Install and Use Fluidmesh (FM) Monitor

Contents

Introduction

This document describes the Cisco FM Monitor and its installation on a Ubuntu server.

Background Information

Cisco FM Monitor is a network-wide, on-premises monitoring tool, that allows any Cisco Ultra-Reliable Wireless Backhaul (URWB) user to proactively maintain and monitor one or multiple wireless Operational Technology (OT) networks. It displays data and situational alerts from every Cisco URWB device in a network, in real time. The tool is a virtual image based diagnostic and analysis interface with the virtual image provided in a Docker format.

Prerequisites

- CURWB Device Firmware:
  The CURWB hardware must be on a newer firmware version for compatibility with the FM monitor tool. Refer to the latest configuration guides to determine compatibility between a specific FM monitor and the CURWB firmware version. To upgrade the Fluidmesh device firmware, refer to the "Overwriting and Upgrading the Unit Firmware" section of the CURWB Installation and Configuration guide for the specific hardware type.

- Server:
  To run the Docker container for the application, you need a dedicated server with these specifications.

Operating system	Windows 7 or later	Mac OS X 10.9.x or later	Linux (32-bit or 64-bit): • Ubuntu 14.04 or later • Debian 9 or later • OpenSuSE 14.2 or later • Fedora Linux 19 or later
Docker application	Yes	Yes	Yes
Base system	Virtual machine or bare metal	Virtual machine or bare metal	Virtual machine or bare metal
Processor	Intel Core i7 or Xeon (any frequency, mandatory minimum of four cores)	Intel Core i7 or Xeon (any frequency, mandatory minimum of four cores)	Intel Core i7 or Xeon (any frequency, mandatory minimum of four cores)
RAM	16 GB minimum	16 GB minimum	16 GB minimum
Hard disk	100 GB minimum* 1 TB or greater recommended	100 GB minimum* 1 TB or greater recommended	100 GB minimum* 1 TB or greater recommended
High-speed connection to local networks and radio transceiver units	Preferred	Preferred	Preferred
Screen resolution	1024x768 minimum	1024x768 minimum	1024x768 minimum

Minimum Server Specifications

- Supported Web Browsers:

  Mozilla Firefox
  Google Chrome
  Microsoft Internet Explorer
  Microsoft Edge
  Apple Safari

- Software Plugins
  Software plugins are required for monitoring legacy CURWB hardware, whereas for the IW hardware, plugins are not required.

- Docker:

  When Docker is installed on the server, it is essential to ensure that the servers support virtualization and second-level address translation (SLAT). Intel’s version of SLAT is called EPT (Extended Page Tables)."

Installing and running the Docker container

- In this document, we primarily focus on installation on an Ubuntu server connected to the internet during the initial setup.
- Login to software.cisco.com and download the latest Monitor image file on your server.
- The next step would be to install the docker engine for your server. You can refer to the Docker documentation for more details, however, the basic steps are as follows:
  - Run this command to uninstall all conflicting packages:

```
for pkg in docker.io docker-doc docker-compose docker-compose-v2 podman-docker containerd runc; do sudo
```

- Set up the Docker apt repository.

```
> sudo apt-get update

> sudo apt-get install ca-certificates curl

> sudo install -m 0755 -d /etc/apt/keyrings

> sudo curl -fsSL https://download.docker.com/linux/ubuntu/gpg -o /etc/apt/keyrings/docker.asc

> sudo chmod a+r /etc/apt/keyrings/docker.asc



> echo \

  "deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.asc] https://download.dock

  $(. /etc/os-release && echo "$VERSION_CODENAME") stable" | \

  sudo tee /etc/apt/sources.list.d/docker.list > /dev/null

> sudo apt-get update
```

- Install Docker Package

Please run this command to install the latest docker package:

```
sudo apt-get install docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-plugin
```

- Verify that the Docker Engine installation is successful by running the hello-world image

```
sudo docker run hello-world

sudo docker images
```

```
fm-iw-monitor@fmiwmonitor-virtual-machine:~$ sudo docker images
REPOSITORY    TAG       IMAGE ID       CREATED          SIZE
hello-world   latest    d2c94e258dcb   11 months ago    13.3kB
```

- Now, that the docker engine is installed, load the Cisco FM monitor image to the monitor server by using the command:

```
docker load -i fm-monitor-docker-v1.x.x.tar.
```

```
fm-iw-monitor@fmiwmonitor-virtual-machine:~$ sudo docker load -i '/home/fm-iw-monitor/Downloads/fm-monitor-docker-v2.0-rc2.0.tar.gz'
8cf5d74bcf68: Loading layer [==================================================>]  134.4MB/134.4MB
bce5b7b7ae9a: Loading layer [==================================================>]  965.6MB/965.6MB
1d2e5de37b47: Loading layer [==================================================>]  3.072kB/3.072kB
72a57e173486: Loading layer [==================================================>]  26.11kB/26.11kB
eed00e336fdc: Loading layer [==================================================>]  1.633MB/1.633MB
f43525ea70c4: Loading layer [==================================================>]  17.67MB/17.67MB
54162be3e4b4: Loading layer [==================================================>]  68.47MB/68.47MB
5f70bf18a086: Loading layer [==================================================>]  1.024kB/1.024kB
ca58e150d27c: Loading layer [==================================================>]  75.03MB/75.03MB
d78879eea568: Loading layer [==================================================>]  5.632kB/5.632kB
e3d74964f28f: Loading layer [==================================================>]  4.608kB/4.608kB
c6958528657a: Loading layer [==================================================>]   5.12kB/5.12kB
145cbf33218d: Loading layer [==================================================>]  6.144kB/6.144kB
0786591577bc: Loading layer [==================================================>]  4.608kB/4.608kB
69c239009c34: Loading layer [==================================================>]  41.47kB/41.47kB
Loaded image: dockerhub.cisco.com/fm-dev-artifactory-docker/monitor:v2.0-rc2.0
```

- Run this command again to make sure that it is loaded. Also, make a note of the image ID:

```
sudo docker images
```

```
fm-iw-monitor@fmiwmonitor-virtual-machine:~$ sudo docker images
REPOSITORY                                              TAG          IMAGE ID       CREATED          SIZE
dockerhub.cisco.com/fm-dev-artifactory-docker/monitor   v2.0-rc2.0   3e610b47c38b   5 weeks ago      1.25GB
hello-world                                             latest       d2c94e258dcb   11 months ago    13.3kB
```

- Run the Docker container for the first time by doing these steps:

```
sudo docker run -d --name fm_monitor -p 8080:8080 -p 8443:8443 --restart always X
```

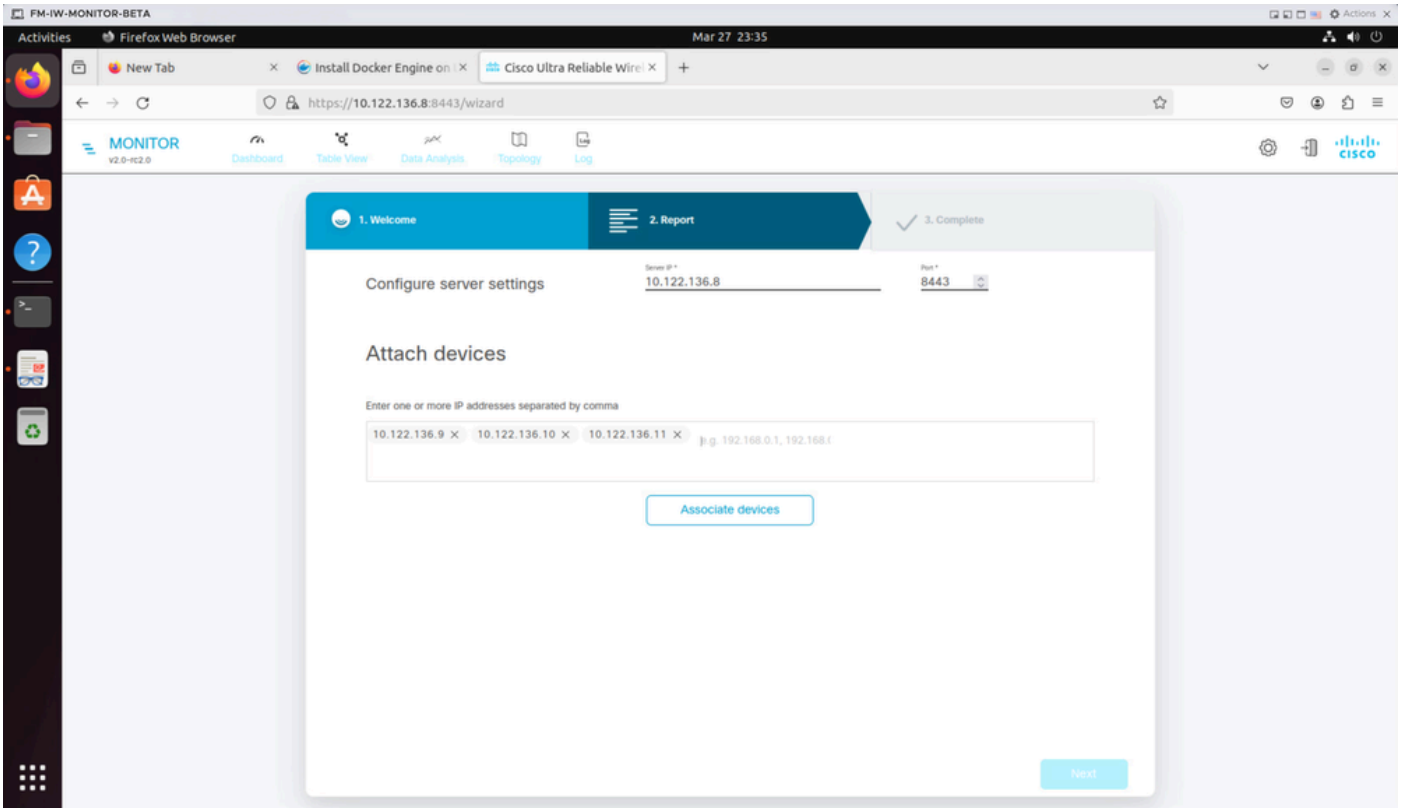
(Where X is the IMAGE ID value of the MONITOR Docker image.)

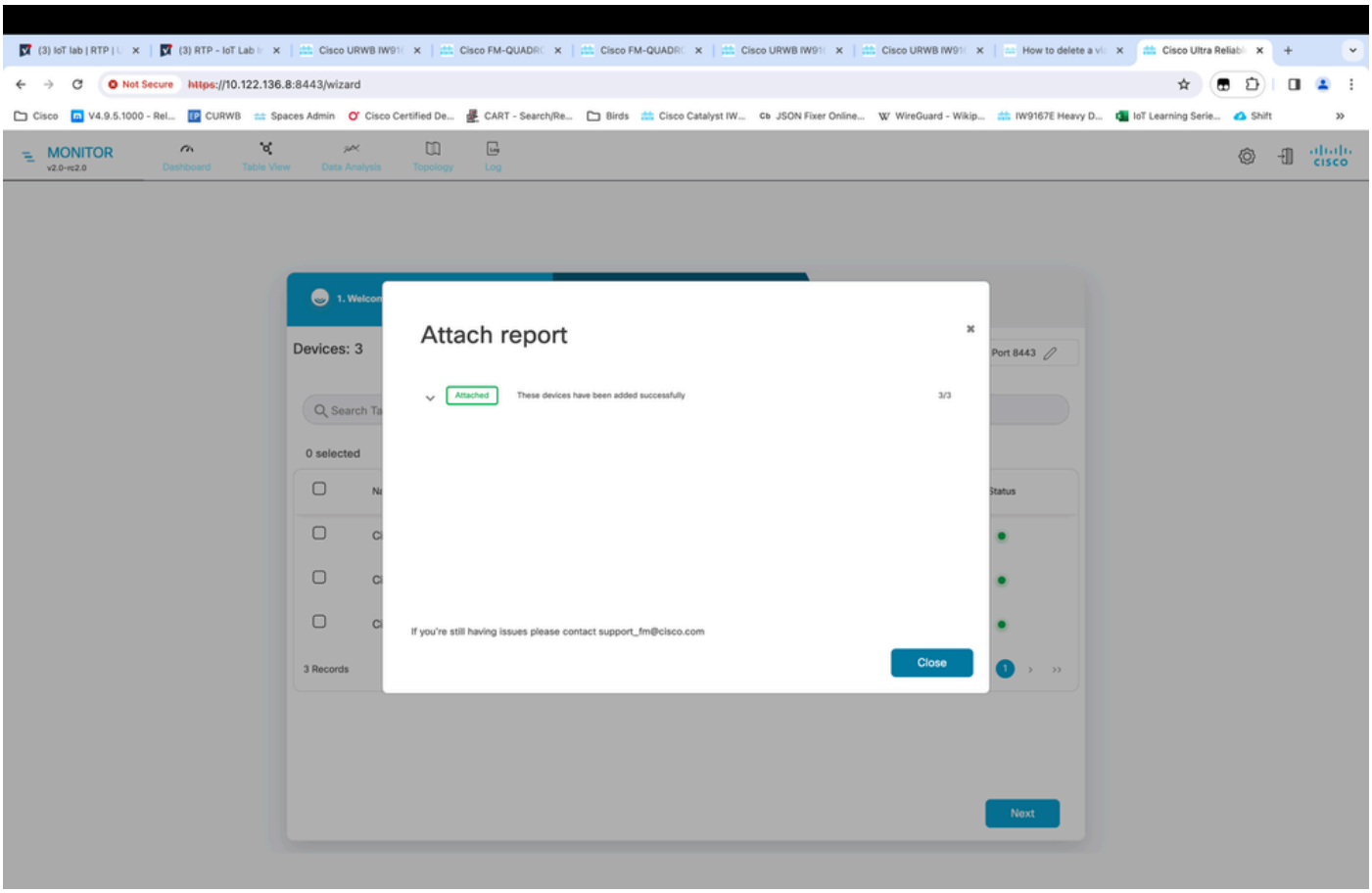
```
fm-iw-monitor@fmiwmonitor-virtual-machine:~$ sudo docker run -d --name fm_monitor -p 8080:8080 -p 8443:8443 --restart always 3e610b47c38b
e6431beb6f6df77f288786c119dbd1460e89dbbf587681daba7380990f57327a
```

Accessing the Web UI

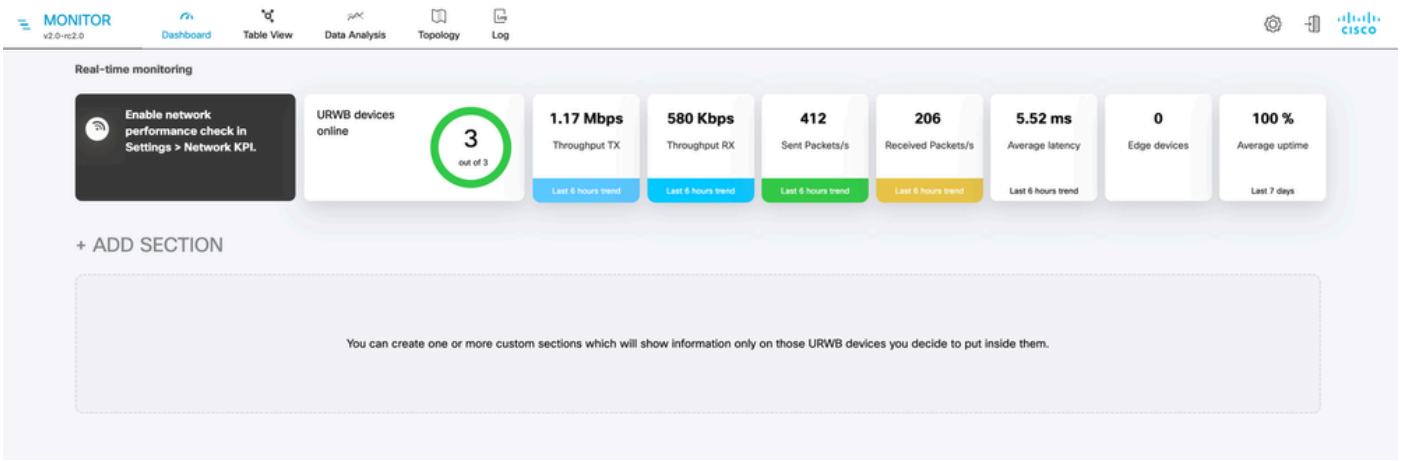
- Finally, access the web page from the browser of your choice. Navigate to the URL from https://X:Y where X is the IP address of the server, and Y is the configured host port number.

- Now, during the first time installation, you would need to create an offline account for the FM-Monitor by entering your name email, and password.
- Once completed you can start onboarding CURWB devices to the FM-Monitor. Make sure that the server IP address is correct.

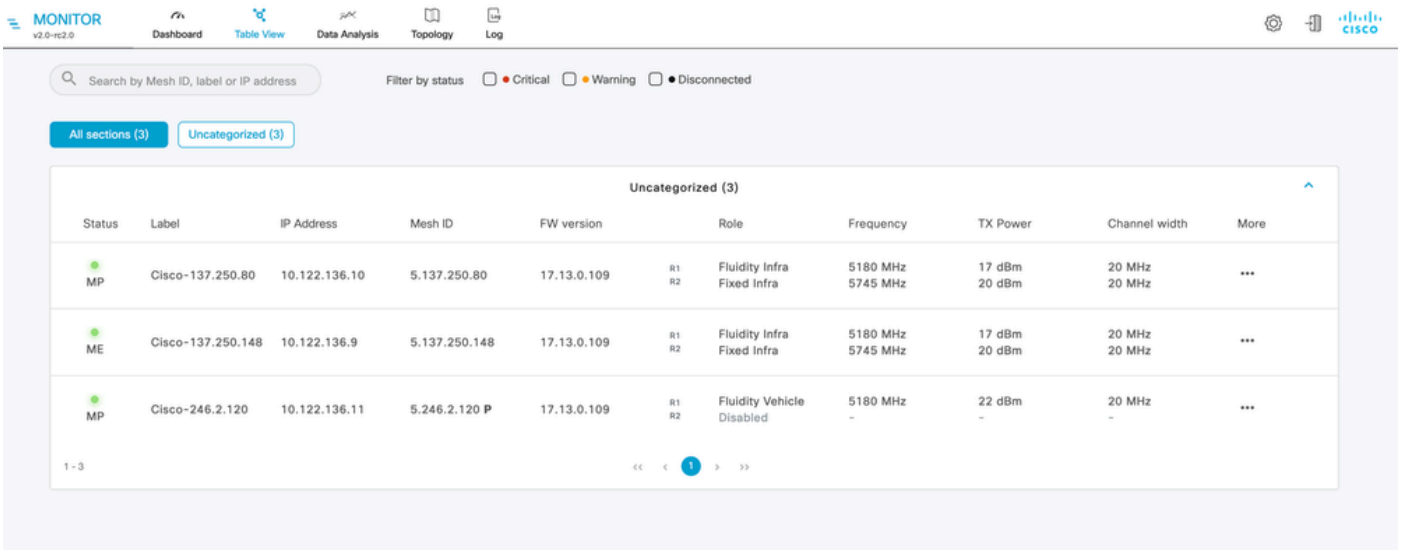




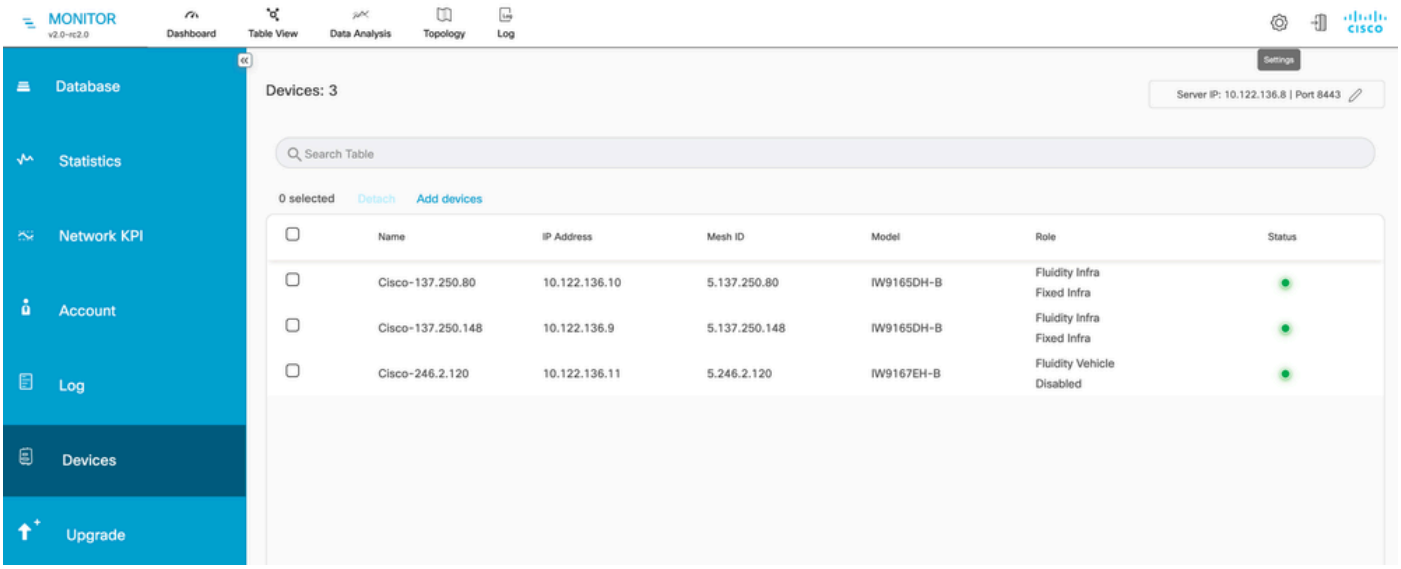
- Once all radios are added to the FM Monitor, you are able to see all of your radios on the home screen of the dashboard.



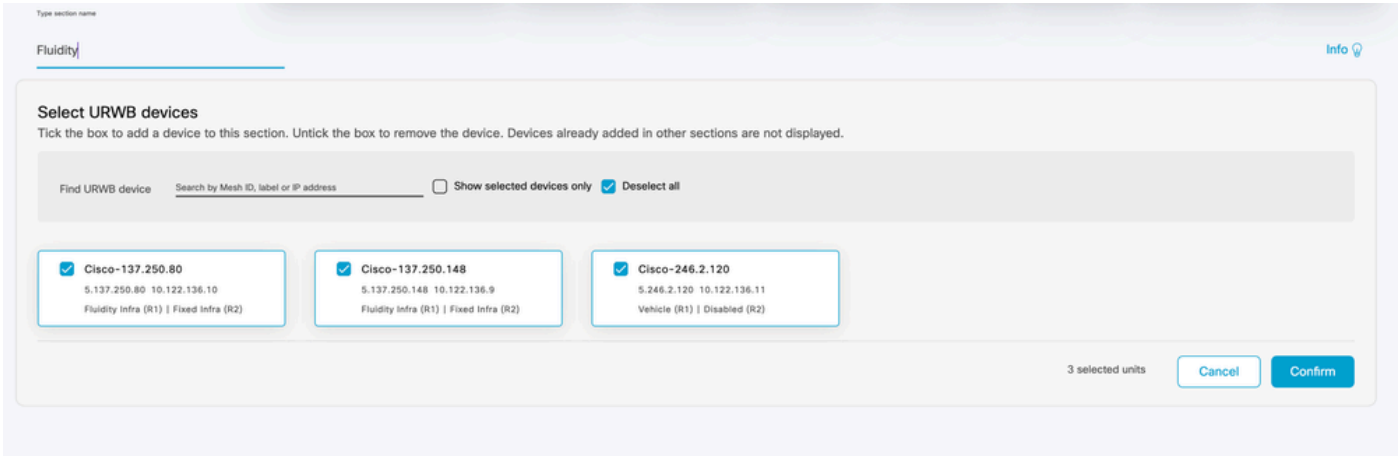
- All of the devices that are added to the monitor can further be viewed in detail in the table view.

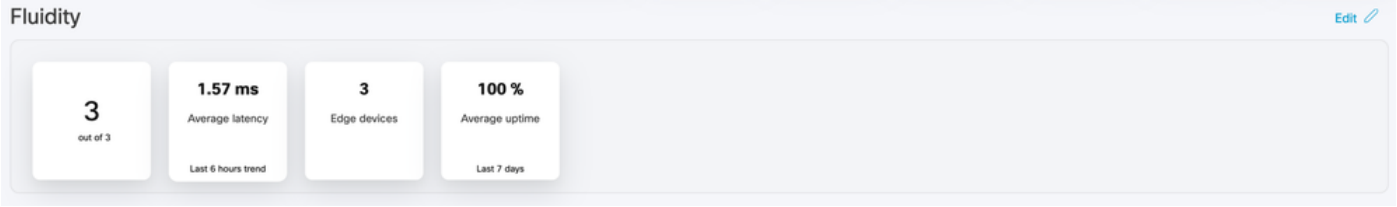


- These devices can be removed or added from the monitor by navigating to **Settings > Devices** page.



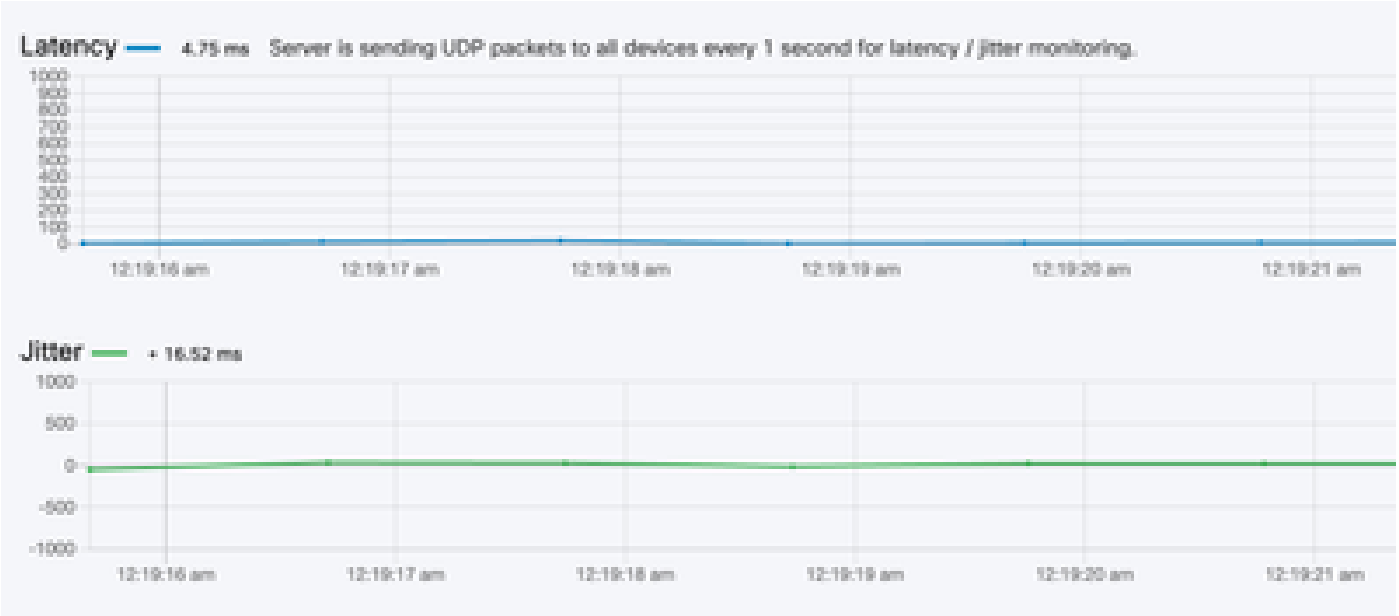
- A large number of radios can further be grouped into smaller sections based on the location/ functionality for easier monitoring from the dashboard home page.

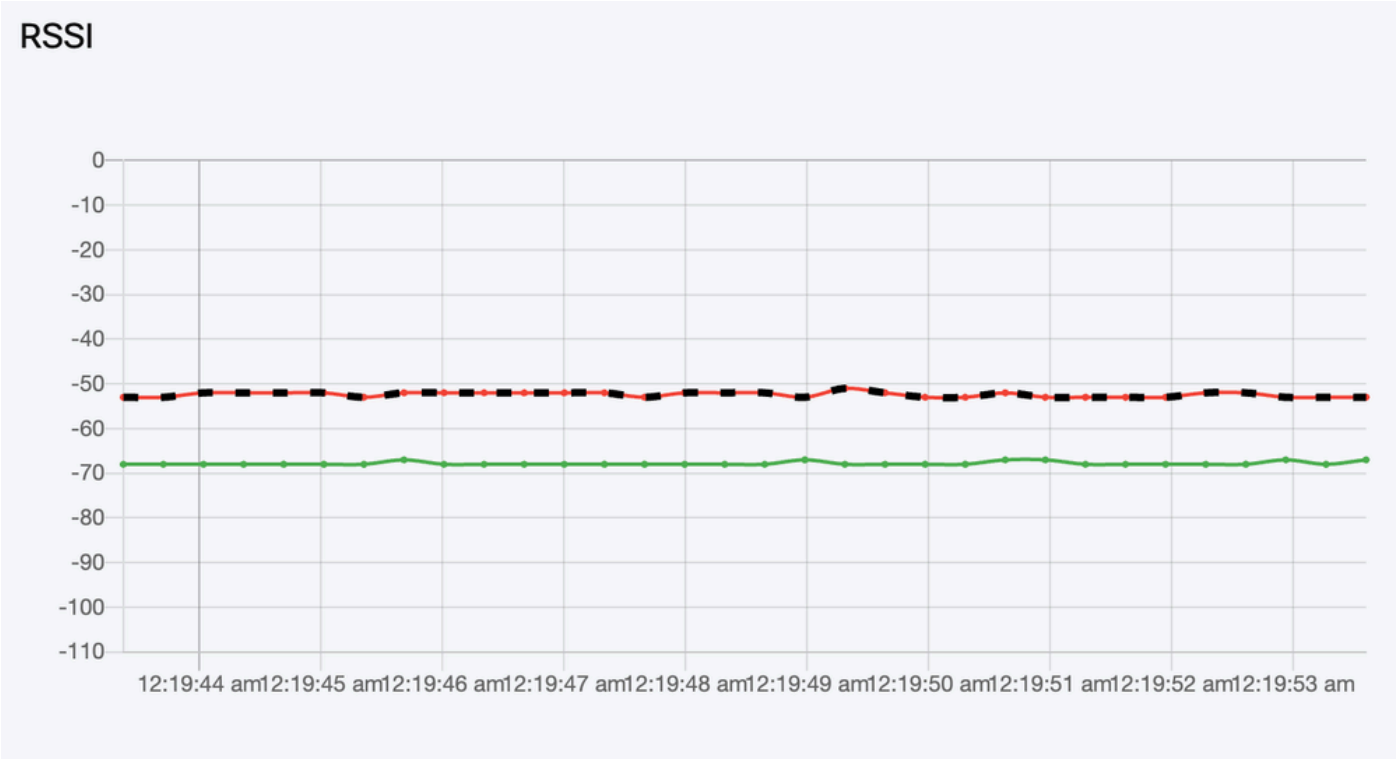


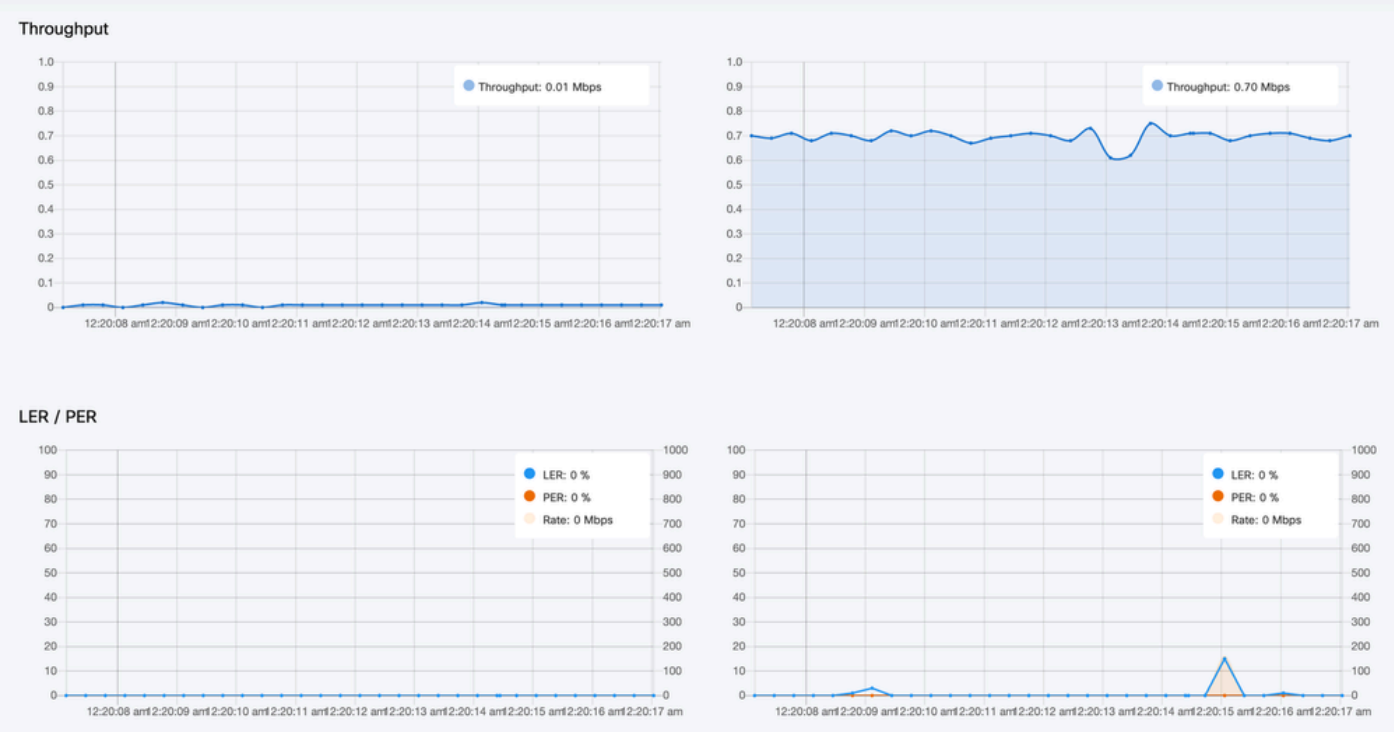


Data Monitoring

- Connectivity can be monitored in real-time or be looked for historical data and can be analyzed for troubleshooting purposes. To see the performance from a radio's perspective that specific radio needs to be selected.







License Activation

Before FM Monitor can be used to monitor your network, you must obtain and enter an activation license from Cisco. The level of activation license you install determines the number of Fluidmesh radio transceiver devices that can be monitored. It can range from 5 to 5000 devices.

A Demo license option is also available. If activated, the Demo license stays active for three months. FM Monitor license upgrades allow you to increase the number of devices that can be monitored under a single license, from the originally licensed count.