

CIS-CRS326-24G User Manual



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Welcome to Custom Integration Solutions

Thank you for purchasing CIS devices. Our solutions make it easy for integrators to deploy networks in home and business settings with minimal configuration. Our support team is here to assist with setting up equipment and answering your network related questions.

Overview

The CIS-CRS326-24G network switch is equipped with an ARM CPU and 512 MB of RAM, giving it plenty of switching capacity for most commercial applications and large home networks.

It is equipped with twenty-four Gigabit Ethernet ports and two SFP+ ports compatible with 1.25G SFP and 10G SFP+ modules.

Package Contents



Switch



24V DC Adapter



Rack ears (2)

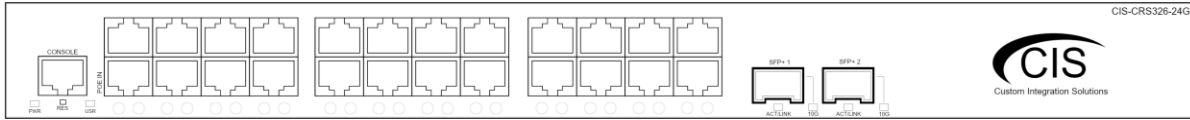


Screws (8)

Power

The unit is shipped with a 24V 1.2A Power adapter and can be powered over PoE and accepts 10-30V DC. Maximum power consumption is 24W.

Device Details



Ports

- 24 Gigabit Ethernet ports (with Auto MDI/X). Port 1 accepts PoE input.
- 2 SFP+ cages, which accept both 1.25 Gb SFP and 10 Gb SFP+ modules.
- RJ45 serial port—disabled by default.

LED Indicators

- PWR—Indicates the device is powered on.
- USR—An LED that can be customized by CIS. Default is off.
- Ethernet LEDs—Indicates network activity for each port.
- SFP+ ACT/LINK—Indicates activity on the SFP ports.
- SFP+ 10G—Indicates a 10 Gigabit link on an SFP port.

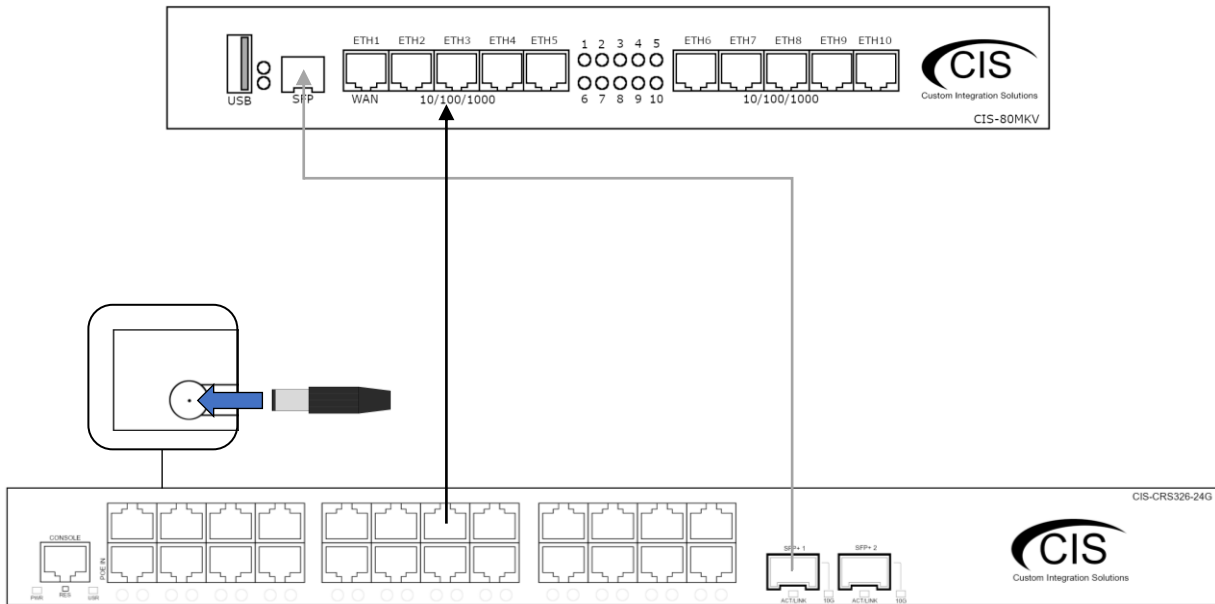
Buttons

Reset button: Hold this button while the device is powered off, then apply power. Keep holding until the USR LED light starts flashing, (5 seconds) then release the button to reset to the default CIS configuration. You can use this procedure if you have forgotten the password to access the device, or simply wish to return the unit to its default configuration state.

Input Power Requirements

The CIS-CRS326-24G is powered via the included 24V adapter or via PoE input on port 1 (10–30V DC).

Quick Setup



1. Connect the included 24V DC adapter to the jack on the rear of the switch, or power via PoE on port 1.
2. Connect the switch to the router with an Ethernet cable or SFP cable. Do not connect both cables at the same time.
3. Connect your network devices to the remaining ports on the switch.

Setup and Accessing the Web Interface

1. Connect the switch to your router using either an Ethernet or SFP cable. Do not connect both to the router.
2. Connect your laptop or PC to any remaining Ethernet port on the front of the CIS switch (excluding the console port). You can also access the web interface plugged directly into the router.
3. To access the web interface, you must obtain the IP address assigned to the switch. Access your router's configuration page, then find the IP address assigned to the switch in the DHCP leases.
4. Launch a web browser and navigate to the IP address of the switch. To login, enter the username **cis** and password **integration**.
5. Integrators may use the Get TeamViewer link if remote assistance is required.

The screenshot shows the web interface for a CIS device. At the top left, the device ID is "CIS-CRS-326-24G". Below it is a warning: "You have connected to a router. Administrative access only. If this device is not in your possession, please contact your local network administrator." On the right is the CIS logo with the tagline "Custom Integration Solutions". The login section has a "CIS Login:" label, a "Login:" field with "cis" entered, a "Password:" field with "integration" entered, and a "Login" button. At the bottom, there are five icons in a row: "Smart Router" (green network icon), "CIS Store" (shopping cart icon), "Get TeamViewer" (blue double-headed arrow icon), "Owners Guide" (orange book icon labeled "MANUAL"), and "Like us on Facebook!" (blue Facebook 'f' icon). The footer contains the copyright notice "© Custom Integration Solutions".

The Status Page

The status page provides basic diagnostic information. There is a CIS Support Address should you require assistance. The switch's Identity will show you which device you are accessing on your network. You can view uptime, memory usage and load on the CPU.

CIS Switch Status RouterOS v6.47.7 (stable)

ISP Public Address

CIS Switch Identity

CIS Switch Uptime 00:22:01

CIS Switch Address 10.100.1.2/24

CPU Load 11 %

Total Memory 128.0 MiB

Free Memory 106.6 MiB

CIS Platinum Support

CIS Support Address 10.255.255.95
FOR INTEGRATOR PLATINUM SUPPORT PRESENT
YOUR CIS SUPPORT ADDRESS ACCESS NUMBER

Byte Graph

Packet Graph

Bridge Traffic

	cur:	avg:	max:
Tx			
Rx			

	cur:	avg:	max:
Tx Packet			
Rx Packet			

Setting the Switch's Identity

The identity is used to identify your device on the network. If you have multiple switches of the same model, it is recommended you use a naming scheme to identify them.

The **Identity** setting can be found in the **System** tab in the left toolbar.

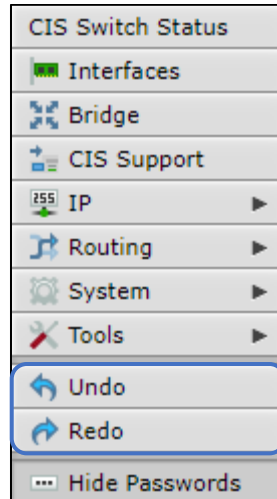
CIS Switch Status RouterOS v6.47.7 (stable) Identity

Apply

Identity

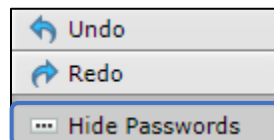
Undo / Redo

Undo and Redo buttons are located in the left toolbar. You may use them to quickly undo/redo any changes made to configuration.



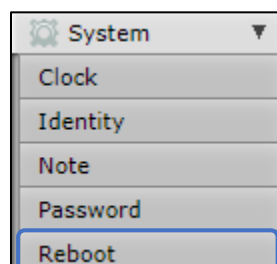
Show / Hide Passwords

Selecting the **Hide Passwords** button in the left toolbar will toggle the displaying of passwords related to Wi-Fi, Hotspot, and more.



Rebooting the Device

If you are having ongoing issues with your network and suspect a reboot will help, the **Reboot** option can be found in the **System** tab in the left toolbar. Clicking reboot will ask for confirmation before proceeding.



Changing the Default Password

After you log in for the first time, please create a new password to increase the security of the device. Enter the old password in the top field and a secure password in the new and confirm password fields.

The screenshot shows the RouterOS v6.47.7 (stable) web interface. The left sidebar contains a menu with the following items: CIS Switch Status, Interfaces, Bridge, CIS Support, IP, Routing, System, Clock, Identity, Note, Password (highlighted), Reboot, and Tools. The main content area is titled "RouterOS v6.47.7 (stable)" and has a "Change" button in the top right corner. Below the title, there are two buttons: "Change" and "Cancel". The form contains three password fields: "Old Password" (with a note "BE SURE TO REMOVE DEFAULT PASSWORD"), "New Password", and "Confirm Password" (with a note "RECORD YOUR NEW PASSWORD").

Setting the Time Zone

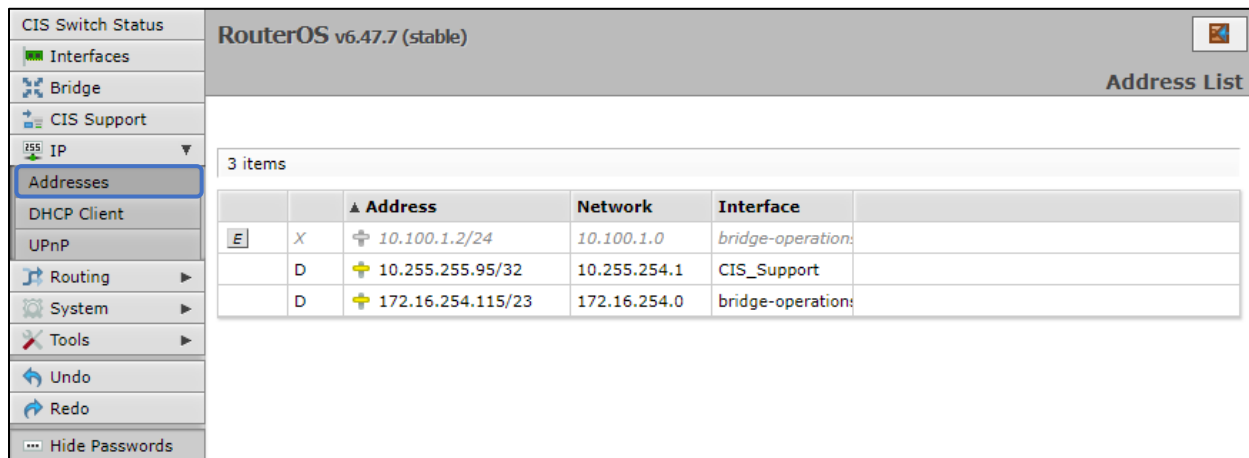
You can find the Clock settings under the System tab in the left toolbar. Select your time zone from the drop-down menu.

The screenshot shows the RouterOS v6.47.7 (stable) web interface. The left sidebar contains a menu with the following items: CIS Switch Status, Interfaces, Bridge, CIS Support, IP, Routing, System, Clock (highlighted), Identity, Note, Password, Reboot, Tools, Undo, and Redo. The main content area is titled "RouterOS v6.47.7 (stable)" and has a "Clock" button in the top right corner. Below the title, there is an "Apply" button. The form displays the following settings: "Time" (07:26:22), "Date" (Apr/28/2021), "Time Zone Autodetect" (checked), and "Time Zone Name" (America/Vancouver).

IP Addressing

View the Switch's IP Addresses

By default, the switch will acquire an IP address through DHCP. You can view the IP addresses in the **IP > Addresses** section. In the picture below, there is an entry for a static address (optional), an entry for your support IP address (if the support tunnel is enabled), and an entry for the IP address received via DHCP.

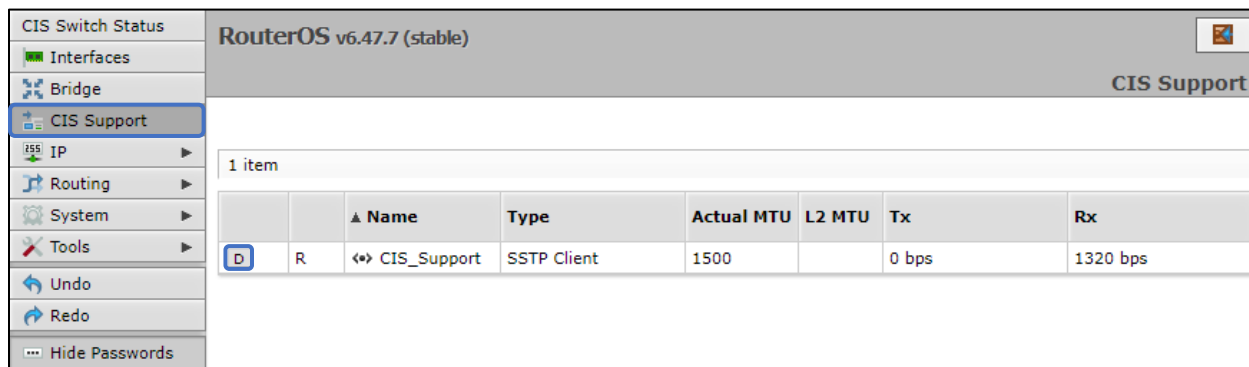


The screenshot shows the RouterOS v6.47.7 (stable) interface with the 'IP' menu expanded to 'Addresses'. The 'Address List' section displays three items:

		▲ Address	Network	Interface
<input type="checkbox"/>	X	<input type="checkbox"/> 10.100.1.2/24	10.100.1.0	bridge-operation:
<input type="checkbox"/>	D	<input type="checkbox"/> 10.255.255.95/32	10.255.254.1	CIS_Support
<input type="checkbox"/>	D	<input type="checkbox"/> 172.16.254.115/23	172.16.254.0	bridge-operation:

CIS Support

With the CIS Support tunnel activated, the CIS team can make configuration changes, push updates, and troubleshoot your network. Press the button to the left of the entry. "D" stands for disable, while "E" stands for enable.

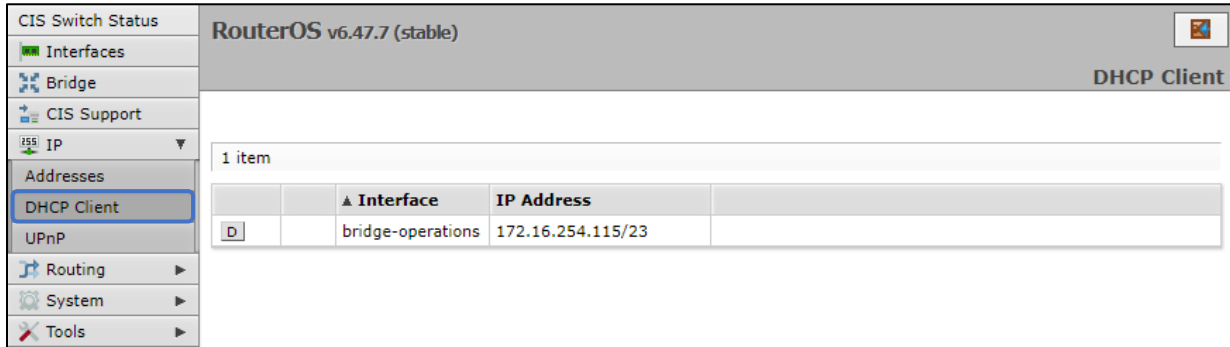


The screenshot shows the RouterOS v6.47.7 (stable) interface with the 'CIS Support' menu expanded. The 'CIS Support' section displays one item:

		▲ Name	Type	Actual MTU	L2 MTU	Tx	Rx
<input type="checkbox"/>	D	<input type="checkbox"/> CIS_Support	SSTP Client	1500		0 bps	1320 bps

Renewing the IP Address

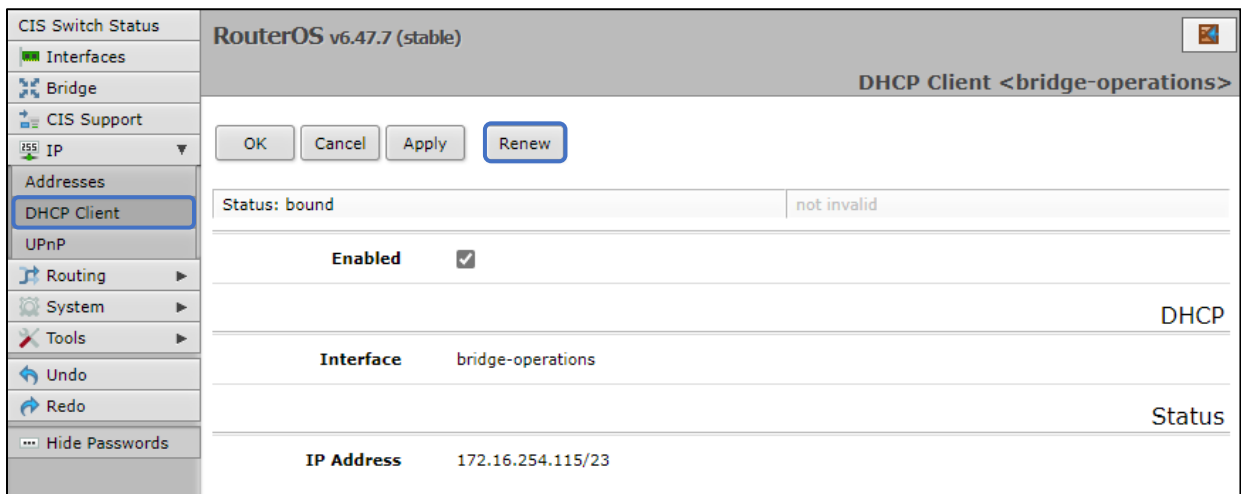
To renew the IP address, select the **DHCP Client** section under the **IP** tab.



The screenshot shows the RouterOS v6.47.7 (stable) interface. The left sidebar has the 'DHCP Client' option selected under the 'IP' tab. The main content area shows a table with one entry:

	▲ Interface	IP Address	
D	bridge-operations	172.16.254.115/23	

Click on the entry to bring up the options. Click the **Renew** button to obtain a new lease.

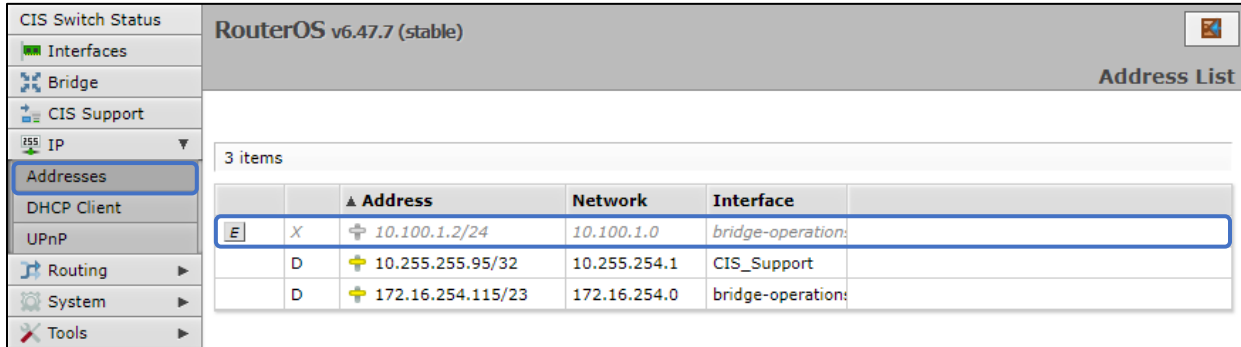


The screenshot shows the configuration options for the DHCP Client on the 'bridge-operations' interface. The 'Renew' button is highlighted. The configuration includes:

- Buttons: OK, Cancel, Apply, Renew
- Status: bound | not invalid
- Enabled:
- Interface: bridge-operations
- IP Address: 172.16.254.115/23

Setting a Static IP address

To set a static IP, select **Addresses** from the **IP** tab. Click on the field containing the disabled IP address.

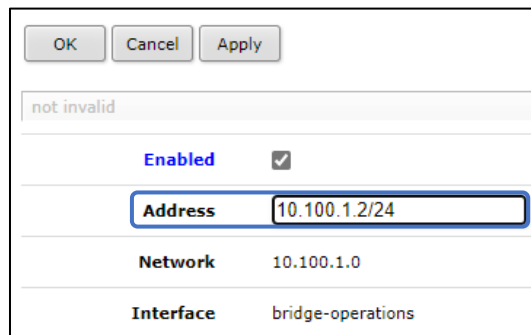


		Address	Network	Interface
E	X	10.100.1.2/24	10.100.1.0	bridge-operations
	D	10.255.255.95/32	10.255.254.1	CIS_Support
	D	172.16.254.115/23	172.16.254.0	bridge-operations

If your network falls in one of the ranges below, you can set the static IP address yourself. If it is outside of these ranges, you must call CIS to have a route created!

Available address ranges:			
172.16.1.0/24	10.100.1.0/24	192.168.1.0/24	192.168.0.0/24

Enter the IP address to assign to the switch. Ensure that it is outside of the DHCP pool, and not in use by other devices. The format must include **/24** at the end. This is the subnet mask, which determines how many devices can be connected to this network.



OK Cancel Apply

not invalid

Enabled

Address 10.100.1.2/24

Network 10.100.1.0

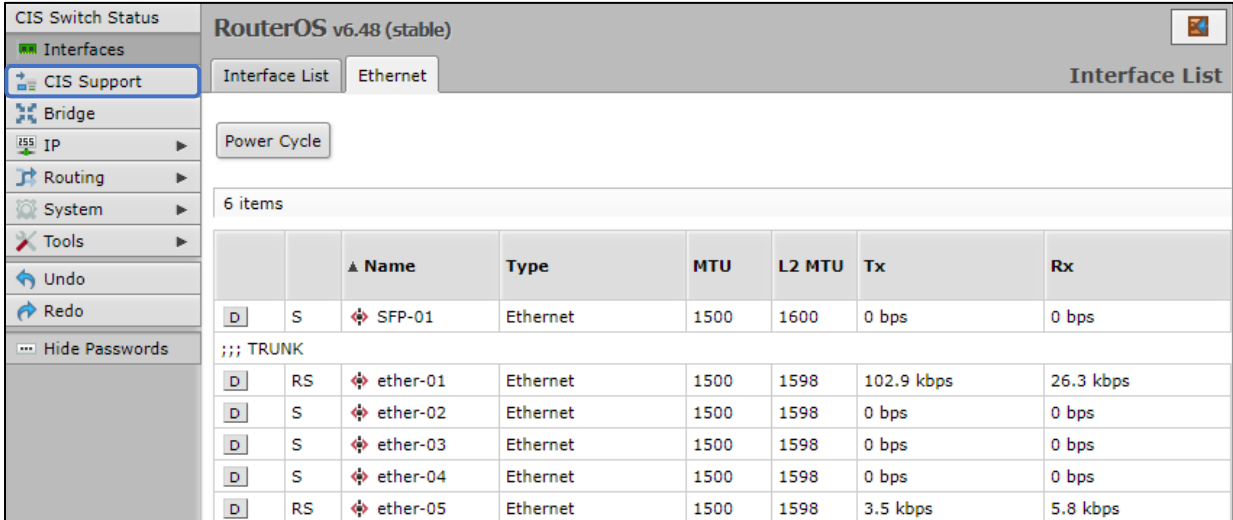
Interface bridge-operations

Once you have set the static IP address, disable the DHCP client. Go to the **DHCP Client** tab located under **IP** in the toolbar. Click the "D" to disable the DHCP client.

	▲ Interface	IP Address
<input type="checkbox"/>	bridge-operations	172.16.254.115/23

Interfaces

To view the interface status, select **Interfaces**, then the **Ethernet** tab. The Ethernet tab provides an overview of the activity on all ports. You can view the traffic sent and received and other diagnostic information.

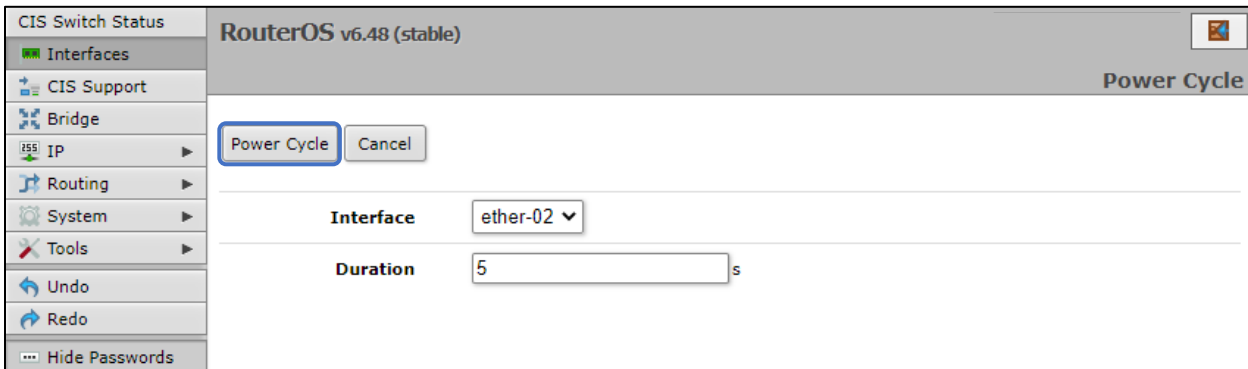


The screenshot shows the RouterOS v6.48 (stable) web interface. The left sidebar is expanded to 'Interfaces', and the 'Ethernet' tab is selected. A 'Power Cycle' button is visible. Below it, a table displays 6 items of interface statistics. The table has columns for Name, Type, MTU, L2 MTU, Tx, and Rx. The data is as follows:

		Name	Type	MTU	L2 MTU	Tx	Rx
<input type="checkbox"/>	S	SFP-01	Ethernet	1500	1600	0 bps	0 bps
;;; TRUNK							
<input type="checkbox"/>	RS	ether-01	Ethernet	1500	1598	102.9 kbps	26.3 kbps
<input type="checkbox"/>	S	ether-02	Ethernet	1500	1598	0 bps	0 bps
<input type="checkbox"/>	S	ether-03	Ethernet	1500	1598	0 bps	0 bps
<input type="checkbox"/>	S	ether-04	Ethernet	1500	1598	0 bps	0 bps
<input type="checkbox"/>	RS	ether-05	Ethernet	1500	1598	3.5 kbps	5.8 kbps

Power Cycling an Ethernet Port

Click the **Power Cycle** button in the Interfaces > Ethernet section. Select the port and duration, then click **Power Cycle**.



The screenshot shows the RouterOS v6.48 (stable) web interface with the 'Power Cycle' dialog box open. The dialog has a 'Power Cycle' button and a 'Cancel' button. Below the buttons, there are two fields: 'Interface' with a dropdown menu showing 'ether-02' and 'Duration' with a text input field containing '5' and a 's' unit indicator.

VLANs

VLANs provide isolation between your network devices. This can keep traffic from designated devices secure and restricted from other devices on the network and reduce the overall congestion. It is highly recommended to deploy VLANs for VoIP applications and systems that handle sensitive data.

Purchase VLAN configuration

For a complete VLAN model, the router, access points and switching all require additional configuration.

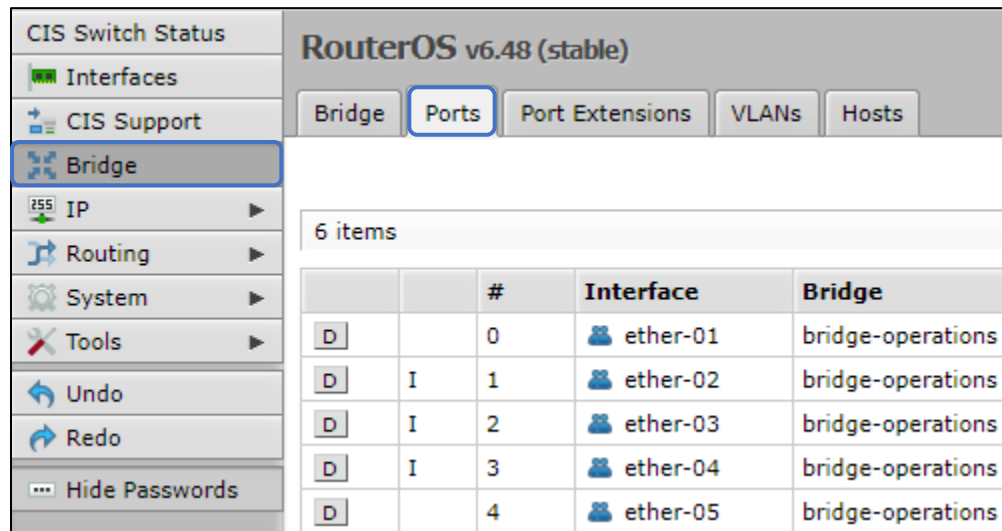
VLANs and additional networks are available on the CIS Store.

<https://www.custom-integration-solutions.com/store/cis-vlan-interface/>

<https://www.custom-integration-solutions.com/store/cis-additional-network/>

Changing the VLAN on a Port on a Preconfigured System

Select **Bridge** from the left toolbar, then click on the **Ports** tab. Select the port you wish to change the VLAN on.



The screenshot shows the RouterOS v6.48 (stable) configuration interface. The left sidebar contains a menu with options: CIS Switch Status, Interfaces, CIS Support, Bridge (selected), IP, Routing, System, Tools, Undo, Redo, and Hide Passwords. The main area is titled 'RouterOS v6.48 (stable)' and has tabs for Bridge, Ports (selected), Port Extensions, VLANs, and Hosts. Below the tabs, a table displays 6 items:

		#	Interface	Bridge
D		0	ether-01	bridge-operations
D	I	1	ether-02	bridge-operations
D	I	2	ether-03	bridge-operations
D	I	3	ether-04	bridge-operations
D		4	ether-05	bridge-operations

Enter the VLAN you wish the port to be a member of in the **PVID** field.

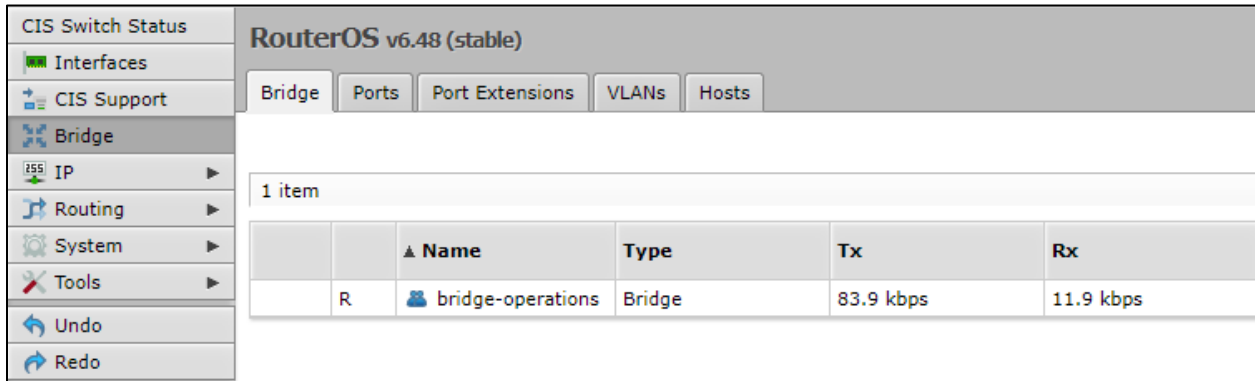
PVID

Manually Configuring the Switch for VLANs

When you purchase a VLAN configuration from CIS, these configuration changes will already be implemented. If you wish to implement these changes yourself, follow the instructions below.

Step 1 – Enable VLAN Filtering on the Bridge

Select **Bridge** from the left toolbar. Select the bridge entry.



CIS Switch Status RouterOS v6.48 (stable)

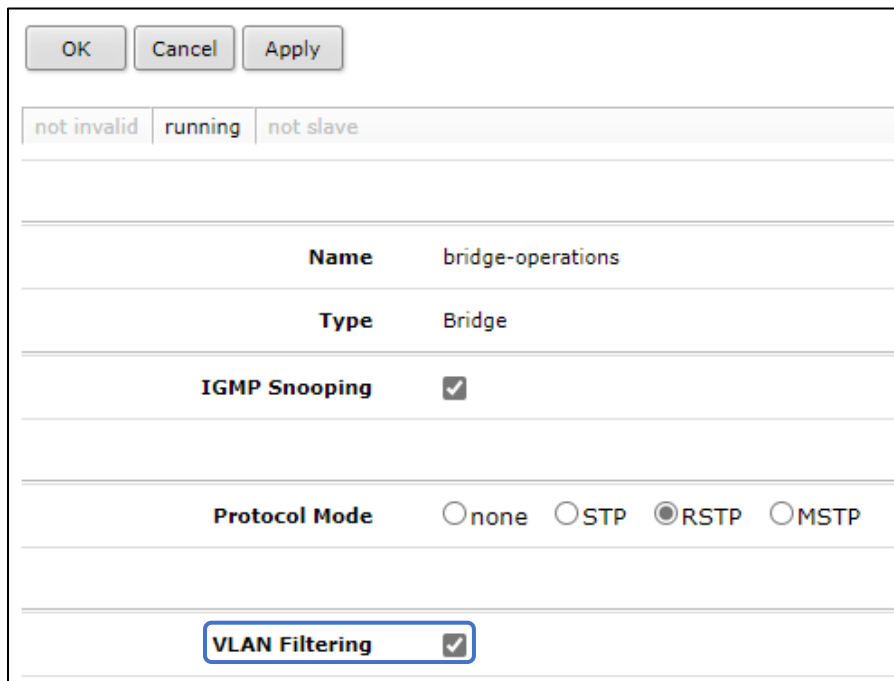
Interfaces CIS Support Bridge IP Routing System Tools Undo Redo

Bridge Ports Port Extensions VLANs Hosts

1 item

	▲ Name	Type	Tx	Rx
R	bridge-operations	Bridge	83.9 kbps	11.9 kbps

Enable the **VLAN Filtering** option. Click Apply, then OK.



OK Cancel Apply

not invalid running not slave

Name bridge-operations

Type Bridge

IGMP Snooping

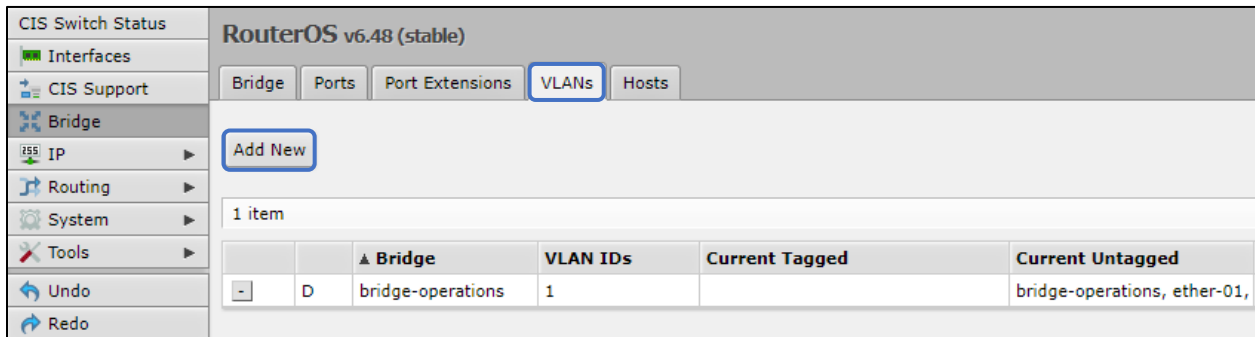
Protocol Mode none STP RSTP MSTP

VLAN Filtering

Step 2 – Assign the Trunk Port(s)

Trunk ports carry traffic from all VLANs between your switches and routers. You must configure a trunk port between the router and the switch.

With **Bridge** selected in the left toolbar, select the **VLANs** tab. Click **Add New**.



CIS Switch Status RouterOS v6.48 (stable)

Interfaces
CIS Support
Bridge
IP
Routing
System
Tools
Undo
Redo

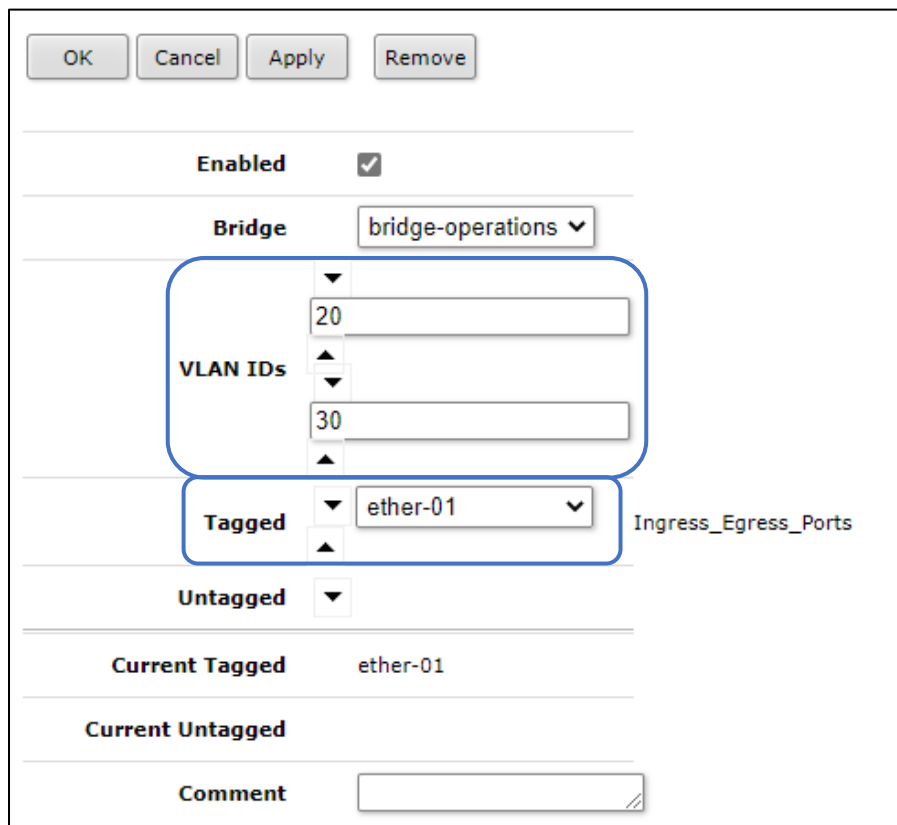
Bridge Ports Port Extensions **VLANs** Hosts

Add New

1 item

	▲ Bridge	VLAN IDs	Current Tagged	Current Untagged
-	D bridge-operations	1		bridge-operations, ether-01,

Enter the VLAN IDs the trunk will carry. You should enter the VLAN ID of every VLAN that will be present on the network. Use the up/down arrows to add and remove VLAN IDs. Set each trunk port to be **Tagged**.



OK Cancel Apply Remove

Enabled

Bridge bridge-operations

VLAN IDs

20

30

Tagged ether-01 Ingress_Egress_Ports

Untagged

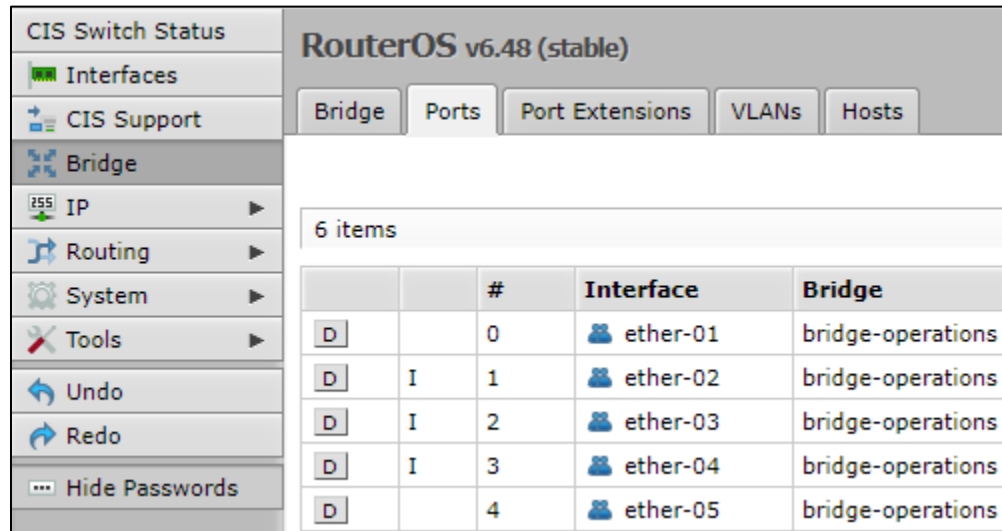
Current Tagged ether-01

Current Untagged

Comment

Step 3 – Assign Ports to VLANs

The ports that connect to your devices will be “untagged” ports or access ports. The final step is to set which VLAN they will be a member of. With the **Bridge** section selected in the left toolbar, select the **Ports** tab. Click on a port below.



		#	Interface	Bridge
D		0	ether-01	bridge-operations
D	I	1	ether-02	bridge-operations
D	I	2	ether-03	bridge-operations
D	I	3	ether-04	bridge-operations
D		4	ether-05	bridge-operations

Enter the VLAN number in the **PVID** field and click Apply, then OK.

PVID	<input type="text" value="20"/>
-------------	---------------------------------

Multicast Filtering – Prior to 6.48

Multicast traffic conserves network resources. If one device were to send a single stream of data to multiple other devices on the network, it would take many times the amount of bandwidth. Multicast traffic reduces the load on the transmitting device by duplicating the traffic instead.

However, the switches in the system must be configured to handle multicast traffic or the network can become flooded with this traffic. Without a solution in place, this traffic will be sent to every port – often bringing the network down. Use the following methods to prevent this from happening.

Note: This method is deprecated and will be removed in future firmware versions!

On systems prior to version 6.48:

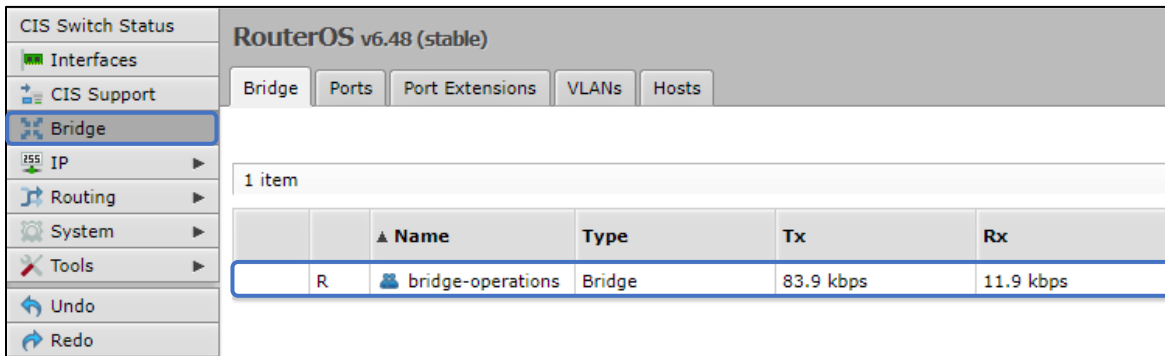
Select the **Interfaces** option from the left toolbar. Select the **Interface List** tab. Enable the MAC Filter for each port that will receive multicast traffic and **ONLY** the ports that will receive multicast traffic.

The screenshot shows the RouterOS v6.48 (stable) web interface. The left sidebar has 'Interfaces' selected. The main area shows the 'Interface List' tab for 'Ethernet'. A 'Lists' button is visible. Below it, a table displays 4 items:

		▲ List	Interface
<input checked="" type="checkbox"/>	X	MAC FILTER	ether-02
<input checked="" type="checkbox"/>	X	MAC FILTER	ether-03
<input checked="" type="checkbox"/>	X	MAC FILTER	ether-04
<input checked="" type="checkbox"/>	X	MAC FILTER	ether-05

Multicast Filtering – 6.48 and Newer

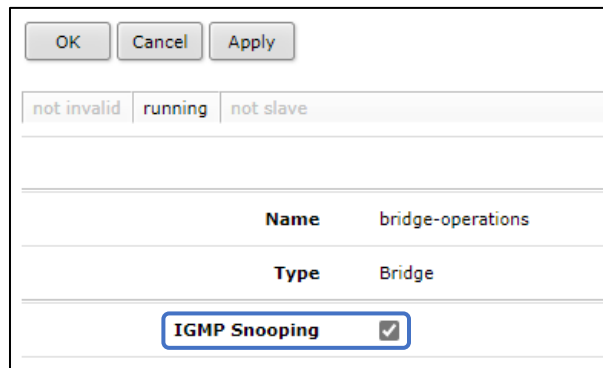
Switches 6.48 and newer only – By enabling **IGMP Snooping**, multicast traffic will be automatically forwarded to only the devices that request it. Select the **Bridge** option from the left toolbar. Click on the bridge entry.



The screenshot shows the RouterOS v6.48 (stable) interface. The left sidebar has 'Bridge' selected. The main area shows the 'Bridge' configuration page with tabs for Bridge, Ports, Port Extensions, VLANs, and Hosts. A table lists one bridge item:

	Name	Type	Tx	Rx
R	bridge-operations	Bridge	83.9 kbps	11.9 kbps

Enable **IGMP Snooping**. Click Apply, then OK.



The screenshot shows a configuration dialog box with buttons for OK, Cancel, and Apply. Below the buttons are status indicators: 'not invalid', 'running', and 'not slave'. The dialog shows the following configuration:

Name	bridge-operations
Type	Bridge
IGMP Snooping	<input checked="" type="checkbox"/>

Multicast Querier

The multicast querier option is required for many multicast systems to function correctly. With this enabled, the switch will periodically check to determine if devices are still requiring a multicast stream.



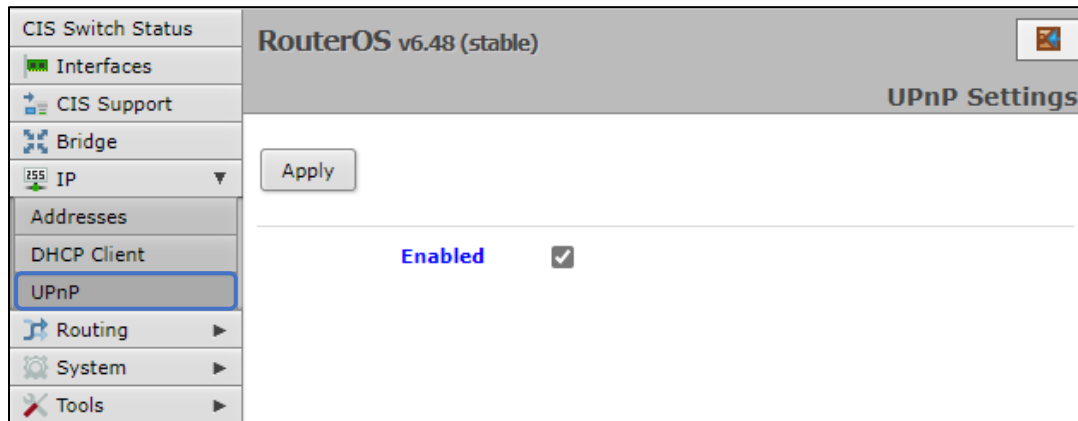
The screenshot shows a configuration dialog box for Multicast Querier. It has the following settings:

MLD Version	1
Multicast Router	Temporary Query
Multicast Querier	<input checked="" type="checkbox"/>

Tools

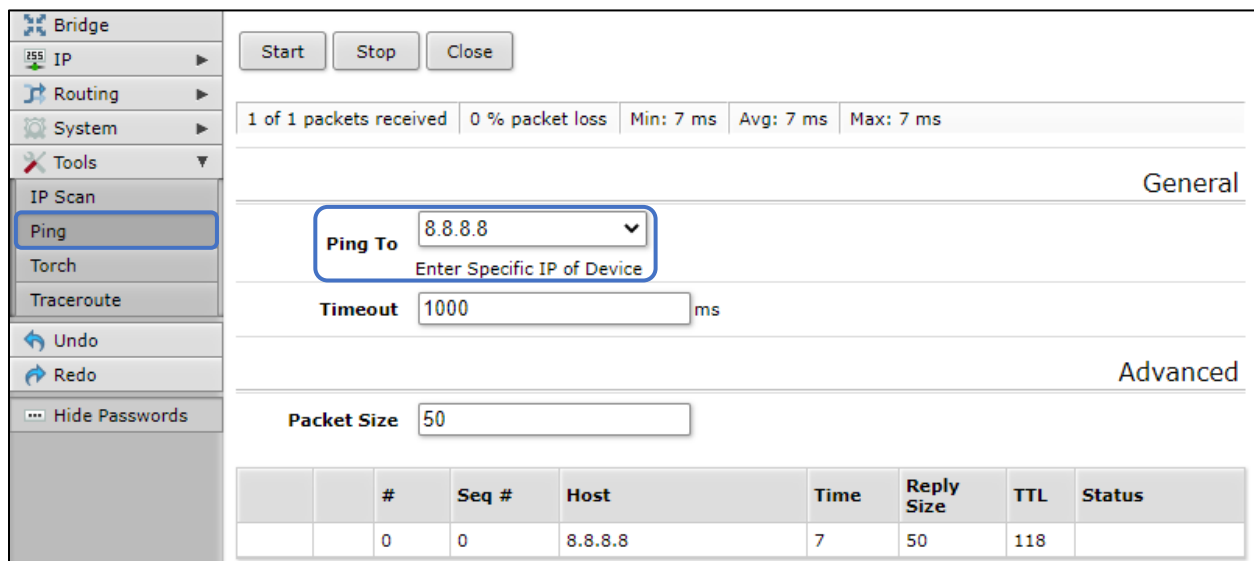
UPnP

Universal Plug and Play enables your switch to easily discover other devices located on the network and vice-versa. If you require UPnP, select it under the **IP** tab in the toolbar, then enable it. UPnP has implications on the security of the device, and it is recommended you leave it disabled unless required.



Ping

Ping uses Internet Control Message Protocol (ICMP) echo messages to determine if a remote device is active. It will also provide the round-trip time between the hosts. Enter the IP address of the device and select Start to begin. Ping devices on your network to see if they are online, or ping devices over the internet to confirm connectivity. Google's DNS server at 8.8.8.8 is a common target.



IP Scan

The IP scan tool locates devices on the network. It can also locate devices that have a static IP set internally if they are on the same network as the switch.

To use the IP scan tool, select the network you wish to scan on (bridge-operations is default), then enter the network address and subnet mask using CIDR notation.

The screenshot shows the RouterOS v6.47.7 (stable) IP Scan tool interface. The sidebar on the left contains the following items: CIS Router Status, Wi-Fi Manager, Interfaces, IP, System, Tools, IP Scan (highlighted), Platinum Monitoring, Ping, Torch, and Traceroute. At the bottom of the sidebar are Undo and Redo buttons. The main content area is titled 'IP Scan' and contains 'Start', 'Stop', and 'Close' buttons. Below these buttons, there are two dropdown menus: 'Interface' set to 'bridge-operations' and 'Address Range' set to '10.100.1.0/24'. A table with the following columns is visible at the bottom: #, Address, MAC Address, Time (ms), DNS, SNMP, and Netbios.

Select **bridge-operations** and enter **10.100.1.0/24** as the address range. You may have multiple interfaces and address ranges depending on your configuration. Most use a /24 network size.

Troubleshooting

Symptom	Possible causes
I can't get VLANs to work correctly.	<ul style="list-style-type: none">• The router must be configured to work with VLANs for most operations.• Ensure the trunk ports are tagged correctly.• Contact CIS for assistance.
I can't get a connection when using the SFP port.	<ul style="list-style-type: none">• CIS recommends DAC SFP cables such as the CIS-SFP-001 and 003, though other SFP modules are compatible.• Ensure the SFP cables are inserted completely. There should be a slight click as they are inserted. They will slide in most of the way when upside down but will not fit completely.• Check the interface status. Click Interfaces, then the Ethernet tab. Click on the SFP port in question. Determine if it is passing traffic. Consider disabling auto negotiation and setting the speed and duplex manually.
I can't enable IGMP Snooping, etc.	<ul style="list-style-type: none">• Some features are unavailable before firmware version 6.48. Contact CIS to perform a firmware upgrade your equipment.

Warranty Information

Custom Integration Solutions™ products have a 2-Year Limited Warranty. This warranty includes parts and labor repairs on all components found to be defective in material or workmanship under normal conditions of use. This warranty shall not apply to products that have been abused, modified, or disassembled. Products to be repaired under this warranty must be returned to Custom Integration Solutions™ or a designated service center with prior notification and an assigned return authorization (RA) number.

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The CIS-CRS326-24G is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EC.