Cisco WAN Automation Engine Release Notes, Release 6.3.1

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This document describes the features, limitations, and bugs for Cisco WAN Automation Engine (Cisco WAE) Release 6.3.1.

Contents

This document includes the following sections:

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 http://www.cisco.com/go/wae.

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New Features

WAE Design

Patch Files

WAE Design enables you to create and use patch files that have a .plp format, thus giving you a compact way to represent differences between plan files. These differences include new, modified, and deleted LSPs, LSP paths, named paths, named path hops, segment lists, and segment list hops.

- Create a patch file of the LSP differences between two plan files from the GUI using the Compare Plans report or from the CLI using the `compare_plans -out-patch-file` tool.

- Deploy a patch file to the network using the feature for accessing a remote WAE Automation server (Save to WAE).

  - Prior to deployment, you can execute a dry run to verify whether the patch can be applied successfully to the working plan file. Results are returned on a per-LSP basis.

  - Once deployed, WAE Design returns WAE Automation server messages on patch deployments, identifying the success or failure status of each deployed LSP.

- Apply patches to other plan files using either the `apply_patch` CLI tool or the ApplyPatch Design API.

Usability Enhancements

- L1 circuit path hops and path options no longer overlap on the L1 links, making them easily readable.

- The feature for accessing a remote WAE Automation server was re-organized to make it easier to understand the available actions

For information on how to use the WAE Design application, including these features, see the *Cisco WAE Design 6.3.1 User Guide*, *Cisco WAE 6.3.1 Network Visualization Guide*, and *Cisco WAE Design 6.3 Integration and Development Guide*. For information on CLI tools, see the *Cisco WAE 6.3.1 Plan Table Schema and CLI Reference* or use the `-help` option. For Design API documentation, see the documentation in `$CARIDEN_HOME/docs/api/design`. (`$CARIDEN_HOME` is the directory in which the WAE Design executables and binaries are located. On Linux, the default is `/opt/cariden/software/mate/current`.)

WAE Collector

- SAM collection (`sam_getplan`) now consolidates all traffic from multiple service queues within a service which allows for greater model accuracy in WAE Design.

- SAM collection now adds administrative groups in the IncludeAny column of the LSP path table within the plan file.

Open Source

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

Bugs

The following are descriptions of the open and resolved bugs in Cisco WAE Release 6.3.1. The bug ID links you to the Cisco Bug Search tool.

Open Bugs

Table 1   *Open Bugs*

Bug ID	Description
CSCus95196	Cannot load the MLD database from a Cisco MATE 6.0.2 server to a new server.
CSCuv51095	L2 interface types are categorized incorrectly.
CSCuv56937	Help text for CLI tools is too generic.
CSCuw09825	WAE Design hangs because a borrowed license fails. Workaround: Do not shut down WAE Design after borrowing a license. If you must stop WAE Design, try shutting down your computer's network connection before launching WAE Design. Once WAE Design is open, the network connection can be enabled.
CSCux18913	LSPs collected from Huawei NE40E-X16 routers version V600R008C10SPC300 using SNMP are "Unrouted" and the collected IP addresses from hops are not populated in the plan file.
CSCux39502	Interfaces do not correlate to the correct remote interface.
CSCux40253	Data insertion fails in the WAE Live database. `ml_insert_ctl -list` shows aborted jobs and has missing data.
CSCux50684	The LSP binding SID in the plan file is not correct.
CSCux58503	A 404 error appears when trying to launch WAE Coordinated Maintenance after restarting the web server. Workaround: Refresh the browser.
CSCux87192	When using the WAE Collector UI, the plan file contains incorrect interface name and traffic measurement information.
CSCux94470	After running `parse_isis` on a Cisco IGP network, the total number of nodes is incorrect.
CSCux98692	The WAE Live inventory times out after a simple query.
CSCux98729	WAE Live performance degrades and becomes unresponsive after several days. Workaround: Restart the web server and the database.
CSCux98738	The WAE inventory collector doesn't work. The `build_inventory` command hangs.

Resolved Bugs

Table 2   *Resolved Bugs*

Bug ID	Description
WAE Collector	
CSCuw18672	The out-plan-file option is deprecated.
CSCux35749	WAE login tools fail due to the presence of special characters in the router login banner.
CSCux63905	When LSP collection is not checked in the Collector UI, the enableLspStatsCollection parameter in the WAE-NI collection.cfg is not set to true.
CSCux64155	SNMPv3 profiles pass with incorrect passwords and SHA and DES fail.
CSCux69767	MPLS-TE tunnels are routed incorrectly because the SetupBw value in the LSP Paths table is 1000 times more than the SetupBw value in the LSPs table.
CSCux64151	Actual path hops are not resolved.
CSCux64554	When the PCEP LSPs option is checked in the Collector UI, LSP collection is not selected automatically.
CSCux87156	Interface queue statistics do not show up when polling directly from Alcatel-Lucent devices.
CSCux92320	Network collection does not complete for devices using SNMPv3.
CSCuy05734	When the WAE-NI service runs a long time, LSP traffic collection stops.
WAE Design	
CSCux80659	LAGs are shown as inactive even though they are active in the network.
CSCux85158	The OSX Python setup instructions are incorrect in the API documentation.
CSCux85959	The demand hop count is incorrect.
CSCux99403	The LAG Circuit Capacities value is not updated after completing a Copy From Template operation.
CSCuy01857	WAE Design crashes when using the multicast demands initializer.
WAE Live	
CSCux59439	WAE Live doesn't display an executed report.
CSCux78575	The disk space runs out if you frequently run large reports and use WAE Live.
CSCux85940	The WAE Live map freezes because the plan file is cached indefinitely.

Using the Bug Search Tool

Use the Bug Search tool to search for a specific bug or to search for all bugs in a release.

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

Step 2 At the Log In screen, enter your registered Cisco.com user name and password; then, click **Log In**. The Bug Search page opens.

✎ **Note** If you do not have a Cisco.com user name and password, you can register for them at http://tools.cisco.com/RPF/register/register.do.

Step 3 To search for a specific bug, enter the bug ID in the Search For field and press **Return**.

Step 4 To search for bugs in the current release:

    a. In the Search For field, enter a problem, feature, or a product name (for example, **Cisco WAN Automation Engine**) and press **Return**. (Leave the other fields empty.)

    b. When the search results are displayed, use the filter tools to find the types of bugs you are looking for. You can search for bugs by modified date, status, severity, and so forth.

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

Known Limitations

This section describes the limitations and restrictions for Cisco WAE.

WAE Design

In some Linux installations with Xfce desktop installed, the documentation does not open from the WAE Design GUI Help menu. The workaround is to do one of the following:

- Open the help files from a terminal in the `$CARIDEN_HOME/docs` directory.

- Install a default browser.

- Install the following packages:

```
yum install evince
yum groupinstall "X Window System"
yum groupinstall "Desktop"
yum groupinstall "General Purpose Desktop"
```

WAE Collector and WAE 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

- If upgrading the Collector server from 5.6x to 6.1x or 6.2, the
  `$CARIDEN_ROOT/etc/collector/server/db-persistence/DiscoveryEngineImplementation.db`
  file must be removed prior to starting the web server. Since installation automatically starts the web
  server, the recommendation is to remove this prior to installation.

- 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.

  - MAC Accounting is not supported.

  - `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 not supported.

- Port circuits are not built for LAG/bundle members whose nodes are not within the same IGP
  instance as the AS.

- 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, then Alcatel-Lucent traffic measurements cannot be aligned with those collected from other router platforms.

Deployer

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].

Cisco Network Services Orchestrator (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.

WAE System

Installation and 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, refer to 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 detailed installation 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 open in all browsers. The workaround is the following:

1. Click the WAE Statistics link. The URL format is https://<*server_IP*>:8443. Example:

    ```
    https://192.0.2.14:8443
    ```

2. Copy the URL of this page to another browser window.

3. In the new browser, change the URL port from 8443 to 8843. Example:

```
https://192.0.2.14::8843 Ex
```

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`) may 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
```

Accessibility Features

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 6.3 Documentation Roadmap*.

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