Sever Installation Guide for MATE & WAE

Release 6.1
March 2015
Updated May 2015

Cisco Systems, Inc.
www.cisco.com

Cisco has more than 200 offices worldwide.
Addresses, phone numbers, and fax numbers
are listed on the Cisco website at
www.cisco.com/go/offices.

Text Part Number:

Overview

This chapter provides an overview of what happens as a result of the installation process, such as which packages are installed and how environment variables are set.

This guide explains how to install the servers used by both the web applications and the WAE platform.

- Before You Start—Requirements, best practices, and pre-installation instructions.
- Online Installation—Procedure for installing the software when you have access to the Internet.
- Offline Installation—Procedure for installing the software when you do not have access to the Internet.
- Post Installation—Optional procedures to follow after having installed the product, including pointers on where to go for configuration information.
- License Installation—Procedure for installing licenses for all products.
- MATE Design Floating License Server—Procedure for installing and setting up the FlexNet Publisher license server. This is applicable only if you have MATE Design and only if you need to administer floating licenses for these end users.
- Services—Procedure for starting and stopping services, as well as how to check their status.
- Accessing the Products—Describes how to access the various applications and servers once they have been installed and configured.

Installer

An installer is an executable that runs a script to install the MATE and WAE software in the proper locations. Although both MATE and WAE features are installed, they are active only if you have a license for them.

The installer automates the installation process by asking you a series of questions and performing the following tasks.

- Verifies the following.
  - Whether the device has the appropriate system requirements, including proper operating system, disk space, total memory, and required software packages.

    If the installer sees that you do not have the appropriate system requirements, it either exits, gives a warning, or prompts you whether to continue. Since the installer might be checking for more than what your specific requirements are, you can press “y” to attempt to continue.
  - Whether there are existing package installations; if there are, they are preserved

- Installs all RPM packages, creates the software directory structure (except for the installation directory), and creates symbolic links to the most recently installed packages.
- Sets the maximum file descriptors and processors as follows.
  - /etc/sysctl.conf file
    Sets fs.file-max=512000 if it is less than 65535.
  - /etc/security/limits.conf
    Sets nofile to 65535 for the WAE username.
  - /etc/security/limits.d/90-nproc.conf
    Sets nproc to 8192 for the WAE username.
- Upon logging out and back in, the WAE username and associated permissions are set, and the environment variables are set

RPM Packages

The following RPM packages are installed in /opt/cariden/software.

Package	Description
mate	MATE software and Collector server, MATE APIs
wae-cdl	Open SDN Controller
wae-collector	Collector Karaf container, Continuous Poller server
wae-core	WAE Core Karaf container, WAE Core server, WAE Core APIs
wae-db	WAE Core database
wae-demo	Demonstration UI for applications developed for WAE Core
wae-messaging	WAE messaging system that uses JMS
wae-platsvc	Platform services

Current Links

MATE (mate) Package

The current symbolic link for the mate package is `/opt/cariden/software/mate/current`.

WAE (wae) Packages

Other than the mate package, all other packages begin with wae- and all versions of these packages are listed in `/opt/cariden/software`. The current symbolic link is the abbreviated name.

Example RPM version name: `wae-core-snapshot-1.0.2-123456789`

Example corresponding current link name: `wae-core`

Versions

To determine the release version, enter the following command.

```
license_check -version
```

To determine the current RPM version, enter the following command.

```
rpm -qa | grep 'mate\|wae'
```

Environment Variables

Upon logging out and back in as the WAE user after an installation, the environment variables are automatically set using .sh scripts in `/etc/profile.d` directory

Environment Variable	Default
$WAE_ROOT	/opt/cariden
$WAE_HOME	/opt/cariden/software
$CARIDEN_ROOT	/opt/cariden
$CARIDEN_HOME	/opt/cariden/software/mate/current
$CASSANDRA_HOME	/opt/cariden/software/wae-db
$COLLECTOR_HOME	/opt/cariden/software/wae-collector
$JAVA_HOME	/usr/java/latest

Before You Start

Requirements

Note For a list of system requirements and package dependencies, see the *System Requirements* document posted on the Cisco download site for this release.

- System Requirements— The installer checks for system requirements. If they are not met and if it is something the installer cannot address, such as memory issues, the installation process stops.
- Package Dependencies—For online installations, the installer checks for required packages. If the installer cannot install any RPM dependency, it reports an error and skips the corresponding RPM installation. You must then install these dependencies and re-run the installer.

  There is one exception to this automatic package installation. For RHEL operating systems, you must manually install an RHEL package repository (createrepo) using the Red Hat installation DVD.

  For assistance with downloading packages for offline installations, contact your support representative.
- License—A license determines which MATE and WAE features are available to use, and is a requirement for using the products. If you have questions about obtaining a license, contact your support representative.
- Server time synchronization—The NTP (Network Time Protocol) must be used to synchronize times on all routers, servers used in the collection and deployment process, and servers used in high-availability clusters. Failure to synchronize these clocks can produce such issues as the following.
  - Messages might expire prematurely, which manifests as an unresponsive WAE northbound interface. Depending on where the JMS messages expire, you may or may not see indications of this in the logs.
  - Certain collection tools, such as `sam_getplan` and `flow_get`, might produce inaccurate traffic tables.
  - Collection tools will produce an inaccurate NetIntHistory table.
  - All lines in the collection logs will have incorrect timestamps.
- `/etc/host` requirements—Various web services require the server's hostname to be present in the `/etc/host` file. This is standard configuration practice, but some Linux systems do not have it. Both the unqualified and fully-qualified hostnames must be present. Make sure that the following line is present in `/etc/host`.

```
<server IP address> <hostname> <fully-qualified hostname>
```

Example: `192.168.0.15 wae-server wae-server.my.company.com`

Best Practices

Security—The server's SSL certificate for a domain is customer specific. The web server installation is tied to a preferred Certification Authority (CA) provider, which in turn issues valid certificates to web clients. To prevent users from seeing messages for untrusted certificates, configure the certificate to be signed by one of the client's trusted CAs. The fully-qualified domain name (FQDN) of the WAE server should match the FQDN of the certificate issued by the CA.

BIOS setting (if applicable)—To improve collection performance, change or disable the power management setting to permit maximum CPU performance.

Pre-Installation

These pre-installation steps are valid for both online and offline installations.

Step 1 Download the WAE software package, which contains both MATE and WAE software. In a web browser, go to the Cisco download site, and use the Search feature to find the applicable product.

Step 2 Log in to the server as root or a user with administrative capabilities.

Step 3 Create an installation directory that has root privileges. The best practice is to use the default installation directory, which is /opt/cariden.

```
cd ~/
mkdir -p /opt/cariden
```

If using a different installation directory, create it instead of /opt/cariden.

```
cd ~/
mkdir -p /<custom_installation_directory>
```

Step 4 Ensure there are no local firewalls blocking the services. This step is beyond the scope of these instructions, though following is an example. For a list of available ports, see the *System Requirements* document on the Cisco download site for this release.

Example: This shows how to disable the iptables firewall as root.

```
service iptables save
service iptables stop
```

sudo chkconfig iptables off

Step 5 Ensure there are no services are running. For 6.1 services, refer to the Services chapter. For pre-6.1 releases, refer to the following.

Action	Pre-6.1 Stop Command
Stop the web server	`embedded_web_server -action stop`
Stop the MATE Live datastore	`mld -action stop`
Stop the WAE Core server	`core-stop`
Stop OSC (Open SDN Controller)	`run.sh -stop`

CHAPTER 3

Online Installation

Step 1 Log in to the server as root or a user with administrative capabilities.

Step 2 Create an installation directory that has root privileges. The best practice is to use the default installation directory, which is /opt/cariden.

```
cd ~/
mkdir -p /opt/cariden
```

If using a different installation directory, create it instead of /opt/cariden.

```
cd ~/
mkdir -p /<custom_installation_directory>
```

Step 3 Go to the directory where you downloaded the software, and execute the installer as root using a bash command. The software package is, itself, the installer executable that automates the installation process.

```
sudo bash <package>.bin
```

Installer Options	Description
`sudo bash wae-k9-<version>.bin`	Be prompted through the installation process.
`sudo bash wae-k9-<version>.bin -d <installation_directory>`	Specify a different installation directory. You are prompted through the remainder of the installation process.
`sudo bash wae-k9-<version>.bin -h`	Shows a usage statement for the installer
`sudo bash wae-k9-<version>.bin -y`	Automatically respond “yes” to all questions without being prompted.

The process verifies the integrity of the installation using checksums. If a checksum fails, error messages appear and the installation process is terminated.

Depending on what the installation process finds, it might prompt you throughout the process to continue or not.

Step 4 The process prompts you for an installation directory. The default is /opt/cariden. If this is an upgrade, the recommendation is that you maintain the same installation directory as in the previous release. If this is a new installation, the recommendation is to keep this default.

Step 5 The process prompts you for a WAE username.

The default is "cariden" only if that username exists; its existing password remains intact. Otherwise, the default WAE username is "wae." The default password for the wae username is "ciscowae."

The recommendation is that you keep whichever default you receive. Also, consider that if you have previously installed the MATE Live datastore (mld), you cannot restart mld unless you start it with the same username used to install it.

Step 6 The process prompts for whether you want to start SDN platform services, which include wae-core, wae-db, wae-messaging, and wae-cdl. The default is "No." Unless you have the appropriate license, this service is of no use, but will still uses memory and disk space. The recommendation is that you keep the default unless you have the necessary license.

Step 7 Once the installation process stops, log out of the device or VM.

Step 8 Log back in using the WAE username.

Offline Installation

When installing online, the installer connects to the Internet and downloads missing packages. If the device or VM onto which you are installing cannot access the Internet, you must manually load these packages onto the device where you are installing the product.

This chapter describes a process that puts the packages where the installer can find them.

Prerequisites

- You must have Internet access from another device so that you can download the required packages to a memory stick. Then transfer these libraries to the devices or VMs on which you are installing the product. All instructions assume you are doing this, and do not explicitly state as such.
- You must have the packages needed for the MATE and WAE installation. You can download a CentOS DVD or an .iso file from http://centos.org. These instructions are based on you having the "minimal ISO" set of packages.
- Follow the pre-installation steps in the Before You Start chapter.

Offline Installation

Note You must have root permission to perform the following instructions.

Step 1 Create a `/media` directory.

```
mkdir /media
```

Step 2 Mount either the physical CentOS DVD or the .iso file.

DVD: `mount/dev/cdrom /media`

.iso file: `mount -t iso9660 -o loop <iso_filename.iso> /media`

Step 3 From the `/media/Packages` directory, execute the following `rpm` command to install the following packages. Repeat the command **for each package**.

```
rpm -i libedit-<version>.x86_64.rpm
rpm -i openssh-clients-<version>.x86_64.rpm
rpm -i libxml2-python-<version>.x86_64.rpm
rpm -i deltarpm-<version>.x86_64.rpm
rpm -i python-<version>.x86_64.rpm
rpm -i createrepo-<version>.noarch.rpm
```

```
rpm -i <package_name>.rpm
```

Example: `rpm -i libedit-2.11-4.20080712cvs.1.el6.x86_64.rpm`

Step 4 Create a `localrepo` directory in the root directory.

```
cd /root
mkdir localrepo
```

Step 5 Copy **all** packages from `/media/Packages` to `/localrepo`.

```
cp /media/Packages/* /root/localrepo
```

Step 6 If configuring HA, download the following CentOS libraries to `/root/localrepo`. Retrieve these from an EPEL mirror, such as can be found on https://fedoraproject.org/wiki/EPEL.

- `ansible-<version>.noarch.rpm`
- `libyaml-<version>.x86_64.rpm`
- `python-crypto-<version>.x86_64.rpm`
- `python-httplib-<version>.noarch.rpm`
- `python-jinja-<version>.x86_64.rpm`
- `python-keyczar-<version>.noarch.rpm`
- `PyYAML-<version>.x86_64.rpm`
- `sshpass-<version>.x86_64.rpm`

Step 7 Create a yum local repository.

```
createrepo /root/localrepo
```

Step 8 Go to the yum configuration directory.

```
cd /etc/yum.repos.d
```

Step 9 Create a configuration file to define the yum `localrepo` directory.

```
vi /etc/yum.repos.d/local-repo.repo
```

Add these lines.

```
[local-repo]
name=local-repo
baseurl=file:///root/localrepo/
enabled=1
gpgcheck=0
```

Step 10 Disable all `*.repo` files in the `/etc/yum.repos.d` directory except for the `local-repo.repo` file you created. This step forces the installer to use only `/root/localrepo`.

Open each *.repo file and change all instances of enabled=1 to enabled=0. To find a list of the files you need to edit, enter the following.

```
grep enabled *
```

Example:

```
vi CentOS-Base.repo
```

Search on `enabled=1`

Change it to `enabled=0`

Step 11 Update the repository so that yum knows which repository directory and file to use.

```
yum clean all
yum repolist
```

Step 12 Run the installer by following all instructions in the Online Installation chapter. This process creates an `epel.repo` file `/etc/yum.repos.d` directory and sets enabled=1. This causes the installation to fail since it does not check `/root/localrepo` thereafter. When prompted whether to continue, select “no” to stop the installation.

Step 13 Disable the `epel.repo` file from being used by the installer.

```
cd /etc/yum.repos.d
vi epel.repo
```

Search on `enabled=1`

Change each such instance to `enabled=0`

Step 14 Rerun the installation by following all instructions in the Online Installation chapter.

Post Installation

Step 1 Install the license or licenses. Collector and the web applications require a MATE license. The WAE Core modules require both a MATE and a WAE license. For information, see the License Installation chapter.

Step 2 If you are installing, starting, or upgrading the MATE Live datastore (mld), stop the web server. For more information about the MATE Live datastore, see the *MATE Live Configuration Guide*.

a. Stop the web server.

```
service wae-web-server stop
```

b. Install, start, or upgrade MATE Live datastore.

- Install and start mld server: `mld -action install -size [DSML]`
- Start mld server: `mld -action start`
- Upgrade an existing mld server and start it: `mld -action upgrade`

c. Start the web server.

```
service wae-web-server start
```

Step 3 If you are collecting flow data using `flow_manage` and `flow_get`, you must change the file capabilities for the flow collection server. This applies to all binaries in `$CARIDEN_HOME/lib/ext/pmacct/sbin`. If not, execute this command on all files in this directory.

Example: `setcap 'cap_net_bind_service=+ep' $CARIDEN_HOME/lib/ext/pmacct/sbin/*`

Step 4 Both the `wae-web-server` and the `wae-collector` are automatically started. Others may have been started, depending on how you responded to the installation process. If needed, start other services now. For information, see the Services chapter.

Step 5 The licensed features you have determines what needs to be configured. See the Configurations section for a list of these and pointers where to go for information.

Configurations

The licenses you have govern which of the following configurations are required after having installed the product.

- Configure the FlexNet Publisher license server—Applicable if administering floating licenses to MATE Design users. For information, see the MATE Design Floating License Server chapter.
- Configure the WAE platform—For information, see the *WAE Platform Configuration Guide*.
  - Configure the Collector module to collect network data and traffic. You can configure collection either using the Collector UI or using snapshot configuration files.
  - Configure other WAE platform modules, including the Deployer module.
- Configure MATE Live—For information, see the *MATE Live Configuration Guide*.
  - Install and configure the datastore—Applicable if using MATE Live Explore and Analytics components.
  - Configure MATE Live to collect the data from Collector—Applicable if using both MATE Live and Collector.
  - Customize MATE Live application for its users—Applicable if you are the administrator of MATE Live.
- Customize the MATE Design Archive application for its users—For information, see the *MATE Design Archive User and Administration Guide*.
- Configure system-wide parameters for MATE Live and MATE Design Archive users—For information, see the *System Administration Guide*.
  - Configure users and their roles.
  - If applicable, configure access to an LDAP server and mappings between LDAP groups and MATE roles.
  - Configure access to the SMTP server used for emailing MATE Live reports.
- Enhance network visualization—Lay out the network topology for the plan file template used in the MATE Live and MATE Design Archive applications. For information, see the *MATE Visualization Guide*.

License Installation

A license is required for all features except for sample plan files used in the MATE Design application. If you have questions about obtaining a license, contact your Cisco support representative or system administrator.

There are three methods of installing a license, and the method used depends on the type of license you are installing.

- Stand-alone MATE Design—Use either the MATE GUI or the CLI method.
- Collector and web applications—Use either the web UI or the CLI method.
- WAE Core—Use the CLI method.

MATE Design Licenses

Dedicated	Floating
• Each license is unique to a specific device. • Always available (until expiration). • No network connectivity is required. • Must be downloaded to an accessible device.	• A single license is shared among users who have permission from the license server. • After installing the license file once, licenses are automatically checked out from the server when starting the GUI or any CLI tool. When the GUI is closed or the tool stops, the license is checked back into the license server for use by others. • You must have connectivity to the license server. • There are a maximum number of licenses, and you cannot check one out if they are all in use. • The FlexNet Publisher license server must be set up (usually by a system administrator). • You must either download the floating license to an accessible device, or know the hostname and MAC address of the license server. To connect to a different port, you need to know the license server's port number.

Install License from MATE GUI

To use the MATE GUI, you need either a dedicated or a floating license. Regardless of the license type, you need only install it one time. If it is a floating license, thereafter when you start MATE Design the floating license will be checked out to you if it is available. By default, licenses are stored in `~/.cariden/etc`.

Note If you previously installed a WAE license, do not use the overwrite option when installing a MATE Design license.

Step 1 Start the MATE GUI from the directory that contains the MATE software package.

Step 2 Select the File->Install License menu.

- If you are installing a dedicated license or if you are installing a floating license and you have it downloaded to an accessible device, follow these steps.

a. Select the “From license file” option.

b. Browse to the location or enter the name of the license file (.lic extension), and click Open.

c. Click OK to confirm the license installation. If there is already a license installed, you are prompted to either merge or replace the existing license. If you are uncertain whether you have a complete set of desired features in the new license, the best practice is to merge the licenses.

- If you are installing a floating license from the license server (that is, you do not have the license file), follow these steps.

  Best practice: If using Windows, it is recommended that you specify the port.

a. Select the “Specify license file” option.

b. Enter both the hostname and the MAC address of the license server. The MAC address must be a 12-digit hexadecimal number without any colon (:) separators.

c. If the port is not specified, ports 27000-27009 are scanned to find the license server port and connect to it. Optionally, you can enter the license server’s TCP port number using a range of 1024 to 65535. The default license server port is 27000.

d. Click OK to confirm the license installation.

Step 3 To verify a license and its features, select the File->License Check menu.

Install License from CLI

You can use the CLI to install licenses for all products, both MATE and WAE.

Note If you are installing both a MATE and a WAE license, you must use the default method that merges the licenses. You are given an option on where to put the license. Choose the same location for both licenses.

- For each license you are installing, run the `license_install` tool, passing it the name of the license file (.lic extension). By default, the tool merges the features granted by the new license with those in an existing license.

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

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

  By default, when using `license_install -file`, the tool merges the features granted by the new license with those in an existing license. If you are using only MATE licenses, you can overwrite the existing license using the `-existing-lic` overwrite option. Before executing this option, be certain that the new license contains all the necessary features because previous features will no longer be available. Do not use this overwrite option if installing licenses for both MATE and WAE.

  ```
  license_install -file <path>/<filename>.lic -existing-lic overwrite
  ```

  Example: `license_install -file acme/setup/MATEDEDICATED12345678910111213.lic -existing-lic overwrite`

- If you are installing a floating license from the license server (that is, you do not have the license file), use both the `-server-host` and `-server-mac` options. The MAC address must be a 12-digit hexadecimal number without any colon (:) separators.

  ```
  license_install -server-host <license_server_hostname> -server-mac
  <license_server_MAC_address>
  ```

  If the `-server-port` option is not specified, ports 27000-27009 are scanned to find the license server port and connect to it. Optionally, you can enter the license server's TCP port number using a range of 1024 to 65535. The default license server port is 27000.

  Example: `license_install -server-host lic.cisco.com -server-mac 1a2b3c4d5e6f -server-port 27000`

  To verify a license and its features, run the `license_check` tool. To see descriptions of the license features, use the `-detail` option (which defaults to true).

  Example: `license_check -detail`

Install License from Web UI

Note Do not use the web UI for WAE licenses.

Step 1 Start the web server.

```
service wae-web-server start
```

Step 2 Select System->Licenses.

Step 3 Click Upload Licenses.

Step 4 Click Select Licenses.

a. Browse to the location or enter the name of the license file (.lic extension), and click Open.

b. If there is already a license installed, the default is to overwrite the existing license. To merge the two licenses instead, select the merge option. If you are uncertain whether you have a complete set of desired features in the new license, we recommend that you merge the licenses.

c. Click Upload License.

Step 5 Verify the license installed correctly by locating it on the System->Licenses page.

MATE Design Floating License Server

The FlexNet Publisher license server must be set up if MATE Design users are to use floating licenses. Using this server, you can control access to the licenses, monitor who has them checked out, and check log activity.

Note All instructions and examples assume you used `/opt/cariden` as the default installation directory. If you did not, then substitute your installation directory for `/opt/cariden`.

The FlexNet Publisher license server has two interfaces. One is a CLI, which requires that you start an `lmgrd` daemon so all users can access the floating licenses. The other is a web UI, wherein you must install and configure an `lmadmin` tool; this option offers more flexibility and administration tools. Best practice is to use only one or the other interface (CLI or web) to administer the license server.

For information about FlexNet Publisher, refer to the *FlexNet Publisher License Administration Guide* (`FlexLM_EndUser_LicAdmin.pdf`), which is located in `$CARIDEN_HOME/docs`.

Prerequisites

You must have the required packages installed. For a list of package dependencies, see the *System Requirements* document posted on the Cisco download site for this release.

Pre-Installation: Windows, Mac, or Different Linux Devices

Follow these steps under these circumstances.

- If you are installing the FlexNet Publisher license server for use with Windows or Mac operating systems.
- If you are installing the FlexNet Publisher license server on a different Linux device than the one on which MATE Design Linux resides.

Step 1 Log in to the FlexNet Publisher license server as root or as a user with administrative capabilities.

Step 2 Create a lowercase, alphanumeric username where the first letter is an alphabetical character.

```
/usr/sbin/useradd <username>
```

Set a password.

```
passwd <username>
```

Step 3 Create an installation directory that has root privileges. The best practice is to use the default installation directory, which is `/opt/cariden`.

```
cd ~/
mkdir -p /opt/cariden
```

Step 4 Change the owner of the installation directory to the newly created user.

```
chown <username> /opt/cariden
```

Pre-Installation: All Operating Systems

Follow these steps on the device where FlexNet Publisher license server resides.

Step 1 Ensure there are no local firewalls blocking the services. This step is beyond the scope of these instructions, though following is an example. For a list of ports used, see the *System Requirements* document on the Cisco download site for this release.

Example: This shows how to disable the iptables firewall as root.

```
service iptables save
service iptables stop
sudo chkconfig iptables off
```

Step 2 Download the License Server package from the Cisco download site. Navigate to the MATE Design, MATE License Server Software page.

Step 3 The MATE license file's SERVER statement must be the same hostname as the output from the hostname CLI command.

a. Determine the hostname.

```
hostname
```

b. Edit the `/etc/sysconfig/network` file to include the hostname returned in the above step.

```
HOSTNAME=<hostname>
```

Step 4 Ensure the `/etc/hosts` file on the client devices contains the same hostname as identified in step 3. (Client devices are the devices that will be checking the licenses in and out of the server.)

Note If you need the license server to listen to a different port other than the default 27000 port, contact your support representative.

Install MATE License

Step 1 Download the MATE floating license file (.lic extension) to a directory of your choice on the device where the license server will be installed.

Step 2 Install the license. You are given the option of where to put the file. Best practice is to put the license in `~/.cariden/etc`. Once the license is installed, it is renamed to MATE_Floating.lic.

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

Example: `license_install -file /opt/cariden/licenses/MATEFLOATING12345678901234567.lic`

Install License Server

Step 1 Go to the directory where you installed FlexNet Publisher license server package, and execute the installer. The package is, itself, the executable that automates the installation process.

```
chmod 755 ./<License server package>.sh;./<License server package>.sh
```

Example:

```
chmod 755
./MATE_License_Server-2.0rc2-Linux-x86_64.sh;./MATE_License_Server-2.0rc2-Linux-x86_64.
sh
```

Step 2 If you are going to run the license server web UI, run the `lmadmin` installer from the `/opt/cariden/software/flexlm/current/bin` directory.

Although the default is to install `lmadmin` into `/opt/FNPLicenseServerManager`, the best practice is to install it into `/opt/cariden/software/flexlm/current/web`.

```
chmod 755 ./<lmadmin_package>.bin;./<lmadmin_package>.bin
```

Example: `chmod 755 ./lmadmin-i86_lsb-11_11_1_1.bin;./lmadmin-i86_lsb-11_11_1_1.bin`

Start License Server

Note The following instructions are for using either the CLI or license web server, but not both. The recommended practice is to install and use one or the other.

CLI

To start the license server daemon (`lmgrd`), enter the following from `/opt/cariden/software/flexlm/current/bin`.

```
./lmgrd -c <license_filename> -l <log_filename>.log
```

Example: `./lmgrd -c ~/.cariden/etc/MATE_Floating.lic -l /opt/cariden/logs/lmgrd.log`

Web UI

Step 1 To start the license server using the web UI, first configure the following parameters from the `/opt/cariden/software/flexlm/current/web` directory. For more information, see `lmadmin -help`.

By default, the lmadmin server has a user named “admin” with a password of “admin.” If needed, add another user to this lmadmin server.

```
./lmadmin -useradd <username> - pass <password>
```

Import the MATE license file that was installed.

```
./lmadmin -import <path>/<license_filename>
```

Example: `lmadmin -import ~/.cariden/etc/MATE_Floating.lic`

Start the `lmadmin` process with its default settings.

```
./lmadmin
```

Step 2 Start the license server web UI, which by default uses a non-secure port of 8090. By entering the following in a web browser, you are redirected to the secure port.

```
http:<server_hostname>:8091
```

Step 3 Click the Administration link, and log in using the an administrative username and password. Both have a default of “admin.”

Step 4 Click the Vendor Daemon Configuration tab, click the Administer link, and then and click Start.

Post-Installation

Step 1 Verify the license server port 27000 is running. For example, you can telnet to this port to verify that it is running.

Step 2 Verify the license server is running and listening to port 27000, as well as to the established connections.

Example: `netstat -a | egrep '27000[0-9]'`

tcp	0	0	* :27000	*.*	LISTEN
tcp	0	0	localhost:48245	localhost:27000	ESTABLISHED
tcp	0	0	localhost:27000	localhost:48245	ESTABLISHED

Step 3 Either distribute the same floating .lic file that you installed to all MATE Design users who need it, or give them both the MAC address and hostname for the license server.

After end users install the floating license once, the license is automatically validated from the server each time the user opens the MATE GUI or runs the MATE CLI tools.

Set Up Access Control List for Web Server

If you are using the web server to administer licenses, you can set up an access control list. This is optional, but doing so can improve the security of who can access the web server, as well as give you an easily maintainable list of license users. To do this, you need to know the user ID for all users who are checking out licenses from the license server. The user ID is what they use to log in to their operating systems.

For more information about setting up access control lists, refer to the *FlexNet Publisher License Administration Guide* (`FlexLM_EndUser_LicAdmin.pdf`), which is located in `$CARIDEN_HOME/docs`.

Step 1 Create and open a file named cisco.opt in `/opt/cariden/software/flexlm/current/bin`.

Step 2 For each user that you want to grant license access, add an `INCLUDEALL USER` line.

```
INCLUDEALL USER <user ID>
```

Example:

```
INCLUDEALL USER akd123
INCLUDEALL USER gbd456
INCLUDEALL USER odd789
```

Step 3 For each user you want to exclude from accessing the license server, add an `EXCLUDEALL USER` line.

```
EXCLUDEALL USER <user ID>
```

Example:

```
EXCLUDEALL USER fea123
EXCLUDEALL USER rgu456
EXCLUDEALL USER ilt789
```

Step 4 Save the file.

Services

Service	Description
wae-web-server	Web server used by the Collector server, MATE Live application, and MATE Design Archive application. Note that the MATE Live datastore cannot be installed, upgraded, or started while the wae-web-server service is running.
wae-cdl	Open SDN Controller (OSC)
wae-collector	Collector Karaf container, Continuous Poller server, Continuous Poller APIs
wae-core	WAE Core Karaf container, WAE Core APIs
wae-db	WAE Core database
wae-demo	Demonstration UI for applications developed for WAE Core
wae-messaging	WAE messaging system that uses JMS

The installation process automatically starts the `wae-web-server` and `wae-collector` services. If you answered "yes" when prompted whether to start `wae-platsvcs` during the installation, the SDN platform services (all other services except `wae-demo`) are started.

You can start, stop, and get the status on all services using the following formats, respectively.

```
service <service_name> start
service <service_name> stop
service <service_name> status
```

To determine which services are running, enter the following.

```
service --status-all | grep -i wae
```

The scripts for starting and stopping services are located in `/etc/init.d`, which in turn points to `/usr/local/bin`. Whether these scripts are executed on startup is handled by symbolic links created in `/etc/rc#.d` directories, where # is a number 0 through 6.

You can use `chkconfig` to disable, enable, and view startup settings. Note that you must have root permission to execute `chkconfig` commands.

For more information on service and chkconfig utilities, use the man pages.

```
man service
sudo man chkconfig
```

Accessing the Products

MATE Design

Use one of the following methods to start MATE Design from the directory in which the MATE software is installed.

Double-click the mate executable. To verify the version number, select the Help->About menu. This should match the version selected when you installed the product from cisco.com.

From the CLI, enter the mate command and press Enter (Return).

Optional: On Windows, you can associate the plan file using the .pln format with the `mate` executable. Double-clicking a .pln file opens the plan in a new instance of the GUI.

Note If you only have MATE Design, the rest of this chapter is not applicable to you.

Status

Other than the MATE Live datastore, Linux processes are started through services. To determine if a service is running, check its status.

```
service <service_name> status
```

For MATE Live, use this command.

```
mld -action status
```

MATE Live

This assumes you have `mld` installed and if needed, upgraded. For more information, see the MATE Live Configuration Guide.

Step 1 To start the MATE Live, the web server must be stopped if it is running.

```
service wae-web-server stop
```

Step 2 If the datastore is not running, start the mld server.

```
mld -action start
```

Step 3 Start the web server and log into the web UI. See the Collector Server and Web Applications section.

Collector Server and Web Applications

Step 1 If the web server is not running, start it. This must be running to access the Collector server or the web applications.

```
service wae-web-server start
```

Step 2 Open the web home page in a browser.

```
https://<server_IP>:8443
```

Step 3 Log in to the web server. Contact your administrator for your personal credentials.

Default administrative credentials

Username: admin

Password: cariden

Default user credentials

Username: user

Password: cariden

Continuous Poller Server

Step 1 Start the Continuous Poller server if you want to continuously poll for traffic statistics.

```
service wae-collector start
```

Step 2 Following are the default credentials. For information on the credentials, if they have changed, contact your WAE administrator.

Default username: admin

Default password: cariden

SDN Platform Services

If using WAE Core, start the following services.

```
service wae-core start
service wae-db start
service wae-messaging start
service wae-cdl start
```

Following is an example of how to verify that the WAE Core process started and is listening to the correct port, which by default is 7777.

Example: `netstat -anp | grep 7777`