



Cisco WAN Automation Engine Release Notes, Release 6.3

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This document describes the features, limitations, and bugs for Cisco WAN Automation Engine (Cisco WAE) Release 6.3.

Contents

This document includes the following sections:

- [Introduction, page 1](#)
- [New Features, page 2](#)
- [Open Source, page 8](#)
- [Bugs, page 9](#)
- [Known Limitations, page 10](#)
- [Related Documentation, page 15](#)

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>.



New Features

WAE Design

For information on how to use the WAE Design application, including the following features, see the *Cisco WAE Design 6.3 User Guide*, *Cisco WAE 6.3 Network Visualization Guide*, and *Cisco WAE Design 6.3 Integration and Development Guide*.

Segment Routing Enhancements

- SR LSPs can be directly associated with demands. This enables you to model traffic entering the network that already contains a segment list.
- You can set LSPs as segment list hops for demands. This enables you to simulate the behavior of binding SIDs. Note that LSP segment list hops cannot be specified for other LSPs.
- The SR-TE Optimization tool was enhanced to cover inter-area LSPs. The tool selects the ABR leading to the shortest total metric path while respecting user-specified constraints.
- The SID values for interfaces, nodes, anycast groups, and LSPs can be edited in the GUI. The SID is derived per segment list hop.

Multi-Layer Enhancements

- Layer 1 (L1) port support was added with the ability to map L1 ports to Layer 3 (L3) ports, to set L1 ports to inactive or failed, and to include L1 ports in Simulation Analysis. Note that while L1 ports do not have to be associated with L1 circuits, all L1 circuits must have L1 ports.
 - All relevant tools were updated to accommodate L1 ports: `export_routes`, `export_lambda_util`, `import_layer1`, `copy_from_template`, `insert_L1circuit_for_circuit`, and `insert_L1_from_L3`.
 - For improved network modeling, two L3 ports can be implicitly connected if they are connected to two interfaces on the same L3 circuit and if they are mapped to L1 ports that are connected to an L1 circuit. In the <Ports> table, the `RemoteL1Node`, `RemotePort`, and `RemoteNode` columns can be derived based on the L1 circuit if no L3 port circuit exists.
- Port circuits inherit Delay from associated L1 circuits.
- Multi-layer visualization
 - In a multi-layer view, the visualization of L1-L3 links makes it easy locate these relationships in the network plot.
 - In an L1 Failure Impact view, L1 node borders are colored to show the highest utilization experienced by any L3 interface if that L1 node were to fail. Site borders are colored to show the highest utilization experienced by any L3 interface if any contained L1 node or L1 link were to fail.
 - In a multi-layer Failure Impact view, site borders are colored to show the highest utilization experienced by any L3 interface if L3 nodes, L3 circuits, L1 nodes, or L1 links within it were to fail.

Integration Enhancements

- Plan files and templates can be opened from specified networks, and templates can be saved to specified networks, enabling you to modify the visualization of any WAE Live network.
- User-table interactions can be created for both report tables and user-defined tables, enabling you to integrate context-sensitive filtering to plan file tables.

Visualization Enhancements

- Selected foreground objects are grouped by related objects. For example, if a demand is shown in the foreground, so too are objects in its path. Another example is that if an L1 circuit path is shown in the foreground, so too are the L1 nodes and L1 links it traverses.
- The opacity of the network plot background is configurable directly from the Visualization toolbar.
- Plots for multicast demands and P2MP LSPs were improved to make their multiple paths easier to follow and their originating and terminating nodes easier to find.
- You have more flexibility and control in viewing sites using three options: geographic, schematic, and schematic if the site only contains nodes.
- The new `mate_plot -scale-objects` option enables you to control the relative scaling of all objects, improving the resolution of the network plot and vector graphics for printouts.

Template Enhancements

- The new `copy_from_template` options better address circuit migration and unresolved interface names.
 - The `-unknown-interface-prefix` option enables you to specify which prefix names to treat as unknown. Interfaces with unknown prefixes are not automatically added to the template.
 - The `-interface-match name-strict` option matches interfaces by the specified name and if it is unknown, by the IP address.

Usability Enhancements

- The RSVP-TE Optimization tool was simplified and improved to make the tool easier to understand and use. A summary report was added to help you assess the success of the optimization.

Note that the ability to specify the prefix was removed from the GUI and as a CLI option (`rsvp_te_opt -parameter-namespace`), and the prefix is now set automatically to RSVPTEOpt.

- Opening to and saving from WAE Live and the WAE Automation server features were improved to make it easier to enter relevant information.

Plan Table Enhancements

New Plan Tables

The `<UserTableInteractions>` plan table is used for creating interactions (filtering) between user-defined tables and plan tables. You can also use it to create interactions between report tables and plan tables. For detailed information, see the *Cisco WAE Design 6.3 Integration and Development Guide*.

Additionally, the following WAE Design plan tables are new. For information on plan tables, see the `$CARIDEN_HOME/docs/table_schema.html` file or the *Cisco WAE 6.3 Plan Table Schema and CLI Reference*.

New Plan Table	Column	Type	Description
<L1Ports>			Identifies L1 ports used in Layer 1 simulations.
	Active	Plan	Identifies whether the L1 port is active (T for true) or inactive (F for false).
	Capacity	Plan	L1 port capacity. This column is not used by simulations, but can be used by add-ons.
	Description	Plan	Information about the L1 port that is often used on optical devices.
	Failed	Plan	Identifies whether the L1 port is in a failed state (T for true) or normal state (F for false).
	L1Node	Key	The L1 node on which this L1 port resides.
	L1Port	Key	Name of the L1 port.
	Operational	Derived	Identifies whether the L1 port is operational (T for true) or non-operational (F for false).
	Protected	Plan	Identifies whether the L1 port is protected (T for true) from inclusion in Simulation Analysis or is not protected (F for false).
	RemoteL1Node	Derived	The remote L1 node used by the associated L1 circuit.
	RemoteL1Port	Derived	The remote L1 port used by the associated L1 circuit.
	Tags	Plan	Descriptive term added as a way to group like objects.
<SegmentRoutingFRRs>			If a failure occurs in the route of a protected interface, traffic is forwarded locally around the point of failure.
	DestinationGroup	Key	For demands to be rerouted, their next specified segment hop or the final destination (in case there are no further segment list hops to be used), needs to be part of the specified DestinationGroup.
	Interface	Key	Name of the interface to be protected.
	Node	Key	Source node of the interface being protected.
	OutInterface	Plan	The interface onto which traffic is redirected.
	SLName	Plan	The hops in this segment list are pushed onto the demand.

New Columns in Plan Table

Plan Table	New Column	Type	Description
<ActualL1CircuitPathHops>	L1PortA	Key	L1 ports that identify either end of the L1 circuit using the actual L1 circuit path hop.
	L1PortB		
<Circuits>	L1CircuitPortA	Plan	If the L3 circuit is associated with an L1 circuit, these are the L1 ports that identify either end of that L1 circuit.
	L1CircuitPortB		

Plan Table	New Column	Type	Description
<Demands>	SLName	Plan	Name of the segment list associated with the demand.
<L1CircuitPathHops>	L1PortA	Key	L1 ports that identify either end of the L1 circuit using the L1 circuit path hop.
	L1PortB		
<L1CircuitPaths>	L1PortA	Key	L1 ports that identify either end of the L1 circuit using the L1 circuit path.
	L1PortB		
<L1Circuits>	L1PortA	Key	L1 ports that identify either end of the L1 circuit.
	L1PortB		
<L1Links>	Loss	Plan	Signal loss for the L1 link. This is for informational purposes only and is not used in simulations.
<PortCircuits>	DelaySim	Derived	DelaySim that is derived from L1 circuits, enabling the information to propagate to L3 circuits for consideration by demands and LSPs.
<Ports>	L1Port	Plan	Name of L1 port to which this L3 port is mapped. Note that this association is optional.
	RemoteL1Port	Derived	If an L3 port circuit exists, this is the L1 port associated with the remote L3 port. If an L3 port circuit is not defined and the L3 port is implicitly connected to another L3 port (via an L1 circuit), this is the remote L1 port of the L1 circuit.
<SegmentListHops>	SegmentLSP	Plan	Name of the LSP segment hop.
	SID	Derived	Identifies the SID for nodes, interfaces, anycast groups, and LSPs, making it easier to work with SIDs.
	Type	Plan	Type of segment list hop: Node, Interface, or Anycast group.

Removed Columns

Plan Table	Removed Column
<Circuits>	L1CircuitName
<LSPs>	FRRDestinationGroup
<PortCircuits>	L1CircuitNodeA
	L1CircuitNodeB
	L1CircuitName

Design API Enhancements

For more information, see the Design API documentation in [\\$CARIDEN_HOME/docs/api/design](#).

Segment Routing

- The new SegmentRoutingFRR API enables you to access and modify SR Fast Reroute LSPs.

- The SRTEOptimizer API returns a series of records, each containing the result on one LSP.
 - nodesAvoidanceBefore and nodesAvoidanceAfter identify whether specified nodes are avoided in the input and output plan files, respectively.
 - metricBound identifies the maximum path metric that is acceptable.
 - metricBoundViolationBefore and metricBoundViolationAfter identify whether the specified metricBound is exceeded in the input and output plan files, respectively.
 - pathMetric identifies the maximum metric on the LSP path.
 - minAchievableMetric identifies the lowest possible metric (shortest path when avoiding specified nodes).

Multi-Layer

- The new L1Port API enables you to access and modify L1 ports, as well as to add L1 ports as failure scenarios in Simulation Analysis.
- The new ExplicitL1CircuitPathInitializer API generates explicit paths for L1 circuits and L1 circuit paths. It includes all the options supported with the existing `explicit_l1circuit_path_init` tool.

Layer 1

- The new L1RouteRecord API enables you to retrieve simulated attributes of L1 circuits and L1 circuit paths, including path hops of the active path for an L1 circuit and simulated attributes of the paths. Simulated properties retrieved include DelaySim, DistanceSim, feasibilityMetricSim, and lambdaSim, as well as a list of L1HopRecords. Each L1HopRecord contains an L1 Link key and a lambdaVal (simulated wavelength) for the link hop.
- The new LatencyDistanceInitializer API sets delay (latency) and distance on L1 links. This is particularly useful when L1 link waypoints are used to provide more accurate and precise L1 link physical paths.

Demands

- The new DemandDeduction API runs Demand Deduction to generate demand traffic based on measured traffic.
- The DemandManager API creates bulk demands using a list of records, making it faster to create accurate demand meshes.
- The VPN API permits filtering between VPNs and their associated demands, making it easier to determine which demands associated with a VPN might become unroutable during a specific failure scenario.

WAE Collector and WAE NI

The WAE Collector provides additional data collection support for the following:

- Alcatel-Lucent SR-OS
 - Single-hop BGP IPv4 peers to 2 byte Autonomous Systems Numbers (ASN)
 - Interface traffic based on egress shaping rate
- Juniper Junos
 - IPv6 IS-IS network topology

- Cisco Network Convergence System 6000 (NCS 6k)
 - RSVP TE LSP data collection, including LSP constraints, attributes, and traffic statistics
- Segment Routing (SR) for Cisco IOS XR
 - IS-IS segment IDs (SIDs) associated with LAG
 - IS-IS SR LAN adjacency SIDs and pseudo-node creation
 - SID collection for Open Shortest Path First (OSPF)
- Collection of RSVP LSP affinity values for all Cisco IOS XR devices
- Cisco IOS-XE
 - Topology and traffic data
 - OSPFv4
 - IS-IS IPv4
 - RSVP LSPs and configured paths
 - BGP IPv4 peers
- New `get_xml` CLI command that gets structured data from devices by executing XML commands on them

The WAE Collector UI provides the following new features:

- Update to configuration of continuous LSP collection and traffic polling
- Creation of additional access node profiles
- Support for SNMPv3 authentication
- Update to collection workflow
- Update to global default configuration

The WAE Network Interface (NI) server `collection.cfg` file (`$WAE_HOME/wae-ni/etc/collection.cfg`) includes the following new parameters:

- `lspDiscoveryCollectionPeriodInSecs=300`—Sets the LSP collection period in seconds (minimum is 60 seconds). This setting indicates how often the continuous poller tries to do LSP discovery
- `lspDiscoveryUseCalculatedHops=false`—Specifies whether to store calculated hops or actual hops in the plan file. The continuous poller collects both during discovery.
- `lspDiscoveryUsePcepSignaledName=true`—Specifies whether to use the PCEP signaled name while storing the LSP in the plan file.
- `lspDiscoveryUseAutobandwidth=false`—Specifies whether to store the auto bandwidth in the plan file.
- `l1DiscoveryEnabled=false`—Enables or disables Layer 1 discovery in WAE NI.

Deployer

Cisco Network Services Orchestrator (NSO) Controller

Support for SR-TE LSP and segment-list deployment, including Adj-SID and Prefix-SID types, to Cisco IOS XR networks.

WAE System

The WAE System provides the following new features:

- Distributed server installation—Automation services can be installed and distributed to multiple servers using an installation template that you can customize.
- Update to rpm dependencies for offline installation.
- Ability to change web server memory size—A new `max-memory` option in the `wae-web-server.cfg` file allows you to specify the maximum size of the web server memory.
- Application management—Ability to add WAE applications or custom client menus to the WAE UI. The applications must be packaged as an `<application>.zip` file and be appropriately structured. For information on creating your own application, contact your support representative.
- Consistent location of temporary files—All temporary files are stored in a consistent directory structure. For example, if `$WAE_ROOT` is set as a directory, temporary files will be stored in `$WAE_ROOT/data/<product_component>/tmp/`. For other rules, see the *Cisco WAE 6.3 System Administration Guide*.
- Event filtering—Log events can be filtered by severity.
- Syslog aggregation—Syslog messages can be configured to go to a local or remote syslog server.
- New search field stays in user view in the Log page.
- Services isolation—From the WAE Statistics UI, you can enable or disable a service to automatically start at system boot.
- Ability to change encrypted passwords—You can change the encrypted passwords for northbound RESTful API, Cisco Network Service Orchestrator (NSO) NetConf API access, internal system, and SSH.
- Installation of SSL web certificates.
- Hostname is displayed on the Statistics UI Status page.

WAE Core

The following new capabilities were added via new APIs or changes to existing APIs:

- Reactive segment routing optimization—After a user sets network policies using REST APIs, WAE can automatically send notifications and resolve policy violations without user intervention. The following enhancements were made to enable this feature:
 - Ability to set and list network policies, and report any policy violations using REST APIs.
 - Ability to use Design REST APIs exclusively to deploy network changes.
 - Ability for WAE to resolve policy violations without user input.

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. The bug ID links you to the Cisco Bug Search tool.

Open Bugs

Table 1 **Open Bugs**

Bug ID	Description
CSCUw18672	The snapshot_augment_collector_inc > collector_getplan task with the out-plan-file option is deprecated. The workaround is to manually edit the file and use the out-file option.
CSCux39502	Interfaces are not correlating to the correct remote interface.
CSCux48879	Named paths are created for SR LSPs. If the SR LSPs cannot be deployed due to the duplicate named path, edit the segment list name of the new LSP before deploying it.
CSCux50684	LSP binding SID in the plan file is not correct.
CSCux58503	A 404 Page Not Found error appears when accessing an application after restarting the web server. The workaround is to do a browser refresh.
CSCux63905	LSP traffic polling is enabled only if both the LSP traffic option (WAE Collector UI > What To Collect > Basic page) and the LSP continuous collection option (WAE Collector UI > What To Collect > Continuous Collection page) are checked.
CSCux64031	Dynamic named paths are not associated with LSPs configured with PCEP paths. If the named path association is missing for LSPs with a dynamic path, remove the following configuration from the SNMP_FIND_RSVP tool and run the collection again. <pre>keep-pcep-paths true get-pcep-paths false</pre>
CSCux64151	ActualPathHops are not resolved. The workaround is to run snapshot with <code>snmp_find_rsvp -mode process -plan-file <inplanfile.txt> -out-file <outplanfile.txt></code> .
CSCux64155	For SNMPv3 profiles, node list tests and data collection passes even if a bad password is given. Also, SHA and DES v3 profiles do not work. The workaround is to use SNMPv2 profiles.
CSCux64554	LSP continuous collection should be enabled by default if PCEP LSP collection is selected in the WAE Collector UI > What To Collect > Basic page.

Resolved Bugs

Table 2 Resolved Bugs

Bug ID	Description
CSCut28064	An error appears when adding a network using WAE Live.
CSCuw98509	In WAE Live inventory, the Summary and Availability pages are blank.
CSCux10467	The WAE server is unstable and runs out of resources when the wae-svcs-db service is left running.
CSCux44757	An ml_insert_plan operation fails against a non-default network.

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_bgppls` 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].

NSO

- 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)
 - Cisco IOS XR
 - No option to give the IP address of the LSP directly; you can only specify a loopback address.
 - No option to give tunnel affinity values directly; you can only specify an affinity-map name.
- Junos: Does not have the 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. Re-run 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
```

Documentation

The documentation is missing new or changed WAE Core configurations (.cfg file configurations) for OSC extensions, and `wae-appenginecore` (which exposes Design APIs through REST). For information, contact your support representative.

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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