USER GUIDE



SmartCell Gateway and SmartZone Key Performance Indicator and Report Generation Guide

Supporting SmartZone 3.6

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Preface

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Document Conventions

The following tables list the text and notice conventions that are used throughout this guide.

TABLE 1 Text conventions

| Convention | Description | Example |
|------------|--|---|
| monospace | Identifies command syntax examples. | <pre>device(config)# interface ethernet 1/1/6</pre> |
| bold | User interface (UI) components such as screen or page names, keyboard keys, software buttons, and field names | On the Start menu, click All Programs . |
| italics | Publication titles | Refer to the Ruckus Small Cell Release Notes for more information |

Notes, Cautions, and Warnings

Notes, cautions, and warning statements may be used in this document. They are listed in the order of increasing severity of potential hazards.

NOTE

A NOTE provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.



CAUTION

DANGER

A CAUTION statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.



A DANGER statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Command syntax conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention bold text

Description

Identifies command names, keywords, and command options.

Preface Document feedback

| Convention | Description |
|--------------------|---|
| <i>italic</i> text | Identifies a variable. |
| [] | Syntax components displayed within square brackets are optional. |
| | Default responses to system prompts are enclosed in square brackets. |
| { x y z } | A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options. |
| x y | A vertical bar separates mutually exclusive elements. |
| <> | Nonprinting characters, for example, passwords, are enclosed in angle brackets. |
| | Repeat the previous element, for example, <i>member</i> [member]. |
| \ | Indicates a "soft" line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash. |

Document feedback

Ruckus is interested in improving its documentation and welcomes your comments and suggestions.

You can email your comments to Ruckus at: docs@ruckuswireless.com

When contacting us, please include the following information:

- Document title and release number
- Document part number (on the cover page)
- Page number (if appropriate)
- For example:
 - SmartCell Gateway 200 S2a Interface Reference Guide for SmartZone 3.5.1
 - Part number: 800-71306-001
 - Page 88

Ruckus resources

Visit the Ruckus website to locate related documentation for your product and additional Ruckus resources.

Release Notes and other user documentation are available at https://support.ruckuswireless.com/documents. You can locate documentation by product or perform a text search.

White papers, data sheets, and other product documentation are available at www.ruckuswireless.com.

Online Training Resources

To access a variety of online Ruckus training modules, including free introductory courses to wireless networking essentials, site surveys, and Ruckus products, visit the Ruckus Training Portal at https://training.ruckuswireless.com.

Contacting Ruckus Technical Support

As a Ruckus customer, you can contact Ruckus Technical Support 24x7 online or by telephone.

For product support information and latest information on contacting the Support Team, go to www.ruckuswireless.com and select **Support**.

If you have purchased Ruckus product support directly from Ruckus, use one of the following methods to contact the Support Team 24x7.

| Online | Telephone |
|---|---|
| Preferred method of contact for non-urgent issues: Case management through the https:// support.ruckuswireless.com portal. Access links to Knowledge Base, Forum, Technical Documents, Software Downloads and Licensing tools | Required for Sev 1-Critical and Sev 2-High issues: Continental US: 1-855-782-5871 Canada: 1-855-782-5871 Europe, Middle East, Africa, and Asia Pacific, toll-free numbers are available at https://support.ruckuswireless.com/contact-us |
| | and Live Chat is also available. |

About This Guide

This *SmartCell Gateway*TM (SCG) 200 KPI and Report Reference Guide provides a number of statistics, graphs, and reports that you can use to establish key performance indicators (KPIs) for the network.

This guide is written for service operators and system administrators who are responsible for managing, configuring, and troubleshooting Ruckus Wireless devices. Consequently, it assumes a basic working knowledge of local area networks, wireless networking, and wireless devices.

NOTE

This guide assumes that the SmartCell Gateway has already been installed as described in the Getting Started Guide.

Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the Ruckus Wireless Support web site at https://support.ruckuswireless.com/contact-us.

Terminology

Table 2 lists the terms used in this guide.

TABLE 2 Terms used in this guide

| Term | Description |
|------|---|
| AAA | Authentication, Authorization, and Accounting |
| AAR | AA Request |
| AP | Access Point |
| APN | Access Point Name |
| ASA | Abort Session Answer |
| ASR | Abort Session Request |
| BRA | Binding Revocation Acknowledgment |
| BRI | Binding Revocation Indicator |
| CEA | Capability-Exchange Answer |
| CER | Capacity Exchange Request |
| CGF | Charging Gateway Function |
| COA | Change of Authorization |
| DEA | Diameter EAP Answer |
| DER | Diameter EAP Request |
| DHCP | Dynamic Host Configuration Protocol |
| DM | Dynamic Multipoint |
| DP | Data Plane |
| DPA | Disconnect Peer Answer |
| DPR | Disconnect Peer Request |
| DRT | Data Record Transfer |
| GGSN | Gateway GPRS Support Node |
| GRE | Generic Route Encapsulation |

TABLE 2 Terms used in this guide (continued)

| Term | Description |
|------------|--|
| GSN | GPRS Support Node |
| GTP-C | GPRS Tunneling Protocol – Control Plane |
| HLR | Home Location Register |
| KPI | Key Performance Indicators |
| LMA | Local Mobility Anchor |
| NAS | Network Access Server |
| PBA | Proxy Binding Acknowledgment |
| PBU | Proxy Binding Update |
| PDG | Packet Data Gateway |
| PDP | Packet Data Protocol |
| PGW | Packet Data Network Gateway |
| PMIP | Proxy Mobile IPv6 |
| RADIUS | Remote Authentication Dial-In User Service |
| RAR | Re-Auth Request |
| SCG | Smart Cell Gateway |
| SCG-CBlade | SCG Controller Blade |
| SCG-DBlade | SCG Data Blade |
| SG | Service Gateway |
| SNMP | Simple Management Network Protocol |
| SSID | Service Set Identifiers |
| STA | Session Termination Answer |
| STR | Session Termination Request |
| TCP | Transmission Control Protocol |
| TTG | Tunnel Termination Gateway |
| UE | User Equipment |
| UE-IP | User Equipment - IP Address |
| UE-MAC | User Equipment - MAC Address |
| VLAN | Virtual LAN |
| WLAN | Wireless LAN |

Key Performance Indicators

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Overview

The SCG200 / SZ300 (referred as controller in this guide) provides a number of statistics, graphs, and reports that you can use to establish Key Performance Indicators (KPIs) for the network. You can use these KPIs to determine, among others, the quality of wireless service that users are getting, the overall health of the controller system, and any issues that may impact the controller managed devices and, consequently, the network.

NOTE

Refer to About This Guide on page 9 for terminologies used in this guide.

KPIs under the Access Points Tab

The following sections describe the various key performance indicators that the controller provides in the Access Points tab.

NOTE

For information on **Rogue Access Points Alarms** and **Events** refer to the *Administrator Guide for SmartZone* (PDF) or the **SmartZone Online Help**, which is accessible from the controller web interface.

Access Point Zone

An AP zone functions as a way of grouping Ruckus Wireless APs and applying a particular set of settings (including WLANs and their settings) to these groups of Ruckus Wireless APs. By default, an AP zone named **staging zone** exists. Any AP that registers with the controller that is not assigned a specific zone is automatically assigned to the staging zone. Each AP zone can include up to 2048 WLAN services.

Navigate to Access Points > Access Points > View Mode > Zone to view the access point zone KPIs. The following table lists the key performance indicators for statistics related to the AP zones.

NOTE

For information on configuring AP Zone, refer to the *SmartCell Gateway 200 Administrator Guide* (PDF) or the **SmartCell Gateway 200 Online Help**, which is accessible from the controller web interface.

FIGURE 1 KPIs for AP Zone

| Ruckus™ | Support expires in 20 days | | | Þ | | | regsz30 | 10 ~ | de feu di | | |
|--------------|--------------------------------|--------------|---------------|----------------|---------------------|--------------|--------------|-------------|----------------|------------|--------------|
| | AP licenses expire in 20 days | | | N | | | 2017-11-10 1 | | Filter default | | ٥ |
| shboard | Access Deinte | (4040) 4 0-1 | | 4 4000 000- | | | | | | | |
| stem 🕨 | Access Points | (1012) 1 Oni | ine 3 Hagge | | | | | | view Mode: | | Mesh Map Z |
| ccess Points | Zone Name 🔺 | AP Firmware | Description | Management Dom | # of APs | # of Clients | AP IP Mode | Mesh | Tunnel Type | Created By | Created On |
| ireless LANs | P1_ZONE_01 | 3.5.0.0.1444 | N/A | Deployment | 100 (0/ 0/ 1 | 0 | IPv4 only | Disabled | RuckusGRE | admin | 2017/08/31 1 |
| | SZ300-3.5-RUCKUS-GRE-IPV4 | 3.5.0.0.1444 | SZ300-3.5-RU | SZ300-3.5-BD | 1 (0/ 1/ 0) | 0 | IPv4 only | Disabled | RuckusGRE | admin | 2017/08/19 2 |
| ients 🕨 🕨 | SZ300-3.5-RuckusGRE-Dual-Zone1 | 3.5.0.0.1444 | SZ300-3.5-Ruc | SZ300-3.5-BD | 1 (0/ 1/ 0) | 0 | IPv4 and | Disabled | RuckusGRE | admin | 2017/08/19 2 |

TABLE 3 KPIs for AP zone

| KPI | Description |
|-------------------|---|
| Zone Name | Indicates the name of the zone. |
| AP Firmware | Indicates the firmware version that is installed on this access point. |
| Description | Indicates a short note of the AP zone. |
| Management Domain | Indicates the management domain to which the zone belongs. |
| # of APs | Total number of APs that belong to each AP zone. |
| # of Clients | Total number clients that belong to each AP zone. |
| AP IP Mode | Indicates the IP version. |
| Mesh | Total number of APs per mesh role. Mesh roles include Root AP, Mesh AP, and eMesh AP. |
| Tunnel Type | Indicates the tunnel type used. |
| Created By | Indicates the role that created the entry. |
| Created On | Indicates the date and time when the entry was created. |

Access Point

Once you have created registration rules and the AP zones, APs can be assigned automatically. APs will be able to join or register with the controller automatically.

To view the KPIs, navigate to Access Points > Access Point > View Mode > List. The following table lists the key performance indicators for statistics related to access points.

NOTE

For information on configuring Access Points, refer to the *Administrator Guide for SmartZone* (PDF) or the **SmartZone Online Help**, which is accessible from the controller web interface.

FIGURE 2 KPIs for Access Points

| Ruckus™ | | es in 20 days | | | Þ | | | regsz300 | ~ [| defeuti | | - |
|---------------|-------------------|--------------------|------------|----------|--------------|---------------------|---------|-----------------|--------------|-----------------------|---------------|-----|
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| | | | | | | | | | | | | |
| iystem 🕨 | Access | Points (1012) |) 1 Online | 3 Flagge | d 1008 Omine | | E. | | | View Mode: List Group | Mesh Map Zone | |
| Access Points | 🖉 Configure 🔄 | Move 📋 Delete More | . • | | | | | | | search table | Q 2 1 | |
| | MAC Address 🔺 | AP Name | Status | Alarm | IP Address | Total Traffic (1hr) | Clients | Zone | AP Firmware | Serial | | ۰ |
| 'ireless LANs | 00:00:D3:10:13:89 | SimAP-Sim-5001 | Offline | 0 | 10.81.1.1 | N/A | 0 | P1_ZONE_01 | 3.5.0.0.1444 | 030238949432 | | |
| lients 🕨 | 00:00:D3:10:13:8A | SimAP-Sim-5002 | Offline | 0 | 10.81.1.2 | N/A | 0 | P1_ZONE_01 | 3.5.0.0.1444 | 050597116417 | | |
| | | | | - | | | | | | | | |

TABLE 4 KPIs for access points

| MAC address Indicates the AAC address of the access point. AP Name Indicates the access point name. Description Indicates a short note of the AP. Status Indicates whether the access point is currently connected (online), disconnected (offline) or flagged. Alam Indicates whether the access point is currently connected (online), disconnected (offline) or flagged. IP Address Indicates the IP address of the access point. Total Traffic (thr) Indicates the number of clients connected to the access point. Clients (24.G) Indicates the number of clients connected to the access point with 24.G radio channel frequency. Latency (24.G) Indicates the average delay required to successfully deliver a Wi-Fi with 2.4G radio channel frequency. Alrime Utilization (2.G) Indicates the average delay required to successfully deliver a Wi-Fi with 2.4G radio channel frequency. Alrime Utilization (2.G) Indicates the average delay required to successfully deliver a Wi-Fi with 2.4G radio channel frequency. Alrime Utilization (2.G) Indicates the average delay required to successfully deliver a Wi-Fi with 2.4G radio channel frequency. Alrime Utilization (2.G) Indicates the average delay required to successfully deliver a Wi-Fi with 5.G radio channel frequency. Connection failures Indicates the average delay required to success | KPI | Description |
|---|----------------------------|---|
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| Clients (5G)Indicates the number of clients connected to the access point with 5G radio channel frequency.Latency (2.4G)Indicates the average delay required to successfully deliver a Wi-Fi with 2.4G radio channel frequency.Latency (5G)Indicates the average delay required to successfully deliver a Wi-Fi with 5G radio channel frequency.Airtime Utilization (2.4G)Indicates airtime availability, which measures the total amount of airtime currently being used by tx, rx, or non-WiFi interference.Airtime Utilization (5G)Indicates airtime availability, which measures the total amount of airtime currently being used by tx, rx, or non-WiFi interference.Connection failuresIndicates the percentage of AP-client connection attempts that failed.ModelIndicates the 2.4G radio channel frequency.Channel (2.4G)Indicates the 2.4G radio channel frequency.Channel (5G)Indicates the SG radio channel frequency.Mesh ModeIndicates the mesh mode type.Mesh RoleIndicates the role is enabled or disabled.ZoneIndicates the AP group to which the access point belongs.External IP PortIndicates the Arean IP port.AP FirmwareIndicates the serial number.Configuration StatusIndicates the status of the configuration settings.Lates the adate and time.Indicates the date and time.Traffic (uplink)Indicates the date and time. | Clients | Indicates the number of clients connected to the access point. |
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| Latency (SG)Indicates the average delay required to successfully deliver a Wi-Fi with SG radio channel frequency.Airtime Utilization (2.4G)Indicates airtime availability, which measures the total amount of airtime currently being used by tx, rx, or non-WiFi interference.Airtime Utilization (SG)Indicates airtime availability, which measures the total amount of airtime currently being used by tx, rx, or non-WiFi interference.Connection failuresIndicates airtime availability, which measures the total amount of airtime currently being used by tx, rx, or non-WiFi interference.Connection failuresIndicates the AP model.ModelIndicates the AP model.Channel (2.4G)Indicates the 5G radio channel frequency.Channel (5G)Indicates the SG radio channel frequency.Mesh ModeIndicates the mesh mode type.Mesh RoleIndicates the role is enabled or disabled.ZoneIndicates the AP group to which the access point belongs.AP GroupIndicates the torean all P port.AP FirmwareIndicates the serial number.Configuration StatusIndicates the status of the configuration settings.Last SeenIndicates the date and time.Traffic (uplink)Indicates the date and time.Traffic (downlink)Indicates the date and time. | Clients (5G) | Indicates the number of clients connected to the access point with 5G radio channel frequency. |
| Airtime Utilization (2.4G)Indicates airtime availability, which measures the total amount of airtime currently being used by tx, rx, or non-WiFi interference.Airtime Utilization (5G)Indicates airtime availability, which measures the total amount of airtime currently being used by tx, rx, or non-WiFi interference.Connection failuresIndicates the percentage of AP-client connection attempts that failed.ModelIndicates the AP model.Channel (2.4G)Indicates the 2.4G radio channel frequency.Channel (5G)Indicates the 5G radio channel frequency.Mesh ModeIndicates the role is enabled or disabled.ZoneIndicates the zone to which the access point belongs.AP GroupIndicates the AP group to which the access point belongs.External IP PortIndicates the strenal IP port.AP FirmwareIndicates the strenal IP port.SerialIndicates the status of the configuration settings.Configuration StatusIndicates the status of the configuration settings.Lat SeenIndicates the due and time.Traffic (downlink)Indicates the downlink traffic. | Latency (2.4G) | Indicates the average delay required to successfully deliver a Wi-Fi with 2.4G radio channel frequency. |
| arrine Utilization (5G)or non-WiFi interference.Airtime Utilization (5G)Indicates airtime availability, which measures the total amount of airtime currently being used by tx, rx, or non-WiFi interference.Connection failuresIndicates the percentage of AP-client connection attempts that failed.ModelIndicates the AP model.Channel (2.4G)Indicates the 2.4G radio channel frequency.Channel (5G)Indicates the 5G radio channel frequency.Mesh ModeIndicates the mesh mode type.Mesh RoleIndicates if the role is enabled or disabled.ZoneIndicates the AP group to which the access point belongs.AP GroupIndicates the external IP port.AP FirmwareIndicates the firmware version installed on the access point.SerialIndicates the serial number.Configuration StatusIndicates the status of the configuration settings.Last SeenIndicates the date and time.Taffic (downlink)Indicates the date and time. | Latency (5G) | Indicates the average delay required to successfully deliver a Wi-Fi with 5G radio channel frequency. |
| or non-WiFi interference.Connection failuresIndicates the percentage of AP-client connection attempts that failed.ModelIndicates the AP model.Channel (2.4G)Indicates the 2.4G radio channel frequency.Channel (6G)Indicates the 5G radio channel frequency.Mesh ModeIndicates the role is enabled or disabled.ZoneIndicates the zone to which the access point belongs.AP GroupIndicates the external IP port.AP FirmwareIndicates the firmware version installed on the access point.SerialIndicates the serial number.Configuration StatusIndicates the date and time.Traffic (downlink)Indicates the downlink traffic. | Airtime Utilization (2.4G) | |
| ModelIndicates the AP model.Channel (2.4G)Indicates the 2.4G radio channel frequency.Channel (5G)Indicates the 5G radio channel frequency.Mesh ModeIndicates the mesh mode type.Mesh RoleIndicates the nole is enabled or disabled.ZoneIndicates the zone to which the access point belongs.AP GroupIndicates the AP group to which the access point belongs.External IP PortIndicates the external IP port.AP FirmwareIndicates the serial number.Configuration StatusIndicates the status of the configuration settings.Last SeenIndicates the date and time.Traffic (uplink)Indicates the downlink traffic. | Airtime Utilization (5G) | |
| Channel (2.4G)Indicates the 2.4G radio channel frequency.Channel (5G)Indicates the 5G radio channel frequency.Mesh ModeIndicates the mesh mode type.Mesh RoleIndicates if the role is enabled or disabled.ZoneIndicates the zone to which the access point belongs.AP GroupIndicates the external IP port.AP FirmwareIndicates the firmware version installed on the access point.SerialIndicates the status of the configuration settings.Configuration StatusIndicates the date and time.Traffic (uplink)Indicates the uplink traffic.Traffic (downlink)Indicates the downlink traffic. | Connection failures | Indicates the percentage of AP-client connection attempts that failed. |
| Channel (5G)Indicates the 5G radio channel frequency.Mesh ModeIndicates the mesh mode type.Mesh RoleIndicates if the role is enabled or disabled.ZoneIndicates the zone to which the access point belongs.AP GroupIndicates the AP group to which the access point belongs.External IP PortIndicates the external IP port.AP FirmwareIndicates the firmware version installed on the access point.SerialIndicates the serial number.Configuration StatusIndicates the status of the configuration settings.Last SeenIndicates the uplink traffic.Traffic (uplink)Indicates the downlink traffic. | Model | Indicates the AP model. |
| Mesh ModeIndicates the mesh mode type.Mesh RoleIndicates if the role is enabled or disabled.ZoneIndicates the zone to which the access point belongs.AP GroupIndicates the AP group to which the access point belongs.External IP PortIndicates the external IP port.AP FirmwareIndicates the firmware version installed on the access point.SerialIndicates the serial number.Configuration StatusIndicates the status of the configuration settings.Last SeenIndicates the date and time.Traffic (uplink)Indicates the downlink traffic. | Channel (2.4G) | Indicates the 2.4G radio channel frequency. |
| Mesh RoleIndicates if the role is enabled or disabled.ZoneIndicates the zone to which the access point belongs.AP GroupIndicates the AP group to which the access point belongs.External IP PortIndicates the external IP port.AP FirmwareIndicates the firmware version installed on the access point.SerialIndicates the serial number.Configuration StatusIndicates the status of the configuration settings.Last SeenIndicates the date and time.Traffic (uplink)Indicates the uplink traffic.Traffic (downlink)Indicates the downlink traffic. | Channel (5G) | Indicates the 5G radio channel frequency. |
| ZoneIndicates the zone to which the access point belongs.AP GroupIndicates the AP group to which the access point belongs.External IP PortIndicates the AP group to which the access point belongs.AP FirmwareIndicates the external IP port.AP FirmwareIndicates the firmware version installed on the access point.SerialIndicates the serial number.Configuration StatusIndicates the status of the configuration settings.Last SeenIndicates the date and time.Traffic (uplink)Indicates the uplink traffic.Traffic (downlink)Indicates the downlink traffic. | Mesh Mode | Indicates the mesh mode type. |
| AP GroupIndicates the AP group to which the access point belongs.External IP PortIndicates the external IP port.AP FirmwareIndicates the firmware version installed on the access point.SerialIndicates the serial number.Configuration StatusIndicates the status of the configuration settings.Last SeenIndicates the date and time.Traffic (uplink)Indicates the uplink traffic.Traffic (downlink)Indicates the downlink traffic. | Mesh Role | Indicates if the role is enabled or disabled. |
| External IP PortIndicates the external IP port.AP FirmwareIndicates the firmware version installed on the access point.SerialIndicates the serial number.Configuration StatusIndicates the status of the configuration settings.Last SeenIndicates the date and time.Traffic (uplink)Indicates the uplink traffic.Traffic (downlink)Indicates the downlink traffic. | Zone | Indicates the zone to which the access point belongs. |
| AP FirmwareIndicates the firmware version installed on the access point.SerialIndicates the serial number.Configuration StatusIndicates the status of the configuration settings.Last SeenIndicates the date and time.Traffic (uplink)Indicates the uplink traffic.Traffic (downlink)Indicates the downlink traffic. | AP Group | Indicates the AP group to which the access point belongs. |
| SerialIndicates the serial number.Configuration StatusIndicates the status of the configuration settings.Last SeenIndicates the date and time.Traffic (uplink)Indicates the uplink traffic.Traffic (downlink)Indicates the downlink traffic. | External IP Port | Indicates the external IP port. |
| Configuration Status Indicates the status of the configuration settings. Last Seen Indicates the date and time. Traffic (uplink) Indicates the uplink traffic. Traffic (downlink) Indicates the downlink traffic. | AP Firmware | Indicates the firmware version installed on the access point. |
| Last Seen Indicates the date and time. Traffic (uplink) Indicates the uplink traffic. Traffic (downlink) Indicates the downlink traffic. | Serial | Indicates the serial number. |
| Traffic (uplink) Indicates the uplink traffic. Traffic (downlink) Indicates the downlink traffic. | Configuration Status | Indicates the status of the configuration settings. |
| Traffic (downlink) Indicates the downlink traffic. | Last Seen | Indicates the date and time. |
| | Traffic (uplink) | Indicates the uplink traffic. |
| Location Indicates the location of the AP. | Traffic (downlink) | Indicates the downlink traffic. |
| | Location | Indicates the location of the AP. |

TABLE 4 KPIs for access points (continued)

| KPI | Description |
|----------------------|--|
| WLAN Group (2.4G) | Indicates the 2.4G WLAN group. |
| WLAN Group (5G) | Indicates the 5G WLAN group. |
| Bonjour Gateway | Indicates if bonjour gateway service is enabled or disabled. |
| Control Plane | Indicates the control plane. |
| Data Plane | Indicates the data plane. |
| LBS Status | Indicates location-based service support. |
| Administrative State | Indicates the administration state. |
| Registration State | Indicates if the registration is approved. |
| Provision Method | Indicates if the AP is discovered. |
| Provision Stage | Indicates the state of provision. |
| Registered On | Indicates the date and time the AP is registered. |
| Management VLAN | Indicates the number of VLANs. |

KPI under the Clients Tab

The following section describes the various key performance indicators that the controller provides in the Clients tab.

Wireless Clients KPI

To view the KPIs, navigate to **Clients** > **Wireless Clients**. See the following table that lists the key performance indicator for statistics related to wireless clients.

NOTE

For information on configuring Clients, refer to the *Administrator Guide for SmartZone* (PDF) or the **SmartZone Online Help**, which is accessible from the controller's web interface.

FIGURE 3 KPIs for Wireless Clients

| regsz300 | |
|---|-----|
| 2017-11-10 13:02:05 C Filter default o admin | , @ |
| | ^ |
| | |
| 🖹 Disconnect More 🐧 | |
| e IP Address MAC Address 🛦 WLAN AP Name AP MAC Traffic (Session) RSSI 🏶 | |
| | |
| | |
| | |
| | 11 |
| No data « 1 = | |
| Clients WLANs Services Administrators APs | |
| Ψ. | |
| Managed by Partner No Total Clients 0 | ~ |
| Clients WLANs Services Administrators APs | |

The following table lists the wireless client details that are shown in the table.

TABLE 5 KPIs for Wireless Clients

| KPI | Description |
|--------------------|--|
| Host Name | Displays the host name of the wireless client. |
| OS Type | Displays the operating system that the wireless client is using. |
| IP Address | Displays the IP address assigned to the wireless client. |
| MAC Address | Displays the MAC address of the wireless client. |
| WLAN | Displays the name of the WLAN with which the client is associated. |
| AP Name | Displays the name assigned to the access point. |
| AP MAC | Displays the MAC address of the AP. |
| Traffic (Session) | Displays the total traffic (in KB/MB/GB/TB) for this client in this session. |
| Traffic (uplink) | Displays the total uplink traffic (in KB/MB/GB/TB) for this client in this session. |
| Traffic (downlink) | Displays the total downlink traffic (in KB/MB/GB/TB) for this client in this session. |
| RSSI | Displays the Received Signal Strength Indicator (RSSI), which indicates how well a wireless client can recieve a signal from an AP. The RSSI value is shown in decibels (dBm) and displayed as either the real-time value or the average value over the past 90 seconds. |
| SNR | Displays the Signal-to-Noise Ratio (SNR), which indicates the signal strength relative to background noise. The SNR value is shown in decibels (dB) and displayed as either the real-time value or the average value over the past 90 seconds. |
| Radio Type | Displays the type of wireless radio that the client supports. |
| | Possible values include 11b, 11g, 11g/n, 11a, 11a/g/n, and 11ac. |
| VLAN | Displays the VLAN ID assigned to the wireless client. |
| Channel | Displays the wireless channel (and channel width) that the wireless client is using. |
| User Name | Displays the name of the user logged on to the wireless client. |
| Data Rate (up) | Displays the rate at which data is transmitted from the wireless client to the AP. |

TABLE 5 KPIs for Wireless Clients (continued)

| KPI | Description | |
|--------------------|---|--|
| Data Rate (down) | Displays the rate at which data is transmitted from the AP to the wireless client. | |
| Auth Method | Displays the authentication method used by the AP to authenticate the wireless client. | |
| Auth Status | Indicates whether the wireless client is authorized or unauthorized to access the WLAN service. | |
| Encryption | Displays the encryption method used by the AP. | |
| Control Plane | Displays the name of the SmartZone node to which the AP's control plane is connected. | |
| Packets To | Displays the downlink packet count for this session. | |
| Packets from | Displays the uplink packet count for this session. | |
| Packets dropped | Displays the downlink packet count for this client that have been dropped. | |
| Session start time | Displays the session start date and time. | |

Wired Clients KPI

To view the KPIs, navigate to **Clients** > **Wired Clients**. See the following that lists the key performance indicator for statistics related to wired clients.

NOTE

For information on configuring Clients, refer to the *Administrator Guide for SmartZone* (PDF) or the **SmartZone Online Help**, which is accessible from the controller's web interface.

FIGURE 4 KPIs for Wired Clients

| ruckus™ _ | Support expires in 20 days | • | | | regsz300 | ~ | defeuit | | | T | _ |
|---------------------|--|-------------------------|--------------|------------------|---------------------|------|---------------|--------------|-------------|-------|---|
| SmartZone 300 | AP licenses expire in 20 days | ▶ | | | 2017-11-10 13:02:56 | C FI | ilter default | _ | ٥ | admin | |
| Dashboard | Wired Clients | | | | | | | | | | ^ |
| System | When onents | | | | | | ۵ | ş | | | |
| Access Points | 3 < | 🛠 Deauthorize | | | | | Γ | search table | ۹ ۵ | ; | |
| Wireless LANs | - D System | MAC Address 🔺 User Name | IP Address A | AP MAC | AP Name | LAN | VLAN | Auth Status | | ٥ | |
| Clients 🗶 | + D Deployment_Demo_DOM + D 5Z300-3.5-BDC-REGRESSI | | | | | | | | | | |
| Wireless Clients | + D \$Z300-3.5-BDC-REGRESSI + D \$Z300-3.5-BDC-REGRESSI | | | | | | | | | | |
| Wired Clients | Z ruckus | | | | | | | | | | |
| Users & Roles | | | | | | | | | | | |
| Guests | | | | | | | | | No data « 1 | | |
| Dynamic PSK | General Configuration Event Ac | iministrators | | | | | | | NO Gala « 1 | | |
| Applications | Group Info | | | | | | | | | | |
| | | | | | | | | | | v | |
| Services & Profiles | Name System | | | Managed by Partn | ner No | | | | | | ~ |

The following table lists the wired client details that are shown in the table.

TABLE 6 KPIs for Wired Clients

| KPI | Description |
|-------------|---|
| MAC Address | Displays the MAC address of the wired client. |

TABLE 6 KPIs for Wired Clients (continued)

| KPI | Description |
|-------------|--|
| User Name | Displays the name of the user logged on to the wired client. |
| IP Address | Displays the IP address assigned to the wireless client. |
| AP MAC | Displays the MAC address of the AP. |
| AP Name | Displays the name assigned to the access point. |
| LAN | Displays the LAN ID assigned to the wired client. |
| VLAN | Displays the VLAN ID assigned to the wired client. |
| Auth Status | Indicates whether the wired client is authorized or unauthorized to access the WLAN service. |

KPI under the System Tab

The following section describes the various key performance indicators that the controller provides in the System tab.

System KPIs

The System KPI status or usage can be viewed for time period (8 hours to 30 days). The system includes CPU, memory, tunnel statistics and disk usage.

To view the KPIs, navigate to System > Cluster > Control Plane > Traffic & Health. The following table lists the key performance indicators for statistics related to the system.

Key Performance Indicators

KPI under the System Tab

FIGURE 5 KPIs for System

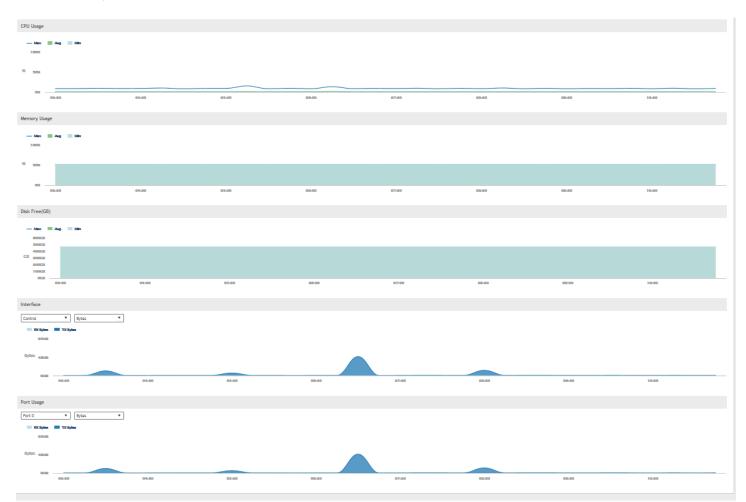


TABLE 7 KPIs for the system

| KPI | Description | | | | | |
|-----------------|--|--|--|--|--|--|
| CPU status | CPU/memory/disk free usage/interface usage/ are available for 8 hours, 24 hours, 7 days and 30 days. | | | | | |
| Memory status | CPU/memory/disk free usage/interface usage/ are available for 8 hours, 24 hours, 7 days and 30 days. | | | | | |
| Disk Free (GB) | Indicates the percentage of free disk space on the controller's web interface. | | | | | |
| Interface usage | Indicates: The Tx and Rx bytes on the control, cluster, and management interfaces for the last 15 minutes, hourly, daily or monthly. The amount of packets (including Tx, Rx, Tx dropped, and Rx dropped) on the control, cluster, and management interfaces for the last 15 minutes, hourly, daily or monthly. The amount of Tx and Rx bits on the control, cluster, and management interfaces per second. | | | | | |
| Port usage | Indicates: • The Tx and Rx bytes on the port 0 - port 5 for the last 8 hours to 30 days. | | | | | |

TABLE 7 KPIs for the system (continued)

| KPI | Description |
|-----|--|
| | The amount of packets (including Tx, Rx, Tx dropped, and Rx dropped) on the port0 - port5 for the last 8 hours to 30 days. |
| | The amount of Tx and Rx bits on the control, cluster, and management interfaces per second. |

KPIs under the Diagnostics Tab

DHCP Server

The controller comes with a built-in DHCP server, which can be enabled for assigning IP addresses to devices that are connected to it. The controller's DHCP server will only assign addresses to devices that are on its own subnet and are a part of the same VLAN (if VLANs are assigned). To view the KPIs, navigate to **Diagnostics** > **DHCP** > **Server**.

The following table lists the key performance indicators related to the Dynamic Host Configuration Protocol (DHCP) server functions.

NOTE

For information on configuring DHCP Service, refer to the *Administrator Guide for SmartZone* (PDF) or the **SmartZone Online Help**, which is accessible from the controller's web interface.

FIGURE 6 DHCP server

| Ruckus™ | i | Support expires in 30 (| days | | ► | | | | | setup | -1 ~ | | | |
|-----------------------|---|-------------------------|----------|---------|------------|----------|-----------|---------|----------|-----------------|-----------------|---------------------|---------------------|--------------|
| SmartCell Gateway 200 | G | AP licenses expire in 3 | 0 days | | ► | | | | | 2017-03-24 | | Filter default | ¢ | admin |
| Dashboard | | Server Relay | | | | | | | | | | | | |
| System 🕨 | | C Refresh | | | | | | | | | | | | |
| Access Points | | Control Plane | DISCOVER | REQUEST | OFFER Sent | ACK Sent | NACK Sent | Renewed | Rebonded | DECLINE Receive | INFORM Received | Created On | Last Modified On | |
| Wireless LANs | | setup-1-C | 0/0/0 | 0/0/0 | 0 | 0 | 0 | 0/0/0 | 0/0/0 | 0 | 0 | 2017/01/24 12:39:29 | 2017/03/24 15:14:34 | |
| | | | | | | | | | | | | | 1 total records | « 1 » |
| Clients 🕨 | | | | | | | | | | | | | | |

TABLE 8 KPIs for DHCP server

| KPI | Description |
|------------------|---|
| Control Plane | Indicates the control plane name. |
| DISCOVER | Indicates the number of DHCP discover messages processed by the DHCP server. |
| REQUEST | Indicates the number of DHCP request messages sent by the DHCP server. |
| OFFER Sent | Indicates the number of DHCP offer messages processed by the DHCP server. This excludes duplicate messages. |
| ACK Sent | Indicates the number of DHCP acknowledgment messages sent by the DHCP server. |
| NACK Sent | Indicates the number of DHCP not acknowledged (NACK) messages sent by the DHCP server. |
| Renewed | Indicates the number of DHCP request messages for renewing the lease period handled. |
| Rebonded | Indicates the number of DHCP request messages for rebonding. |
| DECLINE Received | Indicates the number of DHCP decline messages received. |
| INFORM Received | Indicates the number of DHCP inform messages received. |
| Created On | Indicates the date and time the service was created. |
| Last Modified On | Indicates the date and time the service was last modified. |

DHCP Relay

DHCP relay is when the DHCP server acts as relay at the controller. To view the KPIs, navigate to Diagnostics > DHCP > Relay.

The following table lists the key performance indicators related to the DHCP relay.

NOTE

For information on configuring DHCP Service, refer to the *Administrator Guide for SmartZone* (PDF) or the **SmartZone Online Help**, which is accessible from the controller's web interface.

FIGURE 7 DHCP relay

| Ruckus™ | | Support expires in 3 | 30 days | | | | | | setup-1 | T | |
|--------------------------|---|--|----------------|----------|-------|---------|-----|----------------|--|-------|---|
| SmartCell Gateway 200 | | AP licenses expire i | n 30 days | | ŀ | | | | 2017-03-24 18:37:04 C Filter default o | admin | |
| Dashboard | | Server Relay | | | | | | | | | ^ |
| System | × | C Refresh | | | | | | | | | |
| Access Points | ۲ | Data Plane | DHCP Server IP | DISCOVER | OFFER | REQUEST | ACK | DHCP Option 82 | DHCP Packets Dropped | | |
| Wireless LANs | | setup-1-D1 | 10.9.0.250 | 9 | 9 | 15 | 15 | 24 | 0 | | |
| | | | | | | | | | 1 total records 🤟 | 1 » | |
| Wireless LANs Clients | • | | | - | | | | | | 1 » | |

TABLE 9 KPIs for DHCP relay

| KPI | Description |
|----------------------|---|
| Data Plane | Indicates the data plane name. |
| DHCP Server IP | Indicates the IP address of the DHCP server. |
| DISCOVER | Indicates the number of DHCP discover messages forwarded to the DHCP server. |
| OFFER | Indicates the number of DHCP offer messages received from the DHCP server. |
| REQUEST | Indicates the number of DHCP request messages forwarded to the DHCP server. |
| ACK | Indicates the number of DHCP acknowledgment messages received from the DHCP server. |
| DHCP Opt82 | Indicates the number of DHCP reply messages received, which include Option 82 in the header. (replies include offer and acknowledgment messages.) |
| DHCP Packets Dropped | Indicates the number of DHCP packets that are dropped. |

GGSN Connections

The controller has 3GPP defined Tunnel Terminating Gateway (TTG) functionality, which enables it to act as a gateway between the UE (southbound) and the telecom core (northbound). This is to tunnel the traffic between the UE (User Equipment such as mobile phone) and the controller's gateway, which terminates the tunnel and transfers the data over to the GGSN (Gateway GPRS Serving Node).

To view the KPIs, navigate to **Diagnostics** > **GGSN** > **GGSN** Connection. The following table lists the key performance indicators for path management message statistics of GGSN connections.

NOTE

For information on configuring GGSN Service, refer to the *Administrator Guide for SmartZone* (PDF) or the **SmartZone Online Help**, which is accessible from the controller's web interface.

FIGURE 8 GGSN connections

| Ruckus™ | Support expires in | 30 days | | Þ | | | | | setup-1 🥑 | | | T | |
|-----------------------|-----------------------|-------------|---------------|---------------|---------------|---------------|-------------|------------|-----------------------|----------------|---------|--------------|---|
| SmartCell Gateway 200 | () AP licenses expire | in 30 days | | Þ | l | | | | 2017-03-24 18:37:31 💙 | Filter default | 0 | admin | Ø |
| Dashboard | GGSN Connection | GGSN/PGW GT | P-C Sessions | | | | | | | | | | ^ |
| System 🕨 | C Refresh | | | | | | | | | | | | |
| Access Points | Control Plane | GGSN IP | Echo Req Sent | Echo Rsp Rcvd | Echo Reg Rcvd | Echo Rsp Sent | PathFailure | Created On | Last Modified On | | | | |
| Wireless LANs | | | | | | | | | | | | | |
| Clients 🕨 | | | | | | | | | 2 | | No data | « 1 » | |

TABLE 10 KPIs for GGSN connections

| KPI | Description |
|------------------|---|
| Control Plane | Indicates the control plane name. |
| GGSN IP | Indicates the IP address of the GGSN node. |
| Echo Req Sent | Indicates the number of echo requests initiated by the controller towards GGSN. |
| Echo Rsp Rcvd | Indicates the number of echo responses received by the controller from GGSN. |
| Echo Req Rcvd | Indicates the number of echo requests initiated by GGSN towards the controller. |
| Echo Rsp Sent | Indicates the number of echo responses received by GGSN from the controller. |
| Path Failure | Indicates the number of times GGSN was unreachable. |
| Created On | Indicates the date and time the service was created. |
| Last Modified On | Indicates the date and time the service was last modified. |

GGSN/PGW GTP-C Sessions

To view the KPIs, navigate to **Diagnostics** > **GGSN** > **GGSN/PGW GTP-C Sessions**. The following table lists the key performance indicators for tunnel management messages of GGSN/PGW GTP-C sessions.

NOTE

For information on configuring GGSN Service, refer to the *Administrator Guide for SmartZone* (PDF) or the **SmartZone Online Help**, which is accessible from the controller's web interface.

FIGURE 9 GGSN/PGW GTP-C session

| Ruckus™ | | Support expires in 3 | 0 days | | × | | | | setur | ⊦1 a | | | | | |
|---------------|---|-----------------------|---------------|--------------|------------|--|-------------|--------------------|-------------------|-------------------|-------------------|------------------|-------------------|--------------|--|
| | 6 | AP licenses expire in | n 30 days | | | 2017-03-24 18:37:48 C Filter default o | | | | | | | | | |
| Dashboard | | GGSN Connection | GGSN/PGW GT | P-C Sessions | | | | | | | | | | | |
| System 🕨 | | C Refresh | | | | | | | | | | | | | |
| Access Points | | MVNO Account | Control Plane | GGSN IP | Created On | Last Modified On | PDP Context | GGSN Init Updat | Controller Init U | Controller Init U | Controller Init U | GGSN Init Delete | Controller Init D | DM Init Dele | |
| Wireless LANs | | < | | | | | PDP(Act | ive / Successful / | Failed) | | | | No data | > « 1 » | |
| Clients ► | | | | | | | | | | | | | No data | | |

TABLE 11 KPIs for GGSN/PGW GTP-C connection

| KPI | Description |
|--------------|--|
| MVNO Account | Indicates the mobile virtual network operator account. |

TABLE 11 KPIs for GGSN/PGW GTP-C connection (continued)

| KPI | Description |
|--|--|
| Control Plane | Indicates the control plane name. |
| GGSN IP | Indicates the IP address of the GGSN node. |
| Created On | Indicates the date and time the service was created. |
| Last Modified On | Indicates the date and time the service was last modified. |
| PDP Context | Indicates the Policy Decision Point (PDP) which can either be active, successful or failed. |
| GGSN Init Update | Indicates the PDP update received (successful / failed). |
| Controller Init Update (Roaming) | Indicates the PDP update initiated (successful / failed). |
| Controller Init Update (CoA from AAA) | Indicates the number of controller initiated update - CoA from AAA (successful / failed). |
| Controller Init Update (Events from HLR) | Indicates the number of controller initiated update - Event from HLR (successful / failed). |
| GGSN Init Delete | Indicates the number of successful GGSN initiated delete session (successful / failed). |
| Controller Init Delete (Error) | Indicates the number of controller initiated delete due to critical error (successful / failed). |
| DM Init Delete | Indicates the number of the controller initiated delete due to Dynamic Multipoint (DM) from AAA (successful / failed). |
| Controller Init Delete (Event from HLR) | Indicates the number of controller initiated delete due to event from HLR (successful / failed). |
| Controller Init Delete (Timeout) | Indicates the number of controller initiated delete due to timeout at the controller (successful / failed). |
| AP Init Delete | Indicates the number of AP initiated delete due to timeout at Access Point (AP) (successful / failed). |
| DP Init Delete | Indicates the number of data plane initiated delete due to timeout at Data Plane (DP) (successful / failed). |
| Client Init Delete | Indicates the number of client initiated delete (successful / failed). |
| Admin Init Delete | Indicates the number of admin initiated delete (successful / failed). |

RADIUS Server

A RADIUS service defines the external RADIUS server configuration. RADIUS services authenticates profiles to specify external RADIUS services used based on the realm value.

To view the KPIs, navigate to **Diagnostics** > **RADIUS** > **Server**. The following table lists the key performance indicators for the statistics related to the RADIUS server.

NOTE

For information on configuring RADIUS Service, refer to the *Administrator Guide for SmartZone* (PDF) or the **SmartZone Online Help**, which is accessible from the controller's web interface.

FIGURE 10 RADIUS server

| rickus™ SmartCell Gateway 200 | | Support expires in 30 |) days | | | | | | setu | 10-1 | | | | |
|----------------------------------|---|-----------------------|---------------|--------------|---------------------|---------------------|-----------|-----------|-------------|------------|------------------|---------------|-----------------|------------|
| | | AP licenses expire in | 30 days | | | | | | 2017-03-24 | | Filter defau | ult | < | admin |
| Dashboard | | Server Proxy | | | | | | | | | | | | |
| System | Þ | C Refresh | | | | | | | | | | | | |
| Access Points | ۲ | MVNO Account | Control Plane | AAA IP | Created On | Last Modified On | NAS Type | Auth Type | Auth (Perm) | Auth (Psd) | Auth (Fast Auth) | Auth (Failed) | ACCESS | Accounting |
| Wireless LANs | | Super | setup-1-C | 182.168.11.6 | 2017/02/07 12:53:24 | 2017/03/24 18:38:11 | Ruckus AP | | 0/0 | 0/0 | 0/0 | 0/0/0 | 0/0/0/0 | 0/0 |
| Clients | Þ | | | | | | | | | | | | 1 total records | « 1 » |

TABLE 12 KPIs for RADIUS server

| KPI | Description |
|--------------------------------|--|
| MVNO Account | Indicates the mobile virtual network operator account. |
| Control Plane | Indicates the control plane name. |
| AAA IP | Indicates the IP address of the AAA server. |
| Created On | Indicates the date and time the entry was created. |
| Last Modified On | Indicates the date and time the entry was last modified. |
| NAS Type | Indicates the NAS type. |
| Auth Type | Indicates the authentication type. |
| Auth (Perm) | Indicates the number of authentications done using Permanent ID (successful / failed). |
| Auth (Psd) | Indicates the number of authentications done using Pseudonym ID (successful / failed). |
| Auth (Fast Auth) | Indicates the number of authentications done using fast re-auth ID (successful / failed). |
| Auth (Failed) | Indicates the number of authentication requests for (unknown pseudonym ID / unknown fast re-auth ID) the number of incomplete authentications processed. |
| ACCESS | Indicates the number of RADIUS access from NAS (requests received / accepts sent / challenge sent / rejects sent). |
| Accounting Session | Indicates the number of accounting sessions established (successful / failed). |
| Accounting Request | Indicates the number of RADIUS accounting requests received / number of RADIUS accounting accepts sent. |
| AP Accounting | Indicates the number of AP accounting sessions established (successful / failed). |
| AP Accounting Request/Response | Indicates the number of AP accounting (request / response). |
| AP Accounting ON Request | Indicates the number of AP accounting ON (request / response). |
| AP Accounting OFF Request | Indicates the number of AP accounting OFF (request / response). |

RADIUS Proxy

To view the KPIs, navigate to **Diagnostics** > **RADIUS** > **Proxy**. The following table lists the key performance indicators related to the RADIUS proxy.

NOTE

For information on configuring RADIUS Proxy, refer to the *Administrator Guide for SmartZone* (PDF) or the **SmartZone Online Help**, which is accessible from the controller's web interface.

FIGURE 11 RADIUS proxy

| TRUCKUS™ SmartCell Gateway 200 | | () Support expires in 30 |) days | | | | | | setu | ^{p-1} | | | | |
|-----------------------------------|---|---------------------------|---------------|---------------|---------------------|---------------------|-----------|---------|------------|----------------|-----------------|---------------|-----------------|--------------|
| | | (i) AP licenses expire in | 30 days | | | | | | 2017-03-24 | | Filter defau | lit | 4 | admin |
| Dashboard | | Server Proxy | | | | | | | | G | | | | |
| System | × | C Refresh | | | | | | | | | | | | |
| Access Points | ► | MVNO Account | Control Plane | AAA IP | Created On | Last Modified On | NAS Type | Auth | Accounting | ACCESS Request | ACCESS Challeng | ACCESS Accept | ACCESS Reject | Accounting |
| Wireless LANs | | Super | setup-1-C | 172.19.13.200 | 2017/03/24 15:49:46 | 2017/03/24 18:38:26 | Ruckus AP | 18/19/0 | 0/0 | 40/40 | 0/0 | 18/18 | 19/19 | 109/109 |
| Clients | • | | | | | | | | | | | | 1 total records | « 1 » |

TABLE 13 KPIs for RADIUS proxy

| KPI | Description |
|--------------------------------|---|
| MVNO Account | Indicates the mobile virtual network operator account. |
| Control Plane | Indicates the control plane name. |
| AAA IP | Indicates the IP address of the AAA server. |
| Created On | Indicates the date and time the entry was created. |
| Last Modified On | Indicates the date and time the entry was last modified. |
| NAS Type | Indicates the NAS type. |
| Auth | Indicates the number of authentications (successful / failed / incomplete). |
| Accounting | Indicates the number of accounting sessions established (successful / failed). |
| ACCESS Request | Indicates the number of RADIUS access requests received from NAS or the number of RADIUS access requests sent to AAA server. |
| ACCESS Challenge | Indicates the number of RADIUS access challenges received from AAA server or the number of RADIUS access challenge sent to NAS. |
| ACCESS Accept | Indicates the number of RADIUS access accepts received from AAA server or the number of RADIUS access accepts sent to NAS. |
| ACCESS Reject | Indicates the number of RADIUS access rejects received from AAA server or the number of RADIUS access rejects sent to the NAS. |
| Account Request | Indicates the number of RADIUS accounting requests received from NAS or the number of RADIUS accounting requests sent to AAA server. |
| Accounting Response | Indicates the number of RADIUS accounting responses received from AAA server or the number of RADIUS accounting responses sent to NAS. |
| CoA (AAA) | Indicates the number of RADIUS CoA requests received from AAA server or the number of RADIUS CoA responses sent to AAA server (successful) or the number of RADIUS CoA responses sent to AAA server (failed). |
| DM (AAA) | Indicates the number of RADIUS DM requests received from AAA server or the number of RADIUS DM responses sent to AAA server (successful) or the number of RADIUS DM responses sent to AAA server (failed). |
| DM (NAS) | Indicates the number of RADIUS DM requests sent to NAS or the number of RADIUS DM responses received from NAS (successful) or the number of RADIUS DM responses received from NAS (failed). |
| AP Accounting | Indicates the number of AP accounting sessions established (successful / failed). |
| AP Accounting Request/Response | Indicates the number of AP accounting (request / response). |
| Dropped Requests | Indicates the actual number of dropped requests when the total number of requests received from NAS is greater than MOR value against each RADIUS service / server. |
| CoA (NAS) | Indicates the number of CoA requests proxied to NAS (3rd party AP). |
| CoA Autz Only | Indicates the number of RADIUS authorize only requests. |
| | |

Diameter STA Statistics

To view the KPIs, navigate to **Diagnostics** > **Diameter** > **STA Statistics**. The following table lists the key performance indicators related to the Diameter STa Statistics.

NOTE

For information on configuring Diameter Services refers to the *Administrator Guide for SmartZone* (PDF) or the **SmartZone Online Help**, which is accessible from the controller's web interface.

FIGURE 12 Diameter STA statistics

| Ruckus™ | Support expires in 30 days | • | | setup-1 🗸 | | |
|---------------|----------------------------------|---|-----------------------------|---------------------------|-----------------------|--------------------------|
| | () AP licenses expire in 30 days | | | 2017-03-24 18:39:22 | Filter default | admin |
| Dashboard | Stack Statistics STA Statistics | | | | \searrow | |
| System 🕨 | 2 Refresh | | | | | |
| Access Points | MVNO Account Control PL | ne STA Service Nam Peer IP Application ID | Created On Last Modified On | Sessions Createc DER Sent | DEA Received STR Sent | STA Received ASR Receive |
| Wireless LANs | < | | | | | > |
| Clients ► | | | | | | No data 1 » |

TABLE 14 KPIs for Diameter STa statistics

| KPI | Description |
|---------------------|--|
| MVNO Account | MVNO account created with management privileges |
| Control Plane | Name of the control plane |
| STA Service Name | Diameter service name |
| Peer IP | Diameter IP address, to which the connection is established. |
| Application ID | Application identifier of the STa interface |
| Created On | Date of record creation |
| Last Modified On | Date when the record was last modified |
| Session created | Number of sessions created |
| DER Sent | Number of Diameter EAP Request (DER) sent from the controller to 3GPP AAA Radius server |
| DEA Received | Number of Diameter EAP Answer (DEA) received from the 3GPP AAA Radius server |
| STR Sent | Number of Session Termination Request (STR) sent from the controller to 3GPP AAA Radius server |
| STA Received | Number of Session Termination Answer (STA) received from the 3GPP AAA Radius server |
| ASR Received | Number of Abort Session Request (ASR) with session termination indication received from the 3GPP AAA Radius server |
| ASA Sent | Number of Abort Session Answer (ASA) sent with result code (success or failure) |
| RAR Received | Number of Re-Auth Request (RAR) with session update indication received from the 3GPP AAA Radius server |
| RAA Sent | Number of Re-Auth Answer (RAA) sent. |
| AAR Sent | Number of AA-Request (AAR) sent from the controller to the 3GPP AAA Radius server |
| AAA Received | Number of AAA received from 3GPP AAA Radius server |
| DER ReAuth Sent | Number of Diameter EAP Request (DER) re-authorization sent from the controller to the 3GPP AAA Radius server |
| DEA ReAuth Received | Number of Diameter EAP Answer (DEA) re-authorization received from 3GPP AAA Radius server |
| Tx Timeout | Number of Tx timeouts |
| Msgs Dropped | Number of messages from 3GPP AAA that were dropped or had a decode failure |

Reports

| • | Report Generation | 27 |
|---|-------------------------------|----|
| | viewing Rogue Access Points | |
| | Marking Rogue Access Points | |
| | Historical Client Statistics. | |
| | Ruckus AP Tunnel Stats | |
| | 3rd Party AP Stats. | |
| | Core Network Tunnel Stats. | |

Report Generation

Report Generation lists the reports that have been created and saved. To view the list of saved reports navigate to **Report** > **Report** Generation. Click a report name to view the details or to modify the report settings.

FIGURE 13 Report Generation

| + Create 🖉 Configure | e 🛍 Delete | Generate | | searc | h table Q | C Refresh |
|----------------------|-------------|-------------------------------|-------------------------|------------------------------|-----------------------|-----------|
| Title 🔺 | Description | Report Template | Time Filter | Resource Filter | Schedule | Status |
| Report-1 | N/A | Client Number | Hourly (last 24Hours) | Domain : System | Daily @ 00:45 | Finished |
| Report-10 | N/A | System Resource Utilization | 5 Minutes (last 3Hours) | Plane : NMS34-C | Disabled | NA(Reaso |
| Report-11 | N/A | System Resource Utilization | 5 Minutes (last 8Hours) | Plane : NMS34-C | Monthly @ 19th 19:30 | NA |
| Report-6 | N/A | Tx/Rx Bytes | Hourly (last 24Hours) | Domain : System | Weekly @ Wednesday | Finished |
| Report-8 | N/A | Continuously Disconnected APs | last:2 hours | AP Zone : TEST-NMS ,NMS-open | Weekly @ Monday 09:45 | Finished |

All the controller's reports can be displayed in different time intervals (15 minutes, hourly, daily, or monthly) for the specified time filter (in hours) and exported in comma-separated value (CSV) format and portable document format (PDF).

NOTE

For information on creating reports, refer to the *Administrator Guide for SmartZone* (PDF) or the **SmartZone Online Help**, which is accessible from the controller's web interface.

The following is the list of reports that can be generated.

- Client Number Report on page 28
- Continuously Disconnected APs Report on page 28
- System Resource Utilization Report on page 28
- Tx/Rx Bytes Report on page 28

Client Number Report

Generate the client number report to view the minimum and maximum number of clients connected to SCG for a given period of time. You can generate this report based on a specific management domain, AP zone, AP, SSID, or radio type.

Continuously Disconnected APs Report

The continuously disconnected APs report lists access points that were disconnected within a specified time period (hours). You can generate this report based on a specific management domain or AP zone.

System Resource Utilization Report

Generate the system resource utilization report to view the system's CPU and memory usage. You can generate this report based on a single plane or multiple planes.

Tx/Rx Bytes Report

Generate the Tx/Rx Bytes report to view the number of bytes that have been sent and received through SCG. You can generate this report based on a specific management domain, AP zone, AP, SSID, or radio type.

Viewing Rogue Access Points

Rogue (or unauthorized) APs pose problems for a wireless network in terms of airtime contention, as well as security.

Usually, a rogue AP appears in the following way: an employee obtains another manufacturer's AP and connect sit to the LAN, to gain wireless access to other LAN resources. This would potentially allow even more unauthorized users to access your corporate LAN - posing a security risk. Rogue APs also interfere with nearby Ruckus Wireless APs, thus degrading overall wireless network coverage and performance.

The controller's rogue AP detection options include identifying the presence of a rogue AP, categorizing it as either a known neighbor AP or as a malicious rogue.

If you enabled rogue AP detection when you configured the common AP settings (see Configuring APs), click **Report** > **Rogue Access Points**. The Rogue Access Points page displays all rogue APs that the controller has detected on the network, including the following information:

- Rogue MAC: MAC address of the rogue AP.
- Type: Rogue, a normal rogue AP, not yet categorized as malicious or non-malicious.
- Channel: Radio channel used by the rogue AP.
- Radio: WLAN standards with which the rogue AP complies.
- **SSID**: WLAN name that the rogue AP is broadcasting.
- Detecting AP Name: Name of the AP. Zone: Zone to which the AP belongs.
- **RSSI**: Radio signal strength.
- Encryption: Indicates whether the wireless signal is encrypted or not.
- Last Detected: Date and time when the rogue AP was last detected by the controller.

Marking Rogue Access Points

You can mark a Rogue (or unauthorized) AP as known.

To mark a Rogue AP as known:

- 1. From the left pane, click Report and Rogue Access Points. The Rogue Access Points page appears.
- 2. Select the Rogue AP from the list and click **Mark as Known**. The classification **Type** of the Rogue AP changes to **Known**. You can also select the Rogue AP from the list and click **Unmark**, to change the classification.

Historical Client Statistics

Historical client report is based on the UE session statistics. This report is displayed under Report > Historical Client Stats.

The following table contains the report for UE session statistics. This is a cumulative value per session and one entry is created per session. Data is reported every 60 seconds and is not bin data. The user interface displays the table and its corresponding graph chart. The two representations are synchronized and controlled by the search criteria. For performance reasons, the controller may pre-calculate the total counters per DP or per GGSN IP for each bin.

FIGURE 14 Historical client statistics

| Rukcus AP Client | 3rd Party AP Client | | | | | | | |
|------------------|---|-----------------------------------|---------------------------|-----------------------|-------------|-------------------|-----------------|---------|
| | sessions (terminated clie eriod: • 4 hours (4 hours ~ | ent sessions) and their basic sta | tistics. You can download | d these statistics to | a CSV file. | | | |
| * Zone N | Name: No data availaol | e 🔻 | | | | | | |
| Client | MAC: | | | | | | | |
| Clie | ent IP: | | | | | | | |
| MVNO N | Name: All | • | | | | | | |
| C Load Data | Export CSV | | | | | | | |
| Start | End | Client MAC | Client IP Address | Access Type | Core Type | Bytes from Client | Bytes to Client | Packets |
| < | | | | | | | | > |
| | | | | | | | No data | « 1 » |

TABLE 15 Historical data attributes

| Attribute | Туре | Description |
|-------------------|--------|---|
| Start | Long | Indicates the session creation time. |
| End | Long | Indicates the session end time. |
| Client Mac | String | Indicates the Mac address of the client. |
| Client IP Address | String | Indicates the IP address of the client. |
| Access Type | String | Indicates the AP that serves this client. |
| Core Type | String | Indicates the core network tunnel type. |
| Bytes from Client | Long | Indicates the number of bytes received from the client. |

TABLE 15 Historical data attributes (continued)

| Attribute | Туре | Description |
|---------------------|------|---|
| Bytes to Client | Long | Indicates the number of bytes sent to the client. |
| Packets from Client | Long | Indicates the number of packets received from the client. |
| Packets to Client | Long | Indicates the number of packets sent to the client. |

Ruckus AP Tunnel Stats

Ruckus AP Tunnel statistics or report is displayed under Report > Ruckus AP Tunnel Stats.

Ruckus AP Tunnel GRE Report

The following table contains the report based on the statistics for access Ruckus GRE. Each entry contains the 15 minutes cumulative data.

The controller's web interface (**Report** > **Ruckus AP Tunnel Stats** > **Ruckus GRE**) displays the table and its corresponding graph chart as seen in the following figure. The two representations are synchronized and controlled by the search criteria. For performance reasons, the controller may pre-calculate the total counters per DP or per AP for each bin.

FIGURE 15 Ruckus GRE report

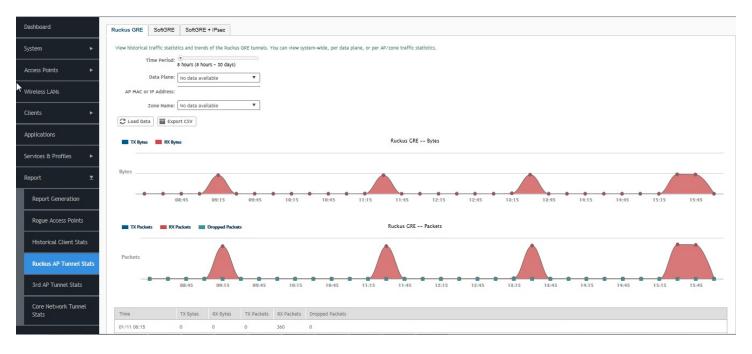


TABLE 16 Ruckus GRE report attributes

| Attribute | Туре | Description |
|-----------|------|--|
| Time | Long | Bin ID, which is stamped at a 15 minute interval. For example, 10:00, 10:15. |
| TXBytes | Long | Indicates the number of bytes sent. |
| RXBytes | Long | Indicates the number of bytes received. |
| TXPkts | Long | Indicates the number of packets sent. |
| RXPkts | Long | Indicates the number of packets received. |

TABLE 16 Ruckus GRE report attributes (continued)

| Attribute | Туре | Description |
|-----------------|------|--|
| Dropped Packets | Long | Indicates the number of packets dropped. |

Ruckus AP Tunnel SoftGRE Report

The following table contains the report based on the statistics for access point Soft GRE. Each entry contains the 15 minutes cumulative data.

The controller's web interface (**Report** > **Ruckus AP Tunnel Stats** > **SoftGRE**) displays the table and its corresponding graph chart as seen in the following figure. The two representations are synchronized and controlled by the search criteria. For performance reasons, the controller may pre-calculate the total counters per DP or per AP for each bin.

FIGURE 16 Ruckus AP Tunnel SoftGRE Report

| Dashboard | Ruckus GRE SoftG | RE SoftGR | E + IPsec | | | | | | | | | | | | Jan Barris |
|------------------------------|---------------------------|-------------------|----------------------------|-----------------|-----------------------|--------------------|------------------|-------------------|------------------|-------|-------|-------|------------|-------|--|
| System 🕨 | View historical traffic s | | nds of the SoftC | RE tunnels. You | can view system-wide, | or per AP/zone tra | ffic statistics. | | | | | | | | |
| Access Points | Time Per Zone Na | iod: 8 hours (8 h | ours ~ 30 days) ailable | • | | | | | | | | | | | |
| Wireless LANs | Gateway Addr | | | | | | | | | | | | | | |
| Clients ► | AP MAC or IP Addr | Export CSV | | | | | | | | | | | | | |
| Applications | | X Bytas | | | | | SoftGR | E Bytes | | | | | | | |
| Services & Profiles 🛛 🕨 | | | | | | | | | | | | | | | |
| Report ⊻ | Bytes | | | | | | N | o data to display | | | | | | | |
| Report Generation | | 09:45 | 10:15 | 10:45 | 11:15 | 11:45 12 | :15 12:45 | 13:15 | 18:45 | 14:15 | 14:45 | 15:15 | 15:45 | 16:15 | 16:45 |
| Rogue Access Points | | | | | | | SoftGRE | Packets | | | | | | | |
| Historical Client Stats | | | | | | | | | | | | | | | TX Packats |
| Ruckus AP Tunnel Stats | Packets | | | | | | No data to dis | play | | | | | | | RX Packets TX Dropped Packets RX Dropped Packets TX Error Packets |
| 3rd AP Tunnel Stats | | 09:45 | 10:15 | 10:45 | 11:15 11:45 | 12:15 | 12:45 12:1 | 5 12:45 | 14:15 | 14:45 | 15:15 | 15:45 | 16:15 16:4 | | RX Error Packets |
| Core Network Tunnel Stats | Time | TX Bytes | RX Bytes | TX Packets | RX Packets | RX Dropped Packe | TX Dropped Packe | TX Error Packets | RX Error Packets | | | | | | |
| | 01/11 09:15 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | | | | | | |

| Attribute | Туре | Description |
|--------------------|------|--|
| Time | Long | Bin ID, which is stamped at a 15 minute interval. For example, 10:00, 10:15. |
| TXBytes | Long | Indicates the number of bytes sent. |
| RXBytes | Long | Indicates the number of bytes received. |
| TXPkts | Long | Indicates the number of packets sent. |
| RXPkts | Long | Indicates the number of packets received. |
| RX Dropped Packets | Long | Indicates the number of packets dropped. |
| TX Dropped Packets | Long | Indicates the number of packets dropped. |
| TX Error Packets | Long | Indicates the number of packets with a header error. |
| RX Error Packets | Long | Indicates the number of packets with a header error. |

Ruckus AP Tunnel SoftGRE + IPsec Report

The following table contains the report based on the statistics for access point IPsec. Each entry contains the 15 minutes cumulative data.

The controller's web interface (**Report** > **Report AP Tunnel Stats** > **SoftGRE + IPsec**) displays the table and its corresponding graph chart as seen in the following figure. The two representations are synchronized and controlled by the search criteria. For performance reasons, the controller may pre-calculate the total counters per DP or per AP for each bin.

FIGURE 17 Ruckus AP Tunnel SoftGRE + IPsec Report

| Dashboard | Ruckus GRE SoftGRE SoftGRE + IPsec | <i>₩</i> |
|-------------------------|---|----------------------------|
| System 🕨 | Time Period: 8 hours (8 hours - 30 days) | |
| Access Points | Zone Name: No data available | |
| Wireless LANs | Gateway Address: | |
| Clients ► | C Load Data | |
| Applications | TX Bytes SoftGRE + IPsec Bytes | |
| Services & Profiles 🛛 🕨 | Bytes | |
| Report 🗵 | | |
| Report Generation | 04:15 04:45 05:15 05:45 06:15 06:45 07:15 07:45 08:15 08:45 09: | 15 09:45 10:15 10:45 11:15 |
| Rogue Access Points | 🖬 TX Packats 💼 TX Dropped Packats 🗰 TX Dropped Packats 🗰 RX Dropped Packats SoftGRE + IPsec Packets | |
| Historical Client Stats | | |
| Ruckus AP Tunnel Stats | Packets | |
| 3rd AP Tunnel Stats | 04:15 04:45 05:15 05:45 06:15 06:45 07:15 07:45 08:15 08:45 09: | 15 09:45 10:15 10:45 11:15 |
| Core Network Tunnel | Time TX Bytes RX Bytes TX Packets RX Packets RX Dropped Packets | |
| Stats | 01/12.03:45 0 0 0 0 0 0 | |

TABLE 18 Ruckus AP Tunnel SoftGRE + IPsec Report Attributes

| Attribute | Туре | Description |
|--------------------|------|--|
| Time | Long | Bin ID, which is stamped at a 15 minute interval. For example, 10:00, 10:15. |
| TXBytes | Long | Indicates the number of bytes sent. |
| RXBytes | Long | Indicates the number of bytes received. |
| TXPkts | Long | Indicates the number of packets sent. |
| RXPkts | Long | Indicates the number of packets received. |
| TX Dropped Packets | Long | Indicates the number of packets dropped. |
| RX Dropped Packets | Long | Indicates the number of packets dropped. |

3rd Party AP Stats

3rd Party AP statistics or report is displayed under Report > 3rd Party AP Stats.

3rd Party AP L2oGRE Report

The following table contains the report based on the statistics for access side tunnels. Each entry contains the 15 minutes cumulative data.

The controller's web interface (**Report** > **3rd Party AP Stats** > **L2oGRE**) displays the table and its corresponding graph chart as seen in the following figure. The two representations are synchronized and controlled by the search criteria. For performance reasons, the controller may pre-calculate the total counters per DP or per AP for each bin.

FIGURE 18 3rd Party AP L20GRE Report

| ∛ Ruckus [™] | Support expires | tn 12 days | | • | | | | | | | | setup-1 | ~ | and a firm th | | | |
|------------------------------|-------------------------|--|---------------------|------------------|-------------------|--------------------|----------------------|---------------------|---------------|-------|-------|-------------------|------------------|----------------|-------|-------|-------|
| | AP Itoenses expl | re in 12 days | | Þ | | | | | | | 20 | 17-04-11 11:42:25 | С <mark>Г</mark> | Filter default | - | 0 | admin |
| ooard | L2oGRE Q-in | n-Q Layer 2 | | | | | | | | | | | | | | | |
| m ► | 1963904 Chindred 200324 | raffic statistics and tree | nds of the 3rd Part | | You can view syst | tem-wide, per data | a plane, or per gate | way traffic statist | os. | | | | | | | | |
| s Points 🔹 🕨 | | me Period: 8 hours (8 h Data Plane: No data av | iours ~ 30 days) | • | | | | | | | | | | | | | |
| ess LANs | | IP Address: | | | | | | | | | | | | | | | |
| | Z Load Data | one Name: No data av | ailable | * | | | | | | | | | | | | | |
| ations | | RX Bytes | | | | | | L2oGRE | Bytes | | | | | | | | |
| es & Profiles 🔹 🕨 | | | | | | | | | | | | | | | | | |
| τ 🔻 | Bytes | | | | | | | No da | a to display | | | | | | | | |
| port Generation | | 04:15 | 04:45 | 05:15 | 05:45 | 06:15 | 06:45 | 07:15 | 07:45 | 08:15 | 08:45 | 09:15 | 09:45 | 10:15 | 10:45 | 11:15 | _ |
| ue Access Points | TX Packab | s 📕 RX Packets 📕 | Dropped Packets | | | | | L2oGRE P | ackets | | | | | | | | |
| orical Client Stats | | | | | | | | | | | | | | | | | |
| kus AP Tunnel Stats | Packets | | | | | | | No d | ta to display | | | | | | | | |
| Party AP Stats | | 04:15 | 04:45 | 05:15 | 05:45 | 06:15 | 06:45 | 07:15 | 07:45 | 08:15 | 08:45 | 09:15 | 09:45 | 10:15 | 10:45 | 11:15 | |
| e Network Tunnel ts | Time | TX Bytes | RX Bytes | TX Packets RX Pa | okets Dropped | f Packets | | | | | | | | | | | |
| | 04/11 03:45 | N/A | N/A | N/A N/A | N/A | | | | | | | | | | | | |
| eshooting | 04/11 04:00 | N/A | N/A | N/A N/A | N/A | | | | | | | | | | | | |

TABLE 19 3rd Party AP L2oGRE Report Attributes

| Attribute | Туре | Description |
|-----------------|------|--|
| Time | Long | Bin ID, which is stamped at a 15 minute interval. For example, 10:00, 10:15. |
| TXBytes | Long | Indicates the number of bytes sent. |
| RXBytes | Long | Indicates the number of bytes received. |
| TXPkts | Long | Indicates the number of packets sent. |
| RXPkts | Long | Indicates the number of packets received. |
| Dropped Packets | Long | Indicates the number of packets dropped. |

3rd Party AP Q-in-Q Layer 2 Report

The follwing table contains the report based on the statistics for access side tunnels Q-in-Q. Each entry contains the 15 minutes cumulative data.

The contoller's web interface (**Report** > 3rd Party AP Stats > Q-in-Q Layer 2) displays the table and its corresponding graph chart as seen in the following figure. The two representations are synchronized and controlled by the search criteria. For performance reasons, the controller may pre-calculate the total counters per DP or per Q-in-Q tag pair for each bin.

FIGURE 19 3rd Party AP Q-in-Q Layer 2 Report

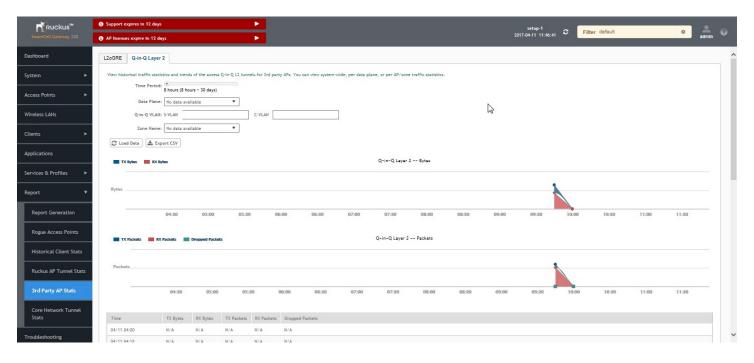


TABLE 20 3rd Party AP Q-in-Q Layer 2 Report Attributes

| Attribute | Туре | Description |
|-----------------|------|--|
| Time | Long | Bin ID, which is stamped at a 15 minute interval. For example, 10:00, 10:15. |
| TXBytes | Long | Indicates the number of bytes sent. |
| RXBytes | Long | Indicates the number of bytes received. |
| TXPkts | Long | Indicates the number of packets sent. |
| RXPkts | Long | Indicates the number of packets received. |
| Dropped Packets | Long | Indicates the number of packets dropped. |

Core Network Tunnel Stats

Core Network Tunnel statistics or report is displayed under Report > Core Network Tunnel Stats.

Core Network Tunnel SoftGRE Report

The following table contains the report based on the statistics for core side gateway. Each entry contains the 15 minutes cumulative data.

The user interface (**Report** > **Core Network Tunnel Statistics** > **SoftGRE**) displays the table and its corresponding graph chart as seen in the following figure. The two representations are synchronized and controlled by the search criteria. For performance reasons, the controller may pre-calculate the total counters per DP or per Gateway IP for each bin.

FIGURE 20 Core Network Tunnel SoftGRE Report

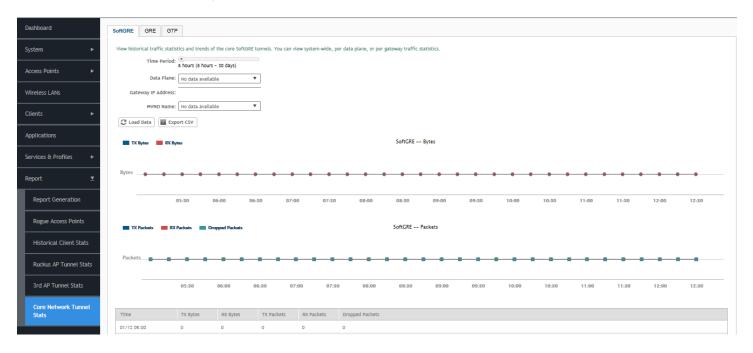


TABLE 21 Core Network Tunnel SoftGRE Report Attributes

| Attribute | Туре | Description |
|-----------------|------|--|
| Time | Long | Bin ID, which is stamped at a 15 minute interval. For example, 10:00, 10:15. |
| TXBytes | Long | Indicates the number of bytes sent. |
| RXBytes | Long | Indicates the number of bytes received. |
| TXPkts | Long | Indicates the number of packets sent. |
| RXPkts | Long | Indicates the number of packets received. |
| Dropped Packets | Long | Indicates the number of packets dropped. |

Core Network Tunnel GTP Report

The following table contains the statistics for core side gateway of GGSN GTP-U. Each record contains the accumulated data for a 15 minute period. The table entry contains TX/RX statistics from all packets received from a GGSN in the last 15 minutes. The attribute, MVNO-ID is provided by the SCG-CBlade.

The user interface (**Report** > **Core Network Tunnel Stats** > **GTP**) displays the table and its corresponding graph chart as seen in the following figure. The two representations are synchronized and controlled by the search criteria. For performance reasons, the controller may pre-calculate the total counters per DP or per GGSN IP for each bin.

FIGURE 21 Core Network Tunnel GTP Report

| Dashboard | SoftGRE GRE GTP |
|------------------------------|--|
| System 🕨 | View historical traffic statistics and trends of the core GTP tunnels. You can view system-wide, per data plane, or per gateway traffic statistics. |
| Access Points 🕨 | Time Period: bours (> Jo days) Data Plane: No data available |
| Wireless LANs | GGSN IP Address: |
| Clients + | MVNO Name: No data available |
| Applications | TX Bytes RC Bytes CTP Bytes |
| Services & Profiles 🛛 🕨 | |
| Report ⊻ | Bytes No data to display |
| Report Generation | 05:30 06:00 06:30 07:00 07:30 08:00 08:30 09:00 09:30 10:00 10:30 11:00 11:20 12:00 12:30 |
| Rogue Access Points | 🔳 TX Packets 🔲 RX Packets 🔳 TX Dropped Packets 🗰 RX Dropped Packets GTP Packets |
| Historical Client Stats | |
| Ruckus AP Tunnel Stats | Packets No data to display |
| 3rd AP Tunnel Stats | 05:30 06:30 06:30 07:30 08:00 08:20 09:30 10:30 10:30 11:30 11:30 12:00 12:30 |
| Core Network Tunnel Stats | RX TEID TX TEID |
| Stats | Time TX Bytes RX Bytes TX Packets RX Packets TX Dropped Packets RX Dro |
| Troubleshooting | 01/12.05:00 N/A |

TABLE 22 Core Network Tunnel GTP Report Attributes

| Attribute | Туре | Description |
|--------------------|------|--|
| Time | Long | Bin ID, which is stamped at a 15 minute interval. For example, 10:00, 10:15. |
| TXBytes | Long | Indicates the number of bytes sent. |
| RXBytes | Long | Indicates the number of bytes received. |
| TXPkts | Long | Indicates the number of packets sent. |
| RXPkts | Long | Indicates the number of packets received. |
| TX Dropped Packets | Long | Indicates the number of packets dropped that are to be sent to GGSN. |
| RX Dropped Packets | Long | Indicates the number of packets dropped by GGSN. |
| Bad GTPU | Long | Number of packets received from GGSN with bad GTP header. |
| RXTeidInvalid | Long | Number of packets received from GGSN with bad TEID. |
| TXteidInvalid | Long | Number of packets for GGSN with bad/unknown TEID. |
| EchoRX | Long | Number of GTPU echo request received from GGSN. |
| LastEchoRxTime | Long | Timestamp of the last GTPU echo request/reply received from GGSN. |



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