



Cisco WAN Automation Engine Release Notes, Release 6.4.9

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This document describes the features, limitations, and bugs for Cisco WAN Automation Engine (Cisco WAE) Release 6.4.9.

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Introduction

Cisco WAE is a model-driven, path visibility and path computation engine that simulates, automates, and optimizes multi-vendor, multi-layer networks by leveraging time-series traffic and flow data. For more information on Cisco WAE, visit www.cisco.com/go/wae.



New and Changed Features

Cisco WAE Design

Cisco WAE Design now supports Windows 10 (64 bit).

Cisco WAE Live

- When working with tables in **Cisco WAE Live > Explore**, you can click the gear tool icon to choose from a number of options that operate on report data. The following option is new in Cisco WAE 6.4.9:
 - **Disable Regex Search**—Leave the check box unchecked to set the filter value as a regular expression. Check the check box to set the filter value as a simple string. Regex searches are enabled by default.

This enhancement improves Explore search response times, especially for complex or malformed regular expressions, or when regular expressions are not intended.
- You have the option to cancel a Cisco WAE Live report while it is running. Choose **Analytics > Report Log** and click **Cancel** to cancel a running report.
- You can manually refresh data in the Report Log. Choose **Analytics > Report Log** and from the **Show Reports** menu, choose **Refresh Table**.

NetFlow Collection

Starting with WAE 6.4.9, two types of flow collection architectures are available:

- **Centralized NetFlow (CNF)**—Typically used for small to medium networks. This is a single-server architecture. Prior to WAE 6.4.9, CNF was the only architecture available.
- **Distributed NetFlow (DNF)**—Typically used for larger networks. This architecture consists of a JMS broker, master, and agents. The DNF architecture is only available in WAE 6.4.9 and later 6.4.x releases.

The collection architecture to deploy depends on the measured or estimated rate of NetFlow traffic export from the network in Mbps or fps.

For detailed information, see the “Collecting NetFlow Data” chapter in the [Cisco WAE 6.4 Platform Configuration Guide](#).

Deprecated CLIs

The following CLI options are deprecated:

- `-use-mate-convert-on-input-plan-files`
- `-use-resolve-plan-on-closing`

If the plan file ends in `.pln` or `.txt`, it is converted automatically; the CLI option is no longer required.

Upgrading to WAE 6.4.9

The following is a high-level summary of tasks that should be performed when upgrading from a WAE 6.4.x release.



Note

The following tasks assume you are familiar with WAE and WAE Live installations.

Task	For more information, see the following sections in the <i>WAE Server Installation Guide</i>
1. Disable snapshot processes configured in the WAE user cron job.	–
2. As a root user, stop all WAE services. # /etc/init.d/wae-svcs-boot stop # wae-svcs-boot stop	–
3. Back up the WAE Live Data Store. Note If WAE is running on a VM, you have the option to take a VM snapshot.	Backing Up the Data Store
4. As a root user, install WAE 6.4.9. At the prompt “Migrate WAE Collector files from previous installation?”, enter yes . # sudo bash <package>.bin	Planning Software Installation
5. As a WAE user, stop WAE services, upgrade the WAE Live data store, and restart WAE services. # service wae-web-server stop # mld -action upgrade # service wae-web-server start To verify processes are running: # service wae-web-server status # mld -action status	Upgrading the Data Store
6. Enable the snapshot processes in the cron job that you previously disabled.	–

Open Source

A list of open source software used in Cisco WAE can be found in [Open Source Software Used in Cisco WAN Automation Engine](#).

Open and Resolved Bugs

Open Bugs

The following table lists the open bugs in Cisco WAE 6.4.9. The bug IDs link you to the Cisco Bug Search tool.

Bug ID	Description
CSCvf65441	NetFlow traffic increases significantly after upgrading. This problem occurs when the flows reported by the routers include both IPv4 and IPv6.
CSCvf77646	With Distributed NetFlow, the flow_collector_dmd tool does not modify the NetIntInterfaceTable.

Resolved Bugs

The following table lists the resolved bugs in Cisco WAE 6.4.9. The bug IDs link you to the Cisco Bug Search tool.

Bug ID	Description
CSCuy47012	The WAE Live GUI cannot display a plan layout that contains alphanumeric characters.
CSCva95382	The dumpdiag command does not capture the base server LOCALE environment.
CSCvd56426	The WAE Live UI times out when trying to filter down interfaces.
CSCvd76376	When running a report in the WAE Live GUI, there is no option to cancel the report.
CSCve32672	The WAE Live Analytics tab does not show reports after they are saved.
CSCve63501	WAE does not show the physical interfaces of some bundles (LAG interfaces) from Huawei routers.
CSCve65183	Incorrect plan files are generated with very high demands.
CSCve89673	When a P2MP LSP is selected, the traversed L1 links of L1 circuits associated to traversed L3 circuits are not highlighted.
CSCvf12528	When a filter matches too many objects, ml_read returns the error “Too many or too few host variables given.”
CSCvf20222	Snapshots do not complete correctly because the “login_poll_multicast_ext” process takes too long to complete.
CSCvf34718	A base row creation failure occurs when calling sp_tsmaint.
CSCvf41646	Time-series graphs in WAE Live don’t display the correct UTC offset.
CSCvf42284	Documentation is missing information about new users logging in from WAE Design. New WAE users must log into the WAE System UI to change their password before logging in from WAE Design.
CSCvf43100	Snapshot collection with the -localjre option fails if JAVA_HOME is not set, or if JAVA_HOME points to a directory with a JVM earlier than 1.8.
CSCvf46455	The “DisjointGroups” option for “disjointPaths” is not included in the API documentation for the RSVP TE Opt tool.
CSCvf48131	In WAE Live, when Map.AuthEnabled is set to False, an error message and password prompt are generated.

Bug ID	Description
CSCvf59724	Augmented snapshot collection does not complete correctly because find_bgp fails.
CSCvf62002	The Operational property of port circuits is set to true (T) when the associated ports are inactive.
CSCvf63242	L1 simulation does not correctly explore alternative paths for L1 circuits with specified L1 node hops when there are parallel L1 links.
CSCvf65355	Layer 1 simulation is not updated after an L1 link is duplicated in the GUI.
CSCvf65376	When a plan file without L3 objects is loaded into the GUI, we should open in L1 view (even if there are no sites).
CSCvf65739	TCP port 1099 is used by the JMX agent started by the JMS broker from the Apache libraries used for JMS communication. This situation has been reported by a customer as a vulnerability. The vulnerability has not yet been assessed, though.
CSCvf69658	Need to remove wae-ml-deployer from the wae-ncs-service bundle for Linux and Mac platforms.
CSCvf73178	The WAE web server works only on default ports; it does not work with the settings in wae-web-server.cfg.

Using the Cisco Bug Search Tool

You can use the Cisco Bug Search Tool to search for a specific bug or to search for all bugs in a release.

Step 1 Go to the [Cisco Bug Search Tool](#).

Step 2 Enter your registered Cisco.com username and password, and click **Log In**.

The Bug Search page opens.



Note If you do not have a Cisco.com username and password, you can [register here](#).

Step 3 Use any of these options to search for bugs, and then press Enter (Return) to initiate the search:

- To search for a specific bug, enter the bug ID in the Search For field.
- To search for bugs based on specific criteria, enter search criteria in the Search For field, such as a problem description or feature.
- To search for bugs based on products, enter or select a product from the Product list. For example, if you enter “WAE,” you get several options from which to choose.
- To search for bugs based on releases, in the Releases list select whether to search for bugs affecting a specific release, bugs that were fixed in a specific release, or both. Then enter one or more release numbers.

Step 4 To search for bugs based on releases, in the Releases list select whether to search for bugs affecting a specific release, bugs that were fixed in a specific release, or both. Then enter one or more release numbers in the Releases field.

To export the results to a spreadsheet, click **Export Results to Excel**.

Known Limitations

This section describes the limitations and restrictions for Cisco WAE 6.4.9.

WAE System

Installation

The WAE installer indicates a conflict with `rsync31u` and `ansible1.9`. The WAE Planning `platsvcs` component has a problem with the `ansible1.9` dependency. (This problem is tracked as [CSCuy79752](#).)

This problem occurs because the WAE installer requires an older version of Ansible, which is no longer available on EPEL. If you do `'yum install ansible'`, version 2 is installed and the WAE installation fails. Note also:

- One aspect of the problem is that `ansible1.9` and `rsync31u` are no longer available in EPEL.
- WAE requires `ansible1.9` because an API that WAE uses changed in `ansible2.0`.

As a workaround, do the following:

1. Ensure that Ansible is not installed. (If necessary, uninstall it with **`yum uninstall ansible`**.)
2. Install the EPEL repository, if it is not already present.
3. Download and install `ansible1.9-1.9.6-2.el6.noarch.rpm` and its dependencies.
4. If necessary, install `rsync31u-3.1.2-2.ius.centos6.x86_64.rpm`.
5. Run the WAE installation.

Removal of `wae-dlc`

A `wae-dlc` folder is created under `$CARIDEN_HOME/wae-platsvcs-server` when `wae-dlc` is installed. If the `yum remove wae-dlc` command is used, the `wae-dlc` folder is not deleted. You must manually remove `$CARIDEN_HOME/wae-platsvcs-server/wae-dlc`.

Startup

- The WAE NI server and the WAE Core server cannot reside on the same device or on the same VM. Note that the *Cisco WAE Server Installation Guide* assumes that they are on the same device. If needed, contact your support representative for further installation details.
- If the OS is using an old CA certificate to verify the integrity of the EPEL repository, you might see this error from the OS vendor:

```
Error: Cannot retrieve metalink for repository: epel. Please verify its path and try again.
```

- One workaround is to perform an offline installation. For instructions, see the “Offline Installation” chapter in the *Cisco WAE Server Installation Guide*.
- Another workaround is to change `https` to `http`.

**Note**

This is not a secure solution. For information on how to resolve OS security issues, contact your OS vendor.

1. In the `/etc/yum.repos.d/epel.repo` file, change the first instance of `https` to `http`.

```
sudo vim /etc/yum.repos.d/epel.repo
```

Change `https` to `http` in the following line:

```
mirrorlist=[https://mirrors.fedoraproject.org/metalink-repo=epel-6&arch=$basearch]
```

2. Execute `yum` to clean up `makecache`.

```
sudo yum clean all && yum makecache
```

3. Rerun the installer. For instructions, see the *Cisco WAE Server Installation Guide*.

```
sudo bash wae-k9-<version>.bin
```

- The `$CARIDEN_HOME` directory is not automatically added to `$PATH` (only `$CARIDEN_HOME/bin` is). If not in `$CARIDEN_HOME/bin`, to start the WAE Design GUI from the command line, you must specify its full path.

```
/opt/cariden/software/mate/current/mate
```

Web Server

The `embedded_web_server` tool is deprecated. The recommendation is to use the `wae-web-server` service, which is constantly monitored to be brought up automatically.

By default, this web service starts upon installation completion. Therefore, if you stop the web server using the `embedded_web_server` tool (`embedded_web_server -action stop`), the web server does not stop. The workaround is the following:

```
service wae-svcs-mon stop
embedded_web_server -action stop
```

WAE Statistics UI

The WAE Statistics page does not appear in some web browsers if you do not have the correct SSL certificates. To work around this, install the correct SSL certificates (see the “Installing an SSL Web Certificate” section in the *Cisco WAE System Administration Guide*) or do the following:

1. Click the WAE Statistics link. The URL format is `https://<server_IP>:8443`; for example, `https://192.0.2.14:8443`.
2. Copy the URL of the page to another browser window.
3. In the new browser, change the URL port from 8443 to 8843; for example, `https://192.0.2.14:8843`.
4. Follow the browser messages to accept the connection and add it as an exception.

Web User Management

Both the System UI and the WAE Design Archive UI have local user management capabilities. If both are used to configure users, WAE uses the most recently updated information. The recommendation is to use only the System UI to manage local users.

License Check Failures on Newer Linux Distributions

Some newer Linux distributions have started using a new way (via biosdevname) of naming hardware devices, including the network interfaces. This causes some software that depends on the traditional naming (for example, eth0, eth1) to fail on license checks, including MATE.

The workaround is to append biosdevname=0 to the kernel line of the grub configuration file and reboot. (Syntax varies among distributions.)

After reboot, you should be able to use ifconfig to verify that the NICs are named eth0 (or eth1, ...) instead of the biosdevname names (such as p34p1).

Java Memory

Certain tools (such as sam_getplan and parse_configs) might require more memory to start than what is available. The symptom is an error message similar to the following:

```
Error occurred during initialization of VM.  
Could not reserve enough space for object heap.  
Error: Could not create the Java Virtual Machine.  
Error: A fatal exception has occurred. Program will exit.
```

The workaround is to set the maximum memory to a low enough value in the CARIDEN_JAVA_OPTIONS variable before calling the tool. An example setting is as follows:

```
set CARIDEN_JAVA_OPTIONS=-Xmx1000m
```

Coordinated Maintenance

Coordinated Maintenance 1.2.1 is not supported in WAE 6.4.9.

WAE Design

macOS Sierra 10.12 implements an additional security measure for applications that are not distributed through the App Store; this includes WAE Design.

By default, WAE Design is in a quarantine state as shown by the following command on a terminal:

```
xattr Mate.app
```

The command returns the following output for a quarantined application:

```
com.apple.quarantine
```

As a workaround, remove WAE Design from quarantine by entering the following command in the directory where WAE Design is installed:

```
xattr -r -d com.apple.quarantine Mate.app
```

You can now run WAE Design on macOS Sierra 10.12.

WAE Collector and WAE Network Interface (NI)

- Due to vendor MIB limitations, Collector cannot represent QoS traffic on interfaces that have more than one VLAN configured. If a network contains such interfaces, their queue traffic statistics are omitted from the collection. The total traffic on these interfaces is still measured. As a result, per class-of-service demands estimated through Demand Deduction are less accurate. Estimates of traffic totals over all classes of services, however, are not affected.
- Due to lack of MIB support, SR tunnel type is not collected for Cisco IOS XR routers through SNMP.
- Collection of interface egress shaping rate for Alcatel-Lucent devices does not support LAG interfaces.
- Shared Risk Link Groups (SRLGs) are not supported in Alcatel-Lucent Service Aware Manager (SAM) collection.

WAE NI

- The interval for continuous LSP discovery in WAE NI cannot be less than 60 seconds.
- LSP's ActualPathHop cannot be resolved when using continuous collection. As a workaround, use interval-based collection.

Collector

- Juniper MIBs do not support P2MP LSPs.
- OSPFv3 and IPv6 IS-IS databases cannot be collected. The workaround is to use a manual snapshot.
- SNMPv3 is not an available option when configuring default credentials.
- `snmp_find_interfaces`
 - Does not support association of a GRE tunnel with the physical interface it uses to reach the tunnel destination since the IP-Tunnel MIB lacks this information.
 - Does not update LAG port status if LAGs are discovered running both `parse_configs` and `snmp_find_interfaces`. The workaround is to run only `snmp_find_interfaces`.
- Juniper routers: Signaled standby LSP path option is not available from the standard MPLS-TE MIB for Juniper routers. Only the active path option name is collected.
- Cisco IOS XR routers
 - IGP topology collected through `parse_igp` and `login_find_igp_db`
 - IS-IS link-state database with TE extensions contains incorrect interface “admin-weights” (TE metric) on Intel-based routers.
 - IPv6 IS-IS link-state database does not contain IPv6 interface addresses or parallel interfaces. This information is only available when Cisco IOS XR supports IS-IS IPv6 TE extensions. The `snmp_find_interfaces` tool collects this information.
 - `snmp_find_rsvp` does not set the Standby value in the <LSPPaths> table for signaled backup paths or collect named affinities configured with affinity-maps.
- BGP peers
 - `find_bgp` does not build BGP pseudo-nodes among internal ASNs.
 - `find_bgp` does not collect BGP peers under PE-CE VRFs.

- parse_configs
 - Does not accurately detect the bandwidth of some Juniper ‘ge’ interfaces that have a capacity of 10 Gbps.
 - Collects POS bundles, but has limitations due to unavailability of the port OperStatus property.
- TE Extended Admin Groups (EAGs), also known as extended affinities, are only supported from Juniper and parse_configs.
- There is no support for building port circuits for LAG members that are not within the same IGP (inter-AS circuits)
- It is not possible to distinguish between physically connected and unconnected LAG ports that are down for LAG port matching.
- snmp_find_ospf_db cannot be used when routers have a large number of links that cannot fit into a single PDU.
- find_bgpls does not support multi-area OSPF or multi-level IS-IS, non-TE-enabled interfaces, and pseudo-nodes. The workaround is to use SNMP- or login-based discovery.
- get_inventory does not collect Juniper multi-chassis router hardware inventory.
- Segment routing
 - SR protected adjacency SIDs are not supported.
 - Concurrent RSVP-TE and SR-TE paths are not supported on the same LSP.

SAM-OSS Integration with Snapshots

- sam_getplan does not populate the <NodeTraffic> table. This table is derived and populated when sam_getplan and SNMP tools are used together.
- sam_getplan does not populate the NetIntActivePath column in the <LSPs> table.
- If sam_getplan and SNMP tools are used together in the snapshot process for multi-vendor network collection, Alcatel-Lucent traffic measurements cannot be aligned with those collected from other router platforms.

Cisco Open SDN Controller (OSC)

During detailed PCEP tunnel creation or when modifying PCEP tunnels, affinity values are misinterpreted if multiple affinities are specified. This limits you to specifying one affinity for IncludeAffinity, IncludeAnyAffinity, and ExcludeAffinity, and each of these values must be a number within [0,31].

NSO Controller

- LSP affinities are deployed, while interfaces affinities require separate provisioning.
- LSPs that exist in the network by another controller cannot be updated.
- Deployment of each RSVP-TE named-path or SR-TE segment-list is limited to a single LSP.
- Cisco IOS XR: WAE client specifies the XR LSP signaled-name, while NSO service and device use tunnel-id. The workaround is to deploy all Cisco IOS XR LSPs using the tunnel-id and to make sure that existing LSPs are not redeployed.
- NEDs (NSO console)

- For Cisco IOS XR, there is no option to give the IP address of the LSP directly; you can only specify a loopback address. There is no option to give tunnel affinity values directly; you can only specify an affinity-map name.
- For Junos, there is no inter-domain keyword, which is used only when an inter-area LSP is created.

Accessibility Features

For a list of accessibility features in Cisco WAE, visit Cisco's [Voluntary Product Accessibility Template \(VPAT\)](#) website, or contact accessibility@cisco.com.

All product documents are accessible except for images, graphics and some charts. If you would like to receive the product documentation in audio format, braille, or large print, contact accessibility@cisco.com.

Related Documentation

For related documentation, see the [Cisco WAE 6.4 Documentation Roadmap](#).

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