

Contrail Service Orchestration Monitoring and Troubleshooting Guide

Published
2020-03-27

Release
5.2.0

Juniper Networks, Inc.
1133 Innovation Way
Sunnyvale, California 94089
USA
408-745-2000
www.juniper.net

Juniper Networks, the Juniper Networks logo, Juniper, and Junos are registered trademarks of Juniper Networks, Inc. in the United States and other countries. All other trademarks, service marks, registered marks, or registered service marks are the property of their respective owners.

Juniper Networks assumes no responsibility for any inaccuracies in this document. Juniper Networks reserves the right to change, modify, transfer, or otherwise revise this publication without notice.

Contrail Service Orchestration Monitoring and Troubleshooting Guide
5.2.0

Copyright © 2020 Juniper Networks, Inc. All rights reserved.

The information in this document is current as of the date on the title page.

YEAR 2000 NOTICE

Juniper Networks hardware and software products are Year 2000 compliant. Junos OS has no known time-related limitations through the year 2038. However, the NTP application is known to have some difficulty in the year 2036.

END USER LICENSE AGREEMENT

The Juniper Networks product that is the subject of this technical documentation consists of (or is intended for use with) Juniper Networks software. Use of such software is subject to the terms and conditions of the End User License Agreement ("EULA") posted at <https://support.juniper.net/support/eula/>. By downloading, installing or using such software, you agree to the terms and conditions of that EULA.

Table of Contents

About the Documentation | v

Documentation and Release Notes | v

Documentation Conventions | v

Documentation Feedback | viii

Requesting Technical Support | viii

Self-Help Online Tools and Resources | ix

Creating a Service Request with JTAC | ix

1

Troubleshooting Contrail Service Orchestration Issues

Identifying Connectivity Issues for Cloud-based Deployments | 2

Identifying Connectivity Issues by Using Ping | 2

Identifying Connectivity Issues by Using Traceroute | 6

Troubleshooting Site Activation Issues for Cloud-based Deployments | 9

Troubleshooting Site Activation Issues | 9

Prerequisites to Activate a Site | 9

Site activation process is stuck in device detected state | 10

Site activation process is stuck in bootstrap state | 10

Site activation process failed in bootstrap state | 10

Site activation process failed during provisioning | 10

Troubleshooting Image, License, and Policy Deployment Issues for Cloud-based Deployments | 12

Troubleshooting Image, License, and Policy Deployment Issues | 12

Unable to find device image version | 12

Upgrade device image using J-Web | 13

Unable to connect to the device | 13

Device image version is different from the recommended version | 14

LAN Switch image version is different from the recommended version | 14

Policy deployment failed | 14

No data for next-generation firewall site | 15

No data for SD-WAN site | 15

Traffic from Spoke Sites Are Dropped or Are Not Reaching Internet or Destination | 15

SLA Violation-Original Link Recovered After SLA Violation | 16

All WAN links are Up But Not All Links Are Utilized | 16

Troubleshooting SMTP Issues for Cloud-based Deployments | 17

Troubleshooting SMTP Issues | 17

Basic Configuration for SMTP Server | 17

Troubleshooting Site, Device and Link Issues | 20

Troubleshooting Site, Device, and Link Issues | 20

Secure OAM Activation Failure | 20

Configure SD-WAN Site Failure | 21

Device Activation Failure | 21

Dual-CPE Activation Failure for NFX Series Devices | 22

Dual-CPE Activation Failure for SRX Series Devices | 22

Link Switch Event or Performance Metrics is Not Displayed | 23

WAN Link Performance Parameters are Not Displayed | 23

LTE Interface Issues | 24

About the Documentation

IN THIS SECTION

- Documentation and Release Notes | v
- Documentation Conventions | v
- Documentation Feedback | viii
- Requesting Technical Support | viii

Use this guide to monitor CSO infrastructure services and microservices and troubleshoot CSO installation, login, site activation, license, and deployment-related issues.

Documentation and Release Notes

To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at <https://www.juniper.net/documentation/>.

If the information in the latest release notes differs from the information in the documentation, follow the product Release Notes.

Juniper Networks Books publishes books by Juniper Networks engineers and subject matter experts. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration. The current list can be viewed at <https://www.juniper.net/books>.

Documentation Conventions

[Table 1 on page vi](#) defines notice icons used in this guide.

Table 1: Notice Icons

Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.
	Warning	Alerts you to the risk of personal injury or death.
	Laser warning	Alerts you to the risk of personal injury from a laser.
	Tip	Indicates helpful information.
	Best practice	Alerts you to a recommended use or implementation.

Table 2 on page vi defines the text and syntax conventions used in this guide.

Table 2: Text and Syntax Conventions

Convention	Description	Examples
Bold text like this	Represents text that you type.	To enter configuration mode, type the configure command: user@host> configure
Fixed-width text like this	Represents output that appears on the terminal screen.	user@host> show chassis alarms No alarms currently active
<i>Italic text like this</i>	<ul style="list-style-type: none"> Introduces or emphasizes important new terms. Identifies guide names. Identifies RFC and Internet draft titles. 	<ul style="list-style-type: none"> A policy <i>term</i> is a named structure that defines match conditions and actions. <i>Junos OS CLI User Guide</i> RFC 1997, <i>BGP Communities Attribute</i>

Table 2: Text and Syntax Conventions (*continued*)

Convention	Description	Examples
<i>Italic text like this</i>	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name: [edit] root@# set system domain-name <i>domain-name</i>
Text like this	Represents names of configuration statements, commands, files, and directories; configuration hierarchy levels; or labels on routing platform components.	<ul style="list-style-type: none"> To configure a stub area, include the stub statement at the [edit protocols ospf area area-id] hierarchy level. The console port is labeled CONSOLE.
< > (angle brackets)	Encloses optional keywords or variables.	stub <default-metric <i>metric</i> >;
(pipe symbol)	Indicates a choice between the mutually exclusive keywords or variables on either side of the symbol. The set of choices is often enclosed in parentheses for clarity.	broadcast multicast (<i>string1</i> <i>string2</i> <i>string3</i>)
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	rsvp { # Required for dynamic MPLS only
[] (square brackets)	Encloses a variable for which you can substitute one or more values.	community name members [<i>community-ids</i>]
Indentation and braces ({ })	Identifies a level in the configuration hierarchy.	[edit] routing-options { static { route default { nexthop <i>address</i> ; retain; } } }
; (semicolon)	Identifies a leaf statement at a configuration hierarchy level.	

GUI Conventions

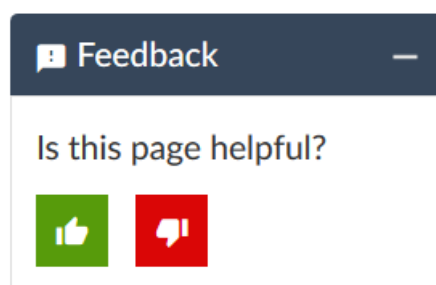
Table 2: Text and Syntax Conventions (*continued*)

Convention	Description	Examples
Bold text like this	Represents graphical user interface (GUI) items you click or select.	<ul style="list-style-type: none"> In the Logical Interfaces box, select All Interfaces. To cancel the configuration, click Cancel.
> (bold right angle bracket)	Separates levels in a hierarchy of menu selections.	In the configuration editor hierarchy, select Protocols>Ospf .

Documentation Feedback

We encourage you to provide feedback so that we can improve our documentation. You can use either of the following methods:

- Online feedback system—Click TechLibrary Feedback, on the lower right of any page on the [Juniper Networks TechLibrary](#) site, and do one of the following:



- Click the thumbs-up icon if the information on the page was helpful to you.
- Click the thumbs-down icon if the information on the page was not helpful to you or if you have suggestions for improvement, and use the pop-up form to provide feedback.
- E-mail—Send your comments to techpubs-comments@juniper.net. Include the document or topic name, URL or page number, and software version (if applicable).

Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active Juniper Care or Partner Support Services support contract, or are

covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the *JTAC User Guide* located at <https://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf>.
- Product warranties—For product warranty information, visit <https://www.juniper.net/support/warranty/>.
- JTAC hours of operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: <https://www.juniper.net/customers/support/>
- Search for known bugs: <https://prsearch.juniper.net/>
- Find product documentation: <https://www.juniper.net/documentation/>
- Find solutions and answer questions using our Knowledge Base: <https://kb.juniper.net/>
- Download the latest versions of software and review release notes: <https://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications: <https://kb.juniper.net/InfoCenter/>
- Join and participate in the Juniper Networks Community Forum: <https://www.juniper.net/company/communities/>
- Create a service request online: <https://myjuniper.juniper.net>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: <https://entitlementsearch.juniper.net/entitlementsearch/>

Creating a Service Request with JTAC

You can create a service request with JTAC on the Web or by telephone.

- Visit <https://myjuniper.juniper.net>.
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see <https://support.juniper.net/support/requesting-support/>.

1

PART

Troubleshooting Contrail Service Orchestration Issues

Identifying Connectivity Issues for Cloud-based Deployments | 2

Troubleshooting Site Activation Issues for Cloud-based Deployments | 9

Troubleshooting Image, License, and Policy Deployment Issues for Cloud-based
Deployments | 12

Troubleshooting SMTP Issues for Cloud-based Deployments | 17

Troubleshooting Site, Device and Link Issues | 20

Identifying Connectivity Issues for Cloud-based Deployments

IN THIS CHAPTER

- [Identifying Connectivity Issues by Using Ping | 2](#)
- [Identifying Connectivity Issues by Using Traceroute | 6](#)

Identifying Connectivity Issues by Using Ping

You can use Contrail Service Orchestration (CSO) to perform a ping operation from a device (provider hub, tenant device, CPE device, EX switch, enterprise hubs, or next-generation firewall device) to a remote host for identifying issues in connectivity with the remote host.

When you ping a remote host from a device, an Internet Control Message Protocol (ICMP) packet is sent to the remote host. By analyzing the results of the ping operation, you can identify the possible device connectivity issues between the remote host and the device.

NOTE: In Contrail Service Orchestration (CSO) Release 5.0, the following devices support ping:

- EX Series: EX2300, EX3400, EX4300, EX4600, EX4650
- NFX Series: NFX150, NFX250
- SRX Series: SRX300, SRX320, SRX340, SRX345, SRX1500, SRX4100, SRX4200, SRX4600
- vSRX

To perform the ping operation:

1. Do one of the following:

- To initiate a ping from a provider hub device, select **Resources > Provider Hub Devices**.

The :Provider Hub Devices page appears.

- To initiate a ping from a tenant device, select **Resources > Tenant Devices**.

The Tenant Devices page appears.

2. Select a device from the list of devices displayed and click **More > Ping**.

The Ping page appears.

NOTE: You can initiate a ping from a device only when its operational status (in CSO) is Up.

3. Complete the configuration according to the guidelines provided in [Table 3 on page 3](#).

NOTE: Fields marked with an asterisk (*) are mandatory.

4. Click **Ping** to initiate the ping request.

A job is created and a Ping Progress page appears. After the host sends the ping packets, the Ping Result page appears. If the ping operation is successful, the Ping Result page displays the parameters specified in [Table 4 on page 5](#).

If the ping operation fails, the Ping Result page displays an appropriate error message (such as **No response** or **No route to host**), indicating that there is an issue in the connectivity to the remote host.

Table 3: Fields on the Ping page

Field	Description
Remote Host	Enter the IPv4 address or hostname of the remote host.
Ping Request Packets	Enter the number of ping request packets to be sent to the remote host. Default: 5. Range: 1 through 300.
Advanced	

Table 3: Fields on the Ping page (*continued*)

Field	Description
Source Interface	<p>Select the source interface on the device through which you want to send the ping request to the remote host. If you do not select a source interface, ping requests are sent on all interfaces.</p> <p>To clear the selected interface, click Clear All and select another interface.</p>
Hostname Resolution	Click the toggle button to enable or disable (default) the display of hostname of the hops along the path to the remote host.
Rapid Ping	<p>Click the toggle button to enable or disable (default) sending ping requests rapidly.</p> <p>If you enable this option, the device sends a minimum of 100 ping request packets per second or sends a packet as soon as a response to the previous packet is received, whichever is greater.</p> <ul style="list-style-type: none"> • If the source device does not receive a response for 500 ms, timeout is considered. • If the source device receives a response within 500 ms, the next ping request packet is sent immediately. <p>NOTE: The ping results are displayed in a single consolidated message instead of individual messages for each ping request packet sent.</p>
Packet Fragmentation	<p>Click the toggle button to enable or disable (default) the fragmenting of ping request packets.</p> <p>If packet fragmentation is disabled, ping packets with the maximum transmission unit (MTU) greater than 1500 bytes are dropped.</p>
Packet Size (bytes)	<p>Enter the size (in bytes) of the ping request packet.</p> <p>Default: 56 bytes.</p> <p>Range:</p> <ul style="list-style-type: none"> • 1 through 1,472 bytes, if packet fragmentation is disabled. • 1 through 65,468 bytes, if packet fragmentation is enabled.
Wait Time (seconds)	<p>Enter the time (in seconds) for which the source device waits for a response to the ping request packet. The source device considers the remote host as not reachable after the wait time elapses.</p> <p>Default: 10 seconds.</p> <p>Range: 0 through 600 seconds.</p>

Table 3: Fields on the Ping page (*continued*)

Field	Description
Incoming Interface	Click the toggle button to include or exclude (default) information (on the Ping Result page) about the interface on the source device that receives the ping responses..
Routing Instance	<p>Select a specific routing instance that the ping request packets can use to reach the remote host.</p> <p>The ping result displays the information about the connectivity between the source device and the remote host based on the selected routing instance.</p> <p>To clear the selected routing instance, click Clear All and select another routing instance.</p>

Table 4: Fields on the Ping Result page

Field	Description
Packet Loss	Displays the percentage of ping packets sent for which the source device did not receive a response.
Round Trip Time Taken (in μ s)	<p>Displays the following information about the duration (in microseconds) between the time when the device sends the ping request and the time when the device receives a response from the remote host.</p> <p>Displays the following:</p> <ul style="list-style-type: none"> • Minimum: The minimum time taken to receive a response for a ping request packet. • Maximum: The maximum time taken to receive a response for a ping request packet. • Average: The average time taken to receive a response for all the ping request packets sent in a ping operation. • Standard Deviation: The variation of the round trip time from the mean round trip time.

Details

Sequence	Sequence number of all the ping request packets.
Result	Result of the ping request packets—Success or Failure.
Incoming Interface	<p>Interface on the source device on which the responses are received for the ping requests.</p> <p>This data appears if you have enabled the Incoming Interface option on the Ping page.</p>
Time Taken	Time taken (in microseconds) to receive response to a ping request packet.

Identifying Connectivity Issues by Using Traceroute

You can use Contrail Service Orchestration (CSO) to perform a traceroute operation from a device (provider hub, tenant device, CPE device, EX switch, enterprise hubs, or next-generation firewall device) to the remote host. Traceroute helps you view the path that a packet travels to reach the remote host. The result is useful in identifying the point of network failure in the path between the source device and remote host.

NOTE: In Contrail Service Orchestration (CSO) Release 5.0, the following devices support traceroute:

- EX Series: EX2300, EX3400, EX4300, EX4600, EX4650
- NFX Series: NFX150, NFX250
- SRX Series: SRX300, SRX320, SRX340, SRX345, SRX1500, SRX4100, SRX4200, SRX4600
- vSRX

To perform traceroute operation:

1. Do one of the following:
 - To initiate traceroute from a provider hub device, select **Resources > Provider Hub Devices**.
The Provider Hub Devices page appears.
 - To initiate traceroute from a tenant device, select **Resources > Tenant Devices**.
The Tenant Devices page appears.
2. Select a device from the list of devices displayed and click **More > Traceroute**.
The Traceroute page appears.
3. Complete the configuration according to the guidelines provided in [Table 5 on page 7](#).

NOTE: Fields marked with an asterisk (*) are mandatory.

4. Click **Traceroute** to initiate the traceroute operation.

A job is created and a traceroute progress page appears. If the traceroute operation is successful, the Traceroute Result page displays the traceroute parameters specified in [Table 6 on page 8](#).

If the traceroute operation fails, the Traceroute Result page displays an appropriate error message (such as **No response** or **No route to host**).

Table 5: Fields on the Traceroute page

Field	Description
Remote Host	Enter the IPv4 address or hostname of the remote host.
Maximum Hops	<p>Specify the maximum number of network devices that a packet can pass through to reach the remote host.</p> <p>Default: 30.</p> <p>Range: 1 through 255.</p> <p>If the number of hops to reach the remote host exceeds the set value, the traceroute packet is dropped.</p>
Advanced	
Source Interface	<p>Select a source interface on the device from which you want to send the packets to the remote host.</p> <p>Click Clear All to remove the selected interface and select another interface.</p>
Hostname Resolution	Click the toggle button to enable or disable (default) the display of hostname of the hops in the path to the remote host.
Wait Time (seconds)	<p>Enter the time until which the device waits for a response from the remote host to a packet sent before considering timeout.</p> <p>Default: 10 seconds.</p> <p>Range: 0 through 86,399 seconds.</p>
Routing Instance	<p>Select a routing instance that the traceroute request packets can use to reach the remote host.</p> <p>The trace result displays the route information based on the configured routing instance type.</p> <p>To clear the selected routing instance, click Clear All and select another routing instance.</p>

Table 6 on page 8 lists the parameters on the Traceroute Result page when the traceroute operation is successful.

Table 6: Fields on the Traceroute Result page

Field	Description
Hop	Hostname or IPv4 address of the network devices that the packet passed through to reach the remote host.
Time Taken by Packet 1	Duration (in microseconds) between the time from when the source device sends a packet, and the time it received a response from the hops and the remote host.
Time Taken by Packet 2	
Time Taken by Packet 3	

Troubleshooting Site Activation Issues for Cloud-based Deployments

IN THIS CHAPTER

- [Troubleshooting Site Activation Issues | 9](#)

Troubleshooting Site Activation Issues

IN THIS SECTION

- [Prerequisites to Activate a Site | 9](#)
- [Site activation process is stuck in device detected state | 10](#)
- [Site activation process is stuck in bootstrap state | 10](#)
- [Site activation process failed in bootstrap state | 10](#)
- [Site activation process failed during provisioning | 10](#)

Prerequisites to Activate a Site

Problem

Description: User was unable to activate a site. Specify the prerequisites to activate a site.

Solution

The prerequisites to activate a site are as follows:

- Check the spoke connectivity to Internet.
- Check the firewall policies between the CPE device and the CSO. The hub or spoke must be able to communicate to CSO through ports 443 (activation), 444 (activation for small and medium deployments),

7804 (outbound-ssh), 3514(app-track logs), 514 (syslog), and 2216 (telemetry agent). See *Contrail Service Orchestration (CSO) Deployment Guide*

Site activation process is stuck in device detected state

Problem

Description: Site activation process is stuck in device detected state; how do I proceed?

Solution

Do the following:

- Verify that your device can reach the Internet.
- Verify the date and time on the device.
- Verify that the DHCP server and the device are connected to the ge-0/0/0 port.
- Reboot the device.

Site activation process is stuck in bootstrap state

Problem

Description: Site activation process is stuck in bootstrap state; how do I proceed?

Solution

If the site activation process is stuck for more than 15 minutes, then do the following:

- Verify that your network firewall allows UDP ports 500 and 4500 for the SD-WAN site.
- Verify that your network firewall allows TCP port 7804 for the next-generation firewall site.
- Reboot the device.

Site activation process failed in bootstrap state

Problem

Description: Site activation process failed in bootstrap state; how do I proceed?

Solution

Verify that the device is zeroized or running the factory-default configuration. If the device is pre-staged, then ensure that the configuration is not overlapping with the CSO stage-1 configuration. Reboot the device.

Site activation process failed during provisioning

Problem

Description: Site activation process failed during provisioning; how do I proceed?

Solution

Verify the device connectivity to the Internet. Retry the failed job in CSO. Navigate to **Monitor > Jobs**, select the failed job, and click **Retry Job**.

Troubleshooting Image, License, and Policy Deployment Issues for Cloud-based Deployments

IN THIS CHAPTER

- [Troubleshooting Image, License, and Policy Deployment Issues | 12](#)

Troubleshooting Image, License, and Policy Deployment Issues

IN THIS SECTION

- [Unable to find device image version | 12](#)
- [Upgrade device image using J-Web | 13](#)
- [Unable to connect to the device | 13](#)
- [Device image version is different from the recommended version | 14](#)
- [LAN Switch image version is different from the recommended version | 14](#)
- [Policy deployment failed | 14](#)
- [No data for next-generation firewall site | 15](#)
- [No data for SD-WAN site | 15](#)
- [Traffic from Spoke Sites Are Dropped or Are Not Reaching Internet or Destination | 15](#)
- [SLA Violation-Original Link Recovered After SLA Violation | 16](#)
- [All WAN links are Up But Not All Links Are Utilized | 16](#)

Unable to find device image version

Problem

Description: How do I find my device image version without console access to the device?

Solution

Use the J-Web interface to find the device image version.

To access the J-Web interface of the device:

1. Connect your laptop or workstation to any port (except ge-0/0/0) that is available on the device.
2. Enable DHCP on the laptop or workstation and acquire the IP address and gateway information from the device.
3. Use the gateway address (also known as the device address) in the Web browser to connect to the J-Web interface.
4. Log in with the default username **root**. As the root user, you don't need a password to log in.

The Welcome page appears displaying the device image version.

Upgrade device image using J-Web

Problem

Description: Device image version is 15.1X49-D110; how do I upgrade the device image before site onboarding?

Solution

Use the J-Web interface to upgrade the device image.

To upgrade the device image using J-Web:

1. Download the recommended image or the software version from the Juniper Networks website to your local machine.
2. Log in to the J-Web interface.
3. Select **Maintain > Software > Upload Package**.
4. Navigate to the device image file location and select the file.
5. Click **Upload and Install Package** to upgrade the device image.

Unable to connect to the device

Problem

Description: I am not able to log in to the device through the J-Web interface or through the device console. How do I proceed?

Solution

Press and hold the Reset Config button on the device for 15 seconds. Wait for two minutes for the device to restore the factory-default settings. Log in to the device as the root user (no password is required for the root user). If you are still not able to access the device, then reboot the device.

Device image version is different from the recommended version**Problem**

Description: The device image version at the site is 15.1X49D110, but the recommended image version is 15.1X49D170.x. Should I upgrade the device image manually before site onboarding?

Solution

You don't need to upgrade the device image manually before site onboarding. You can do either of the following:

- Upgrade the device image during site activation in CSO—While you are in the site configuration or onboarding workflow, select the device image from the drop-down list.

NOTE: Device image upgrade during site activation delays the site activation process.

- Upgrade the device image post site activation in CSO—Navigate to **Resources > Images**, select the image, and click **Deploy**.

LAN Switch image version is different from the recommended version**Problem**

Description: LAN switch (EX Switch) image version is lower-numbered version than the recommend version. Can I proceed with onboarding the site?

Solution

Use the recommend image version for the device.

Policy deployment failed**Problem**

Description: Policy deployment failed; how do I proceed?

Solution

Verify the device connectivity to the Internet. Retry the policy deployment.

No data for next-generation firewall site

Problem

Description: Application Visibility Monitoring page shows no data for the next-generation firewall site; how do I proceed?

Solution

Do the following:

- Verify that your network firewall allows the UDP port 514.
- Verify the application visibility monitoring page after multiple application sessions (in the time range of 3–5 minutes) traffic.
- Use an appropriate time interval for the query. For example, if you are querying for the traffic sent in the last 10 minutes, then try using a 15-minute query (minimum time interval).

No data for SD-WAN site

Problem

Description: Application visibility and WAN performance data on the Site Management page shows no data for the SD-WAN site; how do I proceed?

Solution

Do the following:

- Verify the application visibility and WAN performance data after multiple application sessions (in the time range of 3-5 minutes) traffic.
- Use an appropriate time interval for the query. For example, if you are querying for the traffic sent in the last 10 minutes, then try using a 15-minute query (minimum time interval).

Traffic from Spoke Sites Are Dropped or Are Not Reaching Internet or Destination

Problem

Description: Traffic from spoke sites are dropped or are not reaching the Internet or their specified destinations.

Solution

1. Verify the alerts for overlay or underlay connections, and check whether BGP is active.
Log in to Administration portal, and select **Monitor > Alerts and Alarm > Alerts**.
2. Check whether the firewall policies are successfully deployed to the CPE device and that the traffic or applications are matching the policies to permit the traffic to Internet or to other sites.

In Administration Portal, select **Sites > Site-Name > Policies**.

Or log in to the CPE device and verify that the next-generation firewall policies are deployed.

3. Check the routes in the default VRF route table in the CPE device.
4. Trace the route and verify the reachability from the hub to the destination. If the hub cannot reach the Internet, then verify whether the firewall and NAT policies are set up properly in the hub.
5. For further troubleshooting, collect the logs and output results and contact Juniper Networks Technical Support team.

SLA Violation-Original Link Recovered After SLA Violation

Problem

Description: The original link is recovered after a service-level agreement (SLA) violation but the application traffic does not switch back to the original link.

Solution

Applications change links only on an SLA violation, because applications are not tied to a specific link and are based on SLA type, such as path preference or link performance metrics.

All WAN links are Up But Not All Links Are Utilized

Problem

Description: All WAN links are up but not all links are being utilized.

Solution

It is possible that all SD-WAN policies can select the same WAN link if they match the SLAs. If the CPE receives a lot of matching and non-matching application traffic for SD-WAN policies, but not all WAN links are being used, then ensure the following:

1. Check that the CPE device receives multiple flows per application.
2. Check that all the WAN overlays are up (IPsec, GRE) in the CPE device and the hub device.
3. Check the SLA performance data or real-time performance monitoring (RPM) probe results in the CPE device for all links.

Log in to the Administration Portal, and select **Monitor > Applications > SLA Performance**.

Troubleshooting SMTP Issues for Cloud-based Deployments

IN THIS CHAPTER

- [Troubleshooting SMTP Issues | 17](#)

Troubleshooting SMTP Issues

IN THIS SECTION

- [Basic Configuration for SMTP Server | 17](#)

Basic Configuration for SMTP Server

Problem

Description: User was unable to configure the SMTP e-mail server.

Solution

1. Check the SMTP server settings.
 - SMTP server address—Check the host name or network address of the SMTP e-mail server. Typical SMTP server addresses or host names are as follows:
 - smtp.juniper.net
 - smtp.gmail.com
 - smtp.mail.yahoo.com
 - AWS

- **TLS**—Check whether Transport Layer Security (TLS) option is enabled. This setting ensures that the information is transmitted over an encrypted channel. Not all SMTP servers support encryption. If TLS option is enabled for an SMTP server that does not support TLS, then disable the TLS option.
- **Port**—Check with your e-mail service provider for the port number that the SMTP server listens to. Generally, port number 587 is used for a TLS connection and port number 25 is used for unencrypted connections.

Typical SMTP server settings are as follows:

- smtp.juniper.net—Set TLS to No and port number to 25
- smtp.gmail.com—Set TLS to Yes and port number to 587
- smtp.mail.yahoo.com—Set TLS to Yes and port number to 465 or 587

2. Check the SMTP authentication settings.

- Check whether the e-mail server requires authentication. If yes, then specify the following options.
 - From Name
 - User Name
 - Password
 - From E-mail Address

NOTE: If Gmail blocks SMTP e-mails, then log in to Gmail account, navigate to **Advanced Settings > Security > Less secure app access** and click the toggle button to turn on **Allow less secure apps** option.

3. Test SMTP settings by sending a test e-mail.

If you are unable to send a test e-mail:

- Check the SMTP server settings to see if they match the SMTP server provider's settings.
- Check authentication credentials.
- Check the SMTP server provider's security settings for SMTP (for example: Gmail blocks SMTP email unless user selects less secure app settings on their gmail account).
- Check whether there is network access from CSO to the SMTP server.
- Check whether the firewall is blocking SMTP traffic to SMTP server or whether the ports are blocked. If the server settings and authentication settings are correct, check whether the firewall is blocking

port 587 and 465 and SMTP traffic. If it is a case of the firewall blocking, then work with the network administrator to unblock ports 465, 587, and SMTP traffic.

RELATED DOCUMENTATION

| *Configuring SMTP Settings*

Troubleshooting Site, Device and Link Issues

IN THIS CHAPTER

- Troubleshooting Site, Device, and Link Issues | 20

Troubleshooting Site, Device, and Link Issues

IN THIS SECTION

- Secure OAM Activation Failure | 20
- Configure SD-WAN Site Failure | 21
- Device Activation Failure | 21
- Dual-CPE Activation Failure for NFX Series Devices | 22
- Dual-CPE Activation Failure for SRX Series Devices | 22
- Link Switch Event or Performance Metrics is Not Displayed | 23
- WAN Link Performance Parameters are Not Displayed | 23
- LTE Interface Issues | 24

Secure OAM Activation Failure

Problem

Description: After entering the activation code , the CPE device status remains in **DEVICE_DETECTED** state; the `csp.tssm_bootstrap-<site-name>` job fails or the job status remains in **In Progress** state for a long time.

Solution

Check whether CSO is reachable or not by executing the following command on the CPE device.

```
user@host > ping <cso-ip> > source <management-ip-configured-on-loopback-interface>
```

If the ping fails, then check whether the secure OAM tunnels are up by using the following command.

user@host > show security ipsec inactive-tunnels

If the secure OAM tunnels are not up, verify the connectivity to the OAM hub.

Configure SD-WAN Site Failure

Problem

Description: The configure site operation fails for a spoke site.

Solution

1. Log in to Customer Portal and select **Sites > Site Management**.

The site status must be **Configured**. If the site status is **Configuration Failed**, then the “tssm configure sites” job must have failed.

2. Click **Monitor > Jobs** and check the job details to verify which task has failed.

If the **ship device** task has failed, then CSO has failed to push the required secure OAM tunnel configuration to the hub device.

3. Check the connectivity between CSO and the hub.
4. If there are any other failures, then go to **Sites > Site Management > Site-Name > Configure Site** and review the input provided for configuring the site.

Device Activation Failure

Problem

Description: After entering the activation code, the device status remains is **DEVICE_DETECTED** state for a long time.

Solution

After entering the activation code, the activation window must display the progress of device activation and must indicate that device has been successfully detected. If the device status remains in **DEVICE_DETECTED** state, then follow the steps listed below:

1. Log in to Customer Portal and select **Resources-> Devices**.

The Devices page appears.

2. Check the **Management Status** of the device.

If the management status is **DEVICE_DETECTED**, then the deployment of the stage-1 configuration on device has failed or device has failed to send the **BOOTSTRAP COMPLETE** notification to CSO.

3. Login into the device and verify whether the stage-1 configuration is committed on the device.

4. Verify the connectivity between CSO and the device loop back address.
5. Navigate to **Monitor > Jobs** page and verify the status of **csp.tssm_bootstrap-<site name >** job.
 - If the job is in **successful** state, then ztp job will be triggered.
 - If the job is in **in-progress** state, then the CPE device failed to establish the connection over the secure OAM tunnel.
6. If device failed to establish the connection within an hour, or if the **csp.tssm_bootstrap-<site name >** job fails, then check the bootstrap task details.
7. Once the connectivity issue is resolved, navigate to **Resources > Devices** and activate the device.
 The **csp.tssm_ztp-<site name >** job must be successful state. If the job failed, check the task details verify which task has failed.

Dual-CPE Activation Failure for NFX Series Devices

Problem

Description: ZTP Job failed for dual CPE NFX Series devices.

Solution

For a site with dual CPE NFX Series devices, two ZTP jobs, namely, **csp.tssm_ztp-<site-name>_cpe0** and **csp.tssm_ztp-<site-name>_cpe1** are created. One ZTP job is created per each node.

While the jobs are still in progress and after the Gateway Router (GWR) is spawned successfully, two more jobs, namely, **form_device_cluster** are created per each node for cluster formation.

Log in to Administration Portal and select **Monitor > Jobs** to view the **form_device_cluster** job. If cluster formation fails, the **form_device_cluster** job and the **csp.tssm_ztp-<site-name>_cpe0**, **csp.tssm_ztp-<site-name>_cpe1** jobs are reported as failure.

For any cluster formation job failure, check the logs from the device at **/tmp/cluster_gwr.log**.

For further troubleshooting, collect the logs and output results and contact Juniper Networks SRE team.

Dual-CPE Activation Failure for SRX Series Devices

Problem

Description: ZTP Job failed for dual SRX Series devices

Solution

For a site with dual CPE SRX Series devices, two ZTP jobs, namely , **csp.tssm_ztp-<site-name>_cpe0** and , **csp.tssm_ztp-<site-name>_cpe1** are created. One ZTP job is created per each node.

In case of dual SRX Series devices, as a pre-requisite, the chassis cluster is already formed manually before starting the device activation. The `csp.tssm_ztp-<site-name>_cpe1` job will report success quickly, and the actual ztp progress can be tracked through the `csp.tssm_ztp-<site-name>_cpe0` job. In case of any failure, refer to ZTP job task details.

Link Switch Event or Performance Metrics is Not Displayed

Problem

Description: Link switch event is not displayed in the UI

Solution

Check whether the device is able to reach southbound load balancer VM (SBLB VM) and the time is synchronized with the NTP server.

```
root@gwr.spoke-nfx> show system uptime
Current time: 2019-03-04 15:37:46 IST
Time Source: NTP CLOCK
System booted: 2019-02-28 15:13:49 IST (4d 00:23 ago)
Protocols started: 2019-02-28 15:13:50 IST (4d 00:23 ago)
Last configured: 2019-03-04 14:58:58 IST (00:38:48 ago) by csp
3:37PM up 4 days, 24 mins, 1 user, load averages: 0.42, 0.30, 0.26
```

Even when the link switch is successful on the device, it may not be indicated in the UI because of the missing syslog events. Link switch event in UI is indicated based on the **APPQOE_BEST_PATH_SELECTED** syslog with reason as **sla violated** that is received from CPE device.

Log in to Customer Portal and select **Monitor > Device Events** to view all the syslogs that are received from the CPE device. To filter the **APPQOE_BEST_PATH_SELECTED** events, use the following query:
Event Name = APPQOE_BEST_PATH_SELECTED and **Reason = sla violated**.

WAN Link Performance Parameters are Not Displayed

Problem

Description: WAN link performance parameters, such as latency, packet loss, E2E delay, jitter, and throughput are not displayed in the UI.

Solution

Check whether the device is able to reach southbound load balancer VM (SBLB VM) and the time is synchronized with the NTP server.

```
root@gwr.spoke-nfx> show system uptime
Current time: 2019-03-04 15:37:46 IST
```



```

Time Source:  NTP CLOCK
System booted: 2019-02-28 15:13:49 IST (4d 00:23 ago)
Protocols started: 2019-02-28 15:13:50 IST (4d 00:23 ago)
Last configured: 2019-03-04 14:58:58 IST (00:38:48 ago) by csp
3:37PM up 4 days, 24 mins, 1 user, load averages: 0.42, 0.30, 0.26

```

Login to Customer Portal and select **Sites > Site Management > Site-Name > WAN** tab to view the WAN link performance.

- The WAN link performance details for latency, packet loss, E2E delay, and jitter are retrieved from **APPQOE_ACTIVE_SLA_METRIC_REPORT** syslog. To filter the **APPQOE_ACTIVE_SLA_METRIC_REPORT** events, use the following query:

Event Name = APPQOE_ACTIVE_SLA_METRIC_REPORT and Site = <site-name>.

- The WAN link performance details for throughput is retrieved from **APPTRACK_ACTIVE_SLA_METRIC_REPORT** syslog. To filter the **APPTRACK_ACTIVE_SLA_METRIC_REPORT** events, use the following query:

Event Name = APPTRACK_SESSION_CLOSE and Site = <site-name>.

LTE Interface Issues

Problem

Description: LTE interface is not receiving the IP address.

Solution

- Check the data validity of the SIM using the mobile device.
- Check the LTE module connection status to ensure that there is adequate mobile signal strength.

user@host>show modem wireless network cl-1/1/0

```

LTE Connection details
Connected time: 2880
IP: 192.12.219.210
Gateway: 192.12.219.209
DNS: 192.123.123.123
IPv6: ::
Gatewayv6: ::
DNSv6: ::
Input bps: 0
Output bps: 0
Bytes Received: 1952
Bytes Transferred: 2164

```

```
Packets Received: 10
Packets Transferred: 20
Wireless Modem Network Info
Current Modem Status: Connected
Current Service Status: Normal
Current Service Type: PS
Current Service Mode: LTE
Current Band: B3
...
```

Check the **Current Modem Status**, **Current Service Status**, **Current Service Type**, and **Current Service Mode** fields.

- For NFX150 device, ensure that the external antenna is connected properly.