Callout	Name	Description
5.	Model	Displays the model number of the product. The same is configured with the factory settings of the device and reflects in this section on system boot up
6.	Product Name	Displays the name of the product
7.	Current Mode	Displays the current acting mode of the AP (Thick mode or Thin mode)
8.	Current Partition	Displays the current partition in use
9.	Local Time	Displays the date and time details according to the time zone allocated in the "System Configuration" screen
10.	System uptime	Displays the time duration since the respective AP board is up and successfully running without any shutdown
11.	Average Load	Displays the average load on the device
12.	Memory	Displays the free and available memory of the respective device
13.	Network/IPv4 Address	Displays the IPv4 address of the respective device
14.	Network/IPv6 Address	Displays the IPv6 address of the respective device

14.2 System software

A basic layout of the system software is given below:

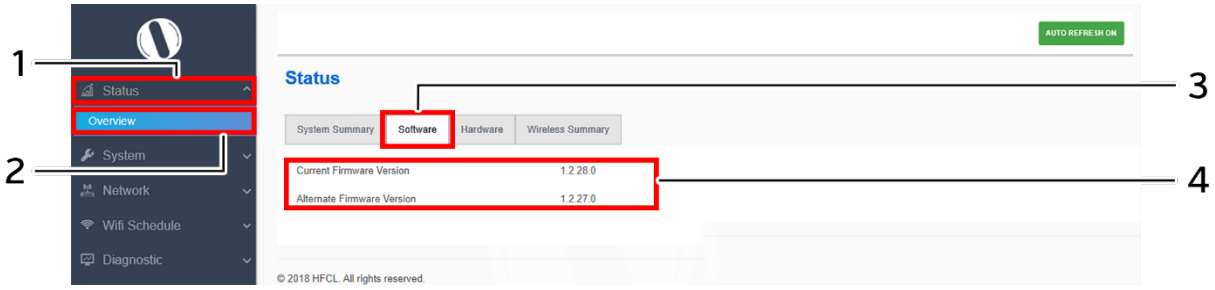


Figure 26: Basic layout of the system software screen

Follow the steps given below to view the system software information:

Table 18: List of information displayed in the system software screen

Callout	Name	Description
1.	Status	Click on the "Status" dropdown
2.	Overview	Click on "Overview" option
3.	Software	Click on "Software" option
4.	Firmware Version	Displays the current and alternate firmware version of the respective AP. The operating system is based on openwrt project model

14.3 System hardware

A basic layout of the system hardware is given below:

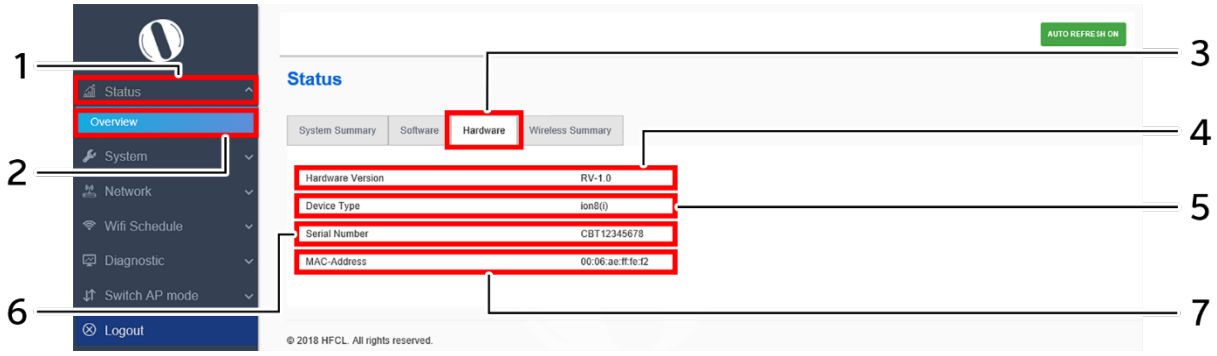


Figure 27: Basic layout of the system hardware screen

Follow the steps given below to view the system hardware information:

Table 19: List of information displayed in the system hardware screen

Callout	Name	Description
1.	Status	Click on the "Status" dropdown
2.	Overview	Click on "Overview" option
3.	Hardware	Click on "Hardware" option
4.	Hardware Version	Displays the current hardware version of the respective AP
5.	Device Type	Displays the device type (Indoor or Outdoor)
6.	Serial Number	Displays the serial number of the respective AP. The same is configured with the factory settings of the device and reflects in this section on system boot up
7.	MAC-Address	Displays the MAC address assigned to the product. The same is configured with the factory settings of the device and reflects in this section on system boot up

14.4 System wireless

A basic layout of the thick AP system wireless overview is given below:

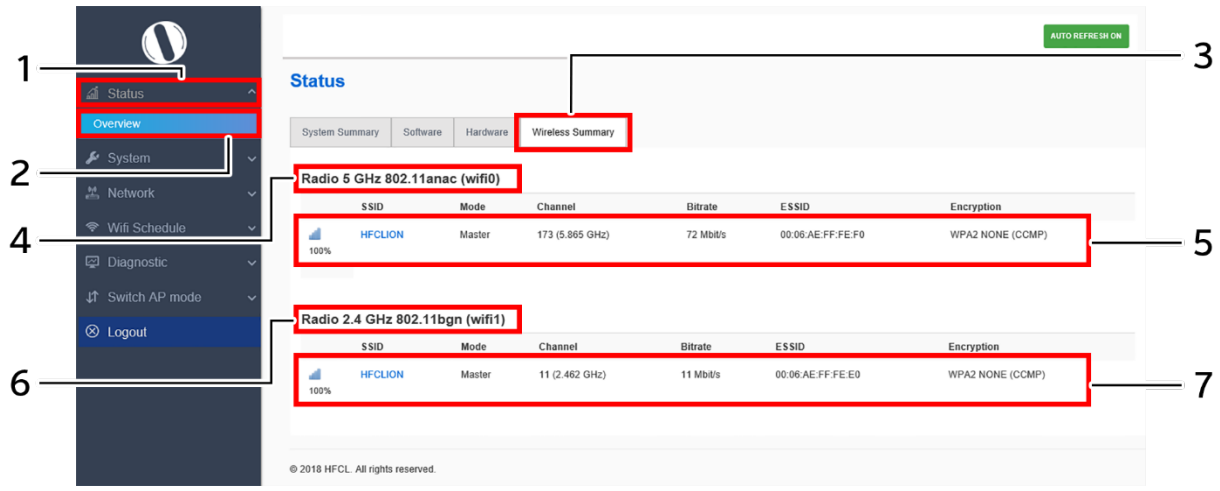


Figure 28: Basic layout of the thick AP system wireless overview screen

Follow the steps given below to view thick AP system wireless overview:

Table 20: List of information displayed in thick AP system wireless overview

Callout	Name	Description
1.	Status	Click on the "Status" dropdown
2.	Overview	Click on "Overview" option
3.	Wireless	Click on "Wireless" option
4.	Radio 5 GHz	Displays the current radio operating mode of the access point at 5 GHz. Refer the section for 5 GHz radio configurations
5.	SSID 5 GHz	Displays all configured SSIDs operating at 5 GHz in a listed form along with some basic details as shown in the figure above. Refer the section for configuration of SSIDs operating at 5 GHz radio
6.	Radio 2.4 GHz	Displays the current radio operating mode of the access point at 2.4 GHz. Refer the section for 2.4 GHz radio configurations
7.	SSID 2.4 GHz	Displays all configured SSIDs operating at 2.4 GHz in a listed form along with some basic details as shown in the figure above. Refer the section for configuration of SSIDs operating at 2.4 GHz radio

15 System maintenance screen

The maintenance activities of the respective access point are executed from this screen. The list of options available for the user is given below:

1. System general and log settings
2. Admin password configuration
3. Backup/Flash Firmware
4. Reboot
5. Factory Reset

15.1 System general settings

The user can configure the basic aspects of the respective access point, like its hostname and the timezone. A basic overview of the screen is given below:

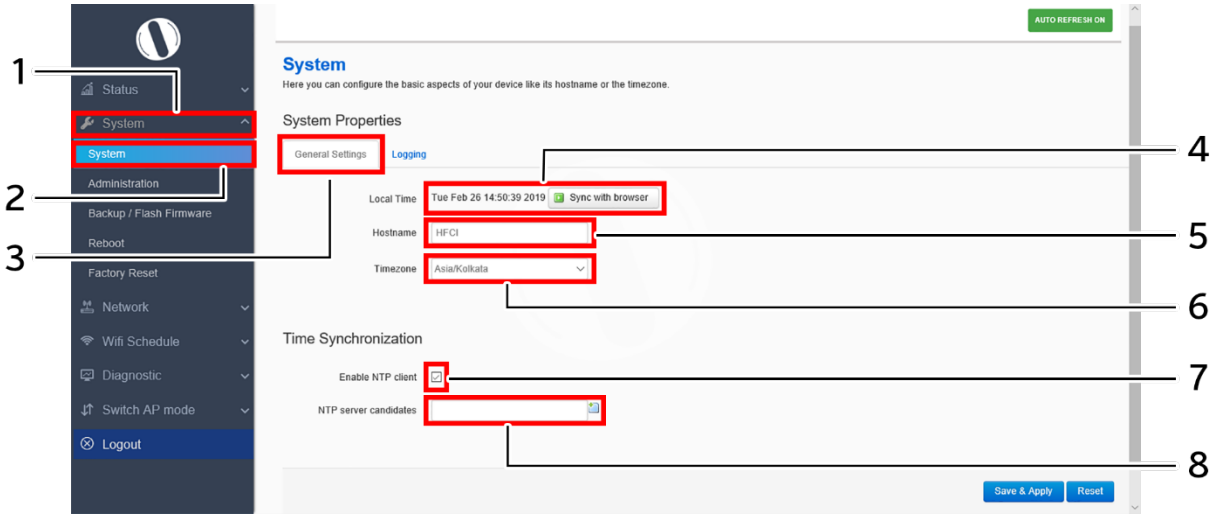


Figure 29: Basic overview of the system general settings screen for thick AP

Follow the steps given below and configure the system general settings for the thick AP:

Table 21: List of actions to configure the system general settings for thick AP

Callout	Name	Description
1.	System	Click on "System" dropdown
2.	System	Click on "System" option
3.	General Settings	Click on "General Settings" option
4.	Local Time	Displays the local date and time of the region. The user can click on "Sync with browser" option to sync the date and time
5.	Host Name	Enter the "Hostname". The same will be reflected in the system summary of status overview screen
6.	Time Zone	Select the respective "Timezone" from the dropdown list. It represents the region of the globe that observes a uniform standard time for legal, commercial, and social purposes.

Callout	Name	Description
		The date and time of the respective timezone will be reflected in the system summary of status overview screen.
7.	Time sync/ NTP	Click on the check box and enable or disable the NTP client
8.	NTP Server candidates	Click on the + icon and add multiple servers

Click on "Save & Apply" to save the systemadmin password configuration or click "Reset" to configure the same again.

15.2 System log settings

If user wants to see the back-end logs or if user faces any issue, logs relevant to the AP's application software are populated in the Diagnostic/System Log**Error! Reference source not found.** screen for monitoring purpose. The same can be uploaded to an external server and the configuration for the same is performed in this screen. Event messages or corresponding messages will be sent to the logging server based on the configured log level.

A basic overview of the screen is given below:

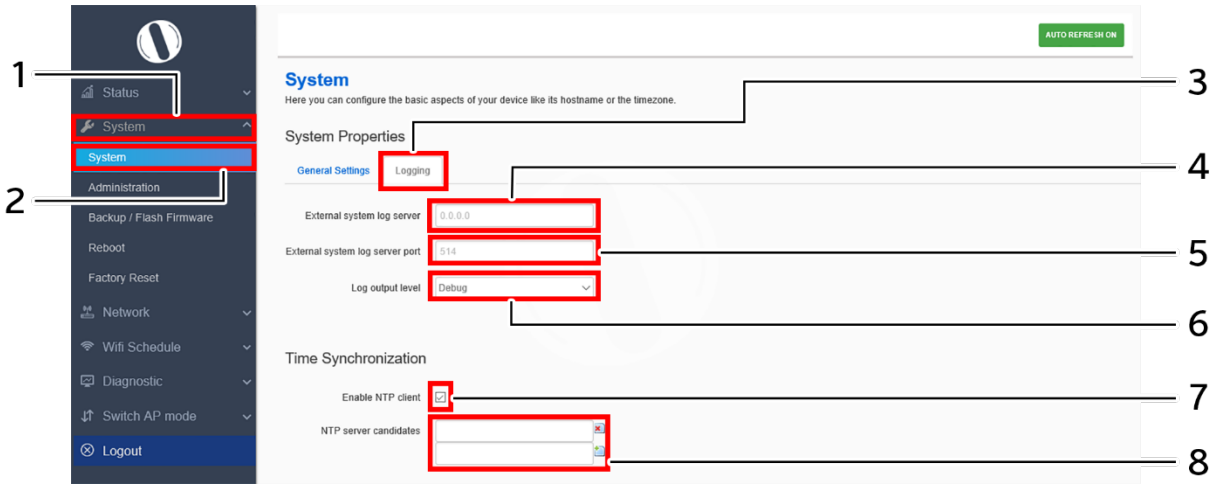


Figure 30: Basic overview of the system general settings screen for thick AP

Follow the steps given below and configure the system general settings for the thick AP:

Table 22: List of actions to configure the system general settings for thick AP

Callout	Name	Description
1.	System	Click on "System" dropdown
2.	System	Click on "System" option
3.	Log Settings	Click on "Log Settings" option
4.	External systemlog server	Enter the "External system log server" address. The systemlogs are uploaded to the external server on regular interval if the external server is specified with this option
5.	External systemlog server port	Enter the "External system log server port" number
6.	Log output level	Select the "Log output level" from the dropdown list (Debug/Info/Notice/Warning/Error/Critical/Alert/Emergency). Categorization of the systemlogs is specified in the backend. The selection of "Log output level" determines the type of logs to be displayed in system log screen. The "Debug" option shows all of the systemlogs. E.g.: If "Debug" is selected, all logs from debug to emergency will be logged and if "Notice" is selected, logs from Notice to Emergency will be logged
7.	Time sync/ NTP	Click on the check box and enable or disable the NTP client

Callout	Name	Description
8.	NTP Server candidates	Click on the + icon and add multiple servers

Click on "Save & Apply" to save the systemadmin password configuration or click "Reset" to configure the same again.

15.3 Set Password for thick AP

This screen provides the user with options to change the default password for respective thick access point. The default username is “root” and the default admin password is “root”.

A basic overview of the screen is given below:

Figure 31: Basic overview of the system admin password configuration screen for thick AP

Follow the steps given below and configure the system admin password for the thick AP:

Table 23: List of actions to configure the password for thick AP

Callout	Name	Description
1.	System	Click on “System” dropdown
2.	Administration	Click on “Administration” option
3.	Password	Enter the new “Password”
4.	Confirm Password	Enter the password again for “Confirm Password”

Click on “Save & Apply” to save the systemadmin password configuration or click “Reset” to configure the same again.

15.4 Backup/Flash Firmware

Downloading the configuration files at an external drive location and updating the configuration files from an external file is a common feature. It helps the user to keep a backup of different configuration files and even makes it easier to apply the same in multiple devices. The device supports dual firmware.

15.4.1 Generate Backup

Download the existing configuration of the device in a file with this option. The user can use this backup file and apply the same configuration again from "Upload configuration or backup" screen. This avoids configuration of each and every parameter again and again, if a similar configuration is already available in the backup files.

A basic overview of the Backup/Flash Firmware screen to generate the backup is given below:

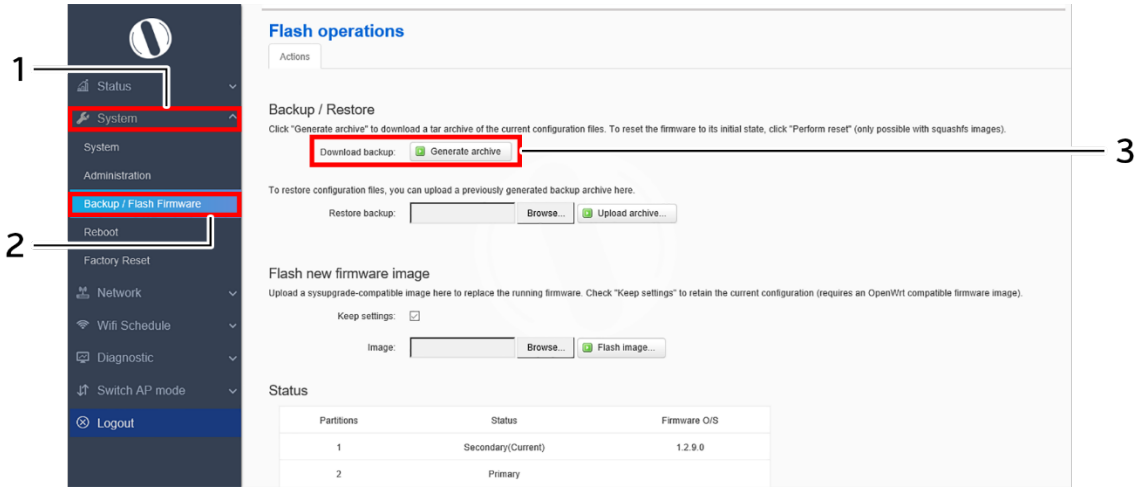


Figure 32: Basic overview of the backup/flash firmware screen to generate backup

Follow the steps given below to generate a backup of current device's configuration and files:

Table 24: List of actions to generate a backup of current device's configuration and files

Callout	Name	Description
1.	System	Click on "System" dropdown in navigation tollbar
2.	Backup/Flash Firmware	Click on "Backup/Flash Firmware" option
3.	Download backup	Click on "Generate archive" option to download the backup. The user can select the location in his computer to extract and save the configuration and system files.

15.4.2 Upload configuration or backup

Use an existing valid configuration file or device backup file and change the device parameters respectively from this screen. The user can apply similar configuration to multiple devices or can apply different type of configurations to various set of devices with minimal of the effort.

A basic overview of the Backup/Flash Firmware screen to upload data and configuration from an external file is given below:

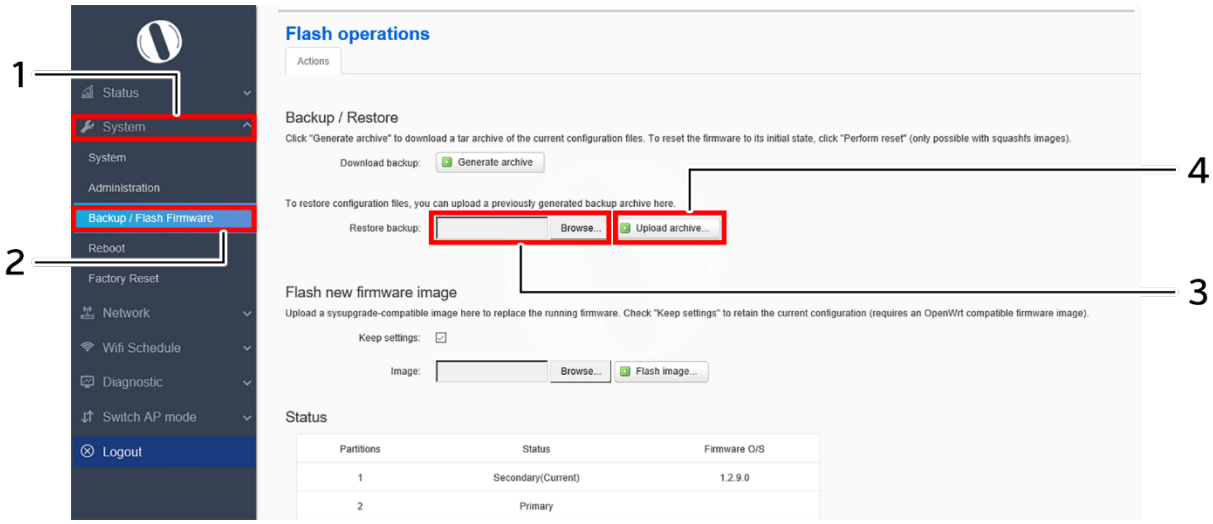


Figure 33: Basic overview of the backup/flash firmware screen to upload configuration

Follow the steps given below to upload data and configuration from an external file:

Table 25: List of actions to upload configuration from an external file

Callout	Name	Description
1.	System	Click on "System" dropdown in navigation tollbar
2.	Backup/Flash Firmware	Click on "Backup/Flash Firmware" option
3.	Browse/Restore backup	Click on "Browse" option and select the file in your computer to and restore the backup file or any other valid configuration file
4.	Restore backup	Click on "Upload archive" option to apply the configurations from selected file

15.4.3 Upgrade firmware

The firmware is stored in the flash memory and can be updated with new versions to include new features or to modify the existing one. This AP has two partitions. The firmware version is always uploaded in the alternate partition to keep the current firmware image restored which is located in the current partition of access point. When we upgrade new firmware, the existing firmware will become backup firmware. If any issues found in new firmware, the backup firmware will be booted.

Save the software file in systemdrive of your laptop or system. Refer the image below:

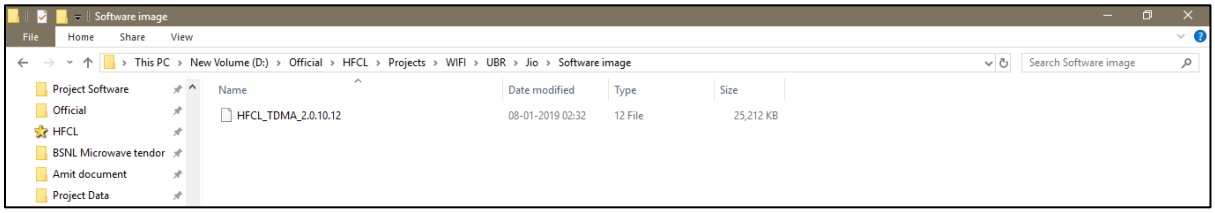


Figure 34: Software file in the system drive

In the above figure, the software file is saved in the "D" drive.

A basic overview of the Backup/Flash Firmware screen to upgrade the firmware from an external file is given below:

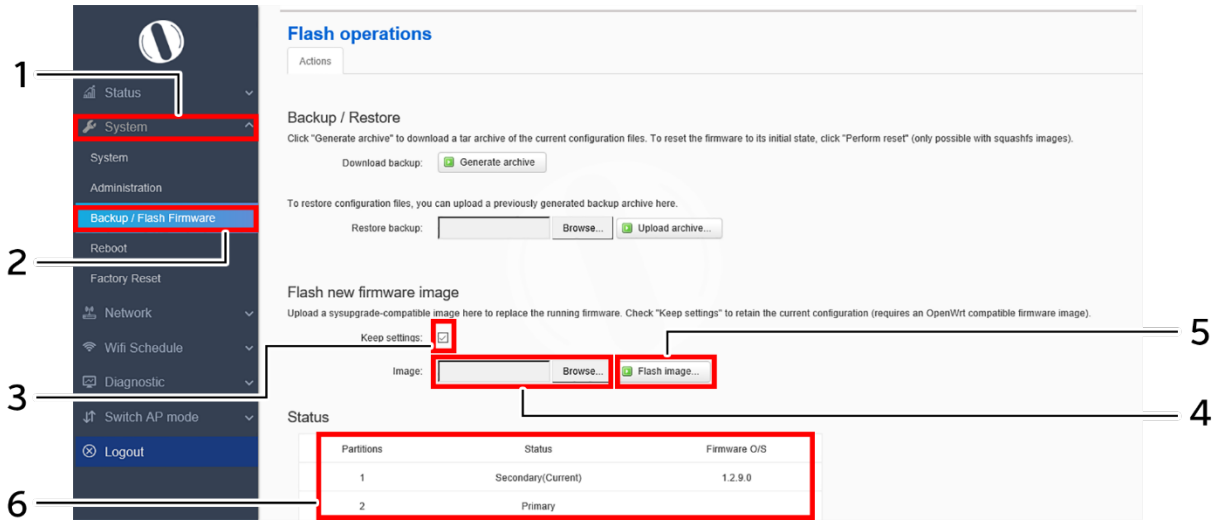
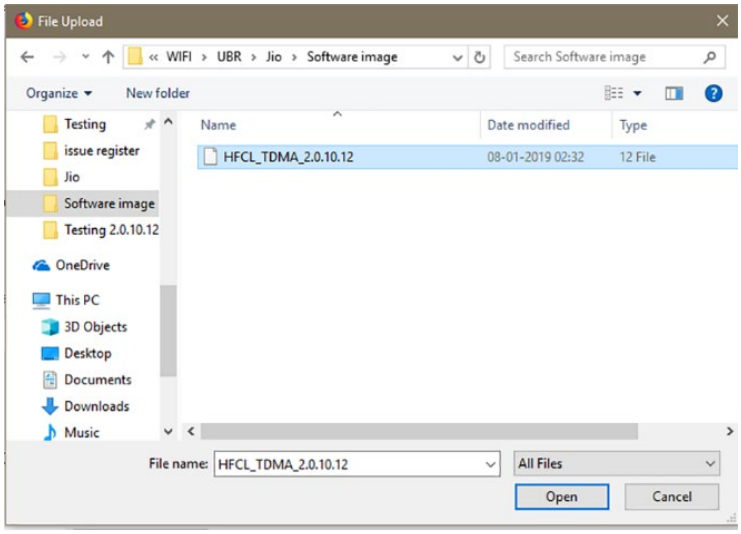


Figure 35: Basic overview of the backup/flash firmware screen to upgrade the firmware

Follow the steps given below to upgrade the firmware from an external file:

Table 26: List of actions to upgrade the firmware from an external file

Callout	Name	Description
1.	System	Click on "System" dropdown in navigation tollbar
2.	Backup/Flash Firmware	Click on "Backup/Flash Firmware" option
3.	Selection box/Keep settings	Click on "Selection box" to retain the existing device configuration (or) deselect the "Selection box" to discard the

Callout	Name	Description
		same while updating the firmware of the device with a new version.
4.	Browse/Image	Click on "Browse" option. A popup window will appear on the screen. Go to the respective folder of software file and select the sysupgrade-compatible image to replace the running firmware. Refer image below.
 Click on open, once the compatible images is selected.		
5.	Image	Click on "Flash image" to upload a sysupgrade-compatible imagec a`1
6.	Firmware status	Displays the firmware versions in primary and secondary partition of the access point

It will show a new page, which will have checksum, file size and other information. Refer image below:

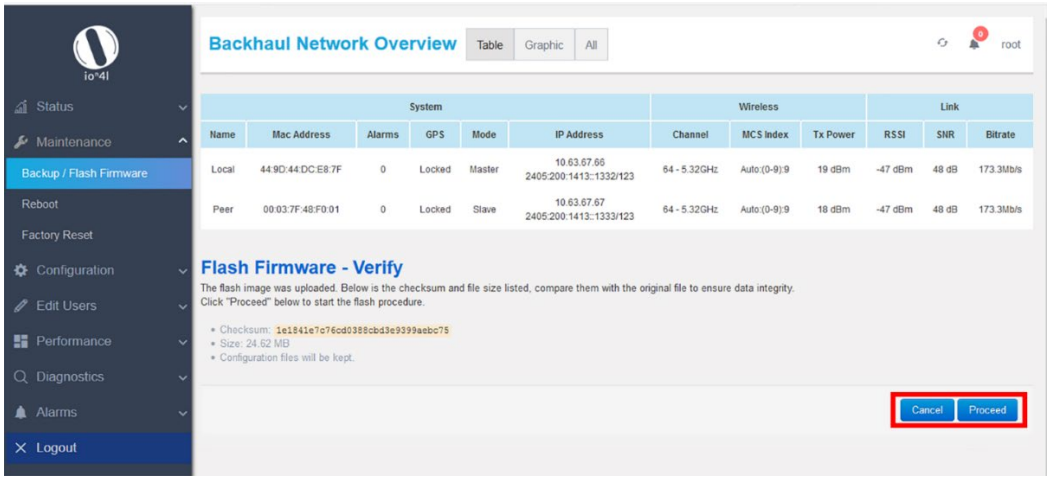


Figure 36: Verify software upgrade

Click on Proceed after checking software version.

15.5 Reboot

Reboot restarts the device with existing configuration. We can change the firmware when the device is rebooted with different partitions. Based on the selected partition, the corresponding firmware will be loaded into the device as working firmware

A basic overview of the Reboot screen is given below:

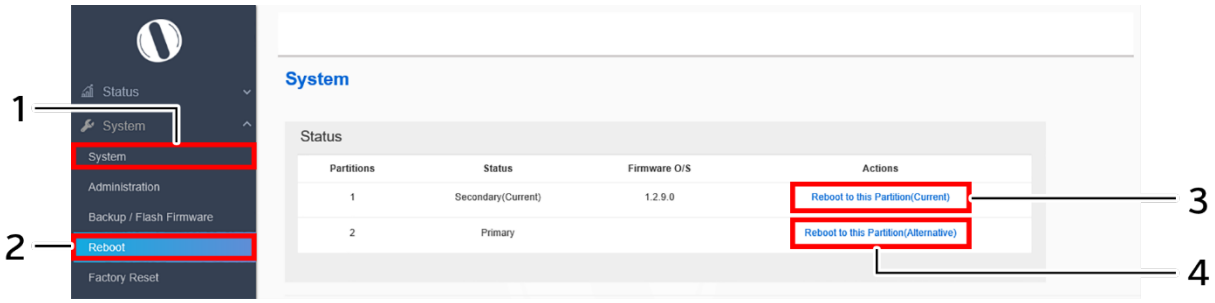


Figure 37: Basic overview of the reboot screen

Follow the steps given below and reboot the AP:

Table 27: List of actions to reboot the AP

Callout	Name	Description
1.	System	Click on "System" dropdown in navigation tollbar
2.	Reboot	Click on "Reboot" option
3.	Reboot to Current partition	Click on "Reboot to Current partition" option. Device will boot from current partition, and the firmware version present in the current partition will be in use
Or		
4.	Reboot to Alternate partition	Click on "Reboot to alternate partition" option. Device will boot from alternate partition, and the firmware version present in the alternate partition will be in use. The firmware upgrade always happen on alternate partition. Use this option and reboot to the latest uploaded firmware version.

15.6 Factory Reset

The device has factory assigned settings and configurations on deployment. The user can set the device to the same from this screen. The device will be configured back to factory settings and the existing settings and configurations will be discarded. It is recommended to take backup before setting the device to factory reset.

A basic overview of the Factory Reset screen is given below:

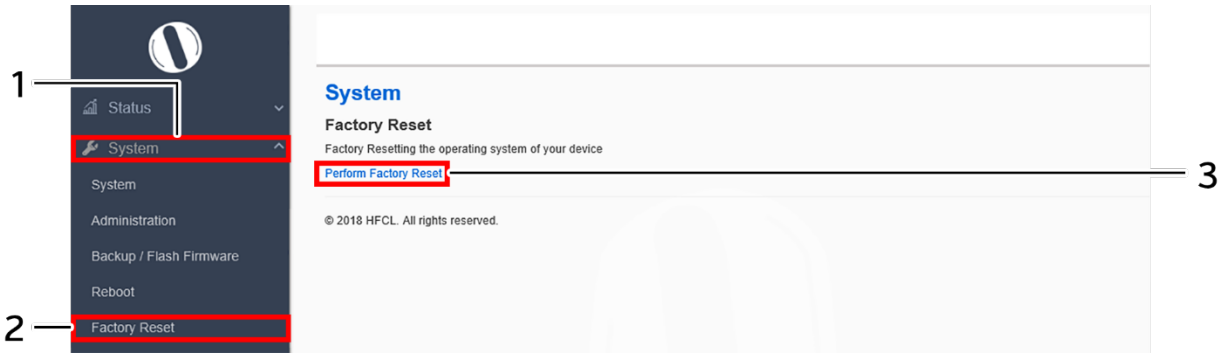


Figure 38: Basic overview of the factory reset screen

Follow the steps given below and factory reset the access point:

Table 28: List of actions to factory reset the access point

Callout	Name	Description
1.	System	Click on "System" dropdown in navigation tollbar
2.	Factory Reset	Click on "Factory Reset" option
3.	Perform Factory Reset	Click on "Perform Factory Reset" option to factory reset the respective access point

16 Network interfaces of thick AP

A basic overview of the network interface screen for thick AP is given below:

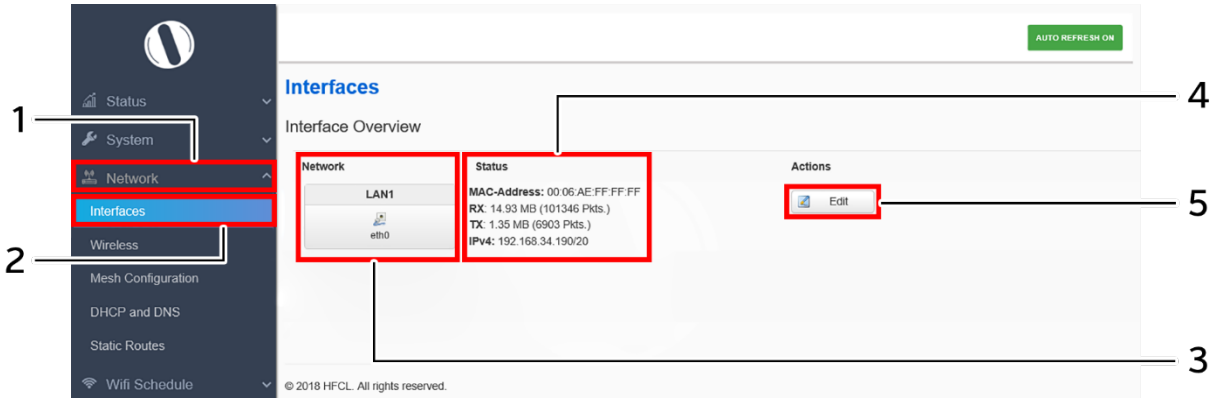


Figure 39: Basic overview of the interface configuration screen for thick AP

Follow the steps given below to view/edit the interface configuration of thick AP:

Table 29: List of actions to view/edit the network configuration of thick AP

Callout	Name	Description
1.	Network	Click on "Network" dropdown
2.	Interfaces	Click on "Interfaces" option
3.	Network/Interface overview	Displays the type of network interface available in the device. The above figure shows the LAN interface overview
4.	Status	Displays the status of the LAN interface with the respect to the parameters shown in above figure
5.	Edit	Click on "Edit" option to configure the LAN-interface settings

The user can click on "edit" option to further modify the following configurations:

1. General setup

16.1 General Network interface setup configuration for thick AP

The default IP address of the access point is set to 192.168.1.1. The user can change the current static IP address of the device from this screen. DHCP client (DHCP client or DHCPv6 client) option is to get the dynamic IP address from reachable DHCP server in the network. Once the protocol is set to DHCP client or DHCPv6 client, the device will automatically get the IP address (IPv4 or IPv6) from the DHCP server.

Click on the "Edit" option in interface screen as shown in "Figure 39: Basic overview of the interface configuration screen for thick AP". A basic overview of the network interface setup configuration screen to switch network protocol is given below:

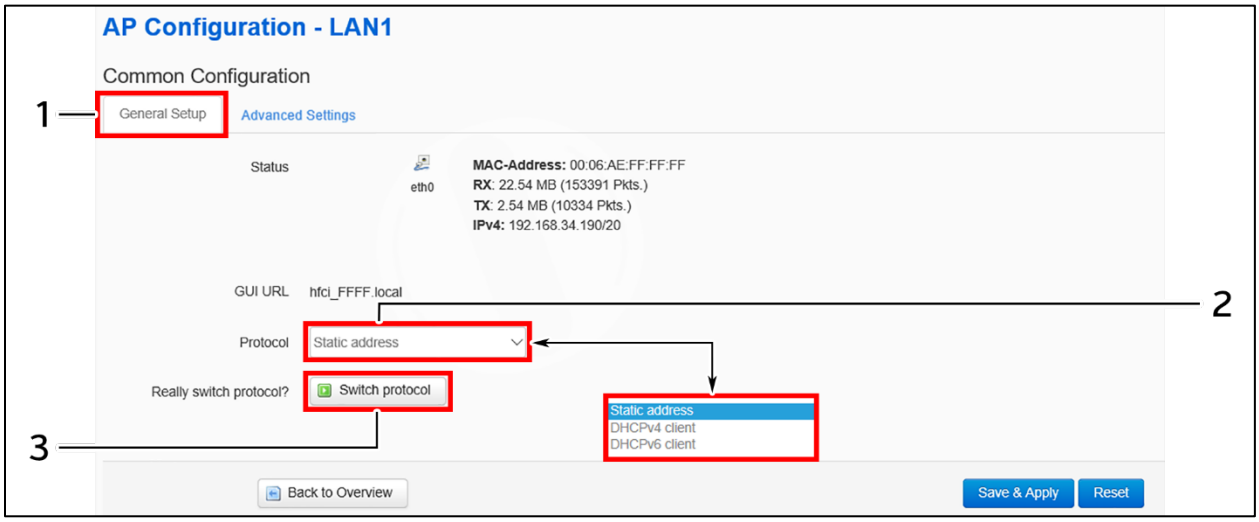


Figure 40: Basic overview of the network interface setup configuration screen to switch protocol for thick AP

Follow the steps given below to switch network protocol:

Table 30: List of actions to switch network protocol for thick AP

Callout	Name	Description
1.	General Setup	Click on "General Setup" option
2.	Protocol	Select the protocol desired protocol from the dropdown list (Static address/DHCP client/DHCPv6 client)
3.	Really switch protocol	Click on "Switch protocol" to confirm the protocol switch

16.1.1 Static IP configuration for thick AP

The default IP address of the access point is set to 192.168.1.1. User can change the default IP address with an unused IP address. Refer "Figure 40: Basic overview of the network interface setup configuration screen to switch protocol for thick AP" and set the protocol to static address.

Refer the figure below to provide the static address parameters:

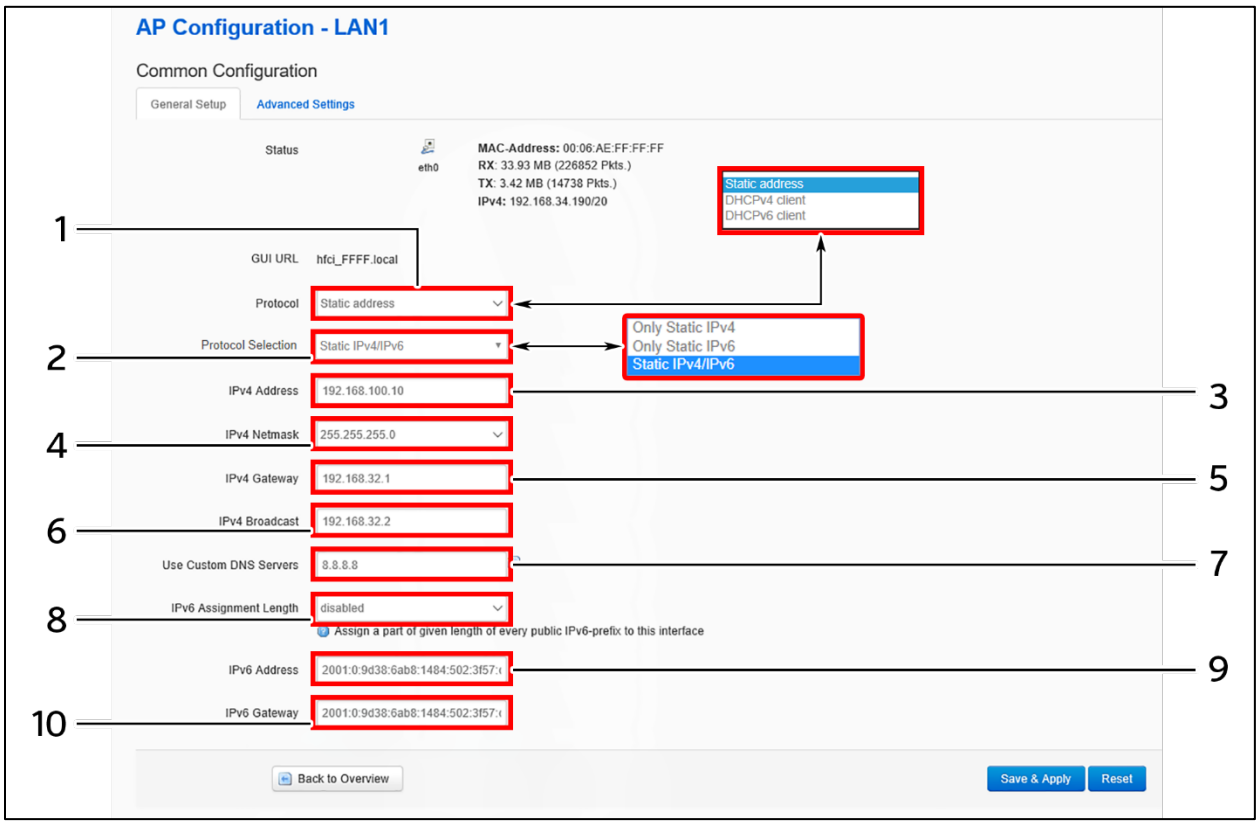


Figure 41: Basic overview of static address parameters for general network interface setup for thick AP

Follow the steps given below to provide static address parameters for thick AP:

Table 31: List of actions to provide static address parameters for thick AP

Callout	Name	Description
1.	Protocol	The protocol is set to ""Static address". Enter the following parameters for the same
2.	Protocol Selection	Set the static address protocol to IPv4/IPv6/IPv4 & IPv6. Below parameters are shown with respect to IPv4 & IPv6 protocol selection
3.	IPv4 address	Enter the "IPv4 address". This is a unique address of the Host/Device eg.192.168.100.10
4.	IPv4 netmask	Enter the "IPv4 netmask". This specifies the number of bits for network part and host part e.g.255.255.255.0

Callout	Name	Description
5.	IPv4 gateway	Enter the "IPv4 gateway". Gateway address is given to reach other network device e.g.192.168.100.254
6.	IPv4 broadcast	Enter the "IPv4 broadcast". Broadcast address is to broadcast message in a network e.g. 192.168.100.255
7.	Use custom DNS servers	Enter the "DNS server". Click on add icon to add multiple DNS servers. DNS server is to resolve the transition of domain name to IP and IP to domain name
8.	IPv6 prefix length	Specify the prefix length for IPv6 address. Specifies the number of bits that belong to network part. The prefix-length specifies a range of devices e.g. IPv6 prefix length = 64 means range of IP addresses between 2001:0DB8:ABCD:0012:0000:0000:0000:0000 and 2001:0DB8:ABCD:0012:FFFF:FFFF:FFFF:FFFF. Provide below parameters if IPv6 prefix length is set to disabled
9.	IPv6 address	Enter the "IPv6 address". Unique address of the Host/Device e.g.2001:11::100
10.	IPv6 gateway	Enter the "IPv6 gateway". Gateway address is given to reach other network device e.g.2001:11::1

Click "Save" to save the general network setup configuration or click "Reset" to configure the same again.

16.1.2 DHCPv4 client configuration for thick AP

If the protocol is set to DHCPv4 client, the device will automatically get the IPv4 address from the DHCP server. Refer "Figure 40: Basic overview of the network interface setup configuration screen to switch protocol for thick AP" and set the protocol to DHCPv4 client.

Refer the figure below and switch the protocol to DHCPv4 client for thick AP:

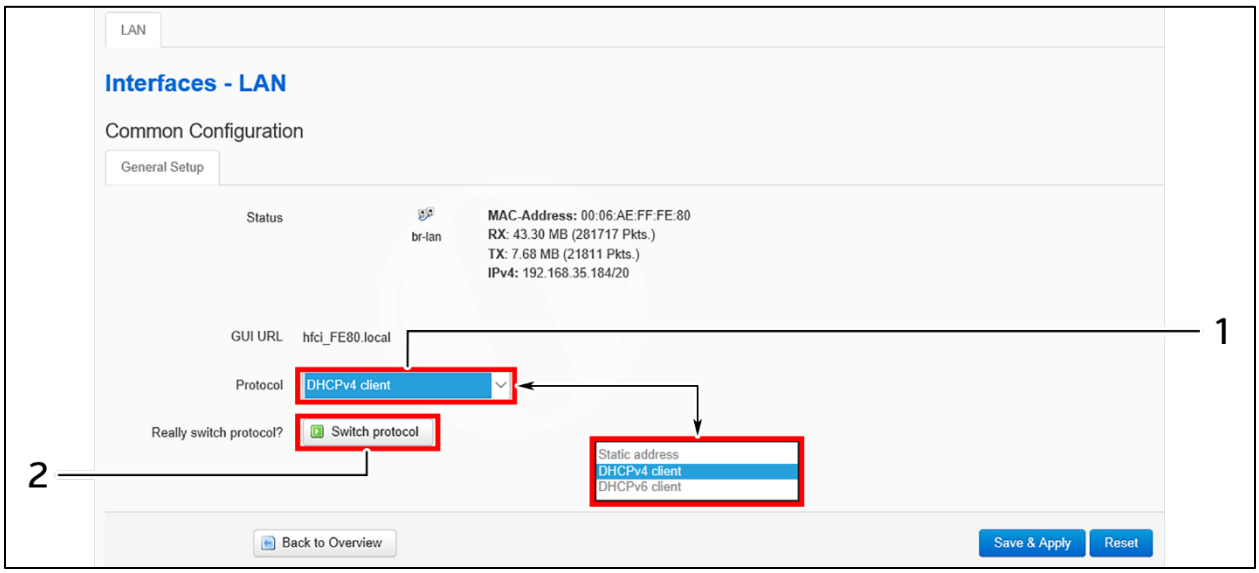


Figure 42: Basic overview of network interface screen to set the protocol to DHCPv4 for thick AP

Follow the steps given below to set the protocol to DHCPv4 for thick AP:

Table 32: List of actions to set the protocol to DHCPv4 for thick AP

Callout	Name	Description
1.	Protocol	Set the protocol from the dropdown list (Static address/DHCPv4 client/DHCPv6 client) to DHCPv4
2.	Really switch protocol	Click on "Switch protocol" to confirm the protocol switch

Click "Save" to save the general network setup configuration or click "Reset" to configure the same again.

16.1.3 DHCPv6 client configuration for thick AP

If the protocol is set to DHCPv6 client, the device will automatically get the IPv6 address from the DHCP server. Refer "Figure 40: Basic overview of the network interface setup configuration screen to switch protocol for thick AP" and set the protocol to DHCPv6 client.

Refer the figure below and switch the protocol to DHCPv6 client for thick AP:

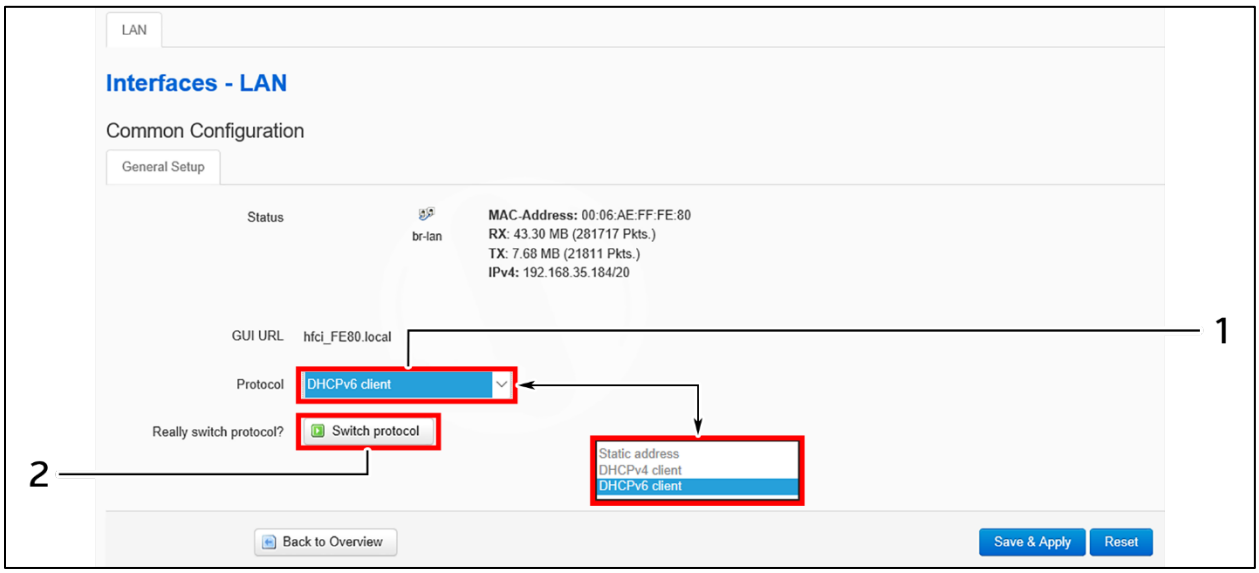


Figure 43: Basic overview of network interface screen to set the protocol to DHCPv6 for thick AP

Follow the steps given below to set the protocol to DHCPv6 for thick AP:

Table 33: List of actions to set the protocol to DHCPv6 for thick AP

Callout	Name	Description
1.	Protocol	Set the protocol from the dropdown list (Static address/DHCPv4 client/DHCPv6 client) to DHCPv6
2.	Really switch protocol	Click on "Switch protocol" to confirm the protocol switch

Click "Save" to save the general network setup configuration or click "Reset" to configure the same again.

16.2 Network/Wireless/Radio and SSID configuration of thick AP

The wireless configuration screen of thick AP GUI enables the user to view and configure radio and SSID parameters. Multiple SSID can be added separately for 2.4 and 5 GHz radio. Radio configuration remains same for all SSIDs operating at the respective 2.4 and 5 GHz radio. All clients associated with respective SSID are also listed in a tabular form in this screen along with some basic information.

A basic overview of the wireless configuration screen for thick AP is given below:

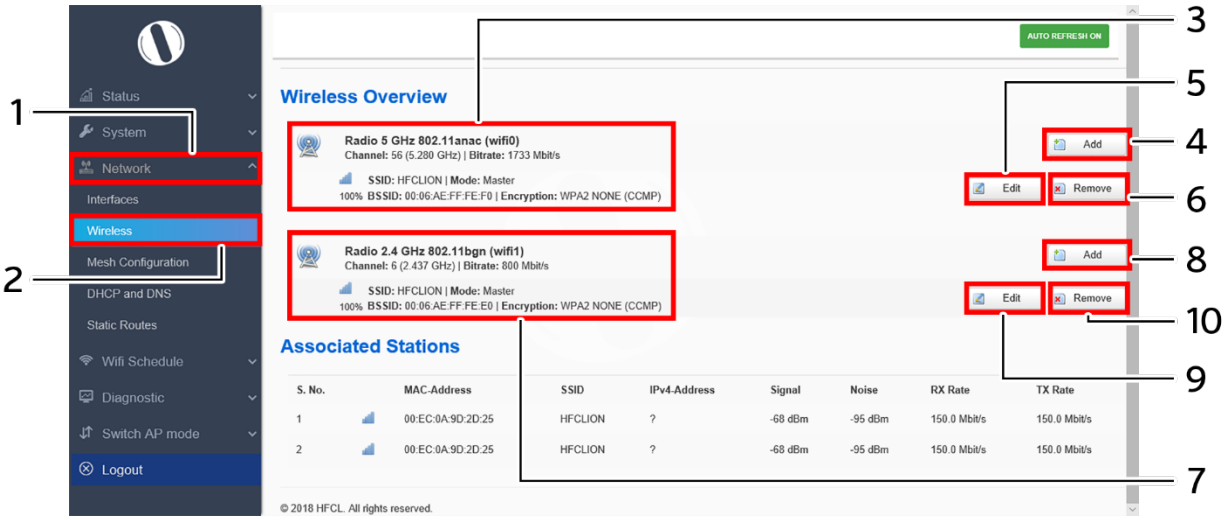


Figure 44: Basic overview of the wireless configuration screen for thick AP

Follow the steps given below to view the wireless configuration of thick AP:

Table 34: List of actions to view the wireless configuration of thick AP

Callout	Name	Description
1.	Network	Click on "Network" dropdown
2.	Wireless	Click on "Wireless" option
3.	5 GHz overview	Displays the overview of 5 GHz radio along with the list of associated SSIDs as shown in the above figure
4.	Add SSID/Radio Configuration	Click on the "Add" option to configure a new SSID or to update the radio configuration parameters at 5 GHz
5.	Edit SSID	Click on "Edit" option to modify the parameters of respective SSID configuration at 5 GHz
6.	Remove SSID	Click on "Remove" option to delete the respective SSID at 5 GHz
7.	2.4 GHz overview	Displays the overview of 2.4 GHz radio along with the list of associated SSIDs as shown in the above figure
8.	Add SSID/Radio Configuration	Click on the "Add" option to configure a new SSID or to update the radio configuration parameters at 2.4 GHz
9.	Edit SSID	Click on "Edit" option to modify the parameters of respective SSID configuration at 2.4 GHz
10.	Remove SSID	Click on "Remove" option to delete the respective SSID at 2.4 GHz

16.2.1 5 GHz radio configuration

This screen provides the user with options to configure the 5 GHz radio parameters such as channel bandwidth, respective channel or the channel selection process, and the power for the radio signal transmission. Refer the "Figure 44: Basic overview of the wireless configuration screen for thick AP" and click on Add SSID/Radio Configuration option (4) to configure 5 GHz radio parameters.

A basic overview of the 5 GHz radio configuration screen is given below:

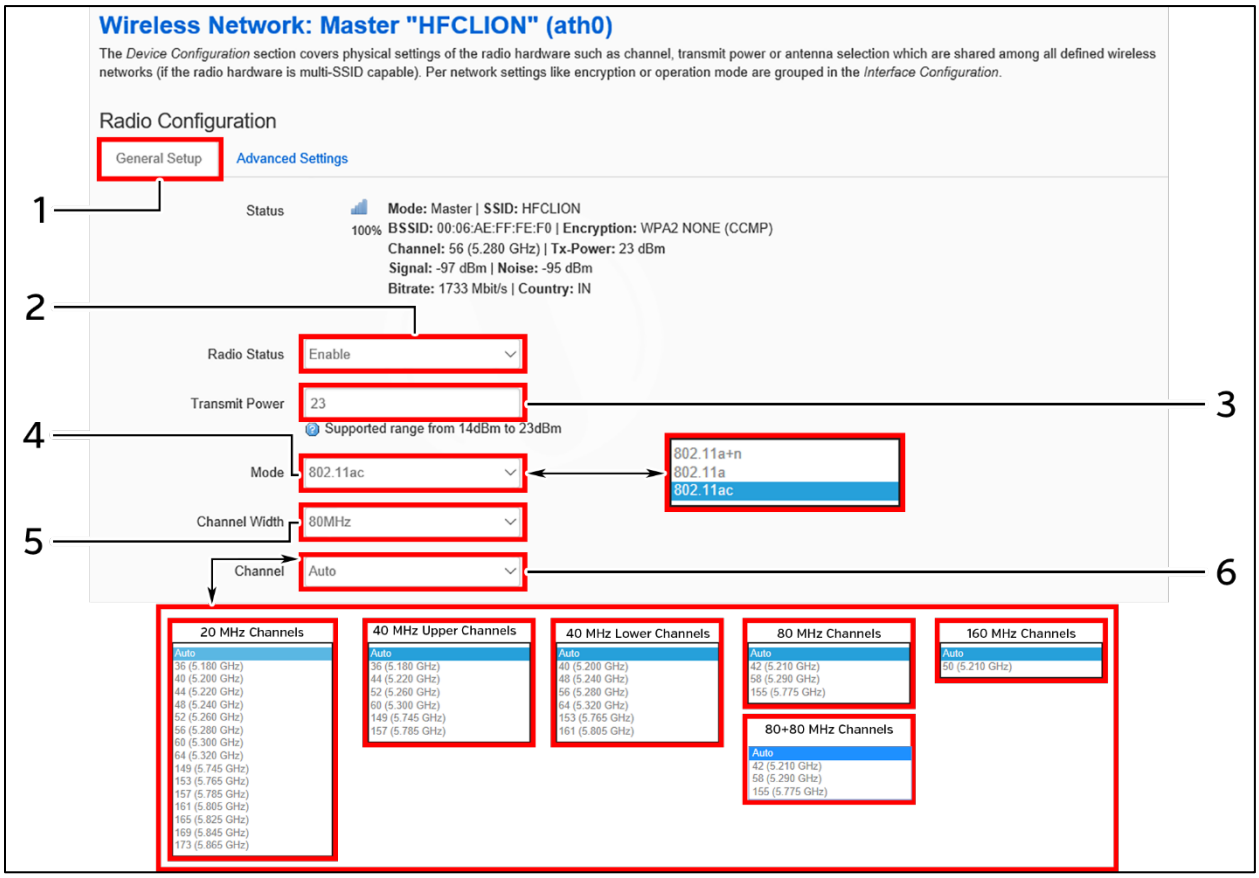


Figure 45: Basic overview of the 5 GHz radio configuration screen

Follow the steps given below and for 5 GHz radio configuration of thick AP:

Table 35: List of actions for 5 GHz radio configuration of thick AP

Callout	Name	Description
1.	General Setup	Click on "General Setup" option
2.	Radio Status	Enable or disable the 5 GHz radio with this option
3.	Tx Power (dBm)	Enter the "Tx Power" value. The wireless radio signal will be transmitted with the specified Tx power value. The user can set the Tx power value from the range of 14 dBm to 23 dBm

Callout	Name	Description
4.	Mode	Select the radio operating mode from the dropdown list (802 11a/ac/a+n). Channel width and channel list varies with respect to the selected mode (802 11a/ac/a+n)
5.	Channel Width	Select the "Channel Width" from the dropdown list (20 MHz/40 MHz-Lower/40 MHz -Upper/80 MHz/ 80+80 MHz/160 MHz)
6.	Channel	Select the "Channel" from the dropdown list. The device will choose the channel by itself, if "auto" channel is selected. For 20 MHz channel width, available channels are: 36/40/44/48/52/56/60/64/149/ 153/157/161/165/169/173. For 40 MHz Lower channel width, available channels are: 40/48/56/60/64/ 153/161. For 40 MHz Upper channel width, available channels are: 36/44/52/60/149/157. For 80 and 80+80 MHz channel width, available channels are: 42/58/155. For 160 MHz channel width, available channel is 50

Click "Save & Apply" to save the 5 GHz radio configuration of thick AP or click "Reset" to configure the same again.

16.2.2 2.4 GHz radio configuration

This screen provides the user with options to configure the 2.4 GHz radio parameters such as channel bandwidth, respective channel or the channel selection process, and the power for the radio signal transmission. Refer the "Figure 44: Basic overview of the wireless configuration screen for thick AP" and click on Add SSID/Radio Configuration option (8) to configure 2.4 GHz radio parameters.

A basic overview of the 2.4 GHz radio configuration screen is given below:

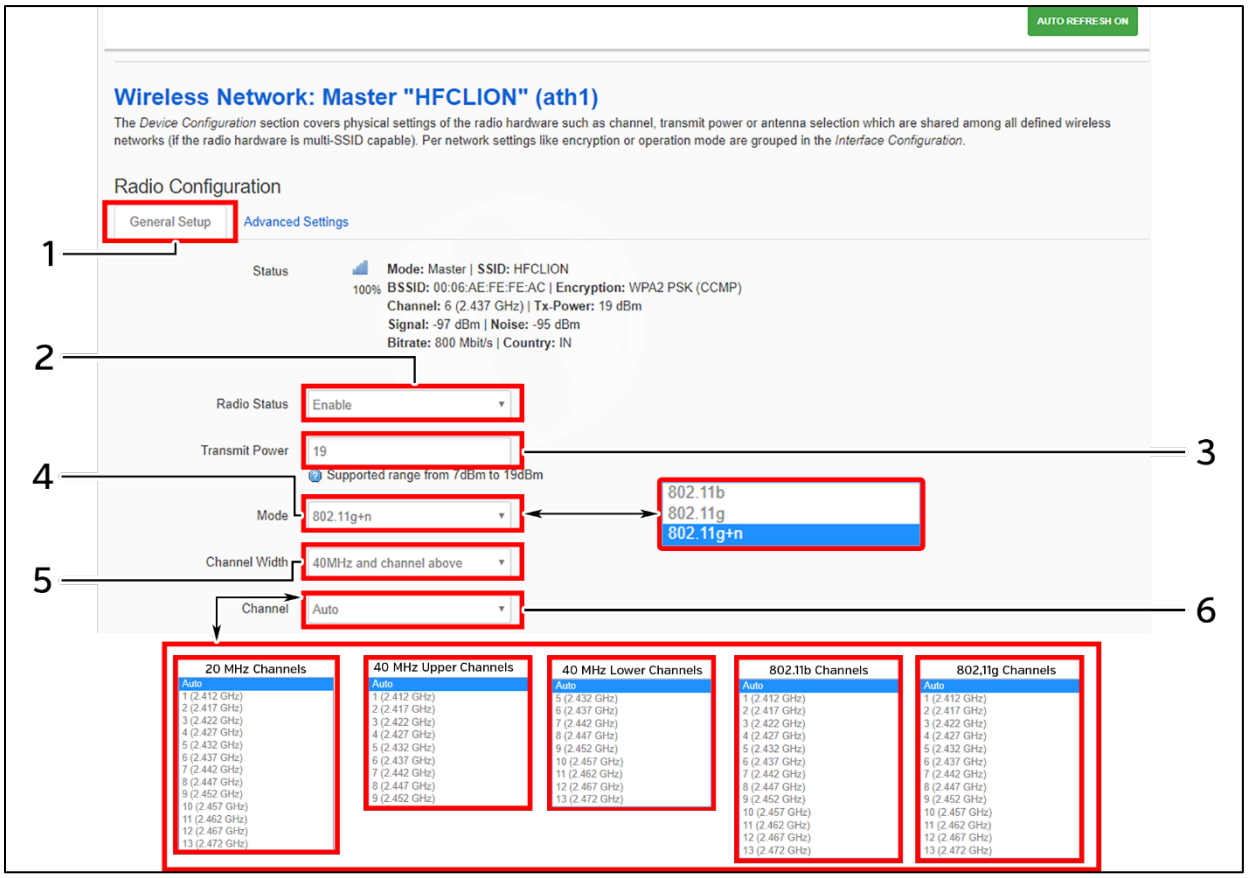


Figure 46: Basic overview of the 2.4 GHz radio configuration screen

Follow the steps given below and for 2.4 GHz radio configuration of thick AP:

Table 36: List of actions for 2.4 GHz radio configuration of thick AP

Callout	Name	Description
1.	General Setup	Click on "General Setup" option
2.	Radio Status	Enable or disable the 2.4 GHz radio with this option
3.	Tx Power (dBm)	Enter the "Tx Power" value. The wireless radio signal will be transmitted with the specified Tx power value. The user can set the Tx power value from the range of 7 dBm to 19 dBm
4.	Mode	Select the radio operating mode from the dropdown list (802 11b/g/g+n). Channel width and channel list varies with

Callout	Name	Description
		respect to the selected mode (802 11b/g/g+n). Channel width parameter is required, if the mode is set to “802.11b/g”
5.	Channel Width	Select the “Channel Width” from the dropdown list (20 MHz/40 MHz-Lower/40 MHz -Upper). This parameter is needed only if the mode is set to “802.11g+n”
6.	Channel	Select the “Channel” from the dropdown list. The device will choose the channel by itself, if “auto” channel is selected. For 20 MHz channel width, available channels are: 1/2/3/4/5/6/7/8/9/10/11/12/13 For 40 MHz Lower channel width, available channels are: 5/6/7/8/9/10/11/12/13. For 40 MHz Upper channel width, available channels are: 1/2/3/4/5/6/7/8/9. Available channels in 802.11b/g are: 1/2/3/4/5/6/7/8/9/10/11/12/13

Click “Save & Apply” to save the 2.4 GHz radio configuration of thick AP or click “Reset” to configure the same again.

16.2.3 Advanced radio configuration (2.4 GHz and 5 GHz)

This screen provides the user with options to configure the advanced radio parameters (2.4 GHz and 5 GHz) such as country code and Tx/Rx chain mask. Refer the "Figure 44: Basic overview of the wireless configuration screen for thick AP" and click on Add SSID/Radio Configuration option (8) for 2.4 GHz or Add SSID/Radio Configuration option (4) for 5 GHz to configure advanced radio parameters.

A basic overview of the advanced radio parameters (2.4 GHz and 5 GHz) configuration screen is given below:

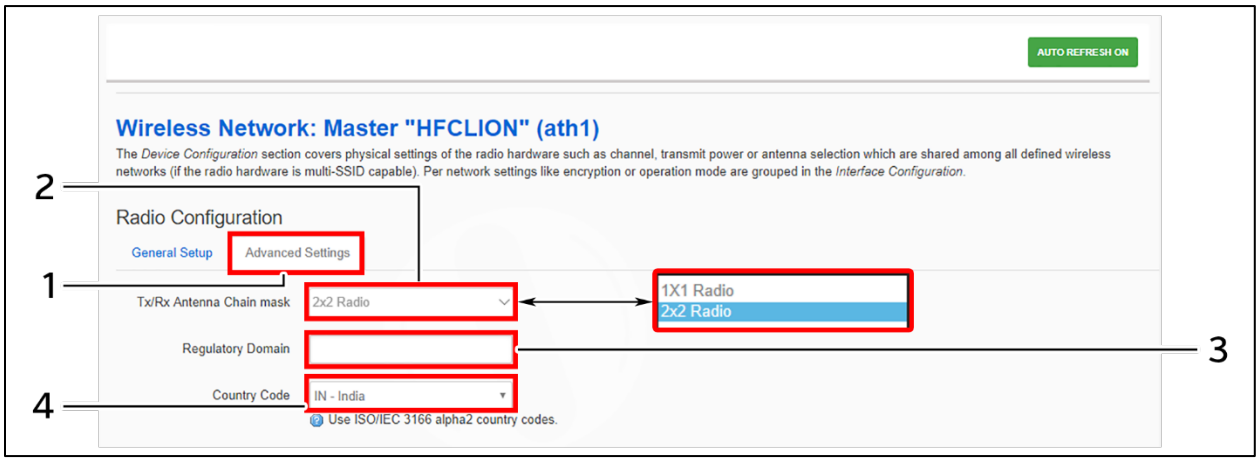


Figure 47: Basic overview of the advanced radio parameters (2.4 GHz and 5 GHz) configuration screen

Follow the steps given below for advanced radio parameters (2.4 GHz and 5 GHz) configuration of thick AP:

Table 37: List of actions for advanced radio parameters (2.4 GHz and 5 GHz) configuration of thick AP

Callout	Name	Description
1.	Advanced Settings	Click on "Advanced Settings" option
2.	Tx/Rx Antenna Chain mask	Select the chain mask from the dropdown list (1x1/2x2)
3.	Regulatory Domain	Enter the regulatory domain
4.	Country Code	Select the country code from the dropdown list. Channels are listed in accordance to the selected country

Click "Save & Apply" to save the advanced radio parameters (2.4 GHz and 5 GHz) configuration of thick AP or click "Reset" to configure the same again.

16.2.4 SSID configuration

Refer the "Figure 44: Basic overview of the wireless configuration screen for thick AP" and click on Add SSID/Radio Configuration option (8) for 2.4 GHz or Add SSID/Radio Configuration option (4) for 5 GHz to configure new SSIDs. Click on Edit option (9) for 2.4 GHz or Edit option (5) for 5 GHz to edit existing SSIDs. This screen provides the user with options to configure the SSID operating at both 2.4 and 5 GHz radio. The SSID configuration parameters are further categorized as follows:

1. General setup
2. Wireless Security
3. MAC Filter
4. Advanced Settings

16.2.4.1 *SSID/General setup (2.4 GHz and 5 GHz)*

Three type if SSIDs are created from this screen as follows:

1. **Access Point SSID:** By default the SSID mode is set to "Access Point". This type of SSID is used by the clients to connect with the respective access point.
2. **Access Point WDS SSID:** This type of SSID mode is used to achieve wireless distribution system feature. Apart from operating as a normal access point SSID to serve the connecting clients, these SSIDs also act as repeaters for client access points of wireless distribution system. This type of SSID is needed for a client WDS SSID to complete the WDS link. Make sure to create at least one Access Point WDS SSID before configuring any Client WDS SSID.
3. **Client WDS SSID:** This type of SSID mode is used to achieve wireless distribution system feature. These SSIDs are used by the client access points of wireless distribution system to connect with the respective service provider Access Point WDS SSID.

Refer the "Figure 44: Basic overview of the wireless configuration screen for thick AP" and click on Add SSID/Radio Configuration option (4) to configure 5 GHz radio parameters or click on Add SSID/Radio Configuration option (8) to configure 2.4 GHz radio parameters. A basic overview of the screen to configure general SSID parameters is given below:

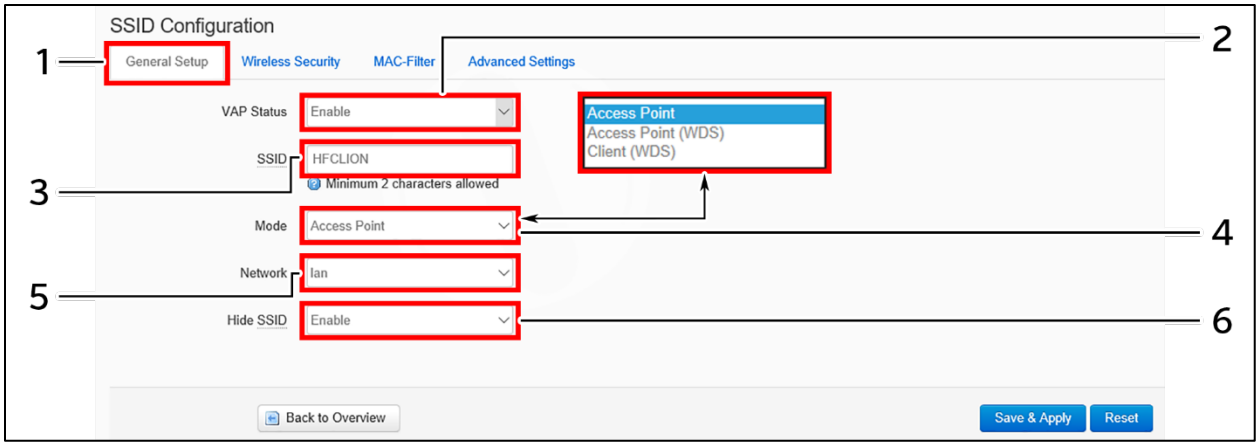


Figure 48: Basic overview of the screen to configure general SSID parameters

Follow the steps given below and configure the general SSID parameters:

Table 38: List of actions to configure the general SSID parameters

Callout	Name	Description
1.	General Setup	Click on "General Setup" option
2.	VAP Status	Enable or disable the VAP with this option. Once disabled, the SSID will not be available in the search anymore.
3.	SSID	Enter a unique name for the SSID
4.	Mode	Select the SSID operating mode from the dropdown list (Access Point/Access Point WDS/Client WDS). If "Client WDS" option is selected, provide the valid parameters of Access Point WDS SSID
5.	Network	Select the network interface from the dropdown list
6.	Hide SSID	Enable/Disable SSID broadcast with this option. Once disabled, the SSID will not be available in the search anymore. The user can still associate with the SSID if valid authenticated credentials are provided

Click "Save & Apply" to save the general SSID configuration of thick AP or click "Reset" to configure the same again.

16.2.4.2 *SSID/Wireless security (2.4 GHz and 5 GHz)*

By default the wireless security is set to "No Encryption", and other options are provided to change the encryption accordingly as follows:

1. **No Encryption:** Any device can connect to the network. Not recommended.
2. **WPA-PSK(Wi-Fi Protected Access):** WPA is part of the wireless security standard (802.11i) standardized by the Wi-Fi Alliance and was intended as an intermediate measure to take the place of WEP while the 802.11 standard was being prepared. It supports TKIP/AES encryption. The personal authentication is the pre-shared key (PSK) that is an alphanumeric passphrase shared with the wireless peer.
3. **WPA2-PSK:** WPA2 is the implementation of security standard specified in the final 802.11i standard. It supports AES encryption and this option uses pre-shared key (PSK) based authentication.
4. **WPA-PSK/WPA2-PSK Mixed mode:** Allows both WPA and WPA2 clients to connect simultaneously using PSK authentication.
5. **WPA2-EAP:** Allows you to use WPA2 with RADIUS server authentication.

A basic overview of the screen to configure wireless security parameters of SSID is given below:

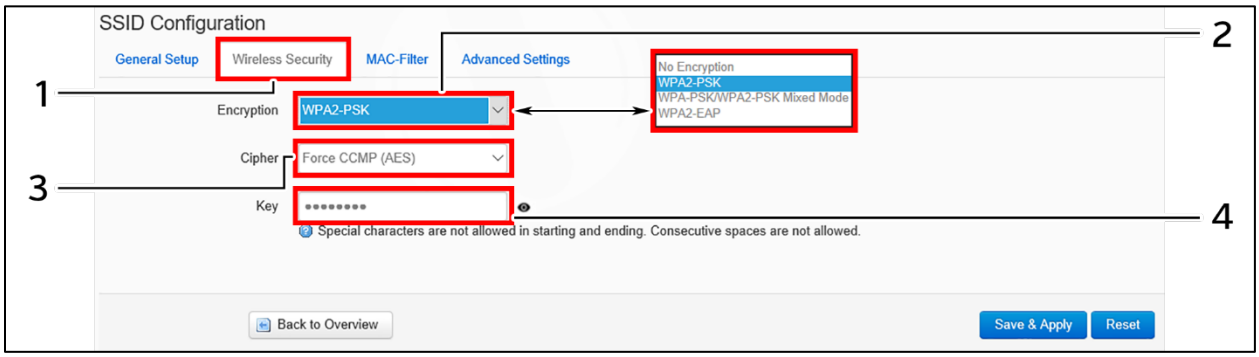


Figure 49: Basic overview of the screen to configure wireless security parameters of SSID

Follow the steps given below and configure the wireless security parameters of SSID:

Table 39: List of actions to configure the wireless security parameters of SSID

Callout	Name	Description
1.	Wireless Security	Click on "Wireless Security" option
2.	Encryption	Select the encryption protocol from the dropdown list (Open/WPA-PSK/WPA2-PSK/ WPA2-PSK_Mixed_Mode/ WPA2-EAP). No passphrase is needed in case of "Open" type network authentication protocol
3.	Cipher	This a read only parameter and the user doesn't need to do anything with "cipher" option, by default "Auto" option is selected.
4.	Key	Enter a unique password for the SSID

Click "Save & Apply" to save the wireless security configuration of SSID or click "Reset" to configure the same again.

16.2.4.3 *SSID/MAC filter (2.4 GHz and 5 GHz)*

The user can add multiple MAC addresses with allow and deny policy and the same is mapped with respective SSID. A basic overview of the screen to configure the MAC filter for SSID configuration is given below:

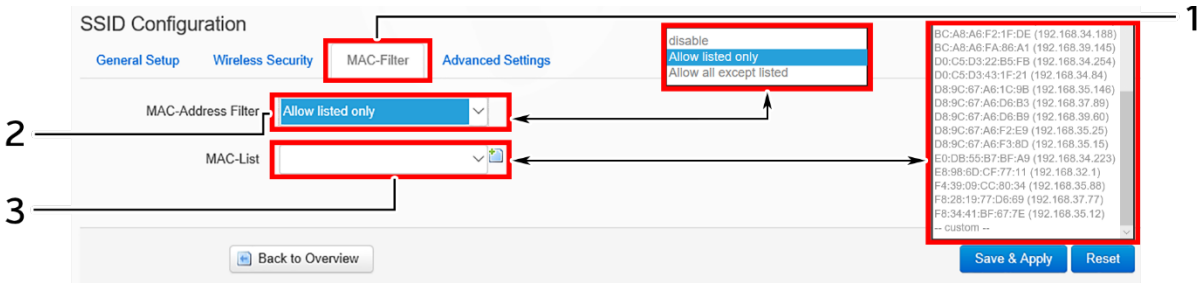


Figure 50: Basic overview of the screen to configure the MAC filter for SSID configuration

Follow the steps given below and configure the MAC filter for SSID configuration:

Table 40: List of actions to configure the MAC filter for SSID configuration

Callout	Name	Description
1.	MAC-Filter	Click on "MAC-Filter" option
2.	MAC address filter	Click on the dropdown and disable or set the allow/deny policy for the MAC filter
3.	MAC List	Click on the dropdown and select the MAC address from the list or click on "Custom" to add the MAC address manually. Click on the "+" icon to add multiple MAC addresses

Click "Save & Apply" to save the MAC filter configuration or click "Reset" to configure the same again.

16.2.4.4 *SSID/Advanced settings (2.4 GHz and 5 GHz)*

A basic overview of the screen to configure the advanced parameters of SSID configuration is given below:

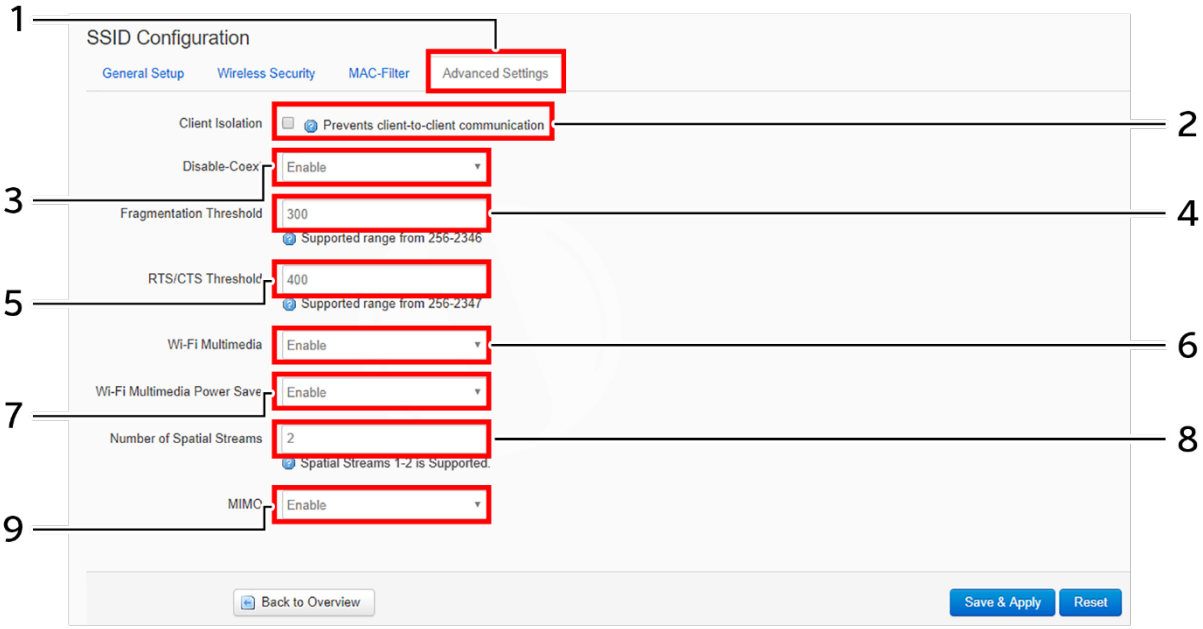


Figure 51: Basic overview of the screen to configure the advanced parameters of SSID configuration

Follow the steps given below and configure the advanced parameters of SSID configuration:

Table 41: List of actions to configure the advanced parameters of SSID configuration

Callout	Name	Description
1.	Advanced Settings	Click on "Advanced Settings" option
2.	Client Isolation	Click on the check box and enable or disable the client isolation feature. If the feature is enabled, it prevents client to client communication
3.	Disable-Coext	Enable/Disable the co-existence option
4.	Fragmentation Threshold	Set the fragmentation threshold value. The supported range is between 256 to 2346
5.	RTS/CTS Threshold	Set the RTS/CTS Threshold value. The supported range is between 256 to 2347
6.	Wi-Fi Multimedia	Enable/Disable the Wi-Fi Multimedia option
7.	Wi-Fi Multimedia Power Save	Enable/Disable the Wi-Fi Multimedia Power Save option
8.	Number of Spatial Streams	Set the number of spatial streams between 1 to 4
9.	MIMO	Enable/Disable the MIMO feature. This option is available only for 5 GHz radio SSID
Note: The MIMO feature is not available in 2.4 GHz radio SSID		

Click "Save & Apply" to save the advanced parameters of SSID configuration or click "Reset" to configure the same again.

16.3 Network/Mesh configuration of thick AP

A wireless mesh network serves as a network of radio nodes organized in a mesh topology. All APs participating in mesh topology does not need to have a wired connection for backhaul connectivity and only one root AP serves that purpose.

Mesh configuration require access points to operate in two operating modes as follows:

1. **Root Access Points:** Root Access Points have wired connections, for example, Ethernet backhaul to a wired network and to Wireless LAN Controller.
2. **Repeater:** Repeats wireless signals to extend range without being connected with cable to Access Point, or with clients.

Mesh configuration allows access points to connect with each other in mesh topology. An access point (Root AP) is connected to the wired network with the use of wireless connections over the 802.11 radio backhaul and other access points act as repeaters in mesh topology.

A basic overview of the mesh configuration screen for thick AP is given below:

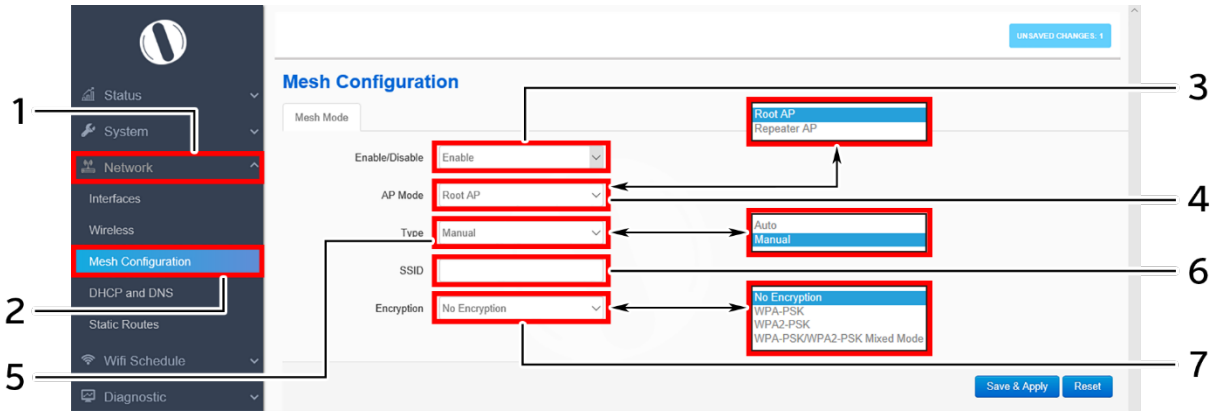


Figure 52: Basic overview of the mesh configuration screen for thick AP

Follow the steps given below to view the mesh configuration of thick AP:

Table 42: List of actions to view the mesh configuration of thick AP

Callout	Name	Description
1.	Network	Click on "Network" dropdown
2.	Mesh Configuration	Click on "Mesh Configuration" option
3.	Mesh Mode	Enable or disable the mesh mode. If enabled, provide the following parameters
4.	AP Mode	Select the contributing mode of the access point in the mesh topology from the drop down list (Root AP/Repeater AP). If the AP mode is set to "Root AP", make sure that the AP is connected to the wired network
5.	Type	Select the type of mesh configuration from the dropdown list (Auto/Manual). In case of "Auto" the connection between and root AP and repeater AP is fixed automatically and in case of "manual" the user need to define the SSID and

Callout	Name	Description
		encryption parameters. For a successful mesh configuration the SSID and the encryption parameters of root and repeater APs should match with each other
6.	SSID	Enter a unique name for the mesh SSID. Only a single SSID is used throughout the mesh network. This SSID operates in two hidden modes, one as master (receiver) and the other as managed (provider). Between a root AP and repeater AP, the managed mode of the root AP SSID connects with the master mode of the repeater AP. Between two repeater APs, the managed mode SSID of the 1st repeater AP connects with the master mode of the next repeater AP. This way all APs are connected wirelessly with each other in a mesh network. If any of the repeater is missing from the mesh network, the associated repeater AP connects itself with the next available repeater or Root AP in a similar way as discussed above
7.	Encryption	Select the encryption protocol from the dropdown list (Open/WPA-PSK/WPA2-PSK/ WPA2-PSK_Mixed_Mode). No passphrase is needed in case of "Open" type network authentication protocol

Click "Save & Apply" to save the advanced parameters of SSID configuration or click "Reset" to configure the same again.