Release Notes for Cisco WAE 7.6.4

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This document provides information about

- product overview
- bugs fixed in this release
- key updates included in this release, and
- known issues and limitations.

Overview

Cisco WAE provides the tools to create and maintain a model of the current network through the continual monitoring and analysis of the network and the traffic demands that are placed on it. This network model contains all relevant information about a network at a given time, including topology, configuration, and traffic information. You can use this information as a basis for analyzing the impact on the network due to changes in traffic demands, paths, node and link failures, network optimizations, or other changes.

The Cisco WAE platform is an open, programmable framework that interconnects software modules, communicates with the network, and provides APIs to interface with external applications.

Bugs

Resolved bugs

This table lists the bugs resolved in the Cisco WAE 7.6.4 release.

Table 1: Resolved bugs in Cisco WAE 7.6.4

Bug ID	Description
CSCwi97728	XTC agent to handle unsigned to signed value for ASN from SR-PCE
CSCwj57800	WAE discovers a different topology with Alcatel-Lucent device as seed router
CSCwj73948	WAE 7.5.3 - Smart Licensing failed to fetch WAE_RTU_VPN licenses after restart
CSCwj96344	CLI table_export is not exporting BWSim column for L1Circuit
CSCwj98082	SRLG import in WAE Design fails with invalid column name in SRLGL1Links table

Bug ID	Description
CSCwk01837	create_representative_plan breaks archive it pulls from
CSCwk19431	XTC agent does not pick up the full topology DB
CSCwk35064	WAE 7.5.3 Design client is unable to re-route the LSP path when the capacity planning option is enabled
CSCwk78011	WAE Live becomes inaccessible due to out of memory issue

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.

Procedure

Step 1 Go to the http://tools.cisco.com/bugsearch.

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, such as a problem description, a feature, or a product name, in the Search For field.
- 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 in the Releases field.

Step 4 When the search results are displayed, use the filter tools to narrow the results. You can filter the bugs by status, severity, and so on.

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

Important information

Supported devices and software versions

This table lists the supported devices and software versions for Cisco WAE 7.6.4.

Table 2: Supported devices and software versions

Cisco IOS XR	SR-PCE	Cisco XRv 9000	Cisco ASR 9000	Cisco NCS 5500 series	Cisco NCS 540	Cisco 8000 [1]
7.7.2	✗	✓	✓	✓	✓	✓
7.11.2	✗	✓	✓	✓	✓	✓
24.2.1	✓	✓	✓	✓	✓	✓
24.2.2	✓	✓	✓	✓	✓	✓

[1] Cisco WAE Collector and Cisco WAE Design applications are validated with Cisco 8000 devices. Inventory collection for Cisco WAE Live is not supported.

RHEL support

Cisco WAE 7.6.4 is validated on RHEL 9.4.

Smart Licensing: Call Home support deprecation

In Cisco WAE 7.6.4, the support for Call Home transport setting is deprecated. It supports only SmartTransport URL. The URL is in the format: http://<*SSM-ONPREM-IP*>/SmartTransport.

Cisco WAE Live: Tomcat upgrade

The Tomcat version used in the Cisco WAE Live application has been upgraded to 9.0.93.

Multi WAE collection support deprecation

Cisco WAE 7.6.4 does not support Multi WAE collection.

Distributed NetFlow (DNF) cluster installation

To install a DNF cluster on Cisco WAE 7.6.4, you must install the Ansible that is compatible with Python 3.7.6.

```
sudo pip3.7 install ansible
```

For more information on DNF configuration, see the *NetFlow Data Collection* chapter in the *Cisco WAE 7.6.x User Guide*.

Python and Supervisor version upgrades

Cisco WAE 7.6.4 supports the installation of Python 3.7.6 and Supervisor 4.2.5 on RHEL 9.4.

Install Python 3.7.6 on RHEL 9.4

Follow these steps to install Python 3.7.6 on RHEL 9.4.

Before you begin

Install the dependencies needed for Python 3.7.6 using this command:

```
sudo dnf install \
      gcc gcc-c++ gdb lzma glibc-devel libstdc++-devel openssl-devel \
      readline-devel zlib-devel libffi-devel bzip2-devel xz-devel \
      sqlite sqlite-devel sqlite-libs libuuid-devel gdbm-libs perf \
      expat expat-devel mpdecimal
```

Procedure

Step 1 Install Python 3.7.6.

```
sudo dnf install python3.7.6
```

If the above command does not work, then follow these steps.

a) Download the Python 3.7.6 tar file from the official Python website.

```
wget https://www.python.org/ftp/python/3.7.6/Python-3.7.6.tgz
```

b) Extract the contents of the downloaded tar file.

```
tar xzf Python-3.7.6.tgz
```

c) Navigate to the Python-3.7.6 directory created.

```
cd Python-3.7.6
```

d) Run the configure script to prepare the build environment.

```
sudo ./configure --enable-optimizations --prefix=/usr
```

e) Compile the Python source code.

```
sudo make
```

f) Install Python 3.7.6.

```
sudo make altinstall
```

Step 2 Update the symbolic link named `python3` in the `/usr/bin/` directory to point to `python3.7`.

```
sudo ln -sf /usr/bin/python3.7 /usr/bin/python3
```

Step 3 Update the symbolic link named `python` in the `/usr/bin/` directory to point to `python3`.

```
sudo ln -sf /usr/bin/python3 /usr/bin/python
```

Step 4 If the `/usr/lib/python3.7/` folder does not have the `lib-dynload` directory, run this command to create a symbolic link and point it to `lib-dynload` which is in the `lib64` folder.

```
sudo ln -sf /usr/lib64/python3.7/lib-dynload/ /usr/lib/python3.7/lib-dynload
```

Install and configure Supervisor on RHEL 9.4 using pip

Follow these steps to install and configure supervisor on RHEL 9.4 using pip.

Procedure

Step 1 Install the `supervisor` package.

```
sudo pip3.7 install supervisor
```

Step 2 Check the version of the `supervisord` program installed.

```
supervisord -version
4.2.5
```

Step 3 Create the `/usr/lib/systemd/system/supervisord.service` file manually with root user and add this content in the file.

```
sudo vi /usr/lib/systemd/system/supervisord.service
```

Step 4 Generate the default supervisord configuration file and save it to `/etc/supervisord.conf`.

```
sudo su
echo_supervisord_conf > /etc/supervisord.conf
exit
```

Step 5 Create directories with write permissions for the OS user running Cisco WAE.

```
sudo mkdir -p /opt/supervisor/run
sudo mkdir -p /opt/supervisor/log
sudo chown -R [USER-NAME]:[GROUP-NAME] /opt/supervisor
```

Step 6 Update supervisor configuration to not run as a root user.

Point the pid file to `/opt/supervisor/run/supervisor.pid` and user as the OS user running WAE.

Open `/etc/supervisord.conf` as root and edit.

- In the `[unix_http_server]` section:

  - Change `;file=/var/run/supervisor/supervisor.sock` to `file=/opt/supervisor/run/supervisor.sock`

  - Change `;chown=nobody:nogroup` to `chown=[USER-NAME]:[GROUP-NAME]`

- In the `[supervisord]` section:

  - Change `;logfile=/var/log/supervisor/supervisord.log` to `logfile=/opt/supervisor/log/supervisord.log`

  - Change `;pidfile=/var/run/supervisord.pid` to `pidfile=/opt/supervisor/run/supervisord.pid`

  - Change `;minfds=1024` to `minfds=1000000`

  - Change `;minprocs=200` to `minprocs=257805`

  Note
  Do not set the user under the `[supervisord]` section.

- In the `[supervisorctl]` section:

  - Change `;serverurl=unix:///var/run/supervisor/supervisor.sock` to `serverurl=unix:///opt/supervisor/run/supervisor.sock`

- Uncomment the `[include]` section and replace the line under it with `files = supervisord.d/*.ini`

Step 7 Create the `/etc/supervisord.d` directory.

```
sudo mkdir /etc/supervisord.d
```

Step 8 Start Supervisor.

```
sudo systemctl start supervisord
sudo supervisorctl status all
```

Step 9 Enable supervisor to start during system startup.

```
sudo systemctl enable supervisord
sudo systemctl status supervisord
```

Install Cisco WAE

After completing the steps in Install Python 3.7.6 on RHEL 9.4, on page 3 and Install and configure Supervisor on RHEL 9.4 using pip, on page 4, install Cisco WAE. For instructions, see the "Install Cisco WAE" section of the *Cisco WAE 7.6.x Installation Guide*.

Post-restart Instructions for agents while using Smart Licensing

If you are using Smart Licensing and Cisco WAE is restarted or packages are reloaded, then after the restart, you must restart all the agents to avoid license errors.

NSO upgrade

In Cisco WAE 7.6.4, NSO has been upgraded to version 5.7.17.1.

Windows and MacOS support

Cisco WAE Design has discontinued support for Windows and MacOS platforms since the 7.6.0 release. For more information, see End-of-Life and End-of-Support for the Cisco WAE Design Windows and MacOS Platforms.

Prerequisites for collection with multiple OSPF instances with different router IDs

Make a note of these points if your network has multiple OSPF instances configured with different OSPF router IDs for each instances:

- Network access should have an entry for all router-id IP addresses with management IP of that router.
- Under **waeinstall/etc/**, ensure that the **routerldMapping.txt** file is present, with all OSPF router IDs in a router mapped to a single IP which will be shown in the Nodes table.

  Example:

```
[wae-user@wae-xtc-rhel etc]$ more routerldMapping.txt
<OspfRouterldToManagement>
OSPFRouterld     IPAddress
1.1.105.1        1.1.5.1
1.1.115.1        1.1.5.1
1.1.106.1        1.1.6.1
1.1.116.1        1.1.6.1
1.1.107.1        1.1.7.1
1.1.117.1        1.1.7.1
```

```
1.1.108.1        1.1.8.1
1.1.118.1        1.1.8.1
```

Note IP addresses are Tab separated in the **routerldMapping.txt** file.

Known limitations

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

WAE collection

Note these points on WAE collection:

- Inventory collection for Cisco WAE Live is not supported on Cisco 8000 devices.
- LDP data collection can only be performed by executing CLI tools using the external-executable-nimo.
- NetFlow collection is not supported on Alcatel-Lucent devices.
- Due to vendor MIB limitations, WAE 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, demands for every class of service estimated through Demand Deduction are less accurate. Estimates of traffic totals over all classes of services, however, are not affected.
- Collection of interface egress shaping rate for Alcatel-Lucent devices does not support LAG interfaces.
- Juniper MIBs do not support P2MP LSPs.
- WAE cannot associate a GRE tunnel with the physical interface it uses to reach the tunnel destination because the IP-Tunnel MIB lacks this information.
- For Juniper routers, the signaled standby LSP option is not available from the standard MPLS-TE MIB. Only the active path option name is collected.
- 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.
- With segment routing, concurrent RSVP-TE and SR-TE paths are not supported on the same LSP.

Cisco IOS XR routers

- IGP topology collected through topo-igp-nimo module:
  - 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.

- MAC accounting is not supported (although you can collect MAC traffic through an external NIMO).
- The lsp-snmp-nimo module does not set the Standby value in the <LSPPaths> table for signaled backup paths or collect named affinities configured with affinity-maps.

BGP peers

- The topo-bgp-nimo module does not build BGP pseudo-nodes among internal ASNs.
- The topo-bgp-nimo module does not collect BGP peers under PE-CE VRFs.

License check failures on newer Linux distributions

Some newer Linux distributions use a new way of naming hardware devices, including network interfaces, using biosdevname. This causes issues with software that depends on the traditional naming, such as, eth0, eth1, potentially leading to failures on license checks.

The workaround is to append biosdevname=0 to the kernel line of the grub configuration file and then reboot your system. Note that the syntax varies among different distributions.

After reboot, you can use the ifconfig command to verify that the NICs are named eth0, eth1, and so on, instead of the biosdevname names, such as p34p1.

NIMO consolidation

The aggregator uses DARE to consolidate NIMOs into one network model. If you update the topo-igp-nimo node-filter configuration, or if a node goes down after running the initial DARE configuration, you must do the following:

1. Update the topo-igp-nimo exclusion or inclusion list.
2. Run collection on the topo-igp-nimo.
3. Run the WAE CLI tool to resync DARE with the updated NIMO node information.

```
wae@wae# wae components aggregators aggregator <aggregator_network_name> resync aggregator
 net
```

High Availability

Cisco WAE does not support netflow workflow, layout-nimo, and RT apps under HA.

WAE multilayer collection

Note these points on WAE multilayer collection:

- Multilayer collection for Cisco devices is supported only on the following platforms:
    - Cisco Network Convergence System (NCS) 2000 platforms running version 11.1.2 are supported when using the Cisco Evolved Programmable Network Manager 7.0 optical agent (EPNM optical agent).

    - Cisco Aggregation Services Routers (ASR) 9000, Cisco Carrier Routing System (CRS), and Cisco NCS 5500 platforms running IOS-XR for L3 devices.

- Multilayer collection is limited to the collection of unprotected circuits.
- Collection of WSON and SSON circuits are supported.
- Collection of non-WSON circuits is only supported when using the EPNM optical agent.
- L3-L1 mapping by LMP is supported only if the controller interface name is the same as the actual L3 interface name or of the form "dwdmx/x/x/x" where the "x/x/x/x" subscript matches that of the corresponding L3 interface.
- Central Frequency ID mapping is currently supported only for circuit paths but not for path hops.

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.

EPNM notification

The configured constraints are not modelled during notification. Run collection must be used to collect/delete the configured constraints.

EPNM multi agent notification

Cisco WAE does not support simultaneous notification events in case of dual agents. It is recommended to schedule full collection in case of dual agents.

Python API

When using WAE OPM python API and WAE Design API for python, you may receive this error:

```
warning: unknown property: `Ice.Default.Timeout'
```

This warning does not have any impact on the functionality and can be ignored.

Multiple OSPF and ISIS instance collection

These collections have not been verified:

- Multiple OSPF instances collection from Alcatel-Lucent routers
- Multiple ISIS instances collection from Alcatel-Lucent routers
- ISIS process ID collection from Alcatel-Lucent routers

WAE Live network creation

In WAE Live, when creating a new network (with a default network already present), this error is displayed in the `catalina.out` log file:

```
[ERROR] com.cariden.nextmap.impl.MLMapSnapshotCache: encountered error while updating
snapshot cache
org.sqlite.SQLiteException: [SQLITE_BUSY]  The database file is locked (database is locked)
```

This is a known functionality of SQL and it does not affect the WAE Live functionality. The newly created network updates the database again after sometime with new network configuration.

Documentation

To find descriptions of all related Cisco WAE documentation, see Documentation Roadmap.

Note We sometimes update the documentation after original publication. Therefore, you should always review the documentation on Cisco.com for any updates.

Filing a Cisco WAE Bug

While filing CDETS for Cisco WAE, make sure this information is captured:

- WAE configuration: supervisord configuration, aggregator configuration, and NIMO configuration of concerned network and its source-network, if any.
- The `<run-dir>/logs/ directory`.
- Plan file(s) for the network(s) of concern.
- `<run-dir>/data/stats/` for system stability and resource usage related issues.
- `<run-dir>/work/dare/` for aggregation related issues.
- `<run-dir>/data/networks/*.db` for issues related to networks configured as ‘native’ and the corresponding aggregator (final-network).
- CDB dump of the networks of concern for networks of ‘yang’ format.
- Configuration corresponding to the component of concern. For example, WMD, archive, and so on.
- For collection issues, record file(s) if the NIMO supports record-playback.
- `~/.cariden/logs/` for designapid related issues.
- Log files from Cisco WAE Diagnotics Tool. For more information, see *Cisco WAE User Guide*.

Communications, Services, and Additional Information

- To receive timely, relevant information from Cisco, sign up at Cisco Profile Manager.

- To get the business results you're looking for with the technologies that matter, visit Cisco Services.
- To submit a service request, visit Cisco Support.
- To discover and browse secure, validated enterprise-class apps, products, solutions and services, visit Cisco DevNet.
- To obtain general networking, training, and certification titles, visit Cisco Press.
- To find warranty information for a specific product or product family, access Cisco Warranty Finder.

Cisco Bug Search Tool

Cisco Bug Search Tool (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.