



Cisco WAN Automation Engine Release Notes, Release 6.4.10

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This document describes the features, limitations, and bugs for Cisco WAN Automation Engine (Cisco WAE) Release 6.4.10.

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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 Live

Option to Purge Time-Series Data

To minimize storage requirements and keep system performance stable, the WAE Live data store automatically purges old time-series data. The automatic purge is transparent, does not impact standard day-to-day operations, and does not require an outage window.

The automatic purge is disabled by default. You can configure (enable) the automatic data purge, as follows:

Step 1 Stop the WAE web server.

Step 2 Log in to your local server and open config.xml file for editing. The default location is /opt/cariden/etc/config/config.xml; your location might differ if you chose a different installation directory.

Step 3 In the config.xml file, locate the following section:

```
<application name="Live">
```

Step 4 Under <application name="Live">, do one of the following, depending on whether you are upgrading or performing a fresh installation:

- If you are upgrading from an earlier release to WAE 6.4.10, add the following line:

```
<property name="Live.Timeseries.Data.TTL" type="String"><value> <unit></property>
```

- If you are performing a fresh installation of WAE 6.4.10, edit the existing line:

```
<property name="Live.Timeseries.Data.TTL" type="String"><value> <unit></property>
```

where:

- <value> is a float (a floating-point number, or a number that has a decimal place).
- <unit> is either year, month, or day. The unit can be singular or plural and is not case-sensitive. For example, "year" can be expressed in all of the following ways: year, Year, Years, YEARS.

For example, to purge time-series data that is older than 2.5 years, enter:

```
<property name="Live.Timeseries.Data.TTL" type="String">2.5 YEAR</property>
```

Step 5 Save your changes and close the config.xml file.

Step 6 Restart the WAE web server.

Option to Easily Start and Stop WAE Live

A new utility tool (bash script in \$CARIDEN_HOME/bin/) orchestrates the initiation of the mld and Tomcat processes, making it easy to start and stop the WAE Live web server and data store.



Note We strongly recommend that a system administrator attend to the WAE Live startup process.

To start WAE Live, enter:

```
wae-live-start
```

To stop WAE Live, enter:

```
wae-live-stop
```

Enhancement to WAE Live ml_read Tool

The WAE Live ml_read tool retrieves and outputs user-defined properties.

Cisco WAE Design

Cisco WAE Design is a 64-bit installation on all supported operating systems.

Operating System	Software	CPU	Memory
Linux-x86_64	CentOS and RHEL 6.9 with latest patches	Intel or AMD 2+ GHz	Minimum: 8 GB Recommended: 16 GB
Windows (64-bit)	Windows 2008 (recommended) Windows 10.0	Intel or AMD 2+ GHz	Minimum: 8 GB Recommended: 16 GB
macOS x86_64	10.8.5 to 10.13	Intel or AMD 2+ GHz	Minimum: 8 GB Recommended: 16 GB

Upgrading to WAE 6.4.10

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. <pre># /etc/init.d/wae-svcs-boot stop</pre> <pre># wae-svcs-boot stop</pre>	—
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

Task	For more information, see the following sections in the <i>WAE Server Installation Guide</i>
4. As a root user, install WAE 6.4.10. At the prompt “Migrate WAE Collector files from previous installation?”, enter yes . <pre># sudo bash <package>.bin</pre>	Planning Software Installation
5. As a WAE user, stop WAE services, upgrade the WAE Live data store, and restart WAE services. <pre># service wae-web-server stop # mld -action upgrade # service wae-web-server start</pre> To verify that the processes are running: <pre># service wae-web-server status # mld -action status</pre>	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 Bugs

The following table lists the open bugs in Cisco WAE 6.4.10. The bug IDs link you to the Cisco Bug Search tool.

Bug ID	Description
CSCvg06524	In WAE web UI > System > Log Settings > Syslog Settings area, if you update values and click Save, the saved values do not persist when you reload the page. The catalina.out log file reports the following error: <pre>[ERROR] [http-8443-6] LogConfigResourceImpl.updateSysLogConfig() - Unable to update Syslog config: Required file /opt/cariden/software/wae-platsvcs/confmgmt/logConfig.json does not exist !!!!! java.io.FileNotFoundException: Required file /opt/cariden/software/wae-platsvcs/confmgmt/logConfig.json does not exist !!!!!</pre>

Resolved Bugs

The following table lists the resolved bugs in Cisco WAE 6.4.10. The bug IDs link you to the Cisco Bug Search tool.

Bug ID	Description
CSCvc39163	The “wae-mld” service is missing from the WAE installer, meaning you cannot easily start or stop the WAE Live web server and data store.
CSCvd98198	After a restart, the WAE license server increments the port number. For example, after the license server restarts, the command lmutil lmstat -a shows that the license server is using port 27001 (whereas before the restart, it was using port 27000).
CSCvf34259	Distributed NetFlow API document file is missing from the installation package.
CSCvf59009	A WAE plan file is missing physical ports of LAG interfaces collected from a Juniper MX480 v15 device.
CSCvf63554	During an L1 collection, the optics controller port on an NCS 5500 device is not collected and therefore is not mapped as part of the L1/L3 mapping process.
CSCvf61214	With mld installed, when you stop the WAE web server, a NetworkDao/NetworkService error occurs.
CSCvf65441	NetFlow traffic increases significantly after upgrading. This problem occurs when the flows reported by the routers include both IPv4 and IPv6.
CSCvf73375	When you set the plot option for L1 link text to be “Num L1 Circuit Paths,” WAE Design shows the NumL1CircuitPaths in the Worst-Case view instead of the WCNumL1CircuitPaths.
CSCvf77646	With Distributed NetFlow, the flow_collector_dmd tool does not modify the NetIntInterfaceTable.
CSCvf84613	The WAE Live ml_read tool does not retrieve and output user-defined properties.
CSCvg05416	If you duplicate an L3 circuit that has associated port circuits that in turn have associated L1 circuits, the same L1 circuits are associated to the new port circuits. (That is, the L1 circuits are not duplicated even if you choose “ Duplicate mapped L1 circuits. ”)
CSCvg22668	The sr_te_bw_opt tool generates link hops even if the “create-adj-segment-hops” option is set to false.
CSCvg26215	A crash occurs on Ubuntu when WAE Design uses the SSL/crypto libraries that are distributed in the OS and are incompatible with WAE Design needs.
CSCvg26217	After upgrading from WAE 6.1.3 to 6.4.9, the WAE Design client can’t save large plan files to a remote MATE archive.

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 6.4.10.

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 `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 6.4.10.

WAE Design

macOS Sierra 10.12 and later 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 and later.

FlexLM License Server

You cannot run the floating license server on a setup (Linux VM or actual host) that uses bonded virtual interfaces (that is, a setup with multiple interfaces that have the same MAC address but different IP addresses within a VM). If the WAE Design client tries to check out a license from a setup that uses bonded virtual interfaces, the license checkout fails with the error “No license found.”

As a workaround, run the floating license server in a standard Linux VM or host.

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.

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.

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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