Centralized Configuration, ACS, and Link Recovery (LEGACY)
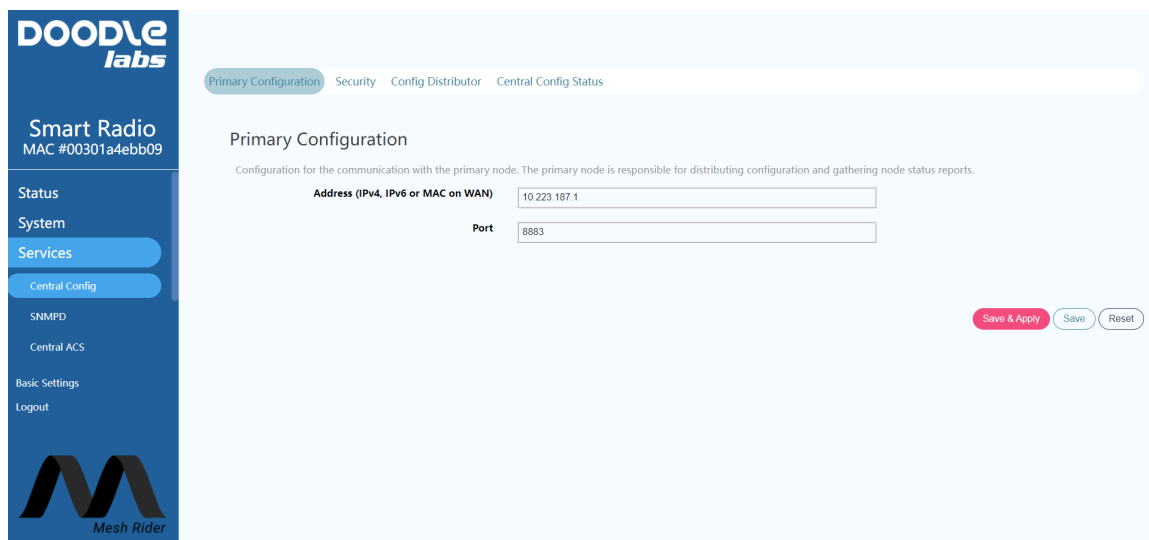
> The Central Config, ACS and Link Recovery utilities have been replaced by SENSE as of the July 2023 Beta Resilience Release.

Introduction

With the release of the 2022-02 update of the Mesh Rider OS comes a new Centralized Configuration utility along with automatic channel selection (ACS), and link recovery. All three features use the Central Configuration utility as a basis for operation, therefore Central Config must be set up properly before ACS and Link Recovery will work

Central Config

To enable Central Configuration, you need to choose one node as the primary node. Navigate to Services -> Central Config (Fig. 1).

Fig. 1 Central Config Menu

The primary node is selected by inputting its address (IPv4, IPv6, or MAC) in the Primary Configuration tab and clicking `Save & Apply` . The Central Configuration utility uses TLS for security, and this can be configured in the `Security` tab. From the Config Distributor menu, you can update the operating Channel, Distance setting, or TX Power. Additional features are planned in future. It is also possible to send central configuration commands through the CLI. Information can be found in the updated Command-Line Interface Guide.

In the Central Config Status tab, we can see the status of the other nodes in the network. In Mesh modes, TQ (transmit quality) as a percentage. This is the overall TQ from the local node to all other nodes. In AP/Client modes, the RSSI is shown in dBm. The last seen time in `minutes:seconds` is also shown. This is the time since the last packet from this node was received.

Fig. 2 Central Config Status

Central ACS

Central ACS (Auto-Channel-Selection) allows the radio to automatically select the best operating channel. Central ACS is enabled by navigating to `Services -> Central ACS`. Central Config must be enabled first.

Fig. 3 Central ACS

Central ACS operates in two modes: `global` and `local`. In both modes, the primary node measures background noise in the operating channel every `Scan Period` seconds and

reacts when it exceeds the user-defined `Noise Threshold`.

In `global` mode, the primary node instructs all nodes to take background noise readings, collects the information, and then instructs all other nodes to change channels if there is another channel whose background noise is lower by `Noise Difference Threshold` or more. The timeout when talking to other nodes is `Time Wait After Request` seconds.

In `local` mode, the primary node monitor simply instructs all other nodes to change channels if there is another channel whose background noise is lower by `Noise Difference Threshold` or more.

In general, `local` mode is simpler and more responsive. We recommend using `local` mode with the UAV monitor the background noise.

Link Recovery

Link recovery is a new feature which is enabled automatically as long as Central Config is enabled. Essentially, if the channel is changed while a node is inaccessible (for example, out-of-range, or rebooting), then that node will scan and rejoin the network. There is no configuration for Link Recovery, however, take note that it only works for mis-matched channels and not fields like channel bandwidth, SSID, or password.