Veea Grafana Analytics Tool User Guide

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Approval

Name	Date	Signature

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1.0	30 Nov 2021		RJ	First Edition
1.1	1 April 2022		RJ	Updated to include Control Center V3

List of Acronyms

The table that follows lists acronyms and abbreviations used in this guide.

Acronym	Abbreviation
AP	Access Point
MEN	Mesh Edge Node
MN	Mesh Node
SSID	Service Set Identifier

Glossary of Terms

The table that follows lists acronyms and abbreviations used in this guide.

Term	Description
Mesh Wi-Fi (Aggregation Clients)	The aggregation refers to the rendering of time-series values for all the client stations on all the APs on all the nodes in the given mesh. The type of aggregation depends on the panel being displayed. For the number of active or connected clients, this is a simple summation. For the client-rate capability, the clients are aggregated into one panel and shown per client across all APs across all nodes. For the client signal distribution, the histogram aggregates samples from all clients on all APs across all nodes.
Mesh Wi-Fi (Aggregation interface)	This is like 'Mesh Wi-Fi (Aggregation Clients)' described above, except that the Throughput panel is an aggregation (summation) of the throughput on all interfaces of every node in the mesh.
AP Wi-Fi (Aggregation Clients)	This dashboard shows analytics for the given AP - the clients are aggregated in one panel, showing the rate capability for each client on the AP. Similarly, the Active Clients table is an aggregation of information for each active client station on the AP.

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1. Introduction

This document describes how to enable and use the Grafana Dashboard to view some analytical data which can be collected by your VeeaHub.

Veea leverage Grafana which is a multi-platform open-source analytics and interactive visualization web application.

Grafana provides charts, graphs, and alerts for the web when connected to VeeaHubs supported data sources.

IMPORTANT.

Grafana analytics are not available for VeeaHub model type VHC05.

To use Grafana, follow the instructions which are described in this document (Refer to Section 2 and Appendix A).

2. Analytics (Grafana Dashboard)

2.1. Enable, Disable and View Analytics

2.1.1. Prerequisites

- A valid Control Center account is required to access Grafana analytics – Contact Veea Support to enrol at *https://go.veea.com/support*

Note.

The Analytics setting applies to the whole mesh.

IMPORTANT.

The Wi-Fi Analytics switch separately enables Wi-Fi performance analytics for clients connected to VeeaHub Access Points. The number of connected clients is unbounded and as such owners should be aware that use of the analytics feature could incur additional costs.

2.1.2. Enable Analytics

To enable analytics:

1. Login to your Control Center account:
   a. Select the required group from the dropdown list of groups.
   b. Select the Meshes tab from the left-side navigation.
2. Select the required Mesh name from the list of Meshes table.
3. If required, select the '**Expand all**' button to reveal the WI-FI ANALYTICS row.

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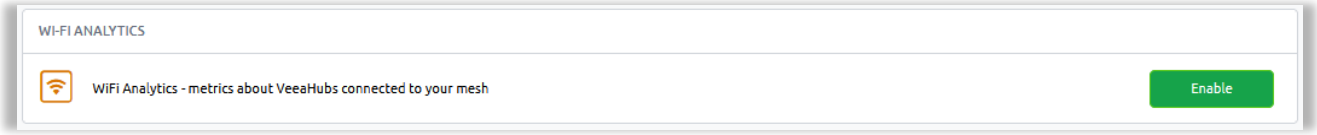
4. Select the '**Enable**' button (Figure 1).

Figure 1: Control Center - vMesh Enable Analytics Button



Note.

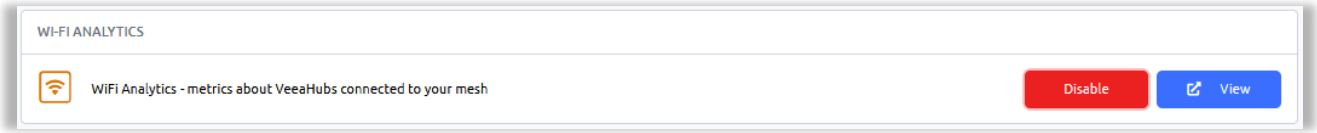
For more information about the Control Center, please see the Control Center User Guide located at: https://go.veea.com/getstarted/cc

2.1.3. Disable Analytics

To disable Grafana analytics:

1. Login to your Control Center account:
   a. Select the required group from the dropdown list of groups.
   b. Select the Meshes tab from the left-side navigation.
2. Select the required Mesh name from the list of Meshes table.
3. If required, select the '**Expand all**' button to reveal the WI-FI ANALYTICS row.
4. Select the '**Disable**' button (Figure 2).

Figure 2: Control Center - Mesh Disable and View Analytics Buttons



2.1.4. View Analytics and Grafana Dashboard Options

To open and view the Grafana analytics dashboard:

1. Select the enable button (**Section 2.1.2**).
1. Select the '**View**' button (Figure 2).
2. The Grafana analytics dashboard is presented.

Grafana dashboard options are selected as follows:

1. On the Grafana front page:
   a. Select the Dashboards option button (Figure 3, Item 1).
   b. Select the '**Manage**' button (Item 2).

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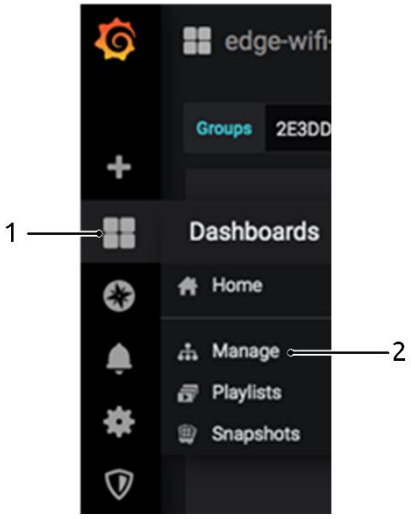
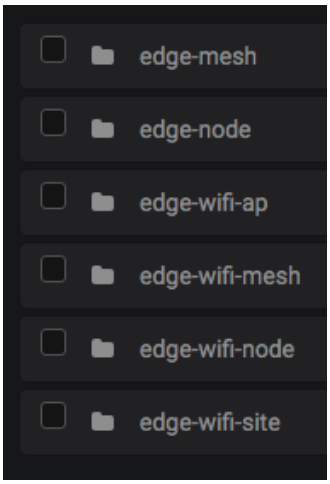
Figure 3: Grafana Dashboards Options



2. The dashboards are now listed as shown in Figure 4:
   a. For Wi-Fi station analytics, the recommended profiles to use are:
      i. **edge-wifi-mesh**.
      ii. **edge-wifi-node**.
      iii. **edge-wifi-ap**.

Figure 4: Analytic Profile Options



3. Click on a profile button to show the list of dashboards in their groupings:
   a. For example, for Wi-Fi stats, expand '**edge-wifi-ap**' and select one of the dashboards (Figure 5).

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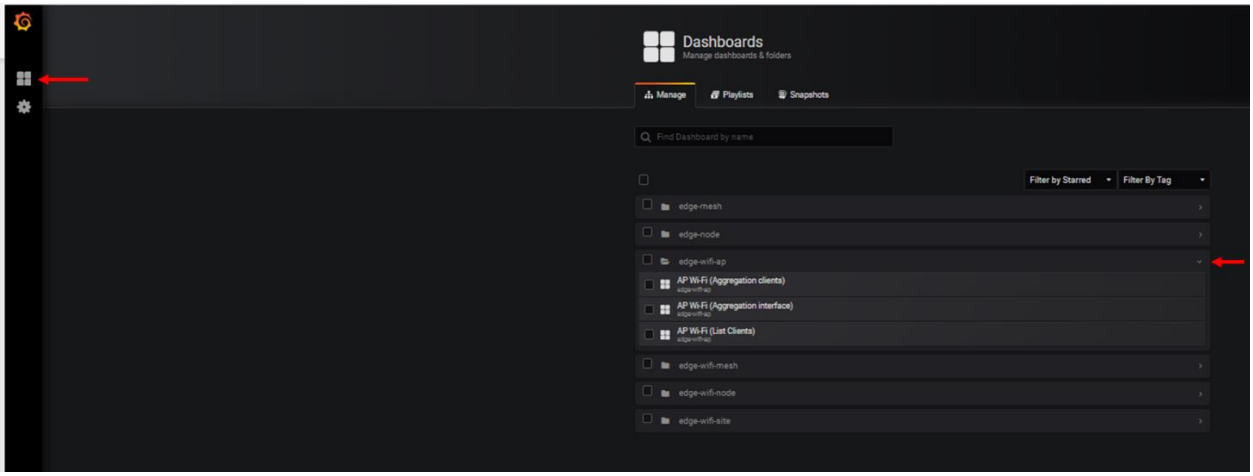
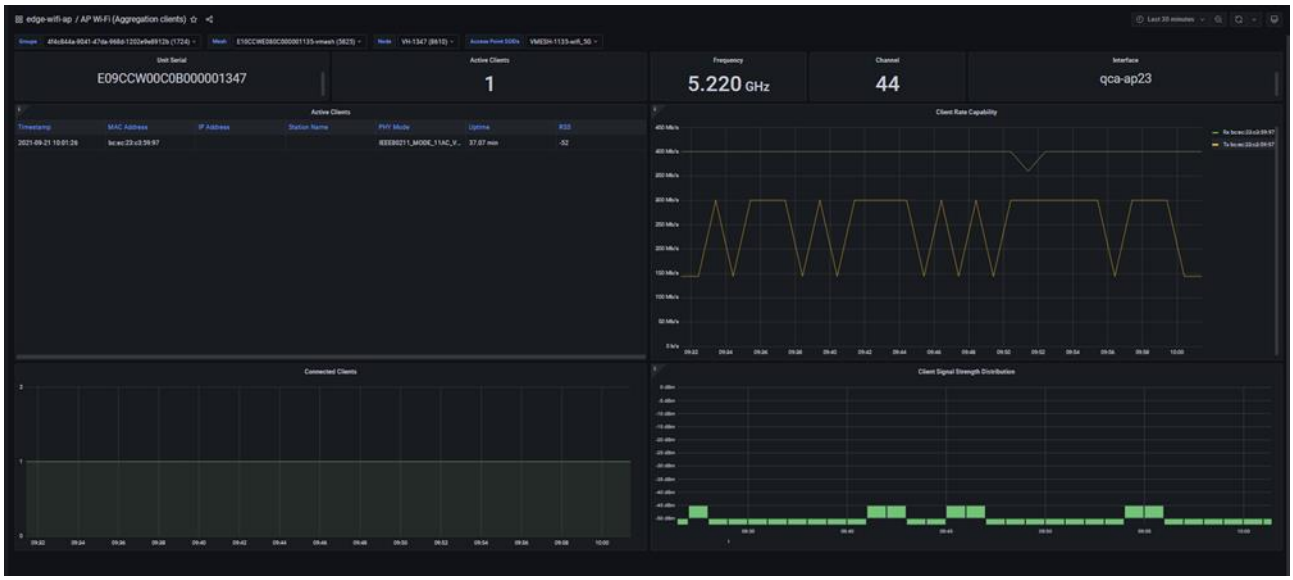
Figure 5: Grafana Profile Dashboard Groups



4. To view the dashboard of a particular access point, make sure the right group, mesh and node are selected then select the required Access Point (**AP**) Service Set Identifier (**SSID**):
   a. The dashboard example shown in Figure 6 shows the analytics for an AP with SSID 'VMESH-1135-wifi-5G'.

Figure 6: Grafana View Particular Access Point



The Group, Mesh, VeeaHub, and AP can be selected either by manual entry or from a dropdown list from the top of the screen. For example, as shown in Figure 7:

- To manually select a group:
  – Click in the 'Group' text box (Item 1) and enter alpha-numeric characters present in the required group name. Grafana uses automatic pattern matching to filter the available list. Click on the required item from the filtered list to select it.
- To select a group from a group of meshes, Click on the '**Group**' button (Item 2):
  – A dropdown list is presented (Item 3), Click on the required group name in the list to select it.

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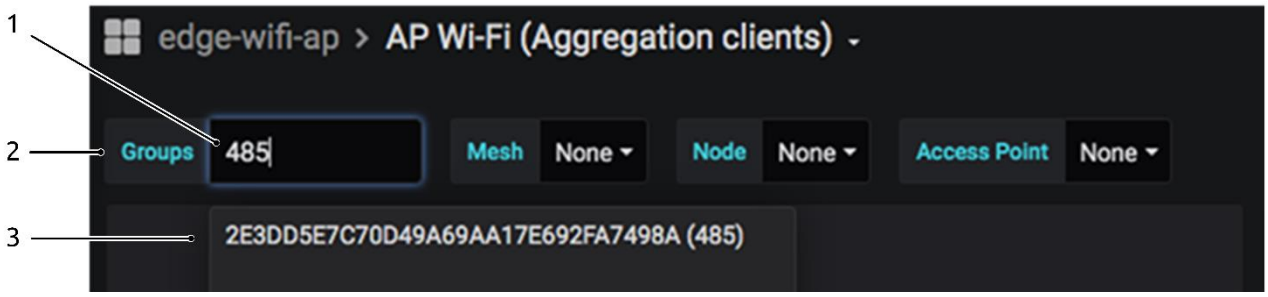
Figure 7: Grafana Manual Parameter Entry (Example)



Access points could be selected based on the SSID specified in the SSID tab on Node Manager (See the Node Manager Guide at *www.veea.com/support*) for both 2.4GHz and 5GHz (Table 1, Figure 8 and Figure 9).

Table 1: Access Point Analytics Status

Interface	Name	Access Point (AP) Number	Example Access Point (SSID)	Frequency
qca_ap13	ap_1_3	1	VMESH-1135-wifi-2G	2.4GHz Mesh Access Point
qca_ap14	ap_1_4	2		2.4GHz Mesh Access Point
qca_ap15	ap_1_5	3		2.4GHz Mesh Access Point
qca_ap16	ap_1_6	4		2.4GHz Mesh Access Point
qca_ap23	ap_2_3	1	VMESH-1135-wifi-5G	5GHz Mesh Access Point
qca_ap24	ap_2_4	2		5GHz Mesh Access Point
qca_ap25	ap_2_5	3		5GHz Mesh Access Point
qca_ap26	ap_2_6	4		5GHz Mesh Access Point

Figure 8: 2.4GHz Mesh Access Point (ap_1_3)

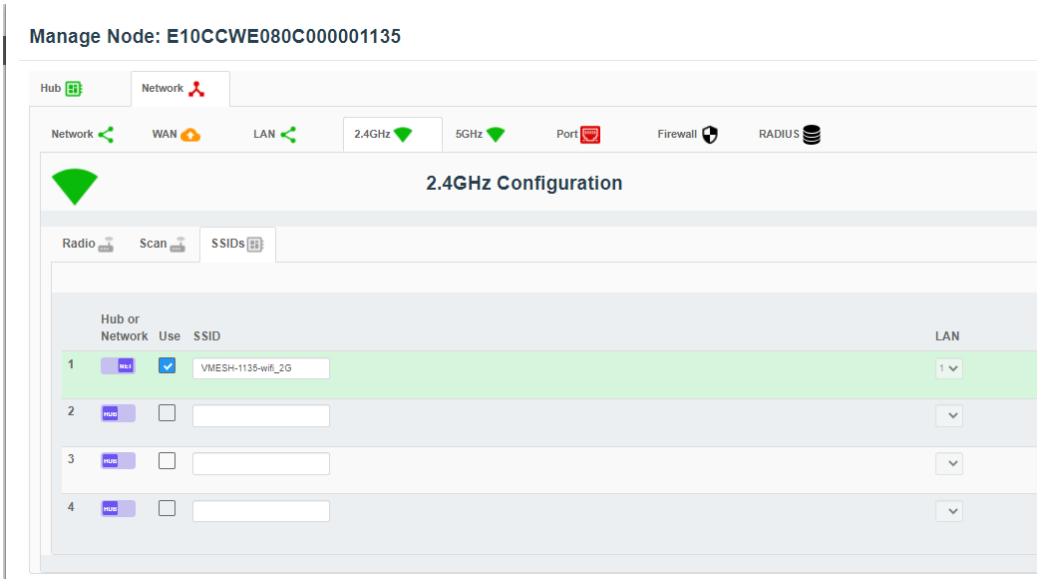


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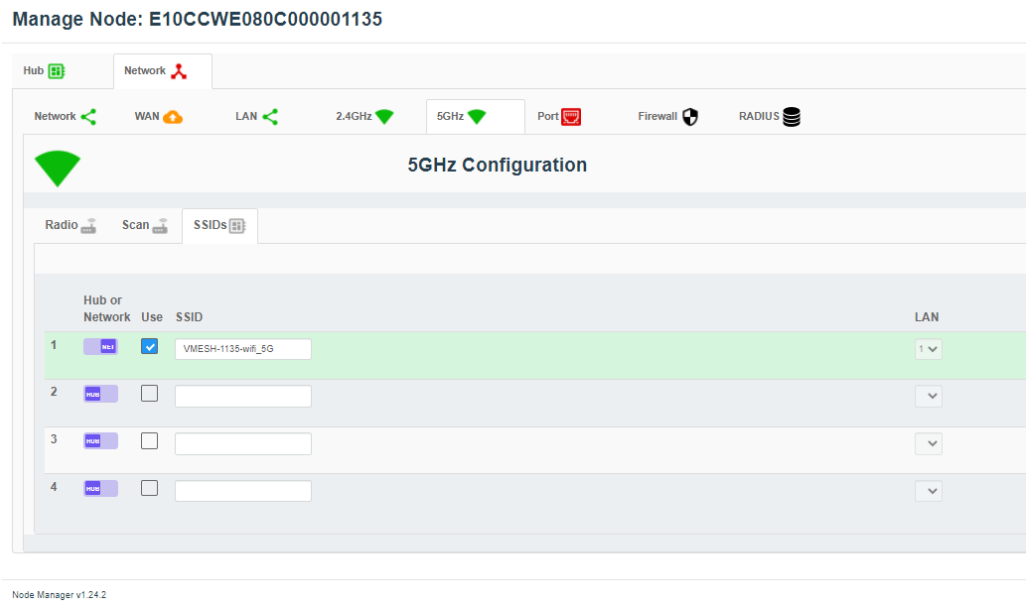
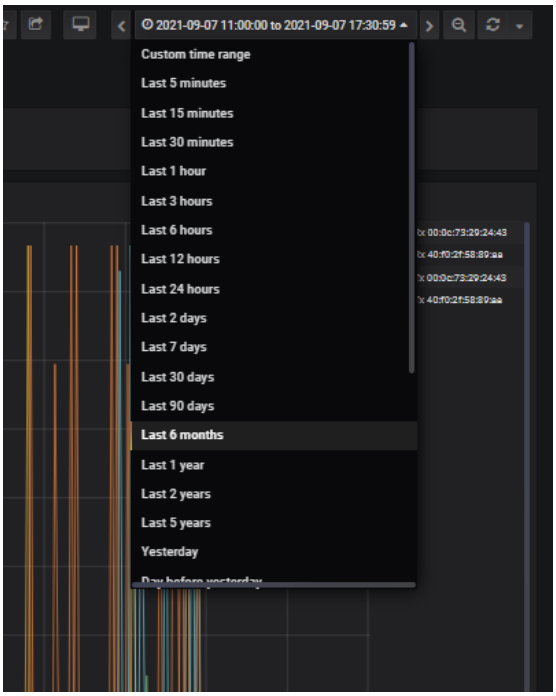
Figure 9: 5GHz Mesh Access Point(ap_2_3)



2.1.4.1. Duration

Duration can be selected from pre-set values or using a custom range (Figure 10).

Figure 10: Grafana Duration Selection



For a custom range. Click on custom time range and click on the day, for example, 7 then the time format appears in the bar above to be edited to the desired duration (Figure 11).

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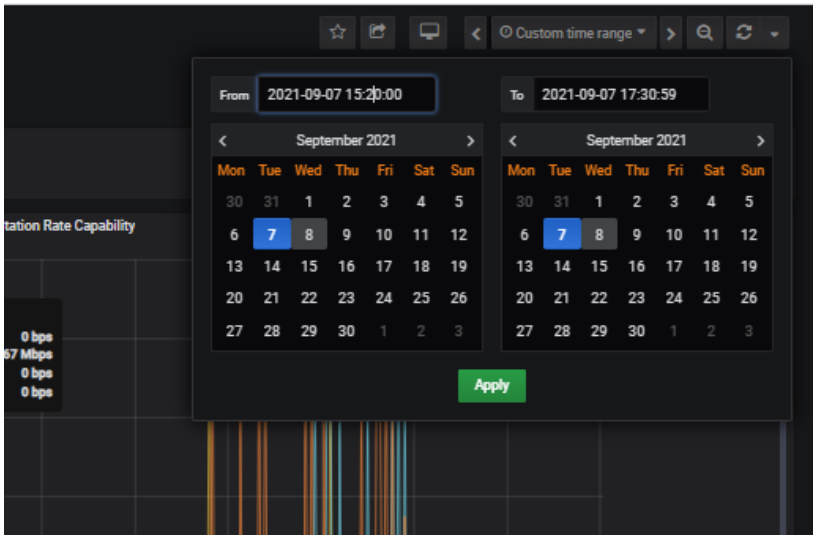
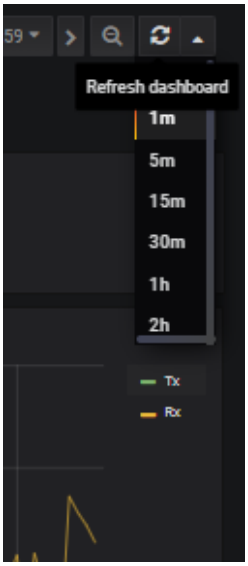
Figure 11: Grafana Date and Time Range Selection



2.1.4.2. Dashboard Refresh

The dashboard refresh period can be set. Choose a value from the dropdown list of options (Figure 12).

Figure 12: Grafana Dashboard Refresh Period Selection



2.1.4.3. List of Dashboards

The available dashboards are listed as follows:

1. **edge-mesh**:
   a. Mesh stats.
2. **edge-node**:
   a. Mesh Interface.
   b. Node Stats.
3. **edge-wifi-ap**:
   a. AP Wi-Fi (Aggregation clients).
   b. AP Wi-Fi (Aggregation interface).
   c. AP Wi-Fi (List Clients).
4. **edge-wifi-mesh**:

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a. Mesh Wi-Fi (Aggregation Clients).
b. Mesh Wi-Fi (Aggregation interface).

5. **edge-wifi-node**:
   a. Node Wi-Fi (Aggregated clients).
   b. Node Wi-Fi (Aggregated interface).
6. **edge-wifi-site**:
   a. Site Wi-Fi (Aggregation clients).
   b. Site Wi-Fi (Aggregation interface).

Refer to **Section 2.2** for a description of the graph types used.

Refer to Appendix **A** which shows example screen shots of each dashboard for one gateway VeeaHub (MEN), type VHE10, and a non-gateway VeeaHub (MN), type VHE09 topology:

- EDGE-WIFI-AP (Refer to **Appendix A.1**)
- EDGE-WIFI-MESH (Refer to **Appendix A.2**)
- EDGE-WIFI-NODE (Refer to **Appendix A.3**)
- EDGE-NODE (Refer to **Appendix A.5**).

Note.

Dashboards are not currently populated for VHC05 models.

2.2. Veea Grafana Graph Descriptions

Grafana dashboard Wi-Fi metrics are captured and displayed in eight different graph types. Each type is described in the sections which follow:

- Active Clients (Refer to **Section 2.2.1**)
- Connected Clients (Refer to **Section 2.2.2**)
- Client Signal Distribution (Refer to **Section 2.2.3**)
- Client Rate Capability (Refer to **Section 2.2.4**)
- Client Signal Strength (Refer to **Section 2.2.5**)
- Connected Duration (Refer to **Section 2.2.6**)
- Throughput (Refer to **Section 2.2.7**).

A description of each graph type used and its XY axis units of measurement are described in the sections which follow.

2.2.1. Active Clients

This is the number of clients currently connected to the AP.

2.2.2. Connected Clients

This is a graph of the number of clients that have been connected to the AP over the period selected.

Note.

This may be different to the number of clients currently connected.

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2.2.3. Client Signal Distribution

This is the distribution of received client station signal strength at the AP. Lighter colors represent more samples.

2.2.4. Client Rate Capability

This is the maximum transmit and receive throughput rate (b/s – bits per second) that the client can achieve given current client signal conditions.

2.2.5. Client Signal Strength

This is the signal strength in dBm (decibel-milliwatts) of client packets received at the AP.

2.2.6. Connected Duration

This is the length of time the client has been connected to the AP.

2.2.7. Throughput

This is the aggregated transmit and receive throughput (b/s – bits per second) for the AP, that is, the sum of all client's throughput graphed over the period selected.

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Appendix A Example Grafana Dashboard and Graph Types

This appendix shows some example dashboards and graphs as described in **Section 2.1.4.3**.

A.1 EDGE-WIFI-AP

A.1.1 AP Wi-Fi (Aggregation clients) Dashboard

A.1.1.1 ap_1_3 (2.4GHz Mesh AP)

Figure 13: ap_1_3 (2.4GHz Mesh AP), Node – 1347(MN)

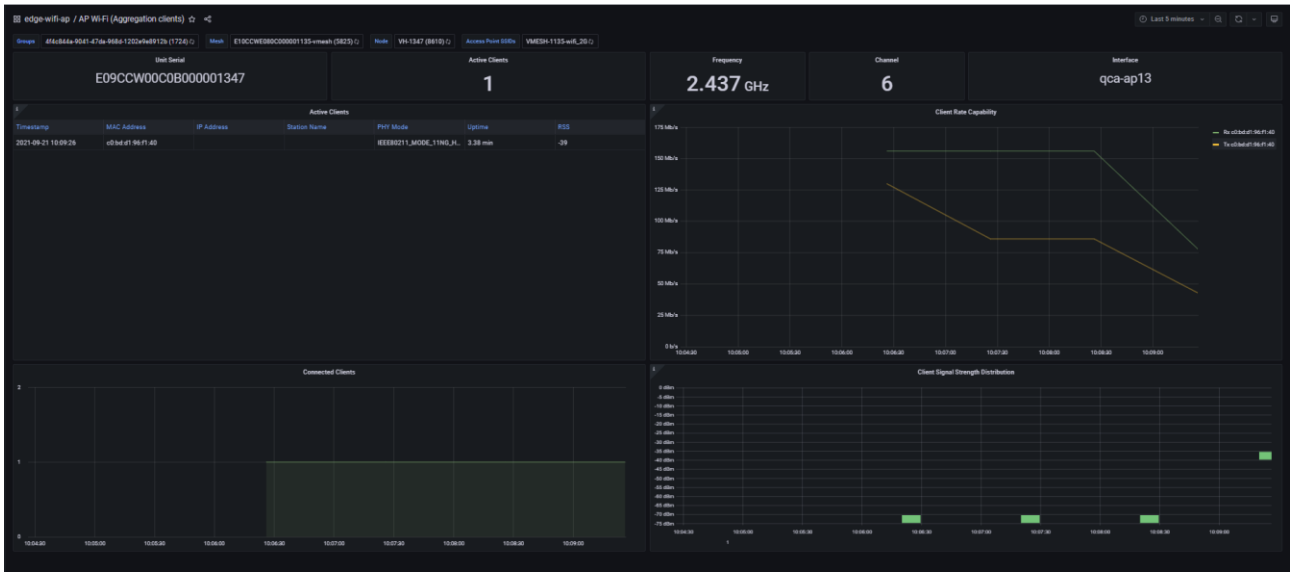
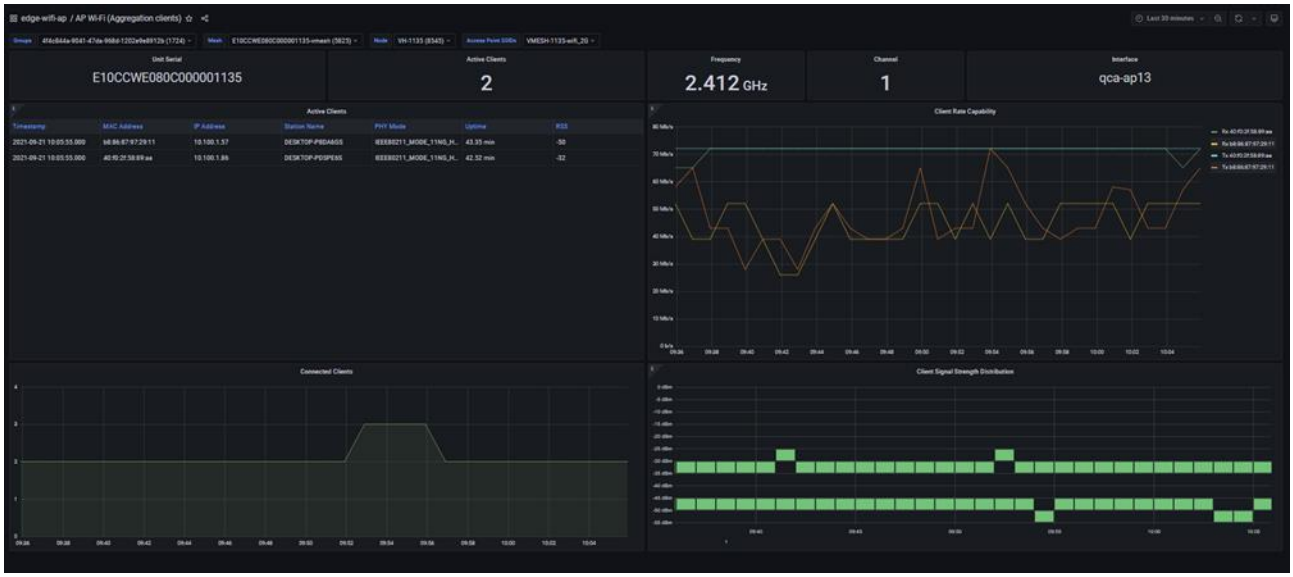


Figure 14: ap_1_3 (2.4GHz Mesh AP) Node – 1135(MEN)



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A.1.1.2 ap_2_3 (5GHz Mesh AP)

Figure 15: ap_2_3 (5GHz Mesh AP) Node – 1135(MEN)

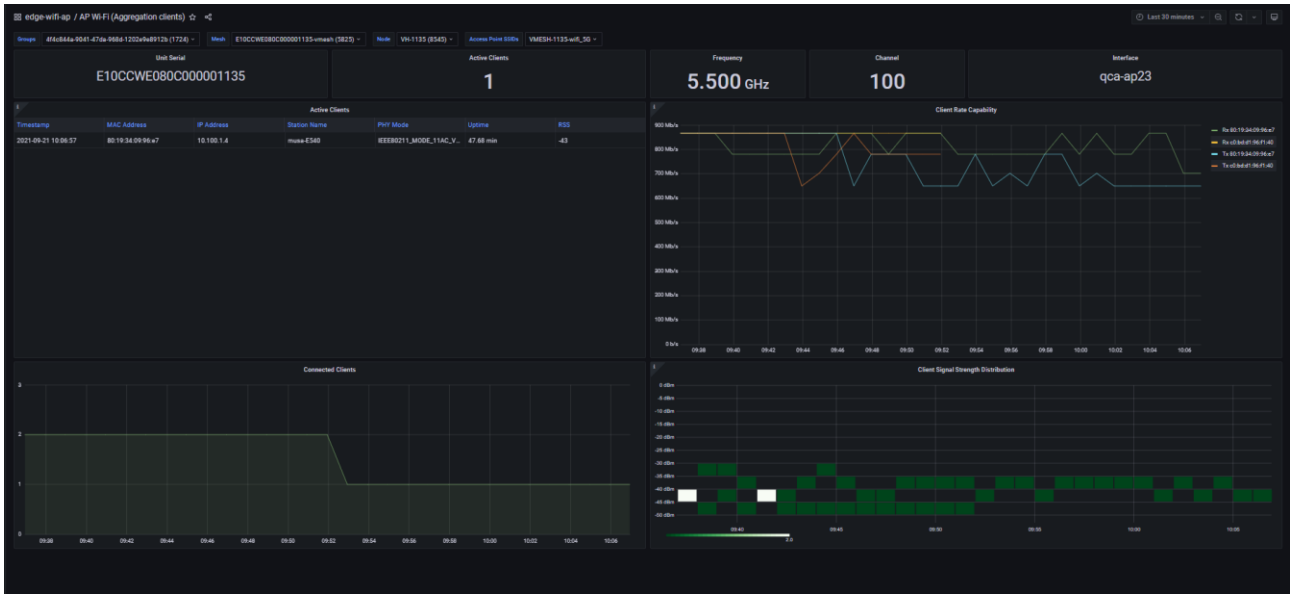
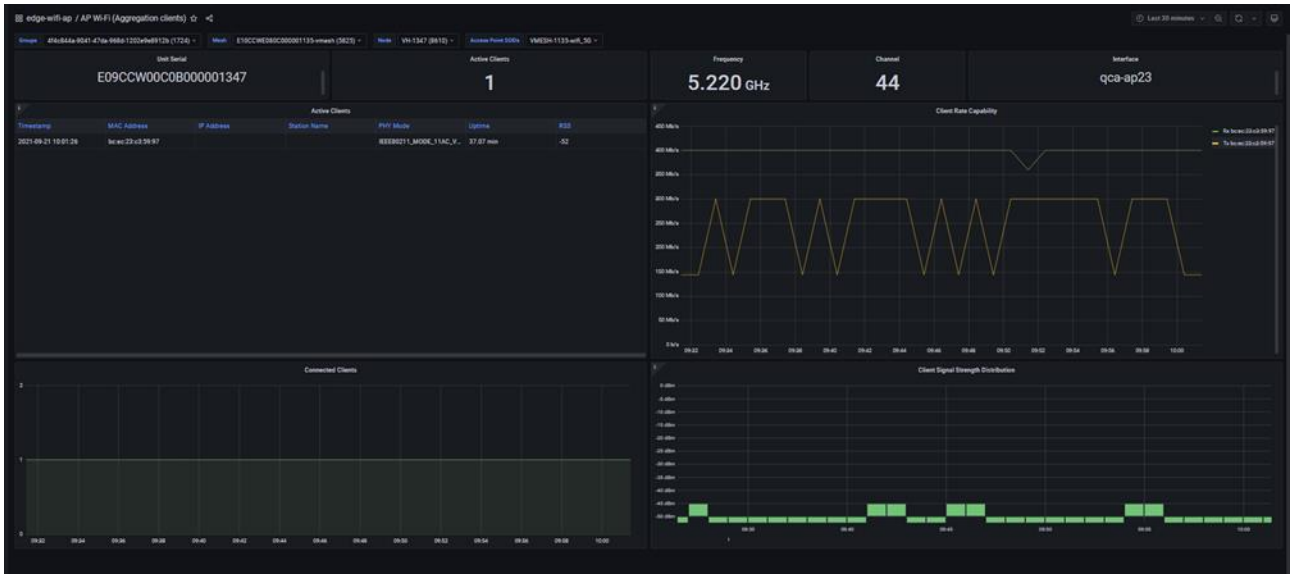


Figure 16: ap_2_3 (5GHz Mesh AP) Node – 1347(MN)



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A.1.2 AP Wi-Fi (Aggregation interface) Dashboard

A.1.2.1 ap_1_3 (2.4GHz Mesh AP)

Figure 17: ap_1_3 (2.4GHz Mesh AP) Node – 1135(MEN)

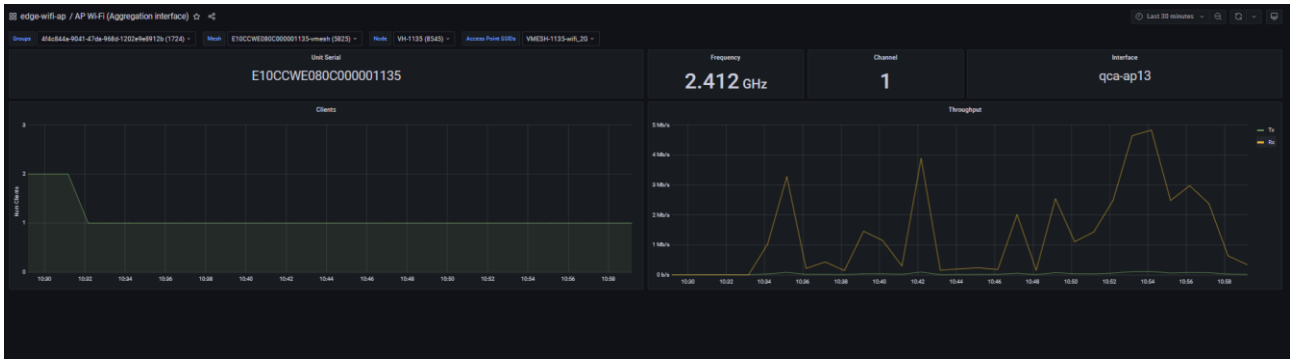

Figure 18: ap_1_3 (2.4GHz Mesh AP) Node – 1347(MN)

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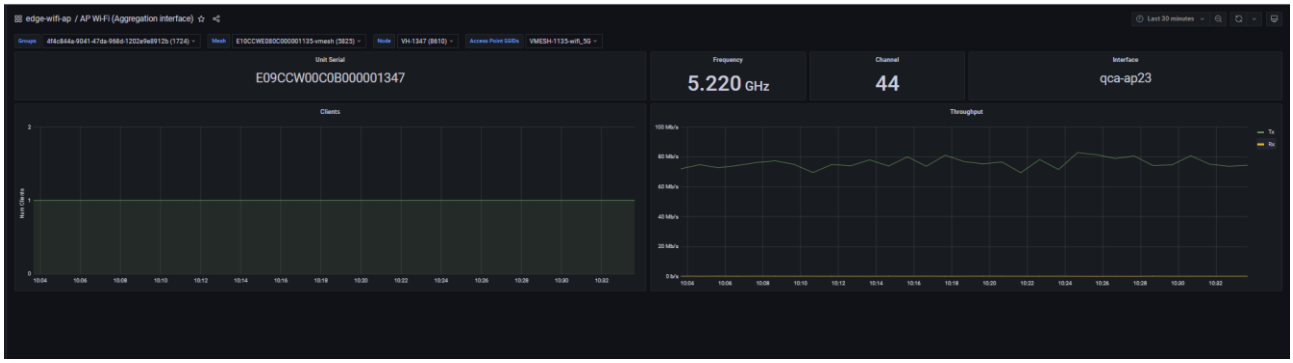
A.1.2.2 ap_2_3 (2.4GHz Mesh AP)

Figure 19: ap_2_3 (2.4GHz Mesh AP) Node – 1135(MEN)

Figure 20: Node – 1347(MN)



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A.1.3 AP Wi-Fi (List clients) Dashboard

A.1.3.1 ap_1_3 (2.4GHz Mesh AP)

Figure 21: ap_1_3 (2.4GHz Mesh AP) Node – 1135(MEN)

Figure 22: ap_1_3 (2.4GHz Mesh AP) Node – 1347(MN)

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A.1.3.2 ap_2_3 (5GHz Mesh AP)

Figure 23: ap_2_3 (5GHz Mesh AP) Node – 1135(MEN)

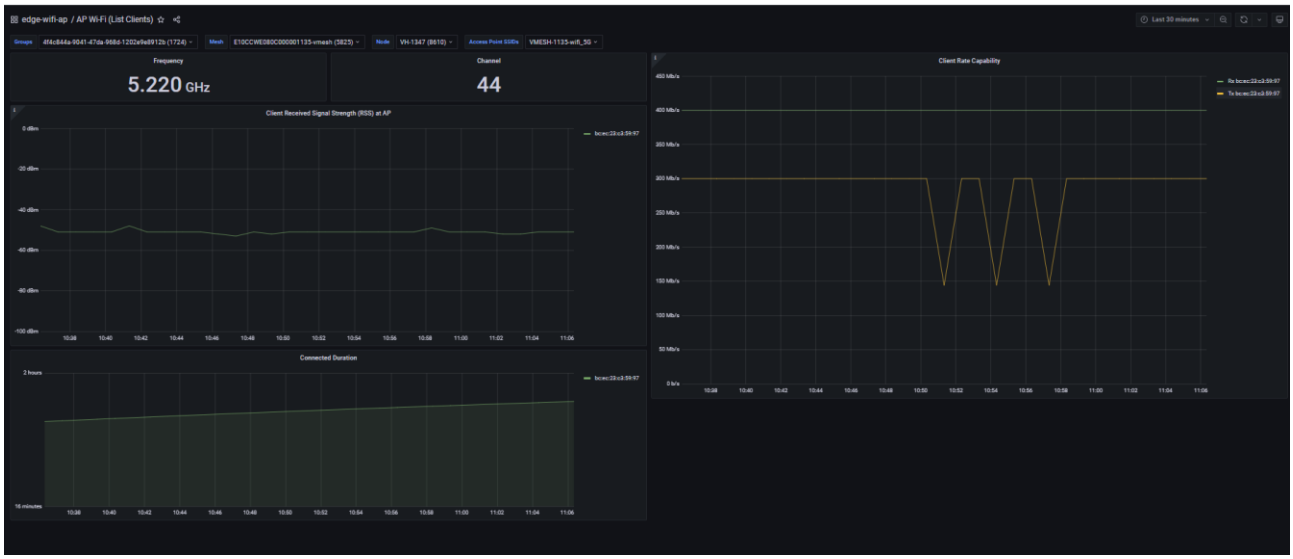
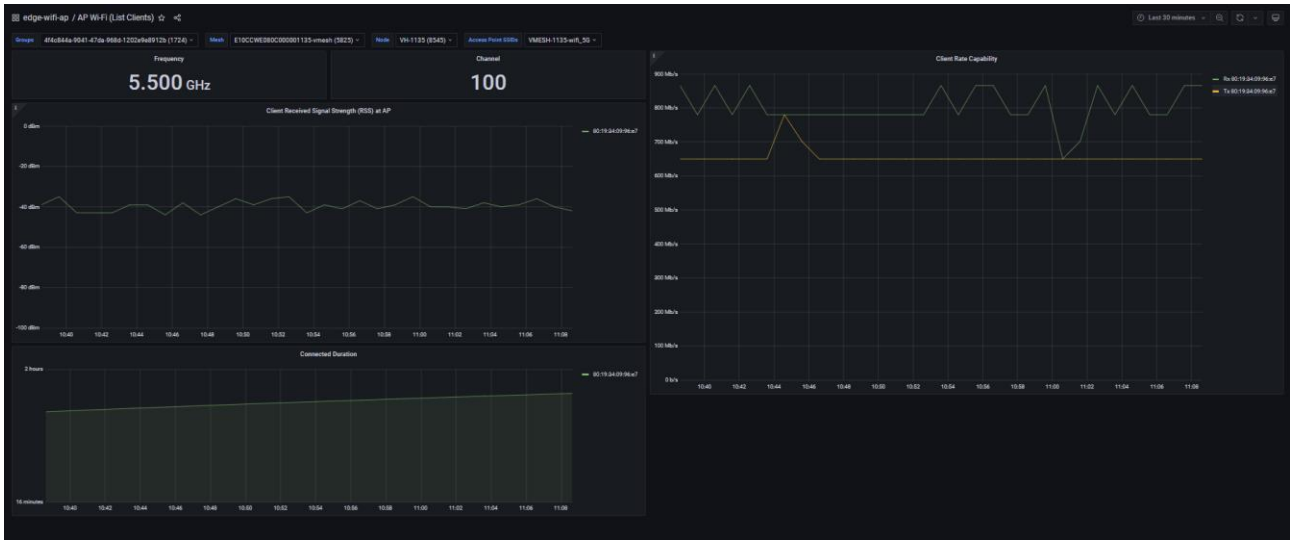


Figure 24: ap_2_3 (5GHz Mesh AP) Node – 1347(MN)



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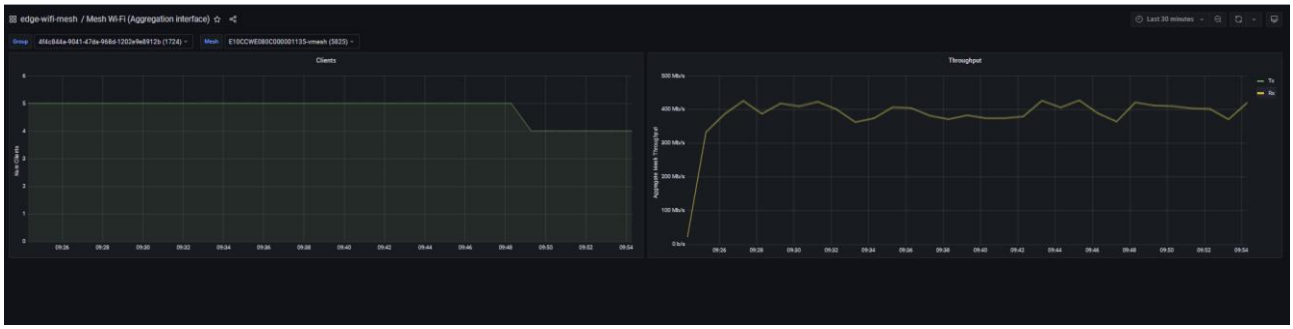
A.2 EDGE-WIFI-MESH

A.2.1 Mesh Wi-Fi (Aggregation Clients) Dashboard

Figure 25: Mesh Wi-Fi (Aggregation Clients) Mesh

A.2.2 Mesh Wi-Fi (Aggregation Interface) Dashboard

Figure 26: Mesh Wi-Fi (Aggregation Interface) Dashboard



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A.3 EDGE-WIFI-NODE

A.3.1 Node Wi-Fi (Aggregated client) Dashboard

Figure 27: Node Wi-Fi (Aggregated client) Node – 1135(MEN)

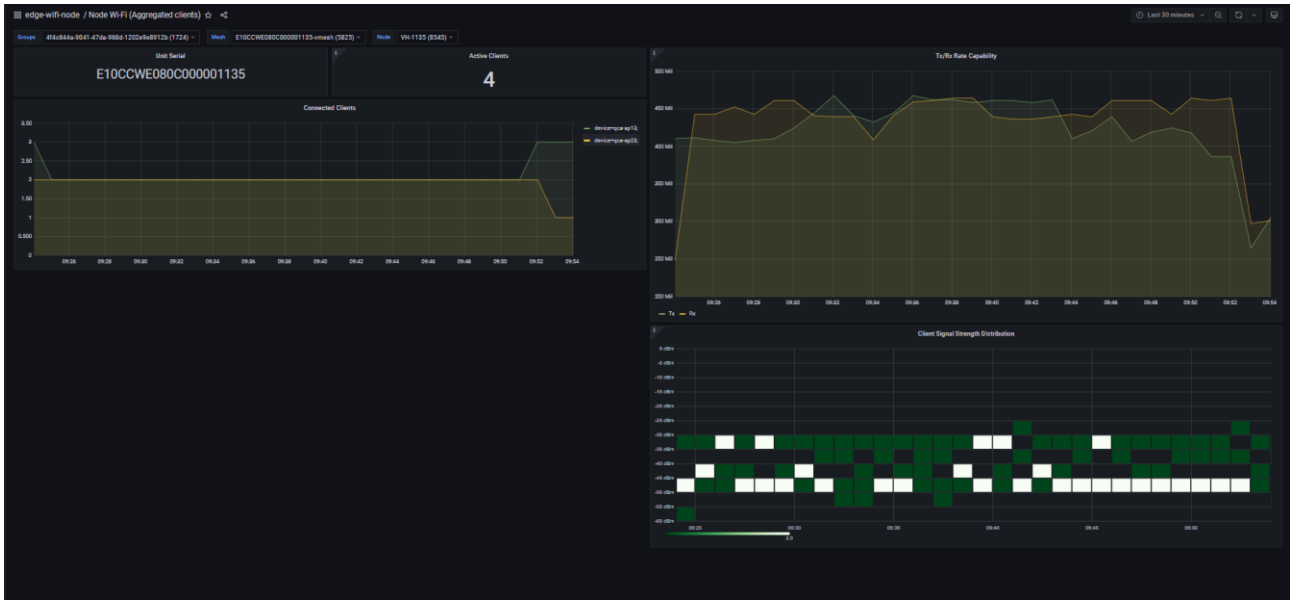
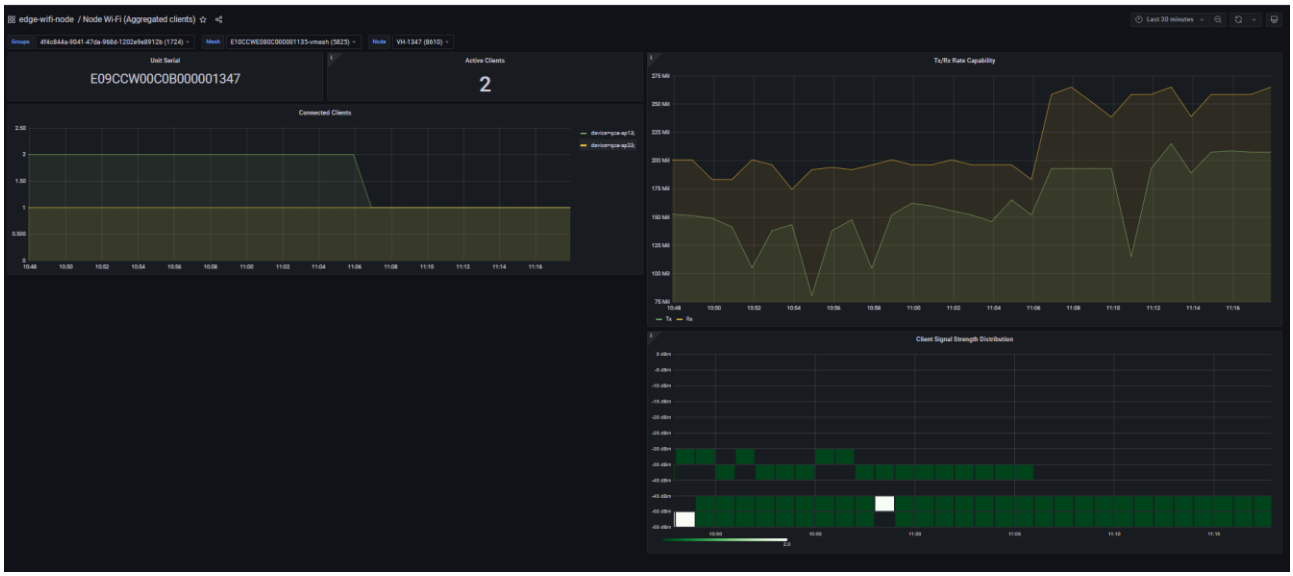


Figure 28: Node Wi-Fi (Aggregated client) Node – 1347(MN)



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A.3.2 Node Wi-Fi (Aggregated interface) Dashboard

Figure 29: Node Wi-Fi (Aggregated interface) Node – 1135(MEN)

Figure 30: Node Wi-Fi (Aggregated interface) Node – 1347(MN)

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A.4 EDGE-MESH

A.4.1 Mesh Stats

Figure 31: Mesh Stats Dashboard

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A.5 EDGE-NODE

A.5.1 Mesh Interface

Figure 32: Mesh Interface Dashboard

A.5.2 Node Stats

Figure 33: Node Stats Dashboard VH-1135

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Figure 34: Node Stats Dashboard VH-1347

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