D-Link®

Wireless AC Services Router
User Manual

DSR-250V2

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Web UI Login

Logging in to the Web UI

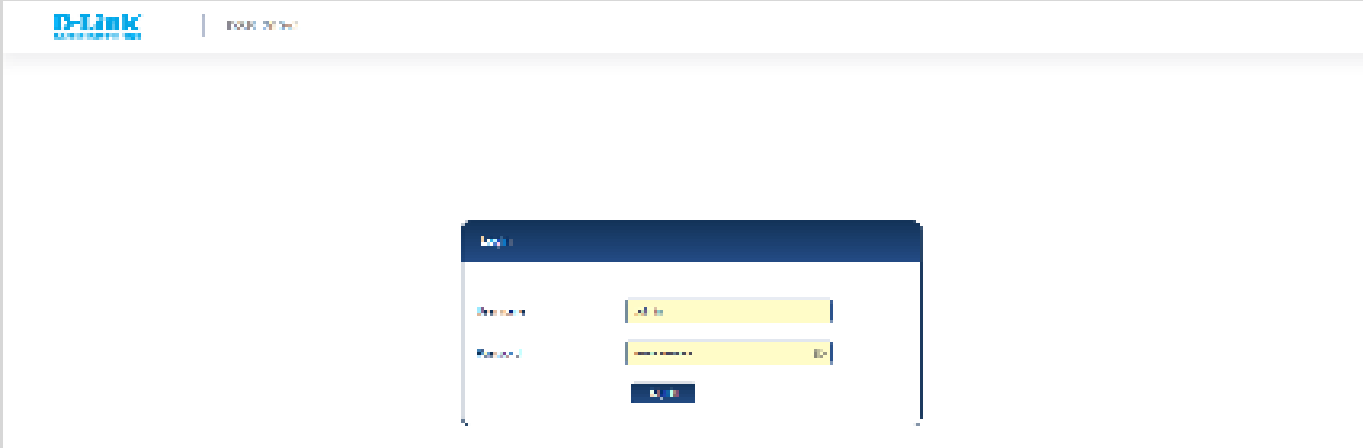
The LAN connection may be through the wired Ethernet ports available on the router, or once the initial setup is complete, you can manage DSR 250v2 through its wireless interface. Access the router's Web user interface (Web UI) for management by using any web browser, such as Internet Explorer, Firefox, Chrome, or Safari.

Note: The workstation you manage the router must be in the same subnet as the router (192.169.10.0/24).

Accessing the device via Web UI

- Connect your workstation to an available router's LAN port.
- Ensure your workstation has DHCP enabled or is assigned a static IP address within the 192.168.10.0/24 subnet.

  Note: Disable pop-up blocking software or add the management IP address https://192.168.10.1 to your pop-up blocker's allow list.
- Launch a browser, enter the IP address for the LAN interface (default = https://192.168.10.1), and then press **Enter**.
- Enter your username (default = **admin**) and your password (default = **Admin$123**), then click **Sign in**.



The web management interface opens with the **Summary** page. This page displays device information and port status. You can return to this page at any time by clicking System and status > Summary.

Chapter 1 System and Status

This chapter provides details about the port status, device information, and statistics. You can add filters for the event logging. This section of the user manual gives status about the connections, client, VPN, and Routing.

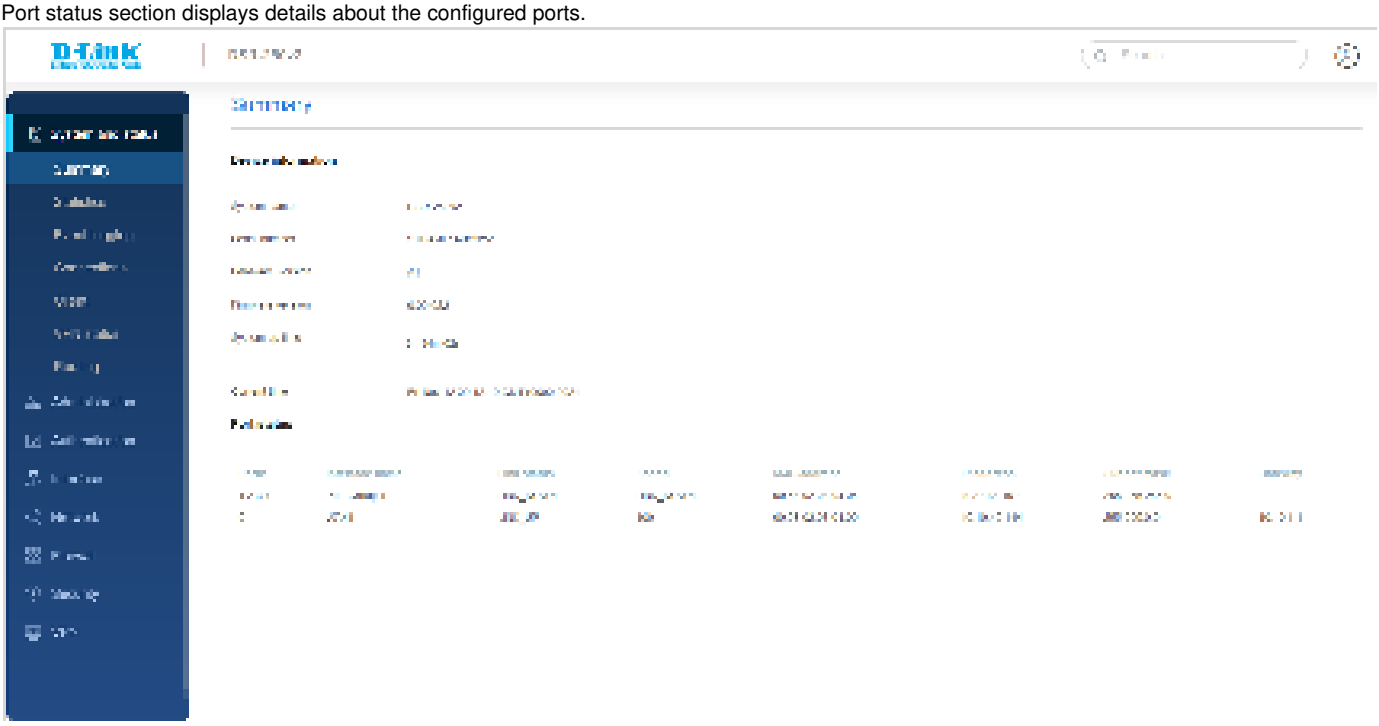
This chapter covers the following topics:

- Summary

- Statistics
- Event logging
- Connections
- Client
- VPN status
- Routing

Summary

The *Device information* section provides details of the device, like the system name, serial number, hardware version, and firmware version. The Port status section displays details about the configured ports.



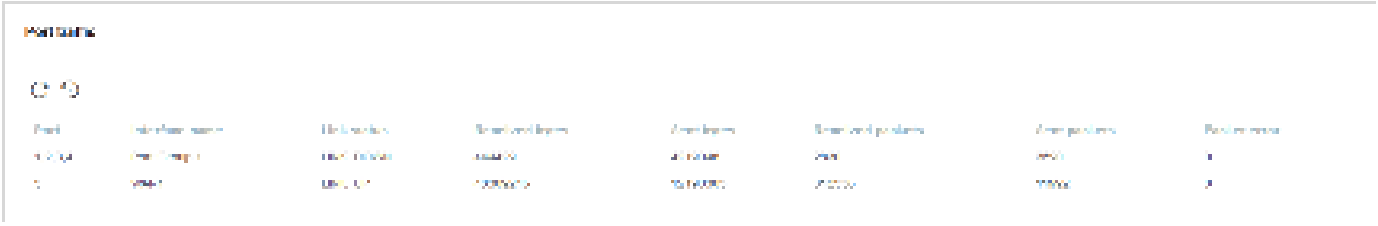
The fields available on this page are as follows:

Field	Description
Device information	
System name	It indicates the name of the device.
Serial number	It displays the serial number of your device.
Hardware version	It displays the hardware version of the device.
Firmware version	It displays the current firmware version running on the device.
System uptime	It displays the time duration since the last reboot.
Current time	It displays the present time.
Port status	
Ports	It displays the port numbers.
Interface name	It displays the interfaces of the device.
Link status	It displays whether it is uplink or downlink.
Speed	It displays the uplink or downlink speed.
MAC address	It displays the MAC address of the port.
IP address	It displays the IP address of the port.
Subnet mask	It displays the subnet mask of the port.

Gateway	It displays the gateway IP address of the port.

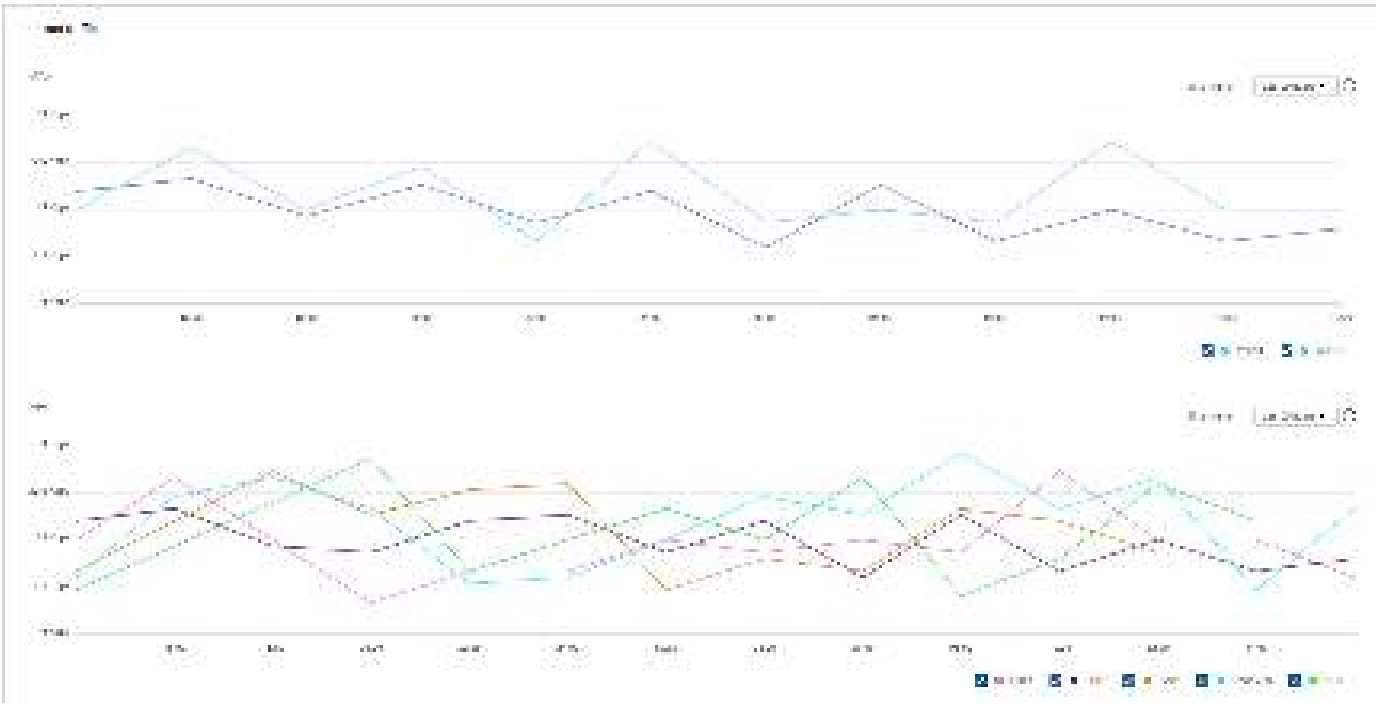
Statistics

This page displays detailed transmit and receive statistics for each physical port. Each interface (WAN1, WAN2/DMZ, LAN, and VLANs) has port-specific packet-level information provided for review. In addition, it also provides sent/received packets, Sent/received bytes, and packet errors for each interface. If you suspect issues with any wired ports, this table diagnoses transmit level issues with the port.
The statistics table has a refresh icon that allows the display of the most current port-level data.



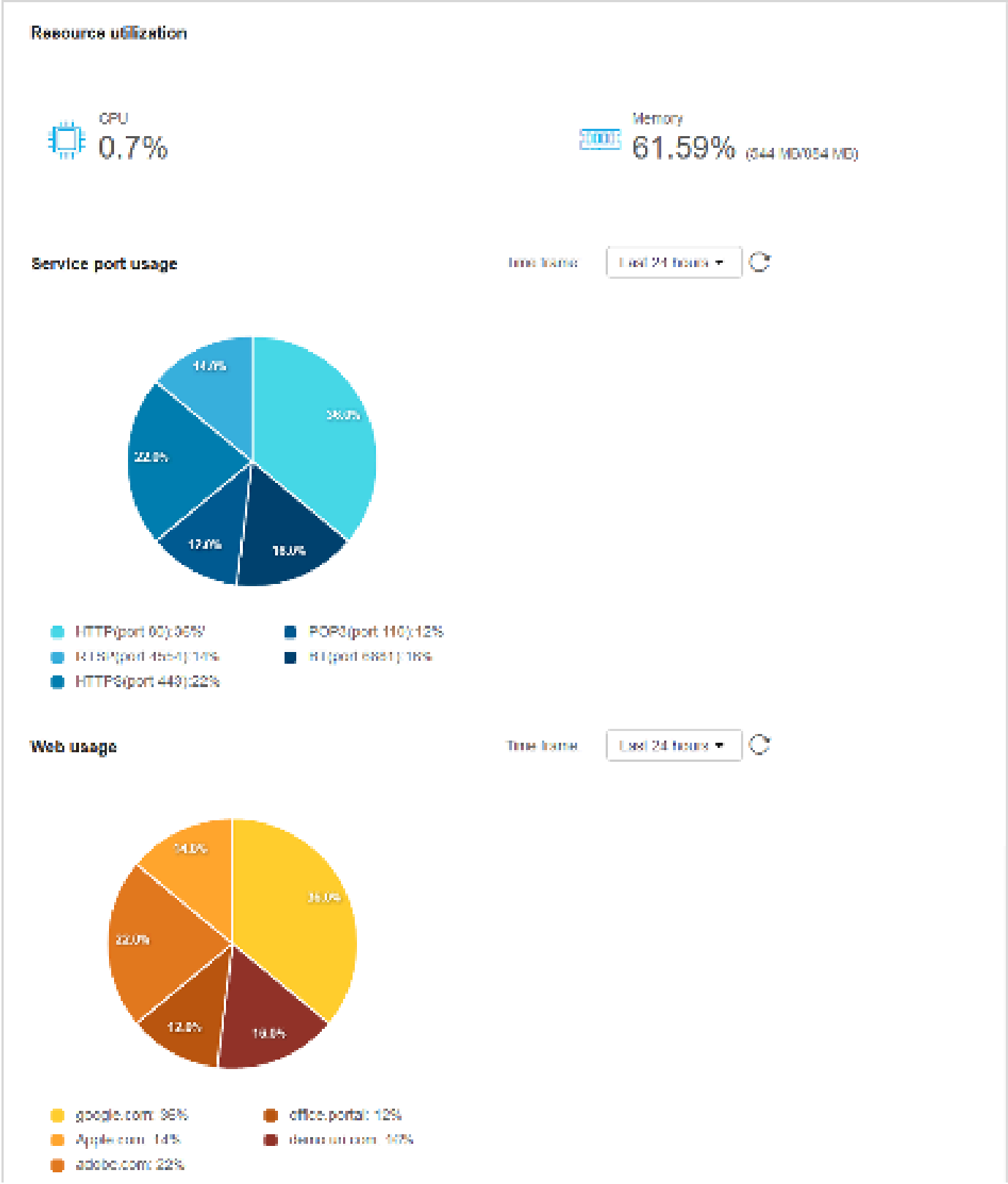
The fields available in the *Port Traffic* table are as follows:

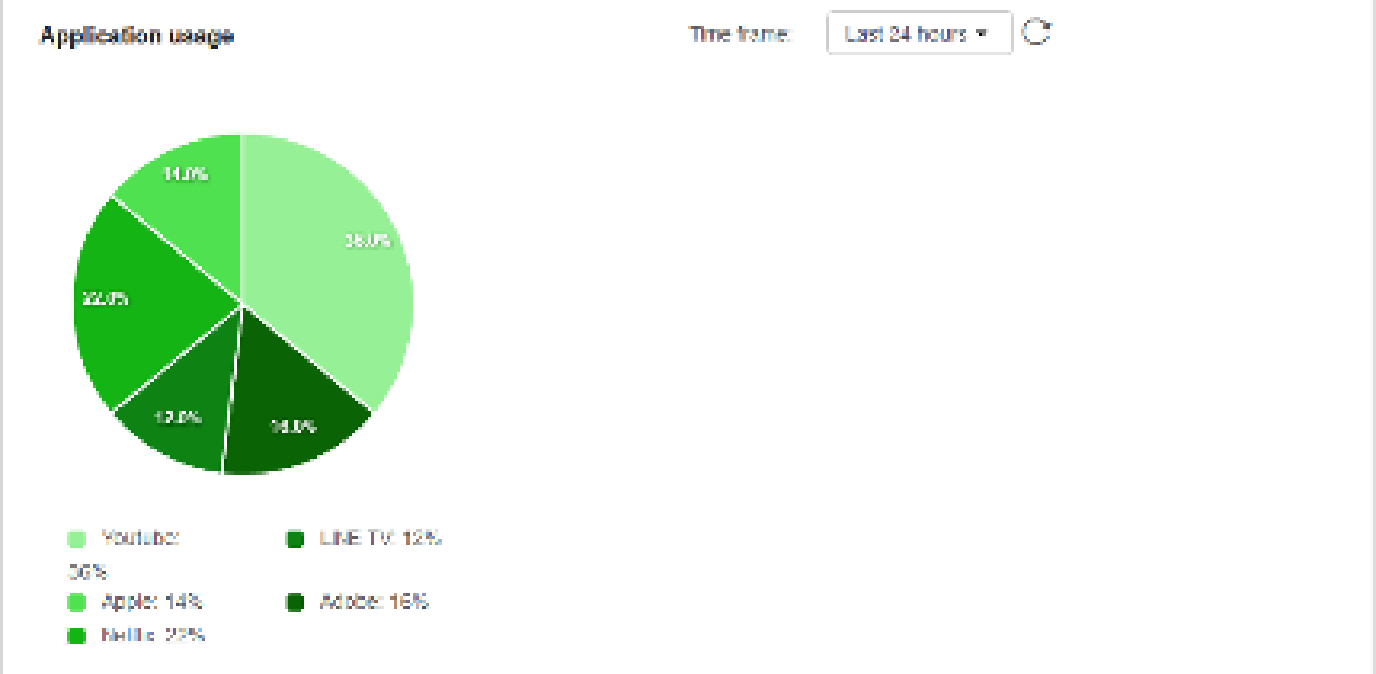
Port traffic	
Field	**Description**
Port	It displays the port numbers.
Interface name	It displays the interfaces of the device.
Link status	It displays whether it is uplink or downlink.
Received bytes	It displays the number of bytes received by the port.
Sent bytes	It displays the number of bytes sent by the port.
Received packets	It displays the number of packets received by the port.
Sent packets	It displays the number of packets sent by the port.
Packet error	It displays the number of packets with errors.



This section displays the speed at which the data is uploaded or downloaded from the particular WAN port for the selected time frame. You can choose the *Time frame* from the drop-down list located in the upper-right corner of the graph and then click the *Refresh* icon to update the graph with the latest readings. When the mouse hovers over the graph, it displays the upload and download speed at a particular time.

VPN usage displays the usage of the VPN tunnels for downloading and uploading the data. You can select the *Time frame* to display traffic over VPN tunnels. Then, when the mouse hovers over the graph, it shows the speed of the VPN tunnel at that instant.



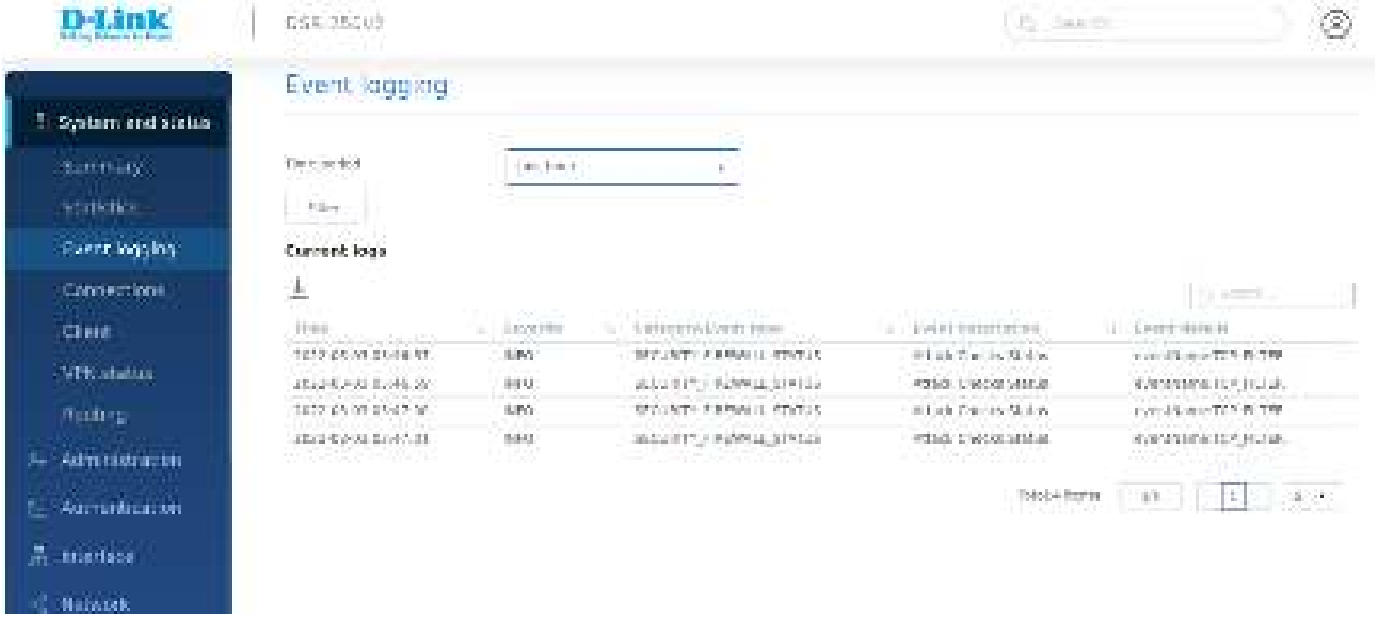


The fields displayed on this page are as follows:

Field	Description
Resource utilization	It displays the percentage of the CPU currently consumed by the device and displays the space of memory utilized by the device.
Service port usage	It displays bandwidth usage by network segments such as LAN or VLAN.
Web usage	It displays the activity going on for web pages.
Application usage	It displays the usage (in percentage) of each application.

Event Logging Status

The router allows you to capture log messages. You can monitor the type of traffic that goes through the router, and when the router detects potential attacks or errors, it notifies you. The following sections
describe the log configuration settings and the ways you can access these logs.



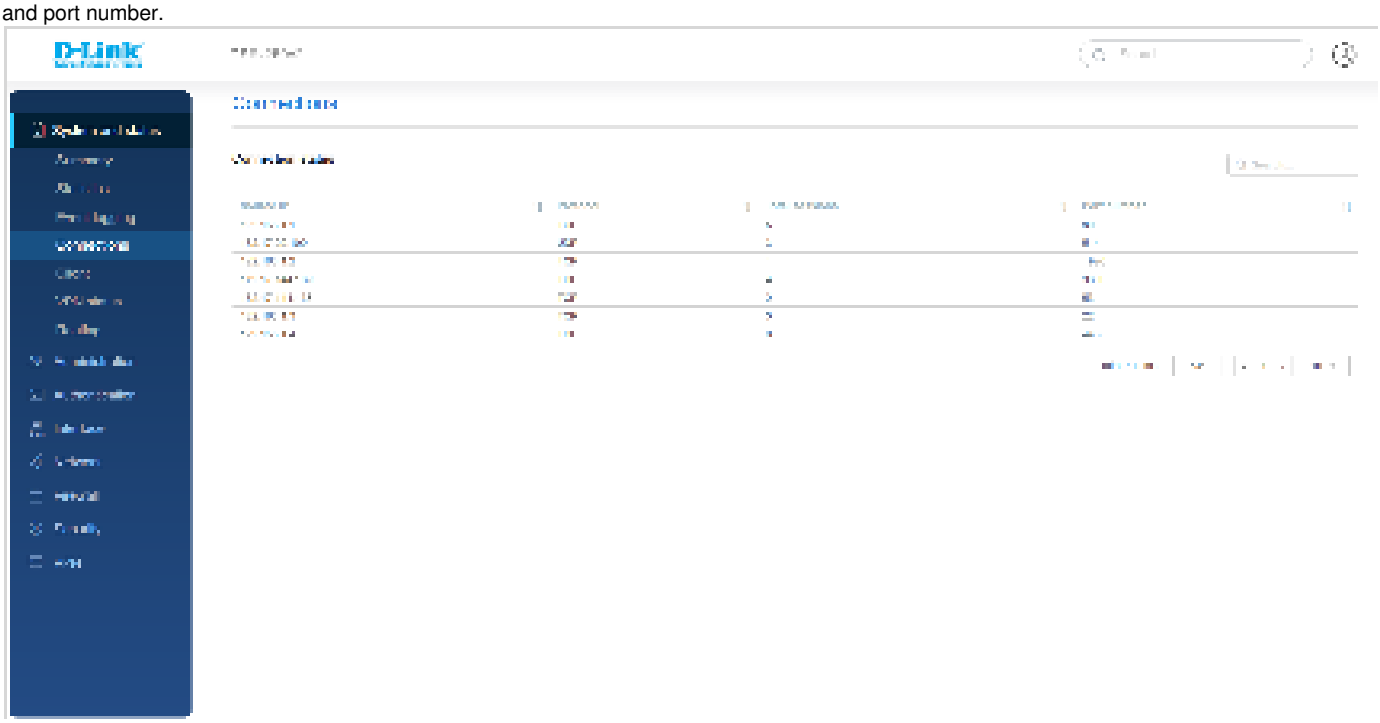
The fields displayed on the page are as follows:

Event logging

Field	Description
Time period	Select the time frame for which you want to schedule logging.
Filter	Click **Filter** to display the data.
Current logs	
Time	It displays the time when the event occurred.
Severity	It displays the severity of the logged event.
Category/Event type	It displays the category/Event type to which the entry belongs.
Event description	It displays the description of the event.
Event Details	It Displays the Event information in detail.
Download Icon	Click on Download Icon to download the logs in .csv format to PC.

Connections

This table lists the active Internet sessions through the router's firewall. In addition, it displays the session's protocol, source IP, total sessions, and port number.



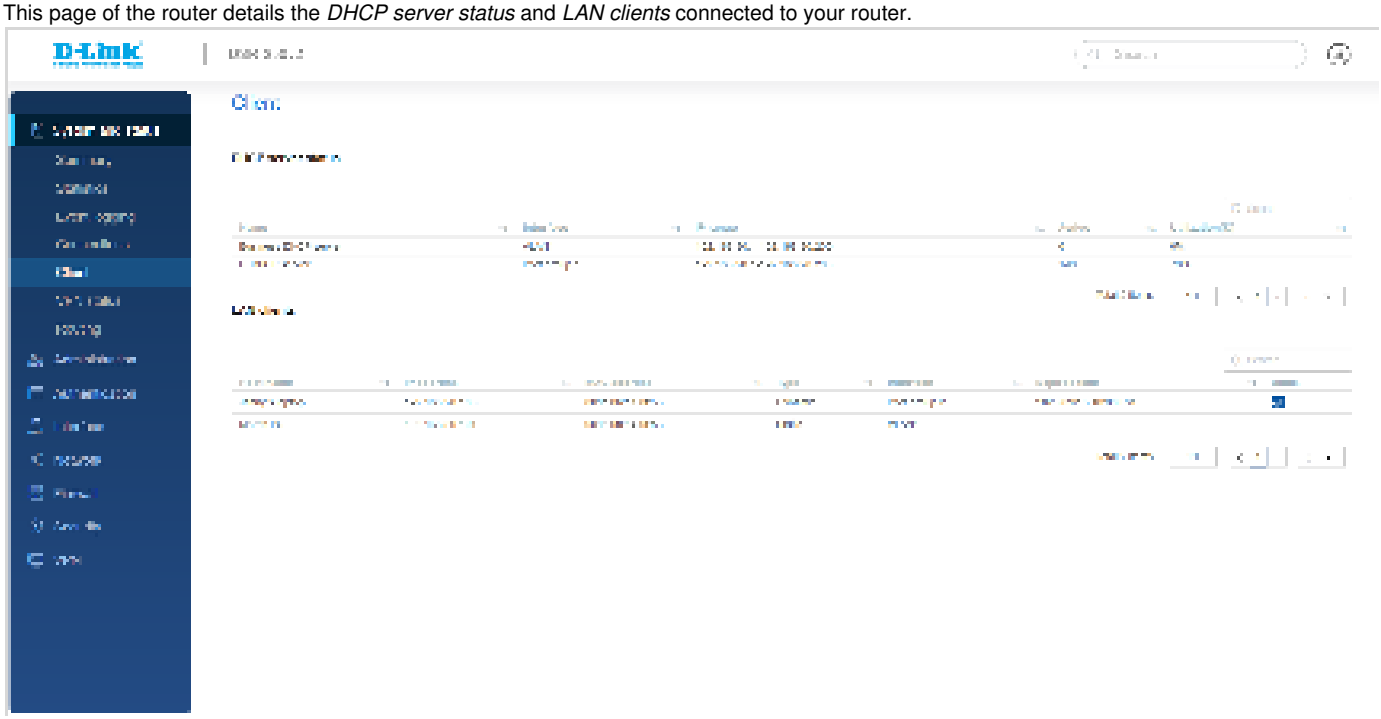
The fields available on this page are as follows:

Field	Description
Source IP	It displays the source IP address at which the connection gets established.
Protocol	It displays the protocol used to establish the connection.
Total sessions	It displays the total number of sessions established at the source IP address.
Port number	It displays the port number at which the session establishes.

Client

The **Dynamic Host Configuration Protocol** (DHCP) simplifies the configuration and management of the IP address of the devices like printers, laptops, desktops, etc., present on the network. A range of IP addresses that are assigned for the devices is known as the DHCP pool. When you add a device to a network where it gets its IP address from the DHCP server dynamically, one of the IP addresses from the configured DHCP pool is assigned to the device. However, these IP addresses are given to the clients only for a limited amount of time, and this process is called a **DHCP lease**. The DHCP lease gets renewed on its own after the lease time is expired.

This page of the router details the *DHCP server status* and *LAN clients* connected to your router.

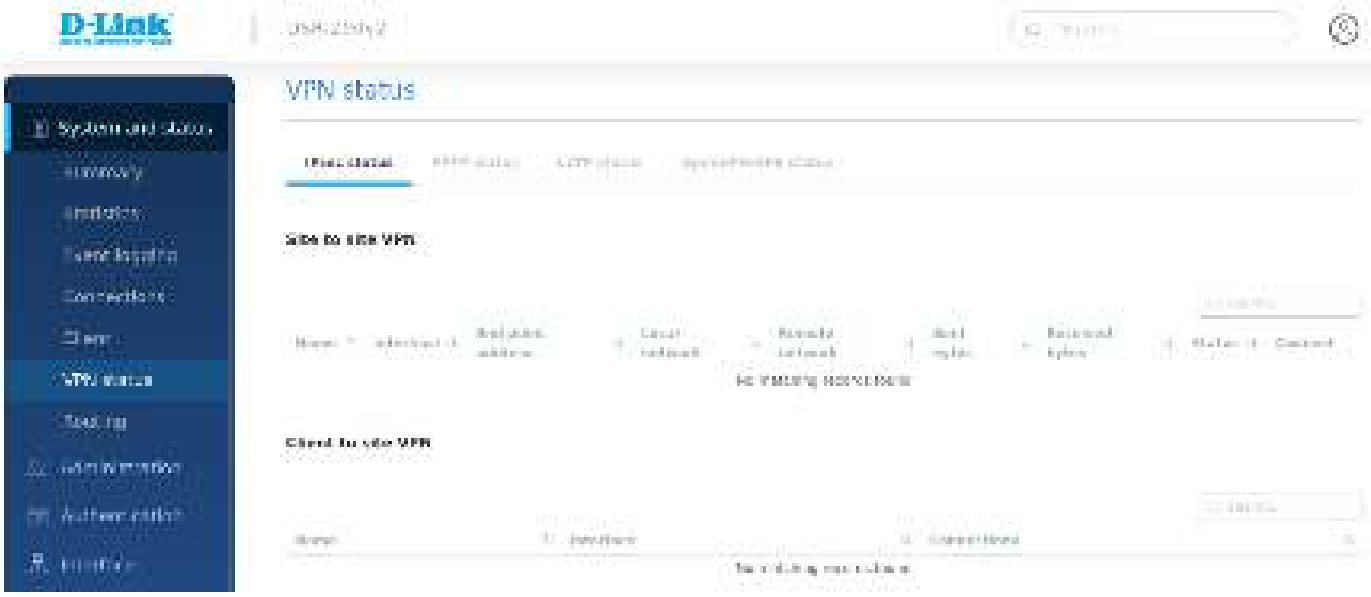


The fields available on this page are as follows:

Field	Description
DHCP server status	
Name	It displays the name of the DHCP server.
Interface	It displays the interface on which the DHCP server is configured.
IP range	It displays the range of IP addresses that you can assign for lease.
Active	It displays the number of IP addresses being used.
Utilization (%)	It displays the percentage of the utilized IP addresses.
LAN clients	
Host name	It displays the name of the client to whom the IP address is assigned.
IP address	It displays the IP address assigned to the client.
MAC address	It displays the MAC address of the client for which an IP address is reserved.
Type	It displays the type of Internet connection used.
Interface	It displays the interface through which the client connects.
Expires time	It displays the date and time when the DHCP lease expires.
Block	To stop traffic from particular LAN client(Enable/Disable)

VPN Status

You can view the status (connect or disconnect) of the gateway's VPN associations/connections. In addition, the page lists the active VPN association/connections, the traffic details, and the tunnel state. The traffic is a cumulative measure of transmitted or received packets since the tunnel was established.



This page covers the following Topics:

VPN status

- Ipsec status
- PPTP status
- L2TP status
- Openvpn/GRE status

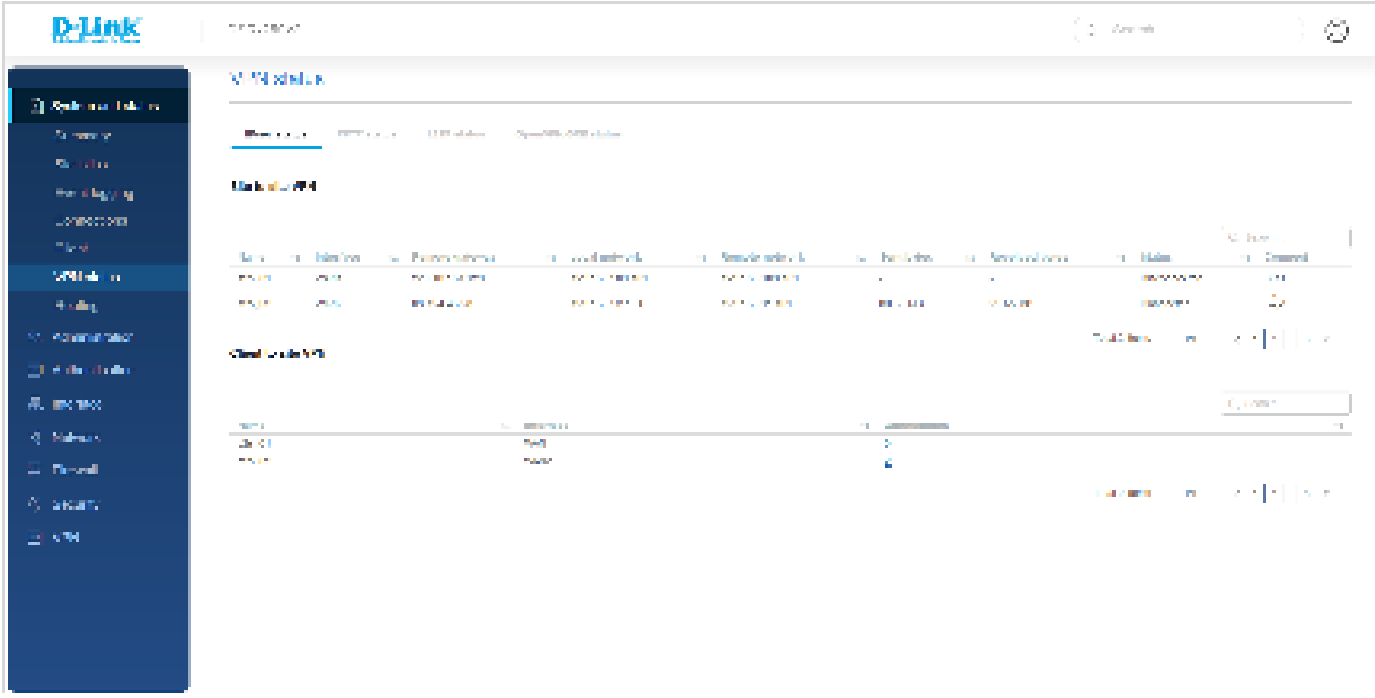
IPSec status

An IPSec policy is between DSR-250v2 and another router and an IPSec client on a remote host. Depending on the traversed network between the two policy endpoints, the IPSec mode can be either tunnel or transport.

- **Transport**: This is used for end-to-end communication between the router and the tunnel endpoint, either another IPSec gateway or an IPSec VPN client on a host. Only the data payload is encrypted, and the IP header is not modified or encrypted.
- **Tunnel**: This mode is used for network-to-network IPSec tunnels where this gateway is one endpoint of the tunnel. In this mode, the entire IP packet, including the header, is encrypted and authenticated.
- This page covers the following Topics:
    - Ipsec status

  > Site to site VPN

  > Client to site VPN



The fields displayed on this page are as follows:

Field	Description
Site to Site VPN	
Name	It displays the name of the VPN.
Interface	It displays the interface on which the VPN tunnel is established.
Remote gateway	It displays the IP address or the domain name of the remote peer.
Local network	It displays the local network being used by this VPN connection.
Remote network	It displays the remote network being used by this VPN connection.
Sent bytes	It displays the number of bytes transmitted through the tunnel.
Received bytes	It displays the number of bytes received through the tunnel.
Status	It displays if the VPN connection is connected or disconnected.
Connect	Click the icon to connect or disconnect the tunnel.
Client to site VPN	
Name	It displays the client name of the VPN.
Interface	It displays the used WAN connection.
Connections	It displays the number of connections established on that interface.

PPTP status

This page covers the following Topics:

- PPTP status

> PPTP Client mode

> PPTP Active Users

It displays status of PPTP VPN i.e whether tunnel is established or not .Where we can connect or disconnect VPN for PPTP client ,In server it shows the list of active VPN's

Field	Description
VPN Server	It displays the VPN server (WAN) ip address.
Client IP address	It displays the Remote IP address to which the tunnel is established.
connect	It displays the connected Status of PPTP client.

Field	Description
Username	It displays the PPTP user name.
Remote IP address	It displays the Remote IP address to which the tunnel is established.
PPTP tuneel IP	It displays the IP address of the connected PPTP client.
Connect time	It displays the time duration when the tunnel is up.

L2TP Status

This page covers the following Topics:

- L2TP status

> L2TP Client mode

> L2TP Active Users

It displays status of L2TP VPN i.e whether tunnel is established or not .Where we can connect or disconnect VPN for L2TP client ,In server it shows the list of active VPN's

Field	Description
VPN Server	It displays the VPN server (WAN) ip address.
Client IP address	It displays the Remote IP address to which the tunnel is established.
connect	It displays the connect/Disconnect status of L2TP client.

Field	Description
Username	It displays the L2TP user name.
Remote IP address	It displays the Remote IP address to which the tunnel is established.
L2TP IP address	It displays the IP address of the connected L2TP client.
Connect time	It displays the time duration when the tunnel is up.

Openvpn/GRE status

This page covers the following Topics:

- Openvpn/GRE status

> OpenVPN Connection

> OpenVPN Status

> GRE status

GRE Status

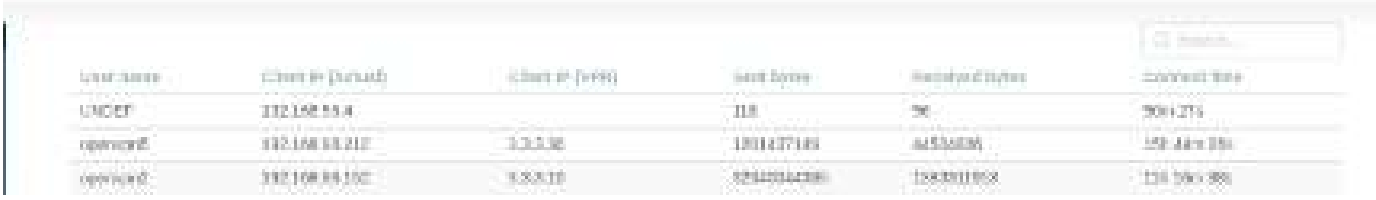
You will find a list of GRE clients connected with the following details:

The fields available on this page are as follows:

Field	Description
Name	It displays the VPN server (WAN) ip address.
Interface	It displays the interface name to which the tunnel is established.
GRE tunnel IP	It displays the connect/Disconnect status of GRE client.
Remote IP	It displays the Remote IP address to which the tunnel is established.
Status	It displays the connected Status of GRE

OpenVPN status :

You will find a list of openVPN clients connected with the following details:

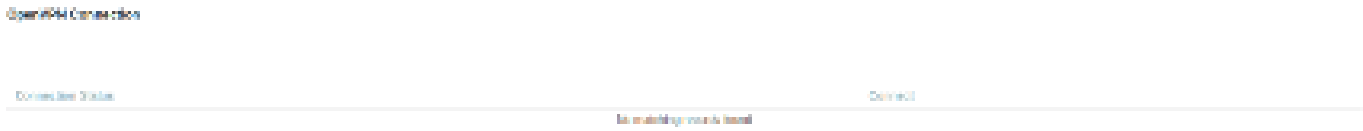


The fields available on this page are as follows:

Field	Description
User Name	It displays the VPN client username
Client IP (actual)	It displays the actual IP address of the client
Client IP(VPN)	It displays the tunnel IP of the client.
Sent bytes	It displays the Bytes of data sent to the client.
Received bytes	It displays the Bytes of receive from the client.
Connect time	It displays the duration of client connectivity.

OpenVPN Connection

You will find the status of openVPN client connectivity.



The fields available on this page are as follows:

Field	Description
Connection status	It displays the VPN connection status.
Connect	We can connect or disconnect VPN tunnel.

Routing status

This chapter covers the following topics:

Routing

- Active Routes
- Multicast IP table

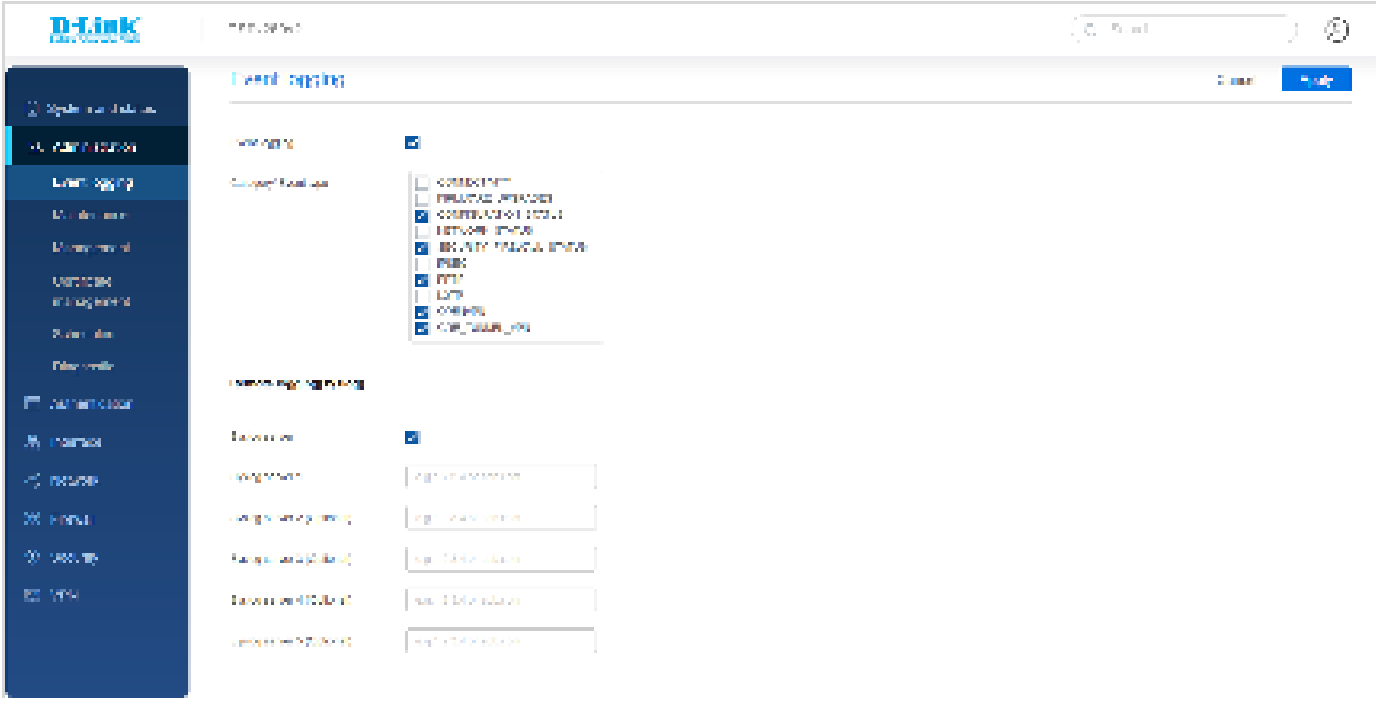
Field	Description
Active routes	
Destination	It displays the Destination IP address
Subnet mask	It displays the subnet mask.
Gateway	It displays the gateway IP address.
Interface	It displays the interface on which the route is present.
Metric	It displays the metric value of the route
Multicast Ip table	
Multicast channel	It displays the name of the client to whom the IP address is assigned.
VLAN ID	It displays the IP address assigned to the client.
Ports	It displays the MAC address of the client for which an IP address is reserved.

Chapter 2 Administration

This chapter covers of the following sections:

- Event logging
- Maintenance
- Management
- Certificate management
- Schedules
- Diagnostic

Event Logging



Event Logging

The router allows you to capture log messages. You can monitor the type of traffic that goes through the router, and the router detects and notifies about potential attacks or errors. In this section, you can configure the event logging feature and select the category or the event type you want to log.

The fields available in this section are as follows:

Field	Description
Event logging	Select the checkbox to enable event logging.
Category/Event type	Select the checkboxes of the categories that you want to log.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Remote Logging (Syslog)

An external Syslog server collects and stores logs from the router. This remote device typically has fewer memory constraints than the local Event Viewer on the router. Therefore, it can manage many logs over a sustained period. These logs help debug network issues or monitor router traffic over a long duration.
The router supports five concurrent Syslog servers. Using the Remote Logs page, you can configure the server to receive different log facility messages of varying severity. This page also lets you send configuration
logs to three email recipients.

The fields available in this section are as follows:

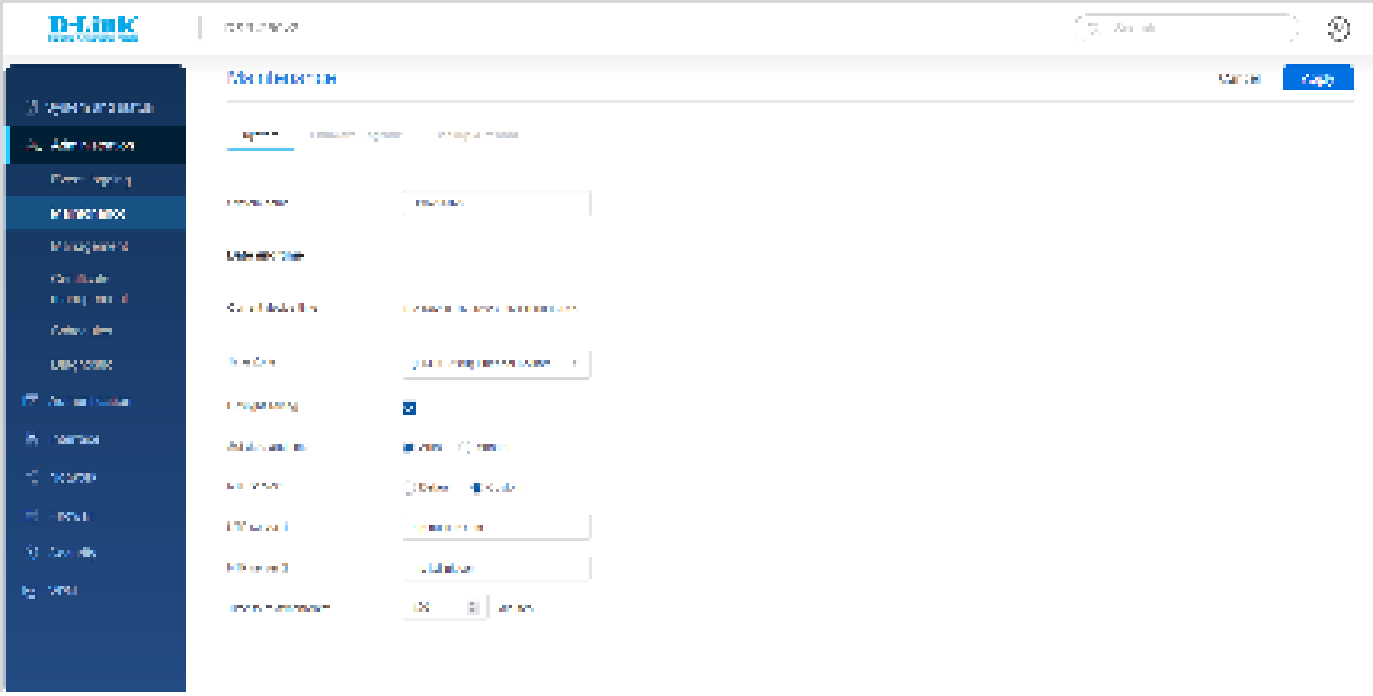
Field	Description
Syslog server	Select the checkbox to enable the Syslog server.
Syslog server 1	Enter the IP address or the FQDN to set up Syslog server 1. Repeat the fields above for each server you want to set up.
Syslog server 2 (Optional)	Enter the IP address or the FQDN to set up Syslog server 2.
Syslog server 3 (Optional)	Enter the IP address or the FQDN to set up Syslog server 3.
Syslog server 4 (Optional)	Enter the IP address or the FQDN to set up Syslog server 4.
Syslog server 5 (Optional)	Enter the IP address or the FQDN to set up Syslog server 5.

Maintenance

This page consists of following topics:

1. System
2. Firmware upgrade
3. Backup & Reboot

System



This page allows users to change the system name. You can configure your time zone, whether or not to adjust for Daylight Savings Time, and with which Network Time Protocol (NTP) server to synchronize the date and time. You can choose to set the Date and Time manually. Setting date and time manually store the information on the router's real-time clock (RTC). If the router has access to the Internet, the most accurate mechanism to set the router time is to enable NTP server communication.

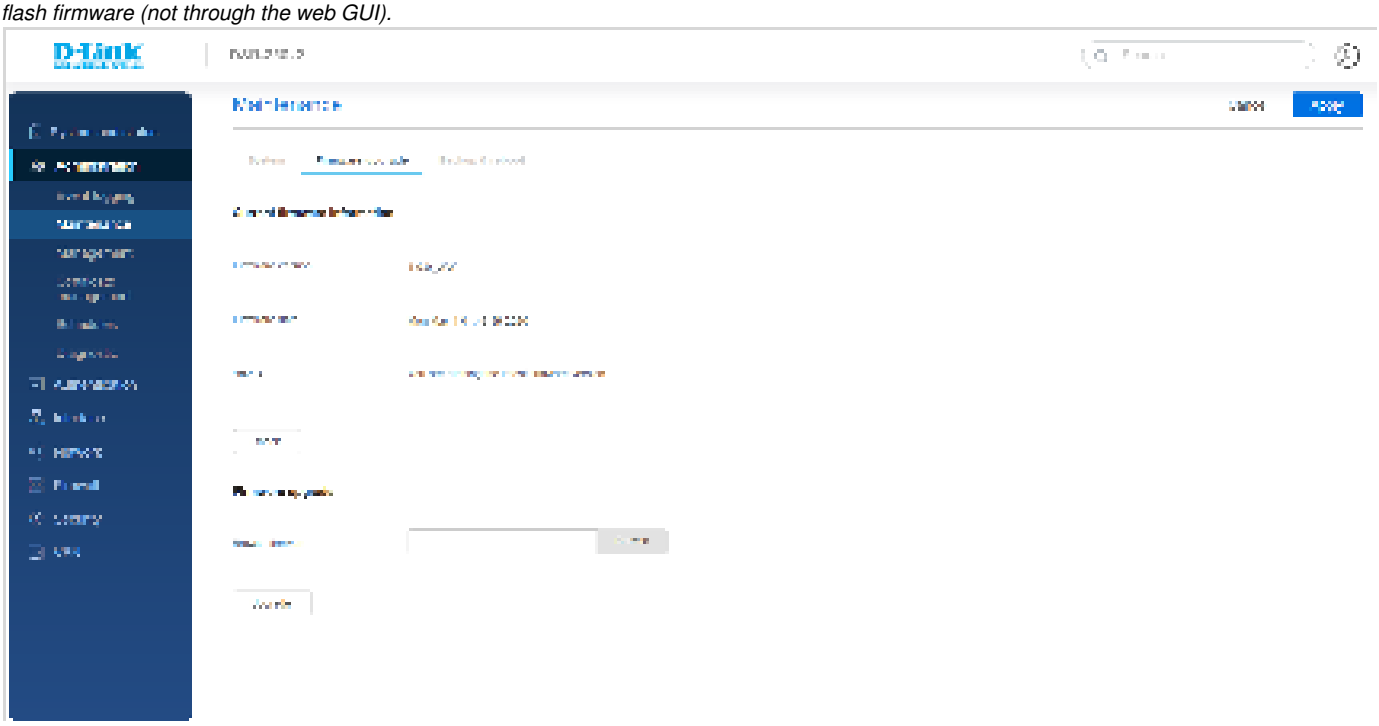
The fields available on this page are as follows:

Field	Description
System name	Enter a new name for the router.
Date and time	
Current device time	It displays the current date and time on the router.
Time zone	Select your time zone from the drop-down menu.
Daylight saving	Select the checkbox to enable daylight saving time.
Set date and time	Select *Auto* or *Manual*. If you select *Manual*, enter date and time manually.
NTP server	This field appears when you select *Auto*. Choose either *Default* or *Custom*. When you choose Custom, enter the primary and secondary NTP servers URL in the **NTP server 1** and **NTP server 2** fields respectively.
Time to re-synchronize	Enter the time in minutes for the router to re-synch with the NTP server(s).
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Firmware upgrade

You can upgrade to a newer firmware version from the Administration web page. In the Firmware Upgrade section, to upgrade your firmware, click Browse, locate and select the firmware image on your host, and click Upgrade. After validating the new firmware image, the new image writes to flash, and the router automatically reboots with the latest firmware.

***Note**: During the firmware upgrade, do NOT try to go online, turn off the DSR, shut down your PC, or interrupt the process in any way until the operation is complete. The process, including the reboot process, should take only a minute or so. Interrupting the upgrade process at specific points when the flash is being written may corrupt the flash memory and render the router unusable without a low-level process of restoring the flash firmware (not through the web GUI).*



Current firmware information

This section displays the current firmware running on the DSR-250v2 router.

Field	Description
Firmware version	It displays the firmware version running on the device.
Firmware date	It displays the date and time when it was last upgraded.
Status	It displays whether the current firmware is the latest firmware or not.
Check	Click the **Check** button to connect the router to a D-Link server to check if the recent firmware version for this router is available.

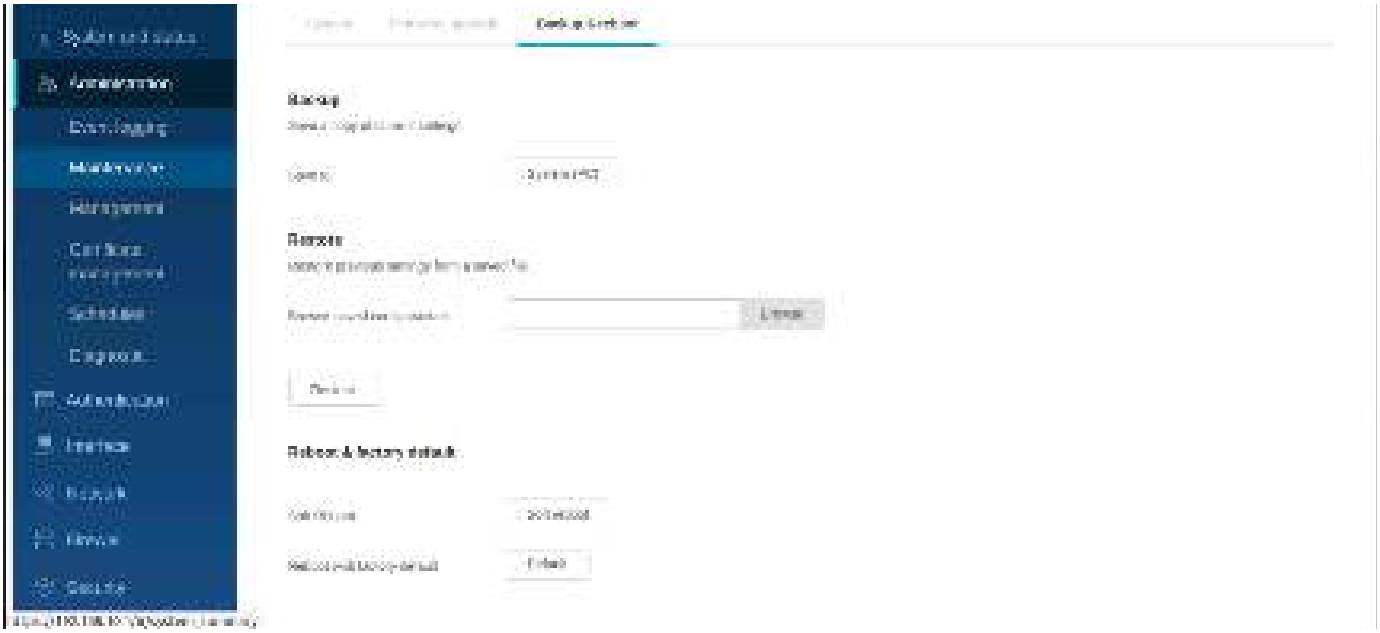
Firmware upgrade

You can use this section for firmware upgrades via PC or USB. The fields available in this section are as follows:

Field	Description
Browse firmware	Click **Browse** to locate the firmware image on your system and select the file.
Upgrade	Click **Upgrade** to start the firmware upgrade.

Backup and Restore

After you configure the router, you can backup the configuration settings. When you back up the settings, the router saves them as a file. You can then use the file to restore the settings on the same router if something goes wrong or on a different router (must be the same model) replacing the existing router.



Backup

This section allows you to save a backup file of the current configuration. The fields available in this section are as follows:

Field	Description
Save to	To save the file to your computer, click **System (PC)**.

Restore

After using the procedure to back up a router's configuration, you can restore the settings using the following procedure. The fields available in this section are as follows:

Field	Description
Browse saved configurations	Click Browse to select the file saved in your system. This field is available when you select the **System (PC)** as the Source file.
Restore	Click **Restore** to start the restore process.

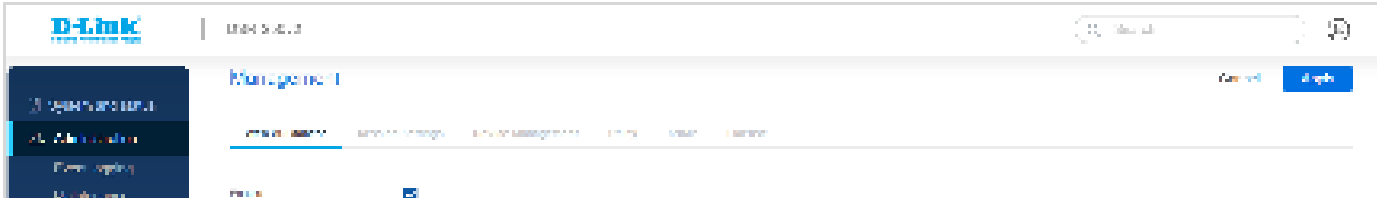
Reboot & factory default

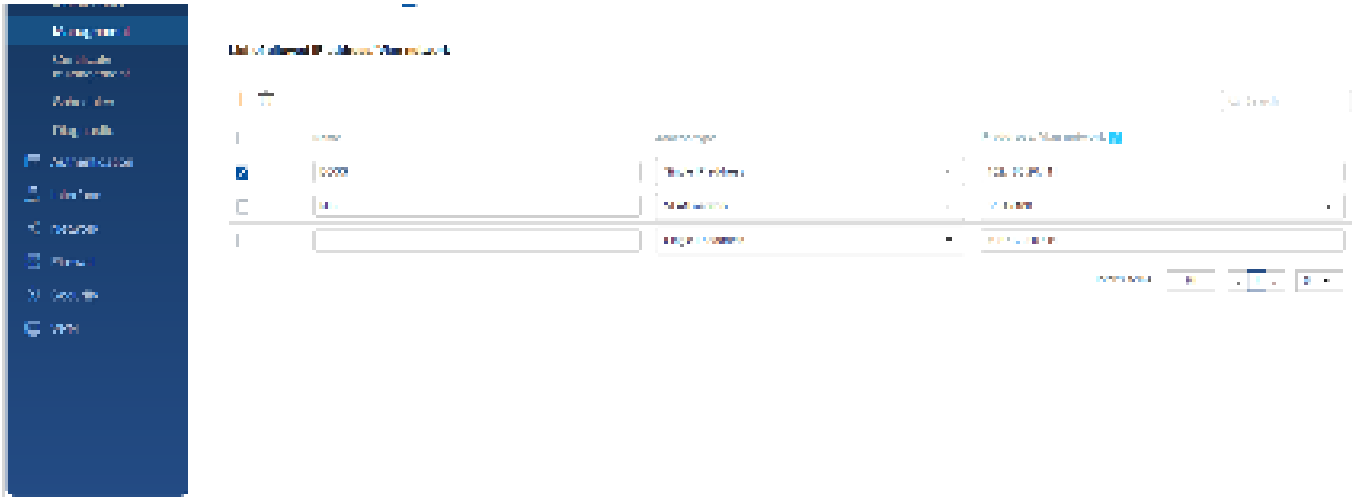
If you reset a router to its factory default settings, it returns to the state when it was new — you lose all changes you made to the default configuration. The fields available in this section are as follows:

Field	Description
Soft reboot	Click **Soft reboot** to perform a power cycle and keep any customized overrides you made to the default settings.
Reboot with factory default	Click this button to reboot the router to the original factory default.

Management

Web GUI Access





The Web GUI access page allows users to specify the user's IP address or VLAN to configure the router using the web GUI.

Field	Description
Enable	Select the check box to enable the Web GUI access feature.
Name	It displays the name of the user.
Access type	It displays the type of access used.
IP address/VLAN network	Enter the *IP address* or the *VLAN network* based on the selected access type.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Session Settings

Session Settings

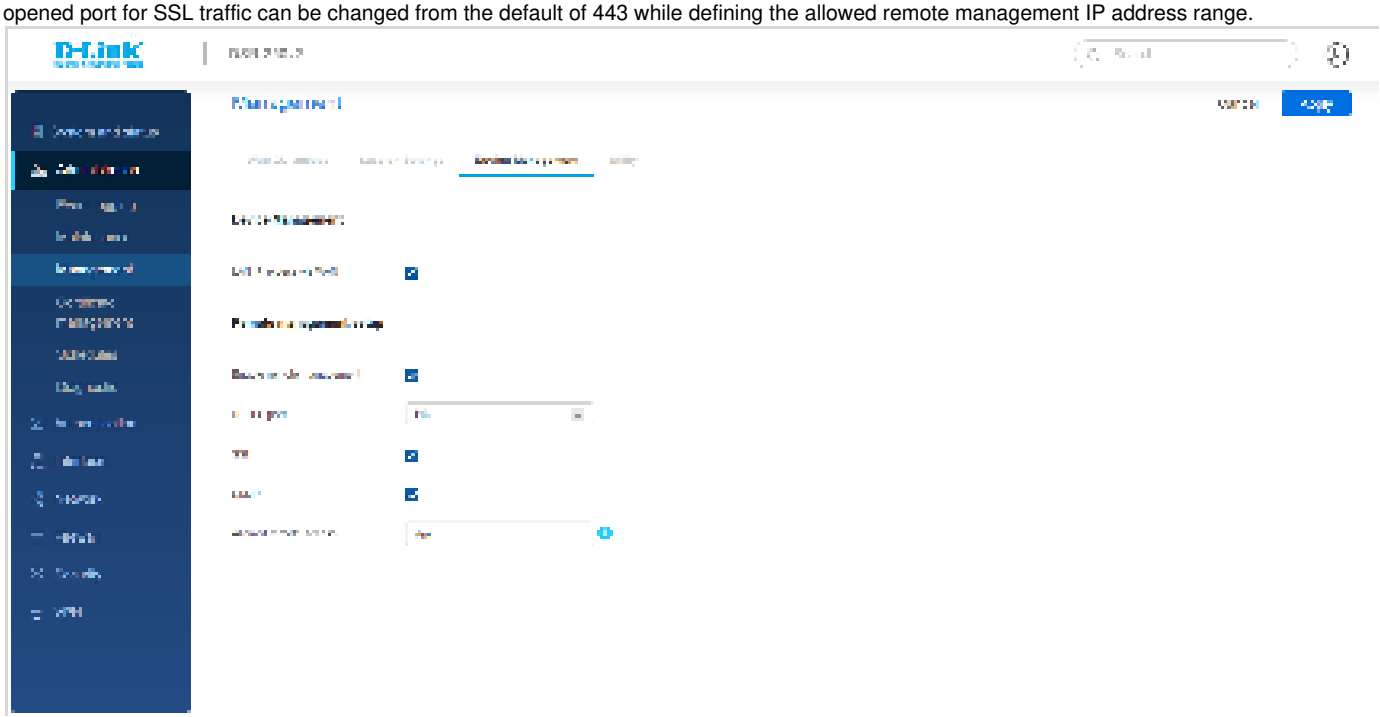
On this page, you can set the timeout value for admin and guest logins.

The fields available on this page are as follows:

Field	Description
Administrator	It displays the name of the admin.
Administrator timeout	Enter the timeout value in minutes for the Administrator account.
Guest	It displays the name of the guest.
Guest timeout	Enter the timeout value in minutes for the Guest account.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Device Management

Enable this feature to manage the router from a remote location, using HTTPS . Both HTTPS and access can be restricted to a subset of IP addresses. The router administrator can define a known PC, single IP address, or range of IP addresses to access the GUI with HTTPS. The opened port for SSL traffic can be changed from the default of 443 while defining the allowed remote management IP address range.



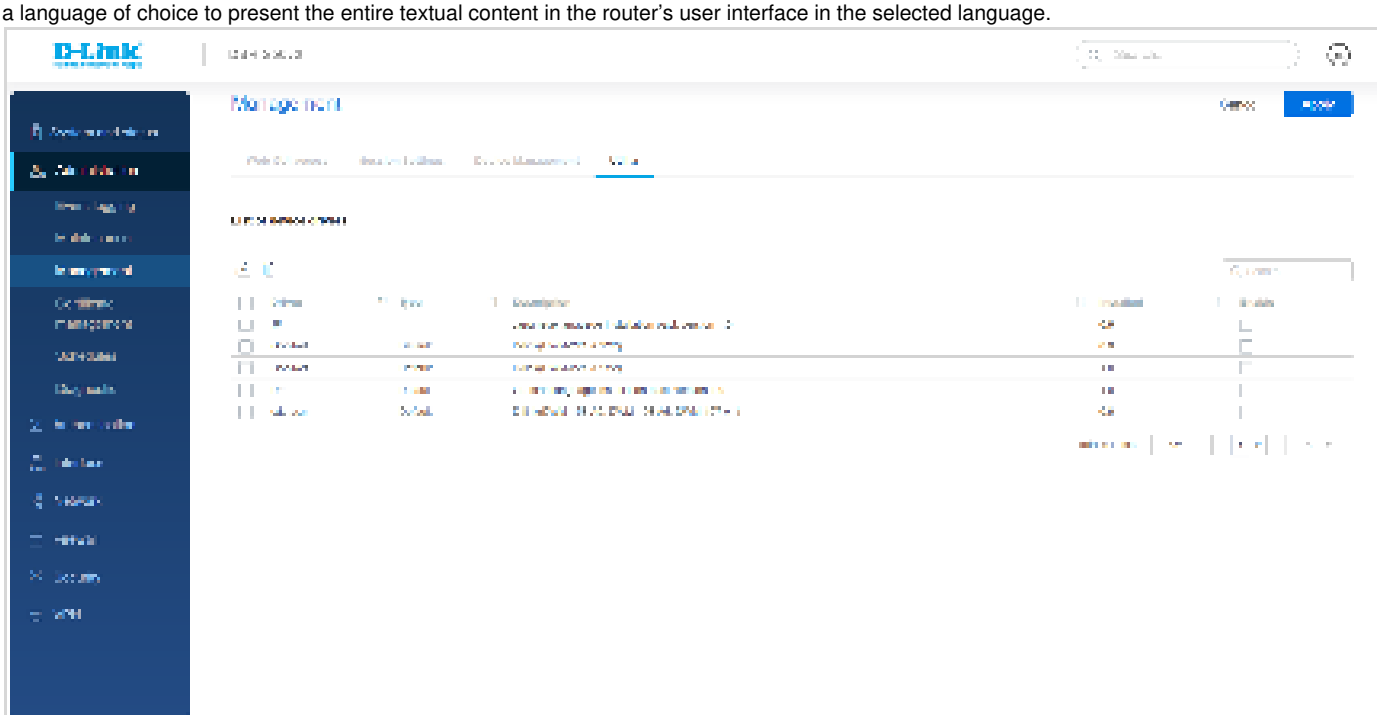
The fields available on this page are as follows:

Field	Description
Device management	
LAN IP access via WAN	Select the checkbox to enable this feature. This feature configures the router to provide the LAN IP Access from the WAN side.
Remote management setup	
Enable remote management	Select the checkbox to enable this feature.
HTTPS port	Enter the port for HTTPS access. The default port is 443.
SSH	Select the checkbox to enable SSH (Secure Shell) protocol to access the CLI over the network from a remote host.
SNMP	Select the checkbox to enable SNMP for remote management.
Allowed remote access	Select All IP Addresses, IP Address Range (enter an IP range), or Only Selected PC (enter an IP address).
Apply	Click **Apply** to save your settings.

Cancel	Click **Cancel** to revert to the previous settings.

Utility

A package is a set of files installed by the router from D-Link's repositories. This feature lets users download new drivers for supported USB devices and language packs to enable multi-lingual support for the router's management interface. In addition, multi-lingual support via the Utility page allows the user to choose
a language of choice to present the entire textual content in the router's user interface in the selected language.



The fields displayed on this page are as follows:

Field	Description
Driver	It displays the name of the installed driver.
Type	It displays the type of the installed driver.
Description	It provides description about the driver.
Installed	It displays the version of the installed driver.
Enable	Select the checkbox of the driver you want to enable.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

SNMP-Removed from UI

License

Field	Description
License model	It tells about model of license
Activation code	It displays the activation code of the license.
Expires	It tells about expiry time

Activation setup

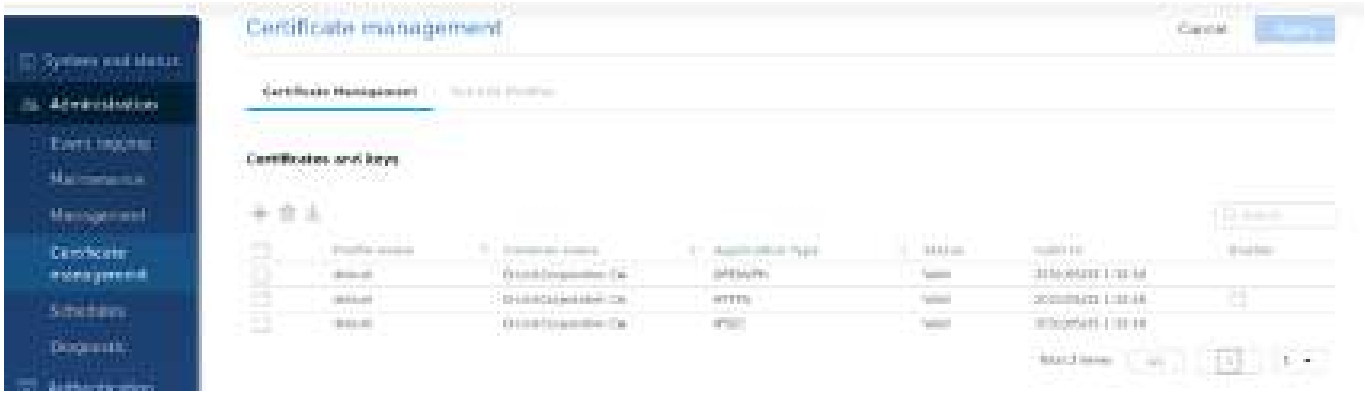
We need to give activation code in license activation code and click on activate.Which will activate the license

Certificate Management

This page consists of following topics:

1. Certificate Management.
2. TLS/CRL Profile

1. Certificate Management.



Filed	Description
Profile name	It displays profile name of certificate
Common name	It displays common name of certificate
Application name	It tells about the application in which user is using the certificate
Status	It displays about the status of certificate
valid to	It displays validity of certificate
Enable	It displays enable/disable option

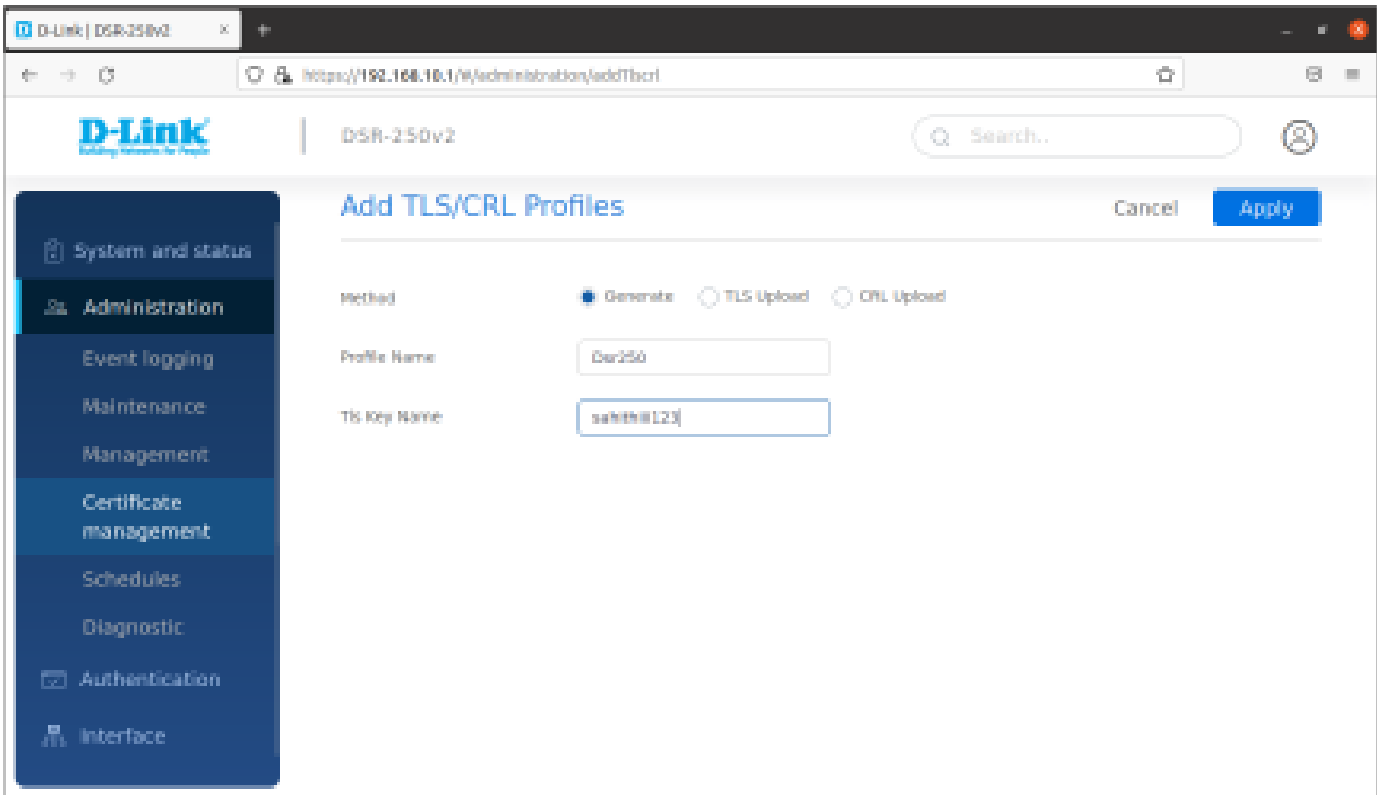
TLS/CRL Profiles

A certificate revocation list (CRL) is a list of digital certificates that have been revoked by the issuing certificate authority (CA) before their actual or assigned expiration date.

It is a type of blocklist that includes certificates that should no longer be trusted and is used by various endpoints, including web browsers, to verify if a certificate is valid and trustworthy.

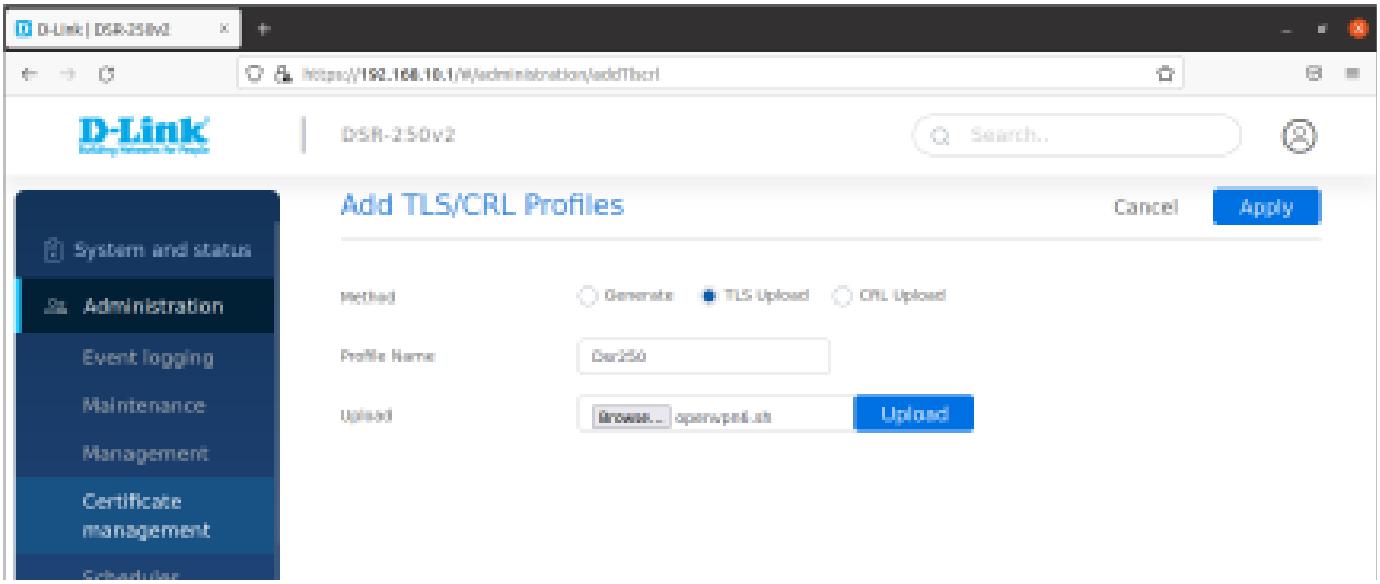
Generating TLS/CRL profile

Field	Description
Method	It says about how we are adding tls/crl profile
Profilename	It displays the name of profile
TLS key name	It tells about the key



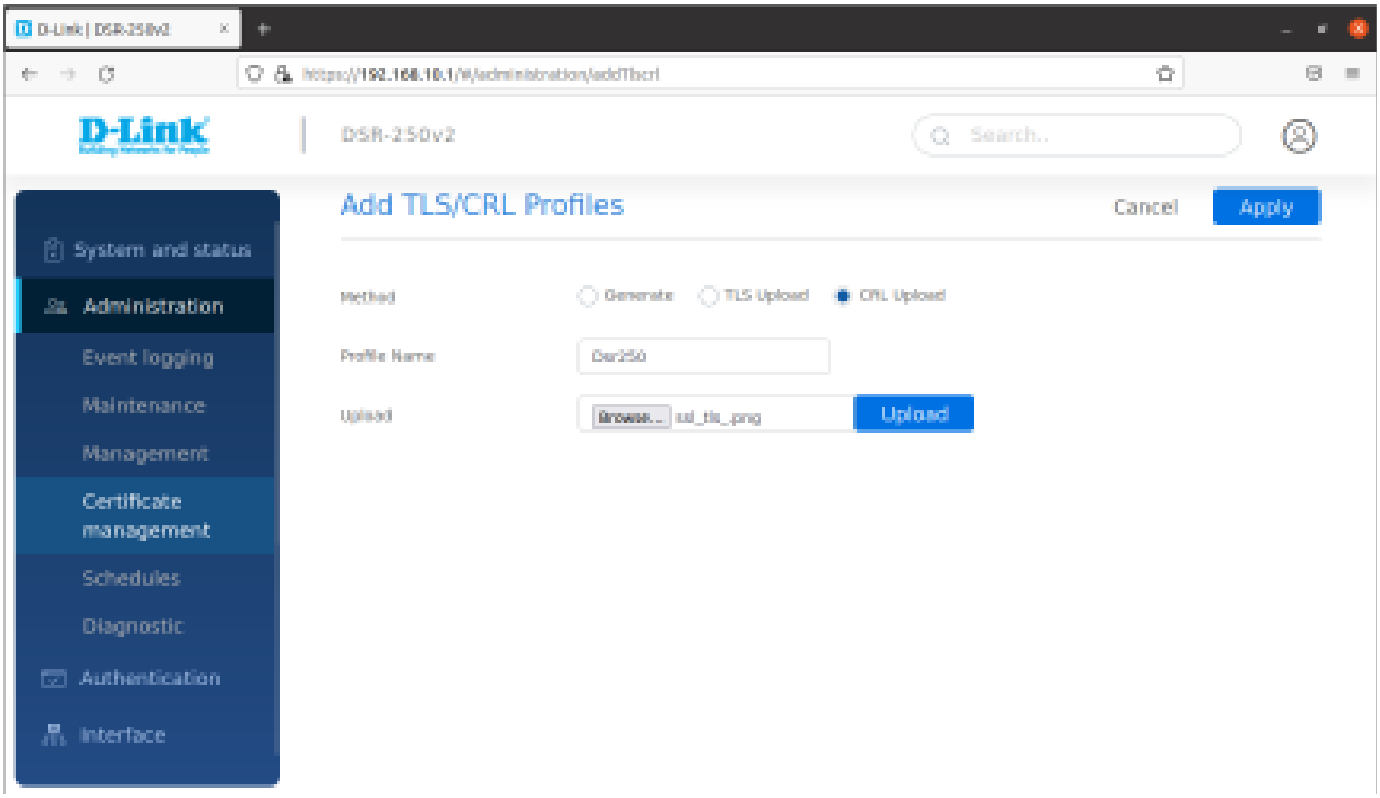
TLS upload

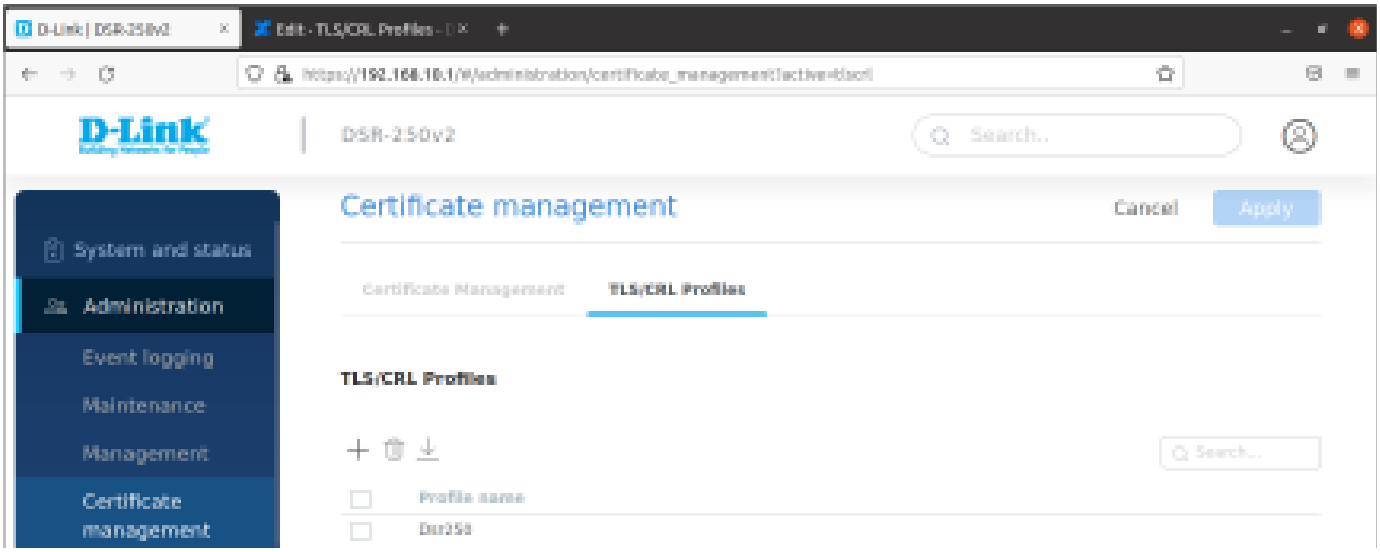
Field	Description
Method	It says about how we are adding tls/crl profile
Profile name	It displays the name of profile
upload	we need to give file and upload



CRL upload

Field	Description
Method	It says about how we are adding tls/crl profile
Profile name	name of profile
upload	we need to give file and upload





Click Add icon to add a new entry to the table. This opens the Add tls/crl profile . To delete more than one entry, select the checkbox you want to delete, and click Delete icon.

Schedules

Schedule policies

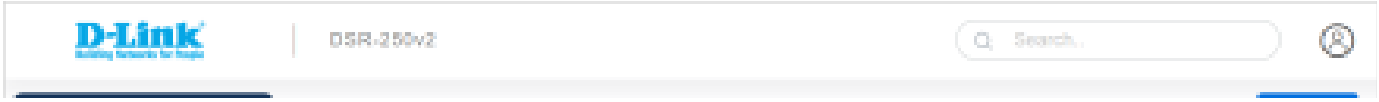
The *Schedule policies* page displays all the default and configured schedule policies for the devices. These schedules are used to activate a few features of the gateway for a certain period of time. So, for features like web content filter, access control, etc., you can configure the schedules on this page, and then you can select one of these schedules from the drop-down list while configuring these features.

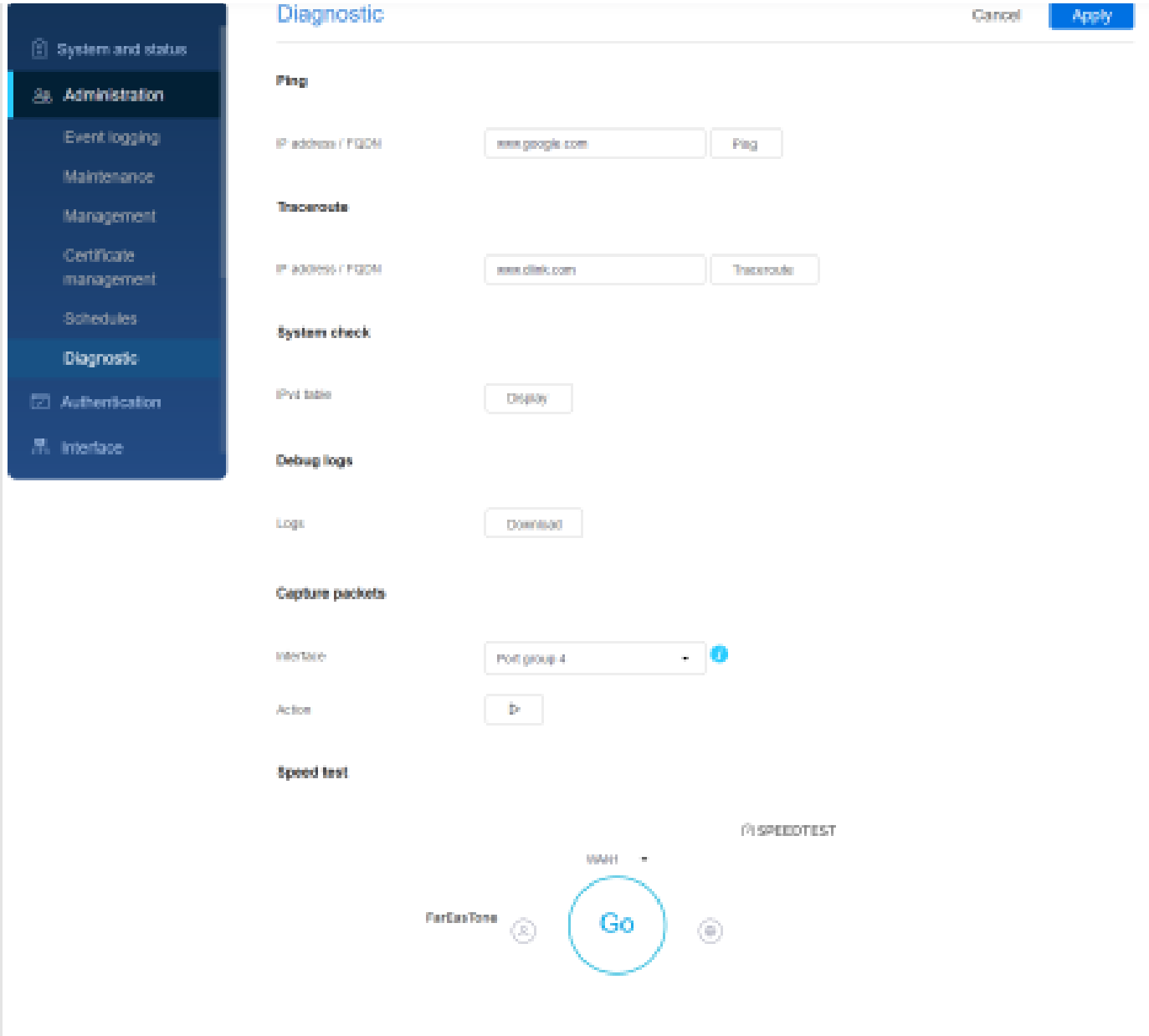
The fields available in the table are as follows:

Field	Description
Name	Enter the name of the configured schedule.
Start time (24 hh:mm)	Enter the start time.
End time (24 hh:mm)	Enter the stop time.
Days	Select the checkboxes of days when you want to apply the schedule policy.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Click **Add (+ button)** to add a new schedule. To delete multiple entries at once, select the checkboxes of the configured schedule you want to delete, and click **Delete Icon**.To edit schedule click on **edit** icon.

Diagnostics





Ping

As part of the diagnostics tools supported by the router, you can ping an IP address or FQDN (Fully Qualified Domain Name). You can use this feature to test connectivity between the router and another device connected to the router.

The fields available in this section are as follows:

Field	Description
IP address / FQDN	Enter the IP address or FQDN.
Ping	Click **Ping** to send an ICMP echo request packet to the destination using the IPv4 network.
Result	It displays the result of the IP address. If the destination IP address is active, you can see a response. A *response timed-out* message indicates that the destination is either not active or is blocking ping requests.

Traceroute

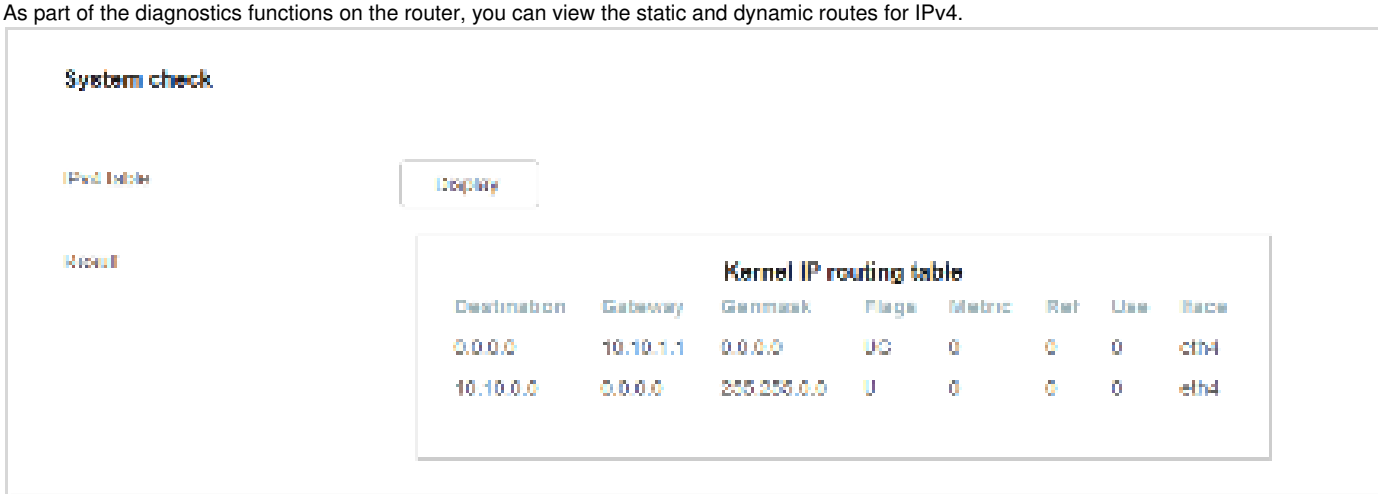
The router DSR-250v2 provides a *Traceroute* function to map the network path to a public host. In addition, it displays up to 30 “hops” between this gateway and the destination.

The fields available in this section are as follows:

Field	Description
IP address / FQDN	Enter the IP address or FQDN.
Traceroute	Click **Traceroute** to display all the routers present between the destination IP address and this router.
Result	This section displays the results of the Traceroute operation.

System check

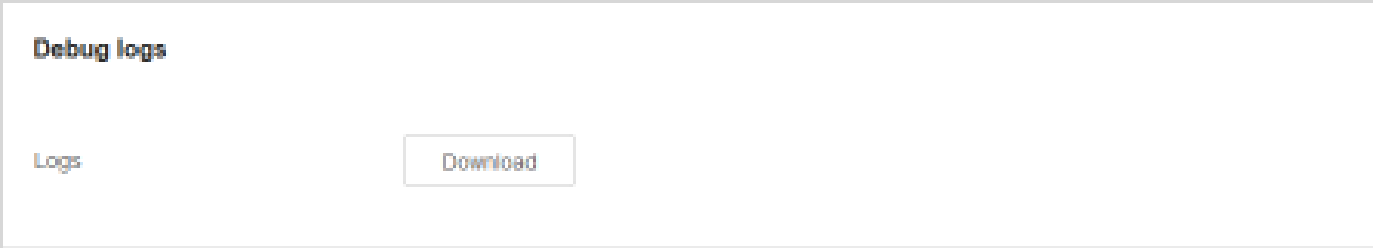
As part of the diagnostics functions on the router, you can view the static and dynamic routes for IPv4.



The fields available in this section are as follows:

Field	Description
IPv4 table	Click **Display** to display the results of the static and dynamic route of IPv4.
Result	This section displays the results of the Traceroute operation.

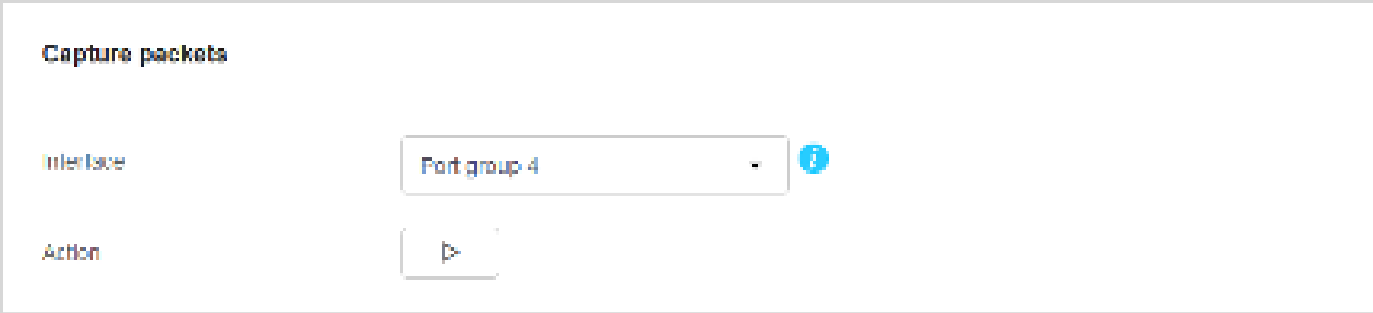
Debug logs



To download the debug logs, click **Download**. Then, select a location on your computer and save the file with the extension ".tgz."

Capture packets

The router lets you capture all packets that pass through the LAN and WAN interfaces. The packet trace's limit is 1MB of data per capture session. The router deletes the capture files exceeding 1MB creating a new capture file.

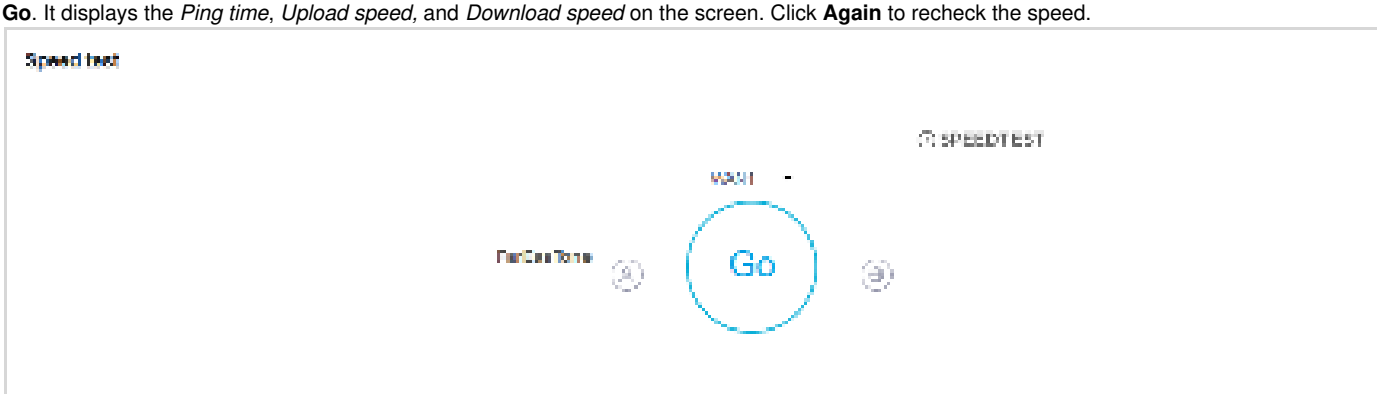


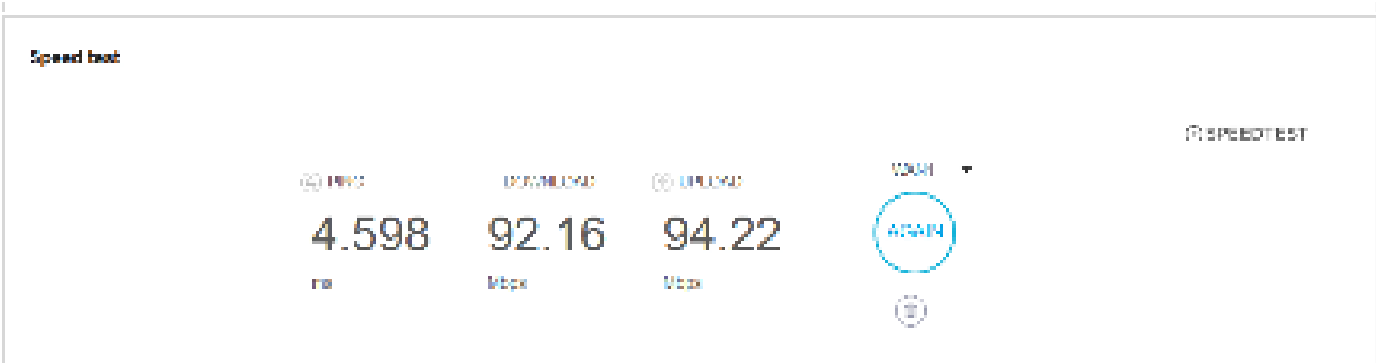
The fields available in this section are as follows:

Field	Description
Interface	Select an interface from the drop-down list for packet tracing.
Action	Click this button to start packet tracing. Click this button to stop packet tracing. Click this button to download the packet tracing file.

Speed test

This section allows you to check the Internet speed of your WAN connection. To check the speed, select the WAN port you want to test, and click **Go**. It displays the *Ping time*, *Upload speed,* and *Download speed* on the screen. Click **Again** to recheck the speed.



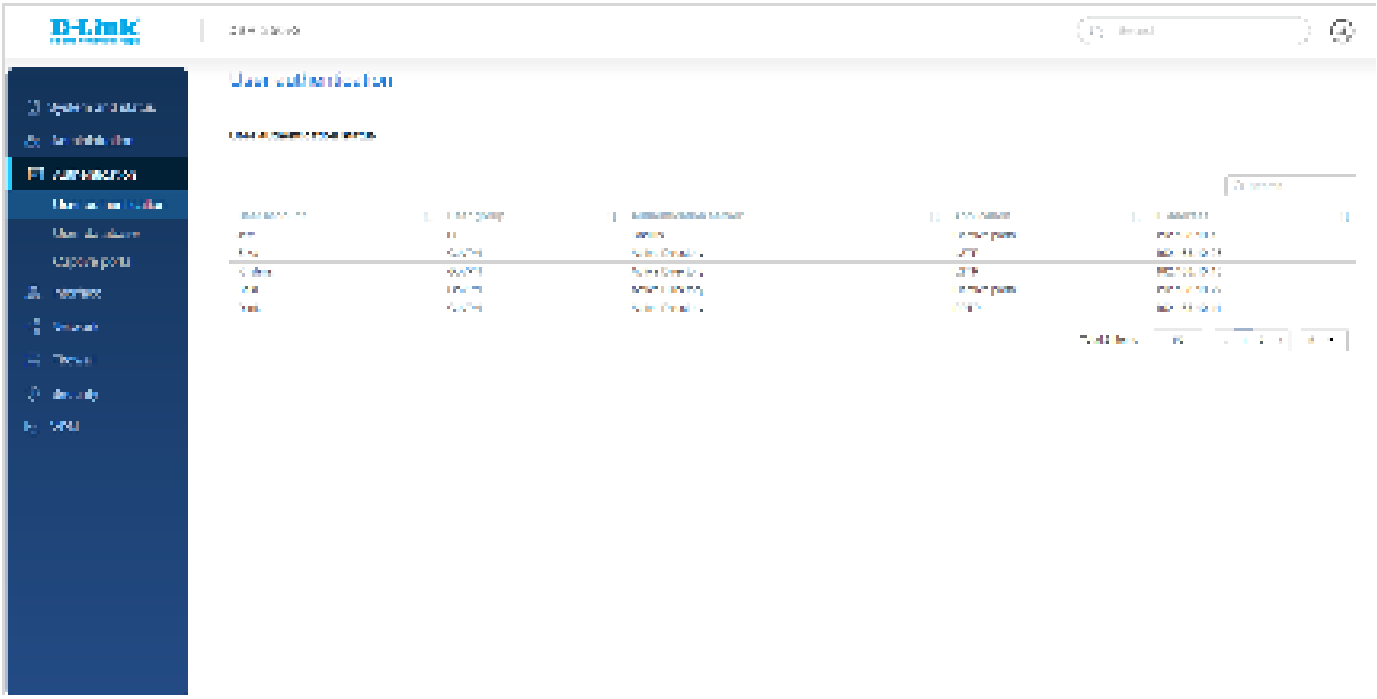


Chapter 3 Authentication

This chapter covers the following topics:

- User authentication status
- User data base
- Captive portal

User Authentication



This page displays the status of the authenticated users with the following details:

Field	Description
User account	It indicates the name of the user account.
User group	It displays the group's name to which the user account belongs.
Authentication server	It displays the authentication server that provides authentication to the account.
Application	It displays the name of the application.
IP address	It displays the IP address of the user.

User data base

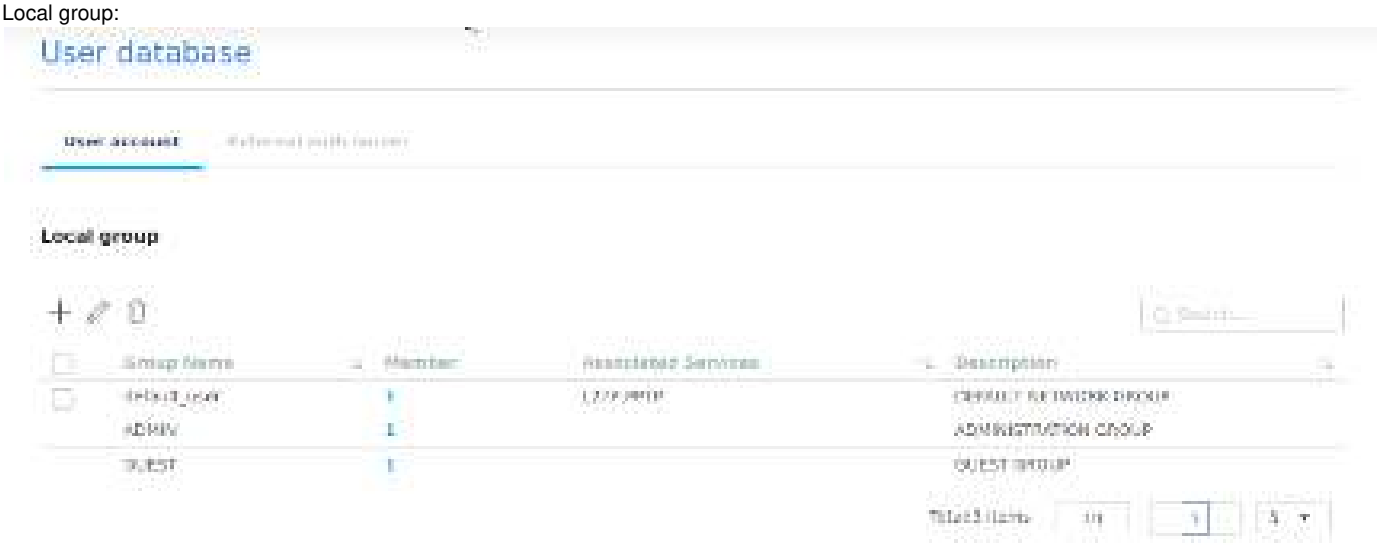
This page covers the following topics:

- User Account

- External servers

User Account:

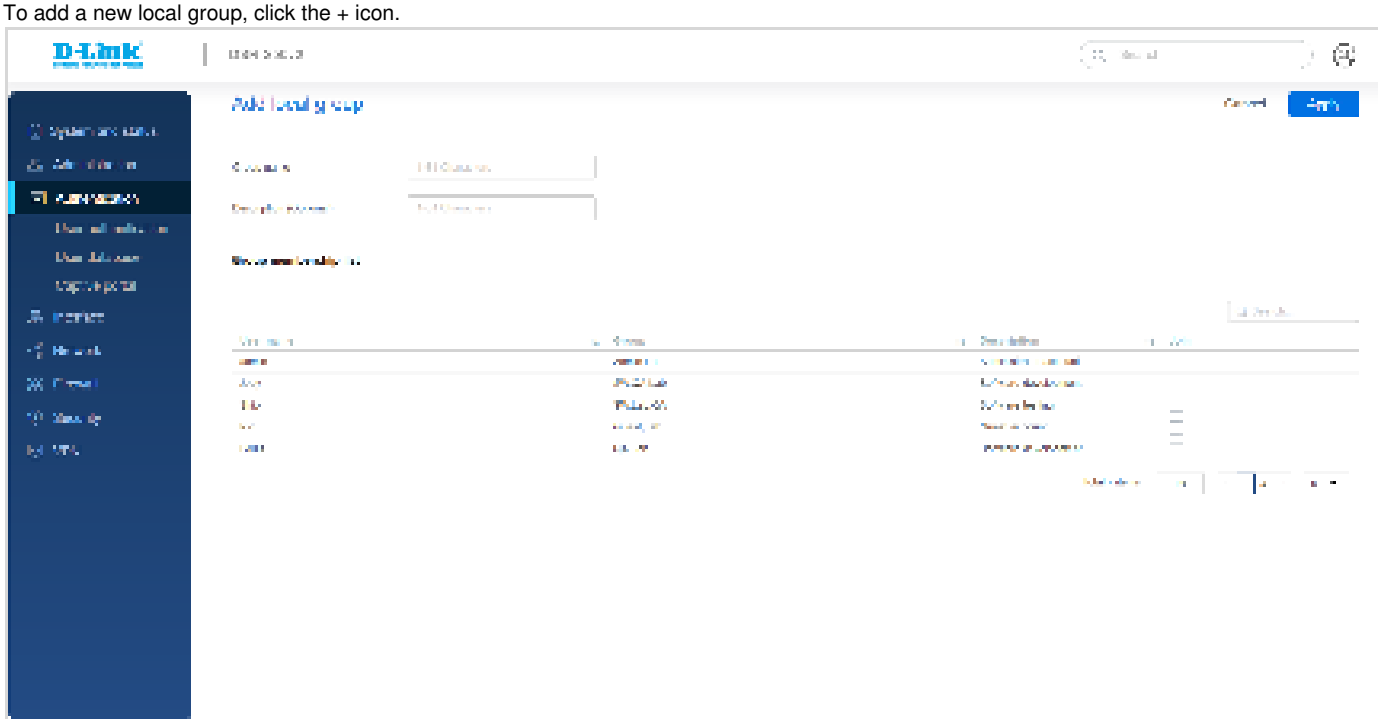
Local group:



This page allows you to add user groups. The fields displayed are as follows:

Field	Description
Group name	It displays the name of the group.
Member	It displays the number of members present in the group.
Associated services	It displays the associated services with the group.
Description	It displays the description about the group.

To add a new local group, click the + icon.



The fields available on this page are as follows:

Field	Description

Group name	Enter the name of the group.
Description	Describe the group.
Group membership list	
User name	It displays the number of members present in the group.
Group	It displays the associated services with the group.
Description	It displays the description about the group.
Join	Enable to add the already existing user to the group.

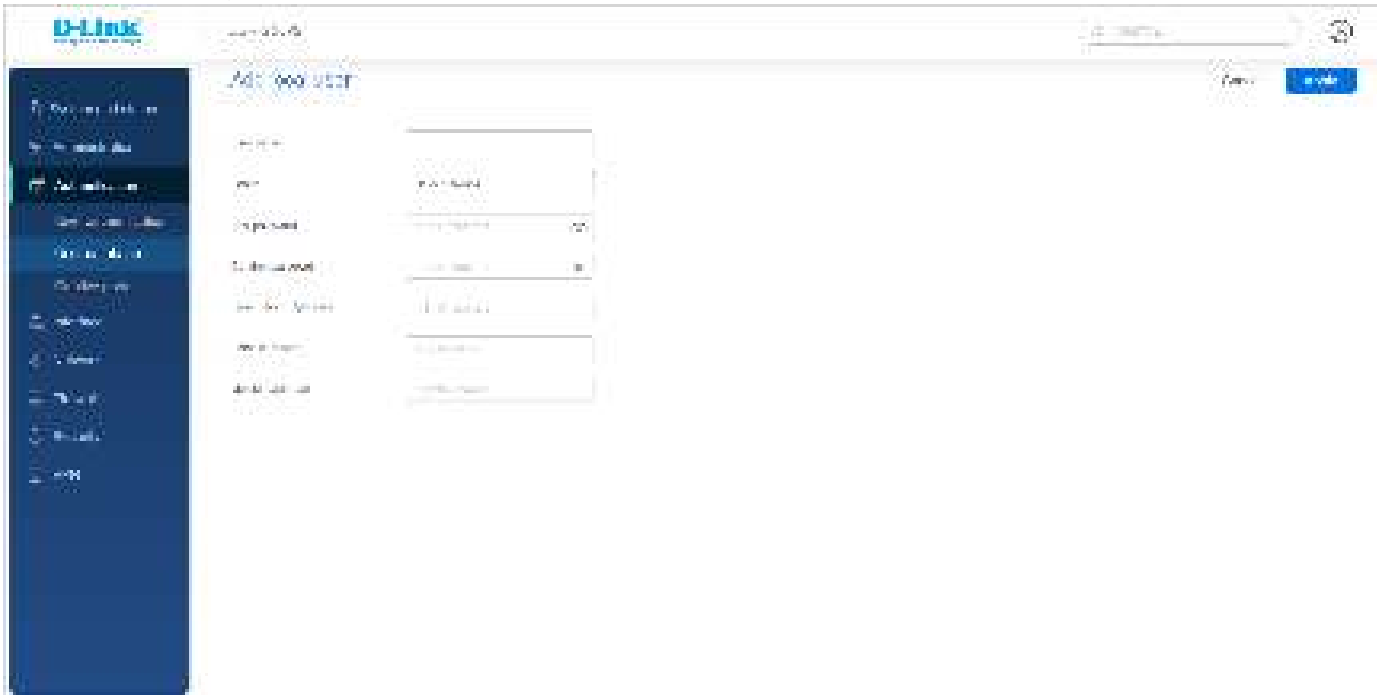
Local users

After you add user groups, you can add users to the user groups. Users can be added individually, or they can be imported from a comma-separated-value (CSV) formatted file. After you add users, you can edit them when changes are required or delete users when you no longer need them.

The fields available in this section are as follows:

Field	Description
User name	It displays the name of the user.
Groups	It displays the name of the group to which the user belongs.
Description	It displays the description.

To add a new local user, click the **+** icon.



The fields available on this page are as follows:

Field	Description
User name	Enter the user name.
Group	Select the checkbox of the group to which you want to add the user.
New password	Enter a password of length 1 to 64 characters.
Confirm password	Confirm the password by reentering the same password.
Description (optional)	Enter the user's description. This field is optional.
Email (optional)	Enter the email of the user. This field is optional.
Mobile (optional)	Enter the mobile number of the user. This field is optional.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

External auth server

Authentication Server

An authentication server is a network service that provides credentials to authenticated users to access the network. When a user enters these credentials into the login page, they get access to the network. In addition, the authentication server maintains a database of users or an external authentication server configuration.

This router page lists all the configured authentication servers and allows the user to configure them for the device.

The fields displayed on this page are as follows:

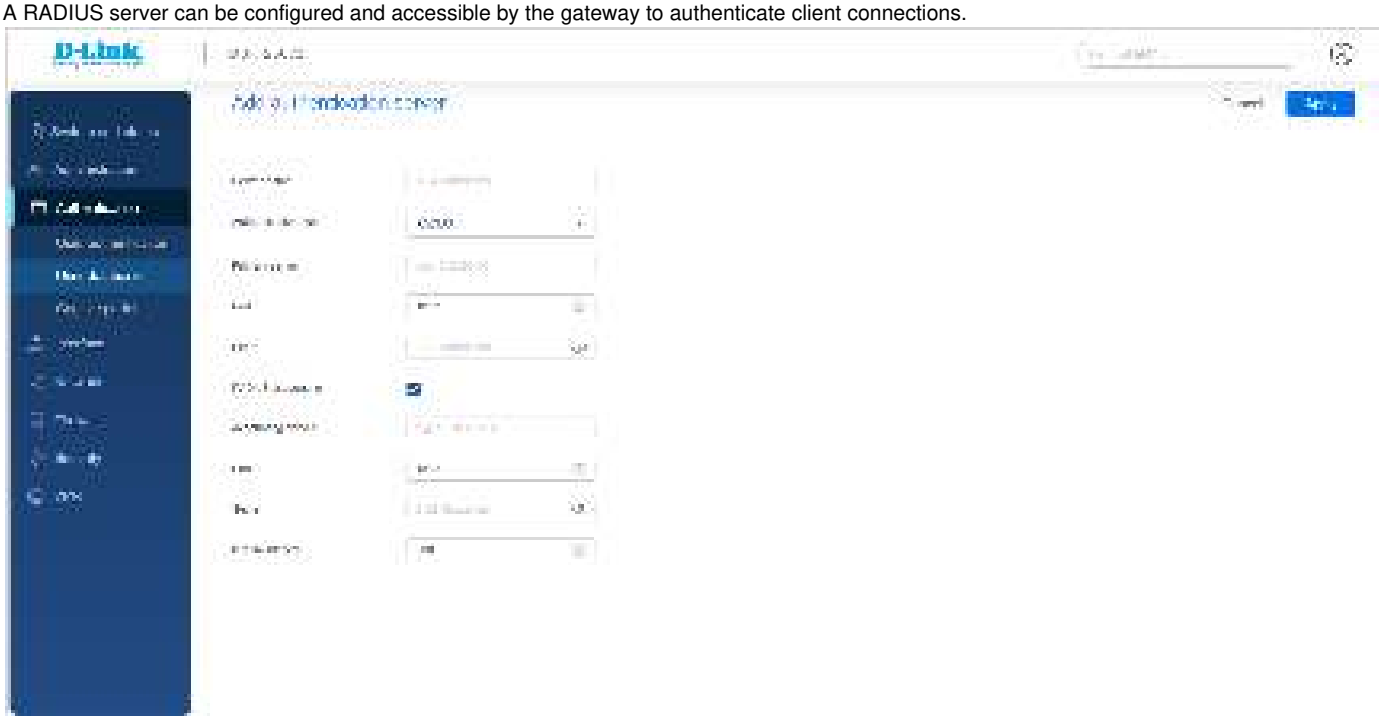
Field	Description
Server name	It indicates the name of the server.
Type	It displays the type of server. It could be any of the following server types: RADIUS, LDAP, Active Directory, POP3, or NT Domain.
Primary server	It displays the IP address of the authentication server.
Port	It displays the authentication server port.
Accounting server	Enter the IP address of the RADIUS accounting server.

Port	Enter the RADIUS accounting port.
Enable	Select the checkbox to enable the server.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Click **+** to add an external authentication server.

Adding RADIUS server

A RADIUS server can be configured and accessible by the gateway to authenticate client connections.

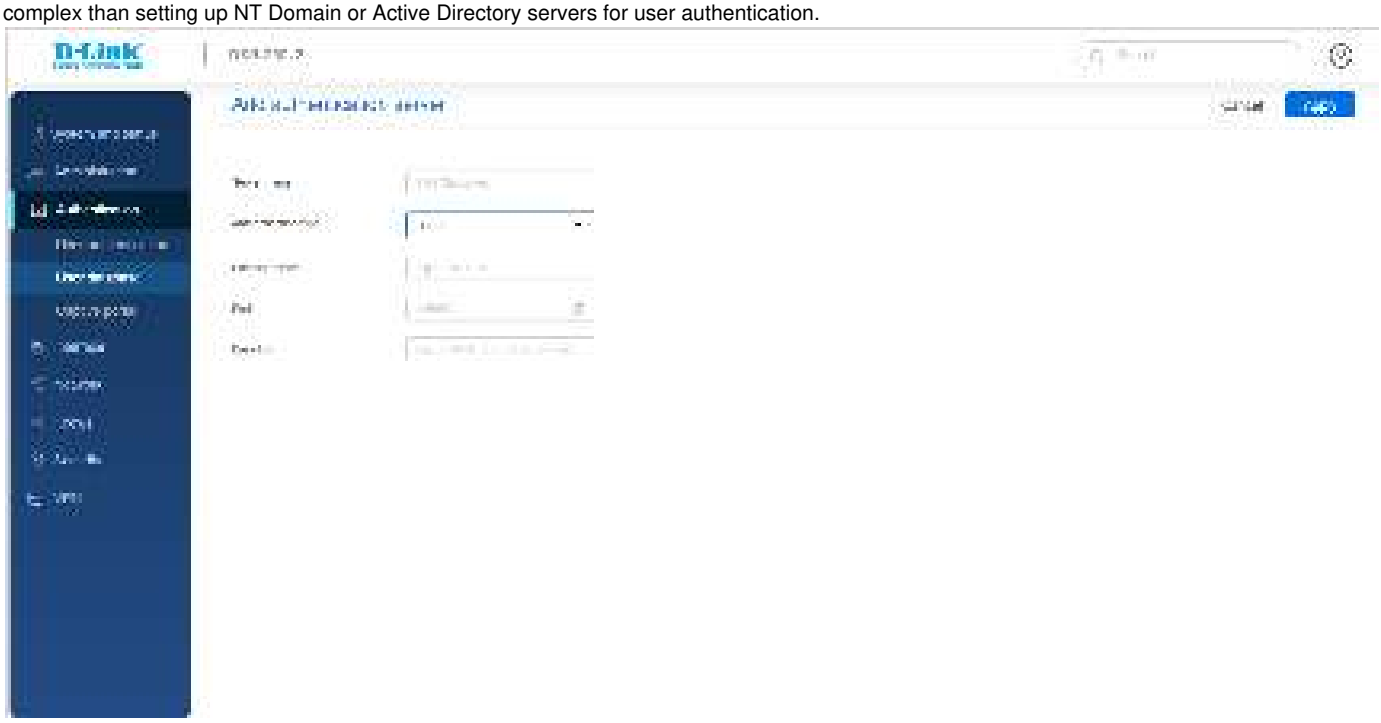


The fields available on this page are as follows:

Field	Description
Server name	Enter the name of the server.
Authentication type	Select RADIUS as the type of server.
Primary server	Enter the IP address of the authentication server.
Port	Enter the authentication server port.
Secret	Enter the secret key that allows the device to log into the configured RADIUS server. It must match the secret on the RADIUS server.
Radius accounting	Select the checkbox to enable this feature to configure Accounting Interim Interval (in seconds). The device sends the traffic statistics of a session in accounting messages to the configured Radius Server.
Accounting server	Enter the IP address of the RADIUS accounting server.
Port	Enter the RADIUS accounting port.
Secret	Enter the secret key that allows the device to get authenticated with the RADIUS accounting server. The secret authenticates all the radius accounting transactions between the client and the RADIUS accounting server.
Interim interval	Enter the interim interval in seconds. Then, the device sends the Radius Accounting (Interim-Update) packets at the interim interval. The value range is 300 - 3600. By default, it is 300.

Adding LDAP server

The LDAP authentication method uses LDAP to exchange authentication credentials between the gateway and an external server. The LDAP server maintains a large database of users in a directory structure, so users with the same user name but different groups can be authenticated since the user information is stored hierarchically. Also, note that configuring an LDAP server on Windows or Linux servers is considerably less complex than setting up NT Domain or Active Directory servers for user authentication.

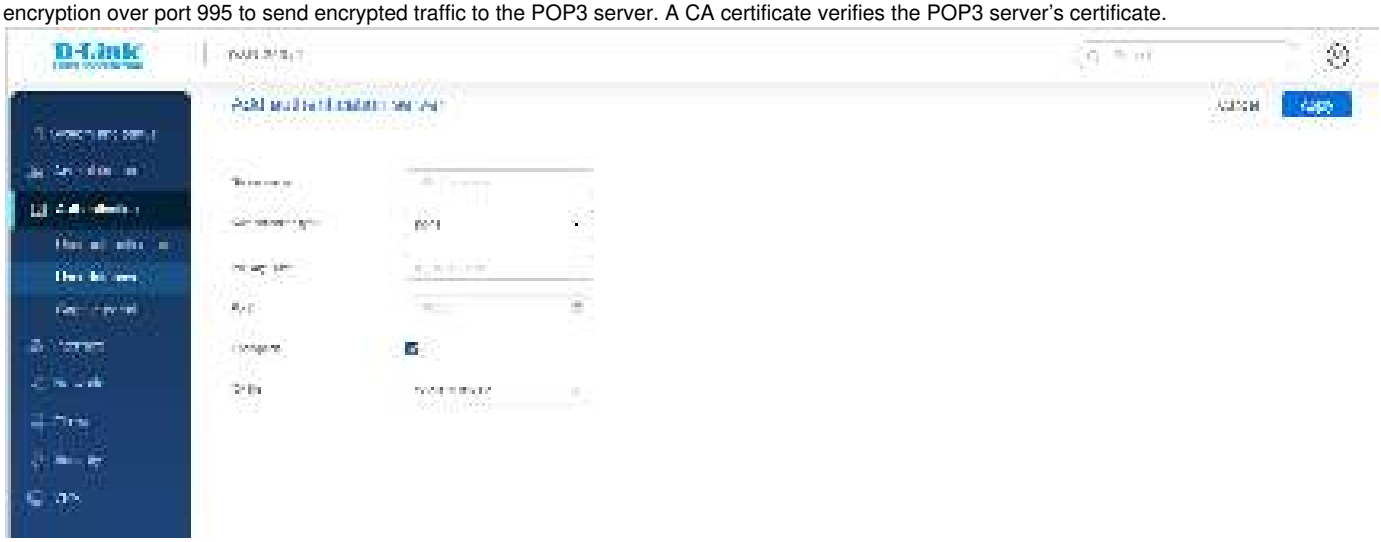


The fields available in this section are as follows:

Field	Description
Server name	Enter the name of the server.
Authentication type	Select LDAP as the type of server.
Primary server	Enter the IP address of the authentication server.
Port	Enter the authentication server port.
Base DN	Enter the base domain name.

Adding POP3 Server

POP3 is an application layer protocol most commonly used for email over a TCP/IP connection. The authentication server can be used with SSL encryption over port 995 to send encrypted traffic to the POP3 server. A CA certificate verifies the POP3 server's certificate.

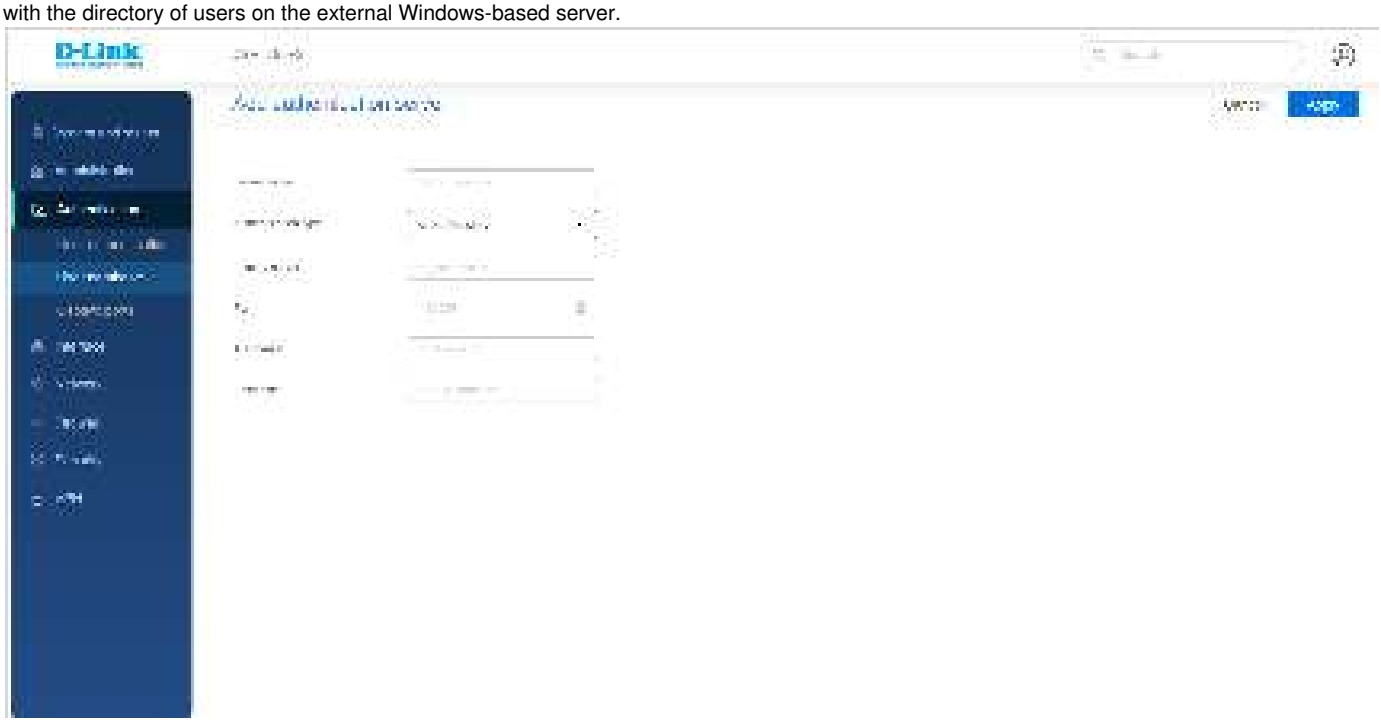


The fields available in this section are as follows:

Field	Description
Server name	Enter the name of the server.
Authentication type	Select POP3 as the type of server.
Primary server	Enter the IP address of the authentication server.
Port	Enter the authentication server port.
Encryption	You can enable or disable the SSL support for POP3. If this option is enabled, it is mandatory to select a certificate authority for it.
CA file	Select a Certificate Authority to verify the POP3 server's certificate.

Adding Active Directory Server

Active Directory authentication is an enhanced version of NT Domain authentication. The Kerberos protocol is leveraged for authentication of users grouped in Organizational Units (OUs). The configured Authentication Servers and Active Directory domain(s) are used to validate the user with the directory of users on the external Windows-based server.



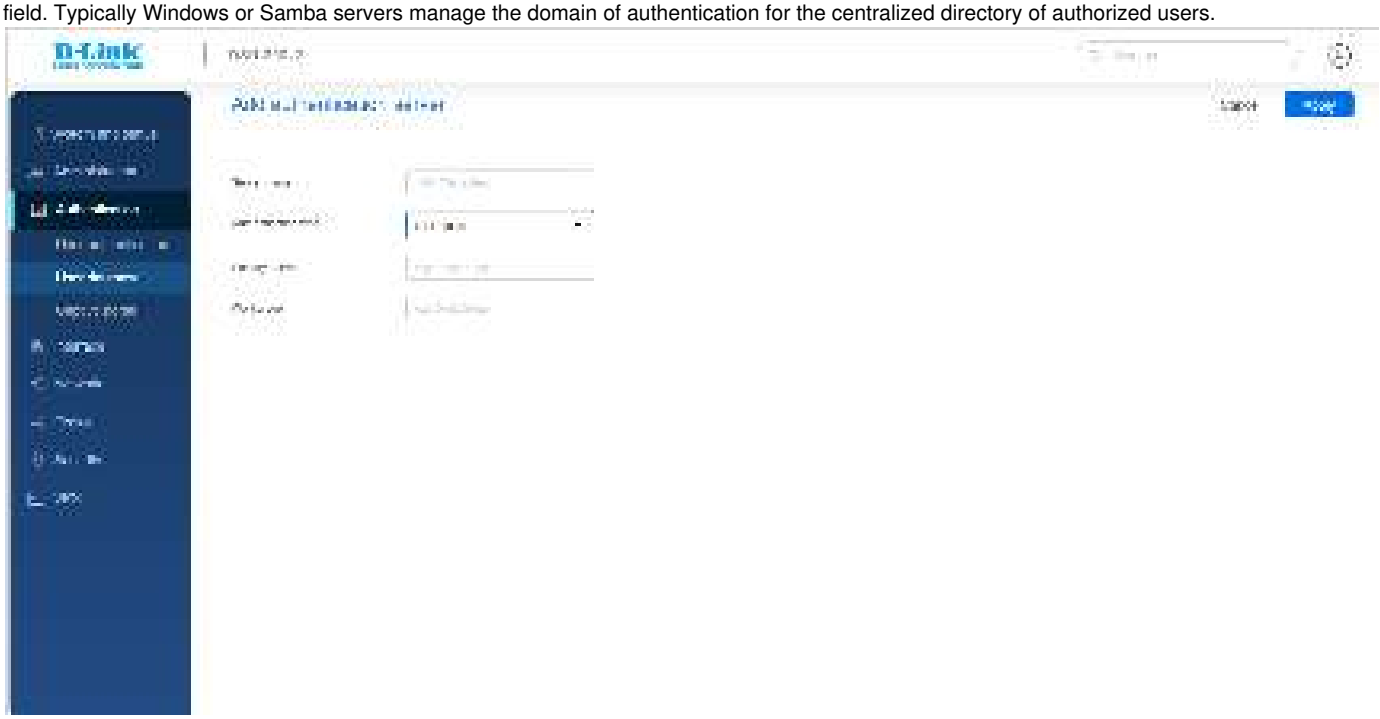
The fields available in this section are as follows:

Field	Description
Server name	Enter the name of the server.
Authentication type	Select Active Directory as the type of server.
Primary server	Enter the IP address of the authentication server.
Port	Enter the authentication server port.
AD domain	

	Since Active Directory is the chosen authentication type, you must enter the Active Directory domain name. Users registered in the Active Directory database can now access the SSL VPN portal using their Active Directory username and password.
Hostname	Enter the server hostname for Active Directory.

Adding NT Domain Server

The NT Domain server allows users and hosts to authenticate themselves via a pre-configured Workgroup field. Typically Windows or Samba servers manage the domain of authentication for the centralized directory of authorized users.



The fields available in this section are as follows:

Field	Description
Server name	Enter the name of the server.
Authentication type	Select Active Directory as the type of server.
Primary server	Enter the IP address of the authentication server.
Workgroup	Enter the NT workgroup name(s).

Captive Portal

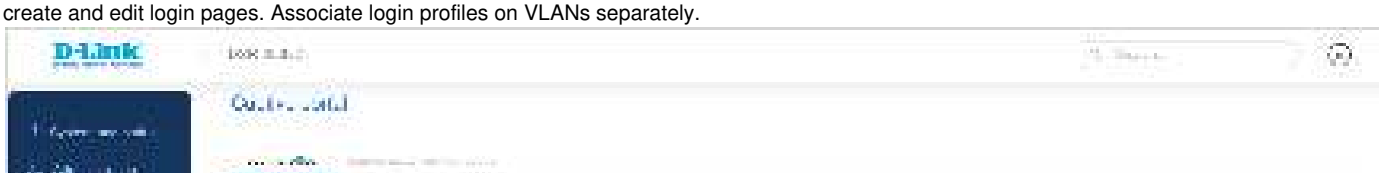
A *captive portal* is a web page that appears when an unauthenticated user tries to access the Internet. Captive portal verifies and authenticates the user and then only grants internet access. It is done by entering the login credentials and accepting the terms and conditions of service. This feature helps the router monitor and control Internet usage.

The router DSR-250v2 allows its users to configure the captive portal page and provides various authentication methods. It consists of the following two sections:

- Login profiles
- Captive portal configurations

Login Profiles

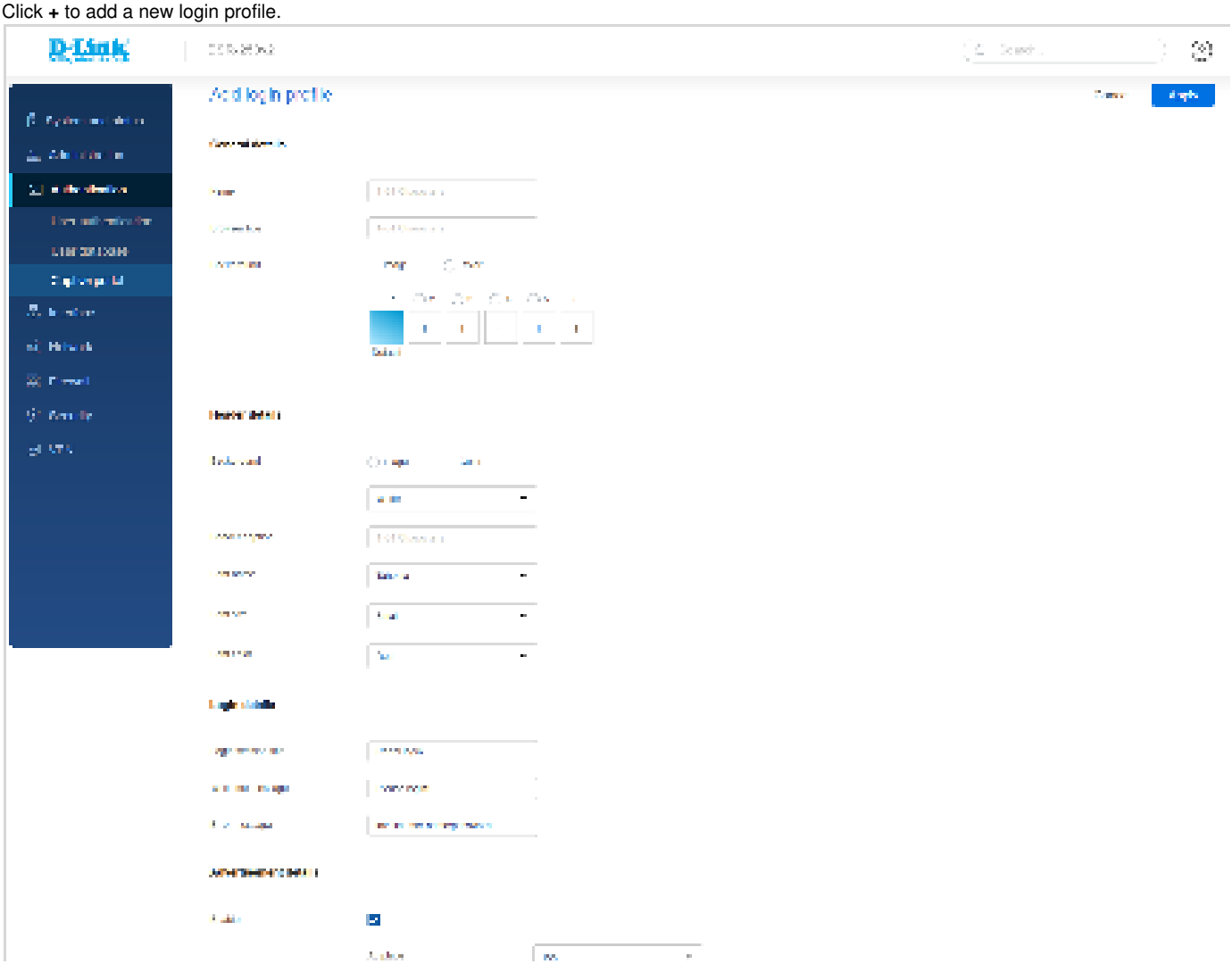
The Router, allows its users to customize the login page as per their requirements, e.g., they can add a specific text and images. It allows you to create and edit login pages. Associate login profiles on VLANs separately.

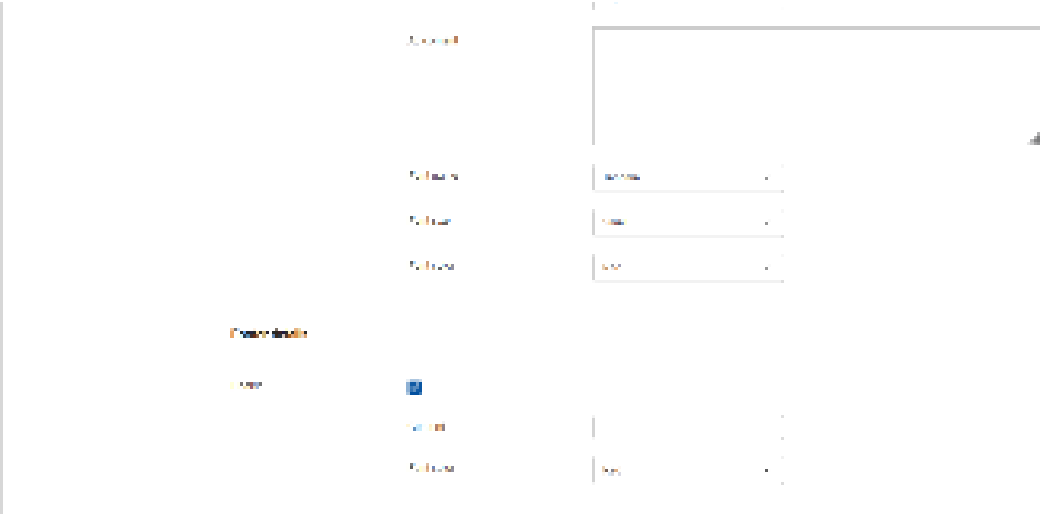


The fields available on this page are as follows:

Field	Description
Name	It displays the name of the login profile.
Browser title	It displays the browser title.

Click **+** to add a new login profile.





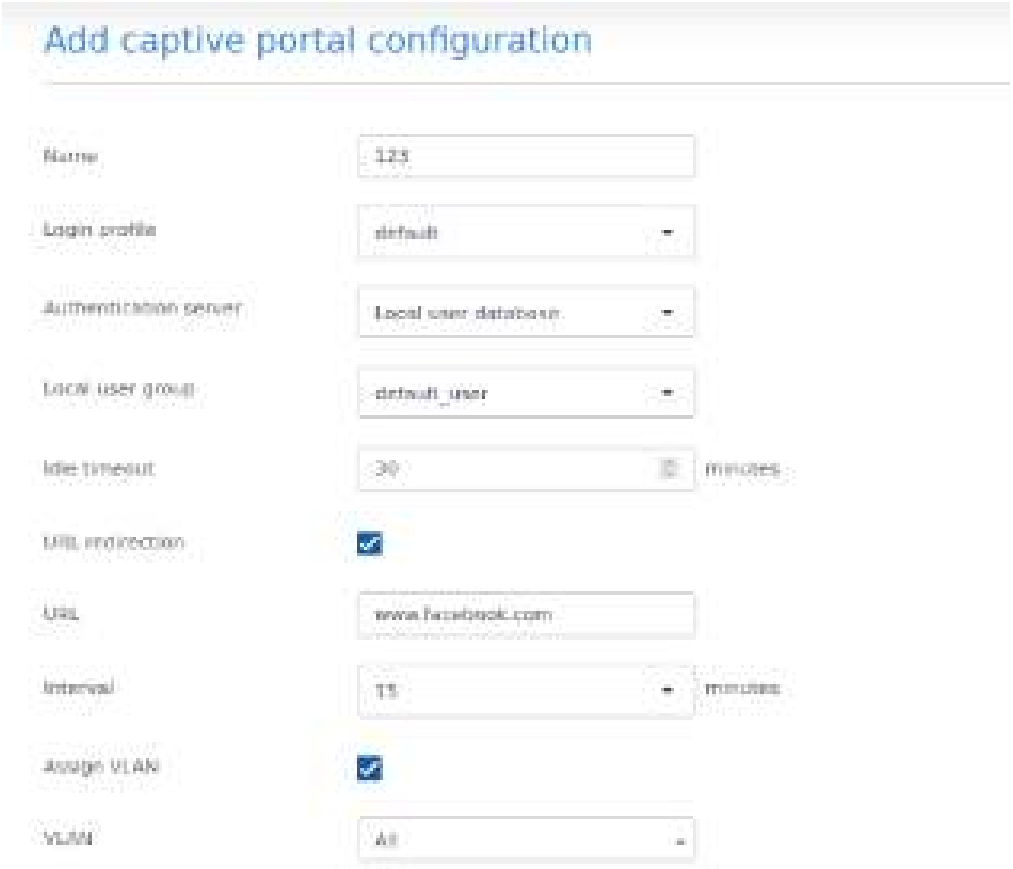
The fields available on this page are as follows:

Field	Description
General details	
Name	Enter a name for this login profile.
Browser title	Enter the text that will appear in the title of the browser during the captive portal session.
Background	Choices are: • **Image**: It displays an image as the background on the page. Use the Page Background Image field to select a background image. • **Color**: It sets the background color on the page. Select the color from the drop-down list.
Header details	
Background	Choices are: • **Image**: It shows a photo on the page. Use the radio buttons to select an image. • **Color**: It shows the background color on the page. Select a background color from the drop-down list.
Header caption	Enter the text that appears in the header of the login page during the captive portal session.
Font name	Select the font for the header text.
Font size	Select the font size for the header text.
Font color	Select the font color for the header text.
Login details	
Login session title	Enter the text that appears in the title of the login box when the user logs in to the captive portal session.
Welcome message	Enter the welcome message that appears when users log in to the captive session successfully.
Error message	Enter the error message that appears when users fail to log in to the captive session successfully.
Advertisement details	
Enable	Select the checkbox for an advertisement on the login page.
Ad place	Select where you want to place the advertisement. You could put it either at the top or at the bottom of the page.
Ad content	Write the content of the advertisement.
Font name	Select the font of the text to be displayed.

Font size	Select the size of the text font to be displaced.
Font color	Select the color for the advertisement text.
Footer details	
Enable	Select the checkbox to enable changes to the footer content on the login page.
Content	Enter the text that appears in the footer.
Font color	Select the color of the text that appears in the footer.

Captive Portal Configuration

You can enable Captive Portal on a per-VLAN basis. Then, the hosts of a particular VLAN get authentication via the Captive Portal, which may be a customized portal with special instructions and branding compared to another VLAN. The most critical aspect of this configuration page is choosing the authentication server. All users (VLAN hosts) that want to gain internet access via the selected Captive Portal get authentication through the selected server.



The fields available on the *Captive portal configuration* page are as follows:

Field	Description
Name	Enter the captive portal name.
Login profile	Select the configured login profile page from the drop-down list.
Authentication server	Select the authentication server. **Local Authentication:** Local authentication is a method where the end-user is redirected to a page that provides options to enter username and password validated against the configured user database of the device. **External authentication** :If this is selected, the end-user is redirected to a page that provides options to enter username and password validated against the configured external

	authentication server. The list of servers includes RADIUS, LDAP, POP3, Active Directory, and NT domain.
Local user group	This option appears when we select local authentication as authentication server. Select the local user group from the drop-down list.
Idle timeout	Idle timeout refers to the end of the session when no data traffic is observed for the given amount of time. The client connected to the gateway re-authenticates once the timer reaches the idle timeout to access the Internet. This value is per gateway and applicable to all the clients connected to the gateway. The range of idle timeout is between 1-1440 minutes.
URL redirection	Select the checkbox to enable URL redirection. If enabled, the user is redirected to the configured URL after the successful authentication.
URL	Enter the URL where the user gets redirected after a successful login.
Interval	Select the periodic interval when the router redirects the user to the URL mentioned in the above field.
Assign VLAN	Enable this feature if you want to assign the captive portal to any VLANs.
VLAN	Select the VLAN ID or name on which the captive portal is to be enabled.

Chapter 4 Interface

This section provides an overview of the port status. You can configure WAN, LAN, and DMZ ports on this page. The Unified services router, DSR-250v2 supports 1 WAN port and other as configurable port as WAN2 or DMZ Another feature that the router supports is Dynamic DNS (DDNS), i.e., an Internet service that allows routers with varying public IP addresses to be located using Internet domain names. You may also configure the IP aliasing feature to associate another IP address with the interface.

The *Interface* section includes the following topics:

- Port configuration
  - Port settings
  - DDNS
  - IP aliasing
- LAN Clients
  - IP managment
  - DNS host mapping
- VLAN settings

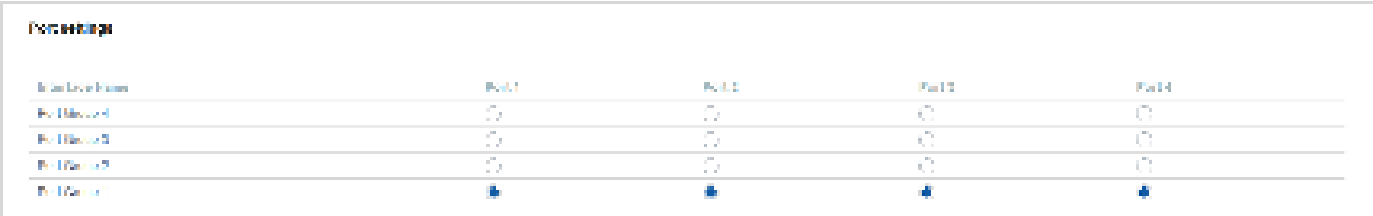
Port Configuration

Port Settings

This section allows you to select the Ethernet port configuration you want to apply to each port,By default each port is connected to port group (192.168.10.x) to change this we need to change port settings.

Eg: if we give port 2 to port group 2 then device which is connected to port 2 will be in different network(192.168.11.x by default)

Note : port 4 can be used either as LAN,WAN or DMZ



Click on the radio button to select the apply the configured port settings.

Network Configuration

This section allows you to configure the ports.

The fields available on this page are as follows:

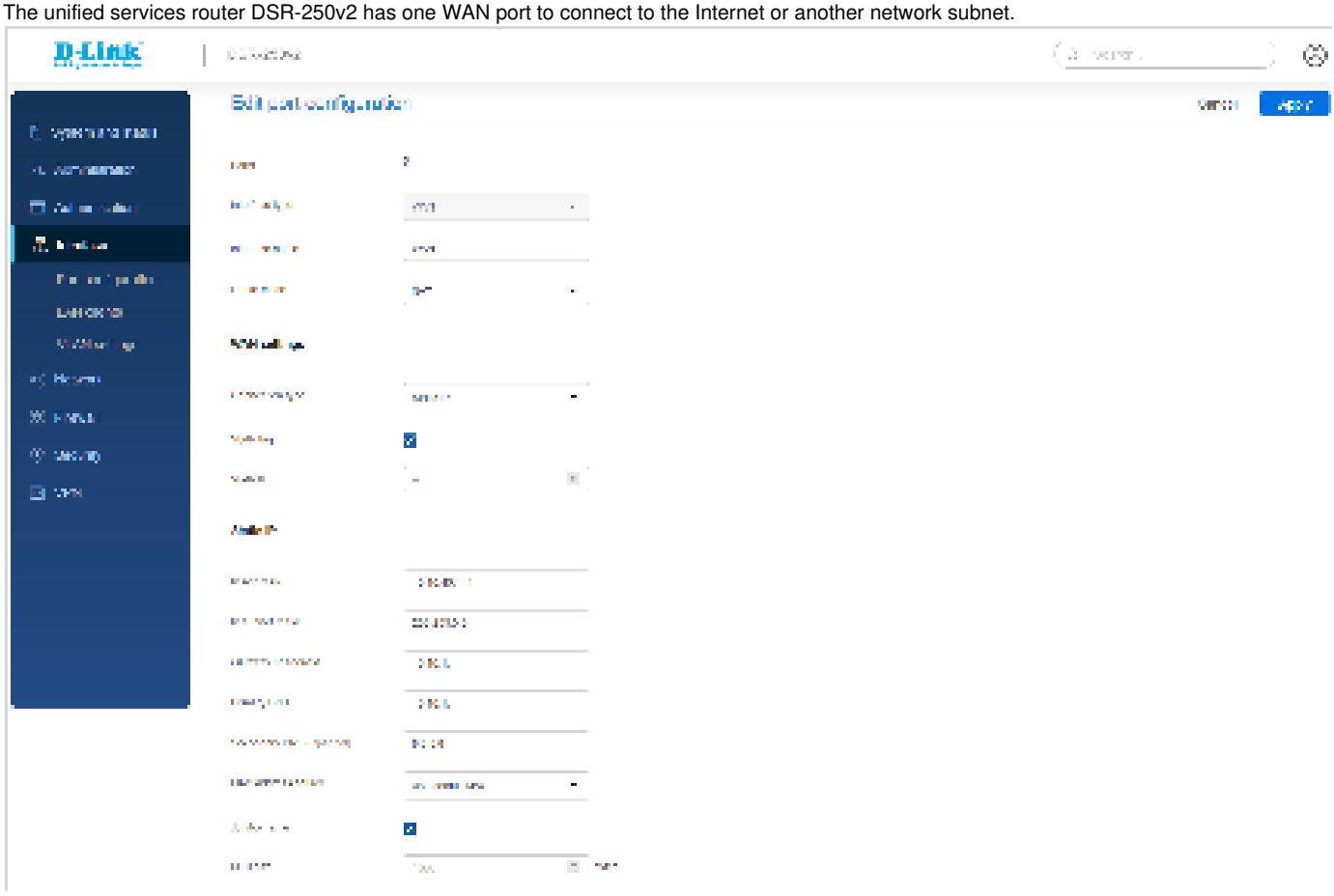
Field	Description
Interface name	It displays the name of the interface.
Interface type	It displays the type of the interface.
IP address	It displays the IP address of the interface.
Subnet mask	It displays the subnet mask.
Gateway	It displays the gateway IP address.
DDNS	It displays the status of the DDNS feature.
Enable	You can enable any port configuration by selecting the checkbox.

The *Port Configuration* section explains how to configure the following ports:

- WAN Port
- LAN Port

WAN Port

The unified services router DSR-250v2 has one WAN port to connect to the Internet or another network subnet.



The fields available on this page are as follows:

Field	Description

Ports	You cannot edit this field. It is 5.
Interface type	Select the type of interface.
Interface name	Enter the interface name.
Route mode	Choose a route mode. The options are NAT and Classical.
WAN settings	
Connection type	Select a connection type from the following options: DHCP, Static IP, PPPoE, PPTP, L2TP, Russian PPPoE, Russian PPTP, and Russian L2TP.
VLAN tag	Enable or disable the VLAN tag on the configured WAN port.
VLAN ID	If the VLAN tag is enabled, enter the **VLAN ID**.
MAC address source	Select **Use default MAC** to use the MAC address from the configured WAN port to associate with your modem/ISP, or **Use this MAC** to enter a MAC address manually.
MAC address	If you select **Use this MAC**, enter the MAC address you want to associate with your ISP.
Jumbo frame	Jumbo frames are Ethernet frames with more than 1500 bytes of payload. When this feature is enabled, the LAN devices can exchange information at the Jumbo frames rate.
MTU size (byte)	The MTU (Maximum Transmit Unit) is the largest packet that can be sent over the network. The standard MTU value for Ethernet networks is usually 1500 Bytes, and for PPPoE/ PPTP connections, it is 1492 Bytes. For all L2TP connections, it is 1460 Bytes.
DHCP	
Hostname	Enter the hostname if required by your ISP.
DNS Server	Select either **Get dynamically from ISP** or **Use these DNS servers** to enter DNS servers manually.
Primary DNS	If you select **Use these DNS servers**, enter the primary DNS server IP address.
Secondary DNS (optional)	If you select **Use these DNS servers**, enter the secondary DNS server IP address. It is an optional field.
Static IP	
IP address	Enter the static address that your ISP assigned to you.
IP subnet mask	Enter the IP subnet mask.
Gateway IP address	Enter the default gateway IP address.
Primary DNS	If you select **Static IP** as the address mode, enter the static primary DNS IP address in the respective subnet.
Secondary DNS (optional)	If you select **Static IP** as the address mode, enter the secondary DNS server IP address. It is an optional field.
PPPoE	
Address mode	Select either **Dynamic IP** or **Static IP**.
IP address	If you select **Static IP**, enter the IP address supplied to you by your ISP.
IP subnet mask	If you select **Static IP**, enter the subnet mask supplied to you by your ISP.
User name	Enter your PPPoE user name.
Password	Enter your PPPoE password.
Service (Optional)	If your ISP supports the service name, enter it here.
Authentication type	Select the type of Authentication to use (Auto-Negotiate, PAP, CHAP, MS-CHAP, or MS-CHAPv2).
Reconnect mode	Select one of the following options: • **Always on:** The connection is always on.

	• **On-demand:** The connection is automatically ended if it is idle for a specified number of minutes.
DNS Server	Select either **Get dynamically from ISP** or **Use DNS as below** to enter DNS servers manually.
Primary DNS	If you select **Use these DNS servers**, enter the primary DNS server IP address.
Secondary DNS (optional)	If you select **Use these DNS servers**, enter the secondary DNS server IP address. It is an optional field.
Maximum idle time	Enter the number of minutes in the *Maximum idle time* field. This feature is useful if your ISP charges you based on the time you are connected. This field is available only when **On-demand** is selected.
PPTP	
Address mode	Select **Dynamic IP** or **Static IP** (IP settings supplied by your ISP).
Server address	Enter your PPTP server IP address or the domain name.
User name	Enter your PPTP user name.
Password	Enter your PPTP password.
IP address	If you select **Static IP** as the address mode, enter the IP address supplied by your ISP.
IP subnet mask	If you select **Static IP** as the address mode, enter the subnet mask supplied by your ISP.
IP gateway	If you select **Static IP** as the address mode, enter the gateway IP address supplied by your ISP.
Static DNS IP (optional)	If you select **Static IP** as the address mode, enter the static DNS IP address in the respective subnet. It is a option field.
MPPE encryption	Enable it if the PPTP server supports this feature.
Reconnect mode	Some ISPs may require you to pay for usage time. Select **On-Demand** if this is the case. This will have the gateway connect to the Internet only when you initiate an Internet connection. Select **Always On** to have the gateway stay connected to the Internet.
Maximum idle time (minutes)	Enter the number of minutes in the *Maximum Idle Time* field. This feature is useful if your ISP charges you based on the time that you are connected. This field is available only when **On-demand** is selected.
L2TP	
Address mode	Select **Dynamic IP** or **Static IP** (IP settings supplied by your ISP).
Server address	Enter your L2TP server IP address or the domain name.
IP address	If you select **Static IP** as the address mode, enter the IP address supplied by your ISP.
IP subnet mask	If you select **Static IP** as the address mode, enter the subnet mask supplied by your ISP.
IP gateway	If you select **Static IP** as the address mode, enter the gateway IP address supplied by your ISP.
Static DNS IP (Optional))	If you select **Static IP** as the address mode, enter the static DNS IP address in the respective subnet.
User name	Enter your L2TP user name.
Password	Enter your L2TP password.
Secret (Optional)	Enter a shared secret if your ISP supports it.
Reconnect mode	Some ISPs may require you to pay for usage time. Select **On-Demand** if this is the case. This will have the gateway connect to the Internet only when you initiate an Internet connection. Select **Always On** to have the gateway stay connected to the Internet.
Maximum idle time (minutes)	Enter the number of minutes in the *Maximum Idle Time* field. This feature is useful if your ISP charges you based on the time that you are connected. This field is available only when **On-demand** is selected.
Russian PPPoE	

Address mode	Select **Dynamic IP** or **Static IP** (IP settings supplied by your ISP).
IP address	If you select **Static IP** as the address mode, enter the IP address supplied by your ISP.
IP subnet mask	If you select **Static IP** as the address mode, enter the subnet mask supplied by your ISP.
User name	Enter your Russian PPPoE user name.
Password	Enter your Russian PPPoE user name.
Service (Optional)	If your ISP supports the service name, enter it here.
Authentication type	Select the authentication type from the drop-down list.
Reconnect mode	Some ISPs may require you to pay for usage time. Select **On-Demand** if this is the case. This will have the gateway connect to the Internet only when you initiate an Internet connection. Select **Always On** to have the gateway stay connected to the Internet.
Maximum idle time	Enter the number of minutes in the *Maximum Idle Time* field. This feature is useful if your ISP charges you based on the time that you are connected. This field is available only when **On-demand** is selected.
Russian PPTP	
Address mode	Select **Dynamic IP** or **Static IP** (IP settings supplied by your ISP).
IP address	If you select **Static IP** as the address mode, enter the IP address supplied by your ISP.
IP subnet mask	If you select **Static IP** as the address mode, enter the subnet mask supplied by your ISP.
IP gateway	If you select **Static IP** as the address mode, enter the gateway IP address supplied by your ISP.
Server address	Enter your Russian PPTP server IP address or the domain name.
Static DNS IP (optional)	If you select **Static IP** as the address mode, enter the static DNS IP address in the respective subnet. It is a option field.
User name	Enter your Russian PPTP user name.
Password	Enter your Russian PPTP user name.
MPPE encryption	Enable it if the Russian PPTP server supports this feature.
Authentication type	Select the authentication type from the drop-down list.
Reconnect mode	Some ISPs may require you to pay for usage time. Select **On-Demand** if this is the case. This will have the gateway connect to the Internet only when you initiate an Internet connection. Select **Always On** to have the gateway stay connected to the Internet.
Maximum idle time	Enter the number of minutes in the *Maximum Idle Time* field. This feature is useful if your ISP charges you based on the time that you are connected. This field is available only when **On-demand** is selected.
Russian L2TP	
Address mode	Select **Dynamic IP** or **Static IP** (IP settings supplied by your ISP).
IP address	If you select **Static IP** as the address mode, enter the IP address supplied by your ISP.
IP subnet mask	If you select **Static IP** as the address mode, enter the subnet mask supplied by your ISP.
IP gateway	If you select **Static IP** as the address mode, enter the gateway IP address supplied by your ISP.
Server address	Enter your Russian L2TP server IP address or the domain name.
Static DNS IP (optional)	If you select **Static IP** as the address mode, enter the static DNS IP address in the respective subnet. It is a option field.
User name	Enter your Russian PPTP user name.
Password	Enter your Russian PPTP user name.
Secret (Optional)	Enter the shared secret if your ISP supports it.
Authentication type	Select the authentication type from the drop-down list.

Reconnect mode	Some ISPs may require you to pay for usage time. Select **On-Demand** if this is the case. This will have the gateway connect to the Internet only when you initiate an Internet connection. Select **Always On** to have the gateway stay connected to the Internet.
Maximum idle time	Enter the number of minutes in the *Maximum Idle Time* field. This feature is useful if your ISP charges you based on the time that you are connected. This field is available only when **On-demand** is selected.

LAN Port

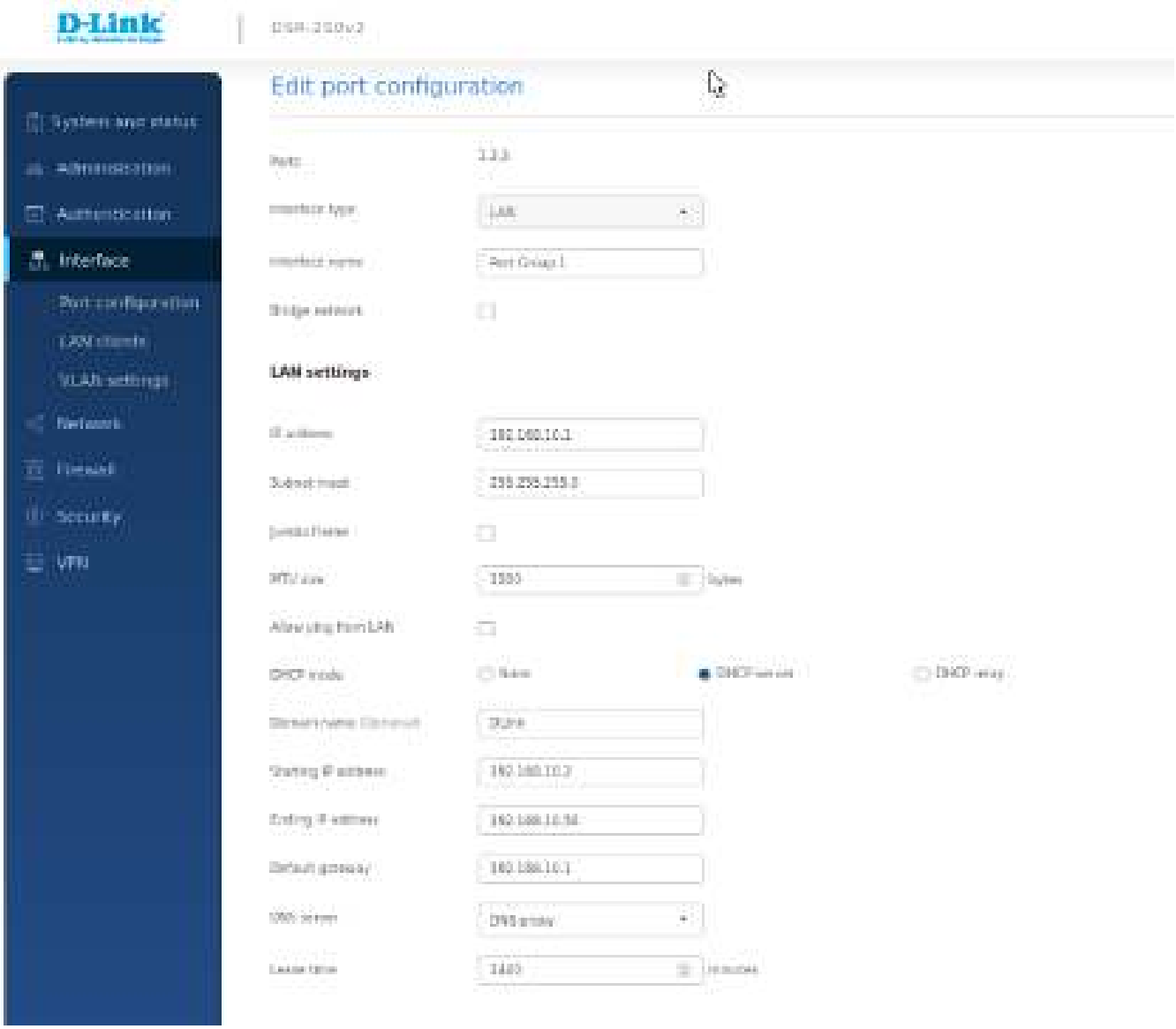
By default, the router as a Dynamic Host Configuration Protocol (DHCP) server to the hosts present on the LAN network. With DHCP, PCs and other LAN devices can be assigned IP addresses and addresses for DNS servers and the default gateway. The gateway's IP address serves as the gateway address for LAN clients, with the DHCP server enabled. The PCs in the LAN are assigned IP addresses from a pool of addresses if the DHCP server is configured.

For most applications, the default DHCP and TCP/IP settings are satisfactory. If you want another PC on your network to be the DHCP server or if you are manually configuring the network settings of all of your PCs, set the DHCP mode to "none." DHCP relay can forward DHCP packets to get the DHCP lease information from another DHCP server on the network.

You can configure the LAN port in the *Port configuration* section. Click on the radio button to select the LAN port group and then click on **Edit** to open the respective port configuration page.

***Note**:*

- *Port interface 1 and Port interface 5 are WAN and LAN ports, respectively.*
- *You can configure WAN, LAN, or DMZ ports on port interface 4 only.*



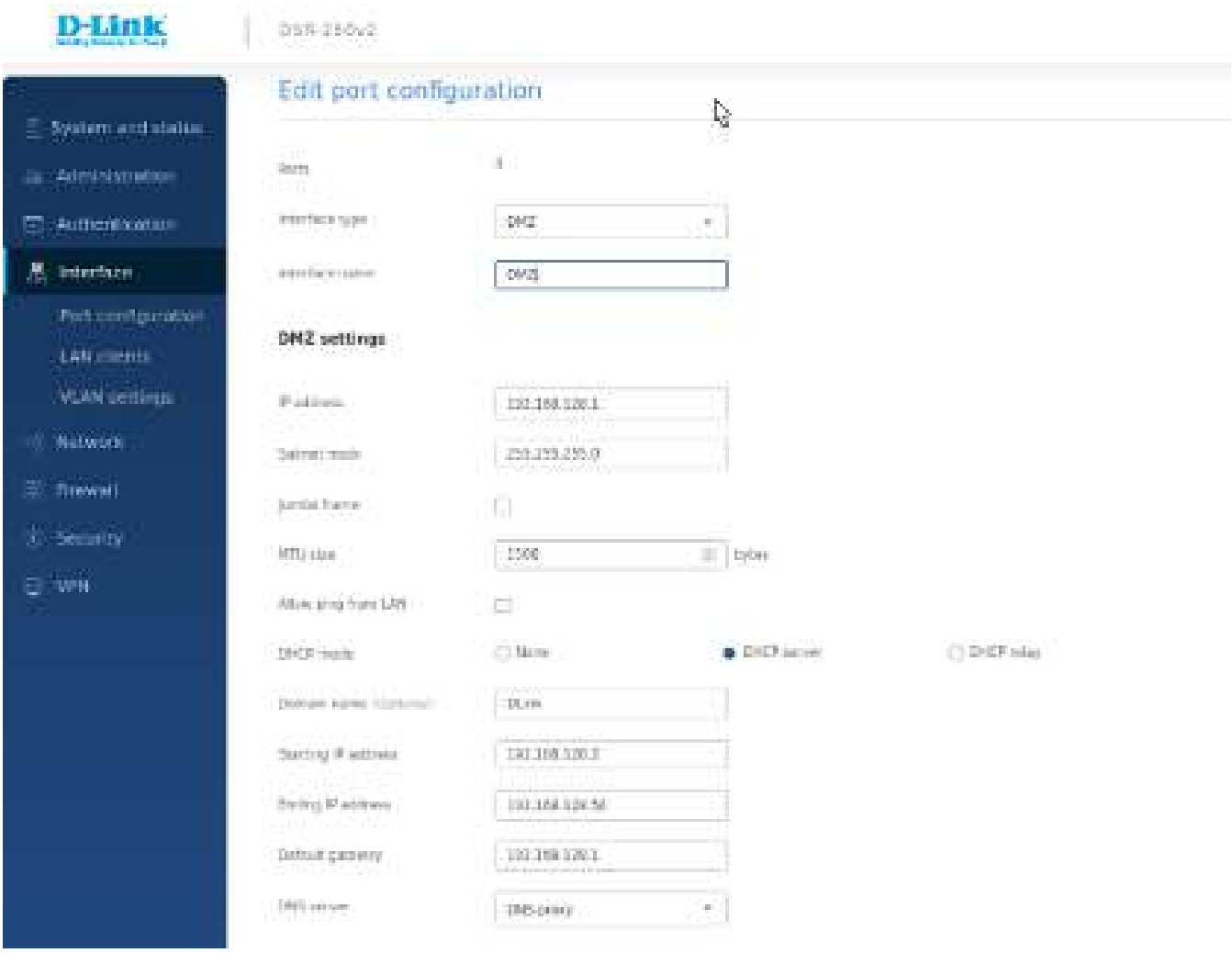
The fields available on this page are as follows:

Field	Description
Interface type	Select **LAN** to configure the port as the LAN port. ***Note:*** *You can not edit this field for Port interface 1, 2, 3 and 5 interfaces. Port interface 5 can only be configured as a WAN port and Port interface 1, 2, 3 as a LAN port.*
Interface name	Specify the name for your LAN interface.
Bridge network	Enable this field to bridge this LAN to another VLAN.
Network	Select the network from the drop-down list. This field is available when you enable the *Bridge network* field.
IP address	Enter a new IP address for the gateway.
IP subnet mask	Enter the subnet mask for your network.
DHCP mode	Select one of the following modes: • **None** - Select **None** to turns off DHCP. • **DHCP server** - If this is selected, the gateway will act as the DHCP server on your network. By default, the “DHCP server” is selected as the DHCP mode. • **DHCP relay** - If this is selected, DHCP clients on your network will receive IP address leases from a DHCP server on a different subnet.
Domain name	Enter a domain name for LAN configuration.
Starting IP address	Enter the starting IP address.
Ending IP address	Enter the ending IP address.
Default gateway	If DHCP mode is **DHCP server**, enter the default gateway for the DHCP server mode.
DNS server	Select one of the following options for DNS servers for the DHCP clients: • **DNS Proxy**: Enable or disable DNS Proxy on this VLAN. When the DNS Proxy field is selected, the gateway acts as a proxy for all DNS requests and communicates with the ISP’s DNS servers. • **DNS from ISP**: This option sends all DNS requests to the ISP’s DNS Servers. • **Static DNS:** This option sends all DNS requests to the configured static DNS servers.
Primary DNS server	Enter the primary DNS Server IP address.
Secondary DNS server (optional)	Enter the secondary DNS Server IP address. It is an optional field.
Lease time (minutes)	Enter the duration (in minutes) for which IP addresses will be leased to clients.
Relay gateway	Enter the relay gateway IP address. This field is available when you select *DHCP mode* as **D HCP relay**.
Allow ping from LAN	If this option is disabled, the ping requests to the LAN interface are blocked.
DNS Proxy	When the DNS Proxy field is enabled, the gateway acts as a proxy for all DNS requests and communicates with the ISP’s DNS servers. This field is available when you select **DHCP relay** or **None** as the DHCP mode.
Jumbo frame	Jumbo frames are Ethernet frames with more than 1500 bytes of payload. When this feature is enabled, the LAN devices can exchange information at the Jumbo frames rate.
Apply	Click **apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

DMZ Port

The router supports one of the physical ports to be configured as a dedicated DMZ port. A DMZ is a sub-network that is open to the public but behind the firewall. The DMZ provides security to the network, as specific services/ports exposed to the Internet on the DMZ do not get exposed to the Intranet. Therefore, it is recommended that hosts exposed to the Internet (such as web or email servers) be placed in the DMZ network. Firewall rules can permit access to specific services/ports to the DMZ from LAN or WAN. In an attack on any of the DMZ nodes, the LAN is not necessarily vulnerable. DMZ configuration is identical to the LAN configuration. There are no restrictions on the IP address or subnet assigned to

the DMZ port, other than the fact that it cannot be identical to the IP address given to the LAN interface of this router.
You can configure Port interface 4 as DMZ ports in the *Port Configuration* section. Select radio button of interface type 4 for port 4 and Apply the configurations. Select interface type 4 and Click **Edit ion** to open the respective port configuration page.



The fields available on this page are as follows:

Field	Description
Interface type	Select **DMZ** to configure the port as the DMZ port.
Interface name	Specify the name for your DMZ interface.
IP address	Enter a new IP address for the device.
IP subnet mask	Enter the subnet mask for your network.
DHCP mode	Select one of the following modes: • **None** - Select **None** to turns off DHCP. • **DHCP server** - If this is selected, the gateway will act as the DHCP server on your network. By default, the “DHCP server” is selected as the DHCP mode.

	• **DHCP relay** - If this is selected, DHCP clients on your network will receive IP address leases from a DHCP server on a different subnet.
Domain name	Enter a domain name for DMZ configuration.
Starting IP address	Enter the starting IP address.
Ending IP address	Enter the ending IP address.
Default gateway	If you select **DHCP Server** as the DHCP mode, enter the default gateway for the DHCP server mode.
DNS server	Select one of the following options for DNS servers for the DHCP clients: • **DNS Proxy**: Enable or disable DNS Proxy. When the DNS Proxy field is selected, the device acts as a proxy for all DNS requests and communicates with the ISP's DNS servers. • **DNS from ISP**: This option sends all DNS requests to the ISP's DNS Servers. • **Static DNS**: This option sends all DNS requests to the configured static DNS servers.
Primary DNS server	Enter the primary DNS Server IP address.
Secondary DNS server (optional)	Enter the secondary DNS Server IP address. It is an optional field.
Jumbo frame	Jumbo frames are Ethernet frames with more than 1500 bytes of payload. When this feature is enabled, the LAN devices can exchange information at the Jumbo frames rate.
Lease time (minutes)	Enter the duration (in minutes) for which IP addresses will be leased to clients.
Relay gateway	Enter the relay gateway IP address. This field is available when you select *DHCP mode* as **D HCP relay**.
Allow ping from LAN	If this option is disabled, the ping requests to the LAN interface are blocked.
DNS Proxy	When the DNS Proxy field is enabled, the device acts as a proxy for all DNS requests and communicates with the ISP's DNS servers. This field is available when you select **DHCP relay** or **None** as the DHCP mode.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

WAN Mode Configuration

The router supports multiple WAN links. This allows you to take advantage of rollover and load balancing features to ensure that certain Internet-dependent services are prioritized in the event of unstable WAN connectivity on one of the ports.
To use Auto-rollover or Load Balancing, you must configure WAN link failure detection. This involves accessing DNS servers on the Internet or ping to an Internet address (user-defined). In load balancing, you can also select *None* to disable the failure detection feature. When the failure detection is enabled, specify the retry interval and the number of attempts it has to connect to the configured server. If all the attempts are failed, the WAN port is considered to be down.

This section discusses the following WAN modes:

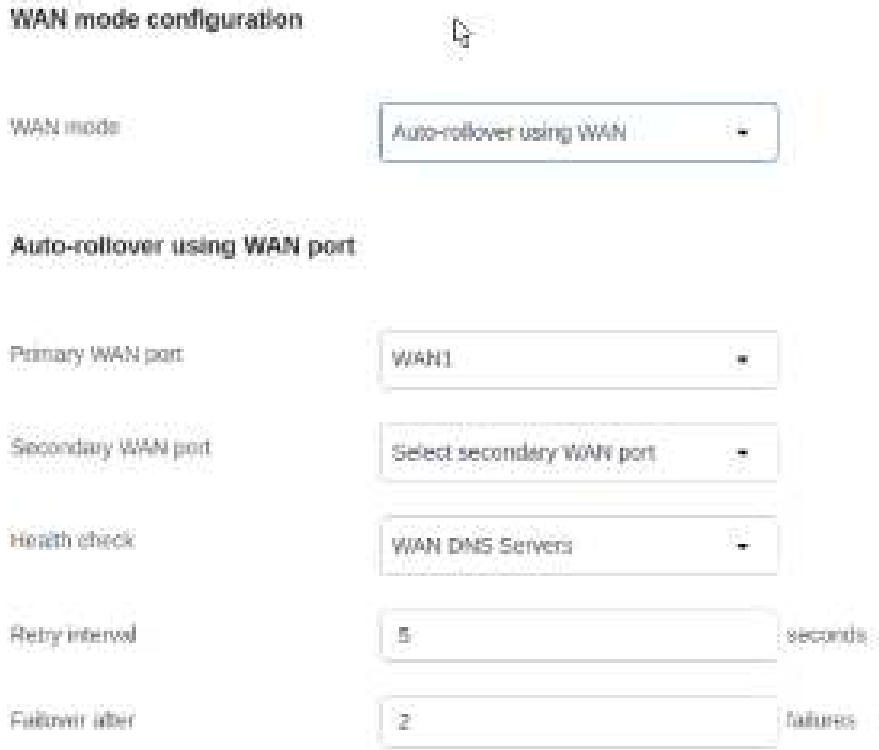
- Primary WAN
- Auto-rollover using WAN
- Load Balancing
    - Round Robin
    - Spillover mode

Primary WAN

If you do not want to use Auto-rollover or Load balancing, select **Primary WAN** as the WAN mode and select the WAN port you want to set as the primary WAN port.

Auto-rollover using WAN

In the Auto-rollover using WAN mode, one of the WAN ports is assigned as the primary Internet link for all the Internet traffic; the secondary WAN port is used for redundancy if the primary link goes down for any reason. Both WAN ports (primary and secondary) must be configured to connect to the respective ISP's before enabling this feature. The secondary WAN port will remain unconnected until a failure is detected on the primary link (either port can be assigned as the primary). If a failure occurs on the primary port, the Internet traffic will roll over to the backup port. When configured in Auto-rollover mode, the link status of the primary WAN port is checked at regular intervals as defined by the failure detection settings.



If you want to use Auto-rollover, select *Auto-rollover using WAN* as the WAN mode and enter the following details.

Field	Description
WAN mode	Select *Auto-rollover using WAN*.
Primary WAN port	Select the primary WAN port.
Secondary WAN port	Select the secondary WAN port.
Health check	Select one of the following options for the health check: • **WAN DNS Servers**: If you select this option, it detects the health of a WAN link using the WAN DNS servers configured in the WAN Settings pages. • **DNS Servers**: If you select this option, it detects WAN health by using a specific DNS server. Select DNS Servers and enter the IP addresses of custom DNS servers for the primary and secondary WANs.

	• **Ping IP address**: If you select this option, ping to an IP address to detect WAN health. Select this option and enter the IP addresses in the fields to ping from the primary and secondary WANs. Ensure that this destination host is reliable.
Primary WAN	Enter the IP address whose health could be checked using the primary WAN port.
Secondary WAN	Enter the IP address whose health could be checked using the secondary WAN port.
Retry interval	Enter the retry time duration in seconds to check the WAN health. By default, it is every 30 seconds.
Failover after	Enter the number of failures after which the port is considered to be down.

Load Balancing

The load balancing feature allows you to simultaneously use multiple WAN links (presumably multiple ISP's). After configuring more than one WAN port, the load balancing option can carry traffic over more than one link. Protocol bindings are used to segregate and assign services over one WAN port to manage Internet flow. The configured failure detection method is used regularly on all the configured WAN ports when in Load Balancing mode.

Load balancing is beneficial when the connection speed of one WAN port greatly differs from another. In this case, you can define protocol bindings to route low-latency services (such as VOIP) over the higher-speed link and let low-volume background traffic (such as SMTP) go over the lower-speed link.
The gateway currently supports two algorithms for Load Balancing:

- **Round Robin**: This algorithm works in a recurring process where the packets are routed to the available WAN ports in a sequence irrespective of the connection speed of any WAN ports. If one packet is forwarded to one WAN port, the next packet will automatically go to the next WAN port. This ensures that the traffic load is distributed among all the active WAN ports.
- **Spillover**: If the Spillover method is selected, one WAN acts as a dedicated link until a defined bandwidth threshold is reached. After this, the next WAN will be used for new connections. Inbound connections on WAN are permitted with this mode, as the spillover logic governs outbound connections moving from one WAN to the other WAN.

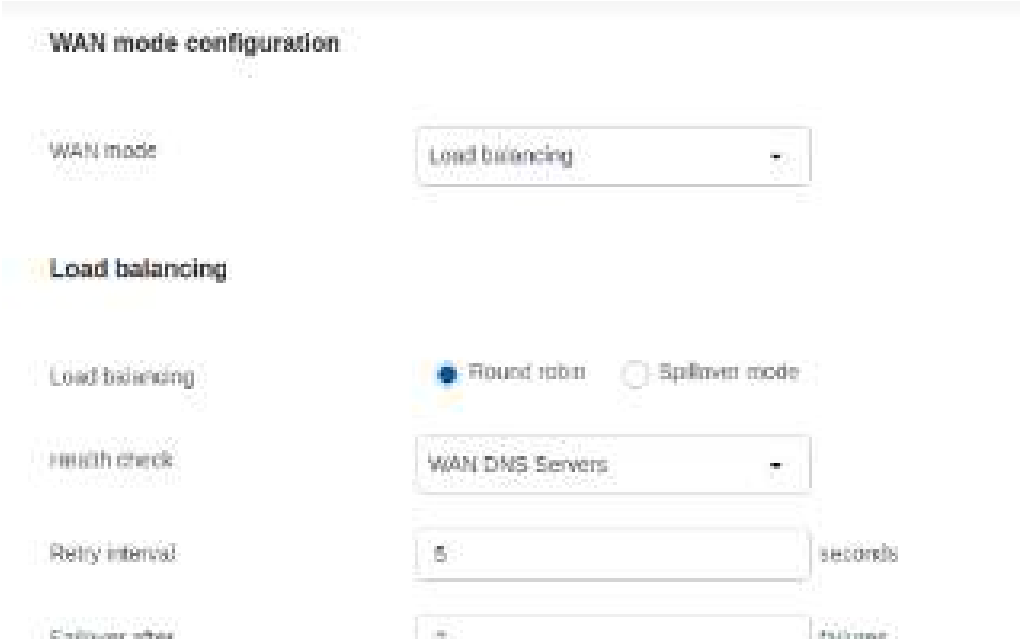
You can configure spillover mode by using the following options:

- **Load Tolerance**: It is the percentage of bandwidth after which the gateway switches to secondary WAN.
- **Max Bandwidth**: This sets the maximum bandwidth tolerable by the primary WAN for outbound traffic.
  If the link bandwidth of outbound traffic goes above the max bandwidth load tolerance value, the gateway will spill over the next connections to the next WAN.

For example, if the maximum bandwidth of a WAN is 1Kbps and the load tolerance is set to 70. Now, every time a new connection is established, the bandwidth increases. After a certain number of connections, say bandwidth reached 70% of 1Kbps, the gateway will spill over new outbound connections to the next WAN. The maximum value of load tolerance is 80%, and the minimum is 20%.

Round Robin

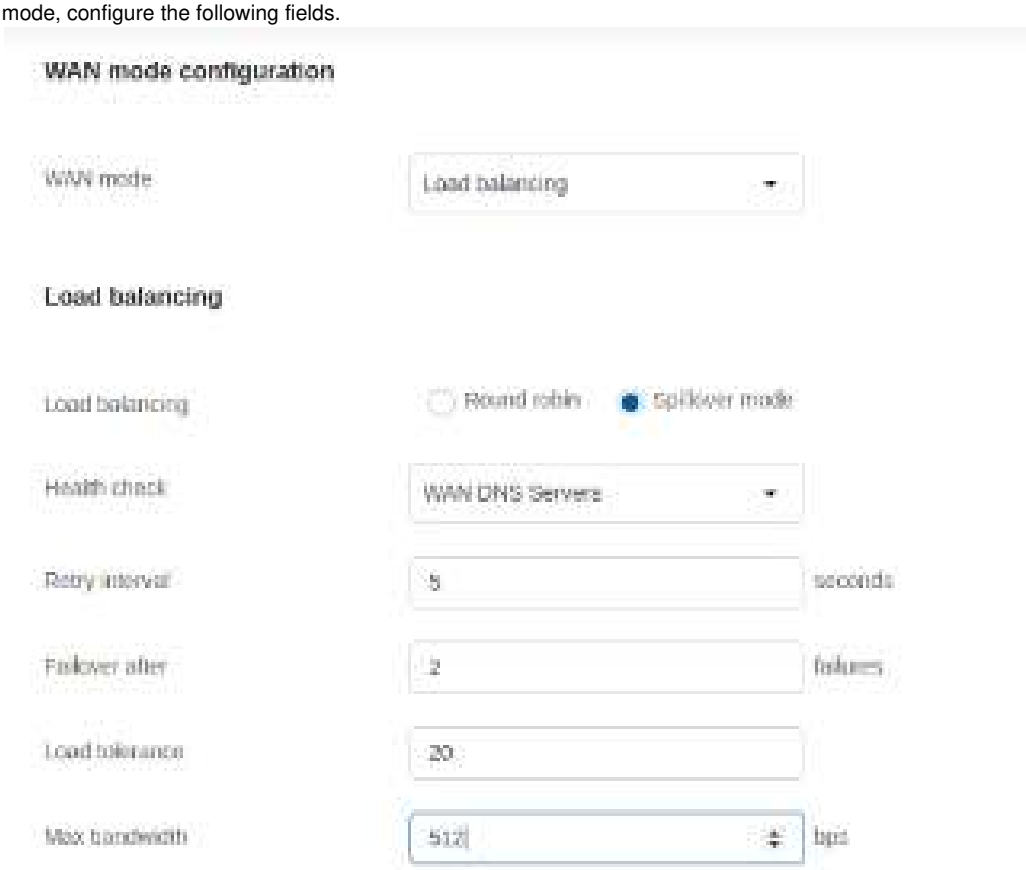
Round robin is an algorithm for load-balancing and is useful when the traffic load is distributed among all the WAN ports. When you select **Round-robin** as Load Balancing, configure the fields available on the page.



Field	Description
Load balancing	Select **Round robin**.
Health check	Select any one of the following options: • **None**: Select this option if you do not want to check the WAN health. • **WAN DNS Servers**: Select this option to detect the health of a WAN link using the WAN DNS servers configured in the WAN Settings page. • **DNS Servers**: Select this option to use a specific DNS server for detecting WAN health, select DNS Servers, and enter the IP addresses of custom DNS servers for the primary, secondary, and tertiary WAN ports. • **Ping IP address**: Select this option to detect WAN health by pinging to an IP address, select this option, and enter the IP addresses in the fields to ping from the primary, secondary, and tertiary WAN ports.
Primary WAN	Enter the primary DNS server or primary IP address to ping.
Secondary WAN	Enter the secondary DNS server or secondary IP address to ping.
Retry interval	Enter the retry time duration in seconds to check the WAN health. By default, it is every 30 seconds.
Failover after	Enter the number of failures after which the port is considered to be down.

Spillover mode

Select **Spillover mode** when you want a specific WAN to act as a dedicated link until a defined bandwidth threshold is reached. After this, the next WAN is used for new connections. When you select Spillover mode, configure the following fields.

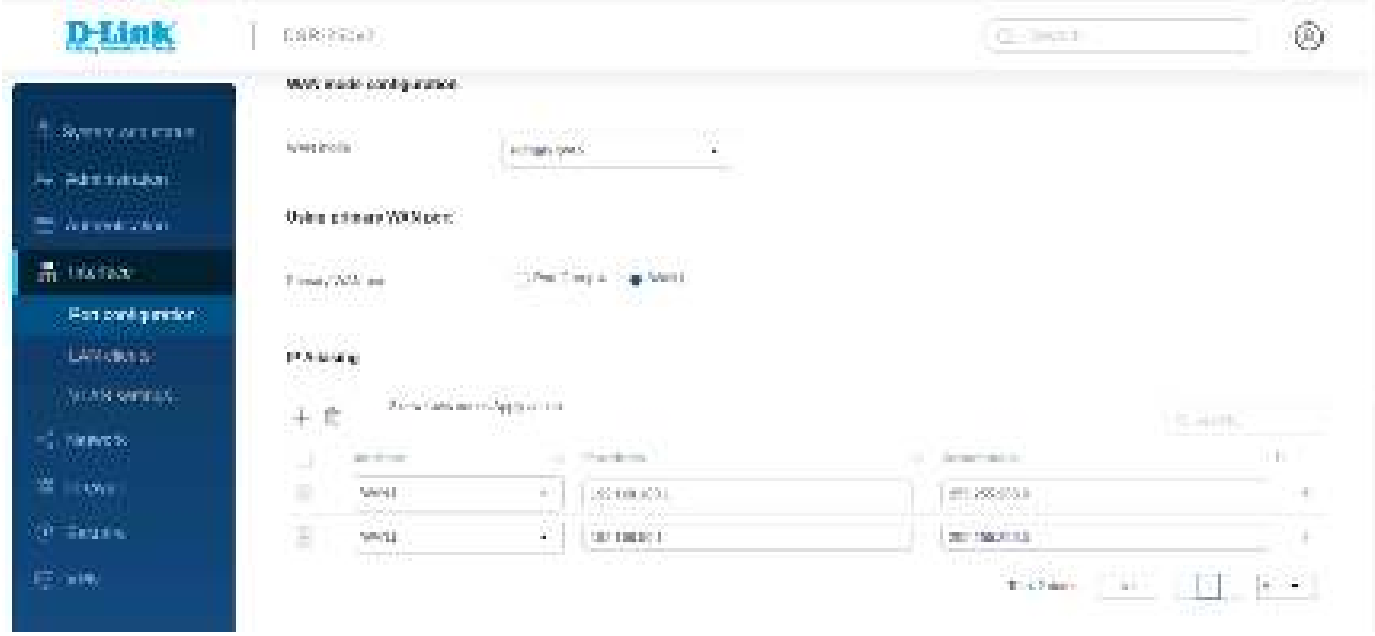


Field	Description

Load balancing	Select **Spillover mode**.
Health check	Select any one of the following options: • **None**: Select this option if you do not want to check the WAN health. • **WAN DNS Servers**: Select this option to detect the health of a WAN link using the WAN DNS servers configured in the WAN Settings page. • **DNS Servers**: Select this option to use a specific DNS server for detecting WAN health. Select DNS Servers and enter the IP addresses of custom DNS servers for the primary, secondary, and tertiary WAN ports. • **Ping IP address**: Select this option to detect WAN health by pinging to an IP address. Enter the IP addresses in the fields to ping from the primary, secondary, and tertiary WAN ports.
Primary WAN	Enter the primary DNS server or primary IP address to ping.
Secondary WAN	Enter the secondary DNS server or secondary IP address to ping.
Retry interval is	Enter the retry time duration in seconds to check the WAN health. By default, it is every 30 seconds.
Failover after	Enter the number of failures after which the port is considered to be down.
Spillover Configuration	
Load tolerance	Enter the percentage of bandwidth, after which the gateway switches to the next WAN. The range is from 20 to 80.
Max bandwidth	This sets the maximum bandwidth tolerable by WAN for outbound traffic. The range of maximum bandwidth is from 1 to 1000 Mbps.

IP Aliasing

A single WAN Ethernet port can be accessed via multiple IP addresses by adding an alias to the port. This is done by configuring an IP Alias address. The IP aliasing section lists the configured IP aliases on the WAN interfaces. You can add a new IP alias and edit or delete the configured IP alias.



The fields displayed on the *IP aliasing* table are as follows:

Field	Description
Interface	It displays the WAN port on which the IP alias is configured.
IP address	It displays an alias IP address for the WAN interface you selected.
Subnet mask	It displays the subnet mask for the WAN interface you selected.

To delete multiple entries at once, select the checkboxes of the *IP aliasing* you want to delete, and click **Delete**. Click **Add icon** to add a new IP alias. This opens a new row to *Add IP aliasing* rule.

The fields available on this page are as follows:

Field	Description
Interface	Select the WAN port.
IP address	Enter an alias IP address for the WAN interface you selected.
Subnet mask	Enter a subnet mask for the WAN interface you selected.
Apply	Click **Apply** to save your settings.
Close	Click **Close** to revert to the previous settings.

LAN Clients

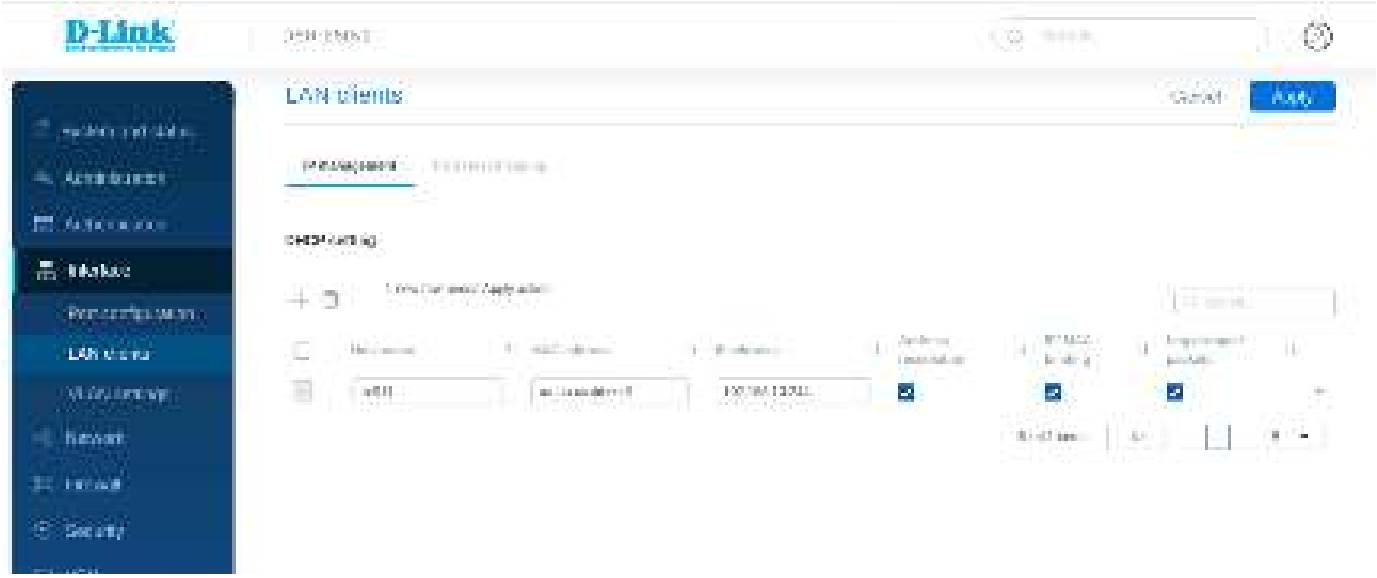
LAN clients page include IP management and DNS host mapping. You can assign IP settings to your clients on your network by adding a client's MAC address and the IP address to the DHCP server's database and assign a specific IP address to a domain name.

IP Management

The Router's DHCP server can assign IP settings to your clients on your network by adding a client's MAC address and the IP address to the DHCP server's database. Whenever the gateway receives a request from a client, the MAC address of that client is compared with the MAC address list present in the database, and the corresponding IP address is assigned to the client.

Another available security measure is to allow outbound traffic (from LAN to WAN) when the LAN node has an IP address matching the MAC address bound to it. This is IP/MAC Binding. By enforcing the gateway to validate the source traffic's IP address with the unique MAC Address of the configured LAN node, the administrator can ensure traffic from that IP address is not spoofed. If a violation (i.e., the traffic's source IP address does not match up with the expected source MAC address) occurs, the packets will be dropped.

This section of LAN clients displays the IP management list.



The fields displayed in the *IP management list* table are as follows:

Field	Description
Hostname	It displays the hostname for the pair of IP and MAC addresses.
IP address	It displays the IP address you have assigned to the device.
MAC address	It displays the MAC address of the host that can connect on the configured interface and for which an IP address is reserved.
Address reservation	It displays if the DHCP reserved IP is enabled or disabled.
IP/MAC binding	It displays if the IP/MAC binding feature is enabled or disabled.
Log dropped packets	Enable this option to log dropped packets

Click **Add icon** to add a new entry. This opens a new row to *Add IP management configuration*. To delete multiple entries at once, select the checkboxes of the IP management that you want to delete, and click **Delete icon**.

The fields available on the *Add IP pool configuration* page are as follows:

Field	Description
Host name	Enter the host name for the pair of IP and MAC addresses.
IP address	Enter the IP address you want to assign to this device. *Note: This IP address must be in the same range as the starting/ending IP address under DHCP Settings for that interface.*
MAC address	Enter the MAC address (xx:xx:xx:xx:xx:xx format) of the host that can be connected on LAN, for which an IP address has to be reserved.
IP/MAC binding	You can enable or disable the IP/MAC binding feature. If enabled, it associates the host's information with IP/MAC Binding.
Address reservation	You can enable or disable the DHCP reserved IP feature.
Log dropped packets	Enable this option to log dropped packets
Apply	Click **Apply** to save your settings.
Close	Click **Close** to revert to the previous settings.

DNS Host Mapping

DNS Host Mapping is used to assign a specific IP address to a domain name. We can use this domain name instead of IP Address to access that particular host.

You will find a list of host names configured on the router with the following details:

Field	Description
Host Name	It displays the host name.
IP address	It displays the IP address of the host.
Enable	Select enable or disable to activate or deactivate.

Click **Add (+ button)** to add a new entry. This opens a new row to *Add mapping list*. To delete multiple entries at once, select the checkboxes of the configured list you want to delete, and click **Delete Icon**.

Field	Description
Host Name	Enter the name of the host.
IP address	Enter the IP Address to be assigned to the Host Name.
Enable	Select enable or disable to activate or deactivate this route.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

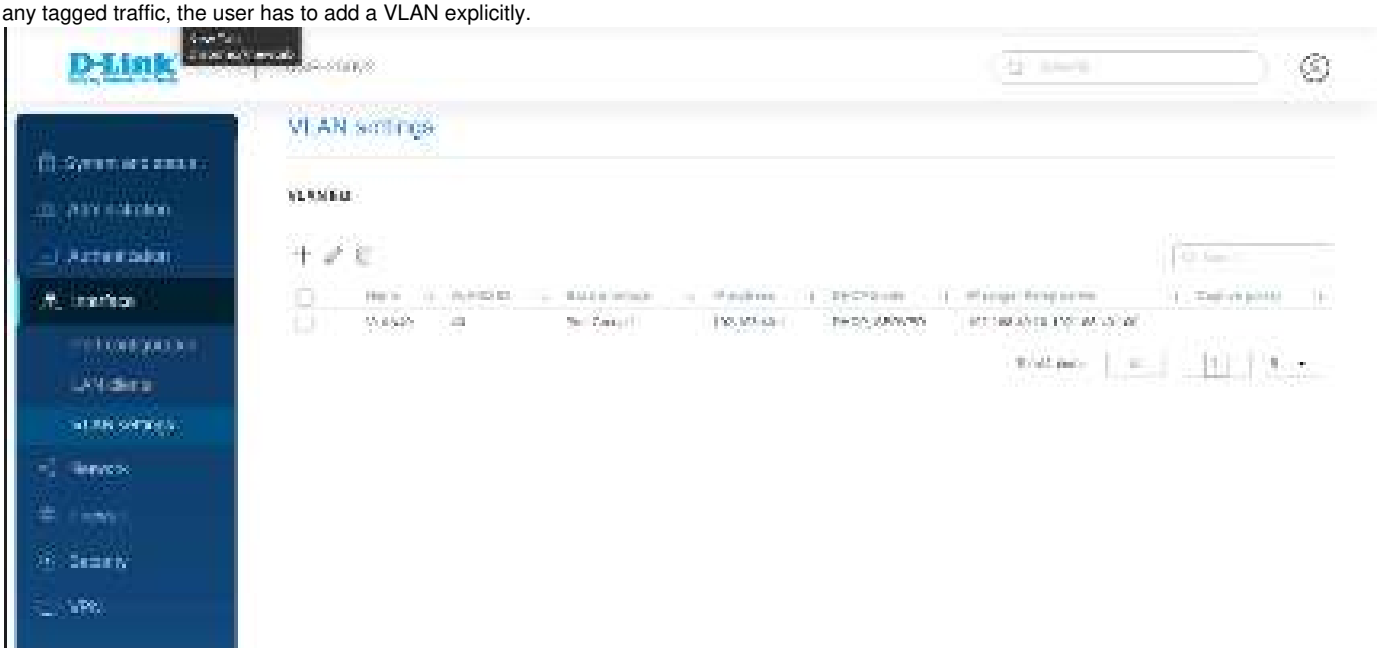
VLAN Settings

The gateway supports virtual network isolation on the LAN by using VLANs. You can configure LAN devices to communicate in a sub-network defined by VLAN identifiers. A unique VLAN ID can be assigned for each LAN port so that traffic to and from the physical port can be isolated from the general LAN.

VLAN filtering is advantageous to limit broadcast packets of a device in a large network. In the *Add VLAN profile* page, define the virtual network.

VLAN Settings

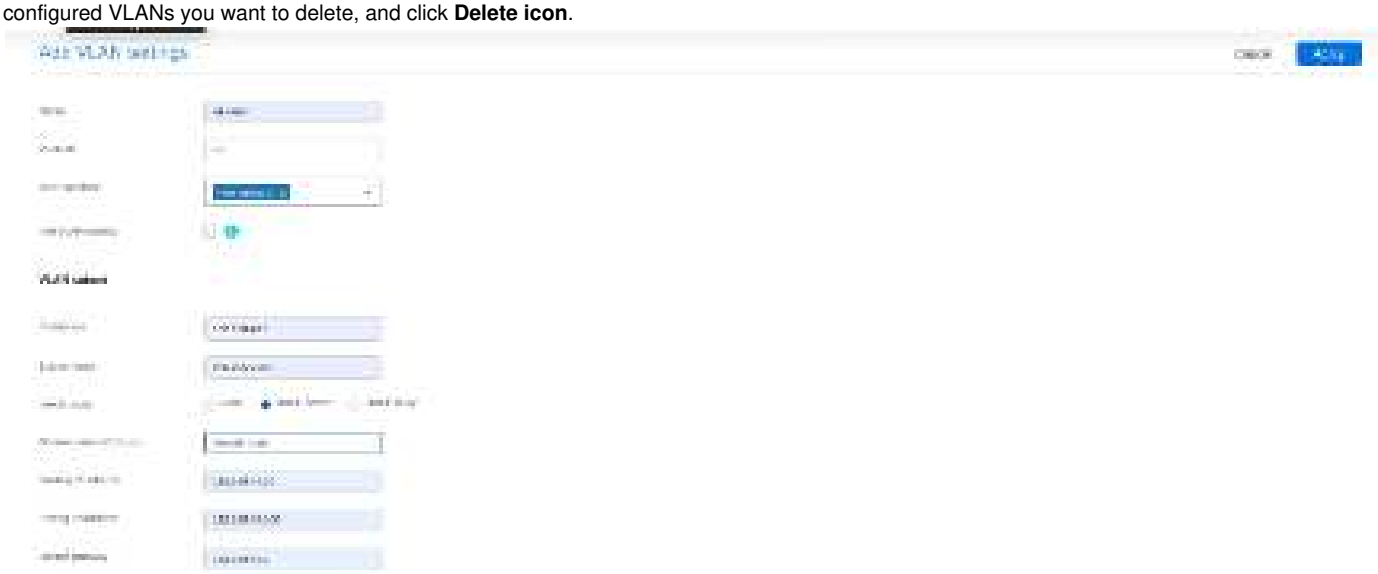
The *VLAN settings* section displays a list of configured VLANs by name and VLAN ID. A VLAN membership can be created by clicking the **Add** button present above the list.
The VLAN ID value can be any number from 1 to 4094. By default, the router accepts only untagged traffic on the LAN interface. Therefore, for any tagged traffic, the user has to add a VLAN explicitly.



The fields available on the *VLAN settings* table are as follows:

Field	Description
Name	It displays the name of the VLAN.
VLAN ID	It displays the numeric value associated with the VLAN.
Base Interface	It displays the physical interface on which the VLAN is created.
IP address	It displays the IP address for the VLAN.
DHCP mode	It displays the selected DHCP mode for the VLAN.
IP range/ Relay server	It displays the IP range if DHCP mode is selected as DHCP server and Relay agent IP is DHCP mode is selected as DHCP relay
Captive portal	If the captive portal is enabled on the VLAN, this field displays the name of the captive portal.

Click **Add icon** to add a new VLAN. This opens the *Add VLAN settings* page. To delete multiple entries at once, select the check boxes of the configured VLANs you want to delete, and click **Delete icon**.



The fields available on the *Add VLAN profile* page are as follows:

Field	Description	
Name	Enter a unique name for this VLAN.	
VLAN ID	Enter a unique ID to this VLAN (1 - 4094).	
Base Interface	Select the physical interface on which VLAN is to be created.	
Intervlan routing	It allows or denies communication between VLAN networks.	
VLAN subnet		
IP address	Enter an IP address for the VLAN subnet.	
Subnet mask	Enter the subnet mask for the VLAN subnet.	
DHCP mode	Select one of the following modes: • **None:** Select **None** to turns off DHCP. • **DHCP Server:** If this is selected, the device will act as the DHCP server on your network. • **DHCP Relay:** If this is selected, DHCP clients on your network will receive IP address leases from a DHCP server on a different subnet.	
Domain name	Specify the domain name. This field is available only when **DHCP Server** is the *DHCP Mode*.	
Starting IP address	Enter the starting IP address.	
Ending IP address	Enter the ending IP address.	
Default gateway	If *DHCP mode* is **DHCP Server**, enter the default gateway for the DHCP server mode.	
DNS server	Select one of the following options for DNS servers for the DHCP clients: • **DNS Proxy**: Enable or disable DNS Proxy on this VLAN. If enabled, the gateway acts as a proxy for all DNS requests and communicates with the ISP's DNS servers. • **DNS from ISP**: This option sends all DNS requests to the ISP's DNS Servers. • **Static DNS:** This option sends all DNS requests to the configured static DNS servers.	
Primary DNS server	Enter the primary DNS Server IP address.	
Secondary DNS server	Enter the secondary DNS Server IP address.	
Lease time (minutes)	Enter the duration (in minutes) for which IP addresses will be leased to DHCP clients.	
Relay gateway	Enter the relay gateway IP address.	
Captive portal	You can enable or disable the captive portal feature over the VLAN.	
Captive portal name	Select the configured captive portal name from the drop-down list.	
DNS Proxy	When the DNS Proxy field is enabled, the gateway acts as a proxy for all DNS requests and communicates with the ISP's DNS servers. This field is available when you select **DHCP Relay** or **None** as the DHCP mode.	
Apply	Click **Apply** to save your settings.	
Close	Click **Close** to revert to the previous settings.	

Chapter 5 Network

This chapter covers the following topics:

Static Route

Policy Route

RIP Configuration

OSPFv2 Configuration

Bandwidth management

Session limiting

Routing

Routing refers to the path that the packets follow from the source to the destination in the most optimum manner. This section of the Network provides you with the configuration fields required to manage the routing process in the network. Various methods are supported by the DSR-250v2 like the Static Route, Policy Route, RIP, and OSPFv2.

This section covers the following topics:

Static Route

Policy Route

RIP Configuration

OSPFv2 Configuration

Static Route

Static routing is a conventional method where the gateway uses the manually configured route path, and if any changes occur, the static route is to be reconfigured manually. Policy route allows you to configure routing policy based on certain parameters like the source address, destination address, source port, or destination port.

Static IPv4 routes:

Routing between the LAN and WAN will impact how this gateway handles traffic received on any of its physical interfaces. The routing mode of the gateway is core to the traffic flow behavior between the secure LAN and the Internet.

Manually adding static routes to this device allows you to define the traffic path selection from one interface to another. There is no communication between this gateway and other devices to account for changes in the path; once configured, the static route will be active and effective until the network changes.
The Static Route page displays all routes added manually by an administrator and allows several operations on the static routes.

You will find a list of static routes configured on the gateway with the following details:

Field	Description
Name	It displays the name of the route.
Destination	It displays the IP address of the static route's destination.
Subnet mask	It displays the subnet mask of the static route.
Gateway	

	It displays the IP address of the gateway through which the destination host or network can be reached.
Interface	It displays the physical network interface (WAN, DMZ, VLAN, or LAN) through which this route is accessible.
Metric	It displays a value between 2 and 15.
Enable	Select enable or disable to activate or deactivate this route.

Click **Add (+ button)** to add a new entry. This opens the *Add static route* page. To delete multiple entries at once, select the checkboxes of the configured static route you want to delete, and click **Delete Icon**.

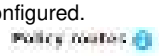
The fields available on this page are as follows:

Field	Description
Name	Enter the name of the route.
Destination IP address	Enter the IP address of the static route's destination.
Subnet mask	Enter the subnet mask of the static route.
Gateway IP address	Enter the IP address of the gateway through which the destination host or network can be reached.
Interface	Select a physical network interface (WAN, DMZ, VLAN, or LAN) through which this route is accessible.
Metric	Enter a value between 2 and 15. It determines the priority of the route. If multiple routes to the same destination exist, the route with the lowest metric is chosen.
Private	Enable this feature to make this route private. If the route is made private, the route will not be shared in a RIP.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Policy Route

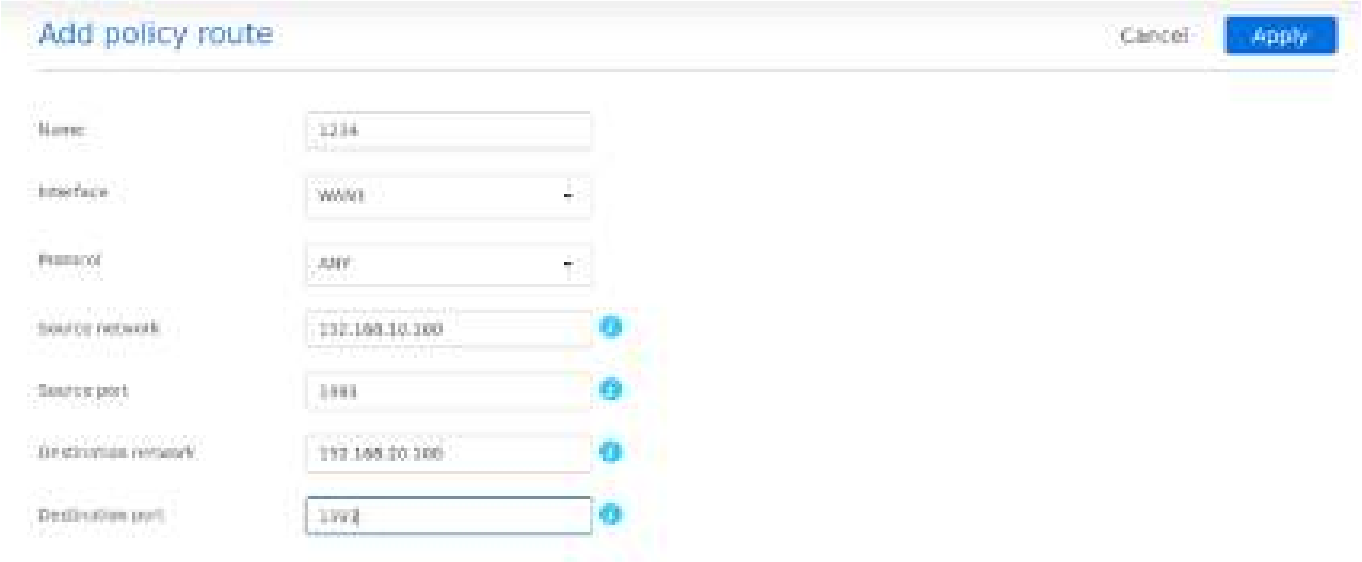
Policy routes are useful when the Load Balancing feature is in use. Selecting TCP/UDP, you can assign the type of traffic to go over the specified WAN ports. The source network, source address, the destination network, a destination address, service, or protocol can be associated with a particular WAN port for increased flexibility.

For example, the VoIP traffic for a set of LAN IP addresses can be assigned to one WAN, and any VoIP traffic from the remaining IP addresses can be assigned to the other WAN link. Policy routes are only applicable when load balancing mode is enabled and more than one WAN is configured.



Field	Description
Name	It displays the name of the policy route.
Protocol	It displays the protocol placed in the transport layers of the Internet protocol suite.
Source network	It displays the source network. It options are Any, an IP address, and a range of IP address.
Source port	It displays a source port for which the policy route will be applicable.
Destination network	It displays the destination network. Its options are Any, an IP address, and a range of IP addresses.
Destination port	It displays a destination port for which the policy route will be applicable.
Local Gateway	It displays the WAN interface.
Enable	You can enable or disable the selected policy route.

To delete multiple entries at once, select the checkboxes of the policy route you want to delete, and click **Delete icon**. Click **Add(+ button)** to add more entries. This opens the *Add policy route* page.



The fields available on the *Add policy route* page are as follows:

Field	Description
Name	Enter the name of the policy route.
Local gateway	Select the WAN interface.
Protocol	Select one of the protocols that are commonly placed in the transport layers of the Internet protocol suite.
Source network	Enter an IP address, a range of IP addresses, or Any as the source network.
Source port	A port is a communication endpoint. Ports are identified for each protocol and address combination by 16-bit unsigned numbers, commonly known as the port number. The most common protocols that use port numbers are the Transmission Control Protocol (TCP) and the User Datagram Protocol (UDP). Here, the *Source port* is an integer in the range of 1-65535 initiated from a specific application on the source IP. Enter a source port number.

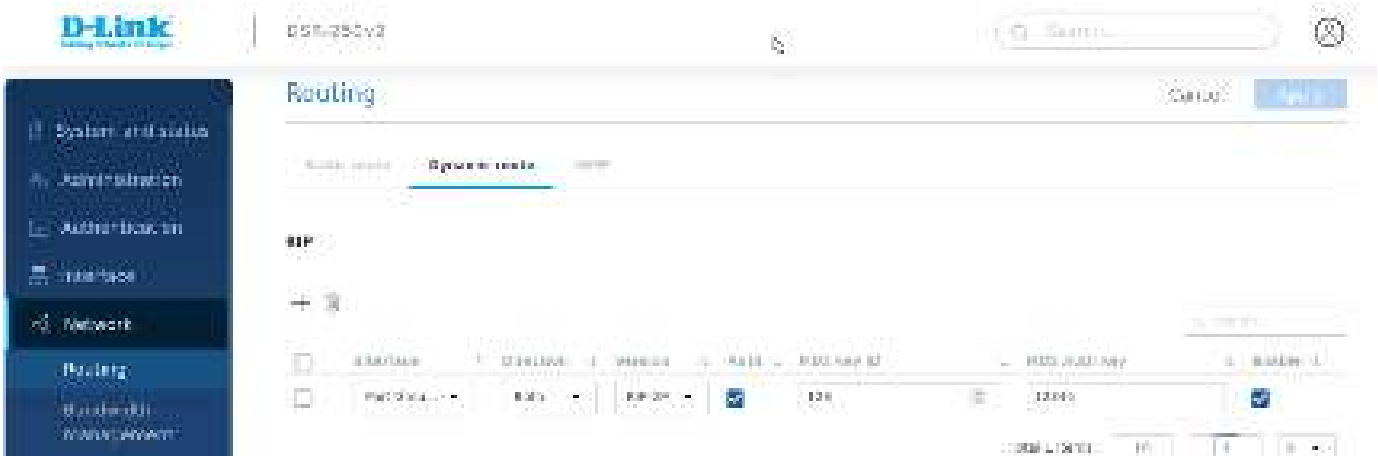
Destination network	Enter an IP address, a range of IP addresses, or Any as the destination network.
Destination port	Destination Port is an integer in the range of 1-65535 destined to a specific application on destination IP. Enter the destination port number.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Dynamic route

Protocols that the DSR-250V2 is the Routing Information Protocol (RIP). It is a protocol that keeps a check on the number of hops a packet can make from its source to destination. Similarly, you will also learn to configure OSPFv2 in this section. OSPFv2 is a dynamic protocol that routes Internet Protocol (IP) packets solely within a single routing domain.

RIP:

Dynamic routing using the Routing Information Protocol (RIP) is an Interior Gateway Protocol (IGP) common in LAN. With RIP, DSR-250V2 can exchange routing information with other supported gateways in the LAN and allow for dynamic adjustment of routing tables to adapt to modifications in the LAN without interrupting traffic flow.



The fields displayed on the page are as follows:

Field	Description
Interface	It displays the interface on which the RIP is configured.
Direction	It displays in which direction the RIP packets need to be exchanged.
Version	It displays the RIP version supported by the routing devices in the selected interface.
Authentication	It displays whether the authentication is enabled or disabled for RIP-2M.
MD5 key ID	Enter the unique MD5 key ID.
MD5 Auth key	Enter the authentication key for this MD5 key.
Enable	You can enable or disable the configured RIP.

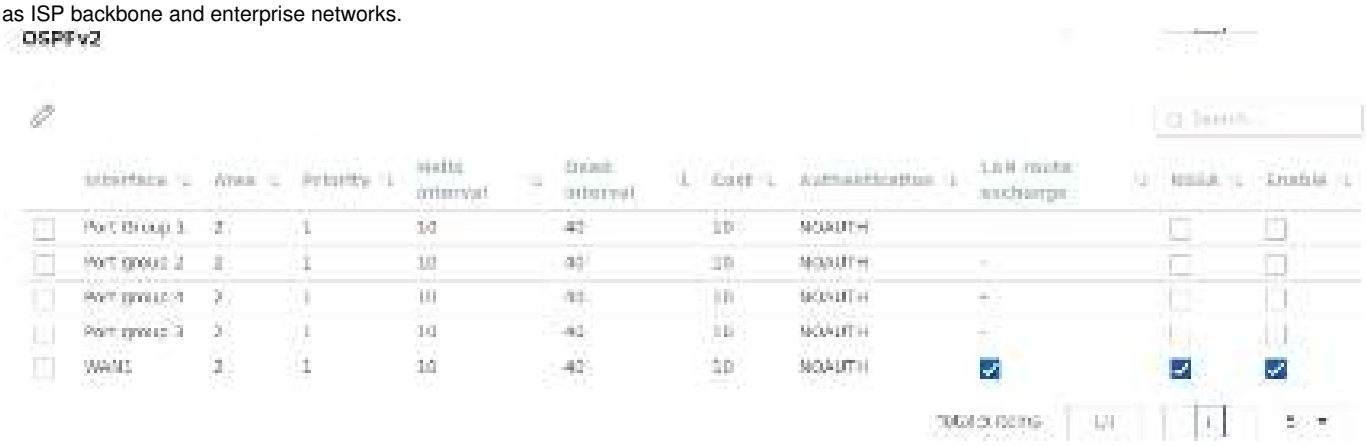
Click **Add(+ button)** to add a new entry to the list. This opens the *Add RIP configuration* page. To delete multiple entries, select the corresponding checkboxes present in the first column of the table, and click **Delete Icon**.

The fields available on the *Add RIP configuration* page are as follows:

Field	Description
Interface	Select the interface where you want to configure the RIP.
Direction	The RIP direction will define how this gateway sends and receives RIP packets. Select one of the following options: • **Both**: The gateway both broadcasts its routing table and also processes RIP information received from other routers. This is the recommended setting to utilize RIP capabilities fully. • **In Only**: The gateway accepts RIP information from other routers but does not broadcast its routing table.
Version	The RIP version is dependent on the RIP support of other routing devices in the LAN. • **RIP-1**: A class-based routing version that does not include subnet information. This is the most commonly supported version. • **RIP-2M**: It includes all the functionality of RIPv1, plus it supports subnet information. RIP-2M sends data to multicast addresses.
Authentication	Select **Enable** to activate the authentication for RIP-2M. By default, RIP authentication is disabled.
MD5 Key ID	Enter the unique MD5 key ID.
MD5 Authentication Key	Enter the authentication key for this MD5 key.
Enable	Click **checkbox** to enable/Disable your settings.
Cancel	Click **cancel** to revert to your previous settings.
Apply	Click on **Apply** to save the settings.

OSPFV2:

OSPF is an interior gateway protocol that routes Internet Protocol (IP) packets solely within a single routing domain. It gathers link state information from available routers and constructs a topology map of the network. OSPF version 2 is a routing protocol which is described in RFC2328 - OSPF Version 2. OSPF is IGP (Interior Gateway Protocols) and is widely used in large networks such as ISP backbone and enterprise networks.

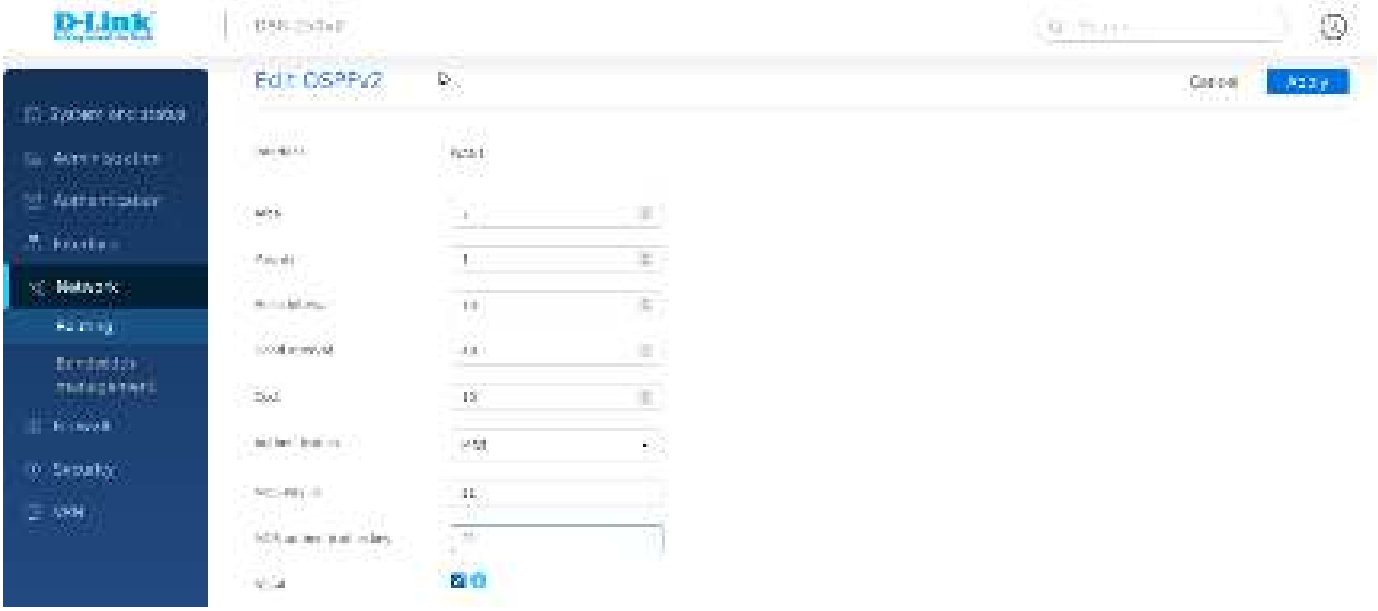


The fields displayed on the *OSPFV2 Configuration* table are as follows:

Field	Description
Interface	It displays the physical network interface on which OSPFv2 is enabled or disabled.
Area	It displays the area to which the interface belongs.
Priority	It displays the priority of the router to become the designated router.
Hello interval	It displays the number of seconds that the hello packet is sent.
Dead interval	It displays the time (number of seconds) that a device's hello packets must not have seen before its neighbors declare the OSPF router down.

Cost	It displays the cost of sending a packet on an OSPFv2 interface.
Authentication	It displays the authentication type.
LAN route exchange	It displays the LAN Route Exchange status for a WAN interface.
NSSA	It displays whether NSSA is enabled or disabled.
Enable	You can enable or disable the respective interface.

Click **Edit** to open the *Edit OSPFv2* page.



Field	Description
Interface	It displays the physical network interface on which OSPFv2 is enabled or disabled.
NSSA	Enable this option to allow OSPF stub areas to carry external routes.
Area	Enter the area to which the interface belongs. Two routers having a common segment; their interfaces have to belong to the same area on that segment. The interfaces should belong to the same subnet and should have a similar mask.
Priority	It helps to determine the OSPFv2 designated gateway for a network. The gateway with the highest priority will be more eligible to become Designated Router. Setting the value to 0 makes the router ineligible to become Designated Router. The default value is 1. Lower the value means higher priority.
Hello interval	Enter the number, in seconds, when the Hello packet is to be sent. This value must be the same for all gateways attached to a common network. The default value is 10 seconds.
Dead interval	Enter the number of seconds when a device's hello packets are not seen before its neighbors declare the OSPF router down. This value must be the same for all routers attached to a common network. The default value is 40 seconds. OSPF requires these intervals to be the same between two neighbors. If any of these intervals are different, these routers will not become neighbors on a particular segment.
Cost	Enter the cost of sending a packet on an OSPFv2 interface.
Authentication Type	Select one of the following authentication types: • **None**: The interface does not authenticate OSPF packets. • **Simple**: OSPF packets are authenticated using simple text keys. • **MD5**: The interface authenticates OSPF packets with MD5 authentication.
Authentication Key	Enter the authentication key. This field is available when you select **Simple** as the *Authentication Type*.
MD5 Key ID	If you select **MD5** as the *Authentication Type*, enter the MD5 key ID.

MD5 Authentication Key	If you select **MD5** as the *Authentication Type*, enter the MD5 authentication key.
LAN route exchange	It displays the LAN Route Exchange status for a WAN interface.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

IGMP

IGMP Proxy:

The Internet Group Management Protocol (IGMP) is used by hosts and routers on an IP network to create multicast group memberships. The IGMP can be used for web and support applications like the online streaming of videos and games. The IGMP proxy enables the gateway to issue IGMP messages on behalf of the clients behind it. If the IGMP proxy feature is enabled, select the WAN interface on which it is to be applied.

IGMP snooping

IGMP snooping allows the gateway to ‘listen’ in on IGMP network traffic through the gateway. This allows the gateway to filter multicast traffic and direct it only to hosts that need this stream. This is helpful when there is a lot of multicast traffic on the network where all LAN hosts do not need to receive this multicast traffic.

Field	Description
Name	It tells about vlan name
VLAN ID	It tells about vlan id
Enable	We can enable and disable by checking and unchecking the option

Bandwidth Management

The bandwidth management feature allows you to regulate the traffic flow from the LAN to WAN. This is useful to ensure that low priority LAN users (like guests or HTTP service) do not monopolize the available WAN’s bandwidth for cost-savings or bandwidth-priority-allocation purposes.

This section will help you understand and configure the bandwidth control feature from the web user interface and add a profile that defines the control parameters. You can then associate the profile with a traffic selector to apply the bandwidth profile to the traffic, matching the selectors. Selectors are elements like IP addresses or services that would trigger the configured bandwidth regulation.

The *bandwidth management* section covers the following topics:

- Bandwidth management
- Session Limiting

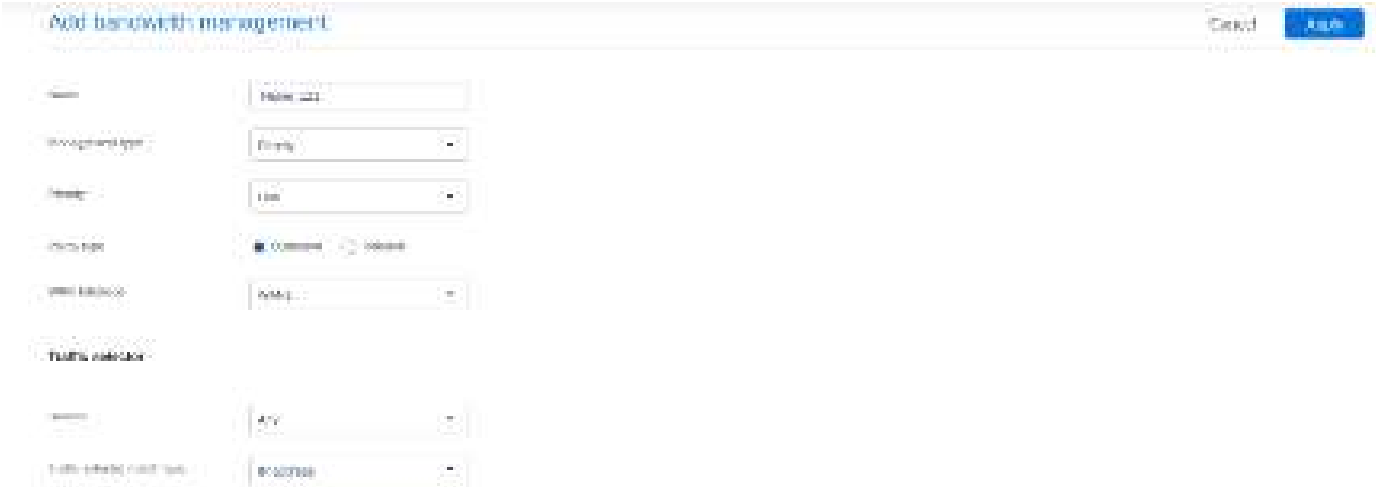
Add Bandwidth management

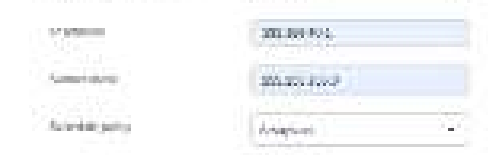
Bandwidth management is a service-based rule to which the user can attach traffic management profiles. Once a profile has been created, it can then be associated with traffic flow from the LAN to WAN. bandwidth management selector configuration binds a bandwidth profile to a type or source of LAN traffic with the following settings.

The fields displayed in the bandwidth management table are as follows:

Field	Description	
Name	It displays the name of your profile.	
Policy type	It displays the policy type (**Inbound** or **Outbound**).	
Interface	It displays the interface with which the profile is associated.	
Bandwidth Rate Priority/session	It displays the range of bandwidth rates or priority i.e low or high	
Service	It displays the service.	
Traffic selector match type	It displays the traffic selector match type.	
Enable	You can enable or disable the respective bandwidth management policy.	

Click Add icon to add a new entry to the table. This opens the Add bandwidth management . To delete more than one entry, select the checkbox of the traffic management policies you want to delete, and click Delete.



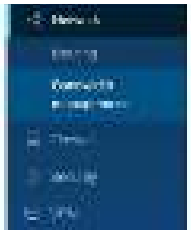


The fields available on the *Add bandwidth management* page are as follows:

Field	Description	
Name	Enter a name for your profile. This identifier is used to associate the configured profile to the traffic selector.	
Policy type	Select the policy type (**Inbound** or **Outbound**).	
WAN Interface	Select which of the available WAN interfaces you want to associate this profile with. This field appears when **Outbound** is selected as the *Policy type*.	
Interface	Select which of the available interfaces you want to associate this profile with. This field appears when **Inbound** is selected as the *Policy type*.	
Management type	Select either **Priority** or **Rate**.	
Priority	If you select **Priority**, specify the priority. It could be *Low*, *Medium*, or *High*.	
Max. bandwidth rate (Kbps)	If you select **Rate**, enter the maximum bandwidth rate.	
Min. bandwidth rate (Kbps)	If you select **Rate**, enter the minimum bandwidth rate.	
Traffic selector		
Service	Select a service from the drop-down list.	
Traffic selector match type	This field is available when you select **Outbound** as the *Policy type*. Select any one of the following match types: • **IP address**: Select this option to associate this traffic selector with an IP Address of a LAN device. Once selected, enter the IP address of the LAN device. • **MAC address**: Select this option to associate this traffic selector with a specific MAC address on the LAN. Once selected, enter a valid MAC Address. • **Interface**: If this option is selected, select the interface.	
Interface	If you select **Interface**, select an interface from the drop-down list.	
IP address	Enter the IP address of the source associated with this profile.	
Subnet mask	Enter the subnet mask.	
MAC address	If you select **MAC address**, enter the MAC address of the source associated with this profile.	
Schedule policy	It allows you to define the time and day when the traffic shaping rule is to be applied.	
Apply	Click **apply** to save your settings.	
Cancel	Click **cancel** to revert to the previous settings.	

Session Limiting

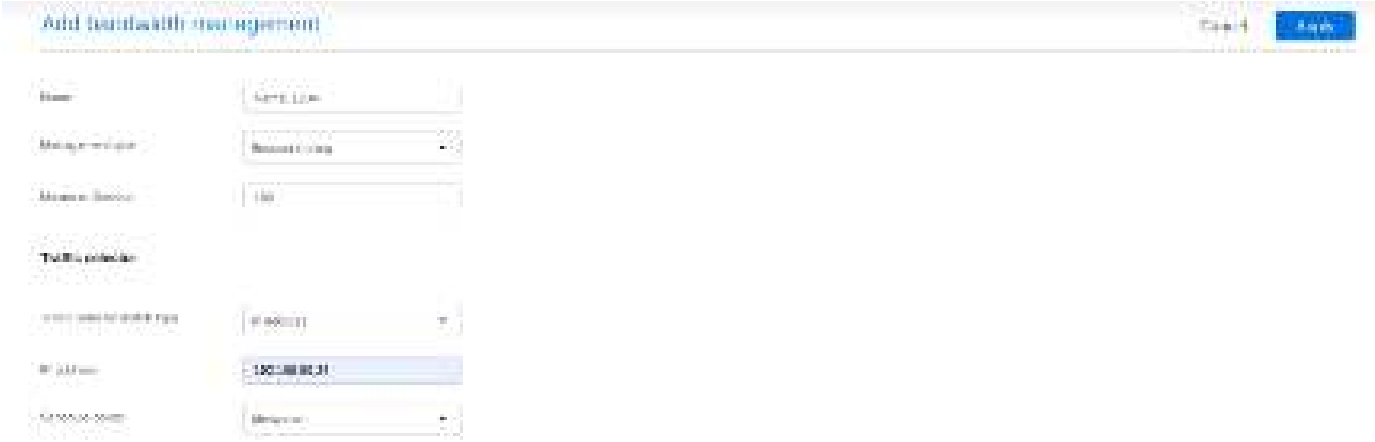
The *Session Limiting* section displays a list of configured session limiting profiles. It allows a user to limit the number of sessions per IP address, range of IP addresses, or interface through the device. When the session limit is reached, a warning message is displayed to users for a session initiated from a web browser. Session Limiting configuration consists of profile name, source type, schedule, and maximum sessions.



The fields displayed in the *Session Limiting* table are as follows:

Field	Description
Name	It displays the name of the profile configured for a particular source type.
Maximum sessions	It displays the maximum number of sessions allowed on the selected source type to limit sessions.
Traffic Selector	It tells about traffic selector type
Enable	You can enable or disable the policy

Click **Add icon** to add a new entry to the list. This opens the *Add Bandwidth management* To delete more than one entry, select the check-boxes of the entries you want to delete, and click **Delete icon** .



The fields available on the *Add bandwidth management* page are as follows:

Field	Description	
Name	Enter the name of the profile to be configured for a particular Source type.	
Management Type	Session limiting	
Maximum sessions	Enter the maximum number of sessions allowed on the source type to limit sessions.	
Traffic selector		
Service	Select a service from the drop-down list.	
Traffic selector match type	This field is available when you select session limiting as the *management type*. Select any one of the following match types: • IP address: Select this option to associate this traffic selector with an IP Address of a LAN device. Once selected, enter the IP address of the LAN device. • Interface: If this option is selected, select the interface. • IP range:If this option is selected ,enter the range of Ip addresses	
Interface	If you select **Interface**, select an interface from the drop-down list.	
IP address	Enter the IP address of the source associated with this profile.	
Subnet mask	Enter the subnet mask.	

Starting IP address	If you select IP range then enter the staring IP address	
Ending IP address	If you select IP range then enter the ending IP address	
Schedule policy	It allows you to define the time and day when the traffic shaping rule is to be applied.	
Apply	Click **apply** to save your settings.	
Cancel	Click **cancel** to revert to the previous settings.	

Chapter 6 Firewall

This chapter introduces you to the security features supported by the router. These features include Firewall and IPS/IDS. These are the various techniques used to block any malicious attacks from the Internet to access your network. You can also configure your own Internet policies to allow only selected web-based information.

This chapter covers the following topics:

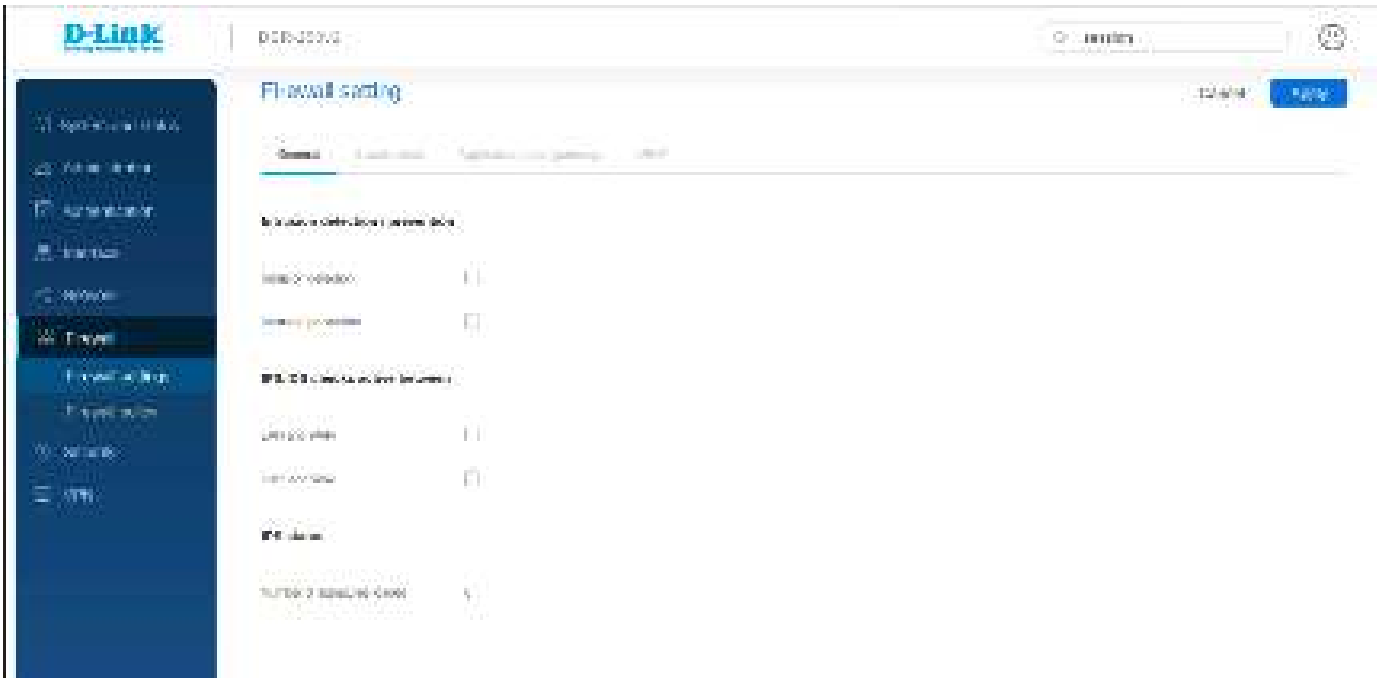
- Firewall settings
  - Attack check
  - Application layer gateways
  - UPnP
- Firewall policy
  - IPv4 Firewall Rules
  - Port Forwarding
  - Port Triggering

Firewall Settings

In firewall setting you can configure IPS/IDS to prevents malicious attacks from the Internet from accessing the private network and ALGs that enhance the firewall and NAT support of the Router.

General

The router's Intrusion Prevention System (IPS) prevents malicious attacks from the Internet from accessing the private network. Static attack signatures loaded to the router allow common attacks to be detected and prevented. In addition, you can enable checks between the WAN and DMZ or LAN.



The fields available on this page are as follows:

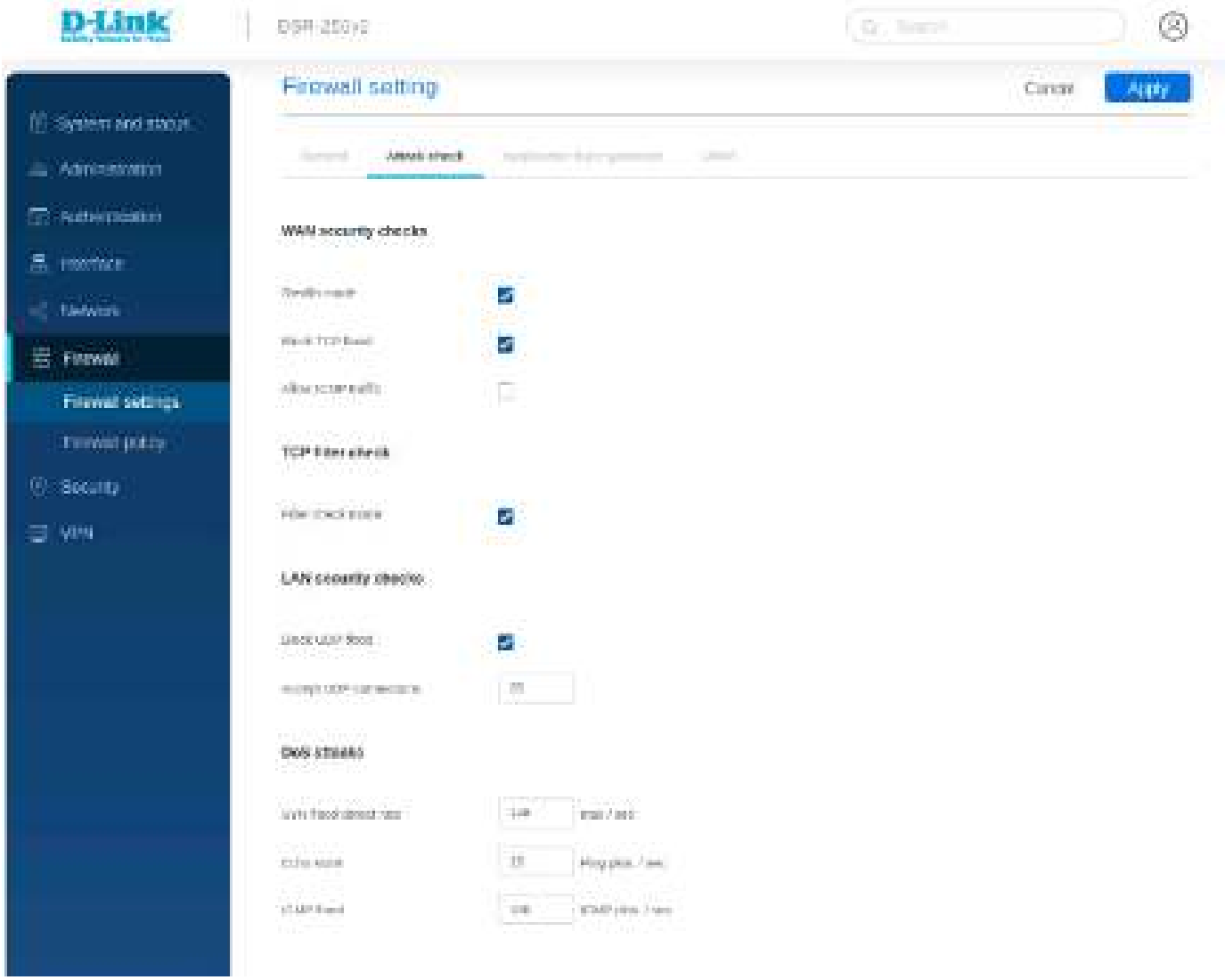
Field	Description
Intrusion detection/prevention	
Intrusion detection	Enable or disable intrusion detection.

Intrusion prevention	Enable or disable intrusion prevention.
IPS/IDS checks active between	
LAN and WAN	Enable it to detect intrusions between LAN and WAN interfaces.
DMZ and WAN	Enable it to detect intrusions between DMZ and WAN interfaces.
IPS status	
Number of signatures loaded	It displays the number of signatures loaded.

Attack Check

Attacks can be malicious security breaches or unintentional network issues that render the router unusable. Attack checks allow you to manage WAN security threats, such as continual ping requests and discovery via ARP scans. You can enable TCP and UDP flood attack checks to manage extreme usage of WAN resources.

Additionally, you can block certain Denial-of-Service (DoS) attacks. These attacks, if uninhibited, can use up processing power and bandwidth and can prevent normal regular network services. You can also configure ICMP packet flooding, SYN traffic flooding, and Echo storm thresholds to suspect traffic from the offending source temporarily.



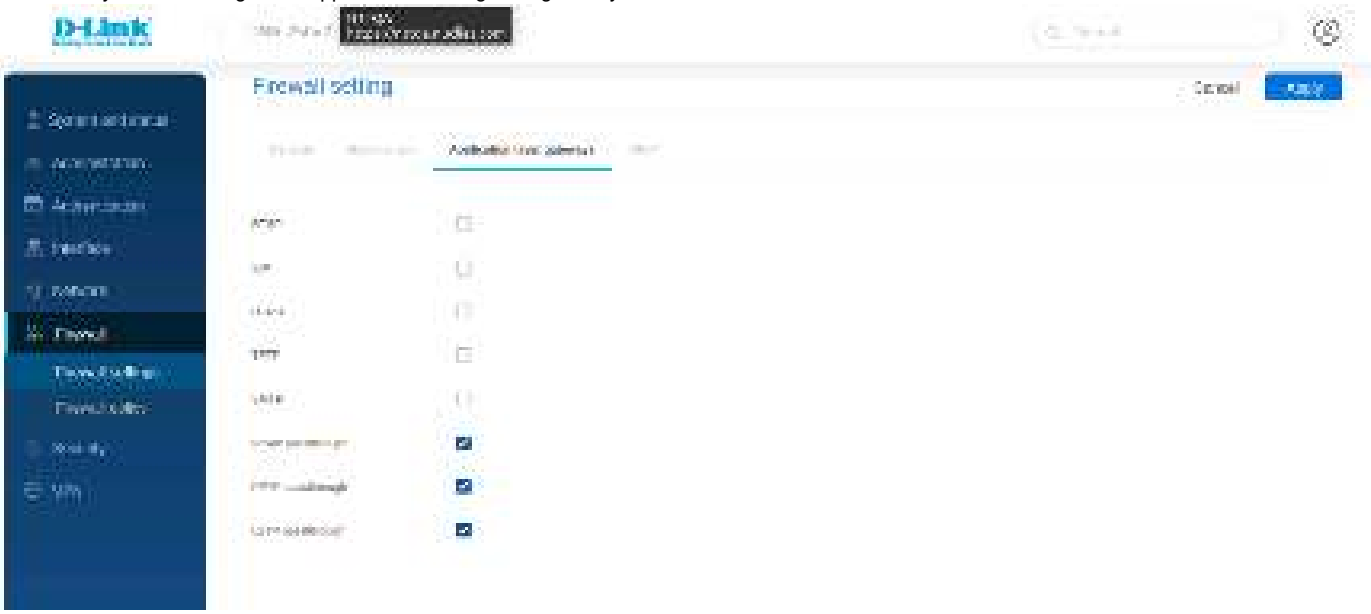
The fields available on this page are as follows:

Field	Description
WAN security checks	
Stealth mode	

	If this option is enabled, the gateway will not respond to port scans from the WAN. This makes it less susceptible to discovery and attacks.
Block TCP flood	If this option is enabled, the gateway drops all invalid TCP packets and gets protected from the TCP flood attack.
Allow ICMP traffic	If this option is enabled, the WAN host can ping traffic to the WAN interface.
TCP filter check	
Filter check mode	If this option is enabled, the gateway drops invalid TCP packets (FIN, RST, and ACK) going with SNAT while the connection is closed. Some of the other packets, like TCP OUT-OF-WINDOW, are also considered to be invalid. Disable this option while taking performance, as enabling this option will affect the throughput.
LAN security checks	
Block UDP flood	If this option is enabled, the gateway will not accept more than the configured value in *Accep t UDP connections*, indicating simultaneous, active UDP connections from a single computer on the LAN.
Accept UDP connections	Enter the number of UDP connections simultaneously accepted by the gateway from a single computer on the LAN. You can select any number between 25 to 500. This field is available when you enable *Block UDP flood*.
DoS Attacks	
SYN flood detect rate	Enter the rate at which the SYN flood can be detected.
Echo storm	Enter the number of ping packets per second at which the gateway detects an Echo storm attack from the WAN and prevents further ping traffic from that external address.
ICMP flood	Enter the number of ICMP packets per second at which the gateway detects an ICMP flood attack from the WAN and prevents further ICMP traffic from that external address.

Application Layer Gateways

Application Level Gateways (ALGs) are security components that enhance the firewall and NAT support of the Router to seamlessly support application layer protocols. In some cases enabling the ALG will allow the firewall to use dynamic, ephemeral TCP/ UDP ports to communicate with the known ports a particular client application (such as H.323 or RTSP) requires; otherwise, the admin would have to open a large number of ports to accomplish the same support. ALG understands the protocol used by the specific application that it supports. It is a very secure and efficient way of introducing client applications through the gateway's firewall.



Field	Description
RTSP	Enable it to allow applications that use Real Time Streaming Protocol to receive streaming media from the Internet. QuickTime and Real Player are some of the common applications using this protocol.

SIP	Enable it to allow devices and applications using VoIP (Voice over IP) to communicate across NAT.
H.323	Enable it to allow H.323 (specifically Microsoft Netmeeting) clients to communicate across NAT.
TFTP	Enable it to allow Trivial FTP (TFTP) clients and servers to transfer data across NAT.
SMTP	Enable it to transfer email between mail servers over the Internet and enter the **port** at which the SMTP packets are inspected.
IPSec Passthrough	Enable this feature to allow encrypted VPN traffic for IPSec VPN tunnel connections through the device.
L2TP Passthrough	Enable this feature to allow encrypted VPN traffic for L2TP VPN tunnel connections through the device.
PPTP Passthrough	Enable this feature to allow encrypted VPN traffic for PPTP VPN tunnel connections through the device.

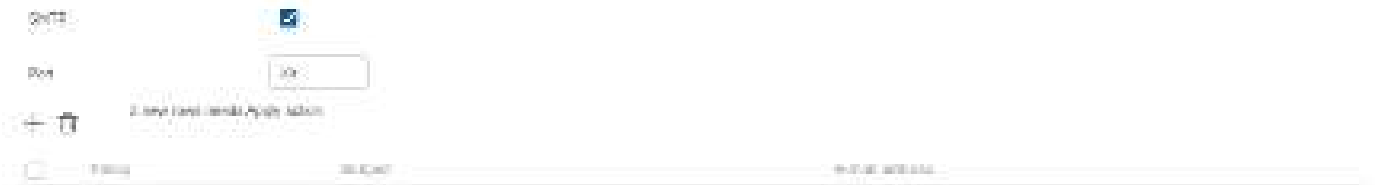
E-mail filter list

The *E-mail filter list* appears only when the SMTP is enabled. Simple Mail Transfer Protocol (SMTP) is a text-based protocol used for transferring emails between mail servers over the Internet. Typically, the local SMTP server is located on a DMZ so that mail sent by remote SMTP servers traverses the router to reach the local server. Local users then use email client software to retrieve their email from the local SMTP server. SMTP is also used when clients send emails. In addition, SMTP ALG can monitor SMTP traffic originating from both clients and servers.

The table lists all the subjects along with email addresses that are blocked or allowed.

Field	Description
Policy	It displays the policy to allow or block the email address.
Subject	It displays the subject.
Email address	It displays the email address.

Click **Add icon** to open a row to *Add Email filter* to add a new entry. To delete multiple entries at once, select the checkboxes of the entries you want to delete, and click **Delete icon**.



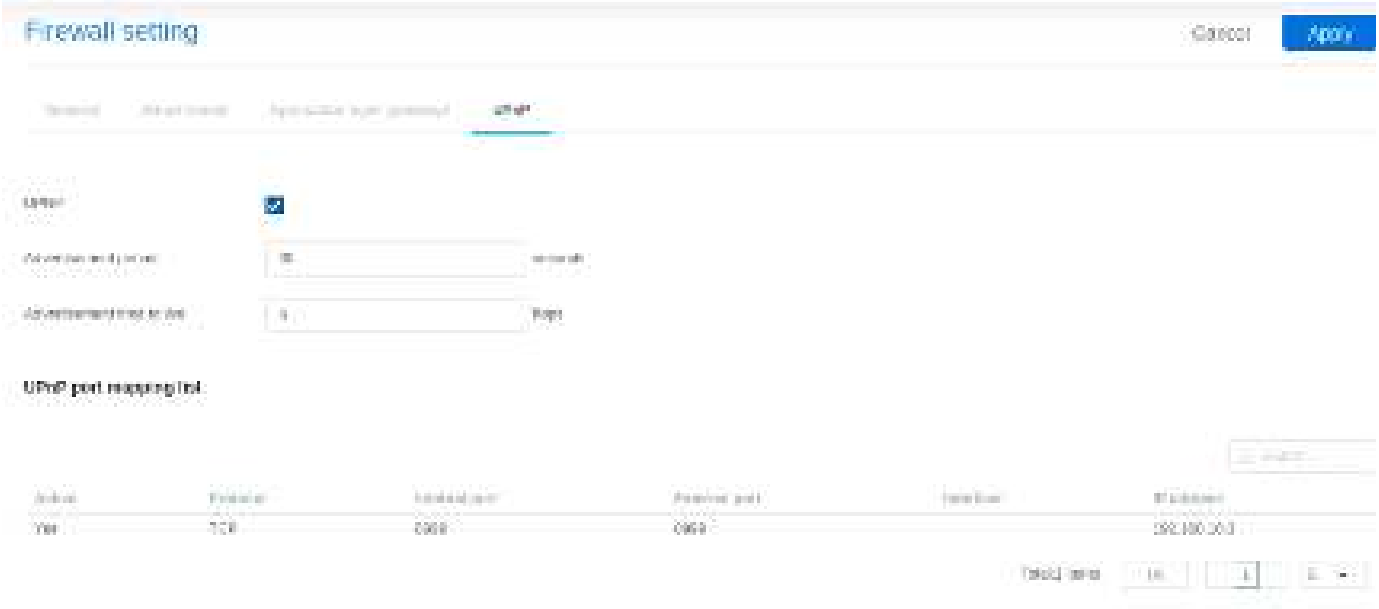
The fields available on the *Add Email filter* page are as follows:

Field	Description
Policy	Select a policy. It can be either **Allow** or **Block**.
Subject	Enter the subject. The range is from 1 to 64 characters.
Email address	Enter an email address.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

UPnP

Universal Plug and Play (UPnP) is a feature that allows the router to find the devices on the network that can communicate with the router and allow for auto-configuration. If UPnP detects a network device, the router can open internal or external ports for the traffic protocol required by that network device. If the UPnP feature is disabled, the gateway can not configure an automatic device, and you may have to manually open /forward ports to allow applications to work.

Select **Enable** to configure UPnP and display the UPnP port mapping list.



The *UPnP port mapping list* has the details of UPnP devices that respond to the gateway's advertisements. The following information is displayed for each detected device:

Field	Description
UPnP	You can enable or disable the UPnP feature.
Advertisement period	Enter a value for the Advertisement period. This is the frequency that the router broadcasts UPnP information over the network. A large value will minimize the network traffic but cause delays in identifying new UPnP devices to the network.
Advertisement time to live	Enter a value for Advertisement time to live. This is the number of hops a packet is allowed to propagate before being discarded. Small values will limit the UPnP broadcast range. A default of 4 is typical for networks with a few numbers of switches.
UPnP port mapping list	
Active	It indicates if the UPnP port is still open in the device or not.

Protocol	It displays the network protocol used by the gateway.
Internal port	It displays the internal ports opened by UPnP (if any).
External port	It displays the external ports opened by UPnP (if any).
Interface	It refers to the LAN/VLAN segment on which the UPnP option is enabled.
IP address	It displays the IP address of the UPnP device detected by the gateway.

Firewall Policy

The *Firewall* section of the Security deals with the various methods adopted by router to ensure a safe and secure network. In this section, you will learn about the Firewall rules configuration on the IPv4 networks. These are the rules defined to keep a check on the incoming and outgoing traffic of the network. You can state which traffic is to be allowed or blocked. Similarly, the Port Forwarding method can restrict access to traffic entering your network while allowing only specific outside users to access specific local resources. When you have multiple public IP addresses and multiple servers across the firewall, the 1:1 NAT method is used.

This section covers the following topics:

- IPv4 Firewall Rules
- Port Forwarding
- Port Triggering

IP Rule

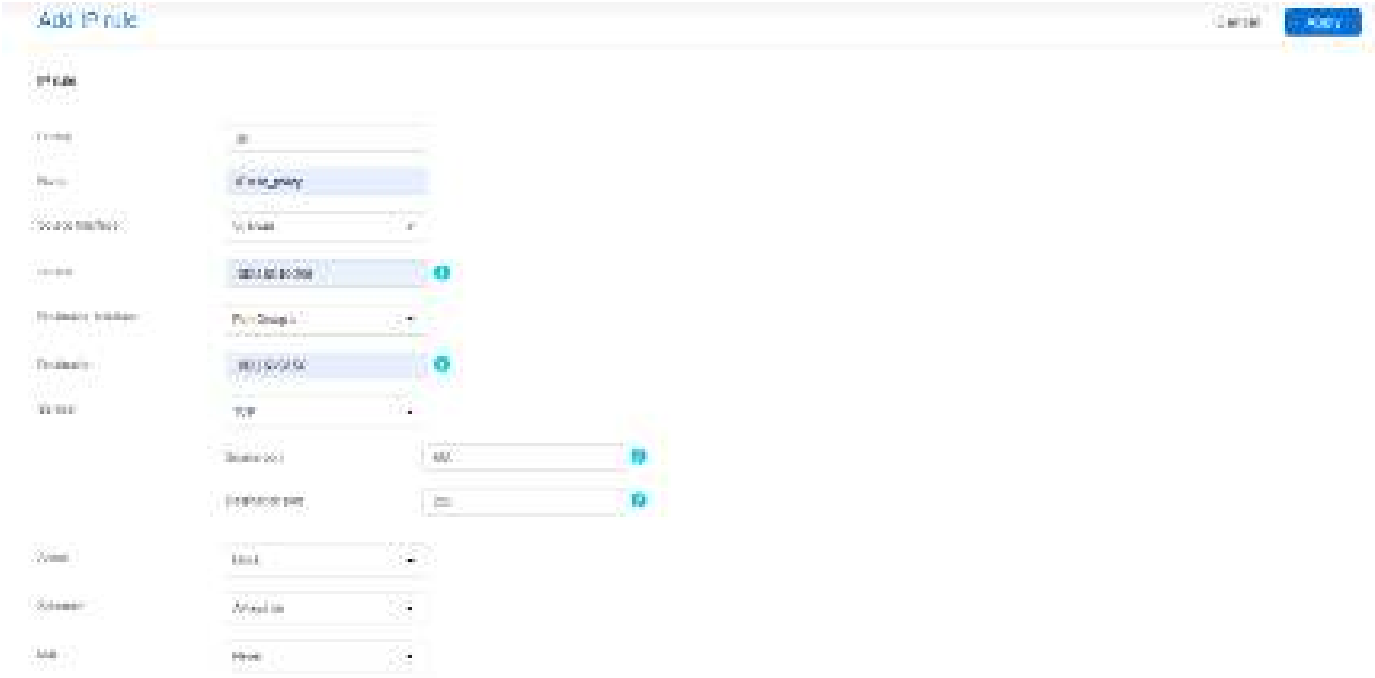
Outbound (LAN/DMZ to WAN) rules restrict access to traffic leaving your network, selectively allowing only specific local users to access specific outside resources. The default outbound rule allows access from the secure zone (LAN) to either the public DMZ or insecure WAN. On the other hand, the default outbound rule is to deny access from DMZ to insecure WAN. In addition, you can restrict VLAN to VLAN or LAN to VLAN traffic using IPv4 Firewall rules.

The fields displayed in the *IPv4 Firewall Rules* table are as follows:

Field	Description
Priority	It specifies the priority of the configured rule.
Name	It specifies the name of the firewall rule
Source Interface	It specifies the source interface
Destination interface	It specifies the destination interface
Service	It displays the service for which the firewall rule is defined.
Source	It displays the source IP address range, a specific IP address, or Any for all IP addresses on which the firewall rule is applied.
Destination	It displays the destination IP address range, a specific IP address, or Any for all IP addresses on which the firewall rule is applied.
Schedule	It displays the schedule when the firewall rule is applied.

Enable	You can enable or disable the respective IPv4 firewall rule, except for the *Default rule*.
Actions	You can edit or delete the configured firewall rule except for the *Default rule*. It displays the policy applied to the particular firewall rule. It is either **Deny** or **Permit**.
Logs	You can enable or disable the logs for respective IPv4 firewall rule.

To delete multiple entries at once, select the checkboxes of the IPv4 firewall rules you want to delete, and click **Delete icon**. Click **Add icon** to add a new entry to the list. This opens the *Add IPv4 firewall rules* page.



The fields displayed on this page are as follows:

Field	Description
Priority	Define the priority of the IPv4 firewall rule. The smaller the number, the higher the priority.
Name	Define the name of the IPv4 firewall rule
Source interface	Select the source interface from the drop down.
Destination interface	Select the Destination interface from the drop down.
Action	Select either **Block** or **Allow**.
Service	Select the protocol/service on which you want to configure the firewall rule. The options are all, TCP, UDP, TCP/UDP, ping, HTTP, HTTPs, FTP, SSH,etc.,
Source	Enter a specific IP address, a range of IP addresses, or any IP addresses from where the traffic is sent.
Source port	Specify a source port or multiple source ports where the traffic generates. This field appears only when you select TCP, UDP, or TCP/UDP protocols.
Destination	Enter a specific IP address, a range of IP addresses, or any IP addresses where the traffic is sent.
Destination port	Specify a destination port or multiple destination ports that will receive the traffic for this firewall rule. This field appears only when you select TCP, UDP, or TCP/UDP protocol.
Logs	Select Always to capture the logs and Never option to disable logs.
Schedule	Select a schedule from the drop-down list. You can define the time and day when the IPv4 firewall rule is to be applied.
Apply	Click **Apply** to save your settings.

Cancel	Click **Cancel** to revert to the previous settings.

Port Forwarding

Port forwarding is a process to restrict access to traffic entering your network, selectively allowing only specific outside users to access specific local resources. By default, all access from the WAN side is blocked from accessing the secure LAN, except in response to the LAN or DMZ requests. To allow outside devices to access services on the secure LAN, you must create a port forwarding rule for each service. It also supports Translation (Outbound).

The fields displayed in the *Port forwarding* table are as follows:

Field	Description
Active	You can enable or disable the respective rule.
Allowed remote IPs	It displays the IP addresses that can accept to and from traffic.
Interface	It displays the interface on which the rule is configured.
Forward internal IP	It displays the LAN host IP address.
Local port	It displays the LAN host port numbers.
Mode	It displays the mode configured for the selected rule.
Name	It displays the name of the rule.
Protocol	It displays the protocol followed for the configured rule.
Public port	It displays the public port number.

Click **Add icon** to add a new entry. This opens the *Add port forwarding* page. To delete multiple entries, select the checkboxes that you want to delete, and click **Delete icon**.

The fields available on the *Add port forwarding* page are as follows:

Field	Description

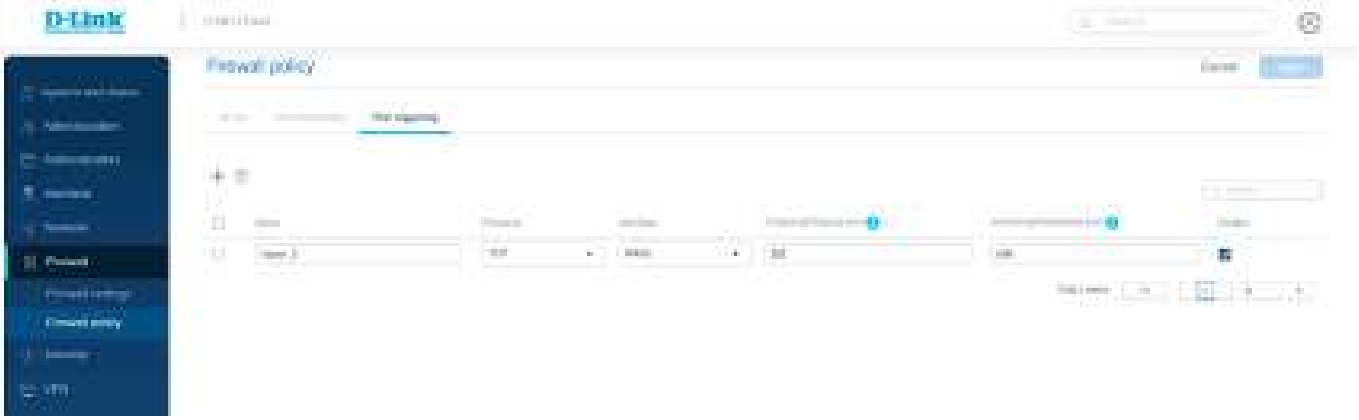
Name	Enter the name for your rule.
Mode	Select any one of the following modes: • **Forwarding (Inbound)**: If you select this mode, traffic passes from the WAN host to the LAN host for a public destination port. • **Translation (Outbound**): It translates the traffic from a local source port number to the configured public source port number for the LAN host to the WAN host traffic. • **Translation (Inbound)**: If you select this mode, traffic passes from the WAN host to the LAN host and translates to the destination local port when the traffic is sent on the public destination port. ***Note**: Translation (Inbound) and Translation (Outbound) options are available only when the route mode is configured as NAT on the port configuration-- WAN mode page*
Interface	Select the interface on which this rule will be applied.
Protocol	Select one of the following protocols: TCP, UDP, or TCP/UDP.
Public port	Enter the port number on which the applications are running on the WAN host.
Forward internal IP	Enter the LAN host IP address. For Translation (Outbound), it refers to the IP address from where the traffic will be originating. For Translation (Inbound) or Forwarding (Inbound), it refers to the IP address to which the traffic will be sent.
Local port	Local port refers to the LAN host port numbers. For outbound, it means local source port, and for inbound, it means the destination local port for the LAN host. This field is available only when you select **Translation (Outbound)** or **Translation (Inbound)** mode. ***Note:*** • *Mapping a range of public ports to a range of local ports, the ranges must be the same length.*
Allowed remote IPs	Enter the allowed remote IPs. Allowed remote IPs are the IPs that accept to (for Translation Outbound) and from traffic (for Translation Inbound and Forwarding Inbound).
Apply	Click **apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Port Triggering

Port triggering allows devices on the LAN or DMZ to request one or more ports to be forwarded to them. This feature waits for an outbound request from the LAN or DMZ on one of the defined outgoing ports and then opens an incoming port for that type of traffic. This can be a form of dynamic port forwarding while an application transmits data over the opened outgoing or incoming port(s).

Port triggering application rules are more flexible than static port forwarding, which is an option when configuring forwarding rules. This is because a port triggering rule does not reference a specific LAN IP or IP range. Also, ports are not left open when not in use, thereby providing a level of security that port forwarding does not offer.

***Note**: This section is available only when you configure the route mode as NAT on the Port configuration* --WAN Mode *page.*



The fields displayed in the *Port Triggering* table are as follows:

Field	Description

Name	It displays the name of the port-triggering rule.
Protocol	It displays the protocol on which the rule is being configured. It is TCP, UDP, or TCP/UDP.
Outgoing trigger port	It displays the start and end trigger port range.
Incoming trigger port	It displays a port range that is open to receive the traffic.
Enable	You can enable or disable the port-triggering rule.
Interface	It displays the interface name

Click **Add icon** to add a new entry. This opens the *Add port triggering* page. To delete multiple entries, select the checkboxes you want to delete, and click **Delete icon** .

The fields available on this page are as follows:

Field	Description
Name	Enter the name of the port-triggering rule.
Protocol	Select the protocol on which the rule is to be configured. It is TCP, UDP, or TCP/UDP.
Outgoing trigger port	Enter the start and end trigger port range.
Incoming trigger port	Enter the port range that is open to receive the traffic.
Interface	Select the WAN interface.
Enable	Select radio option to enable or disable the port-triggering rule.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Chapter 7 Security

This chapter introduces you to the security features supported by the DSR-250v2. These features include Web content filtering and Application control. These are the features used to Block/Allow only selected web-based applications.

This chapter covers the following topics:

Web content Filtering.

Application control.

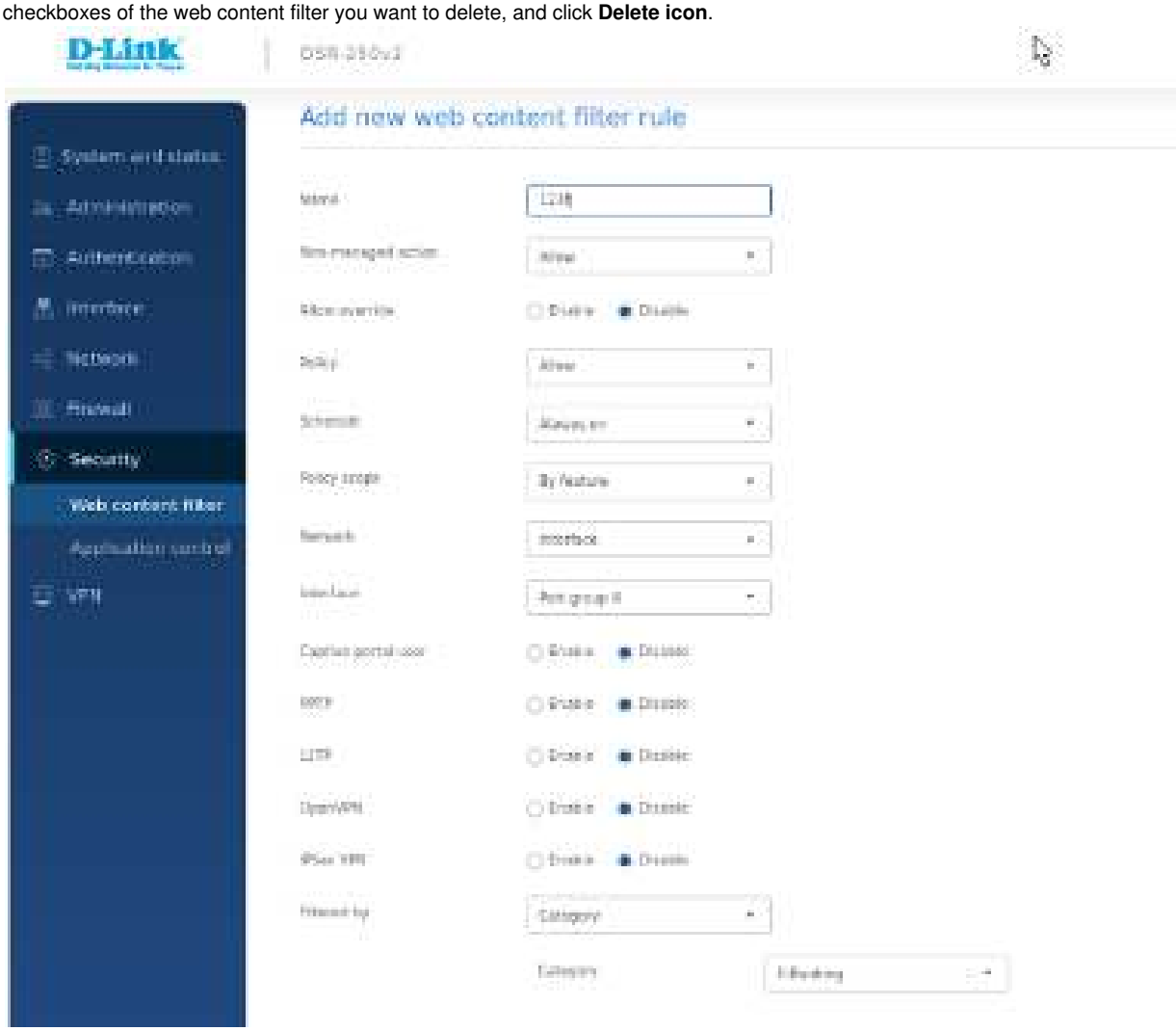
Web Content Filter

The gateway offers standard web filtering options to filter out the web page displayed by the domain names. It allows you to create Internet access policies between LAN and WAN. Instead of creating policies based on the type of traffic (as is the case when using firewall rules), web-based content itself can be used to determine if the traffic is allowed or dropped.

The fields displayed in the *Web content filter list* are as follows:

Field	Description
Name	It displays the name of the policy.
Action	It displays the Action rule(Allow/Block).
Schedule	It displays the schedule selected for the policy.
Filtered by	It displays the type of information you want to filter with this policy.
Enable	You can enable or disable the policy.

Click **Add(+ button)** to add a new entry. This opens the *Add web content filter configuration* page. To delete multiple entries, select the checkboxes of the web content filter you want to delete, and click **Delete icon**.



The fields available on the *Add web content filter configuration* page are as follows:

Field	Description
Name	Enter the name of the policy.
Non-managed action	This is an action to be taken for the Non-Managed Site. You can Allow or Block. By default, it is Allow.

Allow override	If enabled, it allows the sites categorized under Blocked categories.
Override timeout (seconds)	Enter the time (in seconds) for which all the disallowed categories will be allowed.
Update on access	Enable the field to restart the override timer on each new access to disallowed categories.
Policy rule setup	
Policy	Select the policy rule. The options are *Allow* and *Block*.
Schedule	Select the schedule when the policy rule is to be applied. To configure a schedule, refer to the Schedule policies page

Policy scope setup	
Policy scope	Select either *Global* or *By Feature* as the policy scope. The global policy affects all types of traffic matching the selected application(s). If you select *By Feature*, the following additional fields will be available.
Network	Select one of the configured network profiles. You can select *None, Single*, *Range*, or *Interface*.
IP address	If you select a **Single** as the *Network*, enter the IP address.
Starting IP address	If you select **Range** as the *Network*, enter the starting IP address of the IP range.
Ending IP address	If you select **Range** as the *Network*, enter the ending IP address of the IP range.
Interface	If you select **Interface** as the *Network*, select the configured interface from the drop-down list.
Captive portal user	Enable or disable the *Captive Portal user* option. Enabling this option allows all Captive Portal clients to follow this policy.
PPTP	Enable or disable the PPTP VPN. Enabling this option allows PPTP traffic to follow this policy.
L2TP	Enable or disable the L2TP VPN. Enabling this option allows L2TP traffic to follow this policy.
OpenVPN	Enable or disable the OpenVPN. Enabling this option allows OpenVPN traffic to follow this policy.
IPSec VPN	Enable or disable the IPSec VPN. Enabling this option allows IPSec traffic to follow this policy.
Content filtering	
Filtering type	This field allows you to select the type of information you want to filter. Select any one of the following options: • **Default category**: Select the default categories that you want to filter. • **URL**: The URL filtering section is available on the next page. Click the **Next** button located in the lower-right corner of the page to add URLs or keywords. • **Default category+URL**: Select a default category from the drop-down list, and add URLs/keywords in the URL filtering section available on the next page. • **Custom group**: Select one of the configured custom groups or create a new group.
URL filtering	To add a URL (HTTP or HTTPS), domain name, or a keyword, select **Add URL/keyword**. Click **+Add** to add more than one entry. If you want to add URLs or keywords at once, select **Bulk import**. Click **Browse** and select the file (in CSV format) whose information you want to import into the database. You can download the sample template file here. *Note that the number of entries is limited to a maximum of 512 URLs.*
Default category	This field is available when you select the *Default category* or *Default category+URL* as the filtering type. Select the type of categories to be filtered from the drop-down list.
Custom group	Select any one of the configured custom groups from the drop-down list. To create a new group, click **Add custom group**. This opens the *Add group configuration* page. For details, refer to Custom Group List

Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

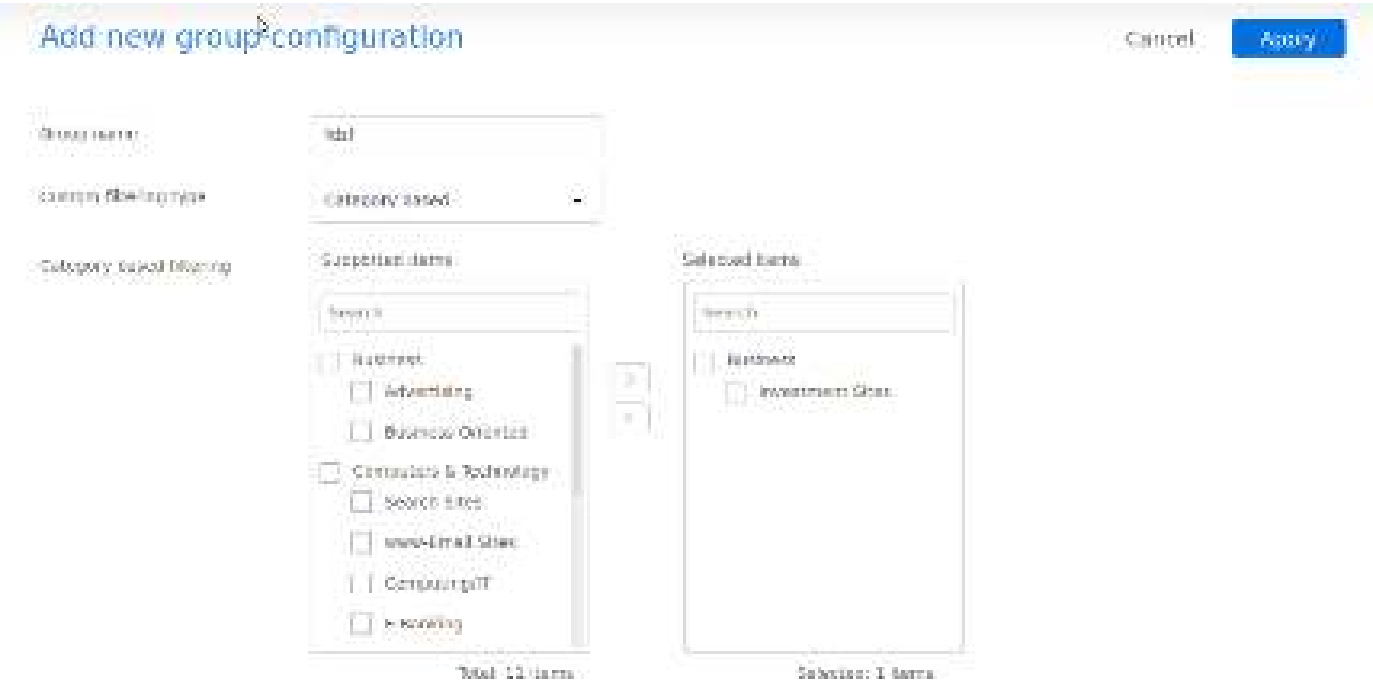
Custom Group list

Users can select a particular URL or select a group to manage URLs associated with that group. This section displays groups and URLs associated with them.

The fields displayed in the *Custom Group List* table are as follows:

Field	Description
Name	It displays the name of the group.
URLs	It displays the list of selected URLs.
Category filtering	It displays the category to which these URLs belong.
In use	It displays if that custom group is in use or not.

Click **Add(+ button)** to add a new group. This opens the *Add group configuration* page.You can edit by use **edit** icon or delete the group list using **delete** icon.



The fields available on this page are as follows:

Field	Description
Group name	Enter a name for your group.
Custom filtering type	Select one of the following types of filtering you want to apply to your group: • **URL**: If you select this option, the *URL Filtering* section will be available. • **Category-based**: If you select this option, the *Category-based filtering* section will be available. • **URL+Category-based**: If you select this option, both the above sections will be available. Click the **Next** button located at the lower-right corner of the page to go to the *Category-based filtering* section.
Add URL/keyword	Select this option to add a new URL. Enter the URL in the box; 1 to 64 characters are allowed.
Bulk import	To import URLs in bulk, select "Bulk import." Next, click **Browse** to locate the file on your system, and then import the file in ***.csv** format. You can download the sample template file here. *Note that the number of entries is limited to a maximum of 512 URLs.*
Supported items	Select one or more checkboxes of the categories that you want to filter. Then, click the **">>"** button to move it to the box of the selected item. This is available when you select either "**Cat egory-based**" or "**URL+Category-based**" filtering type.
Selected items	This box displays the items selected from the supported items list. To remove the item from the selected list, click the **"<<"** button. This is available when you select either "**Category-based**" or "**URL+Category-based**" filtering type.
Next	Click **Next** to go to the *Category-based filtering* section. This button is available only when you select **URL+ Category-based** filtering type.
Previous	Click **Previous** to go back to the *URL filtering* section. This button is available only when you select **URL+ Category-based** filtering type.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Application Control

Application Control is a feature that allows network administrators to allow, block, or control the traffic of applications that is transacting the traffic. It allows you to block or allow any specific applications, like Netflix, YouTube, Facebook, Twitter, etc.

This section covers the following topics:

- Auto Upgrade
- Application Control List
- Custom Group List for Application Control

Auto Upgrade

This section provides the current package version running on the device. You can enable or disable the *Auto upgrade* feature. The auto-upgrade feature allows the user to define a time interval or a schedule for the device to auto-check for the updated packages on the server.

The fields available in this section are as follows:

Field	Description
Package version	It provides details about the running package version.
Auto upgrade	Enable or disable the Auto upgrade option.
Time	Select either *Interval* or *Schedule* to check for updated packages on the server. If you select *Interval*, enter the number of minutes after which the device will check for the updates. If you select *Schedule*, choose a **Day** and **Time**.
Reboot Type	Select either manual or auto

Application Control List

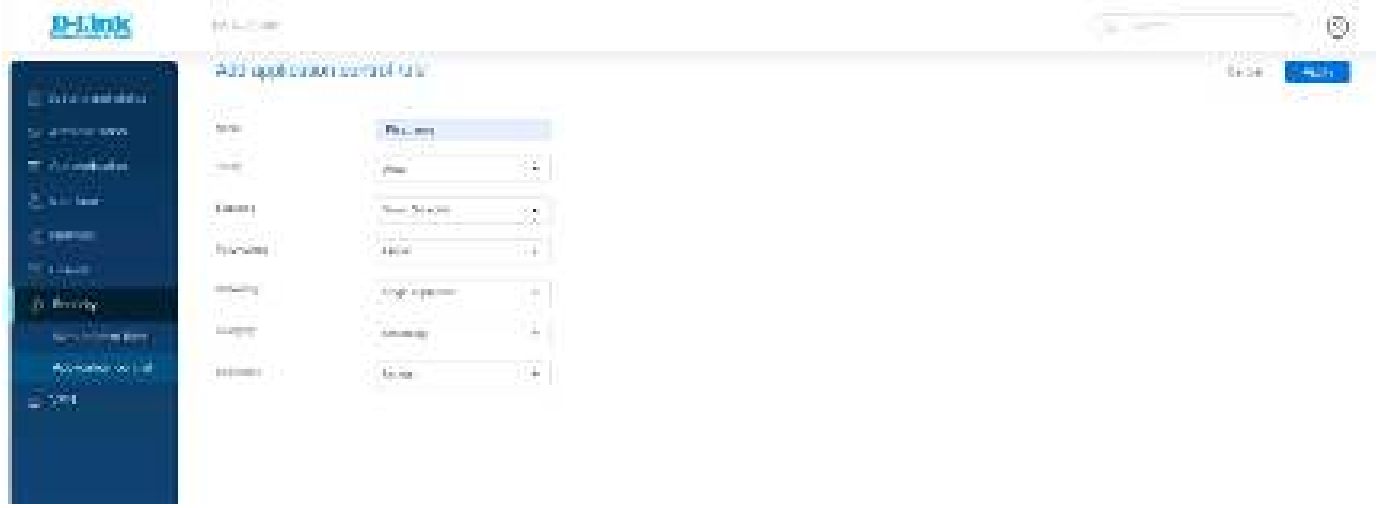
The user can select a particular app or select a group to manage applications associated with that group. This provides an administrator with more options to set up policies to control access to the applications for the selected network users, IP addresses, or network segments.

The fields displayed in the *Application control list* are as follows:

Field	Description
Name	It displays the name of the policy.
Policy	It displays the rule for the policy.
Schedule	It displays the schedule for your policy.
Scope	It displays the scope of the policy, i.e., whether the policy is *Global* or *By feature*.
Application	It displays the application type - Default group, Single APP, or Custom group.
Enable	You can enable or disable the selected policy.

Actions	You can edit or delete the selected policy.

Click **Add icon** to add a new policy. This opens the *Add application control policy configuration* page. To delete multiple entries, select the checkboxes of the application control policies you want to delete, and click **Delete icon**.



The fields available on the *Add application control policy configuration* page are as follows:

Field	Description
Policy Name	Enter a name to identify the policy.
Policy rule setup	
Policy	Select the policy rule. It could be either *allow* or *block*.
Schedule	It allows you to set a schedule when you want to apply the policy. To configure a new schedule, refer to the Schedule section.
Policy scope setup	
Policy scope	Select either *Global* or *By feature* as the policy scope. The global policy affects all types of traffic matching the selected application(s). If the *By feature* is selected as the Policy type, the following fields will be available.
Network	Select any one of the following networks: • **Single**: If you select this option, enter the IP address. • **IP range**: If you select this option, enter the starting IP address and ending IP address. • **Interface**: If you select this option, select the interface from the drop-down list.
IP address	Enter the IP address. This field is available when the *Network* is **Single**.
Starting IP address	Enter the starting IP address of the IP range. This field is available when the *Network* is **IP range**.
Ending IP address	Enter the ending IP address of the IP range. This field is available when the *Network* is **IP range**.
Interface	Select the interface from the drop-down list. This field is available when the *Network* is **Interf ace**.
Captive portal user	Enable or disable the Captive Portal option. Enabling this option allows all the Captive Portal clients to follow this policy.
QoS	Enable or disable the QoS option to select Bandwidth Rate or Priority for the traffic accessing through the selected application.
Traffic management	Select **Rate** or **Priority** for the traffic accessing through the selected application.
Priority	Specify the priority as *Low*, *Medium*, or *High*.
Max bandwidth rate (Kbps)	Enter the maximum bandwidth rate.

Min bandwidth rate (Kbps)	Enter the minimum bandwidth rate.
PPTP	Enable or disable the PPTP VPN. Enabling this option allows all the PPTP traffic to follow this policy.
L2TP	Enable or disable the L2TP VPN. Enabling this option allows all the L2TP traffic to follow this policy.
OpenVPN	Enable or disable the OpenVPN. Enabling this option allows all the OpenVPN traffic to follow this policy.
IPSec VPN	Enable or disable the IPSec VPN. Enabling this option allows all the IPSec traffic to follow this policy.
Application control	
Application type	Select the application type from the drop-down list. The options are Default group, Single application, and Custom group.
Category	This field is available when you select the option **Single application** as the *Application type*. Select the category of application from the drop-down list.
Application	This field is available when you select the option **Single application** as the *Application Type*. Select an application from the drop-down list available for each category.
Default group	This field is available when you select **Default group** as the *Application type.* Select a default group from the drop-down list.
Custom group	This field is available when you select the **Custom group** as the *Application Type*. Select the configured group from the drop-down list. If you want to create a new group, click the **Ad d custom group** button. It will redirect you to the *Add group configuration* page.
Apply	Click **apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Custom Group List for Application Control

This section allows configuring groups and associating applications with them. It displays a list of configured groups along with the application list associated with them.

The fields displayed in the *Custom Group List* table are as follows:

Field	Description
Name	It displays the name of the group.

Application list	It displays the list of selected applications.
In use	It displays the status of the selected application, i.e., whether the group is in use or not.

Click **Add icon** to configure a new group. This opens the *Add group configuration* page. To delete more than one group, select the corresponding checkboxes and click **Delete icon** .

The fields available on the *Add group configuration* page are as follows:

Field	Description
Application list	It includes the following two boxes: • **Supported APPs**: It lists all the applications supported by the device. Select the checkbox of the corresponding application that you want to add to the group. Click the “ **>>**” button to add the application to the selected apps list. • **Selected APPs**: It lists all the applications to be added to the group. Select the checkbox of the corresponding application that you want to remove from the selected apps list. Click the “**<<**” button to remove the application from the selected apps list.
Group Name	Enter the name of the group. It can be of 1 to 64 characters.
Apply	Click **apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Chapter 8 VPN

VPN provides a secure communication channel (“tunnel”) between two gateway routers or a remote PC client. DSR-250v2 supports the following types of tunnels:

- Gateway-to-gateway VPN: To connect two or more routers to secure traffic between remote sites.
- Remote Client (client-to-gateway VPN tunnel): A remote client initiates a VPN tunnel as the IP address of the remote PC client is not known in advance. The gateway, in this case, acts as a responder.
- Remote Client behind a NAT router: The client has a dynamic IP address and is behind a NAT Router. The remote PC client at the NAT router initiates a VPN tunnel as the IP address of the remote NAT router is not known in advance. The gateway WAN port acts as a responder.
- PPTP server tunnel for PPTP client connections
- L2TP server tunnel for L2TP client connections
- OpenVPN server tunnel for OpenVPN client connections
- GRE tunnel

In this chapter, you will learn how to configure the VPN protocols supported by the DSR-250V2.

- Ipsec Profiles
- Ipsec site to site
- Ipsec client to site
- Ipsec 1 to 1 mapping
- PPTP
- L2tp
- Openvpn
- GRE

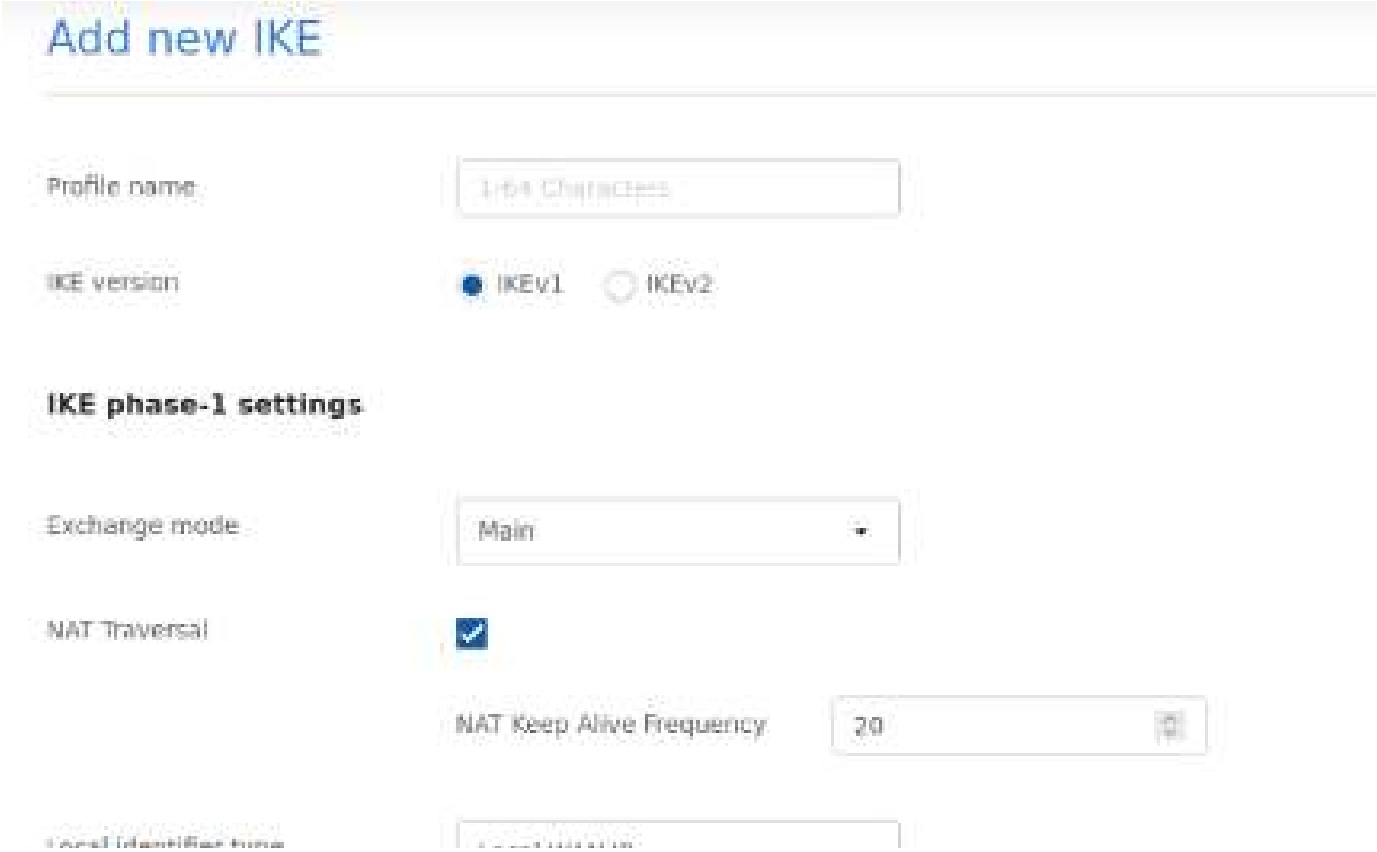
IPsec Profiles

The Ipsec profile is the central configuration in IPSec that defines most of the IPSec parameters such as the protocol, algorithms, SA lifetime, and key management protocol. In addition, it contains information related to algorithms such as encryption, authentication, and DH group for Phase I and II negotiations. This section lists all the configured ipsec profiles.

The fields displayed on the *Ipsec profile* table are as follows:

Field	Description
Name	It displays the name of the configured ipsec profile.
IKE version	It displays the version of IKE that has been used.
In use	It indicates if the configured ipsec profile is being used or not.

Click **+** to add a new entry to the list. This opens the *Add Ipsec profiles* page. To delete multiple entries, select the checkboxes of the Ipsec profiles you want to delete, and click **Delete**.



Local identifier type: Local WAN IP

Remote identifier type: Remote WAN IP

DH group: Group 2 (1024 bit)

DH group: Group 2 (1024 bit)

Encryption: 3DES x AES-128 x

Authentication algorithm: SHA-1 x

SA lifetime: 28800 seconds

Authentication method: Pre-shared Key

Pre-shared Key: ••••••••••

Dead peer detection: ☑

Detection interval: 10

Reconnect after failure: 3

VPN tunnel backup: ☑

Backup tunnel: Select Backup policy

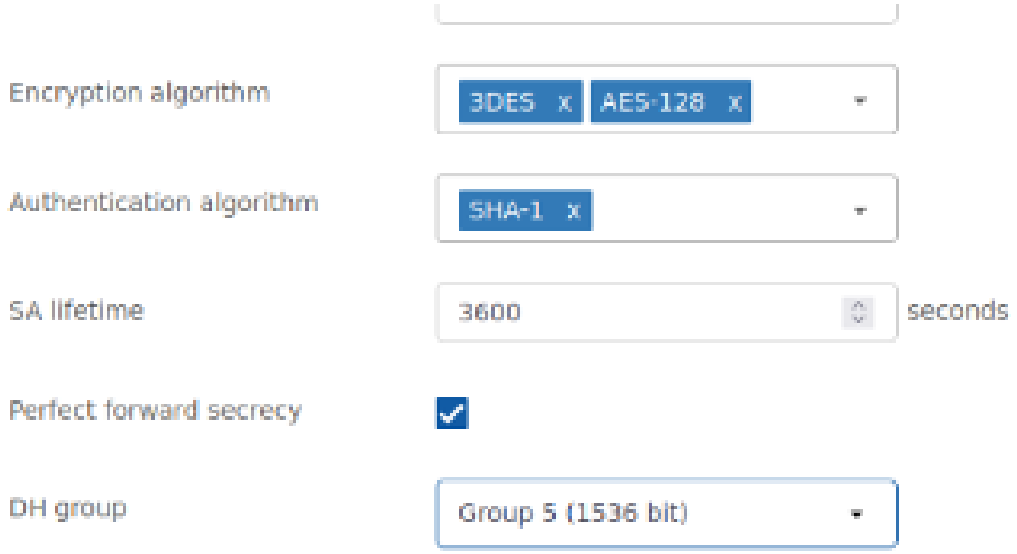
Failure time to primary: 30 seconds

Extended authentication: ☑

Extended authentication type: NONE

IKE phase-2 settings

Protocol selection: ESP



The fields available on the *Add Ipsec profiles* are as follows:

Field	Description
Profile name	Enter a unique name for the ipsec profile.
IKE version	Select the version of IKE.
IKE phase-1 settings	
Exchange mode	Select the exchange mode: *Main* or *Aggressive*.
Local identifier type	Select the local identifier type. The options are Local WAN IP, FQDN, and User-FQDN. If you select **User-FQDN**, enter the FQDN name in the *Local identifier* field. When you select **L ocal WAN IP** or **FQDN**, it uses the Local IP address of the WAN interface, and the FQDN name of the WAN configured on the Dynamic DNS page.
Remote identifier type	Select the remote identifier type. The options are Remote WAN IP, FQDN, and User-FQDN. If you select **FQDN** or **User-FQDN**, enter the FQDN name in the *Remote identifier* field. When you select **Remote WAN IP**, it uses the remote IP address entered in the VPN policy.
DH group	Select the DH (**Diffie-Hellman**) group. It defines the strength of the key used in the key exchange process.
Encryption algorithm	Select the encryption algorithm to be followed during key exchange. You may select multiple algorithms.
Authentication algorithm	Select the authentication algorithm from the drop-down list. You may select multiple algorithms.
SA lifetime (sec.)	It refers to the security association lifetime, and the range varies from 300 to 604800 seconds.
Authentication method	Select the authentication method. The options are the Pre-shared key and RSA-Signature (Certificate).
Pre-shared key	Enter the preshared key. This field is available only when you select the **Pre-shared key** as the *Authentication method*.
Certificate	Select the certificate to be used for authentication. This field is available only when you select **RSA-Signature (Certificate)** as the *Authentication method*.
Dead peer detection	You can enable or disable the *Dead peer detection* feature. If enabled, it allows you to detect if the remote peer is reachable or not. If it is not reachable, this feature will make the tunnel down.
Detection interval	Enter the interval at which you want to send peer detection packets to the peer to check its liveliness.
Reconnect after failure	

	This is the failure count, after which it is considered the other peer as down. Enter the failure count.
VPN tunnel backup	You can enable or disable the *VPN tunnel backup* feature.
Backup tunnel	If *VPN tunnel backup* is enabled, you can use the VPN backup of the selected profile if the primary tunnel is down. When the primary tunnel is up, the backup tunnel will be turned down.
Failure time to primary (seconds)	Specify the time after which the backup tunnel will be down.
Extended authentication	Enable or disable the extended authentication feature.
Extended authentication type	Select the authentication type that you want to use. The options are Local authentication, Authentication server, and IPSec host (Initiator).
Authentication server	Select any one of the external authentication servers from the drop-down, and select the respective server.
Username	Enter the user name. This field is available when you select the **IPSec host (Initiator)** as the *Extended authentication type*. The length of the user name may vary from 1 to 64 characters.
Password	Enter the password. This field is available when you select the **IPSec host (Initiator)** as the *Extended authentication type*. The length of the password may vary from 8 to 63 characters.
Local authentication	You may select one of the saved authentications on the local server. This field is available when you select **Local authentication** as the *Extended authentication type*.
IKE phase-2 settings	
Protocol selection	Select the protocol for IKE phase-2.
Encryption algorithm	Select the encryption algorithm to be used. You may select multiple algorithms.
Authentication algorithm	Select the authentication algorithm from the drop-down list. You may select multiple algorithms.
SA Lifetime (sec.)	It refers to the security association lifetime, and the range varies from 300 to 604800 seconds.
Perfect forward secrecy	If enabled, it does not allow the same key to be generated, forcing the user to use a new DH key exchange.
DH group	Select the DH group.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to previous settings.

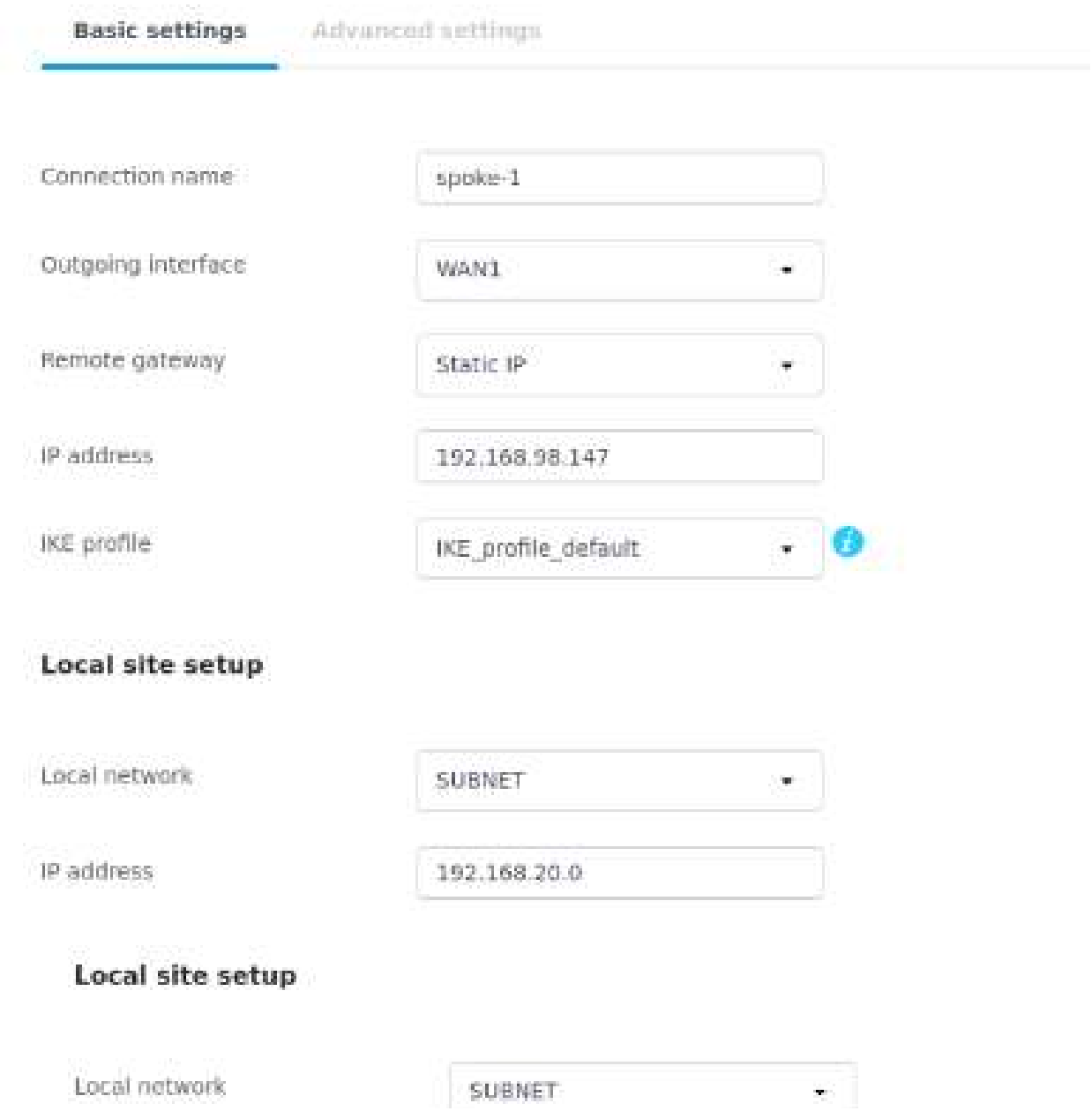
IPsec Site to Site

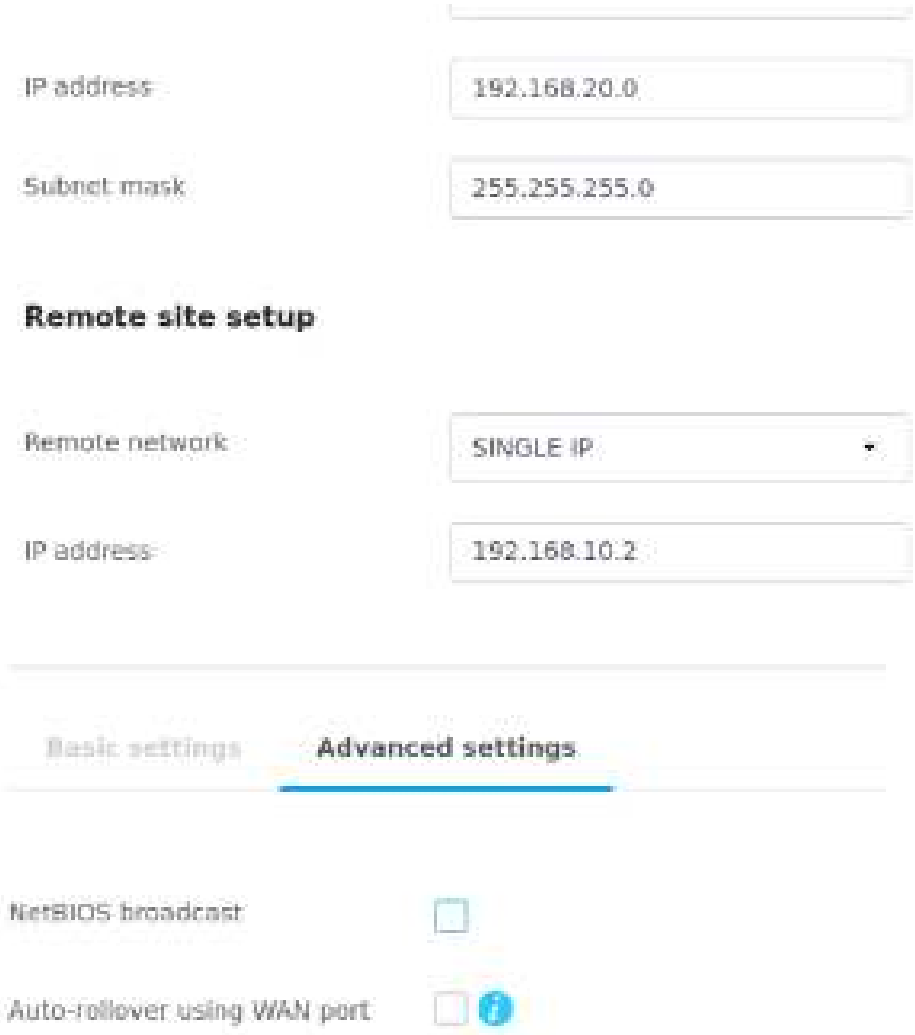
The user can manually configure it in the *Ipsec site to site* and build IPSec VPN tunnels. This mode is useful when you try to establish a tunnel between two DSR-250v2 devices or when you try to establish a tunnel between DSR-250v2 and/or with any third-party gateway.

The fields available in the *Ipsec site to site Configuration* table are as follows:

Field	Description
Name	It displays the name of the VPN.
Remote gateway	It displays the remote IP address to which the VPN tunnel is established.
Interface	It displays the interface being used for the VPN connection.
Local subnet	It displays the local subnet being used by this VPN connection.
Remote subnet	It displays the remote subnet being used by this VPN connection.
IKE profile	It displays the IKE profile selected for the configured VPN connection.
Enable	You can enable or disable the connection.
Status	It displays if the VPN connection is connected or disconnected.

Click **+** to add a new VPN configuration. This opens the *Add basic configuration* page. To delete an entry or multiple entries, select the corresponding checkboxes, and click **Delete**,for edit an entry select the corresponding checkboxes to **edit**.





The fields available on the *Add basic configuration* and *Advanced configuration* pages are as follows:

Field	Description
Connection name	Enter a descriptive name for the VPN connection.
Outgoing interface	Specify the interface to be used for the outgoing data.
Remote gateway	Select the gateway you want to use for the connection. The options are *Static IP* and *FQDN*.
IP address	If you select *Static IP* as the remote gateway, enter the IP address.
Domain name	If you select *FQDN* as the remote gateway, enter the domain name.
IKE profile	Select one of the configured IKE profiles from the drop-down list.
Local site setup	
Local network	Select the network access type that you want to provide over the IPSec Tunnel. • **Any**: It specifies that the policy is for any traffic from the given local endpoint. • **Single IP**: It limits the policy to one host. Enter the IP address of the host that will be part of the VPN.

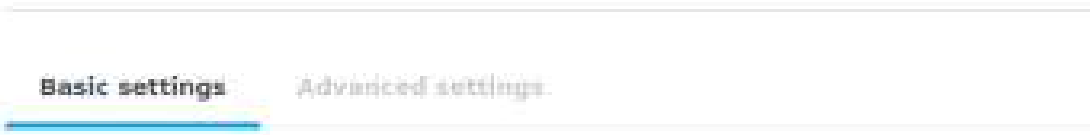
	• **Subnet**: It allows an entire subnet to connect to the VPN. Enter the network address and subnet mask in the provided fields.
IP address	Enter the IP address to connect to the VPN.
Subnet mask	Enter the subnet mask for the network address.
Remote site setup	
Remote network	Select the network access type that you want to provide over the IPSec Tunnel. • **Any**: It specifies that the policy is for any traffic from the given remote endpoint. • **Single IP**: It limits the policy to one host. Enter the IP address of the host that will be part of the VPN. • **Subnet**: It allows an entire subnet to connect to the VPN. Enter the network address and subnet mask in the provided fields.
IP address	Enter the IP address to connect to the VPN.
Subnet mask	Enter the subnet mask for the network address.
Advanced configuration	
NetBIOS broadcast	Enable it to allow NetBIOS broadcast to travel over the VPN tunnel.
Rollover	To enable a VPN rollover, you must have the *WAN Mode* set to **Rollover**.
Apply	Click **Save** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

IPsec Client to Site

The user can manually configure it in the *Ipsec client to site* and build IPSec VPN tunnels. This mode is useful when you try to establish a tunnel between two DSR-250v2 devices or when you try to establish a tunnel between DSR-250v2 and/or with any third-party gateway.

The fields available in the *Ipsec client to site Configuration* table are as follows:

Field	Description
Name	It displays the name of the VPN.
Interface	It displays the interface being used for the VPN connection.
Local subnet	It displays the local subnet being used by this VPN connection.
Enable	You can enable or disable the connection.



Connection name	hhh
Outgoing interface	WAN1
Remote gateway	IP_ADDRESS
IP address	2.3.24.2
IKE profile	IKE_profile_default

Local site setup

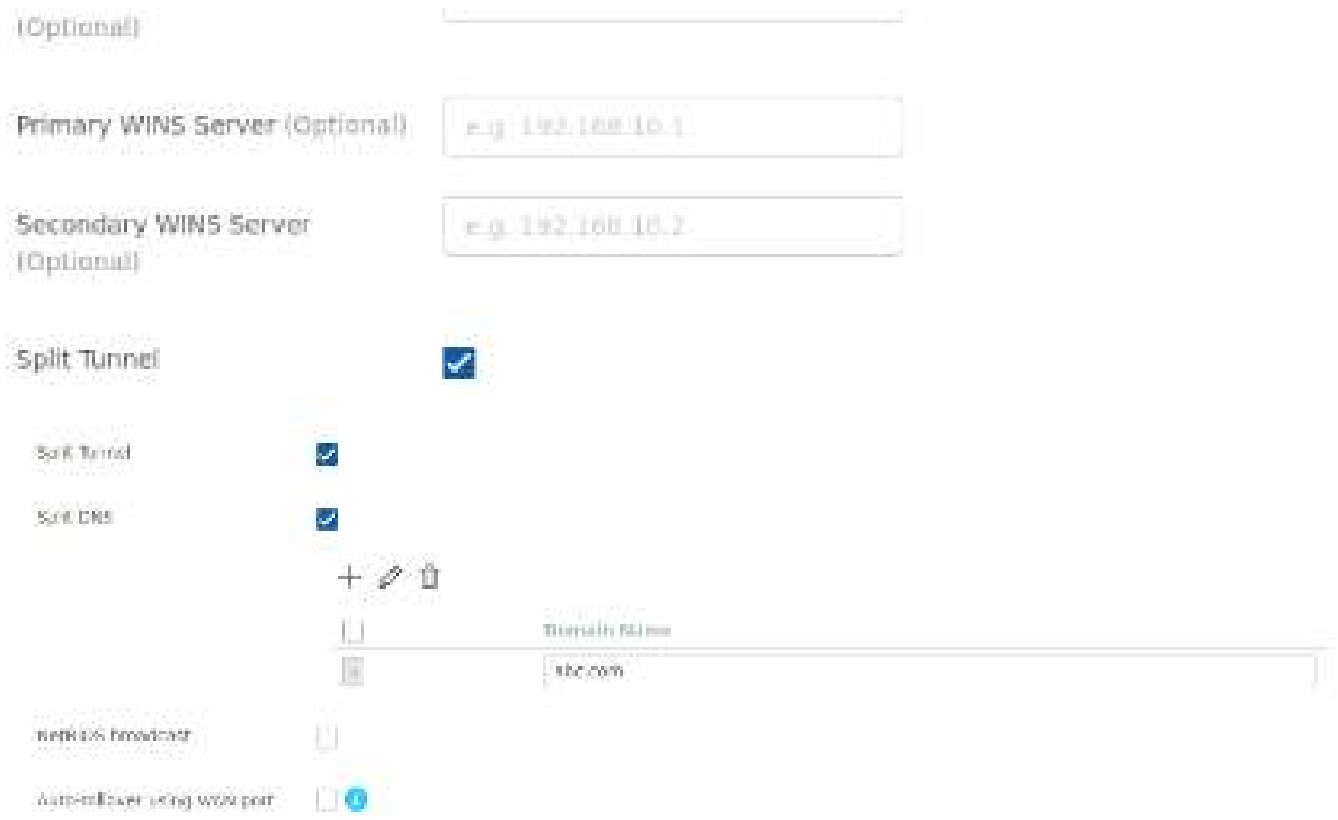
Local network	ANY

Remote site setup

Remote network	ANY

Basic settings | **Advanced settings**

Mode config	☑
Starting IP address	192.168.1.3
Ending IP address	192.168.1.56
Primary DNS Server	192.168.1.1
Secondary DNS Server	



The fields available on the *Add basic configuration* and *Advanced configuration* pages are as follows:

Field	Description
Connection name	Enter a descriptive name for the VPN connection.
Outgoing interface	Specify the interface to be used for the outgoing data.
Remote gateway	Select the gateway you want to use for the connection. The options are *Static IP* and *FQDN*.
IP address	If you select *Static IP* as the remote gateway, enter the IP address.
Domain name	If you select *FQDN* as the remote gateway, enter the domain name.
IKE profile	Select one of the configured IKE profiles from the drop-down list.
Local site setup	
Local network	Select the network access type that you want to provide over the IPSec Tunnel. • **Any**: It specifies that the policy is for any traffic from the given local endpoint. • **Single IP**: It limits the policy to one host. Enter the IP address of the host that will be part of the VPN. • **Subnet**: It allows an entire subnet to connect to the VPN. Enter the network address and subnet mask in the provided fields.
IP address	Enter the IP address to connect to the VPN.
Subnet mask	Enter the subnet mask for the network address.
Remote site setup	
Remote network	Select the network access type that you want to provide over the IPSec Tunnel. • **Any**: It specifies that the policy is for any traffic from the given remote endpoint.
Advanced configuration	
Mode config	

	Mode Config is similar to DHCP and is used to assign IP addresses to the remote VPN clients. You can enable or disable this feature.
Split Tunnel	Split Tunnel: It provides VPN client access to all the intranet services.
Starting IP address	Enter the starting IP address of the assigned IP range to the VPN clients.
Ending IP address	Enter the ending IP address of the assigned IP range to the VPN clients.
Primary DNS	Enter the IP address of the primary DNS.
Secondary DNS (Optional)	Enter the IP address of the secondary DNS. It is an optional field.
Starting IP address	Enter the first IP address of the DHCP IP range.
Ending IP address	Enter the last IP address of the DHCP IP range.
Subnet mask	Enter the subnet mask for the IP range.
NetBIOS broadcast	Enable it to allow NetBIOS broadcast to travel over the VPN tunnel.
Rollover	To enable a VPN rollover, you must have the *WAN Mode* set to **Rollover**.
Save	Click **Save** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

IPsec 1 to 1 mapping

Ipsec 1 to 1 mapping is used to hide our local network by mapping it to another network.Let us see in detailed for example my lan network is in 192.168.10.0/24 and administrator want to hide this network from remote user in this case i mapped my lan network with some other network (192.168.70.0/24).

The fields displayed on the *Ipsec* 1 to 1 mapping are as follows:

Field	Description
Source Ip Range Start	Here we have to information regarding our local network
Mapped Ip Range Start	Here we have to information regarding to which network we have to do mapping.
RangeLength	We have to give range from 1-254
Ipsec policy name	We have to select the configured ipsec policy
Enable	You can enable or disable the configured tunnel.

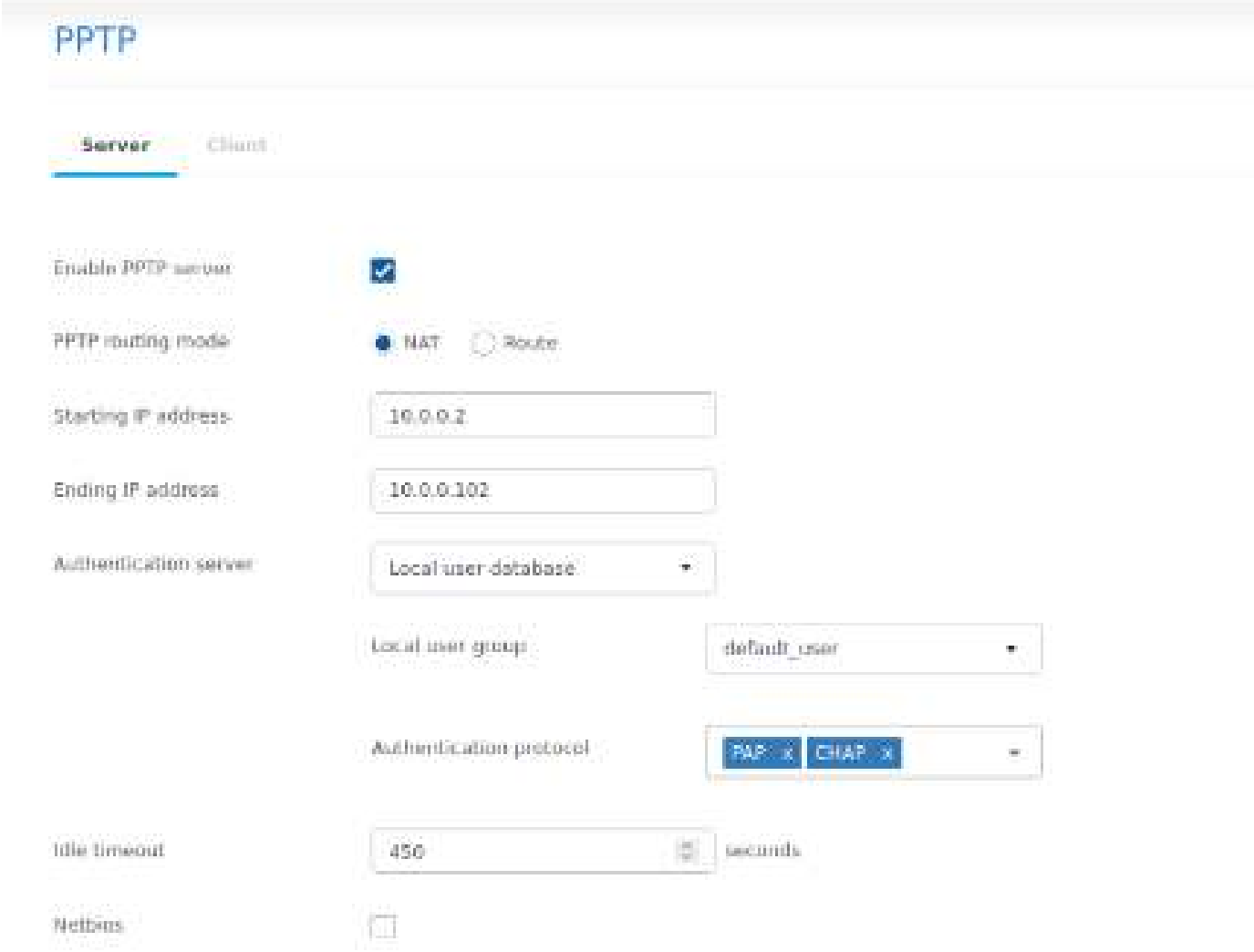
Click **+** to add a new entry to the list. This opens the *new ipsec 1 to 1 mapping rule*. To delete multiple entries, select the checkboxes of the policies you want to delete, and click **Delete**,click on edit to edit the policy.

PPTP

Server Mode

DSR-250v2 can establish a PPTP/L2TP VPN. Once enabled, a PPTP/L2TP server is available on the gateway for the LAN and WAN PPTP/L2TP client users to access, i.e., PPTP/L2TP clients can reach the gateway's PPTP/L2TP server. Furthermore, once authenticated by the PPTP/L2TP server (the tunnel endpoint), PPTP/L2TP clients can access the LAN network managed by the gateway.

The range of IP addresses allocated to PPTP/L2TP clients should not coincide with the LAN subnet. Also, the PPTP/L2TP server will default to local PPTP/L2TP user authentication but can be configured to employ an external RADIUS authentication server should one be configured.



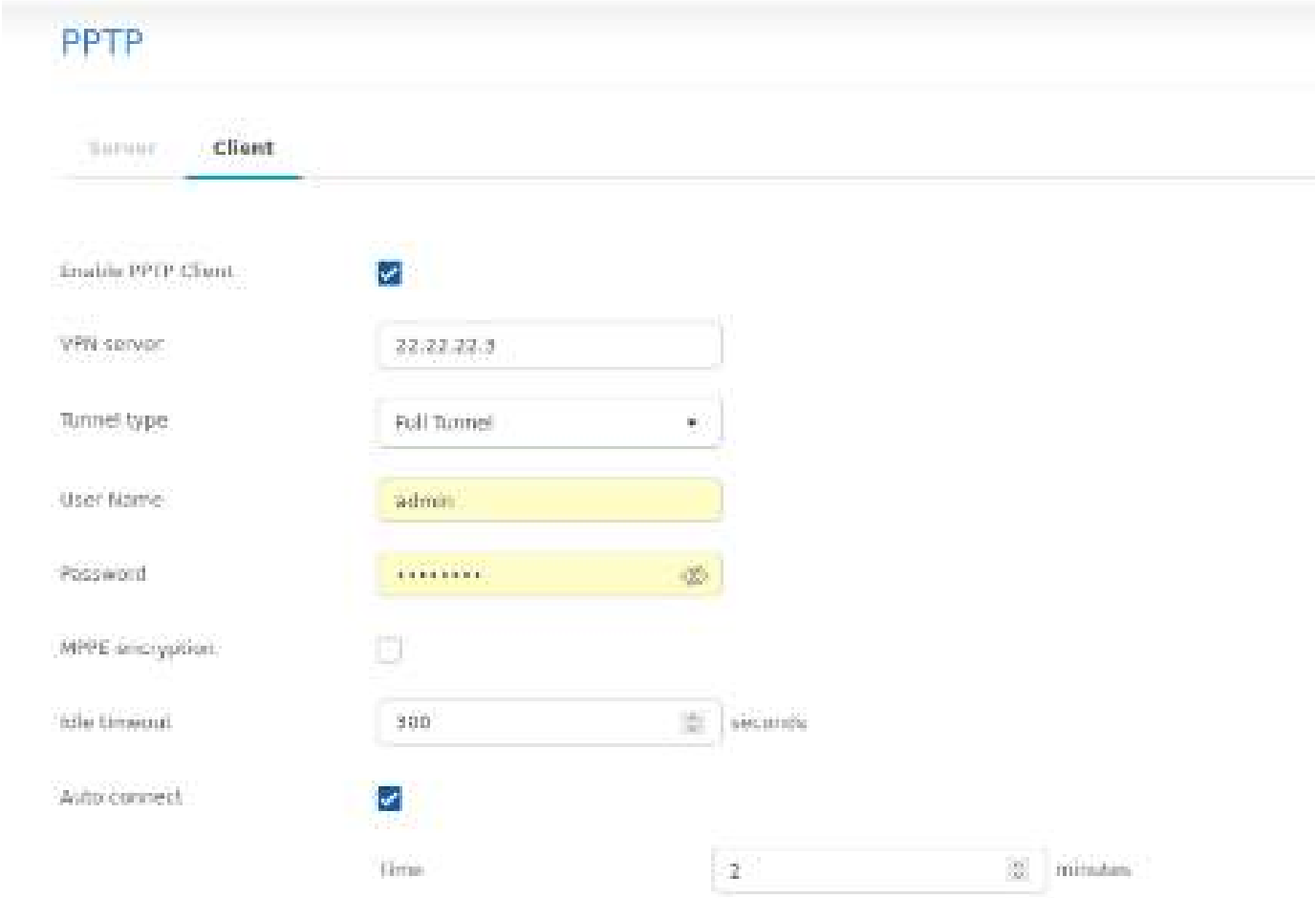
The fields available on the *PPTP server* page for the **PPTP server** type are as follows:

Field	Description
PPTP Server	
Enable PPTP Server	Enable pptp server for the configuration
Name	Enter the name of the PPTP server.
Routing mode	Select the routing mode, either *NAT* or *Router*.
Starting IP address	Enter the starting IP address of the IP address range to assign to your PPTP clients.
Ending IP address	Enter the ending IP address of the IP address range to assign to your PPTP clients.
Authentication Server	Select any one of the available authentication servers. The options are *Local authentication*, *RADIUS*, and *None* authentication.
Radius Server	Select the RADIUS server. It is available when you select **Radius** as the *Authentication Server*.
Local authentication	Select one of the saved authentications on the local server.

Authentication protocol	Select one or multiple authentication types from the drop-down list (*All*/*PAP*/*CHAP*/*MS-CHAP*/*MSCHAPv2*).
Encryption	This field is available only when **MS-CHAP** or **MS-CHAPv2** is selected as the *Authentication protocol*. • **All**: Select the checkbox to select all the encryption options. • **Mppe 40 Bit**: Select the checkbox to enable Mppe 40 bit encryption. • **Mppe 128 Bit**: Select the checkbox to enable Mppe 128 bit encryption. • **Stateful Mppe**: Select the checkbox to enable Stateful Mppe encryption. This mode of Mppe encryption is less secure and can be used for compatibility.
Idle timeout (seconds)	Enter the amount of time in seconds, after which the connection will disconnect when idle.
Netbios	Enable it to allow NetBIOS broadcasts to travel over the VPN tunnel.
WINS server	Enter the WINS server address for Netbios. This field is available when you enable Netbios.
Apply	Click **Save** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Client Mode

The DSR-250v2 can configure the PPTP/L2TP VPN Client. Using this client, we can access a remote network that is local to the PPTP/L2TP server. Once a client is enabled, it will try to auto-connect or manual connect to the server.



The fields available on the *PPTPclient* page are as follows:

Field	Description

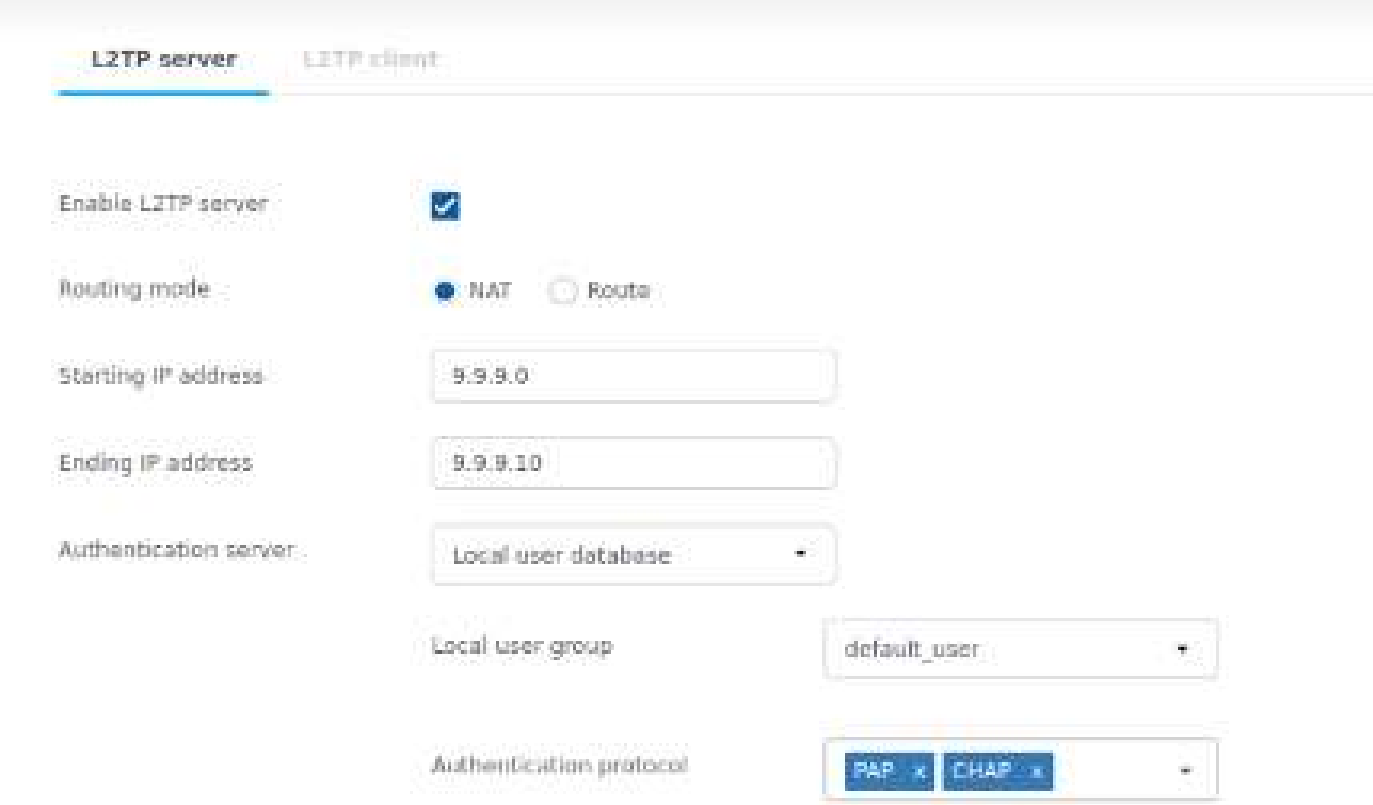
Name	Enter the name.
VPN server	Enter the IP address or domain name of the PPTP server you want to connect to.
Tunnel type	Select the tunnel type. • **Full tunnel**: If this is selected, it will access the Internet and the LAN host connected to the server device through the PPTP server once the connection is established, • **Split tunnel**: If this is selected, it will access only the selected remote network.
Remote network	Enter the remote network address. This address is local for the PPTP Server.
Remote netmask	Enter the remote network subnet mask.
User name	Enter the user name to connect to the server.
Password	Enter the password to connect to the server.
MPPE	Enable or disable Microsoft Point-to-Point Encryption (MPPE).
Auto connect	Enable the option to connect the tunnel automatically
Time	Provide the time in how many minutes tunnel should connect
Idle timeout (seconds)	Enter the amount of time (in seconds) that you will disconnect from the PPTP server when idle.
Apply	Click **Apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

L2TP

Server Mode

DSR-250v2 can establish a PPTP/L2TP VPN. Once enabled, a PPTP/L2TP server is available on the gateway for the LAN and WAN PPTP/L2TP client users to access, i.e., PPTP/L2TP clients can reach the gateway's PPTP/L2TP server. Furthermore, once authenticated by the PPTP/L2TP server (the tunnel endpoint), PPTP/L2TP clients can access the LAN network managed by the gateway.

The range of IP addresses allocated to PPTP/L2TP clients should not coincide with the LAN subnet. Also, the PPTP/L2TP server will default to local PPTP/L2TP user authentication but can be configured to employ an external RADIUS authentication server should one be configured.



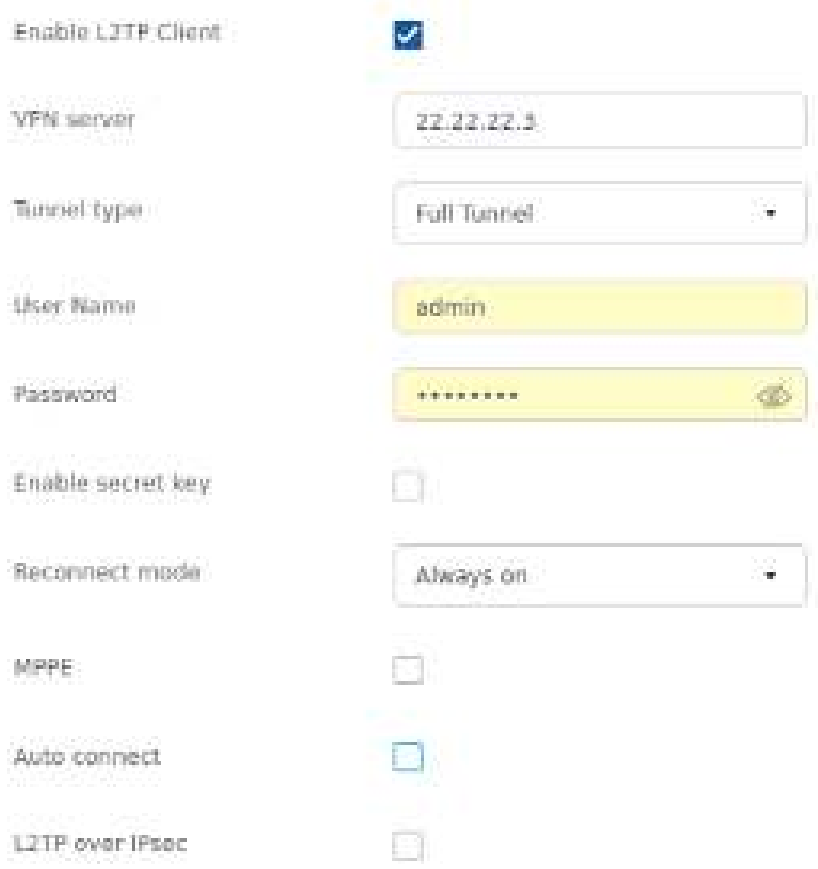
The fields available on the *L2TP server* page for the **L2TP server** type are as follows:

Field	Description
L2TP Server	
Enable l2tp server	Enable l2tp server to configure
Name	Enter the name of the L2TP server.
Routing mode	Select the routing mode, either *NAT* or *Router*.
Starting IP address	Enter the starting IP address of the IP address range to assign to your L2TP clients.
Ending IP address	Enter the ending IP address of the IP address range to assign to your L2TP clients.
Authentication server	Select the authentication server. The options are *Local authentication*, *RADIUS*, and *None* a uthentication.
Local authentication	Select one of the saved authentications on the local server. This field is available when you select **Local authentication** as the authentication server.
Radius server	Select the Radius server. This field is available when you select **Radius** as the authentication server.
Authentication protocol	Select any authentication types from the drop-down menu (*All*/*PAP*/*CHAP*/*MS-CHAP*/*MSCH APv2*).
Encryption	Enable it to add a secret key.
Enable Secret key	If the *Encryption* field is enabled, enter the secret key.
Auto connect	Enable the option to connect the tunnel automatically
Time	Provide the time in how many minutes tunnel should be connected
Idle timeout (seconds)	Enter the amount of time in seconds that the connection will disconnect when idle.
L2TP over IPsec	When the *L2TP over IPsec* configuration is enabled, the IPsec tunnel initiation starts automatically. Still, the establishment of the tunnel depends on the configuration at the client and the server-side and the response from the server. Select l2tp over ipsec to configure the *ipsecprofile* for IPsec. For details,refer ipsec profiles.

Apply	Click **Save** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Client Mode

DSR-250V2 can configure the PPTP/L2TP VPN Client. Using this client, we can access a remote network that is local to the PPTP/L2TP server. Once a client is enabled, it will try to auto-connect or manual connect to the server.



The fields available on the *L2TP client* page are as follows:

Field	Description
Name	Enter the name.
VPN server	Enter the IP address of the L2TP server you want to connect to.
Tunnel type	Select the tunnel type. • **Full tunnel**: If this is selected, it will access the Internet and the LAN host connected to the server device through the L2TP server once the connection is established. • **Split tunnel**: If this is selected, it will access only the selected remote network.
Remote network	Enter the remote network address. This address is local for the L2TP Server.
Remote netmask	Enter the remote network subnet mask.
User name	Enter the user name to connect to the VPN server.
Password	Enter the password to connect to the VPN server.
Enable secret key	You may enable or disable the Secret key.
Secret key	If the Secret key is enabled, enter the secret key.
MPPE	Enable or disable Microsoft Point-to-Point Encryption (MPPE).
Reconnect mode	Select either *Always On* or *On Demand*.
Maximum idle time (seconds)	Enter the idle time in seconds before the gateway disconnects from the L2TP server. This field is available only when *Reconnect mode* is **On Demand**.
L2TP over IPsec	You may enable or disable this feature. If enabled, it will redirect you to the IPsec settings. Click **Next** to configure the *Ipsecprofile* for IPsec.

Auto-connect	.It is used to connect the tunnel automatically
Apply	Click **Save** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

OpenVPN

The router provides the OmniSSL feature, a customized OpenVPN, similar to the SSL VPN connectivity. OmniSSL provides an executable configuration file via a portal page (*<https://<Device WAN IP>/omnissl>*) that facilitates the client installation from the device and is an enhancement to the existing OpenVPN. In addition, this VPN tool can be used via mobile devices, thereby eliminating browser and Java dependencies typical to the SSL VPN solutions.

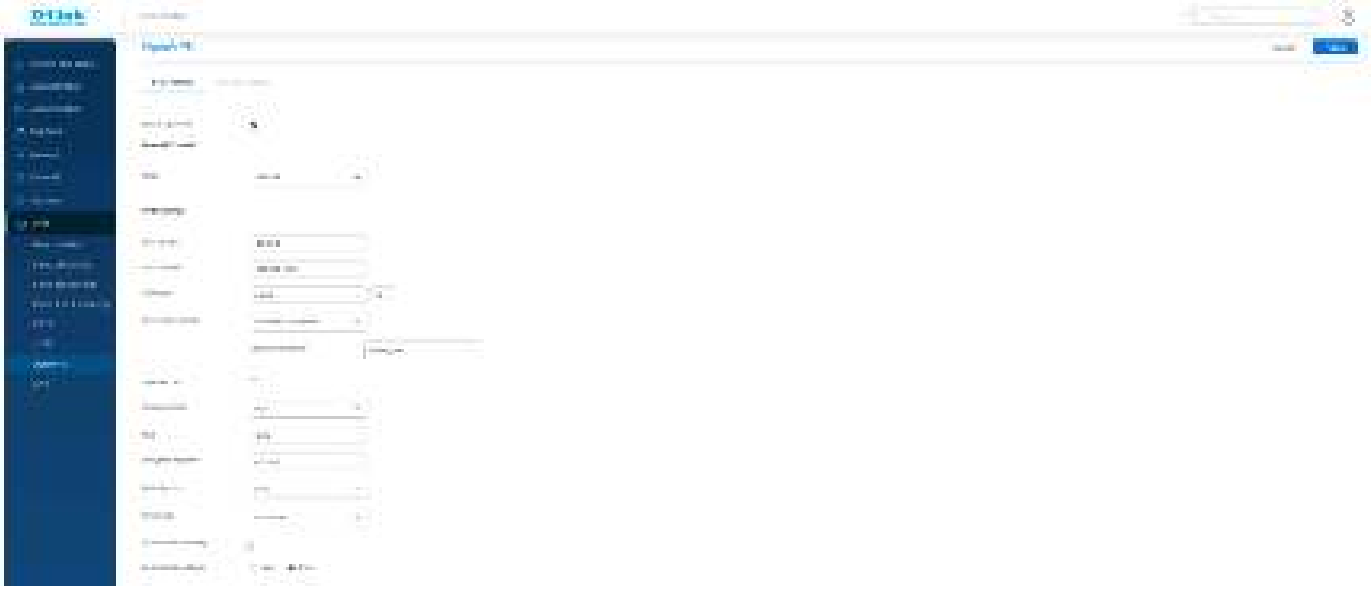
OpenVPN allows peers to authenticate each other using certificates or username/password. When used in a multi-client-server configuration, it allows the server to release an authentication certificate for every client, using signature and Certificate authority. An OpenVPN can be established through this gateway.

In access server-client mode, the user downloads the auto-login profile from the OpenVPN Access Server and uploads the same to connect. You can select the following modes:

- Server mode
- Client mode
- Access Server-client mode

Server mode

In this section, you will learn about the OpenVPN configuration in the *Server* mode.



The fields available on this page are as follows:

Field	Description	
OpenVPN	You can enable or disable the OpenVPN feature.	
OpenVPN daemon mode		
Mode	Select **Server**.	
VPN setting		
VPN network	Enter the IP network for the VPN.	
VPN netmask	Enter the netmask.	
Duplicate CN	Enable it to allow the user to use the same certification to connect for multiple clients. User-based authentication is also required for this feature, and multiple clients require to have their respective user names and passwords.	

Port	Enter the port number on which the OpenVPN server runs. The default port is 1194.	
Tunnel protocol	Select either *TCP* or *UDP* to communicate with the remote host.	
Encryption algorithm	Select the encryption algorithm from the drop-down menu. The options are *AES-128*, *BF-CBC*, *AES-192*, and *AES-256*.	
Hash algorithm	Select the hash algorithm from the drop-down menu. The options are *SHA1*, *SHA256*, and *SHA512*.	
Tunnel type	Select either **Full Tunnel** or **Split Tunnel**. Full Tunnel mode sends all the traffic from the client across the VPN tunnel to the gateway. Split Tunnel mode only sends traffic to the private LAN based on pre-specified client routes. If you select **Split Tunnel**, refer to Local Networks to create local networks.	
Client to client	Enable this field to allow OpenVPN clients to communicate with each other in the split tunnel case. By default, it is disabled.	
User-based authentication	This option provides an additional authentication method. You can enable this field to select an authentication server.	
Local authentication	Select a configured local authentications saved on the local server. To add a new local authentication server, click the *Local authentication list* link. For more details, refer to local authentication list section.	
Certificate verification	Enable or disable certificate verification. This method does not require the client certificate; the client authenticates using the username/password only. It is enabled by default.	
Certificate	Select the profile which has a list of certificates uploaded for the configured mode server /client.	
TLS authentication key	Enabling this adds TLS authentication, which adds a layer of authentication. It can be checked only when the TLS key is uploaded. It is disabled by default.	
TLS key	Select the type of TLS certificate name.	
DH key	Select the DH key from the drop-down list.	
Advanced settings		
Server policies	Enable or disable the *Server Policies* feature; if enabled, configure the Server policies under the Server policies section.	
Remote networks	Enable or disable the *Remote networks* feature; if enabled, configure this feature in the remote networks section.	
Local networks	Enable or disable the *Local networks* feature; if enabled, configure this feature in the Local networks section. This section is available when you select **Split Tunnel** as the *Tu nnel type*.	

Client List

It allows the user to generate the client's configuration. Furthermore, OmniSSL is an adaptable feature as it supports and gets installed on various operating systems following their respective procedures.

The fields available on the *Client list* table are as follows:

Field	Description	
User name	It displays the OmniSSL client name.	
Update at	It displays the date and time when the user's certificates were last updated.	

Status	It displays the status of certificates.	
Revoke	Click **Revoke** to validate the client certificate against the revoked certificates.	
Resume	When the client is in the revocation status, the user can click **Resume** to resume the client, and the DSR-250V2 UI generates a new CRL.	
Local authentication pool name	It displays the name of the local authentication pool where the clients belong.	
Import at	It displays the date and time when the user's certificates were first imported.	
Import	Click **Import** to import the OmniSSL Client list.	
Download	Click **Download** to download the selected certificate and use it when required.	
Actions	It allows you to view the client details. ***Note:*** *You cannot view the client details if the status is Pending.*	

- Click **Import** to import an OmniSSL Client list. This opens the *Import users from local authentication list* page. Select the checkbox corresponding to the *Local authentication* you want to import, and click **Save**. Click **Cancel** to revert to the previous settings.

The fields available on this page are as follows:

Field	Description	
Local authentication	It displays the name of the local authentication.	
Access level	It displays the access level for the local authentication.	
Entries	It displays the number of login credentials saved in the local authentication server.	
Add local authentication	Click this button to add a local authentication. This opens the *Add local authentication list* page. For details, refer to the local authentication list	
Apply	Click **apply** to save your settings.	
Cancel	Click **Cancel** to revert to the previous settings.	

- Click **Download** to download the OmniSSL list in the *.csv format.

OmniSSL Portal Layout

The router supports a static portal page to enable or disable authentication to the remote OmniSSL users.

The fields displayed in the *OmniSSL Portal layout* table are as follows:

Field	Description
Active	You can enable or disable the portal layout. When you enable it, the OmniSSL URL will appear above the table in the right corner.
Layout name	It displays a name for the portal layout.
Login page	It displays the portal login page link.

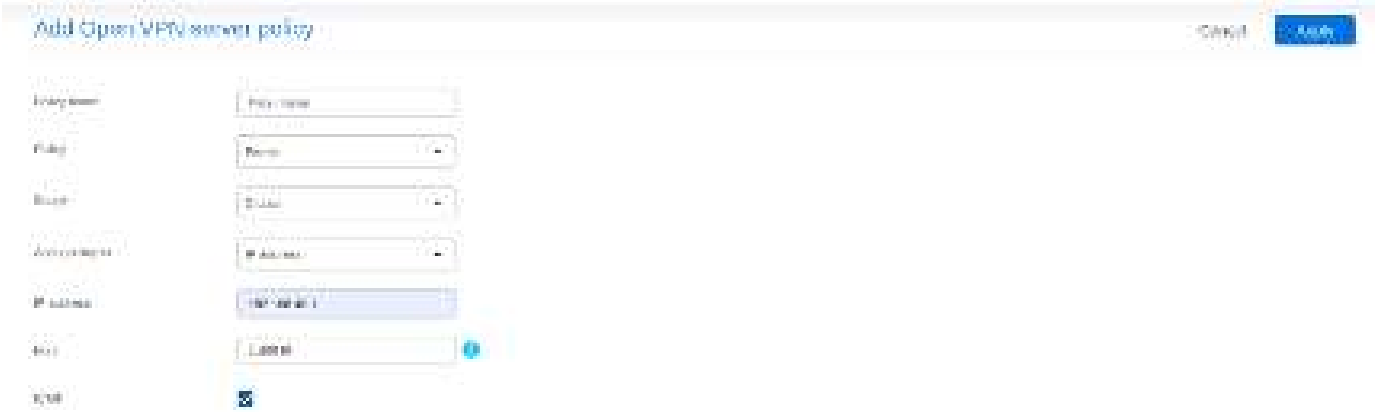
Server Policies

OmniSSL Server Policies are useful in permitting or denying access to specific IP addresses or IP networks. They may be defined at the user or global level.

The fields displayed in the *Server policies* table are as follows:

Field	Description
Name	It displays the name of the server policy.
Policy	It displays the policy applied to the IP address.
Scope	It displays the scope. It is either *Global* or *Local authentication*.
Destination	It displays the IP address to which the OpenVPN policy is applied.
Port	It displays the port number to which the policy is applied.

Click **Add icon** to add a new entry to the list. This opens the *Add OpenVPN server policy* page. To delete multiple entries, select the corresponding checkboxes, and click **Delete icon**.



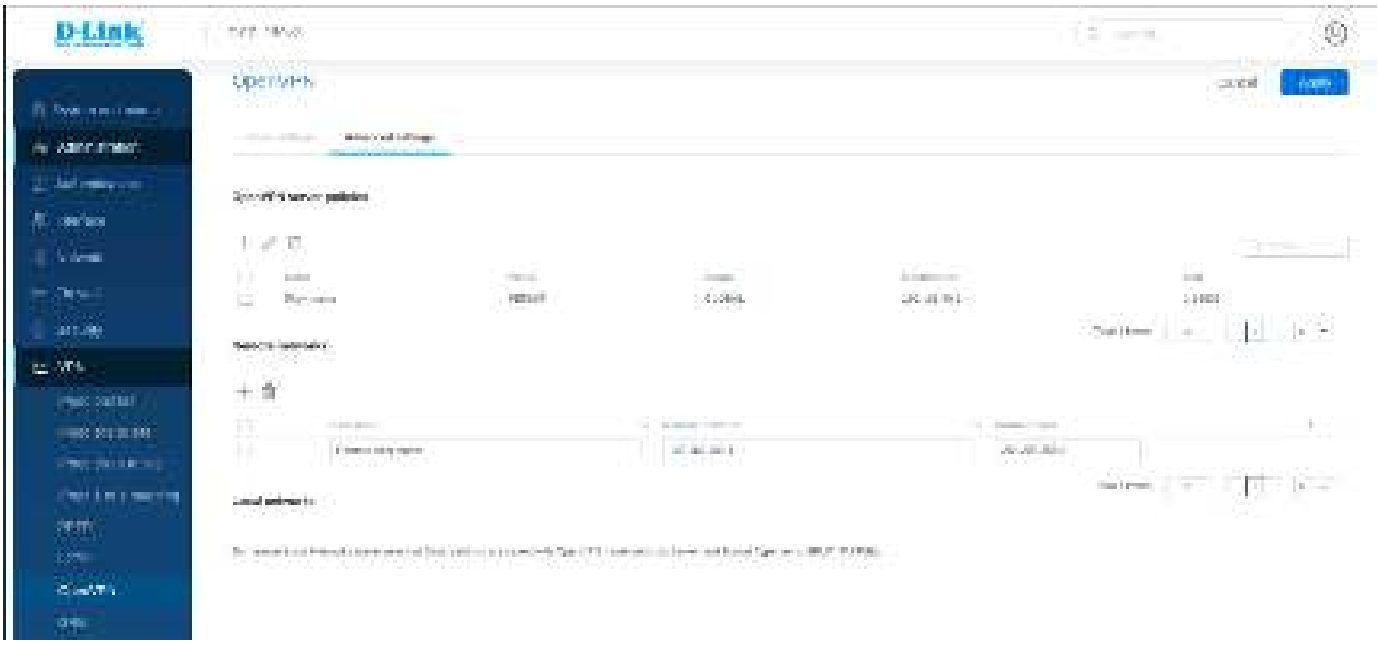
The fields available on the *Add OpenVPN server policy* page are as follows:

Field	Description
Policy name	Enter a name for the server policy.
Policy	Select the policy, whether to permit or deny access to the specific IP address or IP network.
Scope	Select the scope from the drop-down menu. It is either *Global* or *Local authentication*.
Local authentication	If **Local authentication** is selected as the *Scope*, specify the user name (client) to which this policy is to be applied.
Apply policy to	Select an accessible IP address or IP network to which the policy is applied.

IP network	Enter the IP network to which the OpenVPN policy needs to be applied.
Subnet mask	Enter the subnet mask for the above IP network.
IP address	Enter the IP address to which the OpenVPN policy needs to be applied.
Port	Enter the range of port numbers to which the policy will be applied.
ICMP	Enable it to support ICMP traffic.
Apply	Click **apply** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Remote Networks

This section displays a list of configured remote networks. The configured IP addresses can remotely access the server through an OpenVPN tunnel.



The fields displayed on the *Remote networks* table are as follows:

Field	Description
User name	It displays the name of the remote network.
Remote networks	It displays the IP address of the remote networks.
Subnet mask	It displays the subnet mask for the IP address of the remote network.

Click **Add icon** to add a new entry to the list. This opens the *Add OpenVPN remote network configuration* page. To delete multiple entries, select the checkboxes of the remote networks you want to delete, and click **Delete** icon

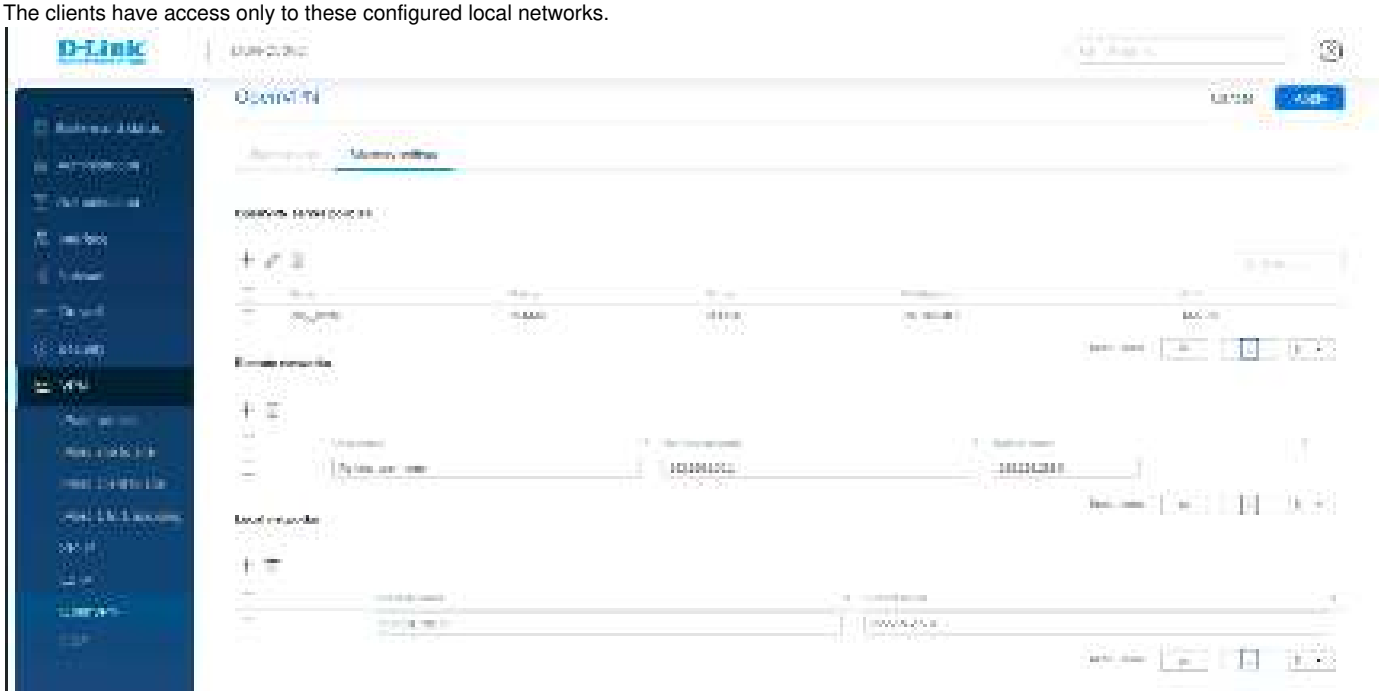
The fields available on the *Add OpenVPN remote network configuration* page are as follows:

Field	Description
user name	Enter the name of the remote network.

Remote networks	Enter the IP address of the remote networks.
Subnet mask	Enter the subnet mask for the IP address of the remote network.
Apply	Click **Save** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.

Local Networks (Split Tunnel)

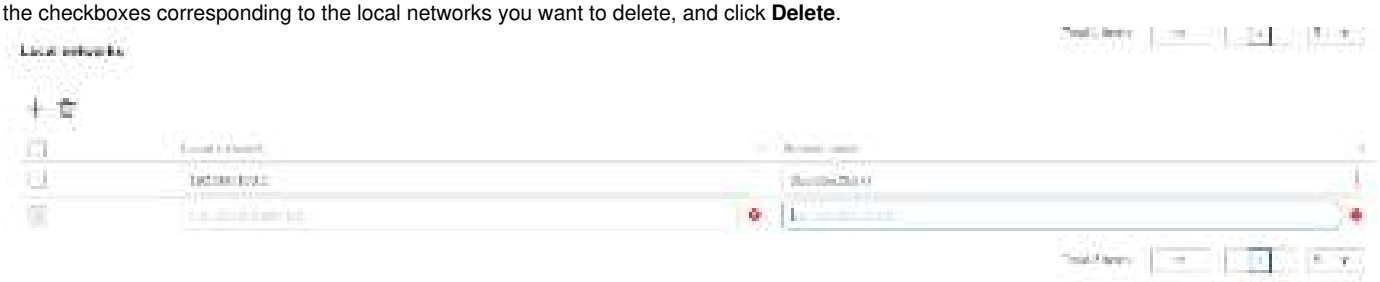
This section is available only when the **Split Tunnel** is selected as the *Tunnel type*. It displays a list of the configured OpenVPN local networks. The clients have access only to these configured local networks.



The fields displayed on the *Local networks* list are as follows:

Field	Description
Local network	It displays the IP address of the local network.
Subnet mask	It displays the subnet mask for the IP address of the local network.

Click **Add** to add a new entry to the list. This opens the *Add OpenVPN local network configuration* page. To delete multiple local networks, select the checkboxes corresponding to the local networks you want to delete, and click **Delete**.

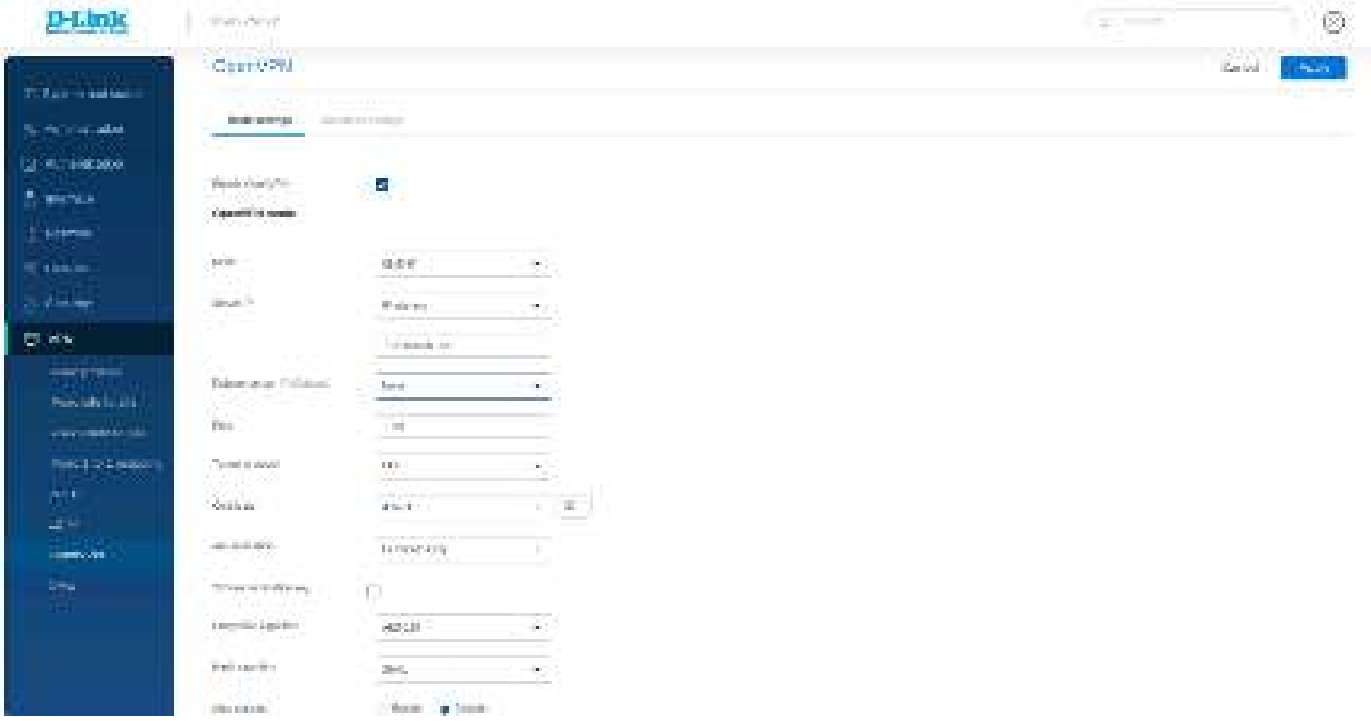


The fields available on the *Add OpenVPN local network configuration* page are as follows:

Field	Description	
Local networks	Enter the IP address of the local network.	
Subnet mask	Enter the subnet mask for the IP address of the local network.	
Apply	Click **apply** to save your settings.	
Cancel	Click **Cancel** to revert to the previous settings.	

Client mode

In this section, you will learn about the OpenVPN configuration in the *Client* mode.



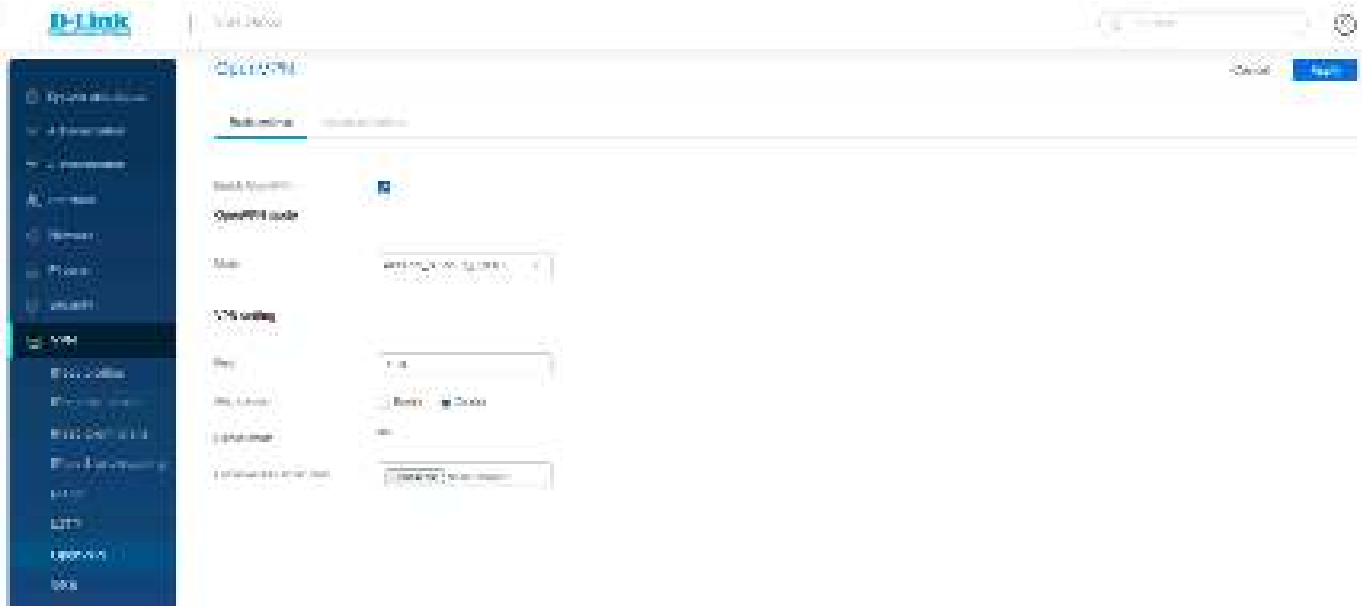
The fields available when the *Client mode* is selected are as follows:

Field	Description
Mode	Select **Client**.
VPN setting	
Server IP	Enter the IP address/FQDN of the OpenVPN server.
Failover server IP	Select the type of identifier you want to provide for the failover mechanism at the Failover Server IP: **IP Address** or **FQDN** (Fully Qualified Domain Name). This feature allows configuring an additional OpenVPN server for the client, which will be used when the primary server is down. This is applicable only in client mode.
Port	Enter the port number on which the OpenVPN server (or Access Server) runs.
Tunnel protocol	Select either *TCP* or *UDP*.
Encryption algorithm	Select the encryption algorithm from the drop-down menu.
Hash algorithm	Select the hash algorithm from the drop-down menu.
User-based authentication	This option provides an additional authentication method using a user name/password. It is disabled by default.
User name	Enter the user name. This field is available when *User-based authentication* is enabled.
Password	Enter the password. This field is available when *User-based authentication* is enabled.
Certificate verification	This method enables tunnel authentication to be with certificates. It is enabled by default.
Certificate	Select the profile which has list certificates uploaded for the configured client mode.
TLS authentication key	Enabling this adds TLS authentication, which adds a layer of authentication. It can be enabled only when the TLS key is uploaded. It is disabled by default.
TLS key	Select the type of TLS certificate name. When you click the *Certificate list* link, it will redirect you to the *Certificate Management* page to add a new certificate and key.
Auto connect	we can disable and enable,if enabled give we need to give interval

Interval	it dispalys the time interval to connect tunnel automatically
Status	It displays the connection status of the VPN.

Access server-client mode

Select the mode as access server-client mode. In access server-client mode, the user downloads the auto-login profile from the OpenVPN Access Server and uploads the same to connect.



The fields available when the *Access server-client* mode is selected are as follows:

Field	Description
Mode	Select the **Access Server-Client** mode.
Port	It displays the port numbers on which the client will connect with the OpenVPN server (or Access Server).
Auto connect	It displays the auto connect enabled or disabled
Interval	When auto connect enabled give time interval to auto connect
Upload status	It tells about upload status whether it is yes or no
upload access server client	Click **Browse** and locate the configuration file. Click **Open**, and then click **Apply**

GRE

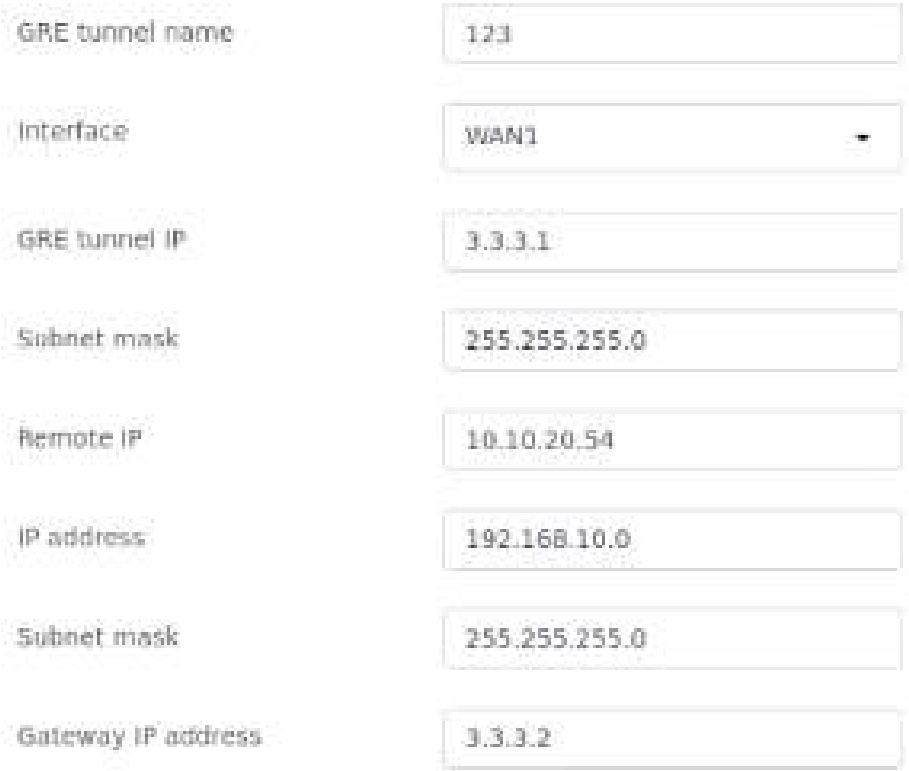
GRE tunnels allow LAN broadcast traffic of the gateway to pass over the Internet and receive by the remote LAN hosts. While creating a GRE tunnel, a unique IP address should identify the GRE tunnel endpoint. It will be referenced in the other gateway's static route as the Gateway IP address. The Remote end-address in the GRE tunnel configuration page is the WAN IP address of the other endpoint gateway.

Once the tunnel is established, a static route on the gateway can be made using the interface of the configured GRE tunnel. The destination IP address of the static route is the remote LAN subnet. The route's gateway IP address will be the GRE tunnel IP of the terminating gateway (the same gateway that manages the remote LAN subnet). Once these two steps are completed, the traffic can flow between the configured remote LAN subnets via the GRE tunnel.

The fields displayed in the *Configuration* table are as follows:

Field	Description
Name	It displays the name of the GRE tunnel.
Interface	It displays the interface with which this tunnel is created.
GRE tunnel IP	It displays the IP address of this endpoint.
Remote IP	It displays the WAN IP address of the endpoint gateway.
Active	You can enable or disable the configured tunnel.
Status	It displays the status of the GRE tunnel, i.e., whether it is connected or disconnected.

Click **+** to add a new entry. This opens the *Add GRE tunnel* page. To delete multiple entries, select the checkboxes of the GRE tunnels you want to delete, and click **Delete**.To edit , select the checkboxes of the GRE tunnels you want to edit.



The fields available on the *Add GRE tunnel* page are given below.

Field	Description
GRE tunnel name	Enter a name for the GRE tunnel.
Interface	Select the interface to create this tunnel.
GRE tunnel IP	Enter the IP address of this endpoint. It will be referenced in the other gateway's static route as the Gateway IP address.

Subnet mask	Enter the subnet mask.
Remote IP	Enter the WAN IP address of the endpoint gateway.
Static route configuration	
IP address	Enter the destination IP address of the static route from the remote LAN subnet.
Subnet mask	Enter the subnet mask.
Gateway IP address	Enter the IP address of the termination gateway.
Apply	Click **Save** to save your settings.
Cancel	Click **Cancel** to revert to the previous settings.