Install Cisco WAE

This section contains the following topics:

Install and Configure Supervisor

Install and configure supervisor before installing WAE.

Note The following configuration steps work only when supervisor is installed using yum. If supervisor is installed using any other method, it has to be configured to run **supervisorctl** as a non root user.

Step 1 Install supervisor and verify.

```
sudo yum install -y epel-release
sudo yum install -y supervisor
supervisord -version
3.1.4
```

Step 2 Create directories with write permissions for the OS user running WAE.

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

Step 3 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.

a. 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]`

b. 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. If you have already set `;user=chrism` to `user=[USER-NAME]`, modify `user=[USER-NAME]` to `;user=[USER-NAME]`.

c. In the `[supervisorctl]` section:

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

Step 4 Start Supervisor.

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

Step 5 Enable supervisor to start during system startup.

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

Install Cisco WAE

Before you begin

- Confirm that you have met all requirements described in Cisco WAE Server Requirements.
- If one does not yet exist, create a UNIX user (assigned to a group). You must be this UNIX user to run installation.
- Make sure supervisor is installed and configured. See Install and Configure Supervisor, on page 1
- Download the Cisco WAE 7.1.3 software package from Cisco Download Software site.
- Make sure Java-8 is installed on the system and `JAVA_HOME` environment variable is pointing to jdk-1.8.

Step 1 Stop WAE if running.

Step 2 Change permission of the install file using the command:

```
chmod +x wae-linux-v7.1.3.dev-xx-yyyyyyyy.bin
```

Step 3 Run the installer specifying the target directory.

```
./wae-linux-v7.1.3.dev-xx-yyyyyyyy.bin <wae-dir>
```

Step 4 Setup environment and create a runtime directory specifying the path.

```
cd  <wae-dir>
source waerc
wae-setup --dest <target-runtime-dir>
```

Step 5 You are prompted to set the Cisco WAE admin password.

```
WAE admin password:
Confirm password:
```

Step 6 After installing and setting up wae (i.e. after running wae-setup), create a soft link to the `wae.ini` file from inside `/etc/supervisord.d/` and add WAE config to supervisor.

```
sudo ln -sf <WAE_RUN_DIR>/wae.ini /etc/supervisord.d/
```

Note Execute this step only after supervisor is installed and configured.

Step 7 Update supervisor configuration.

```
supervisorctl update
```

Step 8 Start WAE process

```
supervisorctl start wae:*
wae:zookeeper: started
wae:waectl: started
wae:kafka: started
wae:wae-monitor: started
```

Note

- `wae:waectl` is the WAE program.
- `wae:kafka` and `wae:zookeeper` are required for traffic collection.
- `wae:wae-monitor` is the monitoring service.
- `wae:logrotate` is for log rotation.

Step 9 Check status of WAE process

```
supervisorctl status
wae:kafka RUNNING pid 1540, uptime 28 days, 14:03:40
wae:logrotate RUNNING pid 1178, uptime 28 days, 15:10:11
wae:wae-monitor RUNNING pid 11520, uptime 0:00:12
wae:waectl RUNNING pid 1177, uptime 28 days, 15:10:11
wae:zookeeper RUNNING pid 1736, uptime 28 days, 14:03:39
```

Note To stop all WAE process, use the command:

```
supervisorctl stop wae:*
```

Install Cisco WAE License

A license determines which Cisco WAE features are available for use. To obtain a license, contact your Cisco account representative.

Advanced OPM simulation, optimization, and predictive analysis functionality require a license. To install the license, complete the following steps:

Step 1 Run the license_install tool, passing it the name of the license file (.lic extension). By default, the tool merges the features that are granted by the new license with those features in an existing license.

```
license_install -file <path>/<license_name>.lic
```

Step 2 When prompted, enter the number that is associated with the directory in which you want to install the license.

Start and Stop Cisco WAE

From the Cisco WAE run-time directory, enter the relevant Cisco WAE CLI command to start or stop Cisco WAE services:

- Start WAE

```
supervisorctl start wae:*
wae:zookeeper: started
wae:waectl: started
wae:kafka: started
wae:wae-monitor: started
```

- Stop WAE

```
supervisorctl stop wae:*
```

Update Packages or Templates

If any packages or templates are updated or added in the `<wae_run_time_directory>/packages` directory, you must do one of the following:

- Restart Cisco WAE by running a package reload command.

```
# wae --with-package-reload
```

- Request a package reload using the Cisco WAE CLI.

```
# request packages reload
```

For example, you must perform a package reload when edit the wae.conf file.

Troubleshoot a Cisco WAE Installation

To check the status of Cisco WAE, enter `wae --status`.

Cisco WAE comes with standard logging features in the YANG run time. Cisco WAE logs to multiple log files in the `<wae-run-time>/logs` directory.

The LDAP authentication logs are logged in *[wae-run-time]/logs/wae-ldap-auth.log* file. The tool located in *[wae-install-dir]lib/exec/test-java-ssl-conn* is useful to test SSL connectivity for java applications like LDAP Authentication and EPNM notifications which provide useful information to debug certification issues.

The most useful log is `<wae-run-time>/logs/ncs-java-vm.log`. Most Cisco WAE packages log to this file. Some Cisco WAE packages also log to `<wae-run-time>/logs/ncs-python-vm-<package-name>.log`. The following example shows Python-VM based logs:

```
[wae@wae logs]$ pwd
/home/wae/wae-run/logs
[wae@host logs]$ ls -ltr ncs-python-vm*
-rw-rw-r-- 1 wae wae    0 Feb 26 07:50 ncs-python-vm-cisco-wae-opm-tte.log
-rw-rw-r-- 1 wae wae    0 Feb 26 07:50 ncs-python-vm-cisco-wae-get-plan.log
-rw-rw-r-- 1 wae wae    0 Feb 26 07:50 ncs-python-vm-cisco-wae-dmdmesh-creator-nimo.log
-rw-rw-r-- 1 wae wae    0 Feb 26 07:50 ncs-python-vm-cisco-wae-layout-nimo.log
-rw-rw-r-- 1 wae wae    0 Feb 26 07:50 ncs-python-vm-cisco-wae-opm-load-plan.log
-rw-rw-r-- 1 wae wae    0 Feb 26 07:50 ncs-python-vm-cisco-wae-dmddeduct-nimo.log
-rw-rw-r-- 1 wae wae    0 Feb 26 07:50 ncs-python-vm-cisco-wae-archive.log
-rw-rw-r-- 1 wae wae 2238 Feb 26 07:50 ncs-python-vm.log
-rw-rw-r-- 1 wae wae  270 Feb 26 08:20 ncs-python-vm-nso_wae_nodes_insert.log
```

By default, the log level is set to INFO. You can configure logging in the following ways:

- Define the log level of various logs in the run-time directory `wae.conf` file. For information about the `wae.conf` file, see the *Cisco WAE User Guide*.
- Use the Expert Mode to set logging capabilities for some network interface modules (NIMOs). For example, you can set logging capabilities such as topology NIMOs and the lsp-snmp-nimo module. For information about the Expert Mode, see the Cisco WAE User Guide.
- Use the Cisco WAE CLI to define the log level for various NIMO components. To define the log level, enter the following command at the command line:

  ```
  admin@wae% set java-vm java-logging logger <nimo-component> level <level-x>
  ```

  Level types are `level-info`, `level-debug`, and `level-all`. The logs are saved to `ncs-java-vm.log` and can be used for troubleshooting.

  The following table lists basic NIMO components.

NIMO Component	Description
com.cisco.wae	General debugging
com.cisco.wae.nimo.topo	Topology-based NIMO debugging
com.cisco.wae.nimo.lspconfig	LSP configuration through NED debugging

NIMO Component	Description
com.cisco.wae.nimo.lsp	LSP debugging
com.cisco.wae.nimo.snmptrafficpoller	SNMP traffic poller debugging
com.cisco.cisco.wae.aggr	Aggregation debugging
com.cisco.wae.nimo.optical	Optical NIMO debugging