



# User's Guide

For  
CabinLink 6

Document Number USR102078  
Rev F

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## REVISION HISTORY

| Rev   | Description  | Date       | Contributor |
|-------|--|------------|-------------|
| Draft | Initial Draft  | 2022-10-13 | J Mordacq   |
| Rev A | Add more GUI Screens   | 2022-12-06 | R Wolfe     |
| Rev B | Add Use Case Examples, clean up GUI Screens  | 2023-04-13 | R Wolfe     |
| Rev C | Update mechanical drawings and pinout in section 2.9   | 2023-05-15 | R Wolfe     |
| Rev D | Added Log History 5.7, Self-Signed Certificate Config 7.1.3, Network Status 5.4, and System Health 5.8<br>Added DO-160G tested cable info to section 2.9   | 2023-05-23 | R Wolfe     |
| Rev E | Various updates to sections: 2.8, 3.1.2, 3.2.3, 8.2.6, 8.6.6<br>Added section 2.10   | 2023-08-16 | R Wolfe     |
| Rev F | Added section 2.8 Environmental Testing Performance Specifications, Appendix D Compliance Statements. Other sections shifted down. Updates to Figure 6, 8. Updated section 10 to include information on RS-232 connection. | 2023-08-30 | R Wolfe     |

## 1. Introduction

This document is the User's Guide for the Righthand Technologies CabinLink 6 Wireless Router and Access Point. The CL6 consists of a wireless router/access point line-replaceable unit (LRU) with RHT PN# 1024-200056 and an optional RaDome Antenna LRU with RHT PN# 1024-200057. This document describes the device's usage, installation, and configuration options.

### 1.1 References

Document Title: ICD102068\_CabinLink\_6\_ICD

Document Name: RightHand Technologies CabinLink 6 Interface Control Document

Document Version: D

Document Path /URL:

[http://repo2.righthandtech.local:7450/CabinLink6/Docs/blob/master/Process/Designs/ICD102068\\_CabinLink\\_6\\_ICD.docx](http://repo2.righthandtech.local:7450/CabinLink6/Docs/blob/master/Process/Designs/ICD102068_CabinLink_6_ICD.docx)



## 2. CabinLink 6 LRU Description

### 2.1 General Overview

The CL6 cabin systems LRU is designed to bring wireless networking capabilities to the light jet market, bridging cabin and aircraft wireless devices to interact with aircraft cabin system. It can also act as a wireless interface for passenger devices to access the Internet via an air/ground or satellite link (provided by an external system). The CL6 may act as just a wireless access point to provide wireless access to the cabin system and may also act as a router between the cabin system and another external network (such as internet connectivity through a Satcom system). It can also act as a range extender to repeat the wireless signal from a router to expand its coverage. The CL6 supports Wifi 6 (IEEE 802.11ax) and legacy wireless modes. It supports both 2.4GHz and 5GHz wireless bands, and has five wired ethernet ports.

### 2.2 Physical Description

The CL6 device brings out all of the I/O interfaces used in flight, which include: (1) +28V Power and Return, (3) Address Straps, (2) RF kill discrete inputs, (2) discrete outputs for power enable and wireless enable status, (4) SMA connectors supporting dual band WIFI antennas, (4) 1000 Mbps Ethernet Port, (1) 2500 Mbps Ethernet Port, and (1) 10-32 Chassis Ground. An additional RS-232 port is available only for debug and is not used in flight.

The antenna module has (4) SMAs that connect to the CL6's SMAs through four SMA cables. Four #8-32 x 3/8" stainless steel, Phillips Pan head with Nylon patch screws are used to mount the antenna to the CL6 and, normally, (4) 4" SMA cables (Rht Pn# 3600-200242) connect the LRUs.

An overview of the CL6 with the antenna attached and without can be seen below.



Figure 1 - CL6 with and without attached antenna

### 2.3 Input Power

The CL6 is designed to operate with 28 VDC aircraft power and to withstand surge voltage up to 100 V. The CL6 has reverse input power protection and an input over current limit set to 6.9 Amps. It also has internal short-circuit protection through the use of a Texas Instruments TPS2493PW hot-swap controller and Infineon BSC360N15NS3G 150 V, 33 A N-Channel MOSFET. All internally-generated power supply voltage rails have short circuit protection integrated into their associated regulators.

## 2.4 ESD Protection

The CL6 has been designed with ESD protection on all input and output circuits attached to connectors J1, J2, J3, J4, J5, and ETH0 through ETH4.

## 2.5 Electromagnetic Interference Protection

The CL6 chassis has been designed to provide an electrical seal around the internal circuitry and cables with a direct metal-to-metal connection of all connector faces to chassis. External interconnecting cables use metal-enclosed back shells with improved EMI immunity.

## 2.6 Electrical and Thermal Safety Protection

The CL6 has the following electrical and thermal protection features. These features are fully hardware-controlled and require no software for operation.

- Input hot-swap controller
  - Power-on occurs only when input voltage is within the range of 18 to 33 VDC.
- Input thermal protection
  - Power-on occurs only when the internal ambient temperature is between -35 °C and 90 °C. In addition, there is about 5°C degrees of hysteresis returning from these extremes.

## 2.7 Setting IP Address with Switches

The CL6 determines its IP address per the following table (where 1 = asserted = ground). If the user wants to use IP configuration defined in a configuration file, the address straps are disconnected and the user must modify the IP address for the 'lan' in /etc/config/network settings.

If the CL6 will obtain IP addresses from a DHCP Server, the address straps are connected to ground.

Otherwise, set address straps per the following table.

First 3 bytes: Obtained from /etc/config/network (configured IP address) Last byte: from straps.

| IP Strap 2 | IP Strap 1 | IP Strap 0 | Address         |
|------------|------------|------------|-----------------|
| 0          | 0          | 0          | Per config file |
| 0          | 0          | 1          | X.X.X.1         |
| 0          | 1          | 0          | X.X.X.2         |
| 0          | 1          | 1          | X.X.X.3         |
| 1          | 0          | 0          | X.X.X.4         |
| 1          | 0          | 1          | X.X.X.5         |
| 1          | 1          | 0          | X.X.X.6         |
| 1          | 1          | 1          | Via DHCP Client |

**Figure 2 - IP Strapping options**

## 2.8 Environmental Testing Performance Specifications

| Environment Condition       | DO-160G Section | Test Category                          | Requirements/Comments   |
|-----------------------------|-----------------|--|---|
| Temperature                 | Section 4       | A2                                     | Normal Operating Temperature Range: -15 °C TO +70 °C  |
| Altitude                    | Section 4       | A2                                     | +15,000 FT  |
| Decompression               | Section 4       | A2                                     | +55,000 FT  |
| Overpressure                | Section 4       | A2                                     | Test level: 180kP   |
| Temperature Variation       | Section 5       | B                                      | (5 °C / MIN)  |
| Touch Temperature           | -               | PER ARINC 628 / PART 7, SECTION B4.6.2 | Test at 30 °C Ambient Aluminum <= 51.1 °C Stainless Steel <= 52.9 °C Acrylic <= 60.1 °C, Plastics <= 59.0 °C. If touch temperature exceeded, should be protected from contact and provide easily-visible placard warning. |
| Humidity                    | Section 6       | A                                      | 95% RH @ 50°C   |
| Operational Shock           | Section 7       | B                                      |   |
| Crash Impulse Shock         | Section 7       | B                                      | 20g/11ms  |
| Crash Sustained             | Section 7       | B                                      | 18 G  |
| Vibration                   | Section 8       | S                                      | Curve C   |
| RAT                         | N/A             | N/A                                    | By analysis   |
| Windmilling                 | N/A             | N/A                                    | Use DO-160G sine sweep to show compliance   |
| Explosive Atmosphere        | Section 9       | N/A                                    | Not Required  |
| Waterproofness              | Section 10      | W                                      |   |
| Fluids Susceptibility       | Section 11      | F                                      | Test Fluids Classes: Cleaning Fluids, Disinfectant, Fire Extinguishing Agent.   |
| Sand and Dust               | Section 12      | N/A                                    | Not Required  |
| Fungus Resistance           | Section 13      | F                                      |   |
| Salt Spray                  | Section 14      |  |   |
| Icing                       | Section 24      | N/A                                    | Not Required  |
| Max and Min Voltage at Temp | N/A             | N/A                                    | 20 VDC @ -15°C, 32.2 VDC @ +70°C  |
| Power on at -50°C           | N/A             | N/A                                    |   |

**Figure 3 – Environmental Test Performance**

| Electrical / EMI Condition             | DO-160G Section | Test Category | Requirements/Comments   |
|--|-----------------|---------------|---|
| Magnetic Effect                        | Section 15      | A             |   |
| Power Input                            | Section 16      | ZXI           | <p>All equipment shall withstand momentary losses of power as follows:</p> <ul style="list-style-type: none"> <li>• For interruption over time periods ranging from 0 to 50 ms: no resulting degradation of performance; particularly microprocessor based equipment will continue their computation cycles with no effect on input acquisitions and output emissions.</li> <li>• For interruption over time periods ranging from 50 to 150 ms: degradations of performance are acceptable and the equipment shall return to the previous operating mode without external action within 5 s (warm start).</li> <li>• For interruption over time periods ranging from 150 to 250 ms: degradations of performance are acceptable and the equipment shall return to a pre-defined operating mode without external action within 1 min (cold start).</li> </ul> |
| Voltage Spikes                         | Section 17      | A             |   |
| Audio Frequency Susceptibility         | Section 18      | Z             |   |
| Induced Signal Susceptibility          | Section 19      | AW            | Note: Electric Fields into Equipment not applicable to the Antenna LRU  |
| RF Susceptibility Radiated & Conducted | Section 20      | RR            |   |
| RF Emissions Radiated                  | Section 21      | P or Q        | The test shows noncompliance for CAT P or Q, then CAT M shall be acceptable   |
| RF Emissions Conducted                 | Section 21      | P or Q        |   |
| Lightning Induced Susceptibility       | Section 22      | A2E2XX        | Cable bundle single and multiple stroke test (XXE3XX or XXG3XX or XXJ3XX) is considered representative enough to predict the equipment behavior under Pin test level 2 (A2XXXX).  |

|                               |            |     |              |
|-------------------------------|------------|-----|--------------|
| Lightning Direct Effects      | Section 23 | N/A | Not Required |
| Electrostatic Discharge (ESD) | Section 25 | A   |              |
| X Radiation                   | N/A        | N/A | By analysis  |

**Figure 4 – Electrical/EMI Test Performance**

## 2.9 CL6 Wiring Configuration

The CL6 has the following ports on the face.

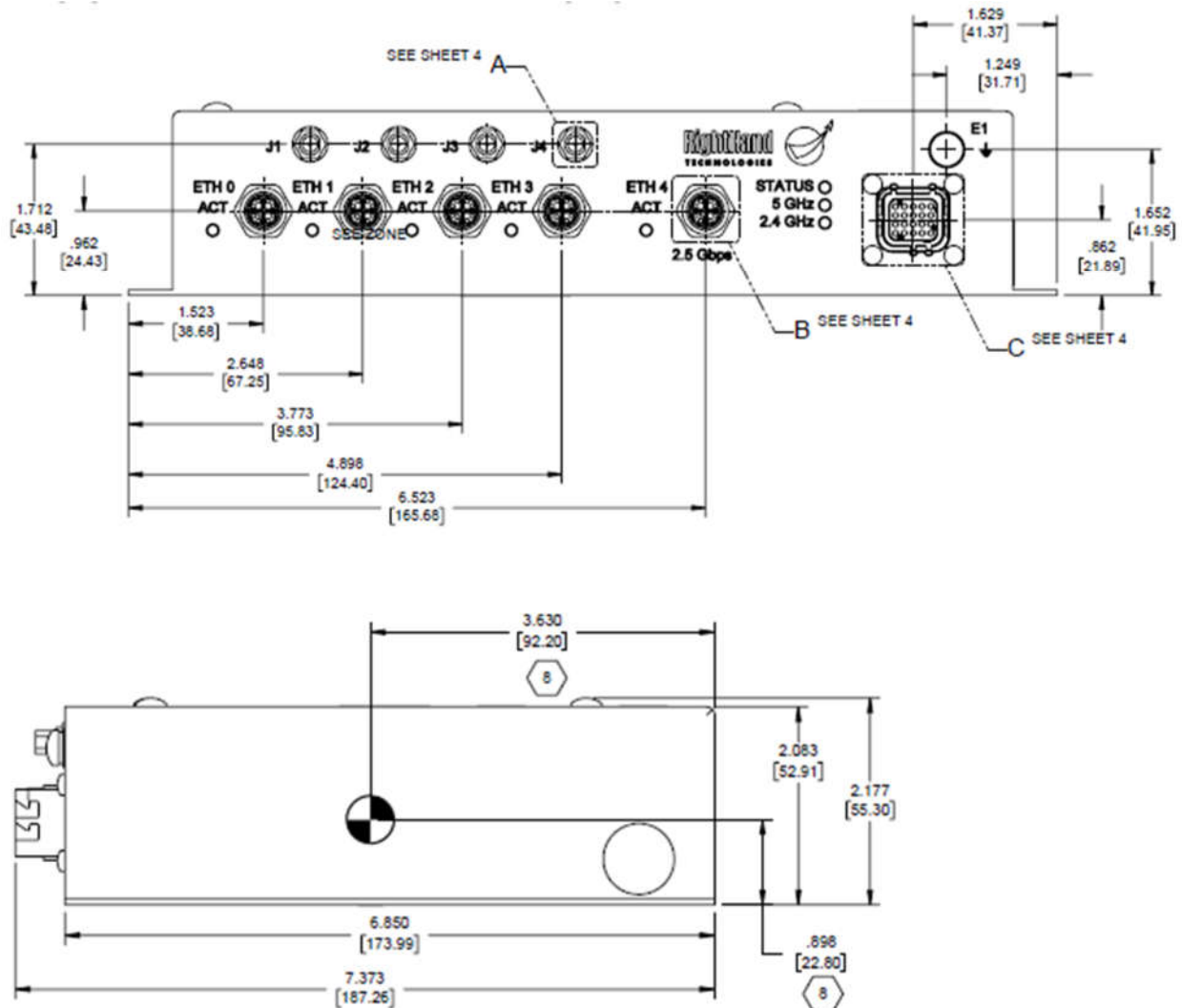


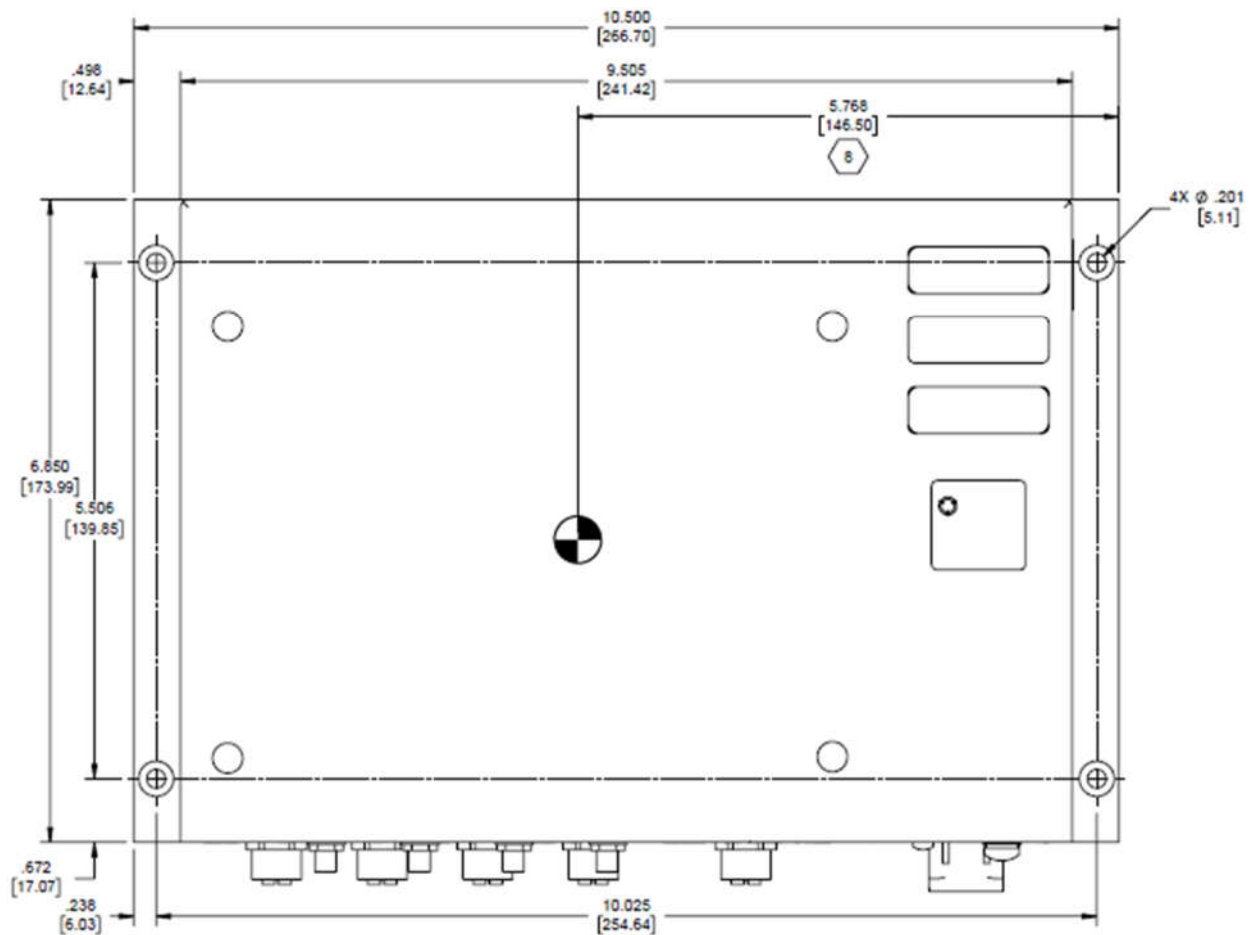
**Figure 5 - CL6 Ports**

|                     |  |
|---------------------|--|
| <b>J1 to J4</b>     | SMA connectors to the Antenna ports                              |
| <b>ETH0 to ETH3</b> | 10/100/1000 Ethernet ports                                       |
| <b>ETH4</b>         | 2.5G Ethernet port   |
| <b>J5</b>           | Connector for 28DC Power, Ground and Discreet inputs and outputs |
| <b>E1</b>           | Ground wire  |

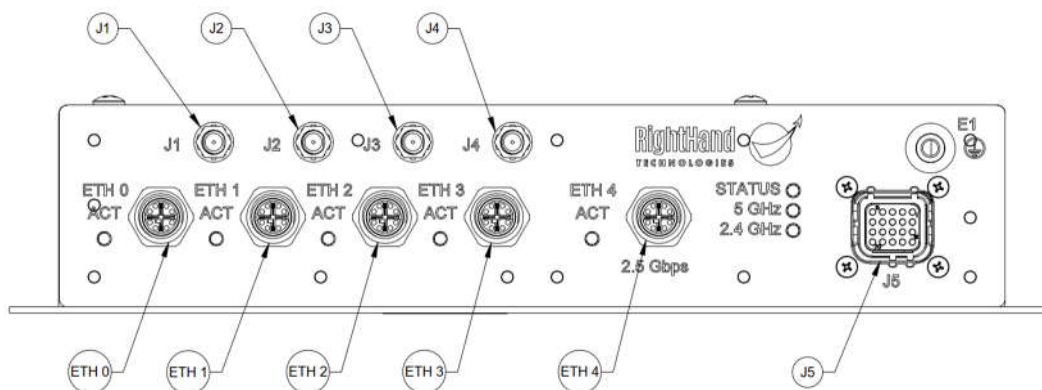
## 2.10 CL6 Installation

### General





## Connector Information

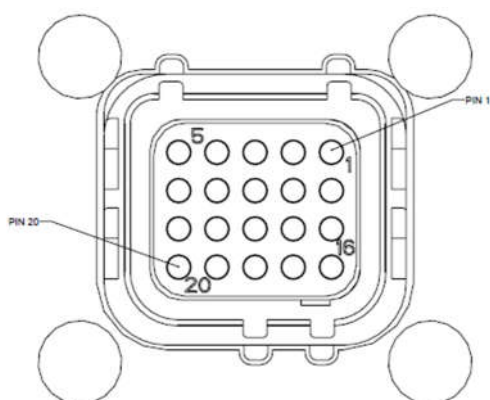


| CONNECTOR | CONNECTOR OR EQUIVALENT      | GENDER | LOCKING MECHANISM  | MATING CONNECTOR OR EQUIVALENT |
|-----------|------------------------------|--------|--|--------------------------------|
| J1        | SMA                          | FEMALE | Mating SMA connectors assembled using HUBER+SUHNER TORQUE WRENCH SMA/PC3.5 8MM (PN: 74_Z-0-0-21) which is factory calibrated with the required torque. | SMA PLUG                       |
| J2        |                              |        |  |                                |
| J3        |                              |        |  |                                |
| J4        |                              |        |  |                                |
| J5        | TE CONNECTIVITY DMC-MD 24INS | FEMALE | Mating connector is equipped with self-locking mechanism.  | TE CONNECTIVITY DMC-M 20-22 PN |
| E1        | GROUND WIRE 16AWG            | N/A    | Use Screw #10-32 assembled using torque screwdriver (use 19 in.Lbs torque)   | #10 RING TERMINAL              |
| ETH0      | AMPHENOL MSXS-08PFFR-SH7001  | FEMALE | Mating connectors assembled using torque wrench (use 5.3 in.Lbs torque)  | HARTING 21038811805            |
| ETH1      |                              |        |  |                                |
| ETH2      |                              |        |  |                                |
| ETH3      |                              |        |  |                                |
| ETH4      | AMPHENOL MSXS-08PFFR-SH7001  | FEMALE | Mating connectors assembled using torque wrench (use 5.3 in.Lbs torque)  | HARTING 21038811805            |

**Figure 6 - Connection Information**



## CONNECTOR PINOUT – J5



| PIN  | SIGNAL NAME |
|--|-------------|
| 1  | PWR_EN      |
| 2  | FACT_RESET  |
| 3  | GND         |
| 4  | DIS_IN_1    |
| 5  | DIS_IN_2    |
| 6  | GND         |
| 7  | SPARE0      |
| 8  | SPARE1      |
| 9  | GND         |
| 10   | GND         |
| 11   | RS232 TX*   |
| 12   | RS232 RX*   |
| 13   | IP_STRAP_0  |
| 14   | IP_STRAP_1  |
| 15   | IP_STRAP_2  |
| 16   | DIS_OUT_1   |
| 17   | DIS_OUT_2   |
| 18   | CHAS        |
| 19   | +28V RTN    |
| 20   | +28V IN     |
| * FOR LAB/MAINTENANCE USE ONLY.<br>NOT CONNECTED ON AIRCRAFT |             |

**Figure 7 - J5 Connector Pin Configuration**

See Figure 9 and Figure 10 for DO-160G tested cable specifications.

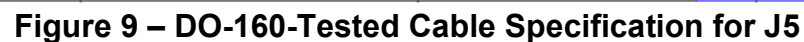
| PIN | SIGNAL NAME | SIGNAL DESCRIPTION          | Direction | GROUND                  | OPEN                     | Standard                                |
|-----|-------------|-----------------------------|-----------|-------------------------|--------------------------|---|
| 1   | PWR_EN      | Power Enable                | Input     | Power ON                | Power Off                | ARINC 763A<br>Sections 2.10.6,<br>6.4.1 |
| 2   | FACT_RESET* | Factory Reset               | Input     | Reset CL6               | CL6 normal<br>operation  | ARINC 763A<br>Sections 2.10.6,<br>6.4.1 |
| 3   | GND         | Ground                      |           |                         |                          |   |
| 4   | DIS_IN_1    | 2.4GHz RF<br>Enable/Disable | Input     | 2.4GHz Radios<br>Enable | 2.4GHz Radios<br>Disable | ARINC 763A<br>Sections 2.10.6,<br>6.4.1 |
| 5   | DIS_IN_2    | 5GHz RF<br>Enable/Disable   | Input     | 5GHz Radios<br>Enable   | 5GHz Radios<br>Disable   | ARINC 763A<br>Sections 2.10.6,<br>6.4.1 |
| 6   | GND         | Ground                      |           | -                       | -                        | -                                       |
| 7   | SPARE0      | Spare0/Test<br>line         | Input     | -                       | -                        | -                                       |
| 8   | SPARE1      | Spare1/Test<br>line         | Input     | -                       | -                        | -                                       |
| 9   | GND         | Ground                      |           | -                       | -                        | -                                       |
| 10  | GND         | Ground                      |           | -                       | -                        | -                                       |
| 11  | RS232 TX**  | Console Serial<br>Port      |           | -                       | -                        | -                                       |
| 12  | RS232 RX**  | Console Serial<br>Port      |           | -                       | -                        | -                                       |
| 13  | IP_STRAP_0  | IP Strap 0                  | Input     | 1<br>See Section 2.7    | 0<br>See Section<br>2.7  | ARINC 763A<br>Sections 2.10.6,<br>6.4.1 |
| 14  | IP_STRAP_1  | IP Strap 1                  | Input     | 1<br>See Section 2.7    | 0<br>See Section<br>2.7  | ARINC 763A<br>Sections 2.10.6,<br>6.4.1 |
| 15  | IP_STRAP_2  | IP Strap 2                  | Input     | 1                       | 0                        |   |

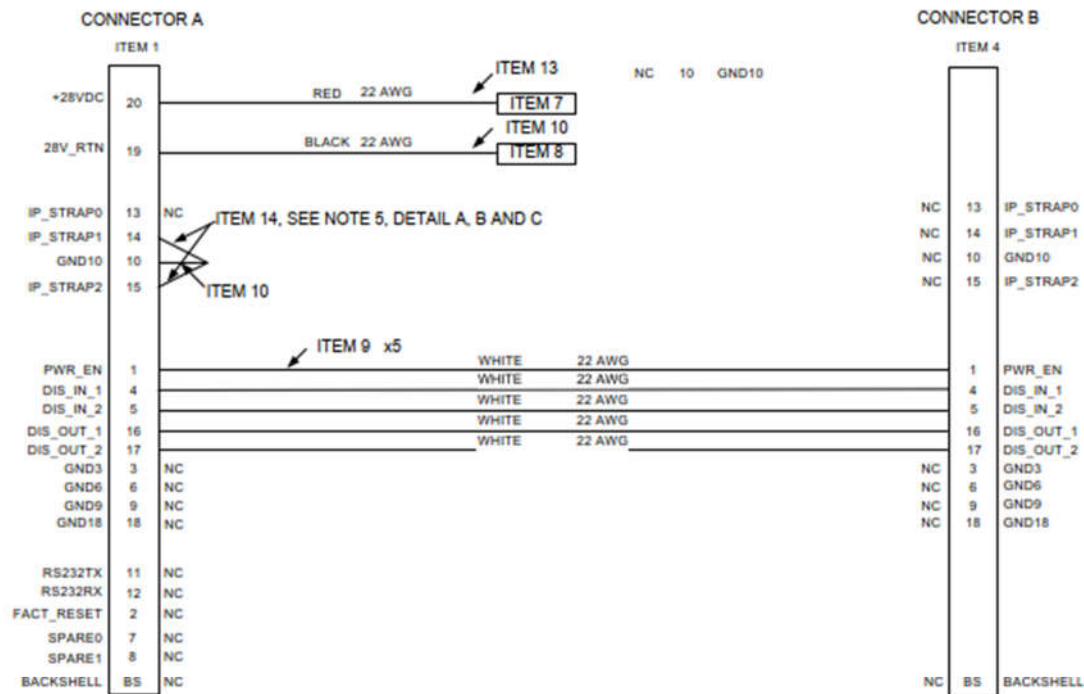
|    |           |                                      |        |                           |  |   |
|----|-----------|--------------------------------------|--------|---------------------------|--|---|
|    |           |                                      |        | See Section 2.7           | See Section 2.7                          | ARINC 763A<br>Sections 2.10.6,<br>6.4.1 |
| 16 | DIS_OUT_1 | Power state on                       | Output | Power ON                  | Power OFF                                | ARINC 763A<br>Sections 2.10.7,<br>6.4.2 |
| 17 | DIS_OUT_2 | Wireless status<br>2.4 & 5 GHz<br>on | Output | All Radios<br>Operational | At least one<br>radio not<br>operational | ARINC 763A<br>Sections 2.10.7,<br>6.4.2 |
| 18 | CHAS      | Chassis<br>Ground                    | -      | -                         | -  | -                                       |
| 19 | +28V_RTN  | +28V Power<br>Return                 | Return | -                         | -  | -                                       |
| 20 | +28V_IN   | +28V Power<br>Input                  | Input  | -                         | -  | -                                       |

\* - The Factory Reset input should never be grounded unless a factory reset of the WAP is required

\*\* FOR LAB/MAINTENANCE USE ONLY. NOT CONNECTED ON AIRCRAFT

**Figure 8 - J5 Connector Pin Information**

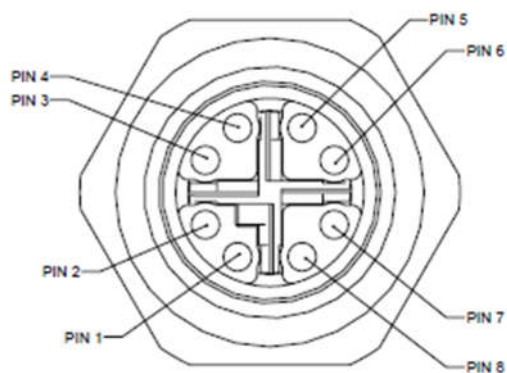




| BILL OF MATERIALS |  |                      |                |      |
|-------------------|--|----------------------|----------------|------|
| ITEM #            | DESCRIPTION  | MFG                  | PN / MILL#     | QTY. |
| 1                 | EN4165 20 POS CONN WITH 22 AWG MALE PIN CONTACTS             | TE CONNECTIVITY      | DMC-M 20-22 PN | 1    |
| 2                 | EN4165 N KEY PLUG  | TE CONNECTIVITY      | DMC-MD 20 N    | 1    |
| 3                 | EN4165 EMI BACKSHELL   | RUSSTECH ENGINEERING | RT-BC0865-10U  | 1    |
| 4                 | DSUB 25M STANDARD DENSITY FEMALE CONNECTOR                   | POSITRONICS          | RD25S00000     | 1    |
| 5                 | DSUB FEMALE CONTACT PIN 22 AWG                               | POSITRONICS          | FC6020D2       | 25   |
| 6                 | EMI HOOD DSUB SHELL WITH JACKSCREWS                          | POSITRONICS          | D25000GE0      | 1    |
| 7                 | BANANA PLUG RED  | POMONA ELECTRONICS   | 1825-2         | 1    |
| 8                 | BANANA PLUG BLACK  | POMONA ELECTRONICS   | 1825-0         | 1    |
| 9                 | WIRE STRANDED 22 AWG PTFE WHITE                              |                      | ML 168878/4    | AR   |
| 10                | WIRE STRANDED 22 AWG PTFE BLACK                              |                      | ML 168878/4    | AR   |
| 11                | CABLE TIE, NYLON, NATURAL, 3.9 INCH, ROHS COMPLIANT          | PANDUIT              | PLT1M          | 10   |
| 12                | LOW DUROMETER SELF FUSING SILICONE TAPE 0.020 x 0.5" x 36 FT | ROWE INDUSTRIES      | GL20B67100     | AR   |
| 13                | WIRE STRANDED 22 AWG PTFE RED                                |                      | ML 168878/4    | AR   |
| 14                | WIRE STRANDED 24 AWG PTFE BLACK                              |                      | ML 168878/4BEE | AR   |
| 15                | BUSS BAR WIRE 26 AWG   | ALPHA                | 299/1 SV005    | AR   |
| 16                | HEATSHRINK, 3.1, 1/8"  | QUALTEK              | Q2-F3X1/8-01   | 0.5" |

Figure 10 - DO-160-Tested Cable Specification for J5

## CONNECTOR PINOUT – ETH0, ETH1, ETH2, ETH3, ETH4



| PIN | SIGNAL NAME   |
|-----|---------------|
| 1   | ETH n BI DA + |
| 2   | ETH n BI DA - |
| 3   | ETH n BI DB + |
| 4   | ETH n BI DB - |
| 5   | ETH n BI DD + |
| 6   | ETH n BI DD - |
| 7   | ETH n BI DC - |
| 8   | ETH n BI DC + |

**Figure 11 - J5 Connector Pin Configuration**

See Figure 12 for DO-160G tested cable specification.

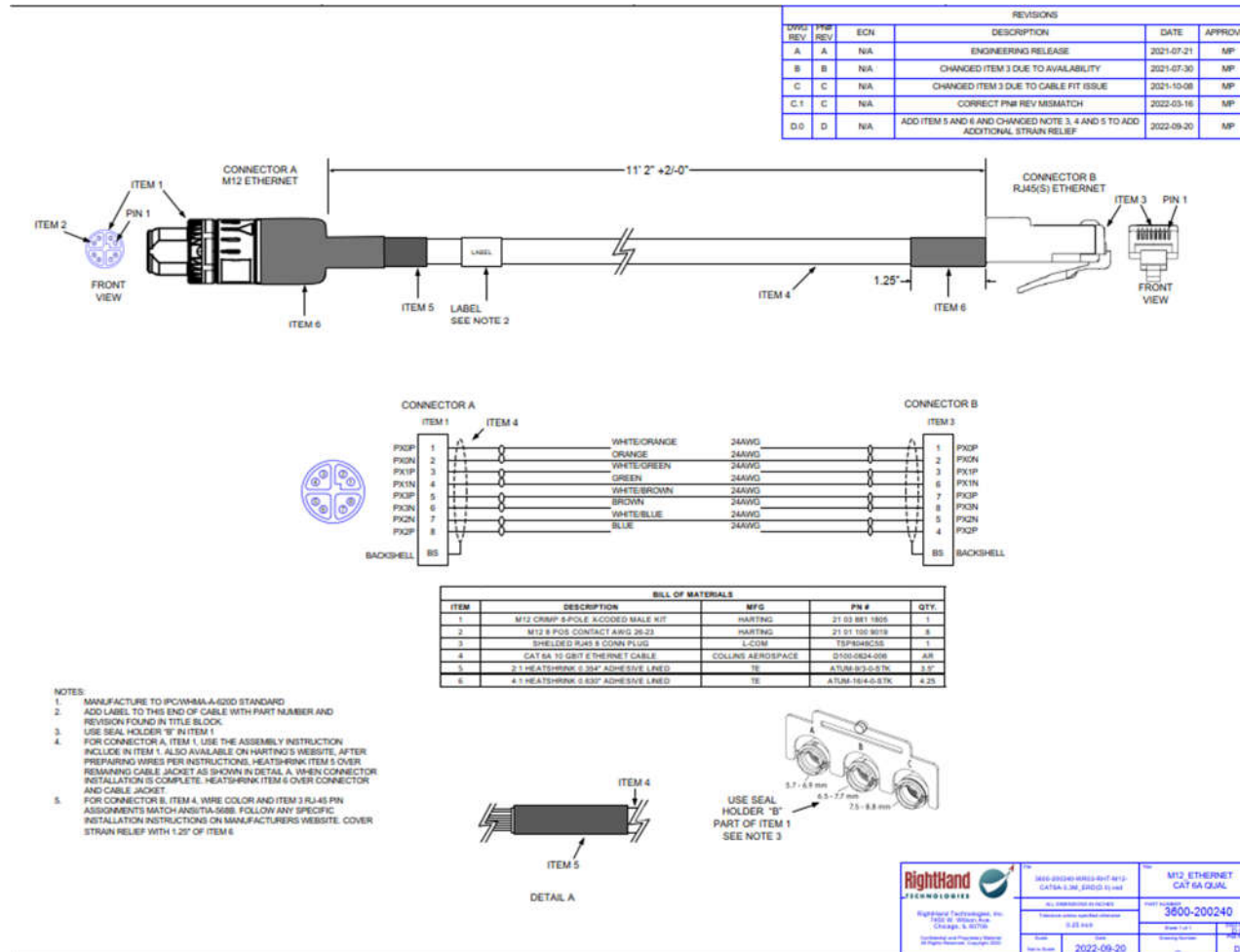
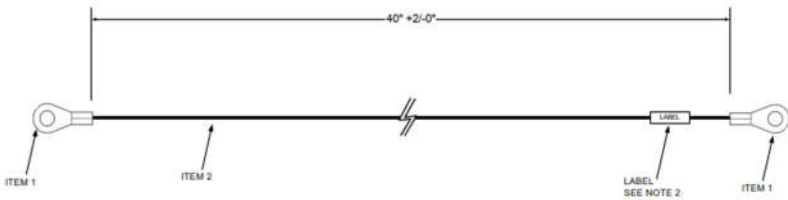


Figure 12 - DO-160-Tested Cable Specification for ETH0 thru ETH4

Install ground wire with a #10 ring terminal to the ground point, E1 with the following

- Screw, #10-32, 0.5 inch, Phillips, Pan Head (RHT 3200-200112 or equivalent)
- Split Lock Washer, Mil. Spec, #10 (RHT 3200-200115 or equivalent)
- External-Tooth Lock Washer, #10 (RHT 3200-200114 or equivalent)

| DWG. REV. |   |  | PDM REV. |  | ECN | DESCRIPTION   | DATE       | APPROVED |
|-----------|---|--|----------|--|-----|---|------------|----------|
| A         | A |  |          |  | N/A | ENGINEERING RELEASE   | 2021-07-09 | MP       |
| B.0       | B |  |          |  | N/A | UPDATED ITEM 1 AND ITEM 2 FROM 22 AWG. UPDATED ITEM 1 FROM PTFE | 2023-06-02 | JR       |


| BILL OF MATERIALS |                                 |            |                    |     |
|-------------------|---------------------------------|------------|--------------------|-----|
| ITEM #            | DESCRIPTION                     | MFG        | PN / MLLS          | QTY |
| 1                 | RING TERMINAL SIZE 10, 12-16    | PANADOT    | PTD 10-16-13       | 2   |
| 2                 | WIRE STRANDED 16 AWG PTFE GREEN | SEE NOTE 4 | ML-W-27789-11-16-3 | AW  |

NOTES:

1. MANUFACTURE TO IPCWHMA-A-6200 STANDARD
2. ADD LABEL TO THIS END OF CABLE WITH PART NUMBER AND REVISION FOUND IN TITLE BLOCK
3. PART SUBSTITUTIONS SUBJECT TO APPROVAL ONLY BY RIGHTHAND TECHNOLOGIES INC.
4. WIRE VENDOR MUST BE CPL-AS22759 LISTED FOR M22759-11-16

|   |   |                                  |
|---|---|----------------------------------|
| <br><b>RightHand</b><br>TECHNOLOGIES<br>RightHand Technologies, Inc.<br>100 W. 10th Street<br>Chicago, IL 60604<br>Copyright © and Invention © 2020<br>All Rights Reserved. All other rights reserved. | 3600-200241-0000-001-010-001<br>QWL QWL-1M (P)B-001 | Catkins 6 Power IO<br>Cable Qual |
|   | ALL INFORMATION IS UNCLASSIFIED                     |                                  |
|   | 3600-200241   |                                  |
|   | 0.00 m/s  |                                  |
| Date to Ship: 2021-07-09  | Date to Ship: 2021-07-09                            | Date to Ship: 2021-07-09         |

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## 2.11 Antenna and Cable Information

| <b>Collins 441-2199-100 (RightHand Tech 1024-200049) Antenna Information</b> |                            |
|--|----------------------------|
| Antenna Type   | 4-Element Omni-directional |
| Connector  | SMA Female Socket          |
| Maximum Gain in 2.4GHz   | 3.6dBi                     |
| Maximum Gain in 5GHz   | 5.75dBi                    |

**Figure 14 – Antenna Information**

| <b>Cable Information</b>      |  |
|-------------------------------|--|
| Minimum Cable Length          | 4"   |
| Maximum Cable Length          | Per Maximum Cable Loss   |
| Maximum Cable Loss            | 9 dB   |
| Allowable Antenna Type        | To be used only with:<br>Collins 441-2199-100<br>(RightHand Tech 1024-200049)  |
| Maximum Cable Loss Difference | Any<br>Note: All regulatory and performance testing performed with cables with a maximum of 0.5 dB of cable loss difference. |

**Figure 15 – Cable Information**

## 2.12 LED Port Indicators

Each port has an LED indicator to the left of the port. The blinking pattern of the LEDs is defined in the table below.

|   |
|---|
| <b>ETH0 to ETH3 – 10/100/100 Ethernet port</b>  |
| LEDs OFF – no link<br>Green LED ON – 1 Gbps link<br>Yellow LED ON – 10/100 Mbps link<br>LED BLINKING – activity                               |
| <b>ETH4 – 2.5G Ethernet port</b>  |
| LEDs OFF – no link<br>Green LED ON – 2.5/1 Gbps link<br>Yellow LED ON – 10/100 Mbps link<br>LED BLINKING – activity                           |
| <b>Power Status LED</b>   |
| LEDs OFF – power off<br>Green LED ON – power on/operational<br>Yellow LED ON – power on/booting   |
| <b>5 GHz Radio LED</b>  |
| Green LED ON: 5 GHz radio is up/operational<br>Yellow LED ON: 5 GHz radio is down/off<br>LEDs OFF: 5 GHz radio is off/not fully booted.       |
| <b>2.4 GHz Radio LED</b>  |
| Green LED ON: 2.4 GHz radio is up/operational<br>Yellow LED ON: 2.4 GHz radio is down/off<br>LEDs OFF: 2.4 GHz radio is off/not fully booted. |

**Figure 16 - LED Port Indicators**

### 3. Configuring the CabinLink 6 - Quick Start Guide

The CL6 can be configured to operate in several network modes. It can operate as a router, access point, and range extender. The CL6 may act as just a wireless access point to provide wireless access to the cabin system. It can also act as a router between the cabin system and another external network (such as internet connectivity through a Satcom system). It can also act as a range extender to repeat the wireless signal from a router to expand its networks coverage.

Multiple LRU configurations allow for mesh operation, which allows for better wireless coverage with multiple connectivity points in a cabin environment. If one of the non-primary LRUs goes offline, wireless clients seamlessly connect to other LRUs in the mesh. Clients seamlessly switch and authenticate between LRUs depending on which LRU gives them the best signal.

The CL6 can be configured to operate in these modes via the GUI (see CabinLink 6 GUI Configuration) or through command line. See 10 for using SSH connections to access the command line interface.

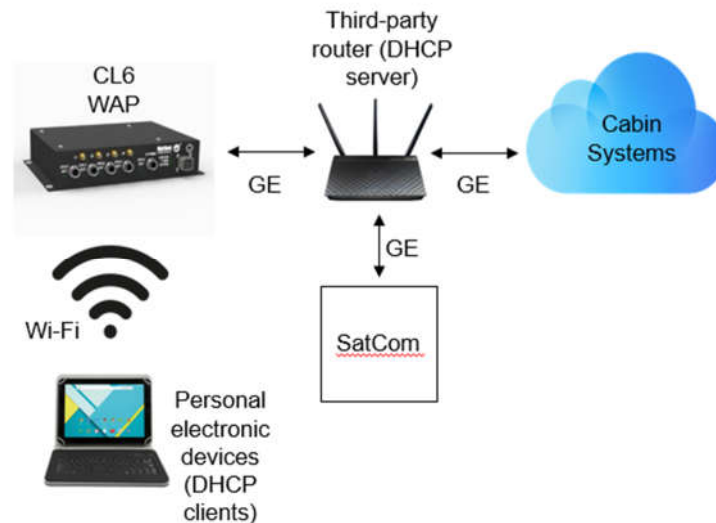
These wireless configurations are kept in configuration files that can be copied, uploaded, and downloaded through the Configuration Management page in the GUI (see System – Configuration Management).

Below are six use cases for the CL6. These use cases include operating as an Access Point, Wireless Router, Multiple Wireless Access Points, Multiple Routers with VLAN support, Access Point with Range Extender/Wireless Mesh, and Multiple Wireless Access Points with Load Balancing.

| Use Case  | Corresponding configuration files                                    |
|---|--|
| Access Point  | uc1_example_AP   |
| Wireless Router                                     | uc2_example_RTR  |
| Multiple Wireless Access Points                     | uc3_example_multiAP_qos_1<br>uc3_example_multiAP_qos_2               |
| Multiple Routers with VLAN support                  | uc4_example_multiRTR_VLAN4<br>uc4_example_multiRTR_VLAN5             |
| Access Point with Range Extender/Wireless Mesh      | uc5_example_multiAP_wds_master<br>uc5_example_multiAP_wds_re         |
| Multiple Wireless Access Points with Load Balancing | uc6_example_multiWAP_lb_primary<br>uc6_example_multiWAP_lb_secondary |

### 3.1 CL6 Access Point Configuration

In this case, a third-party router is responsible for network setup, with the wireless access point acting as an access point only (layer two functions only). The wireless access point is connected to the third-party router via a Gigabit-Ethernet link (GE) to any of its LAN ports and serves wireless clients over WiFi.



To use this configuration, start by connecting the IP address straps to ground (See Setting IP Address with Switches). This will allow the CL6 to get an IP address via DHCP. Navigate to System → Configuration Management and select uc1\_example\_AP from the Current Configuration dropdown. After doing so, click the “Set as Current Config” button and then click the “Apply Current Config to System” button. Wait about 1 minute for configuration to apply to the wireless access point and then reboot the unit. You may lose connection to the GUI since the CL6 will get an IP via DHCP from the third-party router. The IP address of the CabinLink 6 can be determined by issuing the “arp -a” command on a computer connected to the DHCP enabled network. The CabinLink 6 will have a MAC address starting with '00:1A:9C:14'


#### 3.1.1 CL6 Access Point Configuration – Changing the IP address

The wireless access point can also be configured to use a static address. To do so, disconnect the IP address straps to allow the IP address to be set from the configuration file (See Setting IP Address with Switches). Next, navigate to Network → Interfaces and click “Edit” on the LAN interface.

Next, select static address from the Protocol dropdown and click the “Switch Protocol” button.

**Interfaces » LAN**

[General Settings](#) [Advanced Settings](#) [Physical Settings](#) [Firewall Settings](#) [DHCP Server](#)

Status  Device: br-lan  
Uptime: 0h 2m 54s  
MAC: 00:03:7F:12:CE:47  
RX: 976.98 KB (6859 Pkts.)  
TX: 1.26 MB (1141 Pkts.)  
IPv4: 10.0.0.94/16

Protocol Static address ▼

Really switch protocol? [Switch protocol](#)


Bring up on boot ☒

[Dismiss](#) [Save](#)

You will need to fill in the IPv4 address and IPv4 netmask fields. You must use an unused IP address compatible with the router's subnet and outside of its DHCP pool to avoid conflicts.

**Interfaces » LAN**

[General Settings](#) [Advanced Settings](#) [Physical Settings](#) [Firewall Settings](#) [DHCP Server](#)

Status  Device: br-lan  
Uptime: 0h 0m 30s  
MAC: 0E:4A:9B:3D:D0:D3  
RX: 270.27 KB (2126 Pkts.)  
TX: 2.23 MB (1006 Pkts.)  
IPv4: 10.0.25.101/16

Protocol Static address ▼

Bring up on boot ☒


IPv4 address  ...

IPv4 netmask  ▼

IPv4 gateway


IPv4 broadcast


Use custom DNS servers  +

IPv6 assignment length disabled ▼  
 Assign a part of given length of every public IPv6-prefix to this interface

IPv6 address  +

IPv6 gateway

IPv6 routed prefix   
 Public prefix routed to this device for distribution to clients.

IPv6 suffix   
 Optional. Allowed values: 'eui64', 'random', fixed value like '::1' or '::1:2'. When IPv6 prefix (like 'a:b:c:d::') is received from a delegating server, use the suffix (like '::1') to form the IPv6 address ('a:b:c:d::1') for the interface.

Dismiss Save

After these fields are populated, Save and apply your changes. With the IP address straps disconnected (See Setting IP Address with Switches), the wireless access point will now use the IP address you provided. Information on how to configure the rest of the settings on this page can be found in 8.1.

### 3.1.2 CL6 Access Point Configuration – Changing the SSID

To change the SSID for the network, start by navigating to Network → Wireless.

#### Wireless Overview

|  |  |                     |
|--|--|---------------------|
| wifi0  | <b>5 GHz Band</b><br>Channel: 136 (5.680 GHz)   Bitrate: 2.4019 Gb/s | Restart Scan Add    |
| SSID: RHT-WiFi6axa   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 24 dBm<br>BSSID: 00:03:7F:12:01:D3   Encryption: WPA2/WPA3 Mixed Mode |  | Disable Edit Remove |
| wifi1  | <b>2.4 GHz Band</b><br>Channel: 11 (2.462 GHz)   Bitrate: 573.5 Mb/s | Restart Scan Add    |
| SSID: RHT-WiFi6axg   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 29 dBm<br>BSSID: 00:03:7F:12:35:A7   Encryption: WPA2/WPA3 Mixed Mode |  | Disable Edit Remove |

From this page, click edit on the wireless interface you want to change the SSID for.

#### Device Configuration

|                                 |  |
|---------------------------------|--|
| General Setup Advanced Settings |  |
| Status                          | Mode: Access Point   SSID: RHT-WiFi6axa<br>BSSID: 00:03:7F:12:01:D3<br>Encryption: WPA2/WPA3 Mixed Mode<br>Channel: 136 (5.680 GHz)<br>Tx-Power: 24 dBm<br>Signal: -93 dBm   Noise: -93 dBm<br>Bitrate: 2.4019 Gb/s   Country: US  |
| Wireless network is enabled     | Disable  |
| Operating frequency             | Mode: AX Band: 5 GHz (11axa) Channel: Auto Width: 80 MHz (HE80)  |
| Maximum transmit power          | 30 dBm - Current power: 24 dBm<br><small>Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.</small> |

#### Interface Configuration

|  |              |
|--|--------------|
| General Setup Wireless Security MAC-Filter Advanced Settings |              |
| Mode   | Access Point |
| ESSID  | RHT-WiFi6axa |

Then, change the ESSID field to your desired SSID and save & apply your change. Each wireless interface can have their own unique SSID, or they can also share the same SSID. The maximum allowed number of SSIDs per radio is 16.

### 3.1.3 CL6 Access Point Configuration – Changing the Wi-Fi Password

To change the password for your WiFi, click the wireless security tab on the same page.

Wireless Network: Access Point "RHT-WiFi6axa" (wifi0.network1)

**Device Configuration**

[General Setup](#) [Advanced Settings](#)

Status **Mode:** Access Point | **SSID:** RHT-WiFi6axa  
**BSSID:** 00:03:7F:12:E2:6B  
**Encryption:** WPA2/WPA3 Mixed Mode  
**Channel:** 136 (5.680 GHz)  
**Tx-Power:** 24 dBm  
**Signal:** -93 dBm | **Noise:** -93 dBm  
**Bitrate:** 2.4019 Gb/s | **Country:** US

Wireless network is enabled [Disable](#)

Operating frequency **Mode:** AX | **Band:** 5 GHz (11axa) | **Channel:** Auto | **Width:** 80 MHz (HE80)

Maximum transmit power **30 dBm** - Current power: 24 dBm  
Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.

**Interface Configuration**

[General Setup](#) [Wireless Security](#) [MAC-Filter](#) [Advanced Settings](#)

Encryption **WPA2/WPA3 Mixed Mode (strong)**

Key

[Dismiss](#) [Save](#)

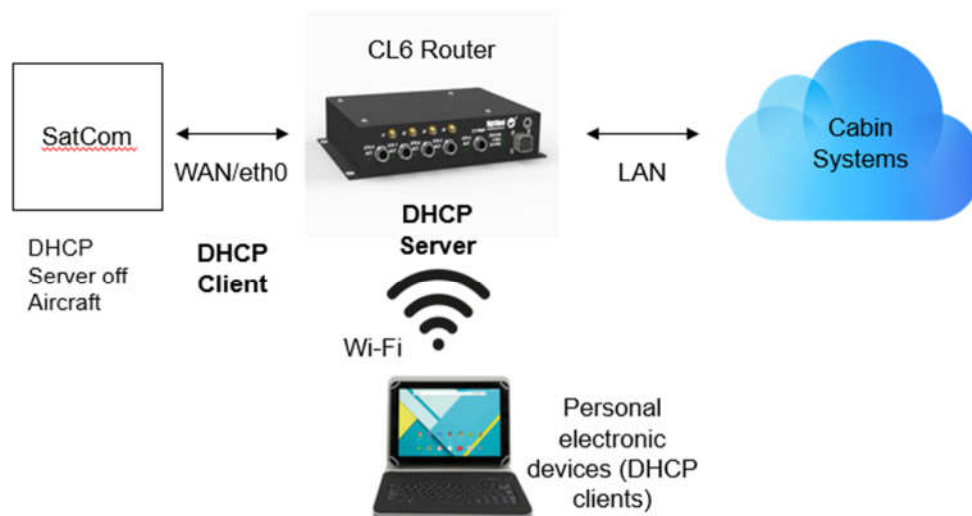
Changing the value in the “Key” field will change the password for your WiFi. You can also change the wireless encryption type from this page by selecting an encryption type from the “Encryption” dropdown. Information on how to configure the rest of the settings on this page can be found in 8.2.





### 3.2 CL6 Wireless Router Configuration

In this case, the CL6 acts as a layer three router. The ETH0 interface is configured as the WAN port and connects to the aircraft satellite/internet provider's system. In this example the WAN is configured as a DHCP client. ETH1 through ETH4 and the wireless interfaces are bridged as the virtual interface br-lan and share a static IP address assignment. The CL6 acts as a DHCP server on the br-lan interface.




To use this configuration, disconnect the IP address straps to allow the IP address to be set from the configuration file (See Setting IP Address with Switches). Navigate to System → Configuration Management and select uc2\_example\_RTR from the Current Configuration dropdown. After doing so, click the “Set as Current Config” button and then click the “Apply Current Config to System” button. Wait about 1 minute for configuration to apply to the CL6 and then reboot the unit. The IP address will change to 192.168.2.1, enter this into a browser search bar to access the GUI.

### 3.2.1 CL6 Wireless Router Configuration – Changing LAN IP address

To change the IP address of the Access Point, navigate to Network → Interfaces and click edit on the LAN interface.


#### Interfaces

|   |   |  |
|---|---|--|
|  | Protocol: Static address<br>Uptime: 0h 38m 35s<br>MAC: 00:03:7F:12:06:67<br>RX: 7.54 MB (24767 Pkts.)<br>TX: 33.99 MB (27210 Pkts.)<br>IPv4: 192.168.2.1/24 | <button>Restart</button> <button>Stop</button> <button>Edit</button> <button>Delete</button> |
|  | Protocol: DHCP client<br>Uptime: 2h 54m 46s<br>MAC: 3A:55:CB:45:81:90<br>RX: 76.34 MB (361924 Pkts.)<br>TX: 12.97 MB (23057 Pkts.)<br>IPv4: 10.0.0.60/16    | <button>Restart</button> <button>Stop</button> <button>Edit</button> <button>Delete</button> |

Under the General Settings tab, change the IPv4 address field to the desired IP address for the Access Point and click Save.

**Interfaces » LAN**

[General Settings](#) [Advanced Settings](#) [Physical Settings](#) [Firewall Settings](#) [DHCP Server](#)

Status  Device: br-lan  
Uptime: 7d 0h 26m 16s  
MAC: 16:F8:6E:7A:CC:F8  
RX: 452.78 MB (961492 Pkts.)  
TX: 1.19 GB (1296222 Pkts.)  
IPv4: 192.168.2.1/24

Protocol Static address

Bring up on boot ☒


IPv4 address 192.168.2.1


IPv4 netmask 255.255.255.0


IPv4 gateway 10.0.0.3 (wan)

IPv4 broadcast 192.168.2.255

Use custom DNS servers

IPv6 assignment length 60  
 Assign a part of given length of every public IPv6-prefix to this interface

IPv6 assignment hint 0  
 Assign prefix parts using this hexadecimal subprefix ID for this interface.

IPv6 suffix ::1  
 Optional. Allowed values: 'eui64', 'random', fixed value like '::1' or '::1:2'. When IPv6 prefix (like 'a:b:c:d::') is received from a delegating server, use the suffix (like '::1') to form the IPv6 address ('a:b:c:d::1') for the interface.

Dismiss Save


Information on how to configure the rest of the settings on this page can be found in 8.1.

### 3.2.2 CL6 Wireless Router Configuration – Assigning WAN a static IP address

The WAN interface is configured as a DHCP client and gets its IP address from the DHCP server connected to ETH0. If you want to configure the WAN interface with a static IP address, navigate to Network → Interfaces and click edit on the WAN interface. Next, select static address from the Protocol dropdown and click the “Switch Protocol” button.

**Interfaces » WAN**

[General Settings](#) [Advanced Settings](#) [Physical Settings](#) [Firewall Settings](#) [DHCP Server](#)

Status  Device: eth0  
Uptime: 3h 29m 49s  
MAC: 3A:55:CB:45:81:90  
RX: 85.25 MB (419011 Pkts.)  
TX: 13.90 MB (25733 Pkts.)  
IPv4: 10.0.0.60/16

Protocol Static address ▼

Bring up on boot ☒

IPv4 address  ...

IPv4 netmask 255.255.0.0 ▼

IPv4 gateway

IPv4 broadcast

Use custom DNS servers  +

Configure the IPv4 address and IPv4 Netmask. It is recommended to use a valid, unused, IP address outside of the DHCP pool of the connected DHCP server to avoid address conflicts. After those fields are configured, click “Save & Apply”. The WAN interface will now use its configured IP address.

### 3.2.3 CL6 Wireless Router Configuration – Changing the SSID

To change the SSID for the network, start by navigating to Network → Wireless.

**Wireless Overview**

|  |  |  |
|--|--|--|
|   | <b>5 GHz Band</b><br>Channel: 136 (5.680 GHz)   Bitrate: 2.4019 Gb/s | <span>Restart</span> <span>Scan</span> <span>Add</span>    |
| SSID: RHT-WiFi6axa   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 24 dBm<br>BSSID: 00:03:7F:12:01:D3   Encryption: WPA2/WPA3 Mixed Mode |  | <span>Disable</span> <span>Edit</span> <span>Remove</span> |
|   | <b>2.4 GHz Band</b><br>Channel: 11 (2.462 GHz)   Bitrate: 573.5 Mb/s | <span>Restart</span> <span>Scan</span> <span>Add</span>    |
| SSID: RHT-WiFi6axg   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 29 dBm<br>BSSID: 00:03:7F:12:35:A7   Encryption: WPA2/WPA3 Mixed Mode |  | <span>Disable</span> <span>Edit</span> <span>Remove</span> |

From this page, click edit on the wireless interface you want to change the SSID for.

## Device Configuration


**General Setup** Advanced Settings

Status  
Mode: Access Point | SSID: RHT-WiFi6axa  
BSSID: 00:03:7F:12:01:D3  
Encryption: WPA2/WPA3 Mixed Mode  
Channel: 136 (5.680 GHz)  
Tx-Power: 24 dBm  
Signal: -93 dBm | Noise: -93 dBm  
Bitrate: 2.4019 Gb/s | Country: US

Wireless network is enabled **Disable**

Operating frequency  
Mode: AX Band: 5 GHz (11axa) Channel: Auto Width: 80 MHz (HE80)

Maximum transmit power: 30 dBm - Current power: 24 dBm

 Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.

## Interface Configuration

**General Setup** Wireless Security MAC-Filter Advanced Settings

Mode: Access Point

ESSID: RHT-WiFi6axa

Network: lan: 

 Choose the network(s) you want to attach to this wireless interface or fill out the *custom* field to define a new network.

Hide ESSID: ☐

WMM Mode: ☒

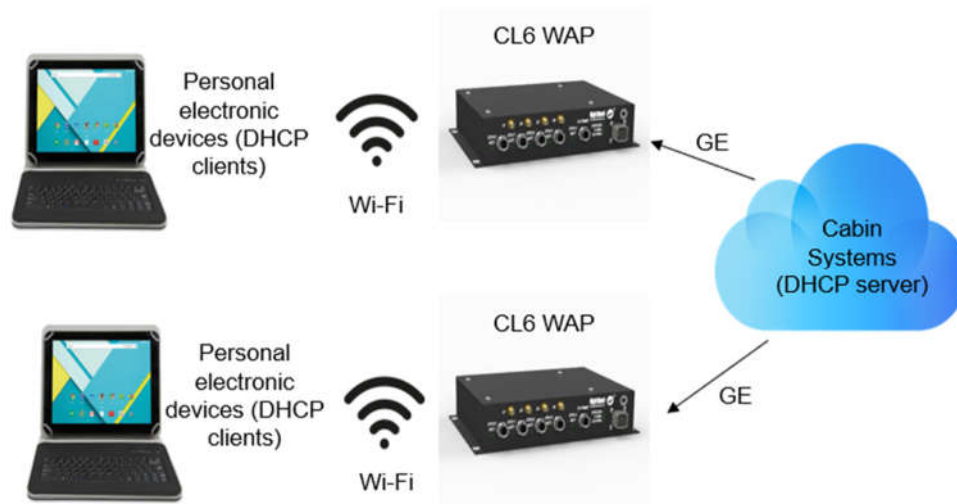
Dismiss

Save

Then, change the ESSID field to your desired SSID and save & apply your change. Each wireless interface can have their own unique SSID, or they can also share the same SSID. The maximum allowed number of SSIDs per radio is 16. Information on how to configure the rest of the settings on this page can be found in 8.2.

### 3.3 CL6 Multiple Wireless Access Points Configuration

In this case, there are multiple CL6's in the system. The CL6's act as access points (with layer two functions only).



To use this configuration, navigate to System → Configuration Management on one of your CL6's and select "uc3\_example\_multiAP\_qos\_1" from the Current Configuration dropdown. After doing so, click the "Set as Current Config" button and then click the "Apply Current Config to System" button. Wait about 1 minute for configuration to apply to the CL6 and then reboot the unit. On the other CL6, navigate to System → Configuration Management and select "uc3\_example\_multiAP\_qos\_2" from the Current Configuration dropdown and follow the same procedure to apply the configuration. Both CL6's will receive an IP address through DHCP if the IP address straps are open/disconnected (i.e. use the configuration file) or all straps are asserted/grounded to force DHCP. The IP address of the each CabinLink 6 can be determined by issuing the "arp -a" command on a computer connected to the DHCP enabled network. The CabinLink 6's will have a MAC address starting with '00:1A:9C:14'

In this configuration, a WAN interface is not configured. Instead, ETH0 is added to the LAN port configuration. Neither of the CL6's run a DHCP server in this configuration. Instead, the DHCP service comes from the cabin systems.


#### 3.3.1 CL6 Multiple Wireless Access Points Configuration – Configuring a static IP on the LAN interface

The CL6 can also be configured to use a static address. To do so, either keep the IP address straps open to assign the address via configuration file, or configure the straps for a static IP assignment (See Setting IP Address with Switches). Navigate to Network → Interfaces and click "Edit" on the LAN interface.

Next, select static address from the Protocol dropdown and click the "Switch Protocol" button.

**Interfaces » LAN**

[General Settings](#) [Advanced Settings](#) [Physical Settings](#) [Firewall Settings](#) [DHCP Server](#)

Status  Device: br-lan  
Uptime: 0h 2m 54s  
MAC: 00:03:7F:12:CE:47  
RX: 976.98 KB (6859 Pkts.)  
TX: 1.26 MB (1141 Pkts.)  
IPv4: 10.0.0.94/16

Protocol Static address ▼

Really switch protocol? [Switch protocol](#)


Bring up on boot ☒

[Dismiss](#) [Save](#)

You will then need to fill in the IPv4 address and IPv4 netmask fields. It is recommended to use a valid, unused IP address outside of the DHCP IP address pool of the cabin system's DHCP server to avoid IP address conflicts.

**Interfaces » LAN**

[General Settings](#) [Advanced Settings](#) [Physical Settings](#) [Firewall Settings](#) [DHCP Server](#)

Status  Device: br-lan  
Uptime: 0h 0m 30s  
MAC: 0E:4A:9B:3D:D0:D3  
RX: 270.27 KB (2126 Pkts.)  
TX: 2.23 MB (1006 Pkts.)  
IPv4: 10.0.25.101/16

Protocol Static address ▼

Bring up on boot ☒

IPv4 address  ...

IPv4 netmask  ▼

IPv4 gateway

IPv4 broadcast

Use custom DNS servers  +

IPv6 assignment length disabled ▼  
☒ Assign a part of given length of every public IPv6-prefix to this interface

IPv6 address  +

IPv6 gateway

IPv6 routed prefix   
☒ Public prefix routed to this device for distribution to clients.

IPv6 suffix   
☒ Optional. Allowed values: 'eui64', 'random', fixed value like '::1' or '::1:2'. When IPv6 prefix (like 'a:b:c:d::') is received from a delegating server, use the suffix (like '::1') to form the IPv6 address ('a:b:c:d::1') for the interface.

Dismiss Save



After these fields are populated, Save and apply your changes. The CL6 will now use the IP address you provided. Information on how to configure the rest of the settings on this page can be found in 8.1.



### 3.3.2 CL6 Multiple Wireless Access Points Configuration – Changing the SSID

To change the SSID for the network, start by navigating to Network → Wireless.

#### Wireless Overview

|   |  |   |
|---|--|---|
|  | <b>5 GHz Band</b><br>Channel: 136 (5.680 GHz)   Bitrate: 2.4019 Gb/s   | <a href="#">Restart</a> <a href="#">Scan</a> <a href="#">Add</a>    |
|   | SSID: RHT-WiFi6axa   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 24 dBm<br>BSSID: 00:03:7F:12:01:D3   Encryption: WPA2/WPA3 Mixed Mode | <a href="#">Disable</a> <a href="#">Edit</a> <a href="#">Remove</a> |
|  | <b>2.4 GHz Band</b><br>Channel: 11 (2.462 GHz)   Bitrate: 573.5 Mb/s   | <a href="#">Restart</a> <a href="#">Scan</a> <a href="#">Add</a>    |
|   | SSID: RHT-WiFi6axg   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 29 dBm<br>BSSID: 00:03:7F:12:35:A7   Encryption: WPA2/WPA3 Mixed Mode | <a href="#">Disable</a> <a href="#">Edit</a> <a href="#">Remove</a> |

From this page, click edit on the wireless interface you want to change the SSID for.

## Device Configuration


**General Setup** Advanced Settings

Status  
Mode: Access Point | SSID: RHT-WiFi6axa  
BSSID: 00:03:7F:12:01:D3  
Encryption: WPA2/WPA3 Mixed Mode  
Channel: 136 (5.680 GHz)  
Tx-Power: 24 dBm  
Signal: -93 dBm | Noise: -93 dBm  
Bitrate: 2.4019 Gb/s | Country: US

Wireless network is enabled **Disable**

Operating frequency  
Mode: AX Band: 5 GHz (11axa) Channel: Auto Width: 80 MHz (HE80)

Maximum transmit power: 30 dBm - Current power: 24 dBm

 Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.

## Interface Configuration

**General Setup** Wireless Security MAC-Filter Advanced Settings

Mode: Access Point

ESSID: RHT-WiFi6axa

Network: lan: 

 Choose the network(s) you want to attach to this wireless interface or fill out the custom field to define a new network.

Hide ESSID: ☐

WMM Mode: ☒

Dismiss

Save

Then, change the ESSID field to your desired SSID and save & apply your change. Each wireless interface can have their own unique SSID, or they can also share the same SSID.

### 3.3.3 CL6 Multiple Wireless Access Points Configuration – Changing the WiFi Password

To change the password for your WiFi, click the wireless security tab on the same page.

Wireless Network: Access Point "RHT-WiFi6axa" (wifi0.network1)

**Device Configuration**

[General Setup](#) [Advanced Settings](#)

Status: Mode: Access Point | SSID: RHT-WiFi6axa  
BSSID: 00:03:7F:12:E2:6B  
Encryption: WPA2/WPA3 Mixed Mode  
Channel: 136 (5.680 GHz)  
Tx-Power: 24 dBm  
Signal: -93 dBm | Noise: -93 dBm  
Bitrate: 2.4019 Gb/s | Country: US

Wireless network is enabled [Disable](#)

Operating frequency: Mode: AX | Band: 5 GHz (11axa) | Channel: Auto | Width: 80 MHz (HE80)

Maximum transmit power: 30 dBm - Current power: 24 dBm  
Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.

**Interface Configuration**

[General Setup](#) [Wireless Security](#) [MAC-Filter](#) [Advanced Settings](#)

Encryption: WPA2/WPA3 Mixed Mode (strong)

Key:

[Dismiss](#) [Save](#)

Changing the value in the “Key” field will change the password for your WiFi. You can also change the wireless encryption type from this page by selecting an encryption type from the “Encryption” dropdown. Information on how to configure the rest of the settings on this page can be found in 8.2.

### 3.4 CL6 Multiple Routers with VLAN Support Configuration

In this case, there are multiple CL6's in the system. The CL6's act as layer three gateways with router responsibility. The CL6's act as DHCP servers for the wireless clients, but as a DHCP client for the SatCom interfaces.



To use this configuration, disconnect the IP address straps on both CL6's to allow the IP address to be set from the configuration file (See Setting IP Address with Switches). Navigate to System → Configuration Management on one of your CL6's and select "uc4\_example\_multiRTR\_VLAN4" from the Current Configuration dropdown. After doing so, click the "Set as Current Config" button and then click the "Apply Current Config to System" button. Wait about 1 minute for configuration to apply to the CL6 and then reboot the unit. On the other CL6, navigate to System → Configuration Management and select "uc4\_example\_multiRTR\_VLAN5" from the Current Configuration dropdown and follow the same procedure to apply the configuration. The CL6 with the uc4\_example\_multiRTR\_VLAN4 configuration will have an IP address of 192.168.2.1. The CL6 with the uc4\_example\_multiRTR\_VLAN5 configuration will have an IP address of 192.168.2.2. To access the GUI for either of the CL6's you will need to us assign a static IP address on the 192.168.2.x subnet and connect to an eth0 through eth4 LAN port.

To connect to the CL6 with the uc4\_example\_multiRTR\_VLAN4 configuration loaded, manually assign your PC the following IP address, subnet mask, gateway, and DNS server:

IP address: 192.168.2.5

Subnet mask: 255.255.255.0

Default gateway: 192.168.2.1

Preferred DNS server: 192.168.2.1

To connect to the CL6 with the uc4\_example\_multiRTR\_VLAN5 configuration loaded, manually assign your PC the following IP address, subnet mask, gateway, and DNS server:

IP address: 192.168.2.6

Subnet mask: 255.255.255.0

Default gateway: 192.168.2.2

Preferred DNS server: 192.168.2.2

VLAN ID 4 (uc4\_example\_multiRTR\_VLAN4) and VLAN ID 5 (uc4\_example\_multiRTR\_VLAN5) network packets are communicated from of the eth1 port on each CabinLink 6.

Each CL6 has SSID's with a "-vlan" prefix, these SSID's are bridged with the VLAN interfaces. Clients connected to these SSID's will only be able to access the cabin system VLAN networks.

### 3.4.1 CL6 Multiple Routers with VLAN Support Configuration – Changing the LAN IP Address


To change the IP on each CL6, navigate to Network → Interfaces and click edit on the LAN interface.

#### Interfaces

|   |  |                                 |
|---|--|---------------------------------|
|  | <p>Protocol: Static address<br/>Uptime: 7d 0h 23m 53s<br/>MAC: 16:F8:6E:7A:CC:F8<br/>RX: 452.65 MB (960815 Pkts.)<br/>TX: 1.19 GB (1295355 Pkts.)<br/>IPv4: 192.168.2.1/24</p> | <p>Restart Stop Edit Delete</p> |
|---|--|---------------------------------|

## Interfaces » LAN

**General Settings** | Advanced Settings | Physical Settings | Firewall Settings | DHCP Server

Status  Device: br-lan  
Uptime: 7d 0h 26m 16s  
MAC: 16:F8:6E:7A:CC:F8  
RX: 452.78 MB (961492 Pkts.)  
TX: 1.19 GB (1296222 Pkts.)  
IPv4: 192.168.2.1/24

Protocol Static address ▼

Bring up on boot ☒

IPv4 address 192.168.2.1 ...

IPv4 netmask 255.255.255.0 ▼

Under the General Settings tab, change the IPv4 address field to the desired IP address for the CL6 and click Save. Make sure this IP address is not the same IP address as the other CL6. Information on how to configure the rest of the settings on this page can be found in 8.1.


### 3.4.2 CL6 Multiple Routers with VLAN Support Configuration – Creating a VLAN


VLAN's can be created and configured through the Network → Interfaces GUI page. From this page, start by clicking the “Add new interface” button.

**Add new interface...**

Name VLAN2

Protocol Static address ▼

Bridge interfaces ☐  
 creates a bridge over specified interface(s)

Interface  eth1.2 ▼



Cancel Create interface

Enter the name for your VLAN interface and select Static address from the protocol dropdown. Bridge interfaces can be selected if needed. Open the interface dropdown and click on the “-- custom--” text box at the bottom. Type the interface you want to create the VLAN on followed by a period and the VLAN ID you want to use (ex. eth1.2), then hit the enter key and click “Create Interface”. After the interface is created, click save in the bottom right.

### 3.4.3 CL6 Multiple Routers with VLAN Support Configuration – Changing the SSID

To change the SSID for either network, start by navigating to Network → Wireless.

#### Wireless Overview

|   |   |  |
|---|---|--|
|  | <b>5 GHz Band</b><br>Channel: 112 (5.560 GHz)   Bitrate: 2.4019 Gb/s  | <button>Restart</button> <button>Scan</button> <button>Add</button>    |
|   | SSID: RHT-WiFi6axa-1   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 24 dBm<br>BSSID: 00:03:7F:12:6C:B7   Encryption: WPA2/WPA3 Mixed Mode      | <button>Disable</button> <button>Edit</button> <button>Remove</button> |
|   | SSID: RHT-WiFi6axa-1-vlan   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 24 dBm<br>BSSID: 00:03:7F:12:6C:B7   Encryption: WPA2/WPA3 Mixed Mode | <button>Disable</button> <button>Edit</button> <button>Remove</button> |
|  | <b>2.4 GHz Band</b><br>Channel: 6 (2.437 GHz)   Bitrate: 573.5 Mb/s   | <button>Restart</button> <button>Scan</button> <button>Add</button>    |
|   | SSID: RHT-WiFi6axg-1   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 29 dBm<br>BSSID: 00:03:7F:12:44:2F   Encryption: WPA2/WPA3 Mixed Mode      | <button>Disable</button> <button>Edit</button> <button>Remove</button> |
|   | SSID: RHT-WiFi6axg-1-vlan   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 29 dBm<br>BSSID: 00:03:7F:12:44:2F   Encryption: WPA2/WPA3 Mixed Mode | <button>Disable</button> <button>Edit</button> <button>Remove</button> |

From this page, click edit on the wireless interface you want to change the SSID for.

## Device Configuration


**General Setup** Advanced Settings

Status  
Mode: Access Point | SSID: RHT-WiFi6axa  
BSSID: 00:03:7F:12:01:D3  
Encryption: WPA2/WPA3 Mixed Mode  
Channel: 136 (5.680 GHz)  
Tx-Power: 24 dBm  
Signal: -93 dBm | Noise: -93 dBm  
Bitrate: 2.4019 Gb/s | Country: US

Wireless network is enabled **Disable**

Operating frequency  
Mode: AX Band: 5 GHz (11axa) Channel: Auto Width: 80 MHz (HE80)

Maximum transmit power: 30 dBm - Current power: 24 dBm

 Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.

## Interface Configuration

**General Setup** Wireless Security MAC-Filter Advanced Settings

Mode: Access Point

ESSID: RHT-WiFi6axa

Network: lan: 

 Choose the network(s) you want to attach to this wireless interface or fill out the custom field to define a new network.

Hide ESSID: ☐

WMM Mode: ☒

Dismiss

Save

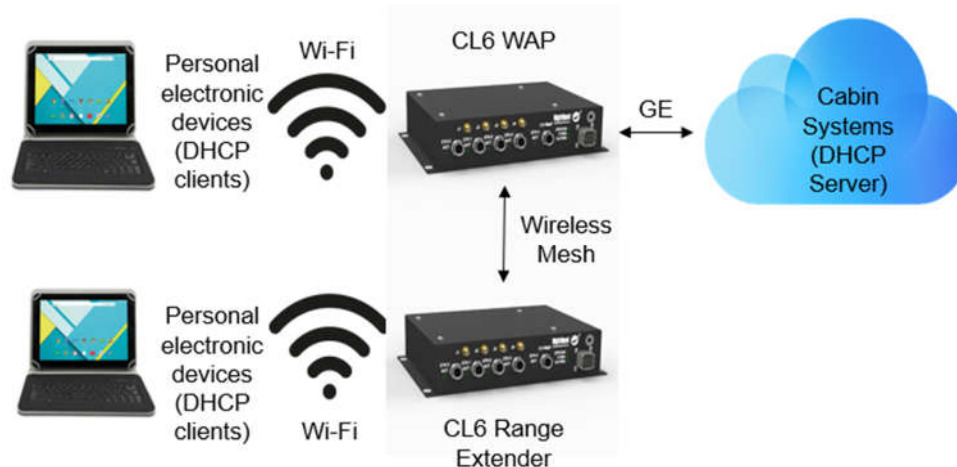
Then, change the ESSID field to your desired SSID and save & apply your change. Each wireless interface can have their own unique SSID, or they can also share the same SSID.

Information on how to configure the rest of the settings on this page can be found in 8.2.



### 3.5 CL6 Access Point with Range Extender/Wireless Mesh Configuration

In this case, there are multiple CL6's in the system. The CL6's act as access points (with layer two functions only). Only one of the CL6's is wired to the Cabin System. The other uses a wireless Mesh protocol to extend the Wi-Fi range without additional wiring.

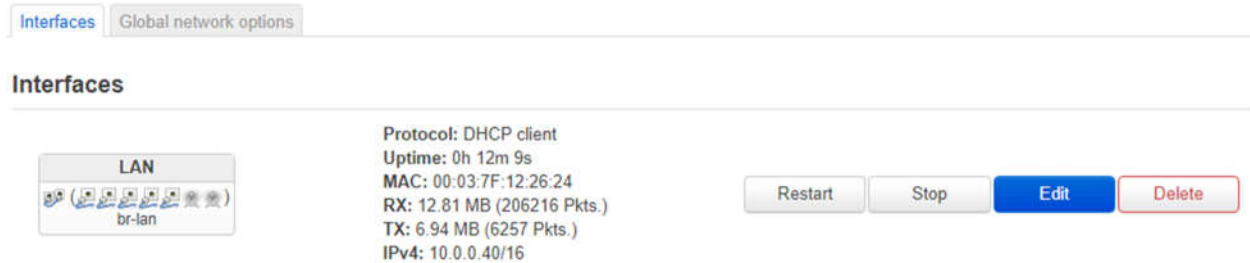


To use this configuration, you may disconnect the address straps and use DHCP per the configuration file or connect the IP address straps to ground (See Setting IP Address with Switches) and force DHCP client mode. Either method will allow the CL6 to get an IP address via DHCP. Navigate to System → Configuration Management on the CL6 you want to act as the primary access point and select “uc5\_example\_multiAP\_wds\_master” from the Current Configuration dropdown. After doing so, click the “Set as Current Config” button and then click the “Apply Current Config to System” button. Wait about 1 minute for configuration to apply to the CL6 and then reboot the unit. On the other CL6, disconnect the address straps and use DHCP per the configuration file or connect the IP address straps to ground (See Setting IP Address with Switches) and force DHCP client mode. Either method will allow the CL6 to get an IP address via DHCP. Navigate to System → Configuration Management and select “uc5\_example\_multiAP\_wds\_re” from the Current Configuration dropdown and follow the same procedure to apply the configuration. Both CL6's will receive an IP address through DHCP. The IP address of the each CabinLink 6 can be determined by issuing the “arp -a” command on a computer connected to the DHCP enabled network. The CabinLink 6's will have a MAC address starting with '00:1A:9C:14'

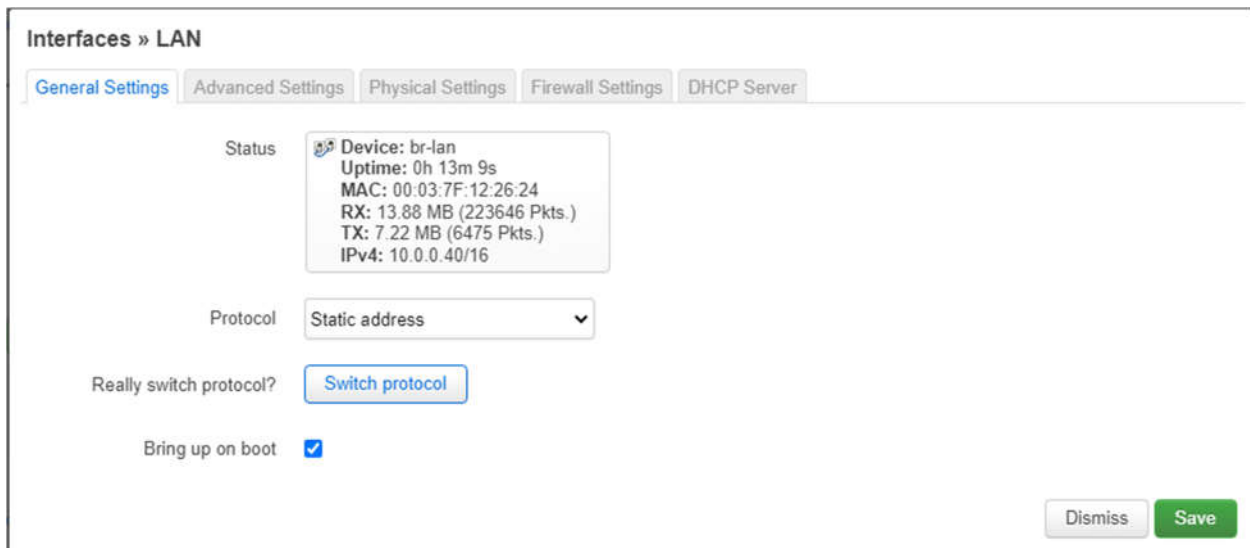
#### 3.5.1 CL6 Access Point with Range Extender/Wireless Mesh Configuration – Assigning a static IP to the LAN interface

The CL6's can also be configured to use a static address. This can be useful as it will allow you to change the IP address to connect to a specific cabin systems network. To do so, disconnect the IP address straps on both CL6's to allow the IP address to be set from the configuration file or set the static IP address via strapping (See Setting IP Address with Switches).

To configure a static IP address in the GUI, on the CL6 with the 'uc5\_example\_multiAP\_wds\_master' configuration loaded, navigate to Network → Interfaces and click "Edit" on the LAN interface.




Next, select static address from the Protocol dropdown and click the "Switch Protocol" button.



You will then need to fill in the IPv4 address and IPv4 netmask fields. It is recommended to use a valid, unused IP address outside of the DHCP IP address pool to avoid address conflicts. For this example, we'll use the IP address 10.0.25.100, which is compatible with the connected 10.0.x.x/16 network test environment.

**Interfaces » LAN**

[General Settings](#) [Advanced Settings](#) [Physical Settings](#) [Firewall Settings](#) [DHCP Server](#)

Status  Device: br-lan  
Uptime: 0h 0m 34s  
MAC: 00:03:7F:12:26:24  
RX: 606.04 KB (8332 Pkts.)  
TX: 2.94 MB (1231 Pkts.)  
IPv4: 10.0.25.100/16

Protocol Static address ▼

Bring up on boot ☒

IPv4 address  ...


IPv4 netmask 255.255.0.0 ▼

IPv4 gateway

IPv4 broadcast

After these fields are populated, Save and apply your changes. The CL6 will now use the IP address you provided. Now, using the CL6 with the “uc5\_example\_multiAP\_wds\_re” configuration loaded, navigate to Network → Interfaces and click “Edit” on the LAN interface.


#### Interfaces

| LAN   | Protocol: DHCP client<br>Uptime: 0h 17m 23s<br>MAC: 00:03:7F:12:71:97<br>RX: 15.36 MB (262724 Pkts.)<br>TX: 4.74 MB (3716 Pkts.)<br>IPv4: 10.0.0.43/16 | <a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Edit</a> <a href="#">Delete</a> |
|---|--|--|
| <br>br-lan |  |  |

Next, select static address from the Protocol dropdown and click the “Switch Protocol” button.

**Interfaces » LAN**

[General Settings](#) [Advanced Settings](#) [Physical Settings](#) [Firewall Settings](#) [DHCP Server](#)

Status  Device: br-lan  
Uptime: 0h 17m 58s  
MAC: 00:03:7F:12:71:97  
RX: 15.86 MB (271971 Pkts.)  
TX: 4.91 MB (3834 Pkts.)  
IPv4: 10.0.0.43/16

Protocol Static address ▼

Really switch protocol? [Switch protocol](#)


Bring up on boot ☒

[Dismiss](#) [Save](#)

You will then need to fill in the IPv4 address and IPv4 netmask fields. It is recommended to use a valid, unused IP address outside of the DHCP IP address pool to avoid address conflicts. For this example, we'll use the IP address 10.0.25.101, which is compatible with the connected 10.0.x.x/16 network test environment.


**Interfaces » LAN**

[General Settings](#) [Advanced Settings](#) [Physical Settings](#) [Firewall Settings](#) [DHCP Server](#)

Status  Device: br-lan  
Uptime: 0h 18m 36s  
MAC: 00:03:7F:12:71:97  
RX: 16.50 MB (282848 Pkts.)  
TX: 5.75 MB (4289 Pkts.)  
IPv4: 10.0.0.43/16

Protocol Static address ▼

Bring up on boot ☒

IPv4 address  

IPv4 netmask 255.255.0.0 ▼

IPv4 gateway


IPv4 broadcast

Now, restart both CL6's for the configurations to fully apply.

### 3.5.2 CL6 Access Point with Range Extender/Wireless Mesh Configuration – Changing the SSID

To change the SSID for the WiFi network, start by accessing the GUI on the CL6 with the “uc5\_example\_multiAP\_wds\_master” configuration loaded and navigate to Network → Wireless.

#### Wireless Overview

|   |  |  |
|---|--|--|
|  | <b>5 GHz Band</b><br>Channel: 136 (5.680 GHz)   Bitrate: 2.4019 Gb/s   | <button>Restart</button> <button>Scan</button> <button>Add</button>    |
|   | SSID: RHT-WiFi6axa   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 24 dBm<br>BSSID: 00:03:7F:12:7D:BB   Encryption: WPA2/WPA3 Mixed Mode | <button>Disable</button> <button>Edit</button> <button>Remove</button> |
|  | <b>2.4 GHz Band</b><br>Channel: 1 (2.412 GHz)   Bitrate: 573.5 Mb/s  | <button>Restart</button> <button>Scan</button> <button>Add</button>    |
|   | SSID: RHT-WiFi6axg   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 29 dBm<br>BSSID: 00:03:7F:12:39:B7   Encryption: WPA2/WPA3 Mixed Mode | <button>Disable</button> <button>Edit</button> <button>Remove</button> |

Click “Edit” on the wireless interface you want to change the SSID for and change the ESSID field to your desired SSID.

## Wireless Network: Access Point "RHT-WiFi6axa" (wifi0.network1)

### Device Configuration

[General Setup](#) [Advanced Settings](#)

Status  
Mode: Access Point | SSID: RHT-WiFi6axa  
BSSID: 00:03:7F:12:7D:BB  
Encryption: WPA2/WPA3 Mixed Mode  
Channel: 136 (5.680 GHz)  
Tx-Power: 24 dBm  
Signal: -93 dBm | Noise: -93 dBm  
Bitrate: 2.4019 Gb/s | Country: US

Wireless network is enabled [Disable](#)

Operating frequency  
Mode: AX | Band: 5 GHz (11axa) | Channel: Auto | Width: 80 MHz (HE80)

Maximum transmit power: 30 dBm - Current power: 24 dBm

Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.

### Interface Configuration

[General Setup](#) [Wireless Security](#) [MAC-Filter](#) [Advanced Settings](#)

Mode: Access Point (WDS)



ESSID: RHT-WiFi6axa

Network: lan: 

Choose the network(s) you want to attach to this wireless interface or fill out the *custom* field to define a new network.

After changing the SSID, save and apply your changes. Then, access the GUI on CL6 with the "uc5\_example\_multiAP\_wds\_re" configuration loaded and navigate to Network → Wireless.

## Wireless Overview

|   |   |   |
|---|---|---|
|  | <b>5 GHz Band</b><br>Channel: 140 (5.700 GHz)   Bitrate: 2.4019 Gb/s  | <a href="#">Restart</a> <a href="#">Scan</a> <a href="#">Add</a>    |
|   | SSID: RHT-WiFi6axa   <u>Mode: Access Point</u><br>Wireless Mode: AX   Tx Power: 24 dBm<br>BSSID: 00:03:7F:12:A1:73   Encryption: WPA2/WPA3 Mixed Mode | <a href="#">Disable</a> <a href="#">Edit</a> <a href="#">Remove</a> |
|   | SSID: RHT-WiFi6axa   <u>Mode: Client</u><br>Wireless Mode: AX   Tx Power: 24 dBm<br>BSSID: 00:03:7F:12:A1:73   Encryption: WPA2/WPA3 Mixed Mode       | <a href="#">Disable</a> <a href="#">Edit</a> <a href="#">Remove</a> |
|  | <b>2.4 GHz Band</b><br>Channel: 11 (2.462 GHz)   Bitrate: 573.5 Mb/s  | <a href="#">Restart</a> <a href="#">Scan</a> <a href="#">Add</a>    |
|   | SSID: RHT-WiFi6axg   <u>Mode: Access Point</u><br>Wireless Mode: AX   Tx Power: 29 dBm<br>BSSID: 00:03:7F:12:D5:47   Encryption: WPA2/WPA3 Mixed Mode | <a href="#">Disable</a> <a href="#">Edit</a> <a href="#">Remove</a> |
|   | SSID: RHT-WiFi6axg   <u>Mode: Client</u><br>Wireless Mode: AX   Tx Power: 29 dBm<br>BSSID: 00:03:7F:12:D5:47   Encryption: WPA2/WPA3 Mixed Mode       | <a href="#">Disable</a> <a href="#">Edit</a> <a href="#">Remove</a> |

All changes made to the wireless interfaces on the CL6 with the uc5\_example\_multiAP\_wds\_master configuration must be mirrored on the wireless interfaces operating in client mode on the range extender CL6 using the uc5\_example\_multiAP\_wds\_re configuration. Click “Edit” on each wireless interface operating in client mode and change the ESSID field to the SSID you chose on the CL6 with the uc5\_example\_multiAP\_wds\_master configuration.

## Wireless Network: Client "RHT-WiFi6axa" (wifi0.network2)

### Device Configuration

**General Setup** Advanced Settings

Status  
Mode: Client | SSID: RHT-WiFi6axa  
BSSID: 00:03:7F:12:A1:73  
Encryption: WPA2/WPA3 Mixed Mode  
Channel: 140 (5.700 GHz)  
Tx-Power: 24 dBm  
Signal: -93 dBm | Noise: -93 dBm  
Bitrate: 2.4019 Gb/s | Country: US

Wireless network is enabled **Disable**

Operating frequency  
Mode: AX Band: 5 GHz (11axa) Channel: Auto Width: 80 MHz (HE80)

Maximum transmit power: 30 dBm - Current power: 24 dBm

Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.

### Interface Configuration

**General Setup** Wireless Security Advanced Settings

Mode: Client (WDS)

ESSID: RHT-WiFi6axa

Network: lan: 

Choose the network(s) you want to attach to this wireless interface or fill out the *custom* field to define a new network.

Dismiss **Save**

After changing the ESSID's on the interfaces running in client mode, save and apply your changes. Finally, reboot both CL6's.

The wireless interfaces operating in Access Point mode on the CL6 with the uc5\_example\_multiAP\_wds\_re configuration can have a different SSID and password than the wireless interfaces operating in Client mode.

Information on how to configure the rest of the settings on this page can be found in 8.2.



### 3.6 CL6 Multiple Wireless Access Points with Load Balancing Configuration

In this case, there are multiple CL6's in the system. The CL6's act as wireless access points (with layer two functions only). The WAPs are daisy-chained to the Cabin System to improve coverage in the aircraft. The WAPs automatically manage load-balancing between the multiple WAPs (if they share an SSID) so clients can seamlessly roam between the wireless access points.



Start by disconnecting the IP address straps on both CL6's to allow the IP address to be set from the configuration file (See Setting IP Address with Switches). The CL6 comes with two configuration files to mimic this use case. One configuration is for the CL6 that will act as the primary access point and one configuration is for the CL6 that will act as the secondary access point. It is important to note that in this use case, each access point is assigned a static IP. 10.0.25.100 for the primary access point and 10.0.25.101 for the secondary access point. The IP addresses should be changed to match the configuration of your Cabin System network prior to loading them in the CL6 GUI's. Alternatively, configure a PC to match these static IP subnets (10.0.x.x/16). After changing the IP addresses you'll need to modify the PC address again, otherwise you risk losing access to the GUI. If configuration problems occur, you can reset the CL6 to the default configuration by following the steps listed in CabinLink 6 System Reset.

To load these configurations onto each CL6 navigate to System → Configuration Management. On the CL6 that you want to act as the primary access point, select the uc6\_example\_multiWAP\_lb\_primary configuration from the "Current Configuration" dropdown.

## Configuration Management

|  |  |  |   |
|--|--|--|---|
| Default Configuration:   | <input type="text" value="default_config 1.0"/>                  | <input type="button" value="Set as Default Config"/>         | <input type="button" value="Apply Default Config to System"/> |
| Current Configuration:   | <input type="text" value="uc6_example_multiWAP_lb_primary 1.0"/> | <input type="button" value="Set as Current Config"/>         | <input type="button" value="Apply Current Config to System"/> |
| Configuration to Delete:   | <input type="text"/>   | <input type="button" value="Delete Selected Configuration"/> |   |
| <input type="button" value="Update Current Configuration using current system configuration"/> |  |  |   |

Once the uc6\_example\_multiWAP\_lb\_primary configuration is selected, click “Set as current config” and then click “Apply Current Config to System”. Now, from the CL6 you want to act as the secondary access point, navigate to System → Configuration Management. This time you will need to select the uc6\_example\_multiWAP\_lb\_secondary configuration from the “Current Configuration” dropdown. Once it is selected click “Set as current config” and then click “Apply Current Config to System”.

## Configuration Management

|  |  |  |   |
|--|--|--|---|
| Default Configuration:   | <input type="text" value="default_config 1.0"/>                    | <input type="button" value="Set as Default Config"/>         | <input type="button" value="Apply Default Config to System"/> |
| Current Configuration:   | <input type="text" value="uc6_example_multiWAP_lb_secondary 1.0"/> | <input type="button" value="Set as Current Config"/>         | <input type="button" value="Apply Current Config to System"/> |
| Configuration to Delete:   | <input type="text"/>   | <input type="button" value="Delete Selected Configuration"/> |   |
| <input type="button" value="Update Current Configuration using current system configuration"/> |  |  |   |

Once this is done, reboot both CL6's. The IP address on the primary access point will be set to 10.0.25.100 and the IP address on the secondary access point will be set to 10.0.25.101.

### 3.6.1 CL6 Multiple Wireless Access Points with Load Balancing Configuration – Changing the IP of the LAN interface


If you want to change the IP address of the primary access point, navigate to Network → Interfaces and click edit on the LAN interface.

#### Interfaces

|   |   |  |                                     |                                     |                                       |
|---|---|--|-------------------------------------|-------------------------------------|---------------------------------------|
| <br>br-lan | Protocol: Static address<br>Uptime: 0h 9m 5s<br>MAC: 96:AB:D0:C5:EB:6A<br>RX: 1.90 MB (16459 Pkts.)<br>TX: 2.71 MB (2154 Pkts.)<br>IPv4: 10.0.25.100/16 | <input type="button" value="Restart"/> | <input type="button" value="Stop"/> | <input type="button" value="Edit"/> | <input type="button" value="Delete"/> |
|---|---|--|-------------------------------------|-------------------------------------|---------------------------------------|

**Interfaces » LAN**

[General Settings](#) [Advanced Settings](#) [Physical Settings](#) [Firewall Settings](#) [DHCP Server](#)

Status  Device: br-lan  
Uptime: 0h 9m 20s  
MAC: 96:AB:D0:C5:EB:6A  
RX: 1.95 MB (16868 Pkts.)  
TX: 2.78 MB (2237 Pkts.)  
IPv4: 10.0.25.100/16

Protocol Static address

Bring up on boot ☒

IPv4 address 10.0.25.100

IPv4 netmask 255.255.0.0

Under the General Settings tab, change the IPv4 address field to the desired IP address for the CL6 and set the netmask, then click Save.

To change the IP address on the secondary access point, simply navigate to Network → Interfaces and click edit on the LAN interface.


#### Interfaces

| LAN   | Protocol: Static address   |  |
|---|--|--|
| <br>br-lan | Uptime: 0h 8m 37s<br>MAC: 1A:58:1F:0D:A9:14<br>RX: 1.71 MB (14950 Pkts.)<br>TX: 3.29 MB (2226 Pkts.)<br>IPv4: 10.0.25.101/16 | <span>Restart</span> <span>Stop</span> <span>Edit</span> <span>Delete</span> |

Under the General Settings tab, change the IPv4 address field to the desired IP address for the CL6 and set the netmask, then click Save.

**Interfaces » LAN**

[General Settings](#) [Advanced Settings](#) [Physical Settings](#) [Firewall Settings](#) [DHCP Server](#)

Status  Device: br-lan  
Uptime: 0h 13m 19s  
MAC: 1A:58:1F:0D:A9:14  
RX: 2.42 MB (22096 Pkts.)  
TX: 3.60 MB (2779 Pkts.)  
IPv4: 10.0.25.101/16

Protocol Static address

Bring up on boot ☒

IPv4 address 10.0.25.101



IPv4 netmask 255.255.0.0

After you finish saving & applying these changes, reboot both the primary and secondary access points. Information on how to configure the rest of the settings on this page can be found in 8.1.

### 3.6.2 CL6 Multiple Wireless Access Points with Load Balancing Configuration – Changing the SSID

To change the SSID for the Multi-AP network, start by accessing the GUI on the primary access point and navigate to Network → Wireless.

**Wireless Overview**

|   |   |  |
|---|---|--|
|    | <b>5 GHz Band</b><br>Channel: 40 (5.200 GHz)   Bitrate: 1.1471 Gb/s | <span>Restart</span> <span>Scan</span> <span>Add</span>    |
| SSID: RHT-WiFi6   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 29 dBm<br>BSSID: 00:03:7F:12:A8:6F   Encryption: WPA2 |   | <span>Disable</span> <span>Edit</span> <span>Remove</span> |
|    | <b>2.4 GHz Band</b><br>Channel: 6 (2.437 GHz)   Bitrate: 573.5 Mb/s | <span>Restart</span> <span>Scan</span> <span>Add</span>    |
| SSID: RHT-WiFi6   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 29 dBm<br>BSSID: 00:03:7F:12:F8:5F   Encryption: WPA2 |   | <span>Disable</span> <span>Edit</span> <span>Remove</span> |

Click “Edit” on each wireless interface and change the ESSID field to your desired SSID.

## Wireless Network: Access Point "RHT-WiFi6" (wifi0.network1)

### Device Configuration

[General Setup](#) [Advanced Settings](#)

Status  
Mode: Access Point | SSID: RHT-WiFi6  
BSSID: 00:03:7F:12:A8:6F  
Encryption: WPA2  
Channel: 40 (5.200 GHz)  
Tx-Power: 29 dBm  
Signal: -93 dBm | Noise: -93 dBm  
Bitrate: 1.1471 Gb/s | Country: US

Wireless network is enabled [Disable](#)

Operating frequency  
Mode: AX | Band: 5 GHz (11axa) | Channel: 40 (5200 Mhz) | Width: 40 MHz (HE40)

Maximum transmit power: 30 dBm - Current power: 29 dBm

☒ Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.

### Interface Configuration

[General Setup](#) [Wireless Security](#) [MAC-Filter](#) [Advanced Settings](#)

Mode: Access Point (WDS)

ESSID: RHT-WiFi6

Network: lan: 

☒ Choose the network(s) you want to attach to this wireless interface or fill out the *custom* field to define a new network.



Hide ESSID: ☐

WMM Mode: ☒

[Dismiss](#) [Save](#)

After changing the SSID for both the 2.4 and 5 GHz interfaces, save and apply your changes. Then, access the GUI on the secondary access point and navigate to Network → Wireless.

## Wireless Overview

|   |   |   |
|---|---|---|
|  | <b>5 GHz Band</b><br>Channel: 40 (5.200 GHz)   Bitrate: 1.1471 Gb/s   | <a href="#">Restart</a> <a href="#">Scan</a> <a href="#">Add</a>    |
|   | SSID: RHT-WiFi6   Mode: Client<br>Wireless Mode: AX   Tx Power: 29 dBm<br>BSSID: 06:03:7F:12:C0:FF   Encryption: WPA2       | <a href="#">Disable</a> <a href="#">Edit</a> <a href="#">Remove</a> |
|   | SSID: RHT-WiFi6   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 29 dBm<br>BSSID: 06:03:7F:12:C0:FF   Encryption: WPA2 | <a href="#">Disable</a> <a href="#">Edit</a> <a href="#">Remove</a> |
|  | <b>2.4 GHz Band</b><br>Channel: 6 (2.437 GHz)   Bitrate: 573.5 Mb/s   | <a href="#">Restart</a> <a href="#">Scan</a> <a href="#">Add</a>    |
|   | SSID: RHT-WiFi6   Mode: Access Point<br>Wireless Mode: AX   Tx Power: 29 dBm<br>BSSID: 00:03:7F:12:F2:1F   Encryption: WPA2 | <a href="#">Disable</a> <a href="#">Edit</a> <a href="#">Remove</a> |
|   | SSID: RHT-WiFi6   Mode: Client<br>Wireless Mode: AX   Tx Power: 29 dBm<br>BSSID: 00:03:7F:12:F2:1F   Encryption: WPA2       | <a href="#">Disable</a> <a href="#">Edit</a> <a href="#">Remove</a> |

Click “Edit” on each wireless interface and change the ESSID field to your desired SSID. This must be the same SSID you set on your primary access point.

## Wireless Network: Access Point "RHT-WiFi6" (wifi0.network1)

### Device Configuration

[General Setup](#) [Advanced Settings](#)

Status  
Mode: Access Point | SSID: RHT-WiFi6  
BSSID: 00:03:7F:12:A8:6F  
Encryption: WPA2  
Channel: 40 (5.200 GHz)  
Tx-Power: 29 dBm  
Signal: -93 dBm | Noise: -93 dBm  
Bitrate: 1.1471 Gb/s | Country: US

Wireless network is enabled [Disable](#)

Operating frequency  
Mode: AX | Band: 5 GHz (11axa) | Channel: 40 (5200 Mhz) | Width: 40 MHz (HE40)

Maximum transmit power: 30 dBm - Current power: 29 dBm

Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.

### Interface Configuration

[General Setup](#) [Wireless Security](#) [MAC-Filter](#) [Advanced Settings](#)

Mode: Access Point (WDS)

ESSID: RHT-WiFi6

Network: lan

Choose the network(s) you want to attach to this wireless interface or fill out the custom field to define a new network.

Hide ESSID: ☐

WMM Mode: ☒

[Dismiss](#) [Save](#)

After changing the ESSID on all four wireless interfaces, save and apply your changes. Finally, reboot both the primary and secondary access points.

Information on how to configure the rest of the settings on this page can be found in 8.2.

All load balancing and band steering settings are configurable on the Network → Load Balancing page. More information for each setting on this page can be found in 8.6.

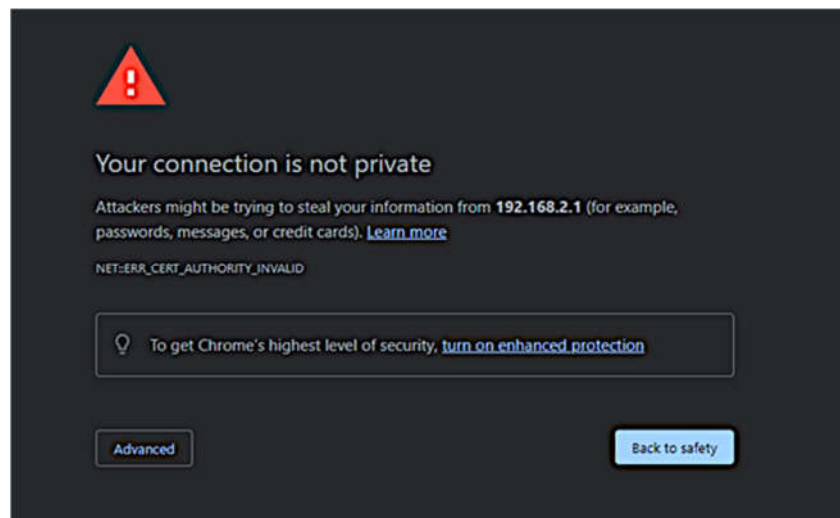


## 4. CabinLink 6 GUI Configuration

The CL6 can be configured by two methods. The following sections describe the GUI screens that can be used to set most of the system's options. The Appendix describes the command line interface that is also available via the serial console. The factory default IP addresses are used in this user guide, depending on your configuration a different IP address may be required to access the GUI.

In order to configure the CL6 Wireless Access Point, enter the web-based configuration as follows:

1. Using a device connected to the LAN interfaces, enter the CL6 IP address into the address bar in a browser window. The GUI screens cannot be accessed from the WAN network with the default iptables rules.
2. The window may show a warning similar to the following. This warning appears until valid certificates are configured in the system.
  - a. Click ADVANCED
  - b. Then click "Proceed to 192.168.2.1 (unsafe)"



3. Initial login screen is displayed.
  - a. If your CL6 has a preconfigured password, enter it in the password field
  - b. Click Login

Note: If no password is configured you must set one after the initial login



**No password set!**

There is no password set on this router. Please configure a root password to protect the web interface.

**Authorization Required**

Please enter your username and password.

Username

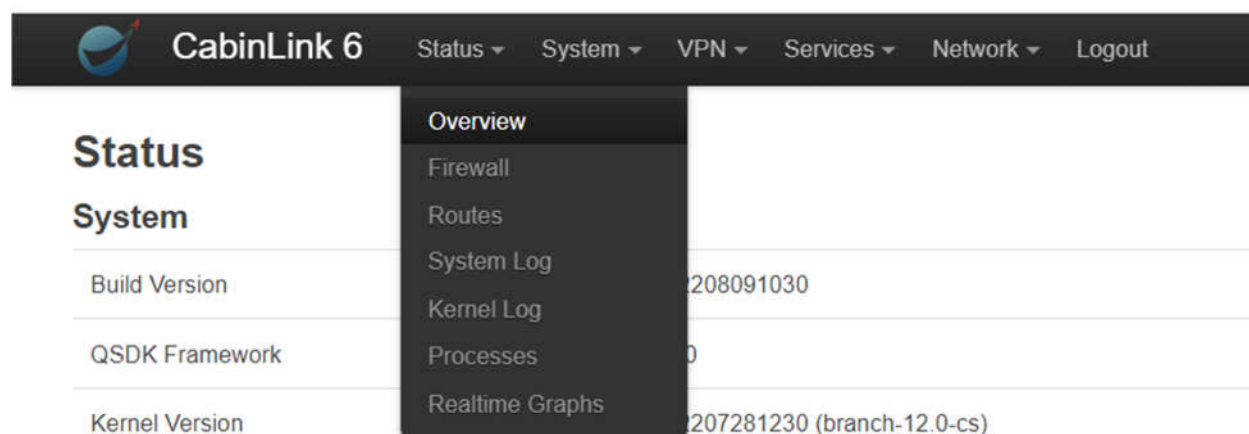
Password

Login

Reset

## 5. Viewing system Status

The Status dropdown will show the following parameters.



## 5.1 Status – Overview

The Status Overview screen will show the following system parameters.

### Status->Overview

#### Status

##### System

|                              |                                   |
|------------------------------|-----------------------------------|
| Build Version                | 202303131317                      |
| QSDK Framework               | 12.0                              |
| Kernel Version               | 202211180908 (branch-12.0-cs)     |
| U-boot Version               | 202208021128 (branch-12.0)        |
| LuCI Version                 | 202303131203 (cabinlink6_luci_12) |
| Rootfs Version               | 202303101554 (branch-12.0-cs)     |
| Company                      | Righthand Technologies, Inc       |
| RHT Part Number              | 1024-200056                       |
| Manufacturer Name            | Righthand Technologies, Inc       |
| Product Name                 | CabinLink6                        |
| Manufacture Date             | 01/31/2022                        |
| Serial Number                | CL6WAP00014                       |
| Hardware Revision            | B                                 |
| Software Certification Level | Level E                           |
| FAA-TSO Certification Level  | -                                 |
| Local Time                   | 2023-01-17 20:33:45               |
| Uptime                       | 0h 4m 35s                         |
| Load Average                 | 0.18, 0.17, 0.09                  |


#### Memory

|                 |  |
|-----------------|--|
| Total Available | <div><div></div></div> 1.57 GB / 1.84 GB (85%)   |
| Used            | <div><div></div></div> 295.29 MB / 1.84 GB (15%) |
| Buffered        | <div><div></div></div> 11.80 MB / 1.84 GB (0%)   |
| Cached          | <div><div></div></div> 41.95 MB / 1.84 GB (2%)   |

## Network

**IPv4 Upstream**

Protocol: DHCP client  
Address: 10.0.0.77/16  
Gateway: 10.0.0.3  
DNS 1: 10.0.0.5  
Expires: 1h 1m 24s  
Connected: 18h 58m 36s

 Device: Ethernet Adapter: "eth0"  
MAC-Address: 56:78:44:35:C6:71

Active Connections 

163 / 16384 (0%)

## Active DHCP Leases

| Hostname     | IPv4-Address  | MAC-Address       | Leasetime remaining |
|--------------|---------------|-------------------|---------------------|
| RHT-QC-PAD-1 | 192.168.2.158 | D4:11:A3:8F:C0:05 | 11h 44m 7s          |
| Ryans-iPhone | 192.168.2.162 | E8:1C:D8:4F:68:27 | 11h 31m 37s         |
| RWOLFE-I7    | 192.168.2.194 | A0:CE:C8:11:32:31 | 9h 52m 13s          |



## Active DHCPv6 Leases

| Host      | IPv6-Address        | DUID                         | Leasetime remaining |
|-----------|---------------------|------------------------------|---------------------|
| RWOLFE-I7 | fd13:1e2c:52ae::32e | 0001000126d0ad0c3417ebbe9372 | 11h 1m 33s          |

## Wireless

| wifi0   | wifi1  |
|---|--|
| Type: 5 GHz Band<br>Channel: 40 (5.200 GHz)<br>Bitrate: 573.5 Mb/s<br>SSID: RHT-WiFi6-ryan<br>Mode: Access Point<br>BSSID: 00:03:7F:12:1C:97<br>Encryption: WPA2<br>Associations: 2 | Type: 2.4 GHz Band<br>Channel: 1 (2.412 GHz)<br>Bitrate: 573.5 Mb/s<br>SSID: RHT-WiFi6-ryan<br>Mode: Access Point<br>BSSID: 00:03:7F:12:F4:2F<br>Encryption: WPA2<br>Associations: - |

## Associated Stations

| Network  | MAC-Address       | Host  | RSSI | SNR | Rx Rate | Tx Rate |
|--|-------------------|---|------|-----|---------|---------|
|  Access Point "RHT-WiFi6-ryan" (wifi0.network1) | E8:1C:D8:4F:68:27 | Ryans-iPhone.lan (192.168.2.162, fe80::143d:935:78cf:aa75)  | -37  | 56  | 286M    | 6M      |
|  Access Point "RHT-WiFi6-ryan" (wifi0.network1) | D4:11:A3:8F:C0:05 | RHT-QC-PAD-1.lan (192.168.2.158, fe80::d611:a3ff:fe8f:c005) | -39  | 54  | 58M     | 6M      |

## Active UPnP Redirects

| Protocol | External Port | Client Address | Host | Client Port | Description |
|----------|---------------|----------------|------|-------------|-------------|
|----------|---------------|----------------|------|-------------|-------------|

There are no active redirects.

## Wireless

| wifi0   | wifi1  |
|---|--|
| Type: 5 GHz Band<br>Channel: 40 (5.200 GHz)<br>Bitrate: 2.4019 Gb/s<br>SSID: RHT-WiFi6axa-ryan<br>Mode: Access Point<br>BSSID: 00:03:7F:12:45:6B<br>Encryption: WPA3<br>Associations: - | Type: 2.4 GHz Band<br>Channel: 11 (2.462 GHz)<br>Bitrate: 573.5 Mb/s<br>SSID: RHT-WiFi6axg-ryan<br>Mode: Access Point<br>BSSID: 00:03:7F:12:11:37<br>Encryption: WPA3<br>Associations: - |

## Associated Stations

| Network | MAC-Address | Host | RSSI | SNR | Rx Rate | Tx Rate |
|---------|-------------|------|------|-----|---------|---------|
|---------|-------------|------|------|-----|---------|---------|

No information available

## Active UPnP Redirects

| Protocol | External Port | Client Address | Host | Client Port | Description |
|----------|---------------|----------------|------|-------------|-------------|
|----------|---------------|----------------|------|-------------|-------------|

The Status Overview page shows the following information:

- **System** – List of the versions of software packages
- **Memory** – Memory usage for the system
- **Network** – Active network connections

- **Active DHCP Leases** – configured and allocated DHCP leases
- **Active DHCPv6 Leases** – configured and active DHCPv6 leases
- **Wireless** – Wireless channel configuration
- **Associated Stations** – connected stations devices
- **Dynamic DNS** – DNS configurations

## 5.2 Status – Firewall

The screens in the Firewall status pages show the configuration of the IPv4 and IPv6 firewalls. The user may also restart the firewall from this page. See the **Network/Firewall** page to set firewall rules.

### 5.2.1 Status – Firewall – IPv4 Firewall

Status->Firewall->IPv4 Firewall

#### Firewall Status

#### Table: Filter

Chain **INPUT** (Policy: **ACCEPT**, 9 Packets, 360 B Traffic)

| Pkts.    | Traffic   | Target                | Prot. | In     | Out | Source    | Destination | Options                        | Comment                 |
|----------|-----------|-----------------------|-------|--------|-----|-----------|-------------|--------------------------------|-------------------------|
| 55.84 K  | 4.71 MB   | ACCEPT                | all   | lo     | *   | 0.0.0.0/0 | 0.0.0.0/0   | -                              | -                       |
| 205.14 K | 26.64 MB  | <u>input_rule</u>     | all   | *      | *   | 0.0.0.0/0 | 0.0.0.0/0   | -                              | Custom input rule chain |
| 58.05 K  | 12.86 MB  | ACCEPT                | all   | *      | *   | 0.0.0.0/0 | 0.0.0.0/0   | ctstate<br>RELATED,ESTABLISHED | -                       |
| 4.80 K   | 240.04 KB | <u>syn_flood</u>      | tcp   | *      | *   | 0.0.0.0/0 | 0.0.0.0/0   | tcp flags:0x17/0x02            | -                       |
| 4.75 K   | 301.00 KB | <u>zone_lan_input</u> | all   | br-lan | *   | 0.0.0.0/0 | 0.0.0.0/0   | -                              | -                       |
| 142.34 K | 13.48 MB  | <u>zone_wan_input</u> | all   | eth0   | *   | 0.0.0.0/0 | 0.0.0.0/0   | -                              | -                       |

**Chain FORWARD (Policy: DROP, 0 Packets, 0 B Traffic)**

| Pkts.   | Traffic   | Target                           | Prot. | In                     | Out | Source    | Destination | Options                            | Comment                      |
|---------|-----------|----------------------------------|-------|------------------------|-----|-----------|-------------|------------------------------------|------------------------------|
| 11.65 K | 2.26 MB   | ACCEPT                           | all   | *                      | *   | 0.0.0.0/0 | 0.0.0.0/0   | PHYSDEV match --physdev-is-bridged | -                            |
| 0       | 0 B       | ACCEPT                           | all   | *                      | *   | 0.0.0.0/0 | 0.0.0.0/0   | PHYSDEV match --physdev-is-bridged | -                            |
| 10.57 K | 1.49 MB   | <a href="#">forwarding_rule</a>  | all   | *                      | *   | 0.0.0.0/0 | 0.0.0.0/0   | -                                  | Custom forwarding rule chain |
| 8.71 K  | 1.18 MB   | ACCEPT                           | all   | *                      | *   | 0.0.0.0/0 | 0.0.0.0/0   | ctstate RELATED,ESTABLISHED        | -                            |
| 1.86 K  | 312.36 KB | <a href="#">zone_lan_forward</a> | all   | <a href="#">br-lan</a> | *   | 0.0.0.0/0 | 0.0.0.0/0   | -                                  | -                            |
| 0       | 0 B       | <a href="#">zone_wan_forward</a> | all   | <a href="#">eth0</a>   | *   | 0.0.0.0/0 | 0.0.0.0/0   | -                                  | -                            |
| 0       | 0 B       | <a href="#">reject</a>           | all   | *                      | *   | 0.0.0.0/0 | 0.0.0.0/0   | -                                  | -                            |
| 0       | 0 B       | ACCEPT                           | all   | *                      | *   | 0.0.0.0/0 | 0.0.0.0/0   | PHYSDEV match --physdev-is-bridged | -                            |

**Chain OUTPUT (Policy: ACCEPT, 0 Packets, 0 B Traffic)**

| Pkts.   | Traffic   | Target                          | Prot. | In | Out                    | Source    | Destination | Options                     | Comment                  |
|---------|-----------|---------------------------------|-------|----|------------------------|-----------|-------------|-----------------------------|--------------------------|
| 57.76 K | 4.88 MB   | ACCEPT                          | all   | *  | <a href="#">lo</a>     | 0.0.0.0/0 | 0.0.0.0/0   | -                           | -                        |
| 71.75 K | 33.56 MB  | <a href="#">output_rule</a>     | all   | *  | *                      | 0.0.0.0/0 | 0.0.0.0/0   | -                           | Custom output rule chain |
| 68.06 K | 33.30 MB  | ACCEPT                          | all   | *  | *                      | 0.0.0.0/0 | 0.0.0.0/0   | ctstate RELATED,ESTABLISHED | -                        |
| 11      | 3.06 KB   | <a href="#">zone_lan_output</a> | all   | *  | <a href="#">br-lan</a> | 0.0.0.0/0 | 0.0.0.0/0   | -                           | -                        |
| 3.68 K  | 263.90 KB | <a href="#">zone_wan_output</a> | all   | *  | <a href="#">eth0</a>   | 0.0.0.0/0 | 0.0.0.0/0   | -                           | -                        |

**Chain MINIUPND (2 References)**

| Pkts. | Traffic | Target | Prot. | In | Out | Source | Destination | Options | Comment |
|-------|---------|--------|-------|----|-----|--------|-------------|---------|---------|
|-------|---------|--------|-------|----|-----|--------|-------------|---------|---------|

No rules in this chain.

**Chain RATE-LIMIT (0 References)**

| Pkts. | Traffic | Target | Prot. | In | Out | Source    | Destination | Options                        | Comment |
|-------|---------|--------|-------|----|-----|-----------|-------------|--------------------------------|---------|
| 0     | 0 B     | ACCEPT | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | limit: avg 1000/sec burst 1000 | -       |
| 0     | 0 B     | DROP   | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -                              | -       |



#### Chain *reject* (1 References)

| Pkts. | Traffic | Target | Prot. | In | Out | Source    | Destination | Options                           | Comment |
|-------|---------|--------|-------|----|-----|-----------|-------------|-----------------------------------|---------|
| 0     | 0 B     | REJECT | tcp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | reject-with tcp-reset             | -       |
| 0     | 0 B     | REJECT | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | reject-with icmp-port-unreachable | -       |

#### Chain *syn\_flood* (1 References)

| Pkts.  | Traffic   | Target | Prot. | In | Out | Source    | Destination | Options  | Comment |
|--------|-----------|--------|-------|----|-----|-----------|-------------|--|---------|
| 4.95 K | 247.42 KB | RETURN | tcp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | tcp flags:0x17/0x02 limit: avg 25/sec burst 50 | -       |
| 0      | 0 B       | DROP   | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -  | -       |

#### Chain *zone\_lan\_dest\_ACCEPT* (4 References)

| Pkts. | Traffic | Target | Prot. | In | Out           | Source    | Destination | Options | Comment |
|-------|---------|--------|-------|----|---------------|-----------|-------------|---------|---------|
| 11    | 3.06 KB | ACCEPT | all   | *  | <u>br-lan</u> | 0.0.0.0/0 | 0.0.0.0/0   | -       | -       |

#### Chain *zone\_lan\_forward* (1 References)

| Pkts.  | Traffic   | Target                      | Prot. | In | Out | Source    | Destination | Options      | Comment                           |
|--------|-----------|-----------------------------|-------|----|-----|-----------|-------------|--------------|-----------------------------------|
| 1.95 K | 320.19 KB | <u>forwarding_lan_rule</u>  | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -            | Custom lan forwarding rule chain  |
| 1.95 K | 320.19 KB | <u>zone_wan_dest_ACCEPT</u> | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -            | Zone lan to wan forwarding policy |
| 0      | 0 B       | ACCEPT                      | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | ctstate DNAT | Accept port forwards              |
| 0      | 0 B       | <u>zone_lan_dest_ACCEPT</u> | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -            | -                                 |

#### Chain *zone\_lan\_input* (1 References)

| Pkts.  | Traffic   | Target                     | Prot. | In | Out | Source    | Destination | Options      | Comment                     |
|--------|-----------|----------------------------|-------|----|-----|-----------|-------------|--------------|-----------------------------|
| 5.04 K | 318.38 KB | <u>input_lan_rule</u>      | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -            | Custom lan input rule chain |
| 0      | 0 B       | ACCEPT                     | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | ctstate DNAT | Accept port redirections    |
| 5.04 K | 318.38 KB | <u>zone_lan_src_ACCEPT</u> | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -            | -                           |

#### Chain *zone\_lan\_output* (1 References)

| Pkts. | Traffic | Target                      | Prot. | In | Out | Source    | Destination | Options | Comment                      |
|-------|---------|-----------------------------|-------|----|-----|-----------|-------------|---------|------------------------------|
| 11    | 3.06 KB | <u>output_lan_rule</u>      | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | Custom lan output rule chain |
| 11    | 3.06 KB | <u>zone_lan_dest_ACCEPT</u> | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | -                            |

#### Chain *zone\_lan\_src\_ACCEPT* (1 References)

| Pkts.  | Traffic   | Target | Prot. | In            | Out | Source    | Destination | Options               | Comment |
|--------|-----------|--------|-------|---------------|-----|-----------|-------------|-----------------------|---------|
| 5.04 K | 318.38 KB | ACCEPT | all   | <u>br-lan</u> | *   | 0.0.0.0/0 | 0.0.0.0/0   | ctstate NEW,UNTRACKED | -       |



#### Chain zone\_wan\_forward (1 References)

| Pkts. | Traffic | Target                      | Prot. | In | Out | Source    | Destination | Options      | Comment                          |
|-------|---------|-----------------------------|-------|----|-----|-----------|-------------|--------------|----------------------------------|
| 0     | 0 B     | <u>forwarding_wan_rule</u>  | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -            | Custom wan forwarding rule chain |
| 0     | 0 B     | <u>zone_lan_dest_ACCEPT</u> | esp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -            | Allow-IPSec-ESP                  |
| 0     | 0 B     | <u>zone_lan_dest_ACCEPT</u> | udp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | udp dpt:500  | Allow-ISAKMP                     |
| 0     | 0 B     | ACCEPT                      | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | ctstate DNAT | Accept port forwards             |
| 0     | 0 B     | <u>MINIUPNPD</u>            | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -            | -                                |
| 0     | 0 B     | <u>zone_wan_dest_ACCEPT</u> | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -            | -                                |

#### Chain zone\_wan\_input (1 References)

| Pkts.    | Traffic   | Target                     | Prot. | In | Out | Source    | Destination | Options      | Comment                     |
|----------|-----------|----------------------------|-------|----|-----|-----------|-------------|--------------|-----------------------------|
| 144.41 K | 13.69 MB  | <u>input_wan_rule</u>      | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -            | Custom wan input rule chain |
| 1.02 K   | 337.81 KB | ACCEPT                     | udp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | udp dpt:68   | Allow-DHCP-Renew            |
| 111      | 6.66 KB   | ACCEPT                     | icmp  | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | icmptype 8   | Allow-Ping                  |
| 0        | 0 B       | ACCEPT                     | 2     | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -            | Allow-IGMP                  |
| 0        | 0 B       | ACCEPT                     | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | ctstate DNAT | Accept port redirections    |
| 143.27 K | 13.35 MB  | <u>MINIUPNPD</u>           | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -            | -                           |
| 143.27 K | 13.35 MB  | <u>zone_wan_src_ACCEPT</u> | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -            | -                           |

#### Chain zone\_wan\_dest\_ACCEPT (3 References)

| Pkts.  | Traffic   | Target | Prot. | In | Out         | Source    | Destination | Options         | Comment             |
|--------|-----------|--------|-------|----|-------------|-----------|-------------|-----------------|---------------------|
| 128    | 6.45 KB   | DROP   | all   | *  | <u>eth0</u> | 0.0.0.0/0 | 0.0.0.0/0   | ctstate INVALID | Prevent NAT leakage |
| 5.67 K | 595.90 KB | ACCEPT | all   | *  | <u>eth0</u> | 0.0.0.0/0 | 0.0.0.0/0   | -               | -                   |

#### Chain zone\_wan\_output (1 References)

| Pkts.  | Traffic   | Target                      | Prot. | In | Out | Source    | Destination | Options | Comment                      |
|--------|-----------|-----------------------------|-------|----|-----|-----------|-------------|---------|------------------------------|
| 3.81 K | 273.03 KB | <u>output_wan_rule</u>      | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | Custom wan output rule chain |
| 3.81 K | 273.03 KB | <u>zone_wan_dest_ACCEPT</u> | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | -                            |

#### Chain zone\_wan\_src\_ACCEPT (1 References)

| Pkts.    | Traffic  | Target | Prot. | In          | Out | Source    | Destination | Options               | Comment |
|----------|----------|--------|-------|-------------|-----|-----------|-------------|-----------------------|---------|
| 143.39 K | 13.36 MB | ACCEPT | all   | <u>eth0</u> | *   | 0.0.0.0/0 | 0.0.0.0/0   | ctstate NEW,UNTRACKED | -       |

## Table: NAT

### Chain *PREROUTING* (Policy: *ACCEPT*, 459405 Packets, 153.27 MB Traffic)

| Pkts.    | Traffic   | Target                              | Prot. | In                     | Out | Source    | Destination | Options | Comment                      |
|----------|-----------|-------------------------------------|-------|------------------------|-----|-----------|-------------|---------|------------------------------|
| 459.41 K | 153.27 MB | <a href="#">prerouting_rule</a>     | all   | *                      | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | Custom prerouting rule chain |
| 8.32 K   | 876.40 KB | <a href="#">zone_lan_prerouting</a> | all   | <a href="#">br-lan</a> | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | -                            |
| 451.09 K | 152.40 MB | <a href="#">zone_wan_prerouting</a> | all   | <a href="#">eth0</a>   | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | -                            |

### Chain *POSTROUTING* (Policy: *ACCEPT*, 745 Packets, 89.67 KB Traffic)

| Pkts.  | Traffic   | Target                               | Prot. | In | Out                    | Source    | Destination | Options | Comment                       |
|--------|-----------|--------------------------------------|-------|----|------------------------|-----------|-------------|---------|-------------------------------|
| 6.40 K | 673.59 KB | <a href="#">postrouting_rule</a>     | all   | *  | *                      | 0.0.0.0/0 | 0.0.0.0/0   | -       | Custom postrouting rule chain |
| 112    | 24.63 KB  | <a href="#">zone_lan_postrouting</a> | all   | *  | <a href="#">br-lan</a> | 0.0.0.0/0 | 0.0.0.0/0   | -       | -                             |
| 5.65 K | 583.78 KB | <a href="#">zone_wan_postrouting</a> | all   | *  | <a href="#">eth0</a>   | 0.0.0.0/0 | 0.0.0.0/0   | -       | -                             |

### Chain *zone\_lan\_postrouting* (1 References)

| Pkts. | Traffic  | Target                               | Prot. | In | Out | Source    | Destination | Options | Comment                           |
|-------|----------|--------------------------------------|-------|----|-----|-----------|-------------|---------|-----------------------------------|
| 112   | 24.63 KB | <a href="#">postrouting_lan_rule</a> | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | Custom lan postrouting rule chain |

### Chain *zone\_lan\_prerouting* (1 References)

| Pkts.  | Traffic   | Target                              | Prot. | In | Out | Source    | Destination | Options | Comment                          |
|--------|-----------|-------------------------------------|-------|----|-----|-----------|-------------|---------|----------------------------------|
| 8.36 K | 881.63 KB | <a href="#">prerouting_lan_rule</a> | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | Custom lan prerouting rule chain |

### Chain *zone\_wan\_postrouting* (1 References)

| Pkts.  | Traffic   | Target                                | Prot. | In | Out | Source    | Destination | Options | Comment                           |
|--------|-----------|---------------------------------------|-------|----|-----|-----------|-------------|---------|-----------------------------------|
| 5.66 K | 584.17 KB | <a href="#">postrouting_wan_rule</a>  | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | Custom wan postrouting rule chain |
| 5.65 K | 583.51 KB | <a href="#">MINIUPNPD-POSTROUTING</a> | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | -                                 |
| 5.66 K | 584.17 KB | MASQUERADE                            | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | -                                 |

### Chain *zone\_wan\_prerouting* (1 References)

| Pkts.    | Traffic   | Target                              | Prot. | In | Out | Source    | Destination | Options | Comment                          |
|----------|-----------|-------------------------------------|-------|----|-----|-----------|-------------|---------|----------------------------------|
| 452.15 K | 152.73 MB | <a href="#">prerouting_wan_rule</a> | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | Custom wan prerouting rule chain |
| 452.15 K | 152.73 MB | <a href="#">MINIUPNPD</a>           | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | -                                |

**Chain FORWARD (Policy: ACCEPT, 23891 Packets, 4.02 MB Traffic)**

| Pkts.  | Traffic  | Target | Prot. | In                   | Out                  | Source    | Destination | Options                                  | Comment             |
|--------|----------|--------|-------|----------------------|----------------------|-----------|-------------|--|---------------------|
| 1.55 K | 86.74 KB | TCPMSS | tcp   | *                    | <a href="#">eth0</a> | 0.0.0.0/0 | 0.0.0.0/0   | tcp flags:0x06/0x02 TCPMSS clamp to PMTU | Zone wan MTU fixing |
| 1.55 K | 81.79 KB | TCPMSS | tcp   | <a href="#">eth0</a> | *                    | 0.0.0.0/0 | 0.0.0.0/0   | tcp flags:0x06/0x02 TCPMSS clamp to PMTU | Zone wan MTU fixing |

**Chain qos\_Default (0 References)**

| Pkts. | Traffic | Target                         | Prot. | In | Out | Source    | Destination | Options   | Comment |
|-------|---------|--------------------------------|-------|----|-----|-----------|-------------|---|---------|
| 0     | 0 B     | CONNMARK                       | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | CONNMARK restore mask 0xf   | -       |
| 0     | 0 B     | <a href="#">qos_Default_ct</a> | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | mark match 0x0/0xf  | -       |
| 0     | 0 B     | MARK                           | udp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | mark match 0x0/0xf0 length 0:500 MARK xset 0x22/0xff                        | -       |
| 0     | 0 B     | MARK                           | icmp  | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | MARK xset 0x11/0xff   | -       |
| 0     | 0 B     | MARK                           | tcp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | mark match 0x0/0xf0 tcp spts:1024:65535 dpts:1024:65535 MARK xset 0x44/0xff | -       |
| 0     | 0 B     | MARK                           | udp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | mark match 0x0/0xf0 udp spts:1024:65535 dpts:1024:65535 MARK xset 0x44/0xff | -       |
| 0     | 0 B     | CONNMARK                       | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | CONNMARK save mask 0xff   | -       |

**Chain qos\_Default\_ct (1 References)**

| Pkts. | Traffic | Target   | Prot. | In | Out | Source    | Destination | Options  | Comment                  |
|-------|---------|----------|-------|----|-----|-----------|-------------|--|--------------------------|
| 0     | 0 B     | MARK     | tcp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | mark match 0x0/0xf tcp multiport ports 22,53 MARK xset 0x11/0xff                       | ssh, dns                 |
| 0     | 0 B     | MARK     | udp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | mark match 0x0/0xf udp multiport ports 22,53 MARK xset 0x11/0xff                       | ssh, dns                 |
| 0     | 0 B     | MARK     | tcp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | mark match 0x0/0xf tcp multiport ports 20,21,25,80,110,443,993,995 MARK xset 0x33/0xff | ftp, smtp, http(s), imap |
| 0     | 0 B     | CONNMARK | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | CONNMARK save mask 0xff  | -                        |

**Table: Raw**

**Chain PREROUTING (Policy: ACCEPT, 731948 Packets, 187.06 MB Traffic)**

| Pkts.   | Traffic  | Target                          | Prot. | In                     | Out | Source    | Destination | Options | Comment                  |
|---------|----------|---------------------------------|-------|------------------------|-----|-----------|-------------|---------|--------------------------|
| 62.16 K | 12.77 MB | <a href="#">zone_lan_helper</a> | all   | <a href="#">br-lan</a> | *   | 0.0.0.0/0 | 0.0.0.0/0   | -       | lan CT helper assignment |

**Chain zone\_lan\_helper (1 References)**

| Pkts. | Traffic | Target | Prot. | In | Out | Source    | Destination | Options                        | Comment                             |
|-------|---------|--------|-------|----|-----|-----------|-------------|--------------------------------|-------------------------------------|
| 0     | 0 B     | CT     | udp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | udp dpt:10080 CT helper amanda | Amanda backup and archiving proto   |
| 0     | 0 B     | CT     | tcp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | tcp dpt:21 CT helper ftp       | FTP passive connection tracking     |
| 0     | 0 B     | CT     | udp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | udp dpt:1719 CT helper RAS     | RAS proto tracking                  |
| 0     | 0 B     | CT     | tcp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | tcp dpt:1720 CT helper Q.931   | Q.931 proto tracking                |
| 0     | 0 B     | CT     | tcp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | tcp dpt:6667 CT helper irc     | IRC DCC connection tracking         |
| 0     | 0 B     | CT     | tcp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | tcp dpt:1723 CT helper pptp    | PPTP VPN connection tracking        |
| 0     | 0 B     | CT     | tcp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | tcp dpt:5060 CT helper sip     | SIP VoIP connection tracking        |
| 0     | 0 B     | CT     | udp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | udp dpt:5060 CT helper sip     | SIP VoIP connection tracking        |
| 0     | 0 B     | CT     | udp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | udp dpt:161 CT helper snmp     | SNMP monitoring connection tracking |
| 0     | 0 B     | CT     | udp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | udp dpt:69 CT helper tftp      | TFTP connection tracking            |
| 0     | 0 B     | CT     | tcp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | tcp dpt:554 CT helper rtsp     | RTSP connection tracking            |

## 5.2.2 Status – Firewall – IPv6 Firewall

### Status->Firewall->IPv6 Firewall

#### Firewall Status

#### Table: Filter

Chain **INPUT** (Policy: **ACCEPT**, 0 Packets, 0 B Traffic)

| Pkts.   | Traffic   | Target                | Prot. | In                                  | Out | Source | Destination | Options                     | Comment                 |
|---------|-----------|-----------------------|-------|-------------------------------------|-----|--------|-------------|-----------------------------|-------------------------|
| 0       | 0 B       | ACCEPT                | all   | <input type="text" value="lo"/>     | *   | ::/0   | ::/0        | -                           | -                       |
| 56.73 K | 3.33 MB   | <u>input_rule</u>     | all   | *                                   | *   | ::/0   | ::/0        | -                           | Custom input rule chain |
| 929     | 213.38 KB | ACCEPT                | all   | *                                   | *   | ::/0   | ::/0        | ctstate RELATED,ESTABLISHED | -                       |
| 0       | 0 B       | <u>syn_flood</u>      | tcp   | *                                   | *   | ::/0   | ::/0        | tcp flags:0x17/0x02         | -                       |
| 7.02 K  | 572.03 KB | <u>zone_lan_input</u> | all   | <input type="text" value="br-lan"/> | *   | ::/0   | ::/0        | -                           | -                       |
| 48.79 K | 2.54 MB   | <u>zone_wan_input</u> | all   | <input type="text" value="eth0"/>   | *   | ::/0   | ::/0        | -                           | -                       |

Chain **FORWARD** (Policy: **DROP**, 0 Packets, 0 B Traffic)

| Pkts.  | Traffic   | Target                  | Prot. | In                                  | Out | Source | Destination | Options                     | Comment                      |
|--------|-----------|-------------------------|-------|-------------------------------------|-----|--------|-------------|-----------------------------|------------------------------|
| 1.71 K | 299.19 KB | <u>forwarding_rule</u>  | all   | *                                   | *   | ::/0   | ::/0        | -                           | Custom forwarding rule chain |
| 0      | 0 B       | ACCEPT                  | all   | *                                   | *   | ::/0   | ::/0        | ctstate RELATED,ESTABLISHED | -                            |
| 1.71 K | 299.19 KB | <u>zone_lan_forward</u> | all   | <input type="text" value="br-lan"/> | *   | ::/0   | ::/0        | -                           | -                            |
| 0      | 0 B       | <u>zone_wan_forward</u> | all   | <input type="text" value="eth0"/>   | *   | ::/0   | ::/0        | -                           | -                            |
| 0      | 0 B       | <u>reject</u>           | all   | *                                   | *   | ::/0   | ::/0        | -                           | -                            |

Chain **OUTPUT** (Policy: **ACCEPT**, 20 Packets, 1.91 KB Traffic)

| Pkts.  | Traffic   | Target                 | Prot. | In | Out                                 | Source | Destination | Options                     | Comment                  |
|--------|-----------|------------------------|-------|----|-------------------------------------|--------|-------------|-----------------------------|--------------------------|
| 0      | 0 B       | ACCEPT                 | all   | *  | <input type="text" value="lo"/>     | ::/0   | ::/0        | -                           | -                        |
| 7.79 K | 920.19 KB | <u>output_rule</u>     | all   | *  | *                                   | ::/0   | ::/0        | -                           | Custom output rule chain |
| 3.64 K | 572.83 KB | ACCEPT                 | all   | *  | *                                   | ::/0   | ::/0        | ctstate RELATED,ESTABLISHED | -                        |
| 3.54 K | 257.22 KB | <u>zone_lan_output</u> | all   | *  | <input type="text" value="br-lan"/> | ::/0   | ::/0        | -                           | -                        |
| 578    | 88.23 KB  | <u>zone_wan_output</u> | all   | *  | <input type="text" value="eth0"/>   | ::/0   | ::/0        | -                           | -                        |



#### Chain *reject* (1 References)

| Pkts. | Traffic | Target | Prot. | In | Out | Source | Destination | Options                            | Comment |
|-------|---------|--------|-------|----|-----|--------|-------------|------------------------------------|---------|
| 0     | 0 B     | REJECT | tcp   | *  | *   | ::/0   | ::/0        | reject-with tcp-reset              | -       |
| 0     | 0 B     | REJECT | all   | *  | *   | ::/0   | ::/0        | reject-with icmp6-port-unreachable | -       |

#### Chain *syn\_flood* (1 References)

| Pkts. | Traffic | Target | Prot. | In | Out | Source | Destination | Options  | Comment |
|-------|---------|--------|-------|----|-----|--------|-------------|--|---------|
| 0     | 0 B     | RETURN | tcp   | *  | *   | ::/0   | ::/0        | tcp flags:0x17/0x02 limit: avg 25/sec burst 50 | -       |
| 0     | 0 B     | DROP   | all   | *  | *   | ::/0   | ::/0        | -  | -       |

## Firewall Status

[IPv4 Firewall](#) [IPv6 Firewall](#)

[Hide empty chains](#)

[Reset Counters](#)

[Restart Firewall](#)

### Table: Filter

#### Chain *INPUT* (Policy: *ACCEPT*, 4 Packets, 160 B Traffic)

| Pkts.   | Traffic  | Target                         | Prot. | In     | Out | Source    | Destination | Options                     | Comment                 |
|---------|----------|--------------------------------|-------|--------|-----|-----------|-------------|-----------------------------|-------------------------|
| 12.93 K | 1.06 MB  | ACCEPT                         | all   | lo     | *   | 0.0.0.0/0 | 0.0.0.0/0   | -                           | -                       |
| 29.17 K | 3.51 MB  | <a href="#">input_rule</a>     | all   | *      | *   | 0.0.0.0/0 | 0.0.0.0/0   | -                           | Custom input rule chain |
| 6.11 K  | 1.26 MB  | ACCEPT                         | all   | *      | *   | 0.0.0.0/0 | 0.0.0.0/0   | ctstate RELATED,ESTABLISHED | -                       |
| 547     | 28.34 KB | <a href="#">syn_flood</a>      | tcp   | *      | *   | 0.0.0.0/0 | 0.0.0.0/0   | tcp flags:0x17/0x02         | -                       |
| 213     | 14.09 KB | <a href="#">zone_lan_input</a> | all   | br-lan | *   | 0.0.0.0/0 | 0.0.0.0/0   | -                           | -                       |
| 22.84 K | 2.24 MB  | <a href="#">zone_wan_input</a> | all   | eth0   | *   | 0.0.0.0/0 | 0.0.0.0/0   | -                           | -                       |

#### Chain *FORWARD* (Policy: *DROP*, 0 Packets, 0 B Traffic)

| Pkts.   | Traffic   | Target | Prot. | In | Out | Source    | Destination | Options                            | Comment |
|---------|-----------|--------|-------|----|-----|-----------|-------------|------------------------------------|---------|
| 12.32 K | 950.39 KB | ACCEPT | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | PHYSDEV match --physdev-is-bridged | -       |
| 0       | 0 B       | ACCEPT | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | PHYSDEV match --physdev-is-bridged | -       |

#### Chain zone\_lan\_dest\_ACCEPT (4 References)

| Pkts.  | Traffic   | Target | Prot. | In | Out           | Source | Destination | Options | Comment |
|--------|-----------|--------|-------|----|---------------|--------|-------------|---------|---------|
| 5.92 K | 698.91 KB | ACCEPT | all   | *  | <u>br-lan</u> | ::/0   | ::/0        | -       | -       |

#### Chain zone\_lan\_forward (1 References)

| Pkts.  | Traffic   | Target                      | Prot. | In | Out | Source | Destination | Options | Comment                           |
|--------|-----------|-----------------------------|-------|----|-----|--------|-------------|---------|-----------------------------------|
| 2.27 K | 433.91 KB | <u>forwarding_lan_rule</u>  | all   | *  | *   | ::/0   | ::/0        | -       | Custom lan forwarding rule chain  |
| 2.27 K | 433.91 KB | <u>zone_wan_dest_ACCEPT</u> | all   | *  | *   | ::/0   | ::/0        | -       | Zone lan to wan forwarding policy |
| 2.27 K | 433.91 KB | <u>zone_lan_dest_ACCEPT</u> | all   | *  | *   | ::/0   | ::/0        | -       | -                                 |

#### Chain zone\_lan\_input (1 References)

| Pkts.  | Traffic   | Target                     | Prot. | In | Out | Source | Destination | Options | Comment                     |
|--------|-----------|----------------------------|-------|----|-----|--------|-------------|---------|-----------------------------|
| 7.31 K | 596.12 KB | <u>input_lan_rule</u>      | all   | *  | *   | ::/0   | ::/0        | -       | Custom lan input rule chain |
| 7.31 K | 596.12 KB | <u>zone_lan_src_ACCEPT</u> | all   | *  | *   | ::/0   | ::/0        | -       | -                           |

#### Chain zone\_lan\_output (1 References)

| Pkts.  | Traffic   | Target                      | Prot. | In | Out | Source | Destination | Options | Comment                      |
|--------|-----------|-----------------------------|-------|----|-----|--------|-------------|---------|------------------------------|
| 3.65 K | 264.99 KB | <u>output_lan_rule</u>      | all   | *  | *   | ::/0   | ::/0        | -       | Custom lan output rule chain |
| 3.65 K | 264.99 KB | <u>zone_lan_dest_ACCEPT</u> | all   | *  | *   | ::/0   | ::/0        | -       | -                            |

#### Chain zone\_lan\_src\_ACCEPT (1 References)

| Pkts.  | Traffic   | Target | Prot. | In            | Out | Source | Destination | Options               | Comment |
|--------|-----------|--------|-------|---------------|-----|--------|-------------|-----------------------|---------|
| 7.31 K | 596.12 KB | ACCEPT | all   | <u>br-lan</u> | *   | ::/0   | ::/0        | ctstate NEW,UNTRACKED | -       |

#### Chain zone\_wan\_dest\_ACCEPT (3 References)

| Pkts. | Traffic  | Target | Prot. | In | Out  | Source | Destination | Options         | Comment             |
|-------|----------|--------|-------|----|------|--------|-------------|-----------------|---------------------|
| 0     | 0 B      | DROP   | all   | *  | eth0 | ::/0   | ::/0        | ctstate INVALID | Prevent NAT leakage |
| 593   | 90.53 KB | ACCEPT | all   | *  | eth0 | ::/0   | ::/0        | -               | -                   |

#### Chain zone\_wan\_forward (1 References)

| Pkts. | Traffic | Target                      | Prot.  | In | Out | Source | Destination | Options   | Comment                          |
|-------|---------|-----------------------------|--------|----|-----|--------|-------------|---|----------------------------------|
| 0     | 0 B     | <u>forwarding_wan_rule</u>  | all    | *  | *   | ::/0   | ::/0        | -   | Custom wan forwarding rule chain |
| 0     | 0 B     | ACCEPT                      | icmpv6 | *  | *   | ::/0   | ::/0        | ipv6-icmp type 128 limit: avg 1000/sec burst 5      | Allow-ICMPv6-Forward             |
| 0     | 0 B     | ACCEPT                      | icmpv6 | *  | *   | ::/0   | ::/0        | ipv6-icmp type 129 limit: avg 1000/sec burst 5      | Allow-ICMPv6-Forward             |
| 0     | 0 B     | ACCEPT                      | icmpv6 | *  | *   | ::/0   | ::/0        | ipv6-icmp type 1 limit: avg 1000/sec burst 5        | Allow-ICMPv6-Forward             |
| 0     | 0 B     | ACCEPT                      | icmpv6 | *  | *   | ::/0   | ::/0        | ipv6-icmp type 2 limit: avg 1000/sec burst 5        | Allow-ICMPv6-Forward             |
| 0     | 0 B     | ACCEPT                      | icmpv6 | *  | *   | ::/0   | ::/0        | ipv6-icmp type 3 limit: avg 1000/sec burst 5        | Allow-ICMPv6-Forward             |
| 0     | 0 B     | ACCEPT                      | icmpv6 | *  | *   | ::/0   | ::/0        | ipv6-icmp type 4 code 0 limit: avg 1000/sec burst 5 | Allow-ICMPv6-Forward             |
| 0     | 0 B     | ACCEPT                      | icmpv6 | *  | *   | ::/0   | ::/0        | ipv6-icmp type 4 code 1 limit: avg 1000/sec burst 5 | Allow-ICMPv6-Forward             |
| 0     | 0 B     | <u>zone_lan_dest_ACCEPT</u> | esp    | *  | *   | ::/0   | ::/0        | -   | Allow-IPSec-ESP                  |
| 0     | 0 B     | <u>zone_lan_dest_ACCEPT</u> | udp    | *  | *   | ::/0   | ::/0        | udp dpt:500   | Allow-ISAKMP                     |
| 0     | 0 B     | <u>MINIUPNPD</u>            | all    | *  | *   | ::/0   | ::/0        | -   | -                                |
| 0     | 0 B     | <u>zone_wan_dest_ACCEPT</u> | all    | *  | *   | ::/0   | ::/0        | -   | -                                |

#### Chain zone\_wan\_input (1 References)

| Pkts.   | Traffic | Target                | Prot.  | In | Out | Source    | Destination | Options                   | Comment                     |
|---------|---------|-----------------------|--------|----|-----|-----------|-------------|---------------------------|-----------------------------|
| 50.18 K | 2.61 MB | <u>input_wan_rule</u> | all    | *  | *   | ::/0      | ::/0        | -                         | Custom wan input rule chain |
| 0       | 0 B     | ACCEPT                | udp    | *  | *   | fc00::/6  | fc00::/6    | udp dpt:546               | Allow-DHCPv6                |
| 0       | 0 B     | ACCEPT                | icmpv6 | *  | *   | fe80::/10 | ::/0        | ipv6-icmp type 130 code 0 | Allow-MLD                   |
| 0       | 0 B     | ACCEPT                | icmpv6 | *  | *   | fe80::/10 | ::/0        | ipv6-icmp type 131 code 0 | Allow-MLD                   |
| 0       | 0 B     | ACCEPT                | icmpv6 | *  | *   | fe80::/10 | ::/0        | ipv6-icmp type 132 code 0 | Allow-MLD                   |



#### Chain **zone\_wan\_output** (1 References)

| Pkts. | Traffic  | Target                               | Prot. | In | Out | Source | Destination | Options | Comment                      |
|-------|----------|--------------------------------------|-------|----|-----|--------|-------------|---------|------------------------------|
| 595   | 90.83 KB | <a href="#">output_wan_rule</a>      | all   | *  | *   | ::/0   | ::/0        | -       | Custom wan output rule chain |
| 595   | 90.83 KB | <a href="#">zone_wan_dest_ACCEPT</a> | all   | *  | *   | ::/0   | ::/0        | -       | -                            |

#### Chain **zone\_wan\_src\_ACCEPT** (1 References)

| Pkts.   | Traffic | Target | Prot. | In                   | Out | Source | Destination | Options               | Comment |
|---------|---------|--------|-------|----------------------|-----|--------|-------------|-----------------------|---------|
| 49.82 K | 2.59 MB | ACCEPT | all   | <a href="#">eth0</a> | *   | ::/0   | ::/0        | ctstate NEW,UNTRACKED | -       |

## Firewall Status

[IPv4 Firewall](#) [IPv6 Firewall](#)

[Hide empty chains](#)

[Reset Counters](#)

[Restart Firewall](#)

### Table: Filter

#### Chain **INPUT** (Policy: **ACCEPT**, 0 Packets, 0 B Traffic)

| Pkts.  | Traffic   | Target                         | Prot. | In                     | Out | Source | Destination | Options                     | Comment                 |
|--------|-----------|--------------------------------|-------|------------------------|-----|--------|-------------|-----------------------------|-------------------------|
| 0      | 0 B       | ACCEPT                         | all   | <a href="#">lo</a>     | *   | ::/0   | ::/0        | -                           | -                       |
| 6.05 K | 324.23 KB | <a href="#">input_rule</a>     | all   | *                      | *   | ::/0   | ::/0        | -                           | Custom input rule chain |
| 0      | 0 B       | ACCEPT                         | all   | *                      | *   | ::/0   | ::/0        | ctstate RELATED,ESTABLISHED | -                       |
| 0      | 0 B       | <a href="#">syn_flood</a>      | tcp   | *                      | *   | ::/0   | ::/0        | tcp flags:0x17/0x02         | -                       |
| 435    | 31.32 KB  | <a href="#">zone_lan_input</a> | all   | <a href="#">br-lan</a> | *   | ::/0   | ::/0        | -                           | -                       |
| 5.62 K | 292.91 KB | <a href="#">zone_wan_input</a> | all   | <a href="#">eth0</a>   | *   | ::/0   | ::/0        | -                           | -                       |

#### Chain **FORWARD** (Policy: **DROP**, 0 Packets, 0 B Traffic)

| Pkts. | Traffic | Target                          | Prot. | In | Out | Source | Destination | Options                     | Comment                      |
|-------|---------|---------------------------------|-------|----|-----|--------|-------------|-----------------------------|------------------------------|
| 4     | 288 B   | <a href="#">forwarding_rule</a> | all   | *  | *   | ::/0   | ::/0        | -                           | Custom forwarding rule chain |
| 0     | 0 B     | ACCEPT                          | all   | *  | *   | ::/0   | ::/0        | ctstate RELATED,ESTABLISHED | -                            |

#### Chain **FORWARD** (Policy: **ACCEPT**, 2394 Packets, 465.93 KB Traffic)

| Pkts. | Traffic | Target | Prot. | In                   | Out                  | Source | Destination | Options                                  | Comment             |
|-------|---------|--------|-------|----------------------|----------------------|--------|-------------|--|---------------------|
| 0     | 0 B     | TCPMSS | tcp   | *                    | <a href="#">eth0</a> | ::/0   | ::/0        | tcp flags:0x06/0x02 TCPMSS clamp to PMTU | Zone wan MTU fixing |
| 0     | 0 B     | TCPMSS | tcp   | <a href="#">eth0</a> | *                    | ::/0   | ::/0        | tcp flags:0x06/0x02 TCPMSS clamp to PMTU | Zone wan MTU fixing |

#### Chain qos\_Default (0 References)

| Pkts. | Traffic | Target         | Prot. | In | Out | Source | Destination | Options   | Comment |
|-------|---------|----------------|-------|----|-----|--------|-------------|---|---------|
| 0     | 0 B     | CONNMARK       | all   | *  | *   | ::/0   | ::/0        | CONNMARK restore mask 0xf   | -       |
| 0     | 0 B     | qos_Default_ct | all   | *  | *   | ::/0   | ::/0        | mark match 0x0/0xf  | -       |
| 0     | 0 B     | MARK           | udp   | *  | *   | ::/0   | ::/0        | mark match 0x0/0xf0 length 0:500 MARK xset 0x22/0xff                        | -       |
| 0     | 0 B     | MARK           | icmp  | *  | *   | ::/0   | ::/0        | MARK xset 0x11/0xff   | -       |
| 0     | 0 B     | MARK           | tcp   | *  | *   | ::/0   | ::/0        | mark match 0x0/0xf0 tcp spts:1024:65535 dpts:1024:65535 MARK xset 0x44/0xff | -       |
| 0     | 0 B     | MARK           | udp   | *  | *   | ::/0   | ::/0        | mark match 0x0/0xf0 udp spts:1024:65535 dpts:1024:65535 MARK xset 0x44/0xff | -       |
| 0     | 0 B     | CONNMARK       | all   | *  | *   | ::/0   | ::/0        | CONNMARK save mask 0xff   | -       |

#### Chain qos\_Default\_ct (1 References)

| Pkts. | Traffic | Target   | Prot. | In | Out | Source    | Destination | Options  | Comment                  |
|-------|---------|----------|-------|----|-----|-----------|-------------|--|--------------------------|
| 0     | 0 B     | MARK     | tcp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | mark match 0x0/0xf tcp multiport ports 22,53 MARK xset 0x11/0xff                       | ssh, dns                 |
| 0     | 0 B     | MARK     | udp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | mark match 0x0/0xf udp multiport ports 22,53 MARK xset 0x11/0xff                       | ssh, dns                 |
| 0     | 0 B     | MARK     | tcp   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | mark match 0x0/0xf tcp multiport ports 20,21,25,80,110,443,993,995 MARK xset 0x33/0xff | ftp, smtp, http(s), imap |
| 0     | 0 B     | CONNMARK | all   | *  | *   | 0.0.0.0/0 | 0.0.0.0/0   | CONNMARK save mask 0xff  | -                        |

## 5.3 Status – Routes

The Routes status page shows the active routes. See the **Network/Static Routes** page to change route configuration.

### Routes

The following rules are currently active on this system.

#### ARP

| IPv4-Address | MAC-Address       | Interface |
|--------------|-------------------|-----------|
| 10.0.0.58    | 34:17:EB:BF:29:BB | wan       |
| 10.0.1.17    | 90:B1:1C:77:57:F8 | wan       |
| 10.0.0.35    | 4C:34:88:CA:5B:07 | wan       |
| 10.0.9.84    | 18:66:DA:1A:A8:97 | wan       |

### Routes

The following rules are currently active on this system.

#### ARP

| IPv4-Address | MAC-Address       | Interface |
|--------------|-------------------|-----------|
| 10.0.0.58    | 34:17:EB:BF:29:BB | wan       |
| 10.0.1.17    | 90:B1:1C:77:57:F8 | wan       |
| 10.0.0.35    | 4C:34:88:CA:5B:07 | wan       |
| 10.0.9.84    | 18:66:DA:1A:A8:97 | wan       |
| 10.0.0.139   | 20:47:47:D7:FF:35 | wan       |

#### Active IPv4-Routes

| Network | Target         | IPv4-Gateway | Metric | Table |
|---------|----------------|--------------|--------|-------|
| wan     | 0.0.0.0/0      | 10.0.0.3     | 0      | main  |
| wan     | 10.0.0.0/16    | -            | 0      | main  |
| lan     | 192.168.2.0/24 | -            | 0      | main  |

## IPv6 Neighbours

| IPv6-Address                         | MAC-Address       | Interface |
|--------------------------------------|-------------------|-----------|
| fd13:1e2c:52ae:0:3c28:9487:8e8a:d1cc | A0:CE:C8:11:32:31 | lan       |
| fd13:1e2c:52ae:0:89b9:7cd4:8ecf:9304 | D4:11:A3:8F:C0:05 | lan       |

## Active IPv6-Routes

| Network | Target              | Source | Metric | Table |
|---------|---------------------|--------|--------|-------|
| lan     | fd13:1e2c:52ae::/64 | -      | 1024   | main  |

## 5.4 Status – Network Status

The Network Status page shows a table of properties for both the wired and wireless interfaces. Columns for the wired interfaces include the interface name, link status, port speed, duplex, auto negotiation, and a list of the interfaces it is a member of.

Columns for the wireless interfaces include the interface name, the operating mode of the interface, the bandwidth of the interface, the channel the interface is operating on, the security mode of the interface, and a list of the interfaces it is a member of.

### Status->Network Status Network Interface Status

#### Wired

| Interface | Link | Speed    | Duplex  | Auto Negotiation | Member of |
|-----------|------|----------|---------|------------------|-----------|
| eth0      | Up   | 1000Mb/s | Full    | On               | WAN WAN6  |
| eth1      | Up   | 1000Mb/s | Full    | On               | LAN       |
| eth2      | Down | Unknown  | Unknown | On               | LAN       |
| eth3      | Down | Unknown  | Unknown | On               | LAN       |
| eth4      | Down | Unknown  | Unknown | On               | LAN       |

#### Wireless

| Interface              | Mode      | Bandwidth | Channel | Security             | Member of |
|------------------------|-----------|-----------|---------|----------------------|-----------|
| ath0 (rw-RHT-WiFi6axa) | 802.11axa | 80 MHz    | 36      | WPA2/WPA3 Mixed Mode | LAN       |
| ath1 (rw-RHT-WiFi6axg) | 802.11axg | 40 MHz    | 6       | WPA2/WPA3 Mixed Mode | LAN       |

## 5.5 Status – System Log

The System Log page shows log activity. The buttons at the top of the page can be used to download the system log or download both the system log and the kernel log.

### Status->System Log

#### System Log

[Export System Log](#)[Export System Log and Kernel Log](#)

```
*** syslog ***
Jan 17 20:29:53.013 CabinLink6 syslog.info syslogd started: BusyBox v1.33.2
Jan 17 20:29:53.053 CabinLink6 daemon.notice procd: /etc/rc.d/S16qca-ssdk:
Jan 17 20:29:53.056 CabinLink6 daemon.notice procd: /etc/rc.d/S16qca-ssdk: starting
Jan 17 20:29:53.808 CabinLink6 user.notice dnsmasq: DNS rebinding protection is active, will discard upstream RFC1918 responses!
Jan 17 20:29:53.816 CabinLink6 user.notice dnsmasq: Allowing 127.0.0.0/8 responses
Jan 17 20:29:53.879 CabinLink6 daemon.info dnsmasq[5239]: started, version 2.80 cachesize 150
Jan 17 20:29:53.879 CabinLink6 daemon.info dnsmasq[5239]: DNS service limited to local subnets
Jan 17 20:29:53.879 CabinLink6 daemon.info dnsmasq[5239]: compile time options: IPv6 GNU-getopt no-DBus no-i18n no-IDN DHCP DHCPv6 no-Lua TFTP no-contrack no-
Jan 17 20:29:53.879 CabinLink6 daemon.info dnsmasq[5239]: using local addresses only for domain test
Jan 17 20:29:53.879 CabinLink6 daemon.info dnsmasq[5239]: using local addresses only for domain onion
Jan 17 20:29:53.879 CabinLink6 daemon.info dnsmasq[5239]: using local addresses only for domain localhost
Jan 17 20:29:53.879 CabinLink6 daemon.info dnsmasq[5239]: using local addresses only for domain local
Jan 17 20:29:53.879 CabinLink6 daemon.info dnsmasq[5239]: using local addresses only for domain invalid
Jan 17 20:29:53.879 CabinLink6 daemon.info dnsmasq[5239]: using local addresses only for domain bind
Jan 17 20:29:53.880 CabinLink6 daemon.info dnsmasq[5239]: using local addresses only for domain lan
Jan 17 20:29:53.880 CabinLink6 daemon.warn dnsmasq[5239]: no servers found in /tmp/resolv.conf.auto, will retry
Jan 17 20:29:53.880 CabinLink6 daemon.info dnsmasq[5239]: read /etc/hosts - 4 addresses
Jan 17 20:29:53.880 CabinLink6 daemon.info dnsmasq[5239]: read /tmp/hosts/dhcp.cfg01411c - 0 addresses
Jan 17 20:29:54.320 CabinLink6 daemon.notice procd: /etc/rc.d/S19qca-nss-ecm: net.bridge.bridge-nf-call-ip6tables = 1
Jan 17 20:29:54.321 CabinLink6 daemon.notice procd: /etc/rc.d/S19qca-nss-ecm: net.bridge.bridge-nf-call-iptables = 1
Jan 17 20:29:54.322 CabinLink6 daemon.notice procd: /etc/rc.d/S19qca-nss-ecm: dev.nss.general.redirect = 1
Jan 17 20:29:54.418 CabinLink6 user.notice : Added device handler type: 8021ad
Jan 17 20:29:54.418 CabinLink6 user.notice : Added device handler type: 8021q
Jan 17 20:29:54.418 CabinLink6 user.notice : Added device handler type: macvlan
Jan 17 20:29:54.418 CabinLink6 user.notice : Added device handler type: veth
Jan 17 20:29:54.418 CabinLink6 user.notice : Added device handler type: Bonding
Jan 17 20:29:54.418 CabinLink6 user.notice : Added device handler type: bridge
Jan 17 20:29:54.418 CabinLink6 user.notice : Added device handler type: Network device
Jan 17 20:29:54.418 CabinLink6 user.notice : Added device handler type: tunnel
Jan 17 20:29:54.468 CabinLink6 daemon.err rngd[5372]:
Jan 17 20:29:54.468 CabinLink6 daemon.err rngd[5372]: Initializing available sources
Jan 17 20:29:54.468 CabinLink6 daemon.err rngd[5372]:
Jan 17 20:29:54.468 CabinLink6 daemon.err rngd[5372]: Initializing entropy source hwrng
Jan 17 20:29:54.468 CabinLink6 daemon.err rngd[5372]:
Jan 17 20:29:54.607 CabinLink6 daemon.notice procd: /etc/init.d/network: Command failed: Not found
Jan 17 20:29:54.807 CabinLink6 daemon.notice netifd: Interface 'lan' is enabled
Jan 17 20:29:54.807 CabinLink6 daemon.notice netifd: Interface 'lan' is setting up now
Jan 17 20:29:54.809 CabinLink6 daemon.notice netifd: Interface 'lan' is now up
Jan 17 20:29:54.823 CabinLink6 daemon.notice procd: /etc/init.d/network: Command failed: Not found
Jan 17 20:29:54.900 CabinLink6 daemon.notice procd: /etc/init.d/network: Command failed: Not found
Jan 17 20:29:54.974 CabinLink6 user.notice mwan3[5546]: Using firewall mask 0x3F00
Jan 17 20:29:54.997 CabinLink6 user.notice mwan3[5546]: Max interface count is 60
Jan 17 20:29:55.053 CabinLink6 daemon.notice netifd: Interface 'loopback' is enabled
```



## 5.6 Status – Kernel Log

The Kernel Log page shows the output of the kernel ring buffer. The buttons at the top of the page can be used to download the kernel log or download both the system log and the kernel log.

### Status->Kernel Log

#### Kernel Log

Export Kernel Log

Export System Log and Kernel Log

```
[ 4.209238] msm-dcc b3000.dcc: gcnt_lo: 0x0c2dbb6b(0x(____ptrval____))
[ 4.209620] global timer is null
[ 4.209874] CPU: IPQ8076A, SoC Version: 2.0
[ 4.210324] msm_rpm_log_probe: OK
[ 4.210565] TZ SMMU State: SMMU Stage2 Enabled
[ 4.210624] TZ Log : Will warn on Access Violation, as paniconaccessviolation is not set
[ 4.211433] pmd9655_s3: supplied by e-smps1-reg
[ 4.211759] pmd9655_s4: supplied by e-smps1-reg
[ 4.212189] pmd9655_ldo11: supplied by e-smps1-reg
[ 4.212809] msm_serial 78b3000.serial: msm_serial: detected port #0
[ 4.212843] msm_serial 78b3000.serial: uartclk = 3686400
[ 4.212902] 78b3000.serial: ttyMSM0 at MMIO 0x78b3000 (irq = 12, base_baud = 230400) is a MSM
[ 4.212926] msm_serial: console setup on port #0
[ 4.990518] printk: console [ttyMSM0] enabled
[ 4.995468] msm_serial 78b1000.serial: msm_serial: detected port #1
[ 4.999456] msm_serial 78b1000.serial: uartclk = 19200000
[ 5.005560] 78b1000.serial: ttyMSM1 at MMIO 0x78b1000 (irq = 19, base_baud = 1200000) is a MSM
[ 5.011325] msm_serial: driver initialized
[ 5.019921] random: fast init done
[ 5.023888] random: crng init done
[ 5.030291] brd: module loaded
[ 5.033726] loop: module loaded
[ 5.035335] spi_nor 78b5000.spi: IN:block:16, fifo:64, OUT:block:16, fifo:64
[ 5.037317] spi-nor spi0.0: mx25u6435f (8192 Kbytes)
[ 5.043895] 19 fixed-partitions partitions found on MTD device spi0.0
[ 5.048740] Creating 19 MTD partitions on "spi0.0":
[ 5.055092] 0x000000000000-0x000000050000 : "0:SBL1"
[ 5.060420] 0x000000050000-0x000000060000 : "0:MBIB"
[ 5.065600] 0x000000060000-0x000000080000 : "0:BOOTCONFIG"
[ 5.070487] 0x000000080000-0x0000000a0000 : "0:BOOTCONFIG1"
[ 5.075797] 0x0000000a0000-0x000000220000 : "0:QSEE"
[ 5.081255] 0x000000220000-0x0000003a0000 : "0:QSEE_1"
[ 5.086477] 0x0000003a0000-0x0000003b0000 : "0:DEVCFG"
[ 5.091397] 0x0000003b0000-0x0000003c0000 : "0:DEVCFG_1"
[ 5.096536] 0x0000003c0000-0x0000003d0000 : "0:APDP"
[ 5.101990] 0x0000003d0000-0x0000003e0000 : "0:APDP_1"
[ 5.106968] 0x0000003e0000-0x000000420000 : "0:RPM"
[ 5.111932] 0x000000420000-0x000000460000 : "0:RPM_1"
[ 5.116687] 0x000000460000-0x000000470000 : "0:CDT"
[ 5.121876] 0x000000470000-0x000000480000 : "0:CDT_1"
[ 5.126574] 0x000000480000-0x000000490000 : "0:APPSBLENV"
[ 5.131758] 0x000000490000-0x000000530000 : "0:APPSBL"
[ 5.137157] 0x000000530000-0x0000005d0000 : "0:APPSBL_1"
[ 5.142182] 0x0000005d0000-0x000000610000 : "0:ART"
```

## 5.7 Status – Log History

The Log History page allows you to view the logs from the last 9 reboots. Open the dropdown to select which log you want to view/download. /home/logs/1/ will show you the logs from one reboot ago, while /home/logs/9/ will show you the logs from 9 reboots ago. Clicking the View

Log button will display the contents of the selected log directory on the screen. Download Selected Log will download a compressed tarball of the log selected in the dropdown. Download All Logs will download a compressed tarball of all the logs in the /home/logs/ directory.

## Status->Log History

### Log History

/home/logs/1/

View Log

Download Selected Log

Download All Logs

\*\*\* atfd \*\*\*

2022-06-06 17:47:42,557 - atfd - INFO - Starting atfd daemon

2022-06-06 17:47:43,894 - atfd - INFO - Waiting for network drivers.... 51.25

2022-06-06 17:47:44,049 - atfd - INFO - Network drivers loaded at 51.41 seconds

2022-06-06 17:47:51,585 - atfd - ERROR - ATF not enabled via UCI. Not starting ATF.

\*\*\* sysmod \*\*\*

2022-06-06 17:47:39,912 - sysmond - INFO - Starting sysmond

2022-06-06 17:47:39,922 - sysmond - INFO - Sysmond shutdown manager thread running

2022-06-06 17:47:40,000 - sysmond - INFO - Removing: /home/logs/9

2022-06-06 17:47:40,002 - sysmond - INFO - Moving /home/logs/8 to /home/logs/9

2022-06-06 17:47:40,004 - sysmond - INFO - Moving /home/logs/7 to /home/logs/8

2022-06-06 17:47:40,005 - sysmond - INFO - Moving /home/logs/6 to /home/logs/7

2022-06-06 17:47:40,007 - sysmond - INFO - Moving /home/logs/5 to /home/logs/6

2022-06-06 17:47:40,008 - sysmond - INFO - Moving /home/logs/4 to /home/logs/5

2022-06-06 17:47:40,010 - sysmond - INFO - Moving /home/logs/3 to /home/logs/4

2022-06-06 17:47:40,012 - sysmond - INFO - Moving /home/logs/2 to /home/logs/3

2022-06-06 17:47:40,014 - sysmond - INFO - Moving /home/logs/1 to /home/logs/2

2022-06-06 17:47:40,015 - sysmond - INFO - Moving /home/logs/0 to /home/logs/1

## 5.8 Status – System Health

The System Health page displays temperature and voltage states. Temperature columns include the temperature sensor name, the current temperature, the low temperature limit, the low fault state, the high temperature limit, the high fault state, and the sensor fault state.

### Status->System Health

#### System Health

##### Temperatures

| Sensor         | Temp (°C) | Low Limit (°C) | Low Fault | High Limit (°C) | High Fault | Sensor Fault |
|----------------|-----------|----------------|-----------|-----------------|------------|--------------|
| NSS top        | 63        | -35            | False     | 110             | False      | False        |
| NSS UBI32_0    | 63        | -35            | False     | 110             | False      | False        |
| NSS UBI32_1    | 64        | -35            | False     | 110             | False      | False        |
| WCSS PHYA_0    | 63        | -35            | False     | 110             | False      | False        |
| WCSS PHYA_1    | 62        | -35            | False     | 110             | False      | False        |
| A53 core0      | 64        | -35            | False     | 110             | False      | False        |
| A53 core1      | 63        | -35            | False     | 110             | False      | False        |
| A53 core2      | 63        | -35            | False     | 110             | False      | False        |
| A53 core3      | 63        | -35            | False     | 110             | False      | False        |
| A53 MHM        | 64        | -35            | False     | 110             | False      | False        |
| WCSS PHYB      | 63        | -35            | False     | 110             | False      | False        |
| WCSS PHYA_2    | 62        | -35            | False     | 110             | False      | False        |
| se98a          | 44        | -35            | False     | 100             | False      | False        |
| ucd90124a 0x68 | 36        | -35            | False     | 100             | False      | False        |
| ucd90124a 0x69 | 30        | -35            | False     | 100             | False      | False        |
| Itc3350        | 56        | -35            | False     | 100             | False      | False        |



Rail Voltage columns include the rail name, the current voltage, the nominal voltage, the under voltage limit, the under voltage fault state, the over voltage limit, the over voltage fault state, and the sensor fault state.

#### Rail Voltages

| Rail           | Voltage | Nominal | Under Voltage Limit | Under Voltage Fault | Over Voltage Limit | Over Voltage Fault | Sensor Fault |
|----------------|---------|---------|---------------------|---------------------|--------------------|--------------------|--------------|
| 12V_IN         | 11.829  | 12.000  | 10.200              | False               | 13.800             | False              | False        |
| VDD_3V3_PMIC   | 3.306   | 3.300   | 2.805               | False               | 3.795              | False              | False        |
| VDD_1V4_LDO_IN | 1.324   | 1.400   | 1.190               | False               | 1.610              | False              | False        |
| VDD_1V9_PMIC   | 1.893   | 1.900   | 1.615               | False               | 2.185              | False              | False        |
| AVDD_2G_FEM    | 4.941   | 5.000   | 4.250               | False               | 5.750              | False              | False        |
| AVDDA_5GS_FEM  | 4.913   | 5.000   | 4.250               | False               | 5.750              | False              | False        |
| VDD33_PCIE1    | 3.315   | 3.300   | 2.805               | False               | 3.795              | False              | False        |
| P_SCAP         | 9.141   | 9.200   | 7.820               | False               | 10.580             | False              | False        |
| 12V_SCAP       | 11.702  | 12.000  | 10.200              | False               | 13.800             | False              | False        |
| VDD_2P2_LDO    | 2.191   | 2.200   | 1.870               | False               | 2.530              | False              | False        |
| P28V0A         | 27.105  | 28.000  | 23.801              | False               | 32.199             | False              | False        |
| VDD_WCSS_CX    | 0.781   | 0.788   | 0.670               | False               | 0.906              | False              | False        |
| VDD_APC_CX     | 0.676   | 0.828   | 0.500               | False               | 1.200              | False              | False        |
| VDD105_NAPA    | 1.048   | 1.050   | 0.893               | False               | 1.208              | False              | False        |
| VDD1V8_NAPA    | 1.782   | 1.800   | 1.530               | False               | 2.070              | False              | False        |
| VDD_0V85_LDO2  | 0.843   | 0.850   | 0.722               | False               | 0.977              | False              | False        |
| VDD_0V925_LDO4 | 0.917   | 0.925   | 0.786               | False               | 1.064              | False              | False        |
| VDD_1V8_LDO6   | 1.786   | 1.800   | 1.530               | False               | 2.070              | False              | False        |
| VDD18_IRON     | 1.794   | 1.800   | 1.530               | False               | 2.070              | False              | False        |
| VDD1V05_IRON   | 1.040   | 1.050   | 0.893               | False               | 1.208              | False              | False        |
| VDD_SOC_MX     | 0.936   | 0.920   | 0.782               | False               | 1.058              | False              | False        |

## 5.9 Status – Processes

The Processes page shows the active processes currently running on the status. It allows the user to terminate or kill an active process.

### Status->Processes

#### Processes

This list gives an overview over currently running system processes and their status.

| PID | Owner | Command       | CPU usage (%) | Memory usage (%) |         |           |      |
|-----|-------|---------------|---------------|------------------|---------|-----------|------|
| 1   | root  | /sbin/procd   | 0%            | 0%               | Hang Up | Terminate | Kill |
| 2   | root  | [kthreadd]    | 0%            | 0%               | Hang Up | Terminate | Kill |
| 9   | root  | [ksoftirqd/0] | 0%            | 0%               | Hang Up | Terminate | Kill |
| 11  | root  | [migration/0] | 0%            | 0%               | Hang Up | Terminate | Kill |
| 12  | root  | [cpuhp/0]     | 0%            | 0%               | Hang Up | Terminate | Kill |

## 5.10 Status – Realtime Graphs

The Realtime Graphs pages show the traffic load for current configurations over time.

