Moxa Managed Switch Next-generation OS (v3.x) Layer 3 User Manual

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www.moxa.com/products

Models covered by this manual:
MDS-G4000-L3-4XGS Series Managed Ethernet Switches
RKS-G4000 Series Managed Ethernet Switches (L3 Models)

Moxa Managed Switch Next-generation OS (v3.x) Layer 3 User Manual

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Table of Contents

1. Introduction to Layer 3 Switches

Moxa's Layer-3 switches perform data switching on the Network Layer (Layer 3) of the ISO OSI layer model. Unlike Layer-2 switching, which uses the MAC address for exchanging data, a Layer-3 switch uses the IP address to represent the destination of a data packet.

The Layer 3 Switching Concept

IP (Internet Protocol) is a protocol defined on layer 3 of the 7-layer OSI model. The IP address is used to address data packets on the Network Layer, and is not tied to the hardware of a device or PC. The IP address can be assigned by the system operator or network administrator.

Since Layer 2 switches use the MAC address to determine the destination of transmitted data packets, and Layer 3 switches use the IP address, some mechanism is needed to associate MAC addresses with IP addresses. This is done by ARP (Address Resolution Protocol), which creates a table that matches MAC addresses to IP addresses.

When a PC sends out an ARP request, which is just a broadcast packet requiring the IP address owner to send back his MAC address, two situations could occur:

- If your PC and the IP address owner are on the same subnet, the IP address owner will use a unicast packet, which contains his MAC address, to reply to your PC. Thereafter, your PC will use this MAC address to transmit to the IP address owner directly.
- If your PC and the IP address owner are not on the same subnet, your PC will not receive a reply, so it will ask for the MAC address of the Layer-3 switch (gateway/router). To transmit data packets to the IP address owner, your PC packs the data packet with the IP address, and sends the packet to the Layer-3 switch (gateway/router) using its MAC address. The Layer-3 switch (gateway/router) receives the data packet, re-packs it, and then forwards it to the next hop according to the routing rules.

Static Routing and Dynamic Routing

The Moxa Layer 3 switch supports two routing methods: static routing and dynamic routing. Dynamic routing makes use of OSPF.

A routing entry includes the following items: the destination address, the next hop address (which is the next router along the path to the destination address), and a metric that represents the cost we need to pay to access a different network.

Static Routing

You can define the routes yourself by specifying the next hop (or router) that the Layer 3 switch forwards data to for a specific subnet. The settings of the Static Route will be added to the routing table and stored in the Layer 3 switch.

Dynamic Routing with OSPF (Open Shortest Path First)

The Moxa Layer 3 switch also supports OSPF (open shortest path first), which uses "Link State" instead of "hop count" to determine the network route. OSPF is more complicated than RIP. However, compared to RIP, OSPF has faster network convergence and results in less network traffic. Both RIP and OSPF are usually referred to as Interior Gateway Protocols (IGPs).

In this chapter, we explain how to log in to a Moxa switch for the first time. There are three ways to access the Moxa switch's configuration settings: RS-232 console, web-based interface, and telnet.

Log in by Web Interface

You can directly connect a Moxa switch to your computer with a standard network cable or install your computer on the same intranet as your switch. You will then need to configure your computer's network settings. The default IP address for a Moxa switch is:

192.168.127.253

For example, you can configure the computer's IP setting as **192.168.127.99**, and the subnet mask as 255.255.255.0.
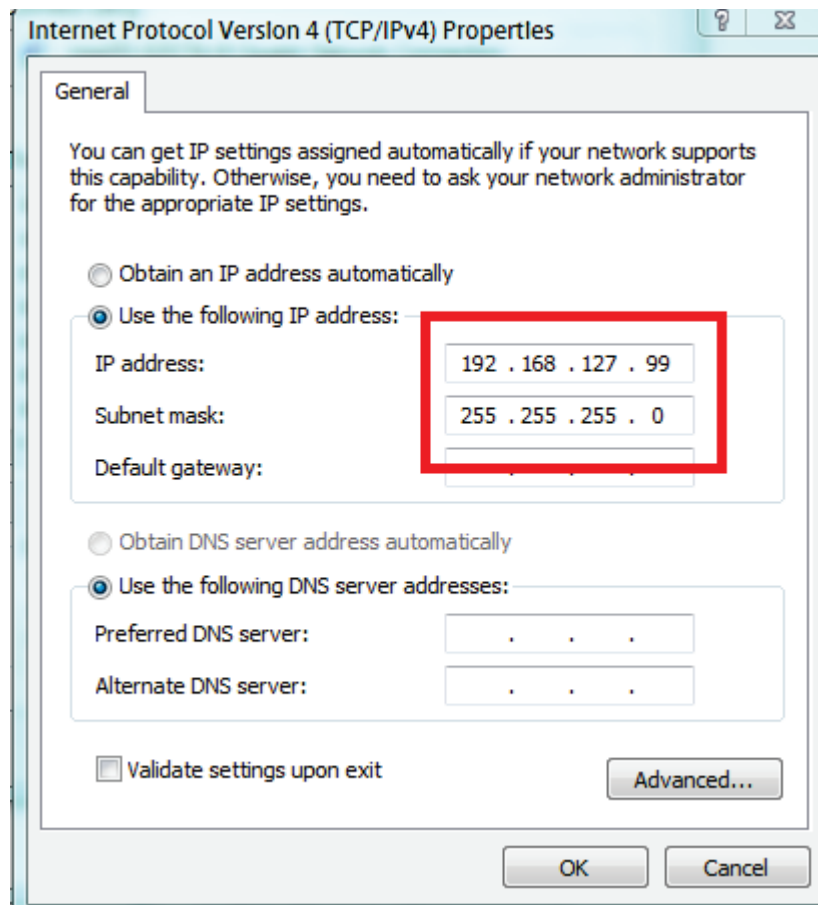
Click **OK** when finished.

Connecting to the Switch

Open a browser, such as Google Chrome, Internet Explorer 11, or Firefox, and connect to the following IP address:

http://192.168.127.253

The default username and password are:

Username: **admin**
Password: **moxa**

Click LOG IN to continue. If you have logged in before, you will see a screen indicating the previous login information. Click **CLOSE**.

Another system message will appear, reminding you to change the default password. We recommend that you change your password, or a message will appear whenever you log in telling you to change your password. You can change the password in the **Account Management** section. Click **CLOSE** to continue.

Change Default Password

Please change the default username and
password in order to enhance security.

CLOSE

Log in by RS-232 Console

Moxa's managed switch has a serial console port that can be used to connect to the switch and configure the settings. Take the following steps:

1. Prepare an RS-232 serial cable with an RJ45 interface.
2. Connect the RJ45 interface end to the console port on the switch, and the other end to the computer.
3. We recommend that you use **PComm Terminal Emulator** for serial communication. The software can be downloaded free of charge from Moxa's website.

After installing PComm Terminal Emulator, access the Moxa switch's console as follows:

1. From the Windows desktop, click **Start → Moxa → PComm Terminal Emulator**.
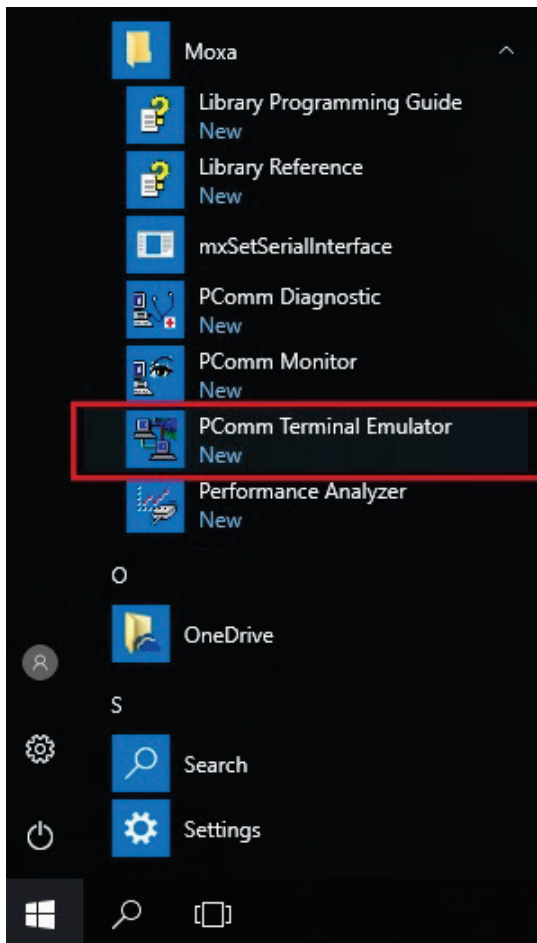
2. Select **Open** under the **Port Manager** menu to open a new connection.
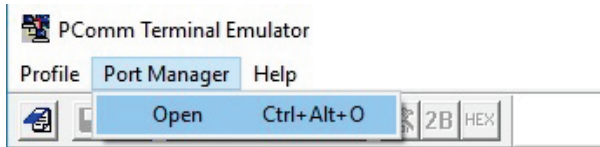
3. The **Property** window should open. On the **Communication Parameter** tab for **Ports**, select the COM port that is being used for the console connection. Set the other fields as follows: **115200** for **Baud Rate**, **8** for **Data Bits**, **None** for **Parity**, and **1** for **Stop Bits**.
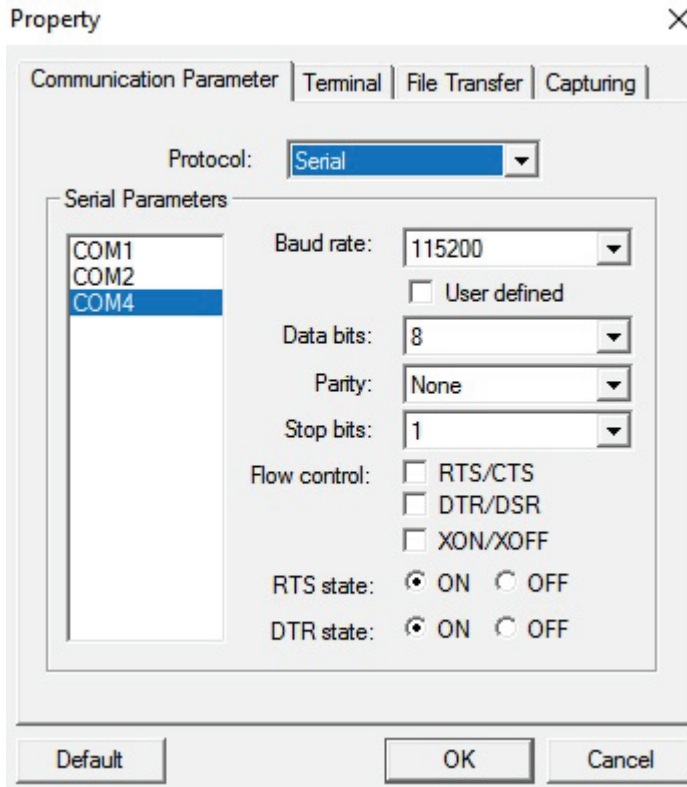
4. On the **Terminal** tab, select **VT100** for **Terminal Type**, and then click **OK** to continue.
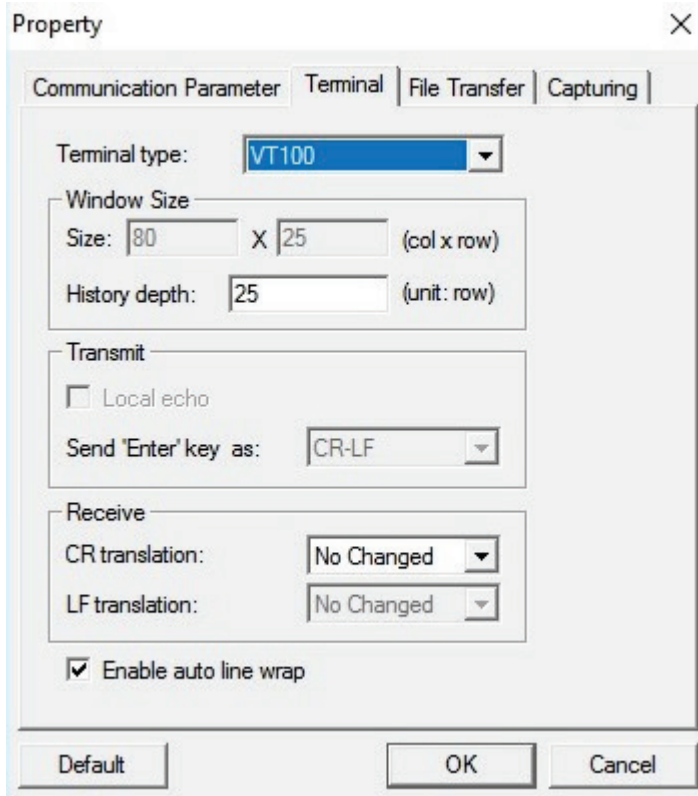
5. The console will prompt you to log in. The default login name is **admin**, and the default password is **moxa**. This password will be required to access any of the consoles (web, serial, Telnet).
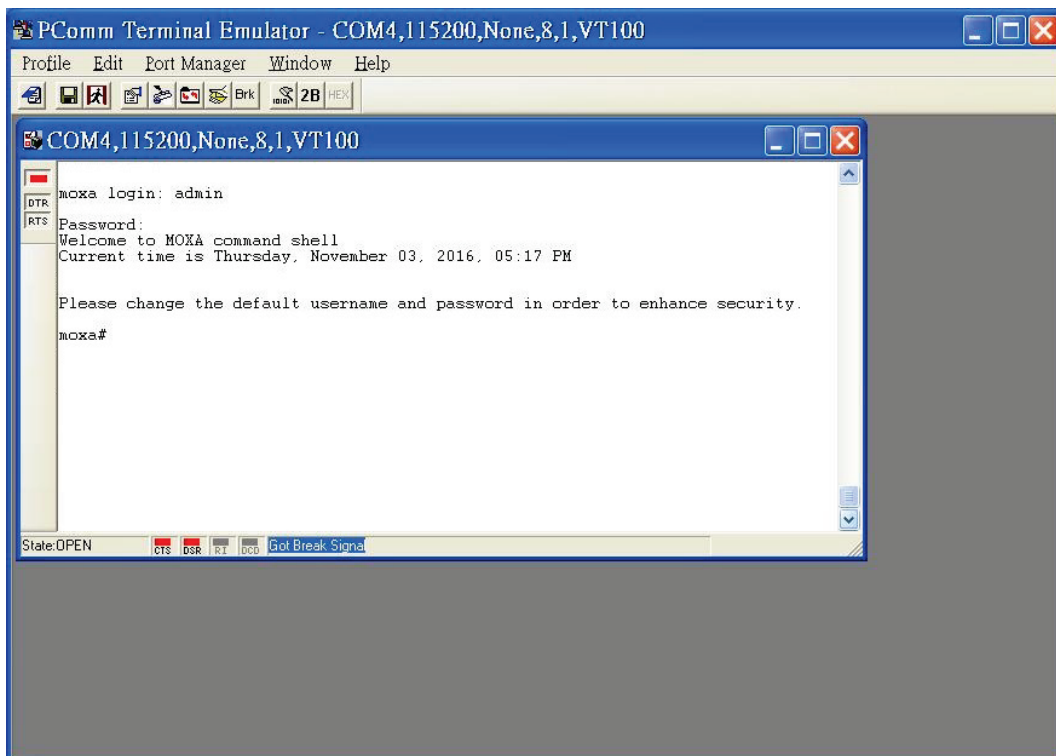
6. After successfully connecting to the switch by serial console, you can start configuring the switch's parameters by using command line instructions. Refer to the **Moxa Command Line Interface Manual** for details.

Log in by Telnet

Opening the Moxa switch's Telnet or web console over a network requires that the PC host and Moxa switch are on the same logical subnet. You might need to adjust your PC host's IP address and subnet mask. By default, the Moxa switch's IP address is 192.168.127.253 and the Moxa switch's subnet mask is 255.255.255.0. Your PC's IP address must be set to 192.168.xxx.xxx if the subnet mask is 255.255.0.0, or to 192.168.127.xxx if the subnet mask is 255.255.255.0.

After making sure that the Moxa switch is connected to the same LAN and logical subnet as your PC, open the Moxa switch's Telnet console as follows:

1. Click S**tart → Run** from the Windows Start menu and then Telnet to the Moxa switch's IP address from the Windows **Run** window. You can also issue the Telnet command from a DOS prompt.
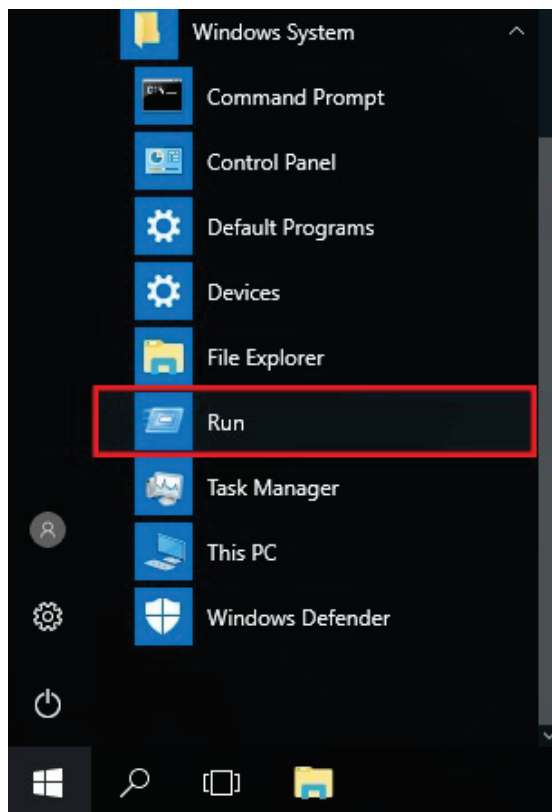
2. Next, use Telnet to connect the Moxa switch's IP address (192.168.127.253) from the Windows **Run** window. You can also issue the Telnet command from a DOS prompt.
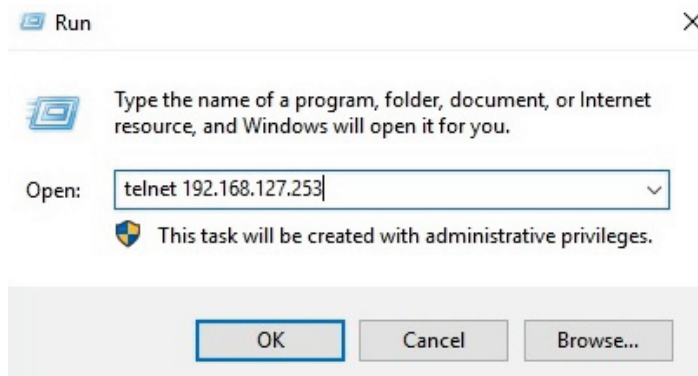
3. The Telnet console will prompt you to log in. The default login name is **admin**, and the password is **moxa**. This password will be required to access any of the consoles (web, serial, Telnet).

4. After successfully connecting to the switch by Telnet, users can start configuring the switch parameters by using command line instructions. Refer to the **Moxa Command Line Interface Manual**.

✏️ **NOTE**

By default, the password assigned to the Moxa switch is moxa. Be sure to change the default password after you first log in to help keep your system secure.

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3. Layer 3 Function Configurations

This chapter describes how to configure the layer 3 functions on Moxa's managed switches.

System

Network

This section describes the configurations for **Layer 3 Interfaces** and **DNS Settings**.

Layer 3 Interfaces

Click **Layer 3 Interfaces** from **System → Network** on the function menu.
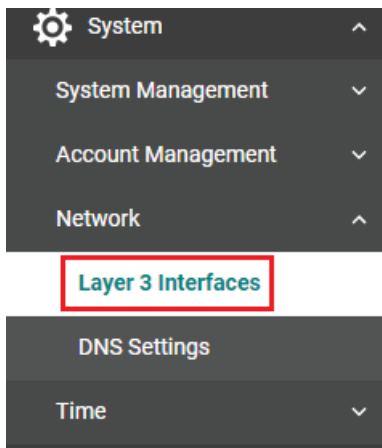
Layer 3 Interfaces Settings

The loopback interface is a special, virtual network interface that is used to identify and manage devices. It is used mainly for diagnostics and troubleshooting.

Click the **Settings** tab first, and then click the ➕ icon under **Loopback Interfaces** to configure the settings.

Configure the following settings.

Create Loopback Interface Settings

Loopback Interface
Enabled ▼

Loopback ID *

1 - 10

Alias

0 / 64

IP Address *

Netmask
255.255.255.255

CANCEL   **CREATE**

Loopback Interface

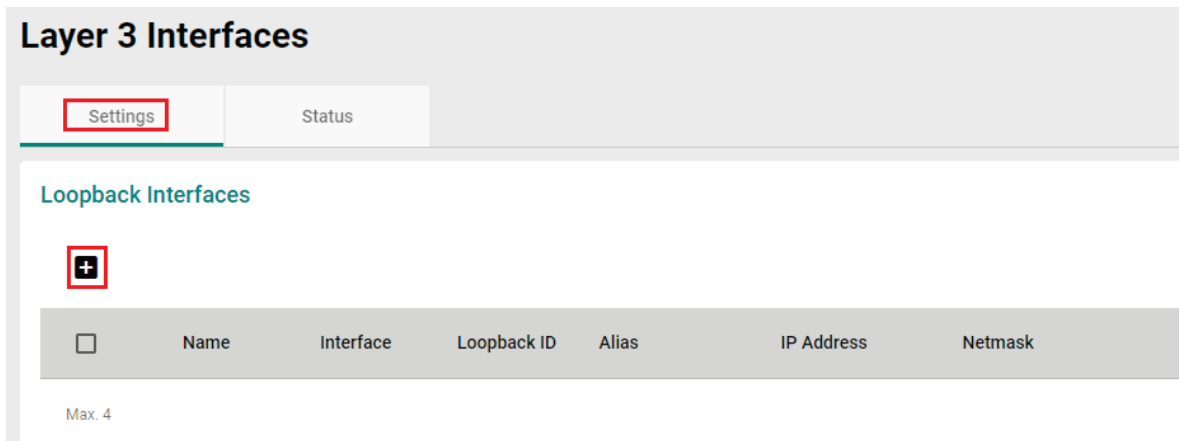| Setting	Description	Factory Default
Enable/Disable	Enable/disable the loopback interface.	Enabled

Loopback ID

Setting	Description	Factory Default
1 to 10	Specify the loopback ID.	None

✏️ **NOTE**

A user may see interface 407 to 410 displayed via the network management tool based on SNMP. Interface 407 to 410 can be mapped to the 1st Loopback interface the user sets to the 4th Loopback interface the user sets based on the standard MIB design. A user can set a maximum of 4 loopback interfaces.

Alias

Setting	Description	Factory Default
0 to 64 characters	Specify the alias for the loopback interface.	None

IP Address

Setting	Description	Factory Default
IP address	Specify the IP address for the loopback interface.	None

Netmask

Setting	Description	Factory Default
Netmask	Show the default netmask for the loopback interface.	255.255.255.255

Click **CREATE** to finish.

Creating VLAN Interfaces

Next, click ⊞ under **VLAN Interfaces** to create the interface.

VLAN Interfaces

⊞

		Name	Interface	VLAN ID	Alias	IP Address	Netmask	MTU (byte)	Proxy Arp
☐	✏	vlan1	Enabled	1		192.168.127.253	255.255.255.0	1500	Disabled

Max. 256

Configure the following settings.

Create VLAN Interface Settings

VLAN Interface
Enabled ▾

VLAN ID *
1 - 4094

Alias
0 / 64

IP Address *   Netmask *

MTU *
1500
1400 - 3000   byte
Proxy Arp
Disabled ▾

CANCEL   CREATE

VLAN Interface

Setting	Description	Factory Default
Enable/Disable	Enable/disable the VLAN interface.	Enabled

VLAN ID

Setting	Description	Factory Default
1 to 4094	Display all available VLAN IDs that you have set in the Virtual LAN. To establish an interface, you must first assign an available ID to this interface. If a VLAN ID is assigned twice, a warning message will appear.	None (if no VLAN ID is available)

✏ **NOTE**

A user may see interface 130 to 386 displayed via the network management tool based on SNMP. Interface 130 to 386 can be mapped to the 1st VLAN interface the user sets to the 256th VLAN interface the user sets based on the standard MIB design. A user can set a maximum of 256 VLANs.

Alias

Setting	Description	Factory Default
0 to 64 characters	Specify the alias for the VLAN interface.	None

IP Address

Setting	Description	Factory Default
IP address	Specify the IP address for the VLAN interface.	None

Netmask

Setting	Description	Factory Default
Netmask	Specify the netmask for the VLAN interface.	None

MTU (byte)

Setting	Description	Factory Default
1400 to 3000	Specify the MTU (Maximum Transmission Unit) for the VLAN interface.	1500

Proxy Arp

Setting	Description	Factory Default
Enable/Disable	Enable/disable the Proxy ARP for the VLAN interface.	None

Click **CREATE** to finish.

## Viewing Layer 3 Interfaces Status

Click the **Status** tab to view the current configurations.

DNS Settings

Click **DNS Settings** from **System → Network**.
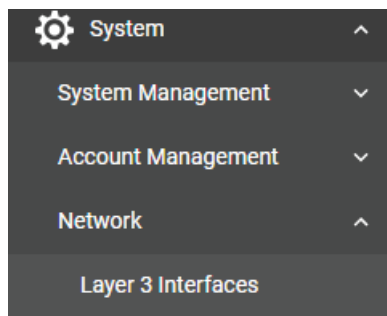
Primary DNS Server

Setting	Description	Factory Default
1st DNS server IP address	Specify the IP address of the 1st DNS server used by your network. The server will transfer your domain name to the IP address.	None

Secondary DNS Server

Setting	Description	Factory Default
2nd DNS server IP address	Specify the IP address of the 2nd DNS server used by your network. The switch will use the second DNS server if the first DNS server fails to connect.	None

When finished, click **APPLY** to save your changes.

Layer 3 Routing

This section describes how to configure the layer 3 routing settings for the switch. Click **Layer 3 Routing** on the function menu on the left of the page.
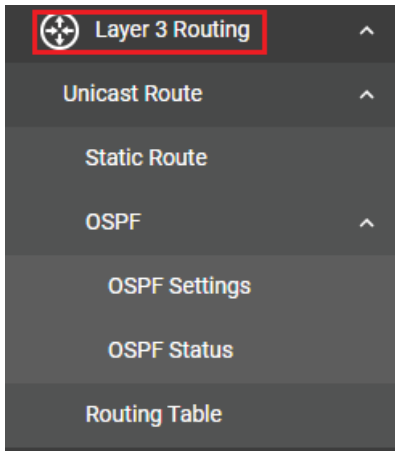
Unicast Route

Click **Unicast Route** to configure **Static Route** and **OSPF**.

Static Route

Click **Static Route** on the function menu and then click the ⊞ icon on the page.

Configure the following settings.

Create Static Route Settings

Destination *

Netmask *

Next Hop Type * ⓘ

Next Hop IP   Next Hop Interface ▾

Distance *
1 - 255

CANCEL   **CREATE**

Destination

Setting	Description	Factory Default
Input IP address	Specify the IP address of the destination.	None

Netmask

Setting	Description	Factory Default
Input Netmask	Specify the subnet mask of the destination subnet.	None

Next Hop: The next router along the path to the destination. You can choose a VLAN interface which has already been created or choose **Unselect** to ignore this setting.

Next Hop IP
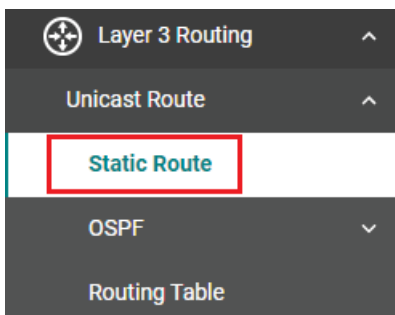
Setting	Description	Factory Default
Input IP address	Specify the IP address of the next hop IP address.	None

Next Hop Interface

Setting	Description	Factory Default
Unselect	Unselect to ignore this setting; if selected, you will need to specify the next hop IP address.	Unselect
VLAN1	Specify VLAN1 as the next hop interface	

Distance

Setting	Description	Factory Default
1 to 255	Shorter distances have a higher priority; if set to 255, the router will not trust the source of that route and will not install the route in the routing table.	None

When finished, click **CREATE** to save your changes.

OSPF

Open Shortest Path First (OSPF) is a dynamic routing protocol for use on Internet Protocol (IP) networks. Specifically, it is a link-state routing protocol in the group of interior gateway protocols, operating within a single autonomous system. As a link-state routing protocol, OSPF establishes and maintains neighbor relationships in order to exchange routing updates with other routers. The neighbor relationship table is called an adjacency database in OSPF. OSPF forms neighbor relationships only with the routers directly connected to it. In order to form a neighbor relationship between two routers, the interfaces used to form the relationship must be in the same area. An interface can only belong to a single area. With OSPF enabled, the Moxa Layer 3 switch is able to exchange routing information with other L3 switches or routers more efficiently in a large system.

Click **OSPF** to configure the settings, including **OSPF Settings** and **OSPF Status**.
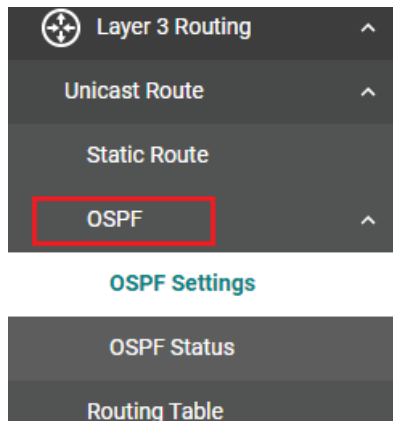
OSPF Settings

Click **OSPF Settings** on the function menu.
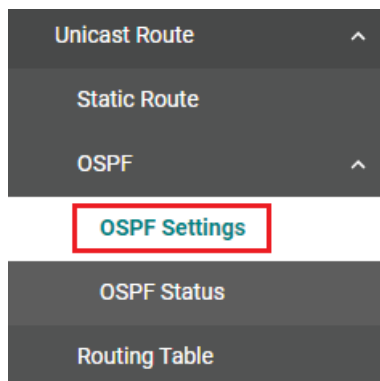
General Settings

Click the General tab. Each L3 switch/router has an OSPF router ID, customarily written in the dotted decimal format (e.g., 1.2.3.4) of an IP address. This ID must be established in every OSPF instance. If not explicitly configured, the default ID (0.0.0.0) will be regarded as the router ID. Since the router ID is an IP address, it does not need to be a part of any routable subnet on the network.

OSPF Settings

| General | Area | Interface | Neighbor | Aggregation | Virtual Link |

OSPF
Disabled

Router ID
0.0.0.0

Current Router ID
192.168.227.120

Compatible RFC 1583
Disabled

SPF Hold Time
5000
0 - 65535   ms

APPLY

OSPF

Setting	Description	Factory Default
Enable/Disable	This option is used to enable or disable the OSPF function globally.	Disable

Router ID

Setting	Description	Factory Default
Input the router IP	Specify the IP address of the router.	0.0.0.0

Current Router ID

Setting	Description	Factory Default
None	A router ID identifies a router in the OSPF domain. You can manually assign an IP address, or use "0.0.0.0" to force the switch to auto assign a router ID. When selecting 0.0.0.0, the switch will set the Router ID to the lowest interface IP address.	None

---

✏️ Note

The Router ID is just used to recognize the device in the OSPF protocol; it does not need to be ICMP reachable.

Compatible RFC 1583 (Available in Advanced Mode only)

Setting	Description	Factory Default
Enable/Disable	Enable/disable to be compatible with RFC 1583	Disabled

SPF Hold Time (ms) (Available in Advanced Mode only)

Setting	Description	Factory Default
0 to 65535	Specify the SPF hold time.	5000

When finished, click **APPLY** to save your changes.

Redistribute Static Settings

The "Redistribute Static" function allows you to share your internal routing settings (e.g., Static and Connected) with other devices.

Click the ✏ icon to edit the **Redistribute Static** settings.

Redistribute Static

Setting	Description	Factory Default
Enable/disable	Enable/disable the redistribute static function.	Enabled

Type (Available in the Advanced Mode only)

Setting	Description	Factory Default
E1/E2	Configure the metric type applied to the routes to be redistributed.	E2

Metric (Available in the Advanced Mode only)

Setting	Description	Factory Default
1 to 16777214	Configure the metric values for the routes to be redistributed into OSPF.	20

When finished, click **APPLY** to save your changes.

Redistribute Connected Settings

Click the ✏ icon to edit the **Redistribute Connected** settings.

Redistribute Connected

Setting	Description	Factory Default
Enable/disable	Enable/disable the redistribute connected function.	Enabled

Type (Available in Advanced Mode only)

Setting	Description	Factory Default
E1/E2	Configure the metric type applied to the routes to be redistributed.	E2

Metric (Available in Advanced Mode only)

Setting	Description	Factory Default
1 to 16777214	Configure the metric values for the routes to be redistributed into OSPF.	20

When finished, click **APPLY** to save your changes.

Area Settings

An OSPF domain is divided into areas that are labeled with 32-bit area identifiers, commonly written in the dot-decimal notation of an IPv4 address. Areas are used to divide a large network into smaller network areas. They are logical groupings of hosts and networks, including the routers connected to a particular area. Each area maintains a separate link state database whose information may be summarized towards the rest of the network by the connecting router. Thus, the topology of an area is unknown outside of the area. This reduces the amount of routing traffic between parts of an autonomous system.

Follow the contents below to configure the settings.

Creating a New Area ID

Click the **Area** tab.

Click the ⊞ icon to create the new area settings.

Area ID

Setting	Description	Factory Default
Area ID	Defines the areas that this L3 switch/router connects to.	0.0.0.0

Area Type

Setting	Description	Factory Default
Normal	Defines the area type as Normal.	None
Stub	Defines the area type as Stub.	
NSSA	Defines the area type as NSSA.	

Summary

Setting	Description	Factory Default
Summary/ No Summary	Displays the summary of the Area type	None

When finished, click **CREATE** to finish.

<u>**Editing the Existing Area ID**</u>

Click the ✏ icon and configure the following settings.

➕ ⬇

☐	Area ID	Area Type	Summary
☐ ✏	0.0.0.0	Normal	No Summary

Max. 64

Area Type

Setting	Description	Factory Default
Normal	Defines the area type as Normal.	
Stub	Defines the area type as Stub.	None
NSSA	Defines the area type as NSSA.	

Summary

Setting	Description	Factory Default
Summary/ No Summary	Displays the summary of the Area type	None

When finished, click **APPLY**.

Interface Settings

Before using OSPF, you need to assign an interface for each area. Detailed information related to the interface can be defined in this section.

Click the **Interface** tab and then click the ✏ icon on the interface you want to configure.

OSPF Settings

| General | Area | Interface | Neighbor | Aggregation | Virtual Link |

⬇   🔍 Search

	Interface Name	IP Address	OSPF	Area ID	Hello Interval (sec.)	Dead Interval (sec.)	Priority	Cost	Network Type	Auth Type	Key ID	Passive interface
✏	vlan1	192.168.127.253	Disabled	0.0.0.0	10	40	1	1	Broadcast	---	---	Disabled

Items per page: 50 ▾   1 – 1 of 1 |< < >

Configure the following settings.

Edit Interface vlan1

OSPF
Disabled ▾

Area ID
0.0.0.0 ▾

Hello Interval
10
1 - 65535   sec.

Dead Interval
40
1 - 65535   sec.

Priority
1
0 - 255

Cost
1
1 - 65535

Network Type
Broadcast ▾

Auth Type
None ▾

Passive interface
Disabled ▾

CANCEL   APPLY

OSPF

Setting	Description	Factory Default
Enable/Disable	This option is used to enable or disable the OSPF function globally.	Disable

Area ID

Setting	Description	Factory Default
Area ID	Defines the Area ID.	0.0.0.0

Hello Interval (sec)

Setting	Description	Factory Default
1 to 65535	Hello packets are packets that an OSPF process sends to its OSPF neighbors to maintain connectivity with those neighbors. The hello packets are sent at a configurable interval (in seconds). The value of all hello intervals must be the same within a network.	10

Dead Interval (sec)

Setting	Description	Factory Default
1 to 65535	The dead interval is also a configurable interval (in seconds), and defaults to four times the value of the hello interval.	40

Priority

Setting	Description	Factory Default
0 to 255	Defines the L3 switch/router's priority.	1

Cost (sec)

Setting	Description	Factory Default
1 to 65535	The cost for each interface; a lower cost means the interface has higher priority.	1

Network Type (Available in Advanced Mode only)

| Setting	Description	Factory Default
Broadcast Non-Broadcast Point-to-Multipoint Point-to-Point	Select the network type from the drop-down list to determine how the Hello message will be sent. For Non-Broadcast or Point-to-Multipoint settings, you will need to add a neighbor manually.	Broadcast

Auth Type

Setting	Description	Factory Default
None/Simple/MD5/ SHA1/SHA-224/ SHA-256/ SHA-385/SHA-512	OSPF authentication provides the flexibility of authenticating OSPF neighbors. Users can enable authentication to exchange routing update information in a secure manner. OSPF authentication can either be none, simple, or MD5. However, authentication does not need to be configured. If it is configured, all L3 switches/routers on the same segment must have the same password and authentication method.	None

Passive Interface (Available in Advanced Mode only)

Setting	Description	Factory Default
Enable/Disable	Enable/Disable the settings to allow all interfaces to be configured as passive as the default value. For the Passive Interface, the OSPF related operation will not execute, but this passive interface's route information can still be learned by other non-passive interfaces.	Disabled

When finished, click **APPLY** to save your changes.

Neighbor Settings

Click the **Neighbor** tab and then click the   icon for proceed with the configuration.

✏️ **NOTE**

This function is available in **Advanced Mode** only.

OSPF Settings

General	Area	Interface	Neighbor	Aggregation	Virtual Link

➕ ⬇

☐	Neighbor Ip Address	Priority

Max. 64

Configure the following settings.

Create Neighbor

Neighbor Ip Address

Priority

0 - 255

CANCEL   CREATE

Neighbor IP Address

Setting	Description	Factory Default
Neighbor IP address	Specify the IP address for the neighbor.	None

Priority

Setting	Description	Factory Default
0 to 255	Specify the priority for the neighbor.	None

Aggregation Settings

Each OSPF area, which consists of a set of interconnected subnets and traffic, is handled by routers attached to two or more areas, known as Area Border Routers (ABRs). The OSPF aggregation function allows you to combine groups of routing table entries that represent the same route with a single entry in the routing table. The function will automatically update references to the old table entry IDs. The function is used to reduce the size of routing tables.

Click the Aggregation tab and then the ➕ icon to proceed with the configuration.

OSPF Settings

| General | Area | Interface | Neighbor | Aggregation | Virtual Link |

| ☐ | Area ID | IP Address | Subnet Mask | LSA Type |

Max. 192

Configure the following settings.

Create Aggregation

Area ID

IP Address   Subnet Mask

LSA Type

CANCEL   CREATE

Area ID

Setting	Description	Factory Default
Area ID	Select the Area ID that you want to configure.	0.0.0.0

IP Address

Setting	Description	Factory Default
Aggregation IP address	Specify the IP address for the aggregation.	None

When finished, click **CREATE** to save your changes.

Virtual Link Settings

All areas in an OSPF autonomous system must be physically connected to the backbone area (Area 0.0.0.0). However, this is impossible in some cases. For those cases, users can create a virtual link to connect to the backbone through a non-backbone area and also use virtual links to connect two parts of a partitioned backbone through a non-backbone area.

Click **Virtual Link**, and the click the ➕ icon to proceed with the configuration.

Configure the following settings.

Area ID

Setting	Description	Factory Default
Area ID	Define the areas that this L3 switch/router can connect to.	None

Router ID

Setting	Description	Factory Default
Router ID	Define the L3 switch/route's ID.	None

Hello Interval (sec)

Setting	Description	Factory Default
1 to 65535	Hello packets are packets that an OSPF process sends to its OSPF neighbors to maintain connectivity with those neighbors. The hello packets are sent at a configurable interval (in seconds). The value of all hello intervals must be the same within a network.	None

Dead Interval (sec)

| Setting	Description	Factory Default
1 to 65535	The dead interval is also a configurable interval (in seconds), and defaults to four times the value of the hello interval.	None

Auth Type

Setting	Description	Factory Default
None/Simple/MD5/ SHA1/SHA-224/ SHA-256/ SHA-385/SHA-512	OSPF authentication provides the flexibility of authenticating OSPF neighbors. Users can enable authentication to exchange routing update information in a secure manner. OSPF authentication can either be none, simple, or MD5. However, authentication does not need to be configured. If it is configured, all L3 switches/routers on the same segment must have the same password and authentication method.	None

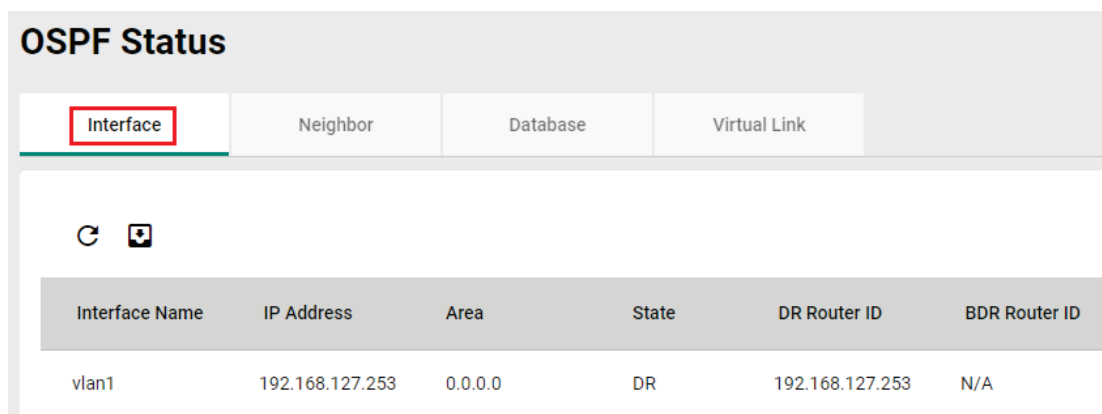When finished, click **CREATE** to save your changes.

OSPF Status

Click **OSPF Status** to may view the current OSPF configuration status.
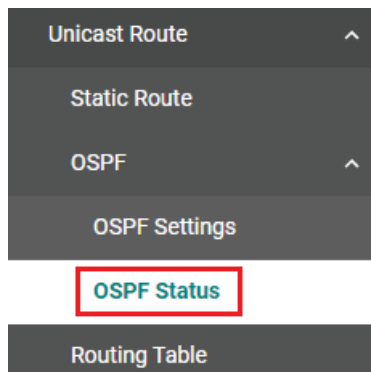
Interface Status

Click the **Interface** tab to view the current OSPF interface status.

Neighbor Status

Click the **Neighbor** tab to view the current neighbor configuration status.

OSPF Status

Interface	Neighbor	Database	Virtual Link

Neighbor ID	Priority	State	IP Address	Interface Name	Dead Interval (sec.)
10.30.1.2	1	Full	10.30.1.2	vlan10	35
20.60.2.3	1	Full	20.60.2.3	vlan20	31

Items per page: 50   1 – 2 of 2

Database Status

Click the **Database** tab to view the current database status.

OSPF Status

Interface	Neighbor	Database	Virtual Link

LSA Type	Area	Link ID	ADV Router	Age (sec.)
Router	0.0.0.0	192.168.127.253	192.168.127.253	70

Virtual Link Status

Click the **Virtual Link** tab to view the current virtual link status.

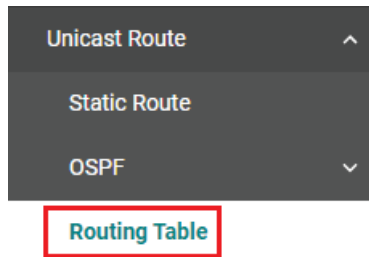### OSPF Status

Interface	Neighbor	Database	Virtual Link

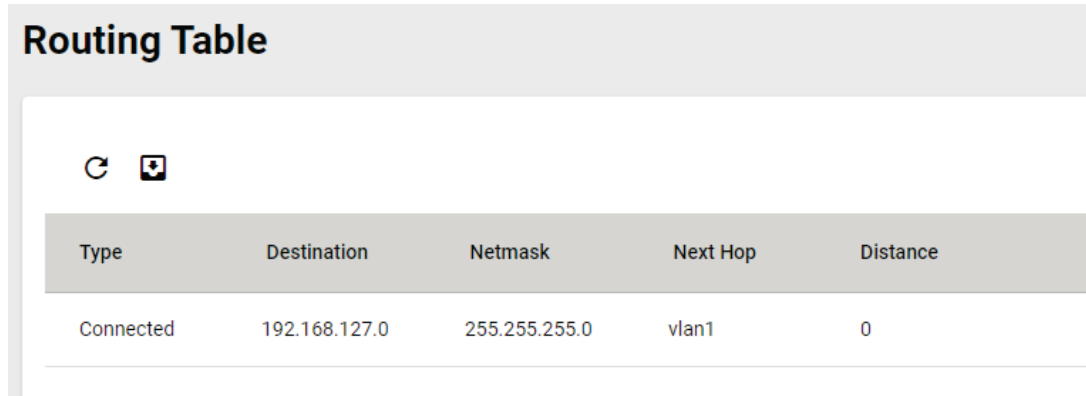| Area	Router ID	Neighbor State	Events	LSA Retransmission Queue Length	Hello Suppressed
0.0.0.1	20.60.2.3	Full	5	0	No

Items per page: 50   1 – 1 of 1

Routing Table

This function allows users to view the current routing table.
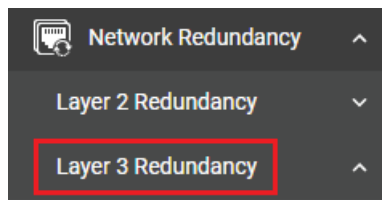

Click **Routing Table** on the function menu to view the routing table.

Network Redundancy

Layer 3 Redundancy

The MDS-4000 Layer 3 switch provides a layer 3 redundancy function. Click Layer 3 Redundancy under Network Redundancy on the function menu.

VRRP

The **Virtual Router Redundancy Protocol (VRRP)** enables a group of routers to form a single virtual router with a virtual IP address. The LAN clients can then be configured with the virtual router's virtual IP address as their default gateway. The virtual router is the combination of a group of routers, also known as a VRRP group.

Click **VRRP** under Layer 3 Redundancy on the function menu.
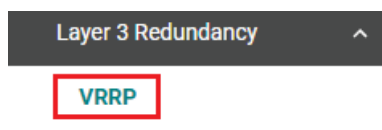
VRRP Settings

Click the **Settings** tab on the page.

Configure the following settings.

VRRP

Setting	Description	Factory Default
Enable/Disable	Enable or disable VRRP	Disabled

Version

Setting	Description	Factory Default
V2/V3	Select version 2 or version 3 for the VRRP.	V2

When finished click **APPLY** to save your changes.

Click the ➕ icon to create a virtual router.

Configure the following settings.

Create Virtual Router

Virtual Router ▾

Interface ▾   VRID *
              1 - 255

Priority *
1 - 254

Virtual Router Address *

Advertisement Interval *
30 - 40000   ms

Preempt Mode ▾   Accept Mode ▾

Auth Type ▾   Auth Key *   👁‍🗨
              0 / 8

CANCEL   CREATE

Virtual Router

Setting	Description	Factory Default
Enable/Disable	Enable or disable virtual router.	None

Interface

Setting	Description	Factory Default
VLAN	Select which VLAN to be the interface.	None

VRID

Setting	Description	Factory Default
1 to 255	Specify the virtual router ID. Virtual Router ID is used to assign a VRRP group. The L3 switch/router, which operate as master/backup, should have the same ID. The Moxa L3 switch/router supports one virtual router ID for each interface. IDs can range from 1 to 255.	None

Priority

Setting	Description	Factory Default
1 to 254	Determines priority in a VRRP group. The priority value range is 1 to 254, with 254 the highest priority. If several L3 switches/routers have the same priority, the router with higher IP address will have the higher priority. The usable range is "1 to 254".	None

Virtual Router Address

Setting	Description	Factory Default
IP Address of the virtual router	L3 switches/routers in the same VRRP group must have the identical virtual IP address. This virtual IP address must belong to the same address range as the real IP address of the interface.	None

Advertisement Interval (ms)

Setting	Description	Factory Default
30 to 40000	Define the VRRP advertisement interval.	None

Preempt Mode

Setting	Description	Factory Default
Enable/Disable	Determine whether or not a backup L3 switch/router will take over the authority of the master.	None

Accept Mode

Setting	Description	Factory Default
Enable/Disable	Enable or disable the accept mode. When enabled, VRRP IP can be accessed.	None

Auth Type (available in V2 only)

Setting	Description	Factory Default
None/Simple	Determines whether to activate the authentication (Simple Type), or not to activate the authentication (None).	None

Auth Key (available in V2 only)

Setting	Description	Factory Default
Authentication key	Provides an authentication key when simple type for authentication is set.	None

When finished, click **CREATE** to complete the configuration.

VRRP Status

Click the **Status** tab to view the current VRRP setting status.

To edit the existing VRRP setting, click the ✏ icon.