# Running SESM Components

This chapter describes how to start and stop Cisco Subscriber Edge Services Manager (SESM) components. The chapter contains the following topics:

## Starting the NWSP Application and the Jetty Server

The NWSP application is a J2EE web server application that runs in a Jetty server container. The startup script for NWSP starts both a Jetty server instance and a NWSP application.

Start NWSP using the following script and optional command-line argument:

| Platform | Script |
| --- | --- |
| Solaris | `jetty/bin/startNWSP.sh [-mode mode]` |
| Windows NT | `jetty\bin\startNWSP.cmd [mode]` |

Valid values for *mode* are Demo, RADIUS, or DESS.

If the mode option is included on the command line, it overrides the default mode specified in the SSD MBean in the nwsp.xml file. If you switch modes using this option, you must make sure that all other configuration parameters are aligned with the mode that you choose. The mode option provides the capability to switch easily between a fully configured deployment (RADIUS or DESS mode) and the demonstration deployment (Demo mode).

# Starting RDP

RDP is a Java 2 application that uses the Cisco ConfigAgent and JMX server. It does not use the J2EE HTTP server, and therefore does not have startup files in the Jetty server's bin directory.

Start RDP with the following script:

| Platform | Script |
|----------|--------|
| Solaris | `rdp/bin/runrdp.sh` |
| Windows NT | `rdp\bin\runrdp.cmd` |

# Starting CDAT

CDAT is a J2EE application. The startup script for CDAT is in the Jetty server's bin directory. This startup script calls the same generic startup script used by the SESM web applications.

Start CDAT with the following script:

| Platform | Script |
|----------|--------|
| Solaris | `jetty/bin/startCDAT.sh` |
| Windows NT | `jetty\bin\startCDAT.cmd` |

# Explanation of the NWSP and CDAT Startup Scripts

When you start the NWSP application or CDAT, you are executing two scripts:

- Application-specific startup script—Sets application-specific parameters and calls the generic script
- Generic startup script—Infers additional parameters and starts the SESM web application and the Jetty server.

Both scripts are located in:

```
jetty
    bin
```

You should create an application-specific startup script in this same `bin` directory for customized SESM web applications.

# Application-Specific Startup Scripts

The application-specific startup scripts are startNWSP and startCDAT. These scripts set the following variables:

- application name—Identifies the application, either NWSP or CDAT. If you create a customized application, provide the name that identifies your application. See the "SESM Application Names" section on page 6-3 for information about using a new application name value.
- port number— Identifies the port that the application's container (the web server) will listen on.

The installation program updates the application startup script with the port number that you provide during the installation time. To change the port number after installation, edit the startup script. The default values displayed by the installation program are 8080 for NWSP and 8081 for CDAT.

The port number must be unique on the server machine. If multiple SESM applications are running simultaneously on the same server machine, make sure each one listens on a different pertussis caveat applies whether you are running two instances of the same application or two different applications.

# Generic Startup Script

The generic startup script derives two other port numbers from the application port number:

- It derives a management console port number as follows.

```
application port + 100
```

For example, if you are using the default application port of 8080 for NWSP, the management console port for NWSP is:

```
8080 + 100 = 8180
```

- It derives a secure socket listener (SSL) port as follows:

```
application port - 80 + 443
```

Starting with the default application port value of 8080, the default SSL port is:

```
8080 - 80 + 433 = 8443
```

The generic startup script does the following:

- Accepts the variables passed to it from the application startup script
- Sets additional variables, based on the expected (installed) directory structure. For example, it infers the location of the configuration files.
- Starts the SESM web application.

# Java System Properties in Startup Scripts

Table 5-1 describes the java system properties that are set by the generic startup script and how the assigned values are derived. The table describes the following lines, which are located at the end of the generic startup script:

```
$JAVA -Xmx64m \
  -classpath $CLASSPATH \
  -Djetty.home=$JETTYDIR \
  -Dapplication.home=$APPDIR \
  -Dapplication.log=$LOGDIR \
  -Dapplication.portno=$PORTNO \
  -Dmanagement.portno=$MGMTPORTNO \
```

*Table 5-1    Java System Properties in the Startup Script*

| System Property and Variable Name | Explanation | Installed Values in the Start Script |
|---|---|---|
| jetty.home=$JETTYDIR | jetty.home is the container's directory name.<br><br>The startup script sets $JETTYDIR to a subdirectory named jetty under the installation directory. | *installDir*<br>jetty |
| application.home=$APPDIR | application.home is the application's directory name.<br><br>The startup script sets $APPDIR to a subdirectory named *applicationName* under the installation directory. The startup script infers the installation directory from the location of the start script itself. The *applicationName* parameter is passed from another script. (startNWSP.sh, for example). | *installDir*<br>nwsp |
| application.log=$LOGDIR | application.log is the location of all log files created for this application.<br><br>The startup script sets $LOGDIR differently according to the platform:<br><br>• On Solaris, $LOGDIR is the logs directory under the application directory in the install directory. For example: installDir/nwsp/logs<br><br>• On Windows NT, $LOGDIR is *userTemp*\\*application*\\logs where *userTemp* is the administrator's temporary directory. For example: temp\\nwsp\\logs | *installDir*<br>nwsp<br>logs |
| application.portno=$PORTNO | application.portno is the port that the SESM web application (or CDAT) listens on for HTTP requests from subscribers.<br><br>The startup script sets $PORTNO to the portNo parameter passed from another script (startNWSP.sh, for example). | Specified during installation. The default is 8080 for NWSP and 8081 for CDAT. |
| management.portno= $MGMTPORTNO | management.portno is the console port that displays the current values for all attributes in all of the MBean configuration files. | The startup script sets $MGMTPORTNO to $PORTNO + 100. |

# Stopping Applications

This section describes how to stop SESM applications. It includes the following topics:

## Stopping SESM Applications on Solaris

To stop SESM web applications and their J2EE containers on Solaris, execute the installed stop scripts. None of the scripts take arguments. Table 5-2 lists the script names and locations.

*Table 5-2    SESM Stop Scripts on the Solaris Platform*

| Application | Stop Script Location and Name on Solaris Platforms |
|---|---|
| NWSP and Jetty | jetty/bin/stopNWSP.sh |
| CDAT and Jetty | jetty/bin/stopCDAT.sh |
| RDP | rdp/bin/stoprdp.sh |

## Stopping SESM Applications on Windows NT

To stop SESM web applications and their J2EE containers on Windows NT platforms, you can:

• Open the Task Manager window, select the appropriate task, and click the **End Task** button. If you are prompted again, click the **End Now** button.

• If you added the application as an NT service, you can use the Services window to stop the service. Open **Control Panel > Services** or **Control Panel > Administrative Tools > Services** and select the service you want to stop. Use the menu commands on the Services window to stop the selected service.

# Adding and Removing Services on Windows NT

On a Windows NT platform, you can add your applications to the list of Windows NT services. When the application is a service, it appears in the **Services** window accessed from **Control Panel > Services** or **Control Panel > Administrative Tools > Services** You can start and stop any service from this window. Also, you can optionally configure a service to start automatically when the system reboots.

The SESM installation program provides services scripts with the NWSP, CDAT, and RDP applications. The command usage is the same for all of the services scripts:

• *scriptName* -i installs the application as a service so that it can be managed from the Services window

• *scriptName* -h displays the command usage

• *scriptName* -r removes the application from the Services window

Table 5-3 lists the names and locations of the scripts that add and remove services.

*Table 5-3    Scripts for Adding and Removing Services on Windows NT*

| SESM Application | Services Script Location and Name | Default Service Name |
|---|---|---|
| RDP | rdp\bin\rdpsvc.cmd | RDP Application |
| CDAT | jetty\bin\cdatsvc.cmd | CDAT Web Application |
| NWSP | jettybin\nwspsvc.cmd | NWSP Web Application |

# Memory Requirements for the NWSP Application

The total java virtual memory requirements for an SESM web application depends on several factors:

- Number of subscribers concurrently logged in
- Number of subscribed services
- Rate of new logins—The login rate affects transitory memory usage.

Table 5-4 shows SESM memory requirements in various scenarios. The table includes two memory columns for each scenario.

- The Memory Required for Logins is the total memory required for the successful login and authentication of all users, at the indicated login rates.
- The Memory Used After Logins is the actual memory used to support the SESM session with connections to the indicated services after logins are completed.

For SESM Release 3.1(1), Cisco supports a maximum of 10,000 concurrently logged in subscribers in RADIUS mode, and 5,000 concurrently logged in subscribers in DESS mode. We have verified the memory requirements in Table 5-4 for one SESM application instance. It is possible, given more memory, to support larger numbers of users.

*Table 5-4    SESM Memory Requirements*

| | RADIUS Mode | | | | DESS Mode | | | |
|---|---|---|---|---|---|---|---|---|
| | Three Services:<br>1 Passthrough<br>1 Proxy<br>1 Tunnel | | 3 Services:<br>1 Passthrough (Auto)<br>1 Proxy<br>1 Tunnel | | 3 Services<br>1 Passthrough<br>1 Proxy<br>1 Tunnel | | 3 Services:<br>1 Passthrough (Auto<br>1 Proxy<br>1 Tunnel | |
| Number of Subscribers Logged On[1] | Memory Required for Logins (MB) | Memory Used After Logins (MB) | Memory Required for Logins (MB) | Memory Used After Logins (MB) | Memory Required for Logins (MB) | Memory Used After Logins (MB) | Memory Required for Logins (MB) | Memory Used After Logins (MB) |
| 2000 | 32 | 15.3 | 32 | 17.7 | 64 | 48 | 64 | 51 |
| 4000 | 48 | 28.6 | 64 | 30 | 112 | 100 | 112 | 97 |
| 6000 | 80 | 42.6 | 96 | 40 | 192 | 145 | 208 | 139 |
| 8000 | 96 | 52.2 | 112 | 57.3 | | | | |
| 10000 | 128 | 67.4 | 144 | 62 | | | | |

[1]The information in this table was obtained using the following login rates:

.RADIUS mode—20 subscribers per second

.DESS Mode—10 subscribers per second

The generic startup script sets the amount of Java virtual memory reserved for use by the SESM web application (NWSP). The virtual memory setting is an argument to the java command, which is located at the end of the script, as follows:

```
$JAVA -Xmx64m
```

The installed start script sets the java virtual memory to 64MB. Consider changing the default value in the following circumstances:

- If you are running the Demo exclusively on a machine running other applications, you might want to decrease the memory size.

- Increase the memory if the number of users simultaneously logged on increases. Symptoms of insufficient memory are:

  - Out of memory exceptions
  - Messages stating that the web server is unavailable