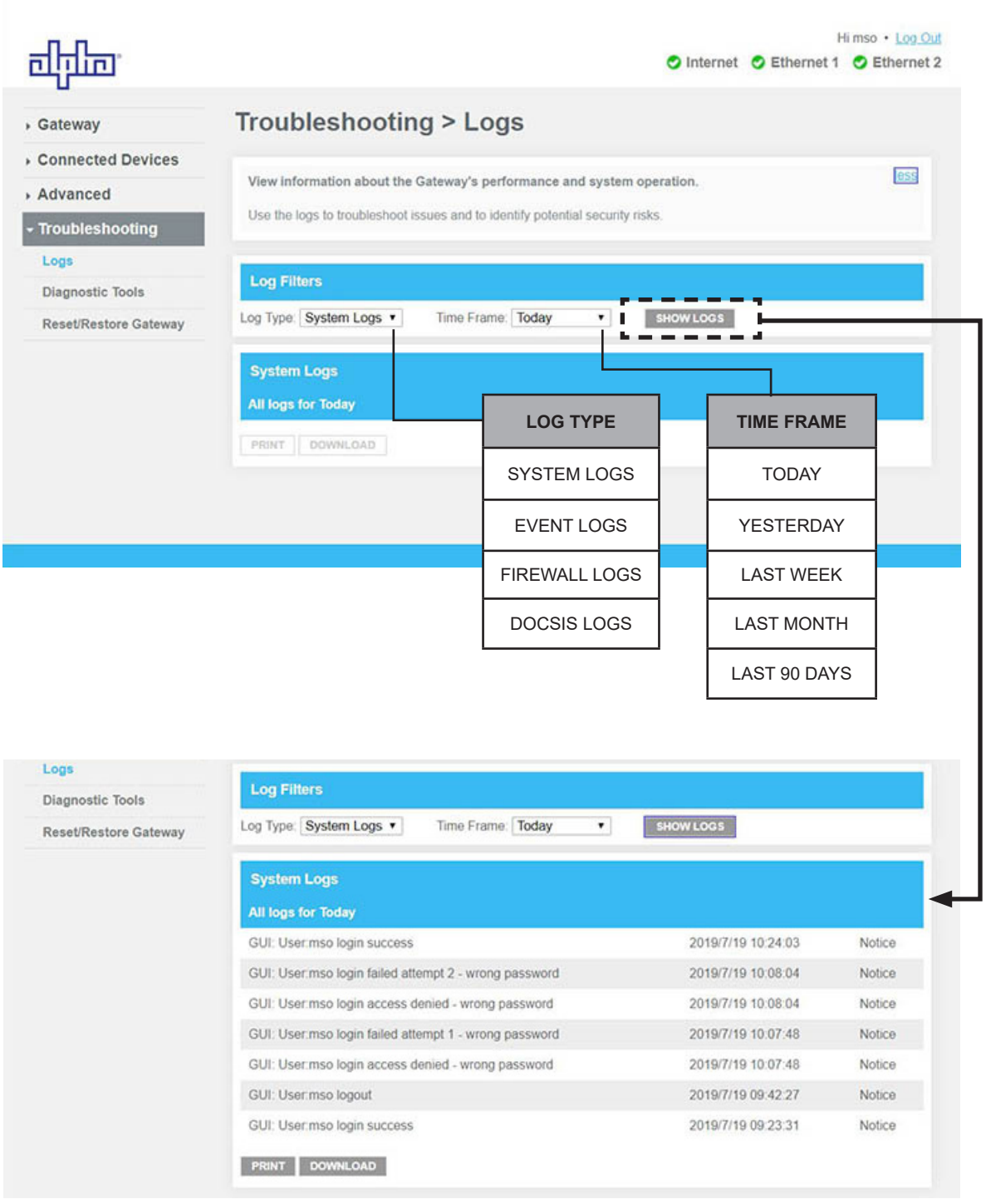


Fig. 3-25, Troubleshooting, Logs Page

Network Diagnostic Tools

Diagnostic Tools allow the user to test connectivity, check access to an IPv4 or IPv6 address and check traceroute results To access Network Diagnostic Tools, select Troubleshooting > Diagnostic Tools.

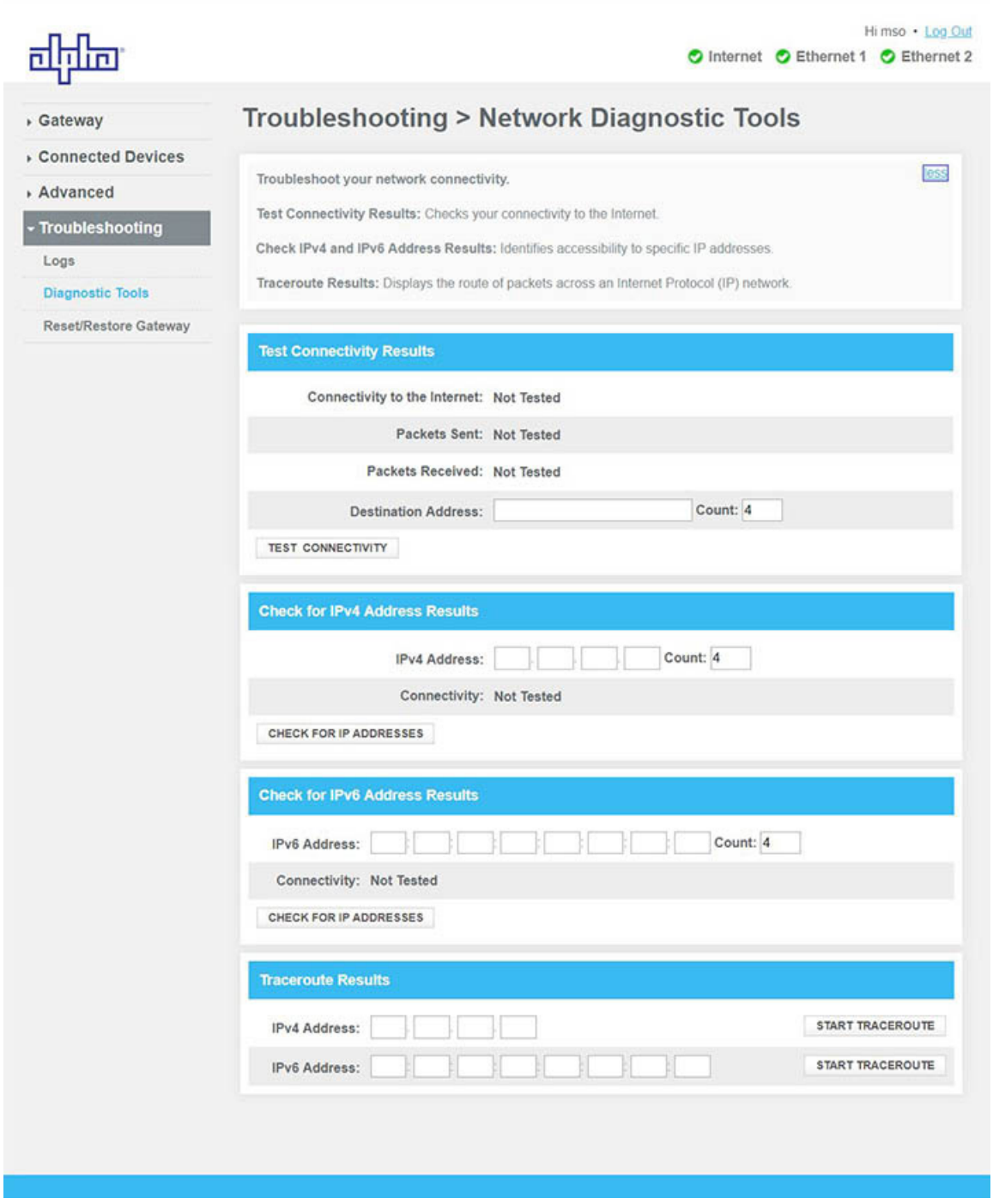


Fig. 3-26, Troubleshooting, Network Diagnostic Tools Page

Reset / Restore Gateway

To reset or restore the Modem, Gateway, or restore to default factory settings, select Troubleshooting > Reset / Restore Gateway. Select the appropriate item to reset. A popup window will ask for confirmation. Click OK to proceed or CANCEL to close the popup and return to the web page.

***NOTICE**:*

Restore Factory Settings will erase all your settings, including passwords, firewall, services, etc.

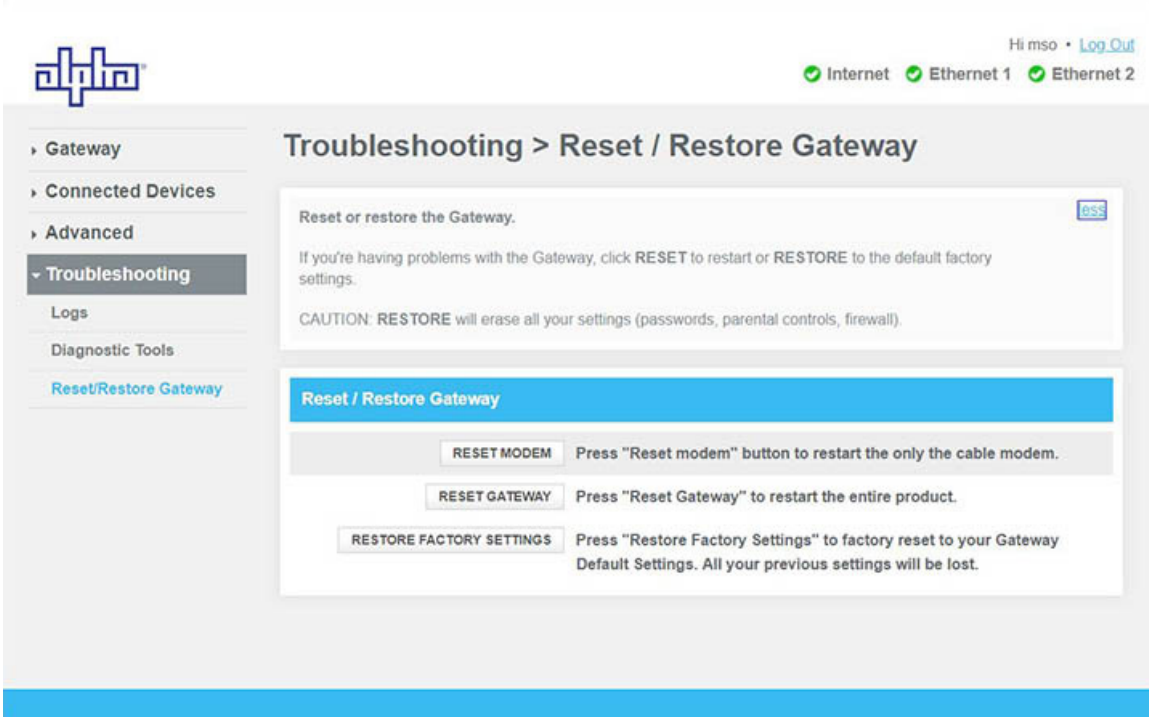


Fig. 3-27, Troubleshooting, Reset / Restore Gateway Page

4.0 Managing the SMG-HP (Bridge Mode)

4.1 Web Interface — Remote Access

The AlphaGateway SMG-HP provides embedded Ethernet communications (as well as Power over Ethernet), allowing the user to view and configure settings via a web interface. Either output port may be used as a local port for on-site service (a PC's Ethernet port) or as a Network connection. The Ethernet ports on the SMG-HP is a fully functional standard Ethernet port, capable of providing all the functionality of any standard Ethernet connection.

***NOTICE**:*

- For web server (HTTP) access, port 80 must not be blocked and the computer must have access to the private cable modem network.
- The SMG-HP supports SNMPv1, v2C and v3. Contact Alpha Tech Support to obtain the supported MIBs.

To access the SMG-HP's web interface remotely via web browser, use the following procedure:

1. Connect the laptop or computer's network interface port to the company's Ethernet network.
2. Open a web browser.
3. Enter the DHCP designated IP address into the web browser's address field (Use square brackets when entering IPv6 addresses: [FC00:168:40::124]).
4. The SMG-HP web page will load.

The Gateway web pages will follow this approximate road map. Detailed information is listed in the following section.

Gateway

- At a Glance
- Connection
  - LAN Status
  - WAN Network
  - Ethernet
- Software
- Hardware
  - System Hardware
  - GPS
  - DSA

Connected Devices

- Devices

Advanced

- Services
- Port Forwarding
- Port Triggering
- DMZ
- Routing

Troubleshooting

- Logs
- Diagnostic Tools
- Reset / Restore Gateway

Login

To access the Gateway, login with “mso” as the Username and use the Password Of The Day (POTD) configured to work with the POTD utility.

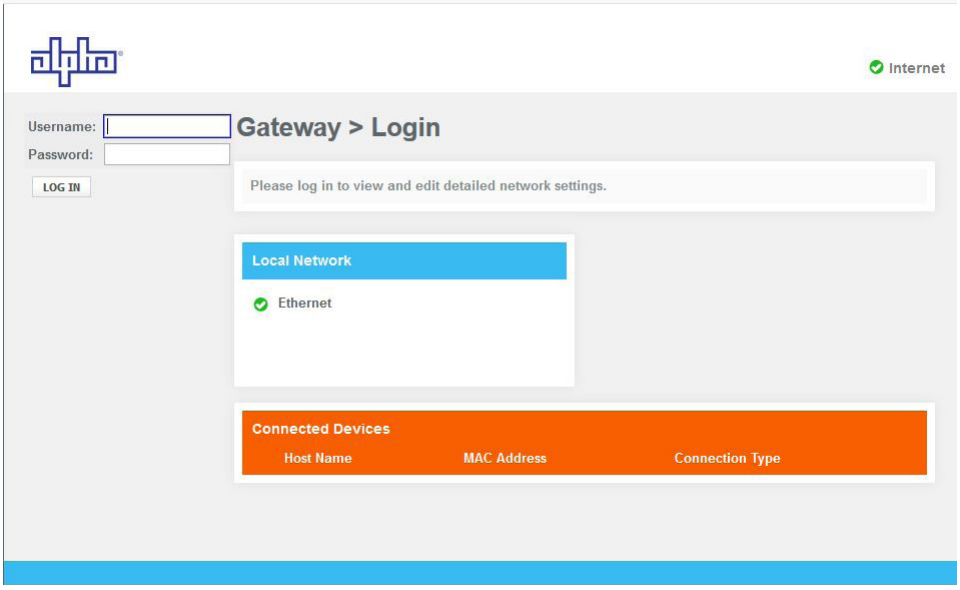


Fig. 4-1, Login Window

4.2 Navigating the SMG-HP Web Pages

The home page offers a brief summary of the primary elements of the SMG-HP. Detailed system information, history logs, and analytical tools can be accessed via the navigation pane in the left column.

Selecting the drop-down arrow next to Gateway will open the “At a Glance “ screen. Here the operator can view status with regard to Bridge Mode [Enabled/Disabled] as well as the Local Network and any Connected Devices. When Bridge Mode is enabled, a notation will appear on each screen.

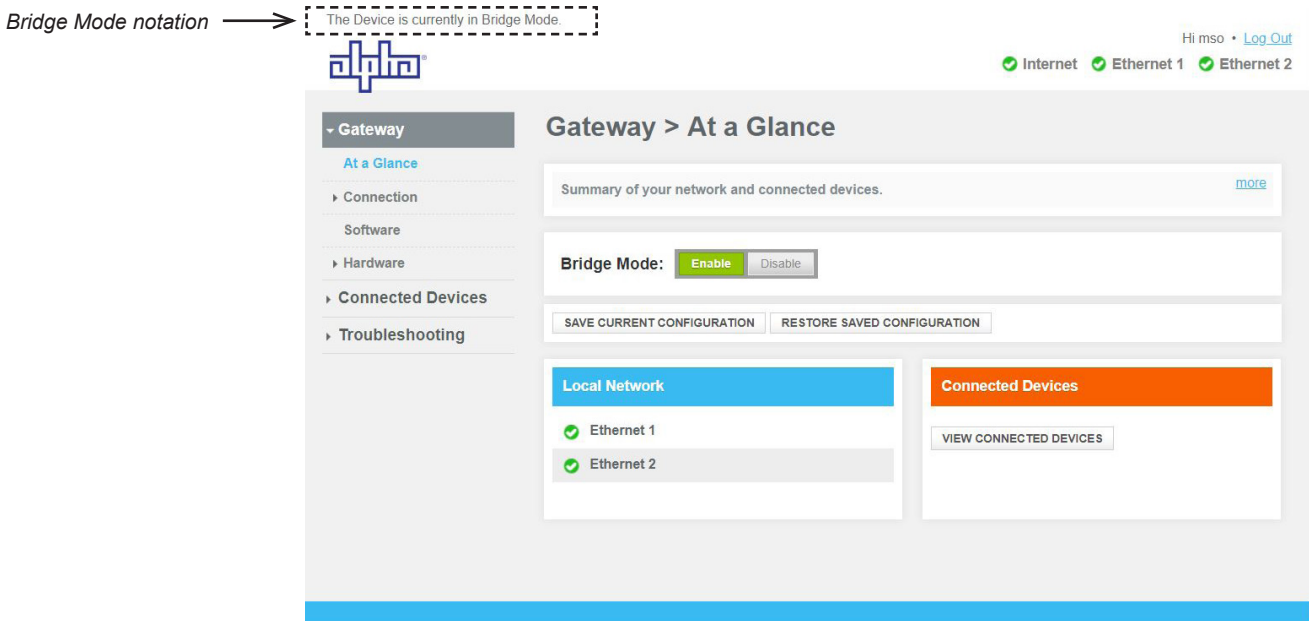


Fig. 4-2, At a Glance Window (Bridge Mode)

Select a link in the navigation panel and the page specific to the topic will open, enabling real-time data and parameters to be observed and configured.

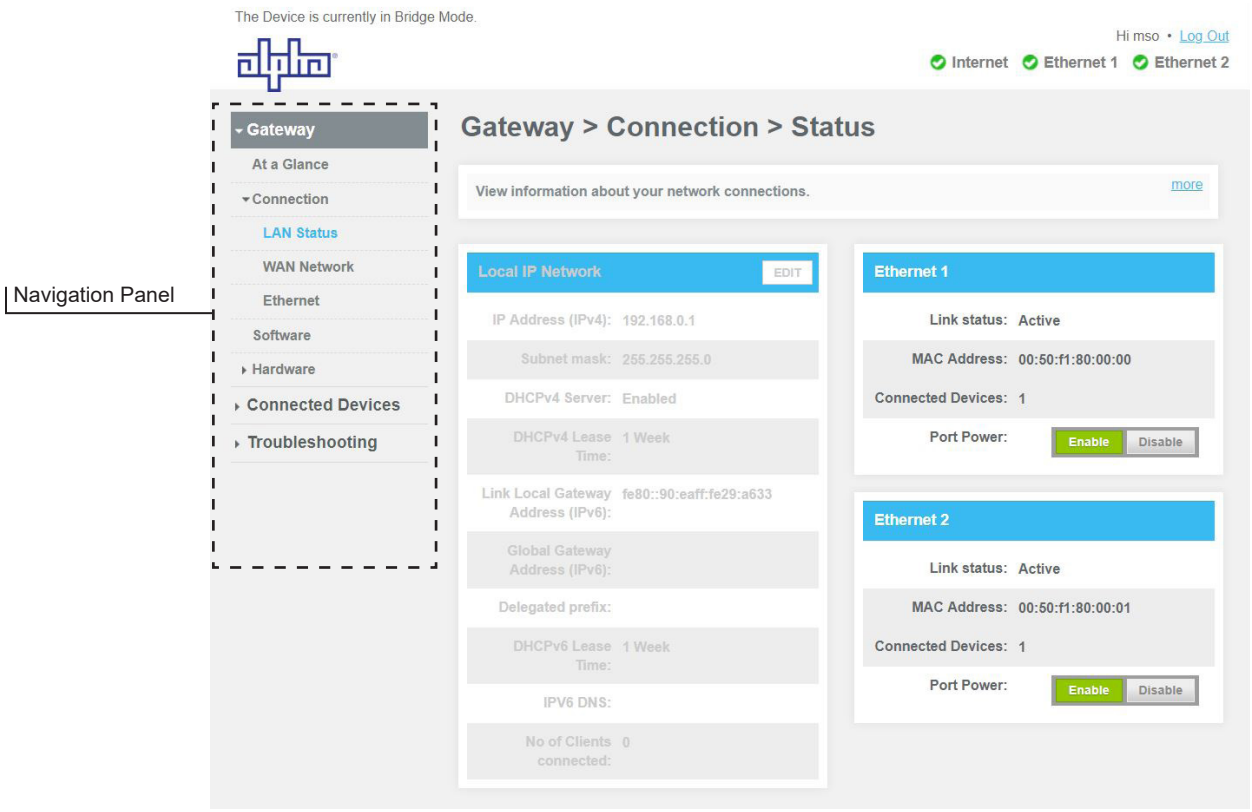


Fig. 4-3, LAN Status Information (Bridge Mode)

Connections

Selecting the Connections drop down menu in the navigation panel enables the user to access three areas:

- LAN Status - View local area network connections.
- WAN Network - View wide area network connection.
- Local IP Network - Manage your home network settings.

LAN Status

To access the LAN Status page, select Gateway > Connection > LAN Status. Here you can find information about the Local IP Network and Ethernet Ports. See Fig. 4-3 for detail.

WAN Network

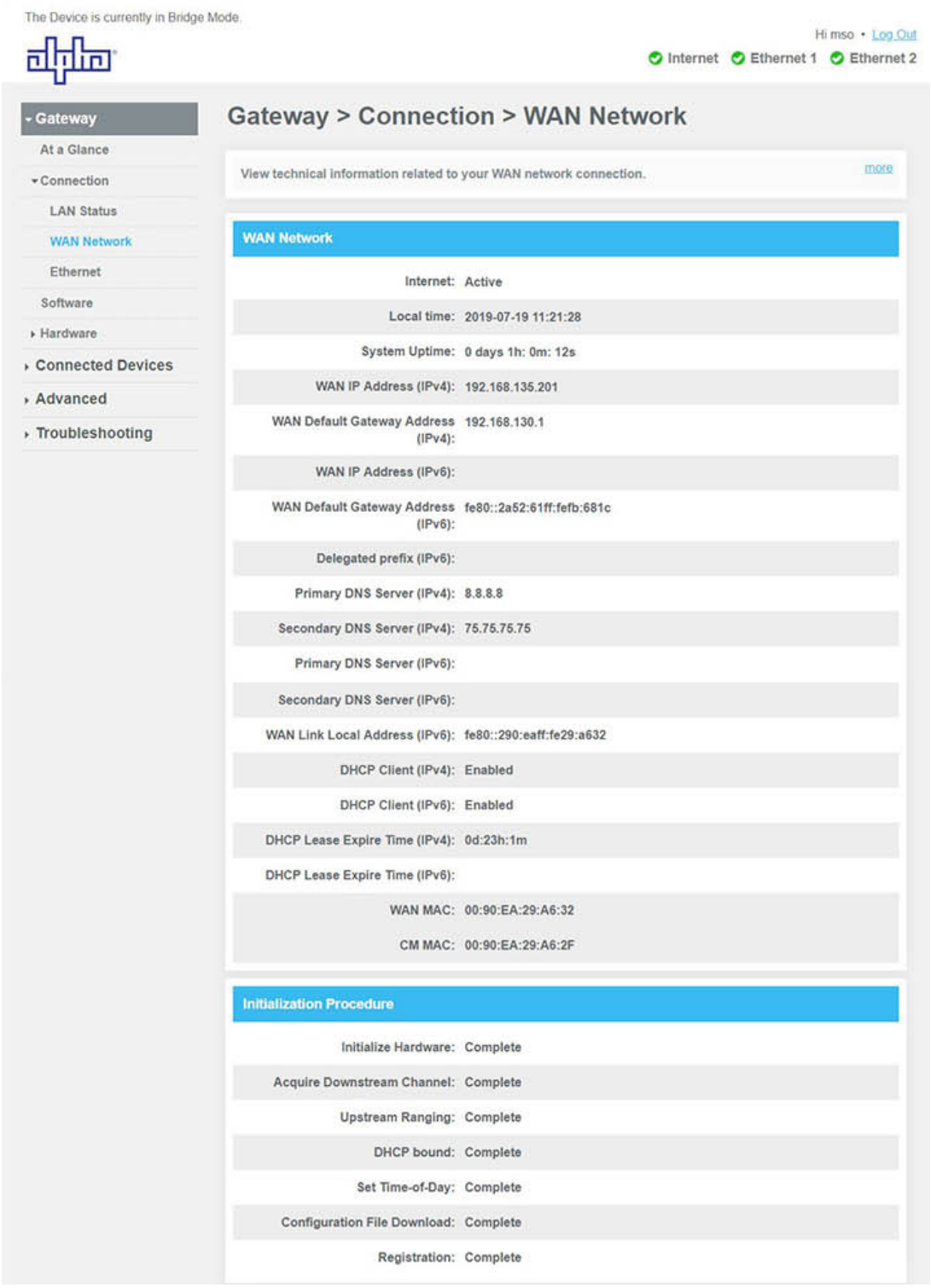
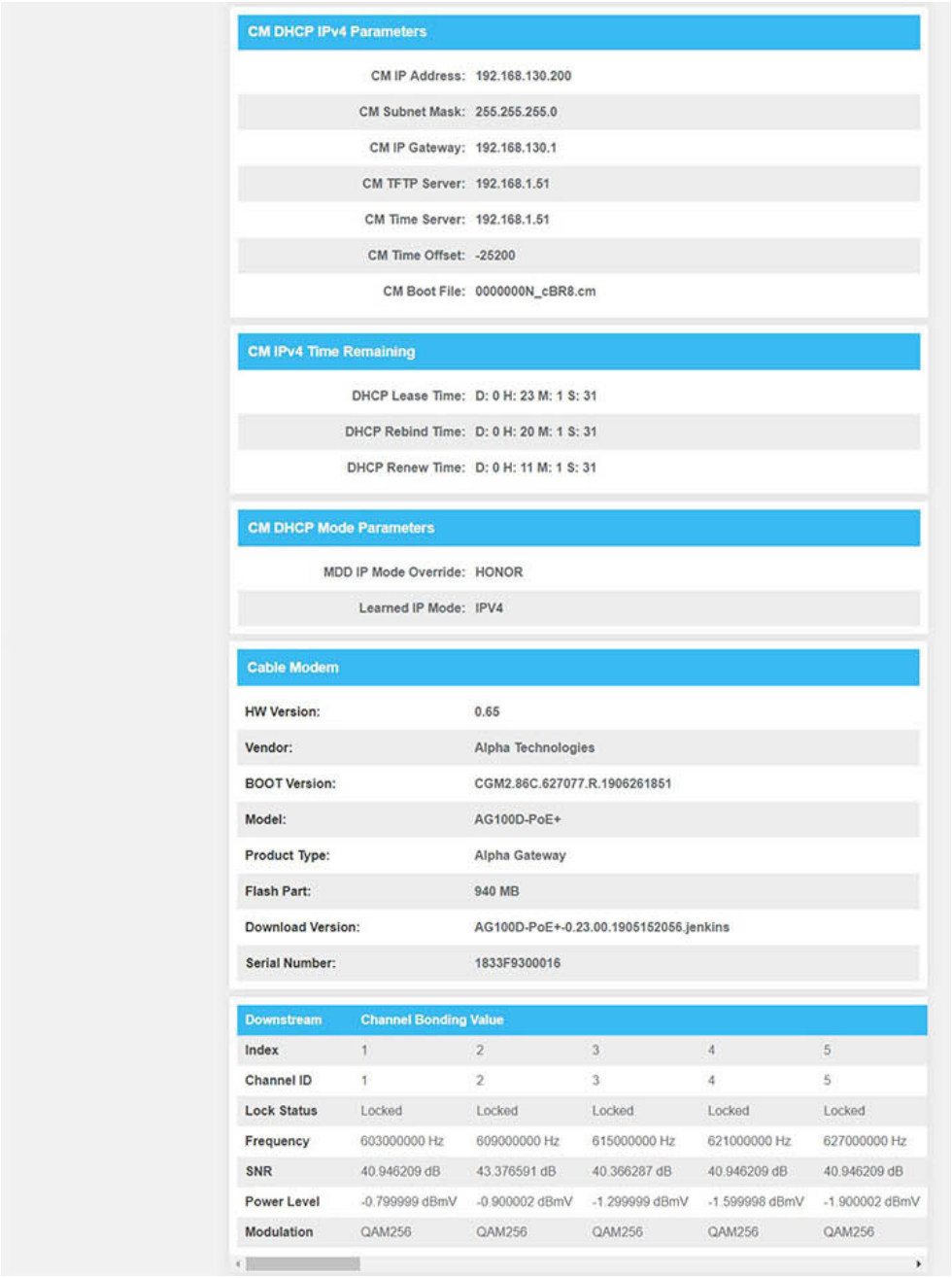


Fig. 4-4, Connection, WAN Network (Bridge Mode)



CM DHCP IPv4 Parameters

CM IP Address:	192.168.130.200
CM Subnet Mask:	255.255.255.0
CM IP Gateway:	192.168.130.1
CM TFTP Server:	192.168.1.51
CM Time Server:	192.168.1.51
CM Time Offset:	-25200
CM Boot File:	0000000N_cBR8.cm

CM IPv4 Time Remaining

DHCP Lease Time:	D: 0 H: 23 M: 1 S: 31
DHCP Rebind Time:	D: 0 H: 20 M: 1 S: 31
DHCP Renew Time:	D: 0 H: 11 M: 1 S: 31

CM DHCP Mode Parameters

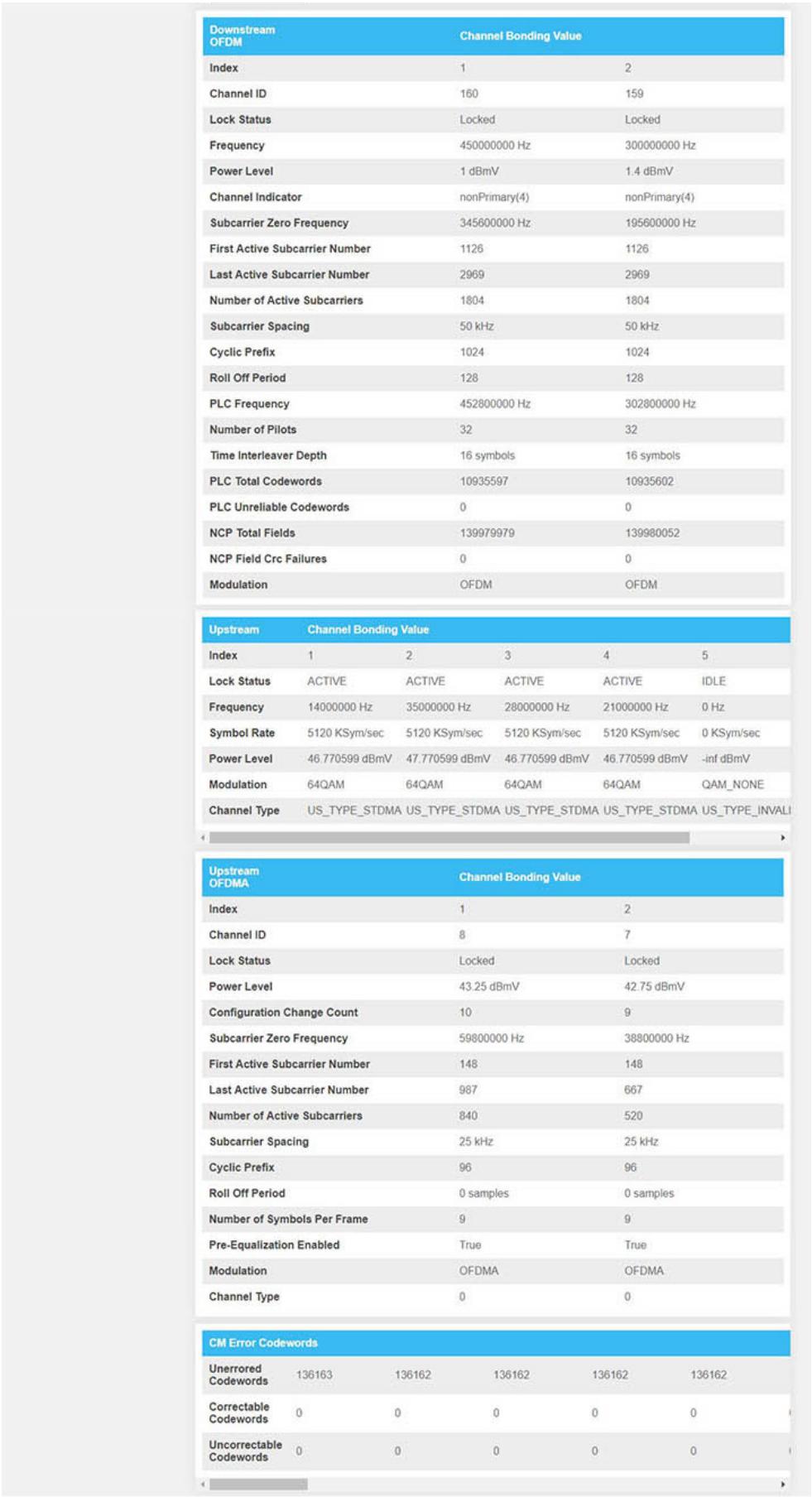
MDD IP Mode Override:	HONOR
Learned IP Mode:	IPV4

Cable Modem

HW Version:	0.65
Vendor:	Alpha Technologies
BOOT Version:	CGM2.86C.627077.R.1906261851
Model:	AG100D-PoE+
Product Type:	Alpha Gateway
Flash Part:	940 MB
Download Version:	AG100D-PoE+-0.23.00.1905152056.jenkins
Serial Number:	1833F9300016

Downstream	Channel Bonding Value				
Index	1	2	3	4	5
Channel ID	1	2	3	4	5
Lock Status	Locked	Locked	Locked	Locked	Locked
Frequency	603000000 Hz	609000000 Hz	615000000 Hz	621000000 Hz	627000000 Hz
SNR	40.946209 dB	43.376591 dB	40.366287 dB	40.946209 dB	40.946209 dB
Power Level	-0.799999 dBmV	-0.900002 dBmV	-1.299999 dBmV	-1.599998 dBmV	-1.900002 dBmV
Modulation	QAM256	QAM256	QAM256	QAM256	QAM256

Fig. 4-4, Connection, WAN Network (Bridge Mode), *(continued)*



Downstream OFDM	Channel Bonding Value	
Index	1	2
Channel ID	160	159
Lock Status	Locked	Locked
Frequency	450000000 Hz	300000000 Hz
Power Level	1 dBmV	1.4 dBmV
Channel Indicator	nonPrimary(4)	nonPrimary(4)
Subcarrier Zero Frequency	345600000 Hz	195600000 Hz
First Active Subcarrier Number	1126	1126
Last Active Subcarrier Number	2969	2969
Number of Active Subcarriers	1804	1804
Subcarrier Spacing	50 kHz	50 kHz
Cyclic Prefix	1024	1024
Roll Off Period	128	128
PLC Frequency	452800000 Hz	302800000 Hz
Number of Pilots	32	32
Time Interleaver Depth	16 symbols	16 symbols
PLC Total Codewords	10935597	10935602
PLC Unreliable Codewords	0	0
NCP Total Fields	139979979	139980052
NCP Field Crc Failures	0	0
Modulation	OFDM	OFDM

Upstream	Channel Bonding Value				
Index	1	2	3	4	5
Lock Status	ACTIVE	ACTIVE	ACTIVE	ACTIVE	IDLE
Frequency	14000000 Hz	35000000 Hz	28000000 Hz	21000000 Hz	0 Hz
Symbol Rate	5120 KSym/sec	5120 KSym/sec	5120 KSym/sec	5120 KSym/sec	0 KSym/sec
Power Level	46.770599 dBmV	47.770599 dBmV	46.770599 dBmV	46.770599 dBmV	-inf dBmV
Modulation	64QAM	64QAM	64QAM	64QAM	QAM_NONE
Channel Type	US_TYPE_STDMA	US_TYPE_STDMA	US_TYPE_STDMA	US_TYPE_STDMA	US_TYPE_INVALI

Upstream OFDMA	Channel Bonding Value	
Index	1	2
Channel ID	8	7
Lock Status	Locked	Locked
Power Level	43.25 dBmV	42.75 dBmV
Configuration Change Count	10	9
Subcarrier Zero Frequency	59800000 Hz	38800000 Hz
First Active Subcarrier Number	148	148
Last Active Subcarrier Number	987	667
Number of Active Subcarriers	840	520
Subcarrier Spacing	25 kHz	25 kHz
Cyclic Prefix	96	96
Roll Off Period	0 samples	0 samples
Number of Symbols Per Frame	9	9
Pre-Equalization Enabled	True	True
Modulation	OFDMA	OFDMA
Channel Type	0	0

CM Error Codewords					
Unerrored Codewords	136163	136162	136162	136162	136162
Correctable Codewords	0	0	0	0	0
Uncorrectable Codewords	0	0	0	0	0

Fig. 4-4, Connection, WAN Network (Bridge Mode), *(continued)*

Ethernet

To view the Ethernet information, select Connection > Ethernet.

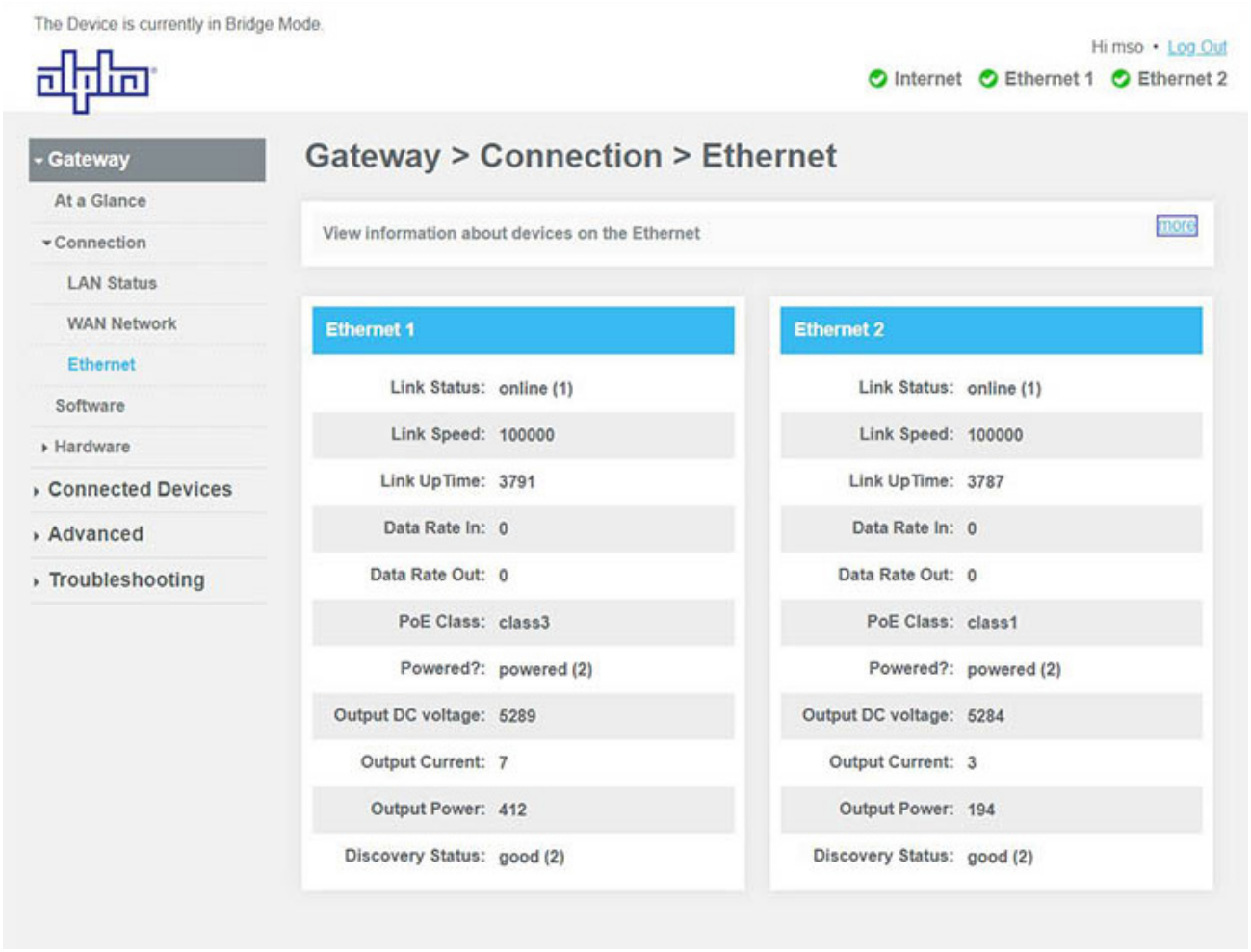


Fig. 4-5, Connection, Ethernet (Bridge Mode)

Software Page

To view the current version of system software, select Gateway > Software. This page displays the software version of various components of the product.

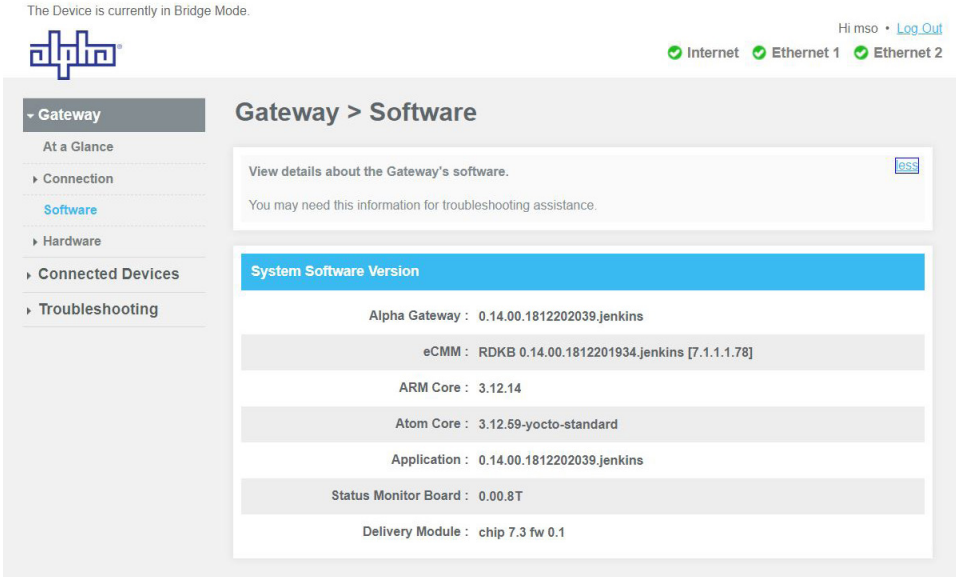


Fig. 4-6, Software Information Page (Bridge Mode)

Hardware Pages

To view hardware information, select Gateway > Hardware. From the Hardware dropdown window choose from System Hardware, GPS or DSA to view the desired data.

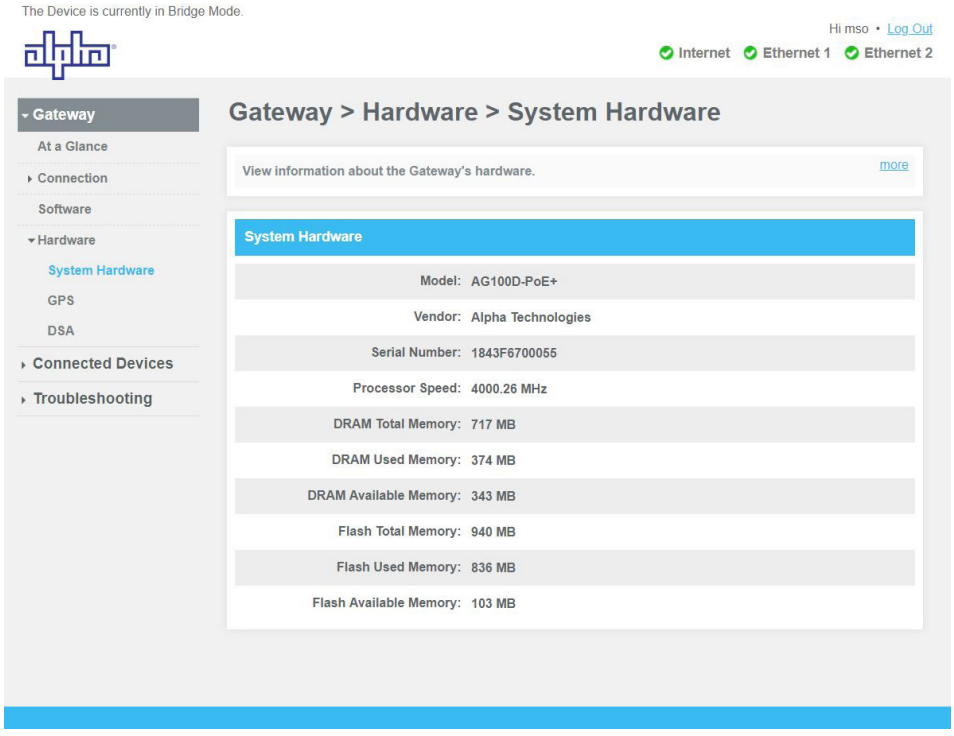


Fig. 4-7, System Hardware Page (Bridge Mode)

GPS

To view the Gateway's location, select Gateway > Hardware > GPS.

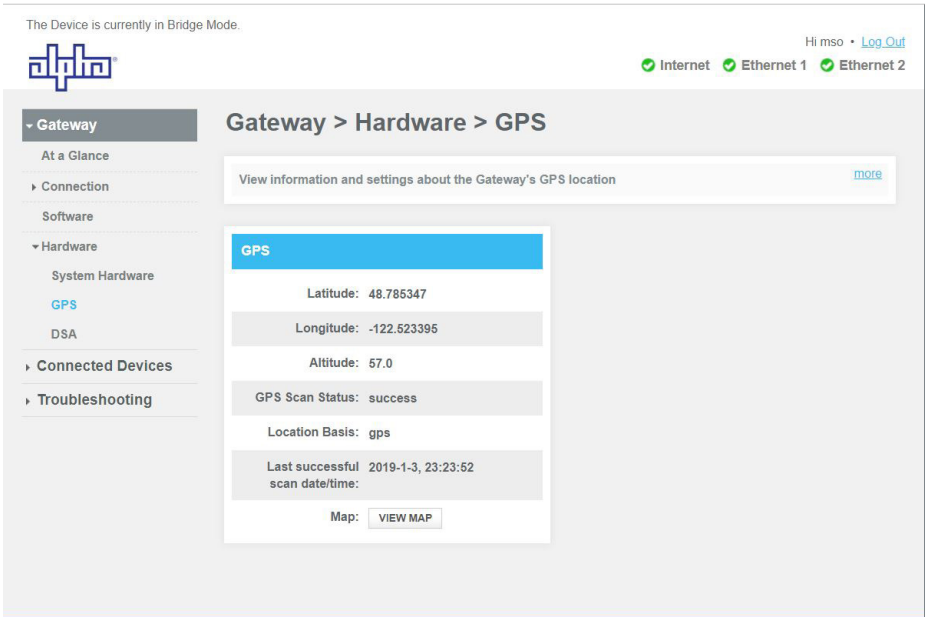


Fig. 4-8, GPS Page (Bridge Mode)

DSA (Dynamic Signal Attenuation)

To view the Gateway's Dynamic Signal Attenuation, select Gateway > Hardware > DSA.

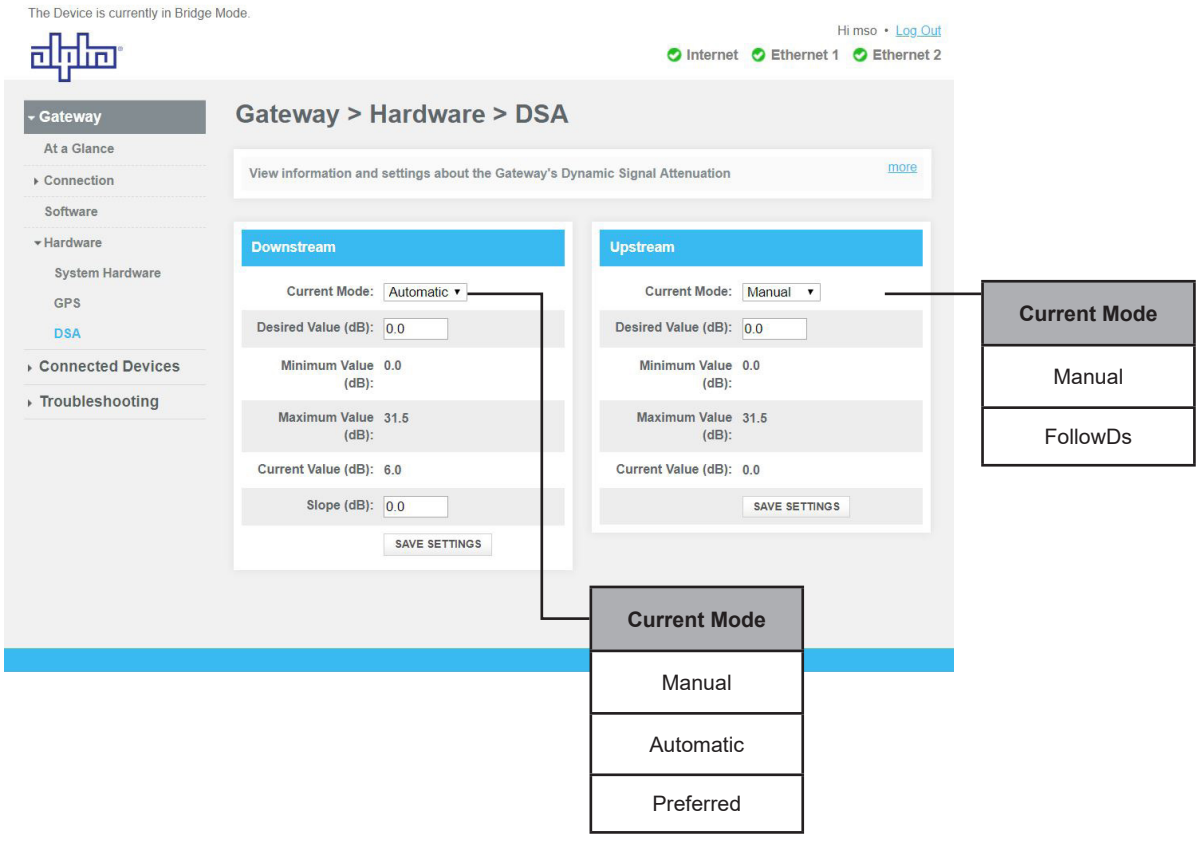


Fig. 4-9, Dynamic Signal Attenuation (DSA) Page (Bridge Mode)

Connected Devices

To view information about devices connected to your network, select Connected Devices > Devices.

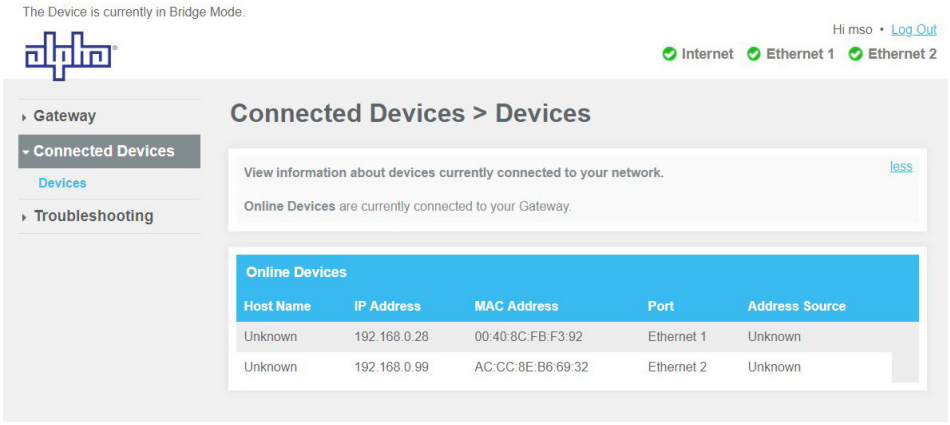


Fig. 4-10, Connected Devices Pages (Bridge Mode)

Advanced - Services

To enable or disable SSH or IPsec service settings, go to Advanced > Services. After adjusting the settings, click “SAVE.”

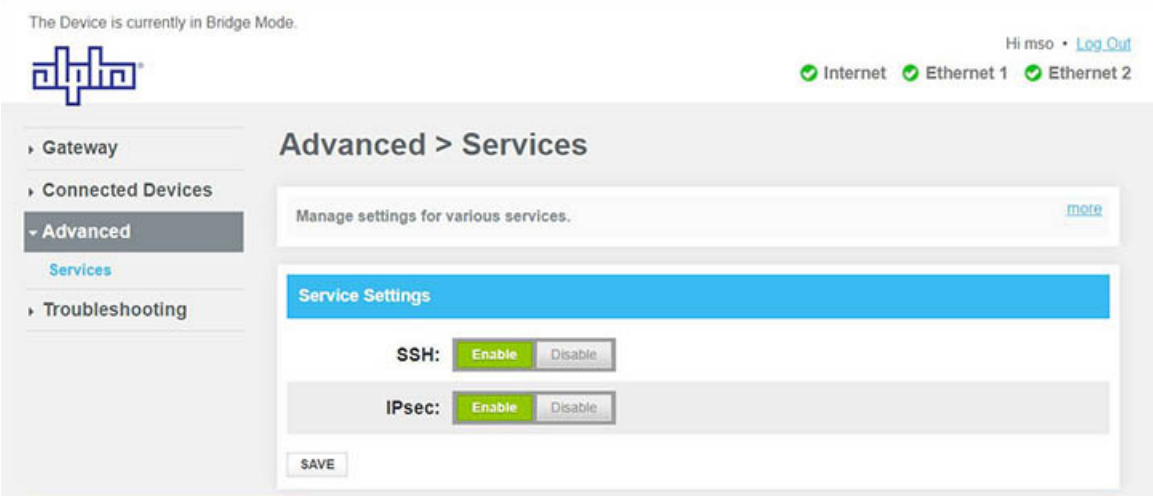


Fig. 4-11, Advanced, Services Page (Bridge Mode)

Troubleshooting Logs

To view Logs, Diagnostic Tools and Rest/Restore Gateway pages, select the Troubleshooting drop down menu. See Fig. 4-12 for available options. Click Show Logs to view system logs based on your chosen filters.

Logs

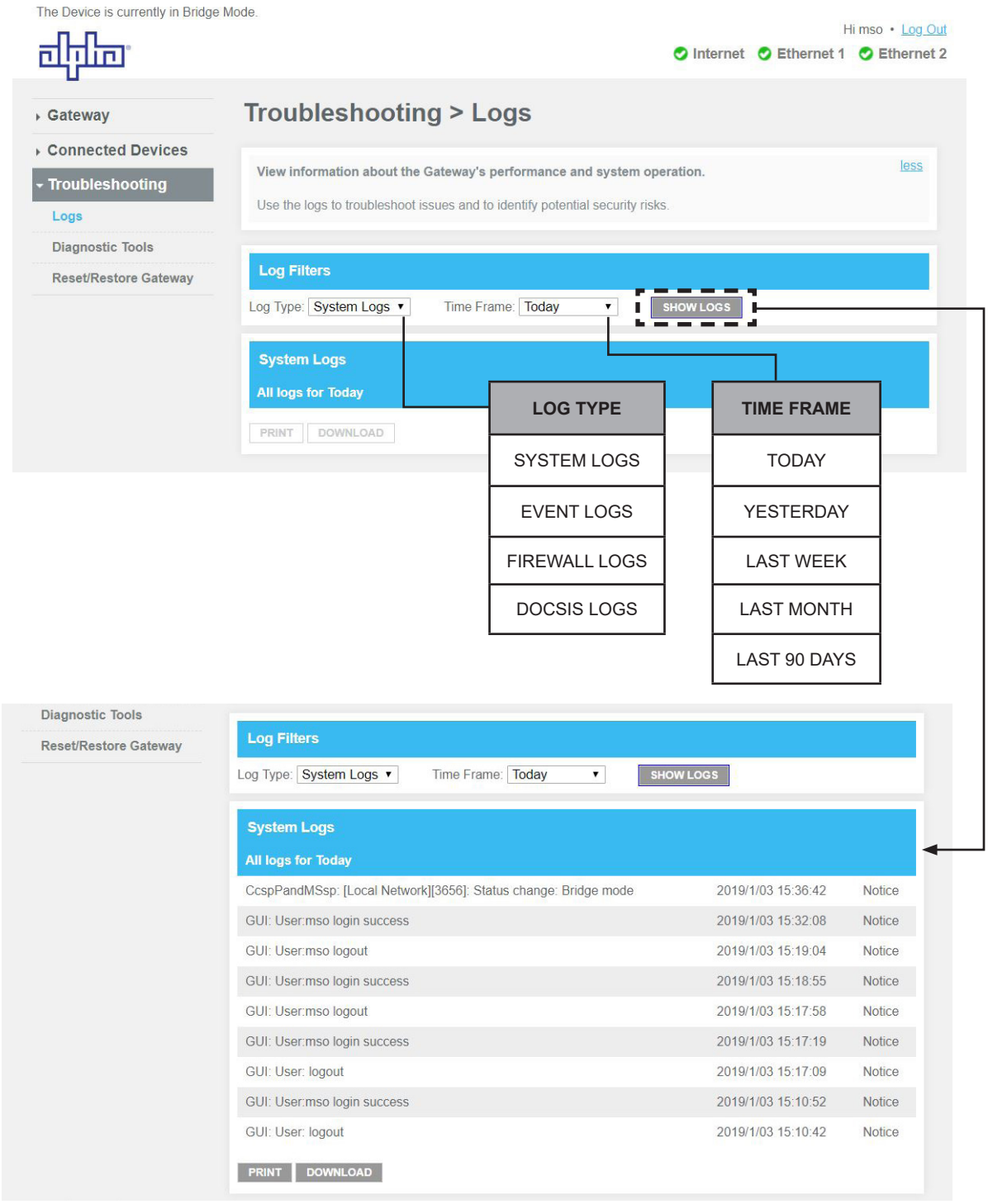


Fig. 4-12, System Logs (Bridge Mode)

Network Diagnostic Tools

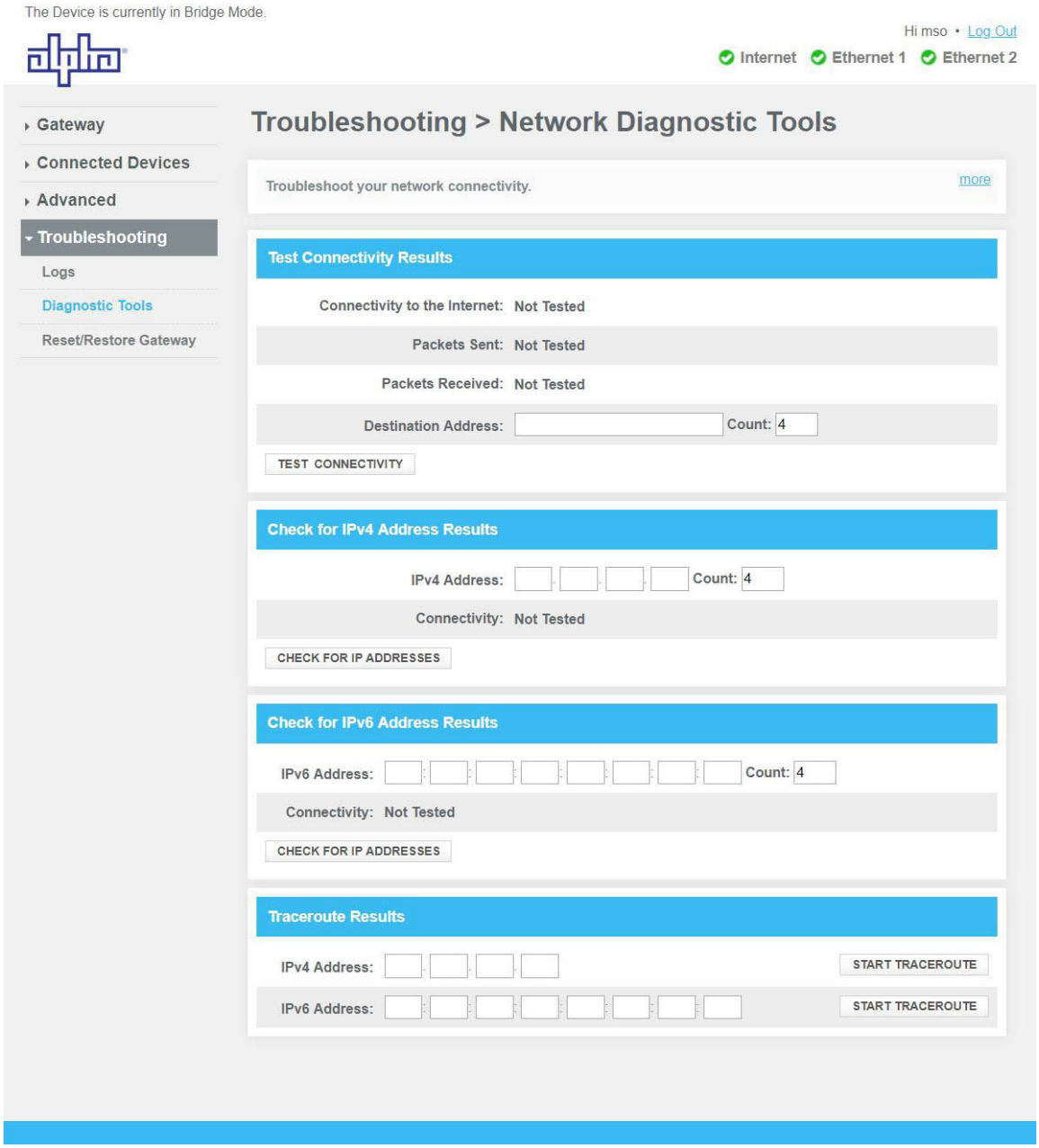


Fig. 4-13, Troubleshooting, Network Diagnostic Tools Page (Bridge Mode)

Reset / Restore Gateway

To reset or restore the Modem, Gateway, or restore to default factory settings, select Troubleshooting > Reset / Restore Gateway. Select the appropriate item to reset. A popup window will ask for confirmation. Click OK to proceed or CANCEL to close the popup and return to the web page.

***NOTICE**:*

Restore Factory Settings will erase all your settings, including passwords, firewall, services, etc.

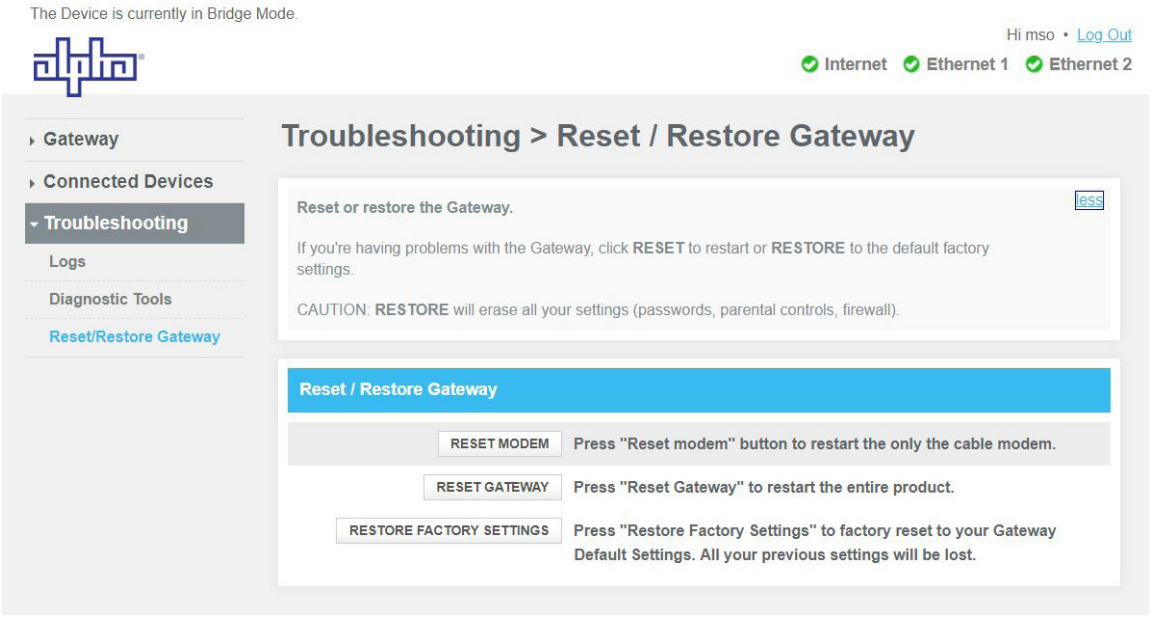


Fig. 4-14, Troubleshooting, Reset / Restore Gateway Page (Bridge Mode)

5.0 Technical Specifications

PHYSICAL		
Mounting Options	Strand (Vertical and Horizontal Orientation), Pole, Wall, Vault	
Dimensions H x W x L (in/mm):	3.9 x 8.2 x 14.6 (98 x 209 x 372)	
Weight (lb/kg)	8.45 lb (3.83 kg)	
ENVIRONMENTAL		
Operating Temperature	-40°C to +60°C	
Storage Temperature	-40°C to +70°C	
Humidity	5% to 95% non-condensing	
Operating Altitude	-60m (-196 ft.) to 4,000m (13,123 ft.)	
INPUT		
Input Voltage Range	44 to 90Vac @ 60 Hz	
Max Power Consumption	85W (nominal input, rated load, 25°C)	
Input Voltage Waveforms	Sine, Trapezoidal, Quasi square wave	
Input Voltage turn on	44-45 Vac	
Input loss hold up time	≥ 16.7ms	
POWER / ETHERNET DELIVERY		
Number of Powered Ethernet Ports	2	
Connection	100/1000 BASE-T auto sensing/auto-MDIX (8P8C modular jack)	
Bulkhead Interface for Ethernet	Secure Grommet	
Max Total Power Delivery	60W	
Power over Ethernet	Compliance	IEEE 802.3at PoE
	Max Power Out	30 W per port
	Max Power at Powered Device (@ 100m Ethernet)	25.5W per port
	Voltage Range out of Base Unit	50 - 57V
	Voltage Range at PD:	42.5 - 57V
	Max Current:	600mA per port
Max Distance from Port	100m	
LAN		
Protocols	TCP, IP, UDP, RIPv2, SSH, HTTPs	
LAN Services	IPv4, IPv6, DHCP Server, DNS Proxy, HTTP	
Ethernet Compliance	IEEE 802.3at (PoE+)	
L2VPN (BSoD)	Allows creation of L2VPN connection from a Cable Modem to a Northbound Ethernet trunked switch port	

Table 5-1, Technical Specifications

BACKHAUL (WAN)			
Compliance	DOCSIS 3.0, 3.1		
CPU	Single chip Intel Puma 7 CE2753i (Industrial Grade)		
Diplexer Frequency Ranges		Upstream Frequency Range	Downstream Frequency Range
	DOCSIS 3.0 Modem		
	Default Diplexer Setting	5-42MHz	108-1002MHz
	DOCSIS 3.1 Modem 1		
	Diplexer Setting 1	5-85MHz	108-1218MHz
	Diplexer Setting 2	5-204MHz	258-1218MHz
	DOCSIS 3.1 Modem 2		
	Diplexer Setting 1	5-42MHz	108-1002MHz
	Diplexer Setting 2	5-85MHz	108-1002MHz
Automatic Attenuation Adjustment	Independent, transmit and receive digital step attenuators (DSA)		
	0-31.5dB attenuation range in 0.5dB steps		
	Software controlled		
WAN/LAN Bridging	802.1d transparent bridging		
Routing	RIPv2 (RFC 2453) over the WAN interface		
	Routing IP over Ethernet to LAN CPEs		
	Static IP addressing on both the WAN and LAN side of the device		

The Simple Network Management Protocol (SNMP) on the Alpha AG100D-PoE+ supports the standard DOCSIS 3.0 Management Information Base (MIB), as well as these specific MIBs:

MIB	
ATI-DEV-GATEWAYS-MIB	ATI-PRODUCT-PLATFORMS-MIB
ATI-DEVICE-TABLES-MIB	ATI-PRODUCT-TABLES-MIB
ATI-MANAGEMENT-MIB	ATI-ROOT-MIB
ATI-MGMT-CFG-DOCSIS-MIB	ATL-ROOT-MIB
ATI-MGMT-SYS-ATTENMIB	SCTE-HMS-ALARMS-MIB
ATI-MGMT-SYS-DOWNLOAD-MIB	SCTE-HMS-COMMONMIB
ATI-MGMT-SYS-DTR-MONITOR-MIB	SCTE-HMS-PROPERTY-MIB
ATI-MGMT-SYS-LOCATIONMIB	SCTE-ROOT
ATI-MGMT-SYS-MIB	

PART	ALPHA P/N
Model: AG100D-POE+	Configurable, AG100X
Metal Cable Gland, 7-9mm diameter	746-911-22 (2 piece kit) 746-911-70 (1 piece)
Metal Cable Gland, 5-6.5mm diameter	746-925-22 (2 piece kit) 746-925-70 (1 piece)
AG100 2” Strand Mount Bracket Kit	746-627-22
AG100 3” Strand Mount Bracket Kit	746-627-25
AG100 2.5" Strand Mount Bracket Kit	746-627-27
Wall Mount Bracket Kit	746-645-20
Pole Mount Bracket Kit	746-861-20

Table 5-1, Technical Specifications, *continued*

5.1 Environmental Specifications and Agency Certifications

SYSTEM MANAGEMENT	
LEDs (Internal)	System Power / DOCSIS (Downstream, Upstream, Online) / CPE (Link, Activity) / PoE port status (powered/not powered)
Management Protocols	SNMPv1, 2c, 3, HTTPS, SSH, GNSS
Remote Output Power Control	On, Off, Reset (per port)
Remote PoE Port Status	Link up/down, link speed, power up/down, PoE device class, PoE power consumption
Remote PoE Device Status	MAC address, IPv4/IPv6 address
System Management (SNMP)	Standard DOCSIS & Mib2 SNMP MIB support (e.g. sysDescription, sysObjectID, ifTable) CM, other sub-components, GPS, ports and services (when applicable)
Environmental Status Parameters (SNMP)	Input Voltage / Power, Output Voltage / Power, Current (Per Port), Internal Temperature, Link Up/ Down, Link Speed, Power Up / Down
Alarming	SCTE-HMS MIBs and alarming
Network Quality of Service	RFC 2544, Y.1564, and Y.1731 for turn up, remote monitoring, and remote troubleshooting of key Ethernet metrics, e.g. latency, frame loss, jitter
HTTPS	HTTPS Web Interface (Diagnostics & Device Management)
CLI	SSH for Diagnostics and Device Management
TR-069	TR-181 for Lan/Wan/Device Management
Advanced diagnostic features	Full spectrum capture (Cable Labs MIBs)

AGENCY CERTIFICATIONS		
Enclosure Protection	UL50E / NEMA Type 6 / IEC 60529 IP67	
Safety	IEC/EN 60950-1: ED2 IEC/EN 60950-22: ED 1	Safety CB report (global)
	UL/CSA 60950-1 UL/CSA 60950-22: ED1	NRTL/C Cert (US/CAN), Safety - General Requirements
EMC Emissions	FCC Class B (FCC CFR 47 Part 15 Class B)	EMC Emissions requirements (US)
	ICCES-003	EMC Emissions requirements (Canada)
	CISPR 32 (IEC/EN 55032)	Electromagnetic compatibility of multimedia equipment - Emission requirements (EU/Global)
EMC Immunity	CISPR 24 (IEC/EN 55024)	- Information technology equipment - Immunity characteristics - Limits and methods of measurement
	CISPR 35 (ICE/EN 55035)	Electromagnetic compatibility of multimedia equipment - Immunity requirements - (EU/Global)
Surge Immunity	IEC 61000-4-5	Surge Immunity: 4kV/2kA on COAX input port, 4kV on Ethernet port (1.2x50/8x20)
	UL/CSA 60950-1	Line Cross: 277Vac on Ethernet ports
RoHS	RoHS Directive 2011/65/EU Compliant	Restriction of Hazardous Substances Directive

Table 5-2, Environmental Specifications and Agency Certifications

5.2 Tech Notes

***NOTICE**:*

CONDITION: Intel® Puma™ 7 SoC (System on Chip) supports the Dynamic Temperature Range (DTR) of 85°C in a single reset cycle. When the DTR limit is reached, the SoC may not be fully operational, in which case, a cold reboot is required to retrain the PLLs.

If the modem boots below 0°C and is then exposed to sustained temperatures above 40°C, the modem will perform a one-time reboot to retrain the PLLs.

Alpha SNMP MIBs allow custom control of the Puma 7 SoC PLL retraining (e.g. enable/disable, etc.).

For more information, contact Alpha Technical Support at 1-800-863-3364.

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