

HP Cloud Service Automation

For the Windows[®] operating systems

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Configuration Guide

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Chapter 1

Overview

This document provides information on how to set up the Cloud Service Management Console and HP CSA in order to enable users to log in and use the Cloud Service Management Console and Marketplace Portal. Some tasks must be completed before you can start using HP CSA.

The user who sets up HP CSA should have knowledge of or work with someone who has knowledge of LDAP, SSL, HP Operations Orchestration, and the resource providers that will be integrated with HP CSA.

The following information is provided in this document:

Initial Setup. Before setting up the Cloud Service Management Console, you may need to complete some initial configuration such as preparing LDAP, configuring HP CSA truststore properties, requesting a software license, and configuring SSL for LDAP, SMTP, the Oracle Database, the Microsoft SQL Server, or the HP Operations Orchestration Load Balancer.

Setting up the Cloud Service Management Console. To set up the Cloud Service Management Console so that users can log in, you must configure the provider organization. In order to start using the Cloud Service Management Console, you may wish to import HP Operations Orchestration flows and import the sample service designs provided with HP CSA. Additionally, you may wish to enable the Custom tile in the Cloud Service Management Console.

Marketplace Portal Configuration Options. Marketplace Portal configuration options include installing the Marketplace Portal on a remote system and encrypting passwords used by the Marketplace Portal with the Marketplace Portal's password utility. Configuring the Marketplace Portal is completed using the Cloud Service Management Console. Refer to the *HP Cloud Service Management Console Help* for more information about configuring the Marketplace Portal.

Advanced Configuration. Advanced configuration includes tasks such as replacing the HP CSA self-signed SSL certificate, changing the out-of-the-box users, updating the HP CSA database user or password, configuring IPv6, configuring HP CSA for FIPS 140-2 compliance, integrating HP CSA with a common access card, and integrating HP CSA with SiteMinder.

Common HP CSA Tasks. Common tasks include launching the Cloud Service Management Console and Marketplace Portal, starting, stopping, or restarting HP CSA, encrypting a password, and uninstalling HP CSA.

Cloud Service Management Console Properties. This is a reference to the Cloud Service Management Console configurable properties.

Marketplace Portal Attributes. This is a reference to the Marketplace Portal configurable attributes.

HP Operations Orchestration Settings. This is a reference to the HP Operations Orchestration configurable settings applicable to HP CSA.

Identity Management Configuration. This is a reference to the Identity Management component configurable settings applicable to HP CSA.

Refer to the following guides for more information about:

- HP CSA: *HP Cloud Service Automation Concepts Guide*
- Supported components and versions: *HP Cloud Service Automation System and Software Support Matrix*
- Installation: *HP Cloud Service Automation Installation Guide*
- Cloud Service Management Console: *HP Cloud Service Management Console Help*
- Automated, on-demand cloud services creation: *HP Cloud Service Automation Service Design Guide*
- Sample service designs and resource offerings: *HP Cloud Service Automation Integration Pack*

These guides are available from the HP Software Support Web site at <http://h20230.www2.hp.com/selfsolve/manuals/> (this site requires that you register with HP Passport).

Chapter 2

Initial Setup

This chapter provides information for common setup tasks that may need to be completed for HP CSA.

Tasks include:

- ["Prepare LDAP for HP CSA" below](#) (required)
- ["Configure the HP CSA Truststore Properties" on page 16](#) (required)
- ["Request Software Licenses" on page 16](#) (required)
- ["Configure SSL for LDAP" on page 17](#) (required if the LDAP server requires SSL)
- ["Configure SSL for SMTP" on page 18](#) (required if the SMTP server requires SSL)
- ["Configure SSL for an Oracle Database" on page 19](#) (required if the Oracle database requires SSL)
- ["Configure SSL for Microsoft SQL Server" on page 22](#) (required if Microsoft SQL Server requires SSL)
- ["Configure SSL for HP Operations Orchestration Load Balancer" on page 23](#) (required if you are running the HP OO LB server and it requires SSL)

Prepare LDAP for HP CSA

HP CSA supports limited authentication out-of-the-box and has a fixed set of user names (and associated passwords) that can be used to log in. This basic form of authentication can be used for initial setup and experimentation with the product, but in a production environment, authentication should be configured to occur against a directory service.

HP CSA can be configured to authenticate against a Lightweight Directory Access Protocol (LDAP) server. Users can then log in with a pre-existing user name (such as an enterprise email address) and password combination. LDAP authenticates the login credentials by verifying that the user name and password match an existing user in the LDAP directory.

In HP CSA, LDAP is used to:

- Authenticate a user's login to the Cloud Service Management Console and Marketplace Portal
- Authenticate a user's access to information
- Authorize a user's access to information

- Retrieve information about a user's manager for approvals
- Retrieve information about a user's group membership for approvals

These functions are configured when you configure LDAP and access control for an organization.

Before you configure LDAP for the Cloud Service Management Console or Marketplace Portal, you should be familiar with your enterprise LDAP server and LDAP configuration tasks.

Note: The user object configured in LDAP that is used to log in to HP Cloud Service Automation and by which users can be identified should be configured to contain the following attribute types:

- **User Email - Required.** This attribute type designates the email address of the user to which to send email notifications. Common LDAP attribute names for email include **mail**, **email**, and **userPrincipalName**. If the value for this attribute in the user object in LDAP is empty or not valid, the user for whom the value is empty or not valid does not receive email notifications.
- **Manager Identifier - Required.** This attribute type identifies the manager of the user. A common LDAP attribute name for a user's manager is **manager**. If the value for this attribute in the user object in LDAP is empty or not valid, approval policies that use the User Context Template will fail.
- **Manager Identifier Value - Required.** This attribute type describes the value of the manager identifier. A common value for the manager identifier in LDAP is the **dn** (distinguished name) of the manager's user object. If the manager's user object cannot be located based on the values for manager identifier and manager identifier value, approval policies that use the User Context Template will fail.

The group object configured in LDAP must contain the following attribute type:

- **Group Membership - Required.** This attribute type identifies a user as belonging to the group. Common LDAP attribute names that convey group membership include **member** and **uniqueMember**.

The attribute names configured in your LDAP directory for these attribute types are used when configuring an organization's LDAP in the Cloud Service Management Console.

Note: Do not create users in your LDAP directory that match the out-of-the-box users provided by HP Cloud Service Automation (the out-of-the-box users are `admin`, `cdaInboundUser`, `csaCatalogAggregationTransportUser`, `csaReportingUser`, `csaTransportUser`, `idmTransportUser`, and `ooInboundUser`). Creating the same users in LDAP may allow the out-of-the-box users unintended access to the Cloud Service Management Console or give the LDAP users unintended privileges.

Configure the HP CSA Truststore Properties

You must configure information about the HP CSA's keystore. Do the following:

1. Open the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties file in a text editor.
2. Enter values for the csaTruststore and csaTruststorePassword properties.

Property	Description
csaTruststore	Required. The HP Cloud Service Automation keystore that stores trusted Certificate Authority certificates.
csaTruststorePassword	Required. The encrypted password of the HP Cloud Service Automation keystore (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.

For more information about these properties, refer to ["Cloud Service Management Console Properties" on page 175](#).

3. Save and exit the file.
4. Restart HP CSA.

See ["Restart HP CSA" on page 172](#) for detailed information on how to restart HP CSA.

Request Software Licenses

HP CSA version 4.00 requires a software license. HP CSA licensing is based on the number of operating system instances (OSIs) being used in current, active subscriptions.

After initial installation of or upgrade to HP CSA version 4.00, when you log in to the Cloud Service Management Console, a temporary 90-day trial license is activated. Once the trial license expires, you are limited to 25 OSIs. If you created more than 25 OSIs during the trial period, you cannot create any additional OSIs. You can add more licenses at any time to increase your OSI capacity.

The following topics are covered in this section:

- Request a software license
- Request a software license for a clustered environment
- Request a software license for a system with an updated IP address
- Request an emergency key

For information on how to view, add, or delete a license, refer to the *HP Cloud Service Management Console Help*.

Request a Software License

If you received an Electronic Delivery Receipt, use the link to the licensing portal located in the receipt and follow the online instructions to request a software license. Otherwise, to access the licensing portal, go to <http://www.hp.com/software/licensing>, enter your Entitlement Order Number, and follow the online instructions to request a software license.

Refer to the [Software License Activation Quick Start Guide](#) for more information about requesting a software license.

IP Address Limitations

When you request a software license, you must supply the IP address (IPv4 or Ipv6) of the system on which HP CSA is installed.

Do NOT use the following IP addresses when requesting a software license:

- Loopback address - 127.0.0.1 (IPv4) or ::1 (IPv6)

Request a Software License for a Clustered Environment

If you are configuring HP CSA in a clustered environment, use the IP address of the proxy server (in the examples given in the *Configuring an HP CSA Cluster for Server Failover*, this is the APACHE_MASTER_IP_ADDR). The license should be installed on only one node in the clustered environment.

Request a Software License for a System with an Updated IP Address

If you change the IP address of the system on which HP CSA is running, you must request a new software license.

If you immediately add the new license without restarting HP CSA, the license will not be accepted. You must restart HP CSA before adding the new license. To restart CSA, see "[Restart HP CSA](#)" on page 172. For more information about managing software licenses, refer to the *HP Cloud Service Management Console Help*.

Configure SSL for LDAP

If the LDAP server requires SSL, follow these steps to import the LDAP server Certificate Authority's root certificate into the Java truststore of HP CSA. If necessary, contact your LDAP administrator to obtain the LDAP server certificate.

If the LDAP server does not require SSL, you can omit this task.

Note: If you have configured HP CSA to be compliant with FIPS 140-2, you must substitute the HP CSA SSL truststore (for example, `csa_ssl_truststore.p12`) for the Java truststore (`cacerts`) and substitute the HP CSA SSL truststore password for the Java truststore password (`changeit`) in the examples. See ["Create a New Keystore and Truststore for SSL Communication" on page 112](#) for more information about the HP CSA SSL truststore and password.

1. Open a command prompt and run the `keytool` utility with the following options to create a local trusted certificate entry for the LDAP server.

```
"<csa_jre>\bin\keytool" -importcert -trustcacerts -alias ldap  
-keystore "<csa_jre>\lib\security\cacerts"  
-file <c:\certfile_name.crt> -storepass changeit
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed and `<c:\certfile_name.crt>` is the path and name of the Certificate Authority's root certificate for the LDAP server. The file extension may be `.cer` rather than `.crt`. You can also use a different value for `-alias`.

2. At the prompt to import the certificate, type **Yes**.
3. Press **Enter**.
4. Restart HP CSA.

See ["Restart HP CSA" on page 172](#) for detailed information on how to restart HP CSA.

Configure SSL for SMTP

For each organization, if its SMTP server requires SSL, follow these steps to import the SMTP server Certificate Authority's root certificate into the Java truststore of HP CSA. If necessary, contact your SMTP server administrator to obtain the SMTP server certificate.

If the SMTP server does not require SSL, you can omit this task.

Note: If you have configured HP CSA to be compliant with FIPS 140-2, you must substitute the HP CSA SSL truststore (for example, `csa_ssl_truststore.p12`) for the Java truststore (`cacerts`) and substitute the HP CSA SSL truststore password for the Java truststore password (`changeit`) in the examples. See ["Create a New Keystore and Truststore for SSL Communication" on page 112](#) for more information about the HP CSA SSL truststore and password.

1. Open a command prompt and run the `keytool` utility with the following options to create a local trusted certificate entry for the SMTP server.

```
"<csa_jre>\bin\keytool" -importcert -trustcacerts -alias smtp  
-keystore "<csa_jre>\lib\security\cacerts"  
-file <c:\certfile_name.crt> -storepass changeit
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed and `<c:\certfile_name.crt>` is the path and name of the Certificate Authority's root certificate for the SMTP server. The file extension may be `.cer` rather than `.crt`. You can also use a different value for `-alias`.

2. At the prompt to import the certificate, type **Yes**.
3. Press **Enter**.
4. Restart HP CSA.

See ["Restart HP CSA" on page 172](#) for detailed information on how to restart HP CSA.

Configure SSL for an Oracle Database

If the Oracle database server requires SSL, complete the following steps (if the Oracle database does not require SSL, you can omit these steps):

Note: If you have configured HP CSA to be compliant with FIPS 140-2, you cannot configure SSL for the Oracle database. If you configure SSL for the Oracle database, you cannot configure HP CSA to be compliant with FIPS 140-2.

1. Complete one of the following tasks:
 - If you do not want to configure HP CSA to check the database DN, do the following:
 - i. Open `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml` in a text editor.
 - ii. Add the following to the Oracle datasource:

```
<connection-url>jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL = TCPS)(HOST = <host>)(PORT = 1521)))(CONNECT_DATA = (SERVICE_NAME = ORCL)))</connection-url>
```

where `<host>` is the name of the system on which the Oracle database server is installed.
 - iii. Save and close the file.
 - iv. Import the Oracle database server Certificate Authority's root certificate into the Java truststore of HP CSA.

- i. Copy the Oracle database server Certificate Authority's root certificate to the HP CSA system. If necessary, contact your database administrator to obtain the Oracle database server certificate.
- ii. On the HP CSA system, open a command prompt and run the `keytool` utility with the following options to create a local trusted certificate entry for the Oracle database server.

```
"<csa_jre>\bin\keytool" -importcert -trustcacerts  
-alias oracledb  
-keystore "<csa_jre>\lib\security\cacerts"  
-file <c:\certfile_name.crt> -storepass changeit
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed and `<c:\certfile_name.crt>` is the path and name of the Certificate Authority's root certificate for the Oracle database server. The file extension may be `.cer` rather than `.crt`. You can also use a different value for `-alias`.

- iii. At the prompt to import the certificate, type **Yes**.
- iv. Press **Enter**.
- v. Restart HP CSA.

See ["Restart HP CSA" on page 172](#) for detailed information on how to restart HP CSA.

- If you want to configure HP CSA to check the database DN, do the following:

- i. Open `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml` in a text editor.
- ii. Add the following to the Oracle datasource:

```
<connection-url>jdbc:oracle:thin:@(DESCRIPTION =(ADDRESS_LIST =  
(ADDRESS = (PROTOCOL = TCPS)(HOST = <host>)(PORT = 1521)))(CONNECT_  
DATA = (SERVICE_NAME = ORCL))(SECURITY=(SSL_SERVER_CERT_  
DN="CN=abc,OU=dbserver,O=xyz,L=Sunnyvale,ST=CA,C=US")))</connection-  
url>
```

where `<host>` is the name of the system on which the Oracle database server is installed and the values for `SSL_SERVER_CERT_DN` are for the DN of the Oracle database server.

- iii. Add the following to the `system-properties` element:

```
<property name="oracle.net.ssl_server_dn_match" value="true" />
```

- iv. Save and close the file.
- v. Import the Oracle database server Certificate Authority's root certificate into the Java truststore of HP CSA.
 - i. Copy the Oracle database server Certificate Authority's root certificate to the HP CSA system. If necessary, contact your database administrator to obtain the Oracle database server certificate.
 - ii. On the HP CSA system, open a command prompt and run the `keytool` utility with the following options to create a local trusted certificate entry for the Oracle database server.

```
"<csa_jre>\bin\keytool" -importcert -trustcacerts  
-alias oracledb  
-keystore "<csa_jre>\lib\security\cacerts"  
-file <c:\certfile_name.crt> -storepass changeit
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed and `<c:\certfile_name.crt>` is the path and name of the Certificate Authority's root certificate for the Oracle database server. The file extension may be `.cer` rather than `.crt`. You can also use a different value for `-alias`.

- iii. At the prompt to import the certificate, type **Yes**.
- iv. Press **Enter**.
- v. Restart HP CSA.

See ["Restart HP CSA" on page 172](#) for detailed information on how to restart HP CSA.

2. If client authentication is enabled on the Oracle database server, do the following:

- a. Open `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml` in a text editor.
- b. Add the following to the `system-properties` element:

```
<property name="javax.net.ssl.keyStore" value="<certificate_key_file>" />  
<property name="javax.net.ssl.keyStorePassword" value="<certificate_key_  
file_password>" />  
<property name="javax.net.ssl.keyStoreType" value="<certificate_key_file_  
type>" />
```

where `<certificate_key_file>` is the same keystore file defined by the `certificate-key-file` attribute in the `ssl` element (for example, `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\keystore`), `<certificate_key_file_password>` is the password to the keystore file (for

example, changeit), and <certificate_key_file_type> is the keystore type (for example, JKS or PKCS12).

- c. Save and close the file.
- d. Use Oracle's wallet manager to import HP CSA's certificate into the Oracle database server's wallet as a trusted certificate.

Configure SSL for Microsoft SQL Server

If Microsoft SQL Server requires SSL, complete the following steps (if Microsoft SQL Server does not require SSL, you can omit these steps):

1. Open %CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml in a text editor.
2. Locate the connection-url entry for the Microsoft SQL Server datasource and change ssl=request to ssl=authenticate.

For example:

```
<connection-url>  
  jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=request  
</connection-url>
```

3. Save and close the file.
4. Import the Microsoft SQL Server Certificate Authority's root certificate into the Java truststore of HP CSA.
 - a. Copy the Microsoft SQL Server Certificate Authority's root certificate to the HP CSA system. If necessary, contact your database administrator to obtain the Microsoft SQL Server certificate.
 - b. On the HP CSA system, open a command prompt and run the keytool utility with the following options to create a local trusted certificate entry for the Microsoft SQL Server.

```
"<csa_jre>\bin\keytool" -importcert -trustcacerts  
-alias mssqldb -keystore "<csa_jre>\lib\security\cacerts"  
-file <c:\certfile_name.crt> -storepass changeit
```

where <csa_jre> is the directory in which the JRE that is used by HP CSA is installed and <c:\certfile_name.crt> is the path and name of the Certificate Authority's root certificate for the Microsoft SQL Server. The file extension may be .cer rather than .crt. You can also use a different value for -alias.

- c. At the prompt to import the certificate, type **Yes**.
- d. Press **Enter**.

- e. Restart HP CSA.

See ["Restart HP CSA" on page 172](#) for detailed information on how to restart HP CSA.

Configure SSL for HP Operations Orchestration Load Balancer

If the HP Operations Orchestration Load Balancer (HP OO LB) server requires SSL, follow these steps to import the HP OO LB server Certificate Authority's root certificate into the Java truststore of HP Cloud Service Automation. If necessary, contact your HP OO LB administrator to obtain the HP OO LB server certificate.

Note: If you have configured HP CSA to be compliant with FIPS 140-2, you must substitute the HP CSA SSL truststore (for example, `csa_ssl_truststore.p12`) for the Java truststore (`cacerts`) and substitute the HP CSA SSL truststore password for the Java truststore password (`changeit`) in the examples. See ["Create a New Keystore and Truststore for SSL Communication" on page 112](#) for more information about the HP CSA SSL truststore and password.

For each system running HP CSA, import the root certificate of HP OO LB's Certificate Authority into HP Cloud Service Automation (you must first export HP OO LB's certificate from HP OO LB's truststore and then import it into HP CSA's truststore).

1. Open HP OO LB in a Web browser (using https).
2. Export the certificate from the Web browser.

If you are using a Chrome Web browser, do the following:

- a. In the address bar, click the lock icon with the red X over it and select **certificate information**.
- b. In the Certificate dialog, do the following:
 - i. Select the **Details** tab.
 - ii. Click **Copy to File**.
 - iii. In the Certificate Export Wizard, do the following:
 - i. Click **Next**.
 - ii. Select **Base-64 encoded X.509 (.CER)** and click **Next**.
 - iii. Click **Browse** and select a directory in which to save the certificate.
 - o If you are running HP OO LB on the same system as HP CSA, select the `<csa_jre>\lib\security` directory (where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed), enter **paslb.cer** as the file name, and click **Save**.

- If you are running HP OO LB on a system that is not running HP CSA, select a directory in which to store the certificate file, enter **paslb.cer** as the file name, and click **Save**.

iv. Click **Next**.

v. Click **Finish**.

vi. Click **OK**.

iv. Click **OK**.

If you are using a Firefox Web browser, do the following:

- a. Click **Add Exception**.
- b. In the Add Security Exception dialog, click **View**.
- c. In the Certificate Viewer, do the following:
 - i. Select the **Details** tab.
 - ii. Click **Export**.
 - iii. Select a directory in which to save the certificate.
 - If you are running HP OO LB on the same system as HP CSA, select the `<csa_jre>\lib\security` directory (where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed), enter **paslb.cer** as the file name, select **X.509 Certificate (PEM)** as the Type, and click **Save**.
 - If you are running HP OO LB on a system that is not running HP CSA, select a directory in which to store the certificate file, enter **paslb.cer** as the file name, select **X.509 Certificate (PEM)** as the Type, and click **Save**.
 - iv. Click **Close**.
- d. Click **Cancel**.

If you are using a Windows IE Web browser, do the following:

- a. In the address bar, click **Certificate Error** and select **View certificates**.
- b. In the Certificate Export Wizard, do the following:
 - i. Select the **Details** tab.
 - ii. Click **Copy to File**.
 - iii. In the Certificate Export Wizard, do the following:
 - i. Click **Next**.
 - ii. Select **Base-64 encoded X.509 (.CER)** and click **Next**.

- iii. Click **Browse** and select a directory in which to save the certificate.
 - o If you are running HP OO LB on the same system as HP CSA, select the `<csa_jre>\lib\security` directory (where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed), enter **paslb.cer** as the file name, and click **Save**.
 - o If you are running HP OO LB on a system that is not running HP CSA, select a directory in which to store the certificate file, enter **paslb.cer** as the file name, and click **Save**.
 - iv. Click **Next**.
 - v. Click **Finish**.
 - vi. Click **OK**.
- iv. Click **OK**.
3. If you are running HP OO LB on a system that is not running HP CSA, copy the `paslb.cer` file to the `<csa_jre>\lib\security` directory on the system running HP CSA (where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed).
 4. On the system running HP CSA, open a command prompt and run the following commands:

```
cd "<csa_jre>\lib\security"  
  
..\..\bin\keytool -importcert -alias paslb -file paslb.cer  
-keystore cacerts -storepass changeit
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.
 5. When prompted to trust the certificate, enter `yes`.

Chapter 3

The Cloud Service Management Console


This chapter provides information for tasks needed to prepare and set up the Cloud Service Management Console in order to start using HP CSA. You must complete the required tasks before you can start to use the Cloud Service Management Console.

Tasks include:

- ["Configure the Provider Organization" below](#) (required)
- ["Add a Software License" on the next page](#) (required)
- ["Import HP Operations Orchestration Flows" on the next page](#) (required if you are using HP Operations Orchestration as the process engine)
- ["Customize the Cloud Service Management Console Dashboard" on page 49](#) (optional)
- ["Customize the Cloud Service Management Console Title" on page 60](#) (optional)
- ["Delete the Sample Consumer Organization" on page 60](#) (optional)
- ["Purge Service Subscriptions" on page 61](#) (optional)

Configure the Provider Organization

1. Launch the Cloud Service Management Console by typing the following URL in a supported Web browser: `https://<csahostname>:8444/csa` where `<csahostname>` is the fully-qualified domain name of the system on which the Cloud Service Management Console resides.
2. Log in to the Cloud Service Management Console as a CSA Administrator (refer to the *HP Cloud Service Automation Concepts Guide* and HP Cloud Service Management Console Help for more information about the CSA Administrator role).
3. Click the **Organizations** tile.

In the left-navigation frame, the provider organization icon () appears to the right of the provider organization that is automatically set up (CSA-Provider). You may modify the provider organization, as needed. However, you cannot delete it. There can be only one provider organization.

4. In the left-navigation frame, select the provider organization.
5. Configure the provider organization by selecting and entering information into each section of the organization's navigation frame (General Information, LDAP, Access Control, Email Notifications, and Catalogs). Refer to the *HP Cloud Service Management Console Help*, which is available in a printable PDF format, for more information about the fields in each

section. This document is available on the HP Software Support Web site at <http://h20230.www2.hp.com/selfsolve/manuals/> (this site requires that you register with HP Passport).

Add a Software License

HP CSA version 4.00 requires a software license. HP CSA licensing is based on the number of operating system instances (OSIs) being used in current, active subscriptions.

After initial installation of or upgrade to HP CSA version 4.00, when you log in to the Cloud Service Management Console, a temporary 90-day trial license is activated. Once the trial license expires, you are limited to 25 OSIs. If you created more than 25 OSIs during the trial period, you cannot create any additional OSIs. You can add more licenses at any time to increase your OSI capacity.

Before you can add a software license, you must request a license using the licensing portal. See "[Request Software Licenses](#)" on page 16 for more information.

To add a software license, log in to the Cloud Service Management Console as the CSA Administrator. From the **Options** menu, select **Licensing**. For more detailed information about adding a license, refer to the *HP Cloud Service Management Console Help*.

For information on how to view or delete a license, refer to the *HP Cloud Service Management Console Help*.

Import HP Operations Orchestration Flows

HP Operations Orchestration flows can be executed by HP Cloud Service Automation (HP CSA) lifecycle actions or used to submit delegated approvals. Before executing flows through HP CSA, they must be imported into HP CSA by running the process definition tool. The process definition tool creates an HP CSA process definition for every imported HP Operations Orchestration flow. The process definitions are associated with a process engine and that process engine corresponds to the HP Operations Orchestration system containing the imported flows.

To import flows, perform the following general steps, which are described in detail below:

- Install HP Cloud Service Automation flows in the HP Operations Orchestration Flow Library
- Create a database properties file
- Create an HP Operations Orchestration input file that defines the flows to be imported
- Run the process definition tool

Note: HP recommends that you generate sample database properties files and input file by doing the following:

1. Navigate to the `%CSA_HOME%\Tools\ProcessDefinitionTool` directory.
2. Run the following command:

```
"<csa_jre>\bin\java" -jar process-defn-tool.jar -g
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

Note: In this section, `%CSA_HOME%` is the directory in which HP Cloud Service Automation is installed.

Step 1: Install HP Cloud Service Automation flows in the HP Operations Orchestration Flow Library

Install HP Cloud Service Automation flows in the HP Operations Orchestration Flow Library (if you have not already done so when HP CSA was installed).

If you are running HP Operations Orchestration 9.x, to install HP Cloud Service Automation flows:

1. If HP Cloud Service Automation and HP Operations Orchestration are running on different systems, from the HP Cloud Service Automation system, copy the `%CSA_HOME%\CSAKit-4.0\00 Flow Content\CSA-3_20-ContentInstaller.jar` file to the HP Operations Orchestration system (where `%CSA_HOME%` is the directory in which HP Cloud Service Automation is installed).
2. On the system running HP Operations Orchestration, open a command prompt (Windows) or shell (Linux) and change to the directory where the `CSA-3_20-ContentInstaller.jar` is located.
3. Run the following command:

Windows

```
"%INCLUDE_HOME%\jre1.6\bin\java"  
-jar CSA-3_20-ContentInstaller.jar -centralPassword <OOAdminPassword>
```

Linux

```
$INCLUDE_HOME/jre1.6/bin/java -jar CSA-3_20-ContentInstaller.jar  
-centralPassword <OOAdminPassword>
```

If you are running HP Operations Orchestration 10.01, to install the HP CSA content pack:

1. If HP CSA and HP Operations Orchestration are running on different systems, copy the `%CSA_HOME%\CSAKit-4.0\00 Flow Content\oo10-csa-cp-4.0.0.jar` file from the HP Cloud Service Automation system to the HP Operations Orchestration system (where `%CSA_HOME%` is the directory in which HP Cloud Service Automation is installed).

2. Log in to HP Operations Orchestration Central.
3. Click the **Content Workspace** button to display the Content Workspace.
4. Under the **Flow Library** tab, click the **Deploy New Content** button.
5. In the Deploy New Content dialog, click the **Add** button.
6. Browse to the content packs on the system. Select the oo10-csa-cp-4.0.0 content pack and click **Open**.

Note: The base content packs must be deployed before you can deploy the HP CSA content pack. Refer to the *HP Cloud Service Automation Installation Guide* for more information about deploying the base content packs.

7. Click **Deploy**.

The deployment may take a few minutes and the cursor will show the "busy" icon.

Information about the success or failure of the deployment is displayed in the **Deployment Result** section.

8. Click **Close** to close the dialog.

Step 2: Create a Database Properties File

To create a database properties file, do the following:

1. Navigate to the %CSA_HOME%\Tools\ProcessDefinitionTool directory.
2. In the working directory, if you generated the sample database properties files as recommended in the note, make a copy of the appropriate sample database properties file, rename it to `db.properties`, and update the content (described below) as needed. Otherwise, create a file named `db.properties` with the following content:

Property Name	Description
db.type	The database used by HP Cloud Service Automation. Examples Oracle: <code>db.type=oracle</code> MS SQL: <code>db.type=mssql</code>

Property Name	Description
db.url	<p>The JDBC URL. When specifying an IPv6 address, it must be enclosed in square brackets (see examples below).</p> <p>Examples</p> <p>Oracle (SSL not enabled): db.url=jdbc:oracle:thin:@127.0.0.1:1521:XE</p> <p>Oracle (SSL not enabled, using an IPv6 address): db.url=jdbc:oracle:thin:@[f000:253c::9c10:b4b4]:1521:XE</p> <p>Oracle (SSL enabled, HP CSA does not check the database DN): db.url=jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL = TCPS)(HOST = <host>)(PORT = 1521))) (CONNECT_DATA =(SERVICE_NAME = ORCL))) where <host> is the name of the system on which the Oracle database server is installed.</p> <p>Oracle (SSL enabled, HP CSA checks the database DN): db.url=jdbc:oracle:thin:@(DESCRIPTION =(ADDRESS_LIST = (ADDRESS = (PROTOCOL = TCPS)(HOST = <host>)(PORT = 1521))) (CONNECT_DATA = (SERVICE_NAME = ORCL)) (SECURITY=(SSL_SERVER_CERT_DN="CN=abc,OU=dbserver,O=xyz,L=Sunnyvale,ST=CA,C=US")))) where <host> is the name of the system on which the Oracle database server is installed and the values for SSL_SERVER_CERT_DN are for the DN of the Oracle database server.</p> <p>MS SQL (SSL not enabled): db.url=jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=request</p> <p>MS SQL (SSL not enabled, using an IPv6 address): db.url=jdbc:jtds:sqlserver://[::1]:1433/example;ssl=request</p> <p>MS SQL (SSL enabled): db.url=jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=authenticate</p> <p>MS SQL (FIPS 140-2 compliant): db.url=jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=authenticate</p>

Property Name	Description
db.user	The user name of the database user you configured for HP Cloud Service Automation after installing the database.
db.password	<p>The encrypted password for the database user (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.</p> <p>While you may enter a password in clear text, after you run the tool, the clear text password is automatically replaced by an encrypted password.</p> <p>If you have configured HP CSA to be compliant with FIPS 140-2, encrypt this password after you have configured CSA to be compliant with FIPS 140-2 (that is, you should use the updated encryption tools to encrypt the password).</p> <p>Example</p> <pre>db.password=ENC(fc5e38d38a5703285441e7fe7010b0)</pre>

Property Name	Description
<p>csaTruststore</p>	<p>Required if certificates are imported into a truststore that is not the standard JVM truststore (<code>cacerts</code>) or if FIPS 140-2 compliance mode is enabled and the database requires SSL. The truststore that stores trusted Certificate Authority certificates, in which the root certificate of the database's Certificate Authority has been imported.</p> <p>Example (if certificates are imported into a truststore that is not the standard JVM truststore)</p> <pre>truststore="<csa_jre>/lib/security/<truststore>"</pre> <p>where <code><csa_jre></code> is the directory in which the JRE that is used by HP CSA is installed.</p> <p>If you have configured HP CSA to be compliant with FIPS 140-2 and the database requires SSL, use the name of the HP CSA server truststore.</p> <p>Example (this example uses the same example name from the <i>Create an HP CSA Encryption Keystore</i> section):</p> <pre>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\csa_server_truststore.p12</pre>
<p>csaTruststorePassword</p>	<p>Required if certificates are imported into a truststore that is not the standard JVM truststore (<code>cacerts</code>) or if FIPS 140-2 compliance mode is enabled and the database requires SSL. The encrypted password of the truststore (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by <code>ENC</code> without any separating spaces and is enclosed in parentheses.</p> <p>Example</p> <pre>truststorePassword=ENC(1fABFLAdgy2kAvSaDq9MSI9s=)</pre> <p>If you have configured HP CSA to be compliant with FIPS 140-2 and the database requires SSL, encrypt this password after you have configured CSA to be compliant with FIPS 140-2 (that is, you should use the updated encryption tools to encrypt the password). This is referred to as the <code><HP CSA server truststore password></code> in the <i>Create an HP CSA Encryption Keystore</i> section.</p>

Example db.properties content

Oracle (SSL not enabled)

```
db.type=oracle  
db.url=jdbc:oracle:thin:@127.0.0.1:1521:XE  
db.user=csa  
db.password=ENC(fc5e38d38a5703285441e7fe7010b0)
```

MS SQL (SSL not enabled)

```
db.type=mssql  
db.url=jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=request  
db.user=csa  
db.password=ENC(fc5e38d38a5703285441e7fe7010b0)
```

MS SQL (SSL enabled)

```
db.type=mssql  
db.url=jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=authenticate  
db.user=csa  
db.password=ENC(fc5e38d38a5703285441e7fe7010b0)
```

If you have configured HP CSA to be compliant with FIPS 140-2, add the following content to `db.properties`:

Property Name	Description
<code>useExternalProvider</code>	<p>Required if enabling FIPS 140-2 compliance mode. To enable, set this property to true. To disable, set this property to false or comment it out.</p> <p>When enabled, HP CSA uses the RSA BSAFE libraries to encrypt and decrypt passwords. If a password was encrypted using different libraries (for example, if the password was encrypted before this property is enabled), the resulting decrypted password will not be valid.</p> <p>If you cannot connect to the database after you have configured HP CSA for FIPS 140-2 compliance, try re-encrypting the database password in the database properties file.</p>
<code>securityProviderName</code>	<p>Required if FIPS 140-2 compliance mode is enabled. The name of the FIPS 140-2 compliant provider. By default, HP CSA uses the RSA BSAFE provider and this property should be set to <code>JsafeJCE</code>.</p>

Property Name	Description
keystore	<p>Required if FIPS 140-2 compliance mode is enabled. The absolute path to and file name of the HP CSA encryption keystore. This is the keystore that supports PKCS #12 and stores the key used by HP CSA to encrypt and decrypt data in HP CSA.</p> <p>Example (this example uses the same example name from "Create an HP CSA Encryption Keystore" on page 109):</p> <pre>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\csa_encryption_keystore.p12</pre>
keyAlias	<p>Required if FIPS 140-2 compliance mode is enabled. The alias used to identify the HP CSA encryption key in the HP CSA encryption keystore.</p> <p>Example (this example uses the same example name from "Create an HP CSA Encryption Keystore" on page 109):</p> <pre>csa_encryption_key</pre>
keystorePasswordFile	<p>Required if FIPS 140-2 compliance mode is enabled. The absolute path to and file name of the HP CSA encryption keystore password. This is a temporary file that stores the HP CSA encryption keystore password in clear text. This file is required to start the HP CSA service and is automatically deleted when the service is started.</p> <p>The password file must contain only the following content:</p> <pre>keystorePassword=<HP CSA encryption keystore password></pre> <p>where <HP CSA encryption keystore password> is the HP CSA encryption keystore password in clear text.</p>
encryptedKeyFile	<p>Required if FIPS 140-2 compliance mode is enabled. The location of the HP CSA encrypted symmetric key.</p> <p>Example (this example uses the same example name from "Create an HP CSA Encryption Keystore" on page 109):</p> <pre>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\key.dat</pre>

Property Name	Description
keySize	<p>Optional. The key size used for HP CSA encryption. By default, the key size is 128. If you manually enter a different key size when encrypting a password, uncomment this property and configure the value to the key size used to encrypt the passwords.</p> <div style="border: 1px solid gray; padding: 5px;"><p>Note: All passwords must be encrypted using the same key size.</p><p>By default, the password encryption utility encrypts all passwords using a key size of 128 (even if you do not specify a key size when running the utility).</p></div>

Example db.properties content (when HP CSA is configured to be compliant with FIPS 140-2)

```
db.type=mssql
db.url=jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=authenticate
db.user=csa
db.password=ENC(fc5e38d38a5703285441e7fe7010b0)
csaTruststore="%CSA_HOME%\jboss-as-7.1.1.Final\standalone\
  configuration\csa_server_truststore.p12"
csaTruststorePassword=ENC(1fABFLAdgy2kAvSaDq9MSI9s=)
useExternalProvider=true
securityProviderName=JsafelJCE
keystore=%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\
  csa_encryption_keystore.p12
keyAlias=csa_encryption_key
keystorePasswordFile=C:\password.txt
encryptedKeyFile=%CSA_HOME%\jboss-as-7.1.1.Final\standalone\
  configuration\key.dat
```

Step 3: Create an HP Operations Orchestration Input File

To create an HP Operations Orchestration input file, do the following:

In the working directory (%CSA_HOME%\Tools\ProcessDefinitionTool), if you generated the sample HP Operations Orchestration input file, make a copy of the HPO0InputSample.xml file, rename it to HPO0InfoInput.xml, and update the attributes and values, described below, as needed. The HPO0InfoInput.xml file is formatted as follows (attributes and values are described below):

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<ooengines>
  <ooengine name="<CSA_process_engine>"
```

```

uri="https://<OO_server>:8443/PAS/services/WSCentralService"
username="<OO_user>" password="<encrypted_password>"
truststore="<location_of_truststore>"
truststorePassword="<truststore_encrypted_password>"
[accessPointType="URL" | "EXTERNAL_APPROVAL" |
"RESOURCE_POOL_SYNC"]
[update="true" | "false"] [delete="true" | "false"] >
  <folder path="<path_name>" [flow="true" | "false"]
    [recursive="true" | "false"] [regex="<regular_expression>"]
    [update="true" | "false"] />
</ooengine>
</ooengines>
    
```

where attributes define the flows that are imported and are described below:

Attributes of ooengine

Attribute	Description
name	<p>Required. The name given to the HP CSA process engine that contains or will contain the imported flows. If the name does not exist, the process engine with the specified name is created in HP CSA. If the name exists, the contents of the existing process engine are updated based on the value of the folder's update attribute.</p> <p>Example name="oo-instance-1"</p>
uri	<p>Required. The URI of the HP Operations Orchestration Central server.</p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;"> <p>Note: Use only forward slashes (/) as your path separators.</p> </div> <p>Example uri="https://127.0.0.1:8443/PAS/services/WSCentralService"</p>
username	<p>Required. The name of a user who has access to the HP Operations Orchestration flows to be imported</p> <p>Example username="csaouser"</p>

Attributes of ooengine, continued

Attribute	Description
password	<p>Required. The encrypted password of the HP Operations Orchestration user (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.</p> <p>While you may enter a password in clear text, after you run the tool, the clear text password is automatically replaced by an encrypted password.</p> <p>Example</p> <pre>password="ENC(a3pGFPJQFwwXwtBBdpYktg==)"</pre> <p>If you have configured HP CSA to be FIPS 140-2 compliant, encrypt this password after you have configured CSA to be FIPS 140-2 compliant (that is, you should use the updated encryption tools to encrypt the password).</p>
truststore	<p>Required. The truststore that stores trusted Certificate Authority certificates, in which the root certificate of HP Operations Orchestration's Certificate Authority has been imported. The example shows the location of HP CSA's truststore (in which the root certificate of HP Operations Orchestration's Certificate Authority should have already been imported).</p> <p>Example</p> <pre>truststore="<csa_jre>/lib/security/cacerts"</pre> <p>where <code><csa_jre></code> is the directory in which the JRE that is used by HP CSA is installed.</p> <p>If you have configured HP CSA to be compliant with FIPS 140-2, use the name of the HP CSA server truststore.</p> <p>Example (this example uses the same example name from the <i>Create an HP CSA Encryption Keystore</i> section):</p> <pre>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\csa_server_truststore.p12</pre>

Attributes of ooengine, continued

Attribute	Description
truststorePassword	<p>Required. The encrypted password of the truststore (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.</p> <p>Example</p> <pre>truststorePassword="ENC(1fABFLXBEdgy2kAvSaDq9M1Pd3/aSI9s=)"</pre> <p>If you have configured HP CSA to be FIPS 140-2 compliant, encrypt this password after you have configured CSA to be FIPS 140-2 compliant (that is, you should use the updated encryption tools to encrypt the password). This is referred to as the <i><HP CSA server truststore password></i> in the <i>Create an HP CSA Encryption Keystore</i> section.</p>

Attributes of ooengine, continued

Attribute	Description
accessPointType	<p>Optional. By default (if not specified), this value is URL. Defines the flows that are contained in the process engine. Valid values include URL, EXTERNAL_APPROVAL, or RESOURCE_POOL_SYNC.</p> <p>The accessPointType cannot be changed after a process engine is created.</p> <p>URL</p> <p>When set to URL, this process engine contains flows that will be selectable in the Cloud Service Management Console when creating lifecycle actions for a resource offering or service design.</p> <p>Required flow inputs: none</p> <p>EXTERNAL_APPROVAL</p> <p>When set to EXTERNAL_APPROVAL, this process engine contains flows that will be selectable when configuring a delegating approval policy for a service catalog in the Cloud Service Management Console.</p> <p>Required flow inputs:</p> <ul style="list-style-type: none"> • APPROVAL_CONTEXT_ID - The ID of the service request for which the approval is being processed. • APPROVAL_PROCESS_ID - The ID of the approval process being processed by the external approval system. • CATALOG_ID - The ID of the catalog from which the subscription was ordered. • ORGANIZATION_ID - The organization ID of the subscriber's organization. • USER_CONTEXT_ID - The ID of the subscriber who submitted the service request. <p>RESOURCE_POOL_SYNC</p> <p>When set to RESOURCE_POOL_SYNC, this process engine contains flows that will be selectable when configuring a resource synchronization action on a resource pool in the Cloud Service Management Console.</p> <p>Required flow inputs:</p> <ul style="list-style-type: none"> • CSA_CONTEXT_ID - The ID of the resource pool on which resource synchronization is being requested.

Attributes of ooengine, continued

Attribute	Description
	<ul style="list-style-type: none"> • CSA_PROCESS_ID - The process instance ID used by the flow to notify HP CSA of the completion status of the action (success or fail). <p>Example</p> <pre>accessPointType="EXTERNAL_APPROVAL "</pre>
update	<p>Optional. By default (if not specified), this value is false. When set to true, the HP CSA process engine's uri, username, or password are updated. That is, this information can be updated for a process engine if, for example, the imported flows have been moved to a different HP Operations Orchestration instance or the username and password of the HP Operations Orchestration instance have been changed.</p> <p>Example</p> <pre>update="true"</pre>
delete	<p>Optional. By default (if not specified), this value is false. When set to true, the HP CSA process engine and all associated process definitions are deleted. However, if any associated process definition is used in a resource offering or service design, the process engine (and all associated process definitions) cannot be and are not deleted.</p> <p>Any process engine that contains a process definition that is referenced by a retired service instance cannot be deleted. Even if the resource offerings and service designs in that process definition (referenced by a retired service instance) are deleted, the process engine and its associated process definitions cannot be deleted.</p> <p>Example</p> <pre>delete="true"</pre>

Attributes of folder

Attribute	Description
path	<p>Required. The absolute path to a folder containing flows or the absolute path to a single flow on the system running HP Operations Orchestration.</p> <p>Note: Use only forward slashes (/) as your path separators.</p> <p>Example</p> <pre>path="/Library/ITIL/Change Management/stop_request"</pre> <p>Note: The absolute path and name of a flow among one or more HP Operations Orchestration instances must be unique in order to import it into HP Cloud Service Automation. If the flow is not unique, it is not imported.</p> <p>Once you import a flow, you cannot import it into a different HP Cloud Service Automation process engine (using the same absolute path and name).</p> <p>If you want to import flows with the same names from different HP Operations Orchestration instances, the flows on each HP Operations Orchestration instance must be stored in different folders (the absolute path names must be different).</p> <p>If two HP Operations Orchestration instances have the same flows stored in the same folders (same absolute path) and you customize one of the flows on one of the instances, you should rename the customized flow to a unique name in order to import it (or you could rename the unchanged flow). The flow path and name between the customized and uncustomized flow must be unique.</p>
flow	<p>Optional. By default (if not specified), this value is false. When set to true, the name specified in the path attribute is the absolute path and filename of a single HP Operations Orchestration flow to import.</p> <p>Valid values: true, false</p> <p>Example</p> <pre>flow="true"</pre>
recursive	<p>Optional. By default (if not specified), this value is false. When set to true, flows are imported from the specified path and its subdirectories. When set to false, only flows located directly in the specified path are imported.</p> <p>Valid values: true, false</p> <p>Example</p> <pre>recursive="true"</pre>

Attributes of folder, continued

Attribute	Description
regex	<p>Optional. Specify a regular expression, used to find HP Operations Orchestration flows to import. If the regular expression matches the filename or a string in the filename, the flow is imported.</p> <p>Example</p> <p>Find all flows with "lifecycle" in their names:</p> <pre>regex="lifecycle"</pre>
update	<p>Optional. By default (if not specified), this value is false. When set to false, if the specified flow has already been imported, it is not imported again.</p> <p>When set to true, if the specified flow has already been imported but the flow has been updated (on the HP Operations Orchestration system), the updated flow is imported to HP Cloud Service Automation (the process definition on the HP Cloud Service Automation system is updated).</p> <p>When set to true, if a specified flow that has already been imported no longer exists on the HP Operations Orchestration system, it is removed from HP Cloud Service Automation. However, if the flow in HP Cloud Service Automation is linked to an action, it is not removed.</p> <p>When set to true and the <code>regex</code> attribute is used, only specified flows are updated. If a specified flow that has already been imported no longer exists on the HP Operations Orchestration system, it is removed from HP Cloud Service Automation. However, if the flow in HP Cloud Service Automation is linked to an action, it is not removed.</p> <p>Valid values: true, false</p> <p>Example</p> <pre>update="true"</pre>
delete	<p>Optional. By default (if not specified), this value is false. When set to true, the flows in the specified HP Operations Orchestration folder that are not associated with an HP CSA process definition are deleted. If a flow in the HP Operations Orchestration folder is associated with an HP CSA process definition, that flow is not deleted.</p> <p>Valid values: true, false</p> <p>Example</p> <pre>delete="true"</pre>

Examples of folder attributes and `HPO0InfoInput.xml` content are located at the end of the section.

Step 4: Run the Process Definition Tool

To run the process definition tool, in the working directory (%CSA_HOME%\Tools\ProcessDefinitionTool), run the following command:

```
"<csa_jre>\bin\java" -jar process-defn-tool.jar -d db.properties  
-i HPO0InfoInput.xml
```

where *<csa_jre>* is the directory in which the JRE that is used by HP CSA is installed.

If SSL is enabled between HP CSA and the Oracle database, additional command line options must be specified based on your configuration:

```
"<csa_jre>\bin\java" [-Doracle.net.ssl_server_dn_match=true]  
[-Djavax.net.ssl.keyStore="<certificate_key_file>"  
-Djavax.net.ssl.keyStorePassword=<certificate_key_file_password>  
-Djavax.net.ssl.keyStoreType=<certificate_key_file_type>]  
-jar process-defn-tool.jar -d db.properties  
-i HPO0InfoInput.xml
```

The `-Doracle.net.ssl_server_dn_match=true` option is specified if SSL is enabled for the Oracle database server and HP CSA has been configured to check the database DN.

The `-Djavax.net.ssl.keyStore="<certificate_key_file>"`, `-Djavax.net.ssl.keyStorePassword=<certificate_key_file_password>`, and `-Djavax.net.ssl.keyStoreType=<certificate_key_file_type>` options are specified if SSL and client authentication are enabled for the Oracle database server where *<certificate_key_file>* is the same keystore file defined by the `certificate-key-file` attribute in the `ssl` element of the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml` file (for example, `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\keystore`), *<certificate_key_file_password>* is the password to the keystore file (for example, `changeit`), and *<certificate_key_file_type>* is the keystore type (for example, `JKS` or `PKCS12`).

After the process definition tool is run, the total number of imported flows is displayed (depending on the number of flows imported, this may take some time to complete). If more than one HP Operations Orchestration system is specified in the `HPO0InfoInput.xml` file, flows are imported sequentially by system (that is, the flows from the first HP Operations Orchestration system listed are imported; once these flows have been imported/updated in HP Cloud Service Automation, the flows from the next HP Operations Orchestration system are imported).

Review the log file, `process-defn-tool.log`, for any error messages.

The following options are available in the process definition tool:

Option	Description
-d <filename>	Required. The name and location of the database properties file. Example -d db.properties
-i <filename>	Required. The name and location of the HP Operations Orchestration input file. Example -i HP00InfoInput.xml
-g	Optional. Generate example files: MsSqlInputSample.properties, OracleInputSample.properties, PostgreSQLInputSample.properties, ProcessEngineInputSample.xml, and HP00InputSample.xml. The sample HP00InputSample.xml file can be used to import all the flows whose associated process definitions are referenced in the out-of-the-box resource offerings and service designs provided with HP Cloud Service Automation.
-h	Optional. List the options available in this tool.
-l	Optional. The location of the JDBC driver(s) to be used by this tool. By default, the tool looks for the JDBC driver(s) in the working directory. If you are not running the tool from %CSA_HOME%\Tools\ProcessDefinitionTool, specify the name and location of the JDBC driver(s) to be used. For a list of supported JDBC driver versions, refer to the <i>HP Cloud Service Automation System and Software Support Matrix</i> , available on the HP Software Support Web site at http://h20230.www2.hp.com/selfsolve/manuals/ (this site requires that you register with HP Passport). Multiple drivers may be listed and should be delimited by a space. The absolute path name or relative path name (from the working directory) should be specified. If the path name contains a space, the path and file name should be enclosed in quotation marks. For example: -l "C:\Program Files\jdbc\ojdbc6.jar"
-v <filename>	Optional. Validate the HP Operations Orchestration input file. Example -v HP00InfoInput.xml

After you have imported HP Cloud Service Automation flows into HP CSA, you can import the sample service designs provided with HP CSA (some of these imported flows are used by the sample service designs). For more information about the sample service designs provided with HP CSA, refer to the *HP Cloud Service Automation Service Design Guide*.

Examples of Folder Attributes Used to Import Flows

The following examples show how to set folder attributes to import flows from your HP Operations Orchestration instance.

Import a specific flow

Format

```
<folder path="<directory_name>" flow="true" />
```

Example

Import the flow named stop_request from the Library/ITIL/Change Management directory

```
<folder path="/Library/ITIL/Change Management/stop_request" flow="true" />
```

Import a specific flow, re-import it if it has been updated, or delete it if it no longer exists

Format

```
<folder path="<directory_name>" flow="true" update="true" />
```

Example

Import the flow named stop_request from the Library/ITIL/Change Management directory

```
<folder path="/Library/ITIL/Change Management/stop_request" flow="true" update="true" />
```

Import all flows in the specified directory

Format

```
<folder path="<directory_name>" />
```

Example

Import all flows in the directory Library/ITIL/Change Management

```
<folder path="/Library/ITIL/Change Management" />
```

Import all flows in the specified directory and all subdirectories

Format

```
<folder path="<directory_name>" recursive="true" />
```

Example

Import all flows at and below the directory Library/ITIL/Change Management

```
<folder path="/Library/ITIL/Change Management" recursive="true" />
```

Import all flows whose name matches a regular expression and are in the specified directory

Format

```
<folder path="<directory_name>" regex="regular_expression" />
```

Example

Import all flows with "lifecycle" in their names in the directory Library/ITIL/Change Management

```
<folder path="/Library/ITIL/Change Management" regex="lifecycle" />
```

Import all flows whose name matches a regular expression and are in the specified directory and all subdirectories

Format

```
<folder path="<directory_name>" regex="regular_expression"  
recursive="true" />
```

Example

Import all flows with "lifecycle" in their names at and below the directory Library/ITIL/Change Management

```
<folder path="/Library/ITIL/Change Management" regex="lifecycle"  
recursive="true" />
```

Examples of *HP00InfoInput.xml* Content

In the following examples, an HP Operations Orchestration instance contains the following flows:

- Flows invoked by lifecycle actions: start_job, stop_job, cancel_job, start_request, stop_request, and cancel_request located in /Library/ITIL/Change Management
- Flows used to submit delegated approvals: job_needs_approval and request_needs_approval located in /Library/ITIL/Change Management/Delegated Approvals
- Flows used for resource synchronization: sync_resources located in /Library/ITIL/Change Management/Resource Pool Sync

Import the flow named stop_request

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<ooengines>
  <ooengine name="oo-instance-1"
    uri="https://127.0.0.1:8443/PAS/services/WSCentralService"
    username="admin" password="ENC(a3pGFPJQFwwXwtBBdpYktg==)"
    truststore="C:/Program Files/Hewlett-Packard/CSA/jre/lib/
    security/cacerts"
    truststorePassword="ENC(sh582cWF1HCfA1DB6JGgRKukv7HR3Wpd)" >
    <folder path="/Library/ITIL/Change Management/stop_request"
      flow="true" />
  </ooengine>
</ooengines>
```

Import the flows named stop_request and start_job

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<ooengines>
  <ooengine name="oo-instance-1"
    uri="https://127.0.0.1:8443/PAS/services/WSCentralService"
    username="admin" password="ENC(a3pGFPJQFwwXwtBBdpYktg==)"
    truststore="C:/Program Files/Hewlett-Packard/CSA/jre/lib/
    security/cacerts"
    truststorePassword="ENC(sh582cWF1HCfA1DB6JGgRKukv7HR3Wpd)">
    <folder path="/Library/ITIL/Change Management/stop_request"
      flow="true" />
    <folder path="/Library/ITIL/Change Management/start_job"
      flow="true" />
  </ooengine>
</ooengines>
```

Import the flows named `stop_request` and `request_needs_approval`

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<ooengines>
  <ooengine name="oo-instance-1"
    uri="https://127.0.0.1:8443/PAS/services/WSCentralService"
    username="admin" password="ENC(a3pGFPJQFwwXwtBBdpYktg==)"
    truststore="C:/Program Files/Hewlett-Packard/CSA/jre/lib/
    security/cacerts"
    truststorePassword="ENC(sh582cWF1HCfA1DB6JGgRKukv7HR3Wpd)">
    <folder path="/Library/ITIL/Change Management/stop_request"
      flow="true" />
  </ooengine>
  <ooengine name="oo-instance-2"
    uri="https://127.0.0.1:8443/PAS/services/WSCentralService"
    username="admin" password="ENC(a3pGFPJQFwwXwtBBdpYktg==)"
    truststore="C:/Program Files/Hewlett-Packard/CSA/jre/lib/
    security/cacerts"
    truststorePassword="ENC(sh582cWF1HCfA1DB6JGgRKukv7HR3Wpd)"
    accessPointType="EXTERNAL_APPROVAL" >
    <folder path="/Library/ITIL/Change Management/
    Delegated Approvals/request_needs_approval" flow="true" />
  </ooengine>
</ooengines>
```

Import all flows (invoked by lifecycle actions) with "st" in their name

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<ooengines>
  <ooengine name="oo-instance-1"
    uri="https://127.0.0.1:8443/PAS/services/WSCentralService"
    username="admin" password="ENC(a3pGFPJQFwwXwtBBdpYktg==)"
    truststore="C:/Program Files/Hewlett-Packard/CSA/jre/lib/
    security/cacerts"
    truststorePassword="ENC(sh582cWF1HCfA1DB6JGgRKukv7HR3Wpd)">
    <folder path="/Library/ITIL/Change Management" regex="st" />
  </ooengine>
</ooengines>
```

In this example, the following flows are imported: `start_job`, `stop_job`, `start_request`, `stop_request`, and `cancel_request`).

Import all flows

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<ooengines>
  <ooengine name="oo-instance-1"
    uri="https://127.0.0.1:8443/PAS/services/WSCentralService"
    username="admin" password="ENC(a3pGFPJQFwwXwtBBdpYktg==)"
    truststore="C:/Program Files/Hewlett-Packard/CSA/jre/lib/
    security/cacerts"
    truststorePassword="ENC(sh582cWF1HCfA1DB6JGgRKukv7HR3Wpd)">
    <folder path="/Library/ITIL/Change Management" />
  </ooengine>
  <ooengine name="oo-instance-2"
    uri="https://127.0.0.1:8443/PAS/services/WSCentralService"
    username="admin" password="ENC(a3pGFPJQFwwXwtBBdpYktg==)"
    truststore="C:/Program Files/Hewlett-Packard/CSA/jre/lib/
    security/cacerts"
    truststorePassword="ENC(sh582cWF1HCfA1DB6JGgRKukv7HR3Wpd)"
    accessPointType="EXTERNAL_APPROVAL" >
    <folder path="/Library/ITIL/Change Management/
    Delegated Approvals" />
  </ooengine>
  <ooengine name="oo-instance-3"
    uri="https://127.0.0.1:8443/PAS/services/WSCentralService"
    username="admin" password="ENC(a3pGFPJQFwwXwtBBdpYktg==)"
    truststore="C:/Program Files/Hewlett-Packard/CSA/jre/lib/
    security/cacerts"
    truststorePassword="ENC(sh582cWF1HCfA1DB6JGgRKukv7HR3Wpd)"
    accessPointType="RESOURCE_POOL_SYNC" >
    <folder path="/Library/ITIL/Change Management/
    Resource Pool Sync" />
  </ooengine>
</ooengines>
```

Customize the Cloud Service Management Console Dashboard

The Cloud Service Management Console dashboard is made up of predefined tiles that launch predefined pages. You can customize the dashboard by using the predefined custom tile, creating new tiles, modifying existing tiles, adding secondary dashboards, or disabling existing tiles.

Topics in this section include:

- ["Using the Predefined Custom Tile" on the facing page](#)
- ["Creating a Dashboard Tile" on page 51](#)

- ["Adding a Secondary Dashboard" on page 55](#)
- ["Modifying a Dashboard Tile" on page 57](#)
- ["Disabling a Dashboard Tile" on page 58](#)

The Cloud Service Management Console dashboard can be customized by a user who has access to the system on which HP CSA is running and permissions to modify and save files in the HP CSA installation directory.

A disabled predefined custom tile definition, disabled sample tile definitions, and a disabled sample secondary dashboard definition are provided in HP CSA as examples of how to create a tile and secondary dashboard. Examples of how to use the sample tile definitions and secondary dashboard definition are provided in this section.

Using the Predefined Custom Tile

By default, HP CSA contains sample predefined tiles that are disabled. One predefined tile, whose `id` attribute is set to `custom`, is a predefined tile that can be used when you are upgrading from a previous version of HP CSA.

The predefined custom tile allows for an easy migration of customized content from a previous version of HP CSA that contained a customized tile (for information on how to upgrade a Cloud Service Management Console custom tile, refer to the *HP Cloud Service Automation Upgrade Guide*).

If you are not upgrading from an older version of HP CSA, this tile can be used to create a custom tile. Information on how to create a custom tile by modifying the predefined custom tile is included in this section.

To use the predefined custom tile to create a new custom tile, on the system running HP CSA, do the following:

1. Create a folder called `custom-content` in the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war` directory (where `%CSA_HOME%` is the directory in which HP Cloud Service Automation is installed). Match the spelling and capitalization of the `custom-content` folder name exactly.
2. Create a Java server page named `index.jsp` in the `custom-content` directory. The `index.jsp` file contains the content that is displayed in an embedded page launched by the custom tile.
3. Edit the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\dashboard\config.json` file:
 - a. Locate the tile definition whose `id` and `name` are set to `custom`.
 - b. Set the `enabled` attribute to **true**.
 - c. Save and exit the file.

4. Log in to the Cloud Service Management Console to view the tile. If you are already logged in, log out and log back in. Click the custom tile to launch the `index.jsp` page.

By default, the name of the tile is "Custom" and the description that appears in the tile is "Custom integration content." To modify this content, refer to ["Creating a Dashboard Tile" below](#) for more information.

Creating a Dashboard Tile

The Cloud Service Management Console dashboard is made up of predefined tiles that launch predefined pages. You can customize the dashboard by creating tiles in the dashboard that launch custom pages.

Tiles are defined in a configuration file and the tile definitions determine what is displayed in the Cloud Service Management Console dashboard. The default dashboard configuration file defines a primary dashboard that consists of enabled tiles and disabled tiles, a secondary dashboard (launched from the Designs tile), and a disabled sample secondary dashboard. Information about tile attributes and values defined in the configuration file is included in the steps below. See ["Adding a Secondary Dashboard" on page 55](#) for more information about how to add a secondary dashboard.

To create a Cloud Service Management Console dashboard tile, do the following:

1. Make a backup of the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\dashboard\config.json` dashboard configuration file (where `%CSA_HOME%` is the directory in which HP Cloud Service Automation is installed).
2. Edit the `config.json` dashboard configuration file.

In the configuration file, the tiles defined for a dashboard are configured sequentially. That is, the first tile definition configured in a dashboard definition is the first tile displayed in the dashboard. The second tile definition is the second tile displayed. For example, in the default dashboard configuration file, the first tile definition configured in the primary dashboard is the Organizations tile. The Organizations tile is the first tile displayed in the Cloud Service Management Console dashboard. The second tile definition is the Resources tile and it is the second tile displayed in the Cloud Service Management Console dashboard.

Determine where you want the tile to appear in the dashboard and find the location in the configuration file. For example, if you want a tile to appear between the Organizations and Resources tiles in the dashboard, find the location between the Organizations and Resources tile definitions. If you want the tile to appear as the last tile, find the end of the last enabled tile definition.

- a. Copy the sample tile definition, whose `id` attribute is set to `blanktile`, and place it in the selected location. The following is an example tile definition (multiple tile definitions are separated by a comma):

```
{  
  "id": "<tile_id>",  
  "name": "<tile_name>",
```

```

"description": "<tile_description>",
"enabled": <true_or_false>,
"style": "<tile_style>",
"target": "<tile_target>",
"data": "<tile_data>",
"helptopic": "<tile_helptopic>",
"roles": [<role_1>, "<role_2>", ... , "<role_n>"]
}

```

- b. Update the attribute values in the tile definition as described in the table.

Attribute	Description
id	A unique identifier of the tile in this dashboard among all tiles defined for this dashboard.
name	<p>The name of the attribute in the <code>messages.properties</code> or <code>messages_<locale>.properties</code> file that defines the name of the tile that is displayed on the dashboard (where <code><locale></code> identifies the language to which the title has been translated, for example, <code>en</code> for English or <code>ja</code> for Japanese).</p> <p>The file may appear in the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\custom</code> or <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\dashboard\messages\common</code> directory. If the file exists in both directories, the value defined in <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\custom</code> takes precedence.</p>
description	<p>The name of the attribute in the <code>messages.properties</code> or <code>messages_<locale>.properties</code> file that defines the description of the tile that is displayed on the dashboard (where <code><locale></code> identifies the language to which the title has been translated, for example, <code>en</code> for English or <code>ja</code> for Japanese).</p> <p>The file may appear in the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\custom</code> or <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\dashboard\messages\common</code> directory. If the file exists in both directories, the value defined in <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\custom</code> takes precedence.</p>
enabled	Enable or disable the tile in the dashboard. If set to true , the tile is displayed in the dashboard. If set to false , the tile is not displayed in the dashboard.

Attribute	Description
style	<p>The name of the attribute in the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\dashboard\css\base.css file that defines the color of the tile's header that is displayed on the dashboard.</p> <p>If you are creating an assistance tile (that is, you set target to assistance), you must set this attribute to a pre-defined style named assistance.</p>
target	<p>The type of page launched when the tile is selected. Values include:</p> <ul style="list-style-type: none"> ○ iframe - An iframe or page is launched within the same dashboard or page. ○ page - A new page is launched outside of the dashboard or page. ○ dashboard - A sub-dashboard is launched within the same dashboard or page. ○ assistance - If the data attribute is defined, a new page is launched outside of the dashboard or page. If the data attribute is not defined, no page is launched and the tile simply contains content defined by the description attribute. The style attribute must be set to assistance.
data	<p>What is launched, based on the type of target.</p> <p>If iframe or page is the type of target selected, enter a URL or relative path (relative to the location of this file, %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\) and filename of a Java server page to display. For example, enter http://www.hp.com or /csa/administration/index.jsp.</p> <p>If dashboard is the type of target selected, enter the unique dashboard id attribute of the dashboard to display. For example, the Designs tile of the main dashboard launches a sub- or secondary dashboard. The id of the secondary dashboard is designs therefore you would set the value of this attribute to designs.</p> <p>If assistance is the type of target selected and if you enter a value for this attribute, a Learn More link is displayed in the assistance tile. Clicking the Learn More link launches a page with the content defined by this attribute. Enter a URL or relative path (relative to the location of this file, %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\) and filename of a Java server page to display. For example, enter http://www.hp.com or /csa/administration/index.jsp.</p>

Attribute	Description
helptopic	If the type of <code>target</code> selected is iframe , this is the name of the help topic that is displayed when the <code>Assistance</code> icon on the page is selected. If the type of <code>target</code> selected is page , or dashboard , or assistance , this attribute is ignored.
roles	<p>The role required by the user in order for the tile to display in the dashboard. One or more roles may be entered. However, only one role must match the user role in order for the user to see the tile. Roles must be enclosed in quotation marks and, if more than one role is entered, separated by a comma (for example, "CSA_ADMIN", "RESOURCE_SUPPLY_MANAGER"). If no roles are specified, the tile can be seen by all users.</p> <p>Values include:</p> <ul style="list-style-type: none"> ○ CONSUMER_SERVICE_ADMINISTRATOR - The Consumer Service Administrator configures and manages consumer and provider organizations. ○ CSA_ADMIN - The Administrator has access to all functionality in the Cloud Service Management Console. ○ RESOURCE_SUPPLY_MANAGER - The Resource Supply Manager creates and manages cloud resources, such as providers and resource offerings. ○ SERVICE_BUSINESS_MANAGER - The Service Business Manager creates and manages the service offerings and service catalogs. ○ SERVICE_DESIGNER - The Service Designer designs, implements, and maintains service designs (also referred to as blueprints), component palettes, component types, and component templates. ○ SERVICE_OPERATIONS_MANAGER - The Service Operations Manager views and manages subscriptions and service instances. <p>See the "Role Descriptions" help topic in the Cloud Service Management Console for more information about these roles (navigate to Organizations > Access Control > Role Descriptions in the online help).</p>

- c. Save and exit the file.
3. Log in to the Cloud Service Management Console to view the tile. If you are already logged in, log out and log back in.

Adding a Secondary Dashboard

Tiles in the Cloud Service Management Console dashboard can be configured to launch a secondary dashboard. For example, in the default configuration of the Cloud Service Management Console dashboard, the Designs tile launches another dashboard from which you can select a designer to use. The Designs tile is configured with the `target` attribute set to **dashboard** and the `data` attribute set to the `id` of the secondary dashboard (**designs**). A sample secondary dashboard, whose `id` attribute is set to `providerpanel`, is provided.

After a tile in the main dashboard is configured to launch a secondary dashboard, a secondary dashboard definition must be added to the dashboard configuration file. For example, in the default configuration of the Cloud Service Management Console dashboard, a secondary dashboard with an `id` of **designs** is defined. Information about dashboard attributes and values defined in the configuration file is included in the steps below.

To add a secondary dashboard, do the following:

1. Make a back up of the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\dashboard\config.json` dashboard configuration file (where `%CSA_HOME%` is the directory in which HP Cloud Service Automation is installed).
2. Edit the `config.json` file.
 - a. Determine where you want the secondary dashboard tile (the tile that launches the secondary dashboard) to appear in the dashboard and find the location in the configuration file. For example, if you want the secondary dashboard tile to appear between the Organizations and Resources tiles in the dashboard, find the location between the Organizations and Resources tile definitions. If you want the tile to appear as the last tile, find the end of the last enabled tile definition.

Copy the sample secondary dashboard tile definition, whose `id` attribute is set to `providerpanel` and `target` attribute is set to `dashboard`, and place it in the selected location.

Update the content of the secondary dashboard tile (see ["Creating a Dashboard Tile" on page 51](#) for more information about updating the content).

- b. In the configuration file, secondary dashboards are defined after the main dashboard. Locate where the main or any secondary dashboard definition ends, and add a secondary dashboard definition within the global dashboard definition. For example, in the default dashboard configuration file, you could add another secondary dashboard after the predefined **designs** secondary dashboard.

Copy the sample secondary dashboard definition, whose `id` attribute is set to `providerpanel` and `type` attribute is set to `secondary`, and place it in the selected location. The following is an example secondary dashboard definition (multiple dashboard definitions are separated by a comma):

```
{
  "id": "<dashboard_id>",
  "name": "<dashboard_name>",
```

```

"style": "<dashboard_style>",
"type": "<dashboard_type>",
"helptopic": "<dashboard_helptopic>",
"roles": ["<role_1>", "<role_2>", ... , "<role_n>"],
"tiles": [ { ... } ]
}

```

- c. Update the attribute values in the dashboard definition as described in the table. See ["Creating a Dashboard Tile" on page 51](#) for more information about tile attributes.

Attribute	Description
id	A unique identifier of the dashboard among all defined dashboards.
name	The name of the attribute in the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\dashboard\messages\common\messages.properties file that defines the name displayed in the dashboard. If this is the primary dashboard, the name is displayed above the tiles. If this is a secondary dashboard, the name is the label that is displayed next to the left-facing arrow icon or back button in the header.
style	The name of the attribute in the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\dashboard\css\base.css file that defines the color of the secondary dashboard's back button. For the primary dashboard, leave this value empty.
type	The type of dashboard. Values include: <ul style="list-style-type: none"> ○ primary - The dashboard that is displayed after launching HP CSA and successfully logging into the Cloud Service Management Console. This dashboard does not contain a back button. Only one primary dashboard can be defined. ○ secondary - A sub-dashboard that is launched from a dashboard tile and contains a back button. Zero, one, or multiple secondary dashboards can be defined.
helptopic	The name of the help topic that is displayed when the Assistance icon on the page is selected.

Attribute	Description
roles	<p>The role required by the user in order for the dashboard to display. One or more roles may be entered. However, only one role must match the user role in order for the user to see the tile. Roles must be enclosed in quotation marks and, if more than one role is entered, separated by a comma (for example, "CSA_ADMIN", "RESOURCE_SUPPLY_MANAGER"). If no roles are specified, the tile can be seen by all users.</p> <p>Values include:</p> <ul style="list-style-type: none"> ○ CONSUMER_SERVICE_ADMINISTRATOR - The Consumer Service Administrator configures and manages consumer and provider organizations. ○ CSA_ADMIN - The Administrator has access to all functionality in the Cloud Service Management Console. ○ RESOURCE_SUPPLY_MANAGER - The Resource Supply Manager creates and manages cloud resources, such as providers and resource offerings. ○ SERVICE_BUSINESS_MANAGER - The Service Business Manager creates and manages the service offerings and service catalogs. ○ SERVICE_DESIGNER - The Service Designer designs, implements, and maintains service designs (also referred to as blueprints), component palettes, component types, and component templates. ○ SERVICE_OPERATIONS_MANAGER - The Service Operations Manager views and manages subscriptions and service instances. <p>See the "Role Descriptions" help topic in the Cloud Service Management Console for more information about these roles (navigate to Organizations > Access Control > Role Descriptions in the online help).</p>
tiles	<p>Tile definition. At least one tile must be configured. See "Creating a Dashboard Tile" on page 51 for more information about tile attributes.</p>

- d. Save and exit the file.
3. Log in to the Cloud Service Management Console to view the dashboard. If you are already logged in, log out and log back in.

Modifying a Dashboard Tile

To modify an existing dashboard tile, edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\dashboard\config.json file (where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed):

1. Locate the tile definition that you want to modify.
2. Update one or more attributes. For a description of the attributes, refer to ["Creating a Dashboard Tile" on page 51](#).
3. Save and exit the file.

Disabling a Dashboard Tile

To disable a dashboard tile, edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\dashboard\config.json file (where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed):

1. Locate the tile definition that you want to disable.
2. Set the `enabled` attribute to **false**.
3. Save and exit the file.

Dashboard Configuration File Syntax

The following is an example of a dashboard configuration file configured with only one secondary dashboard that has one generic tile and an assistance tile defined.

```
{
  "dashboards": [
    {
      "id": "<primary_id>",
      "name": "<primary_name>",
      "style": "",
      "type": "primary",
      "helptopic": "<primary_helptopic>",
      "roles": ["CONSUMER_SERVICE_ADMINISTRATOR", "SERVICE_BUSINESS_MANAGER",
"SERVICE_DESIGNER", "CSA_ADMIN", "RESOURCE_SUPPLY_MANAGER", "SERVICE_OPERATIONS_
MANAGER"],
      "tiles": [
        {
          "id": "<tile_id_1>",
          "name": "<tile_name>",
          "description": "<tile_description>",
          "enabled": <true_or_false>,
          "style": "<tile_style>",
          "target": "<tile_target>",
          "data": "<tile_data>",
          "helptopic": "<tile_helptopic>",
          "roles": ["<role_1>", "<role_2>", ... , "<role_n>"]
        },
        .
        .
        .
      ]
    }
  ]
}
```

```
    {
      "id": "<tile_id_n>",
      "name": "<tile_name>",
      "description": "<tile_description>",
      "enabled": <true_or_false>,
      "style": "<tile_style>",
      "target": "<tile_target>",
      "data": "<tile_data>",
      "helptopic": "<tile_helptopic>",
      "roles": ["<role_1>", "<role_2>", ... , "<role_n>"]
    }
  ]
}, {
  "id": "<secondary_id>",
  "name": "<secondary_name>",
  "style": "<secondary_style>",
  "type": "secondary",
  "helptopic": "<secondary_helptopic>",
  "roles": ["<role_1>", "<role_2>", ... , "<role_n>"],
  "tiles": [
    {
      "id": "<tile_id>",
      "name": "<tile_name>",
      "description": "<tile_description>",
      "enabled": <true_or_false>,
      "style": "<tile_style>",
      "target": "<tile_target>",
      "data": "<tile_data>",
      "helptopic": "<tile_helptopic>",
      "roles": ["<role_1>", "<role_2>", ... , "<role_n>"]
    }, {
      "id": "<assistance_tile_id>",
      "name": "<assistance_tile_name>",
      "description": "<assistance_tile_description>",
      "enabled": <true_or_false>,
      "style": "assistance",
      "target": "assistance",
      "data": "<optional_Learn_More_Link>",
      "helptopic": "<value_is_ignored>",
      "roles": ["<role_1>", "<role_2>", ... , "<role_n>"]
    }
  ]
}
]
```

Customize the Cloud Service Management Console Title

The Cloud Service Management Console title appears at the top of the Cloud Service Management Console next to the HP logo. By default, the title is "HP Cloud Service Automation."

You can change the title if you are a user who has access to the system on which HP CSA is running. To change the title, on the system running HP CSA, do the following:

1. Open the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\custom\messages.properties` file in a text editor (where `%CSA_HOME%` is the directory in which HP Cloud Service Automation is installed).
2. Add the following attribute and value:

```
csa_title=<title>
```

where `<title>` is the title that displays at the top of the Cloud Service Management Console.

For example, to change the title to "HP CloudSystem," add the following to the file:

```
csa_title=HP CloudSystem
```

Note: You cannot change the HP logo.

If you are translating the title, create a file named `messages_<locale>.properties` instead (where `<locale>` identifies the language to which the title has been translated, for example, `en` for English or `ja` for Japanese).

3. Save and exit the file.

Delete the Sample Consumer Organization

The sample consumer organization can be used by the sample `consumer` user to experiment with the Marketplace Portal. Delete this sample consumer organization (and disable the sample `consumer` user) if you no longer are using it or if you are moving the application to production.

To delete the sample consumer organization and disable the sample `consumer` user:

1. Log in to the Cloud Service Management Console and delete the sample consumer organization in the **General Information** page of the **Organizations** area.

Note: In order to delete an organization, it must not have any active catalogs.

2. Edit the `%CSA_HOME%\portal\conf\mpp.json` file. Update the `defaultOrganizationName` attribute's value if it is set to `CSA_CONSUMER`. Set the value to an existing consumer

organization's Organization Identifier where the Organization Identifier is the unique name that HP Cloud Service Automation assigns to the organization, based on the organization display name (the organization identifier can be found in the General Information section of the **Organizations** tile of the Cloud Service Management Console). The `defaultOrganizationName` attribute defines the organization that is accessed by the Marketplace Portal when the Marketplace Portal is launched from a URL that does not specify the organization.

3. Edit the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\classes\csa-consumer-users.properties` file. Update the `Consumer` property to disable this user account. For example, set `Consumer` to the following encrypted value: `cloud,SERVICE_CONSUMER,ROLE_REST,disabled`

See ["Encrypt a Password" on page 173](#) for instructions on how to encrypt this value.

Purge Service Subscriptions

Canceled, expired, failed, and retired service subscriptions store information in the database that, over time, is no longer needed. The purge tool can be used to delete canceled, expired, failed, and retired subscriptions along with specific associated or referenced artifacts and entities. Canceled, expired, and failed subscriptions must have a service instance status of failed, canceled, cancellation failed, or expiration failed in order to be deleted. Canceled, expired, and failed subscriptions that are not in one of these states will not be deleted. All retired subscriptions are deleted.

By default, when the purge tool is run, canceled, expired, failed, and retired subscriptions that are older than 400 days (subscriptions that have been in a canceled, expired, failed, or retired state longer than 400 days) and certain referenced artifacts and entities are deleted from the database. The age of deleted subscriptions can be increased or decreased by modifying the `age.in.days.to.purge.subscription` property in the configuration properties file used by the purge tool.

When a subscription is deleted, the following artifacts and entities are deleted from the database:

Deleted Artifact	Referenced by (Reference Fields)	Referenced Artifacts and Entities that are Deleted
ServiceSubscription		action associatedRequest basePrice catalogItem initiatingServiceRequest pricingModel property serviceInstance totalPrice

Deleted Artifact	Referenced by (Reference Fields)	Referenced Artifacts and Entities that are Deleted
ServiceRequest	ServiceSubscription (associatedRequest or initiatingServiceRequest)	action basePrice pricingModel property totalPrice
ServiceInstance	ServiceSubscription (serviceInstance)	componentRoot
ServiceComponent	ServiceInstance (componentRoot)	action property resourceBinding
ResourceBinding	ServiceComponent (resourceBinding)	action catalogItem lifecycleProperties property resourceInstance
ResourceSubscription	ResourceBinding (resourceInstance)	action catalogItem lifecycleProperties property
ProcessInstance		

Deleting Service Subscriptions

To delete canceled, expired, failed, and retired subscriptions from the database, do the following:

Caution: Deleted subscriptions cannot be restored unless you have backed up the database.

1. Change to the %CSA_HOME%\Tools\db-purge-tool\ directory where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed.
2. Generate the sample configuration files by running the following command (a sample configuration file is generated for each type of database supported by HP CSA):

Oracle

```
"<csa_jre>\bin\java" -jar db-purge-tool.jar -g -j ojdbc6.jar
```

where ojdbc6.jar is the name of the Oracle JDBC driver installed in %CSA_HOME%\Tools\db-purge-tool\.

Note: Additional command line options are required if SSL is enabled between the Oracle database and HP CSA. See step 4 below for more information.

MS SQL and PostgreSQL

```
"<csa_jre>\bin\java" -jar db-purge-tool.jar -g
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

3. In the current directory, copy the sample configuration file that corresponds to the type of database you are using to a file named `config.properties`. For example, if you are using an Oracle database, make a copy of the `config.properties.oracle` file and rename it to `config.properties`. Update the content of `config.properties` as needed, as described in the table:

Property Name	Description
<code>jdbc.driverClassName</code>	<p>The JDBC driver class.</p> <p>Examples</p> <p>Oracle: <code>jdbc.driverClassName=oracle.jdbc.driver.OracleDriver</code> MS SQL: <code>jdbc.driverClassName=net.sourceforge.jtds.jdbc.Driver</code> PostgreSQL: <code>jdbc.driverClassName=org.postgresql.Driver</code></p>
<code>jdbc.dialect</code>	<p>The classname that allows JDBC to generate optimized SQL for a particular database.</p> <p>Examples</p> <p>Oracle: <code>jdbc.dialect=org.hibernate.dialect.OracleDialect</code> MS SQL: <code>jdbc.dialect=org.hibernate.dialect.SQLServerDialect</code> PostgreSQL: <code>jdbc.dialect=org.hibernate.dialect.PostgreSQLDialect</code></p>

Property Name	Description
jdbc.databaseUrl	<p>The JDBC URL. When specifying an IPv6 address, it must be enclosed in square brackets (see examples below).</p> <p>Examples</p> <p>Oracle (SSL not enabled): <code>jdbc.databaseUrl=jdbc:oracle:thin:@127.0.0.1:1521:XE</code></p> <p>Oracle (SSL not enabled, using an IPv6 address): <code>jdbc.databaseUrl=jdbc:oracle:thin:@[f000:253c::9c10:b4b4]:1521:XE</code></p> <p>Oracle (SSL enabled, HP CSA does not check the database DN): <code>jdbc.databaseUrl=jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL = TCPS)(HOST = <host>)(PORT = 1521)))(CONNECT_DATA =(SERVICE_NAME = ORCL)))</code> where <host> is the name of the system on which the Oracle database server is installed.</p> <p>Oracle (SSL enabled, HP CSA checks the database DN): <code>jdbc.databaseUrl=jdbc:oracle:thin:@(DESCRIPTION =(ADDRESS_LIST = (ADDRESS = (PROTOCOL = TCPS)(HOST = <host>)(PORT = 1521)))(CONNECT_DATA = (SERVICE_NAME = ORCL))(SECURITY=(SSL_SERVER_CERT_DN="CN=abc,OU=dbserver,O=xyz,L=Sunnyvale,ST=CA,C=US"))</code> where <host> is the name of the system on which the Oracle database server is installed and the values for SSL_SERVER_CERT_DN are for the DN of the Oracle database server.</p> <p>MS SQL (SSL not enabled): <code>jdbc.databaseUrl=jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=request</code></p> <p>MS SQL (SSL not enabled, using an IPv6 address): <code>jdbc.databaseUrl=jdbc:jtds:sqlserver://[::1]:1433/example;ssl=request</code></p> <p>MS SQL (SSL enabled): <code>jdbc.databaseUrl=jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=authenticate</code></p> <p>MS SQL (FIPS 140-2 compliant): <code>jdbc.databaseUrl=jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=authenticate</code></p>

Property Name	Description
jdbc.username	The user name of the database user you configured for HP Cloud Service Automation after installing the database.
jdbc.password	<p>The password for the database user. The password should be encrypted (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.</p> <p>If you have configured HP CSA to be FIPS 140-2 compliant, encrypt this password after you have configured CSA to be FIPS 140-2 compliant (that is, you should use the updated encryption tools to encrypt the password).</p> <p>Example</p> <pre>jdbc.password=ENC(fc5e38d38a5703285441e7fe7010b0)</pre>
age.in.days.to.purge.subscription	<p>The amount of time, in days, a subscription has been in a canceled, expired, failed, or retired state before it is deleted by this tool.</p> <p>Default: 400</p>

Example config.properties content

Oracle (SSL not enabled)

```
jdbc.driverClassName=oracle.jdbc.driver.OracleDriver
jdbc.databaseUrl=jdbc:oracle:thin:@127.0.0.1:1521:XE
jdbc.username=csa
jdbc.password=ENC(fc5e38d38a5703285441e7fe7010b0)
jdbc.dialect=org.hibernate.dialect.OracleDialect
```

MS SQL (SSL not enabled)

```
jdbc.driverClassName=net.sourceforge.jtds.jdbc.Driver
jdbc.databaseUrl=jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=request
jdbc.username=csa
jdbc.password=ENC(fc5e38d38a5703285441e7fe7010b0)
jdbc.dialect=org.hibernate.dialect.SQLServerDialect
```

MS SQL (SSL enabled)

```
jdbc.driverClassName=net.sourceforge.jtds.jdbc.Driver
jdbc.databaseUrl=jdbc:jtds:sqlserver://127.0.0.1:1433/
example;ssl=authenticate
jdbc.username=csa
jdbc.password=ENC(fc5e38d38a5703285441e7fe7010b0)
jdbc.dialect=org.hibernate.dialect.SQLServerDialect
```

MS SQL (FIPS 140-2 compliant)

```
jdbc.driverClassName=net.sourceforge.jtds.jdbc.Driver  
jdbc.databaseUrl=jdbc:jtds:sqlserver://127.0.0.1:1433/  
example;ssl=authenticate  
jdbc.username=csa  
jdbc.password=ENC(fc5e38d38a5703285441e7fe7010b0)  
jdbc.dialect=org.hibernate.dialect.SQLServerDialect
```

PostgreSQL

```
jdbc.driverClassName=org.postgresql.Driver  
jdbc.databaseUrl=jdbc:postgresql://127.0.0.1:5432/csadb  
jdbc.username=csadbuser  
jdbc.password=ENC(fc5e38d38a5703285441e7fe7010b0)  
jdbc.dialect=org.hibernate.dialect.PostgreSQLDialect
```

4. Run the following command:

Caution: THE PURGE TOOL RUNS WITHOUT PROMPTING FOR A CONFIRMATION.

Deleted subscriptions cannot be restored unless you have backed up the database.

Verify that you have entered the correct information into the `config.properties` file before running this tool.

Oracle (SSL not enabled)

```
"<csa_jre>\bin\java"  
-jar db-purge-tool.jar -c config.properties -j ojdbc6.jar
```

where `ojdbc6.jar` is the name of the Oracle JDBC driver installed in `%CSA_HOME%\Tools\db-purge-tool` and `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

Oracle (SSL enabled, HP CSA does not check the database DN, client authentication is enabled on the Oracle database server)

```
"<csa_jre>\bin\java"  
-Djavax.net.ssl.keyStore="<certificate_key_file>"  
-Djavax.net.ssl.keyStorePassword=<certificate_key_file_password>  
-Djavax.net.ssl.keyStoreType=<certificate_key_file_type>  
-jar db-purge-tool.jar -c config.properties -j ojdbc6.jar
```

where `ojdbc6.jar` is the name of the Oracle JDBC driver installed in `%CSA_HOME%\Tools\db-purge-tool`, `certificate_key_file` is the same keystore file defined by the `certificate-key-file` attribute in the `ssl` element of the

`%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml` file (for example, `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\keystore`), `certificate_key_file_password` is the

password to the keystore file (for example, changeit), `certificate_key_file_type` is the keystore type (for example, JKS or PKCS12), and `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

Oracle (SSL enabled, HP CSA does not check the database DN, client authentication is NOT enabled on the Oracle database server)

```
"<csa_jre>\bin\java"  
-jar db-purge-tool.jar -c config.properties -j ojdbc6.jar
```

where `ojdbc6.jar` is the name of the Oracle JDBC driver installed in `%CSA_HOME%\Tools\db-purge-tool` and `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

Oracle (SSL enabled, HP CSA checks the database DN, client authentication is enabled on the Oracle database server)

```
"<csa_jre>\bin\java"  
-Doracle.net.ssl_server_dn_match=true  
-Djavax.net.ssl.keyStore="<certificate_key_file>"  
-Djavax.net.ssl.keyStorePassword=<certificate_key_file_password>  
-Djavax.net.ssl.keyStoreType=<certificate_key_file_type>  
-jar db-purge-tool.jar -c config.properties -j ojdbc6.jar
```

where `ojdbc6.jar` is the name of the Oracle JDBC driver installed in `%CSA_HOME%\Tools\db-purge-tool`, `certificate_key_file` is the same keystore file defined by the `certificate-key-file` attribute in the `ssl` element of the

`%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml` file (for example, `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\keystore`), `certificate_key_file_password` is the password to the keystore file (for example, changeit), `certificate_key_file_type` is the keystore type (for example, JKS or PKCS12), and `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

Oracle (SSL enabled, HP CSA checks the database DN, client authentication is NOT enabled on the Oracle database server)

```
"<csa_jre>\bin\java"  
-Doracle.net.ssl_server_dn_match=true  
-jar db-purge-tool.jar -c config.properties -j ojdbc6.jar
```

where `ojdbc6.jar` is the name of the Oracle JDBC driver installed in `%CSA_HOME%\Tools\db-purge-tool` and `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

MS SQL and PostgreSQL

```
"<csa_jre>\bin\java" -jar db-purge-tool.jar -c config.properties
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

The following options are available in the purge tool

Option	Description
-jar db-purge-tool.jar	Required. The name of the tool to run.
-h, --help	Optional. List the options available in this tool.
-g, --generate	Optional. Generate example configuration properties files for supported databases.
-c <config_properties>, --config <config_properties>	Required. The name and location of the configuration properties file. By default, the tool looks for the configuration properties file in the working directory (the directory from which the tool is run). The examples in this document assume the file is located in the working directory and is named config.properties.
-j	Optional. The name and location of the JDBC driver(s) to be used by this tool. If more than one driver needs to be specified, separate each driver by a space. By default, the tool looks for the JDBC driver(s) in the working directory (the directory from which the tool is run). If you are not running the tool from %CSA_HOME%\Tools\db-purge-tool, specify the name and location of the JDBC driver(s) to be used. If the path name contains a space, the path and file name should be enclosed in quotation marks. For example: -j "C:\Program Files\jdbc\ojdbc6.jar" For a list of supported JDBC driver versions, refer to the <i>HP Cloud Service Automation System and Software Support Matrix</i> , available on the HP Software Support Web site at http://h20230.www2.hp.com/selfsolve/manuals/ (this site requires that you register with HP Passport).

Examples for MS SQL and PostgreSQL

Display the purge tool help: "`<csa_jre>\bin\java -jar db-purge-tool.jar -h`"

Generate sample configuration properties files: "`<csa_jre>\bin\java -jar db-purge-tool.jar -g`"

Purge subscriptions and associated entities: "`<csa_jre>\bin\java -jar db-purge-tool.jar -c config.properties`"

Examples for Oracle (SSL is not Enabled)

Display the purge tool help: "`<csa_jre>\bin\java -jar db-purge-tool.jar -h -j ojdbc6.jar`"

Generate sample configuration properties files: "`<csa_jre>\bin\java -jar db-purge-tool.jar -g -j ojdbc6.jar`"

```
Purge subscriptions and associated entities: "<csa_jre>\bin\java" -jar db-purge-  
tool.jar -c config.properties -j ojdbc6.jar
```

Chapter 4

The Marketplace Portal

This chapter provides information on how to install an instance of the Marketplace Portal on a remote system and encrypt a password used by the Marketplace Portal.

For information about the attributes in the `mpp.json` file, refer to "[Marketplace Portal Attributes](#)" on [page 202](#).

Install an Instance of the Marketplace Portal on a Remote System

This section describes how to install the Marketplace Portal on a remote system, a system that is not the same system on which the Cloud Service Management Console is installed. The remote system must meet the same system requirements for HP Cloud Service Automation. See the *HP Cloud Service Automation System and Software Support Matrix*, available on the HP Software Support Web site at <http://h20230.www2.hp.com/selfsolve/manuals/> (this site requires that you register with HP Passport).

Complete the following tasks to install and configure the Marketplace Portal on a remote system:

- Install a JRE
- Install HP Cloud Service Automation
- Remove unneeded .war files
- Configure the Marketplace Portal
- Start the Marketplace Portal service
- Launch the Marketplace Portal

Note: In the following instructions, `%CSA_HOME%` is the directory in which HP Cloud Service Automation is installed.

Install a JRE

The HP CSA installer requires that a supported JRE version is installed on the system and that JRE is configured in the system registry or the path to the JRE binaries (`<jre_installation>\bin`) is defined in the system path variable. For a list of supported JRE versions, refer to the *HP Cloud Service Automation System and Software Support Matrix*, available on the HP Software Support Web site at <http://h20230.www2.hp.com/selfsolve/manuals/> (this site requires that you register with HP Passport).

HP CSA installs OpenJDK JRE to be used exclusively with HP CSA (by default, the JRE is installed in `C:\Program Files\Hewlett-Packard\CSA\openjre`). However, you may choose to use another supported JRE version. HP recommends that you install a JRE that can be used exclusively by HP CSA (you will be asked for the path to this JRE during installation). In this documentation, the directory in which this JRE (the JRE used exclusively by HP CSA) is installed will be referred to as `<csa_jre>`.

HP Operations Orchestration also installs a JRE to be used with HP Operations Orchestration. By default, this JRE is installed in `%ICONCLUDE_HOME%\jre1.6`.

If HP CSA and HP Operations Orchestration are installed on the same system, you will have multiple JREs installed and you must use the correct JRE for specific commands. In the HP CSA documentation, the path to the specific JRE that should be used for a command will be specified. For example, when exporting HP Operations Orchestration's certificate, you will use HP Operations Orchestration's JRE and the path to HP Operations Orchestration's JRE will be specified (`%ICONCLUDE_HOME%\jre1.6`). When importing HP Operations Orchestration's certificate into HP CSA's truststore, you will use HP CSA's JRE and the path to HP CSA's JRE will be specified (`<csa_jre>`).

Note: If you are configuring HP CSA to be compliant with FIPS 140-2, you MUST install a supported JRE that is used exclusively by HP CSA. For a list of supported JRE versions, refer to the *HP Cloud Service Automation System and Software Support Matrix*

Install HP Cloud Service Automation

Note: Installation log files are written to the `%CSA_HOME%_CSA_4_0_1_installation\Logs\` directory.

To install HP Cloud Service Automation (HP CSA), complete the following steps.

1. Close all instances of Windows Explorer and command prompts and exit all programs that are running on the system.
2. Run the `setup.exe` installation file.
3. On the Introduction screen, read the information and click **Next**.
4. Read the license agreement and select **I accept the terms of the License Agreement**. Click **Next** to continue with the installation.

If the following error message displays:

Another version of HP CSA is configured in the registry. However, HP CSA has been uninstalled (the HP CSA installation directory `%CSA_HOME%` does not exist). You must exit the installer and delete the entry in the registry before installing HP CSA. Refer to the *HP Cloud Service Automation Installation Guide* for more information about deleting the registry entry.

exit the installer. Locate the C:\Program Files\Zero G Registry\.com.zerog.registry.xml file (you may need to show hidden files), make a backup copy, delete all HP CSA entries from the .com.zerog.registry.xml file, and restart the installer.

5. Choose the JRE that will be used by HP CSA.

In this documentation, the directory in which the JRE is installed will be referred to as `<csa_jre>`.

For a list of supported JREs, refer to the *HP Cloud Service Automation System and Software Support Matrix*, available on the HP Software Support Web site at <http://h20230.www2.hp.com/selfsolve/manuals/> (this site requires that you register with HP Passport).

OpenJDK JRE

By default, the OpenJDK JRE that is bundled with HP CSA is selected and will be installed. If you want to use the OpenJDK JRE, click **Next**.

The default location in which the OpenJDK JRE is installed is C:\Program Files\Hewlett-Packard\CSA\openjre.

Oracle JRE

If you have installed a supported version of Oracle JRE to be used by HP CSA, click **Oracle JRE**, select the location in which you installed this JRE, and click **Next**.

The default location displayed for the Oracle JRE Home is either a supported JRE that is configured in the system registry or a supported JRE in a path that is defined in the system path variable. If this is not the JRE that should be used by HP CSA, click **Choose** and select the location in which you installed the JRE that will be used by HP CSA.

Caution:

The entire directory path cannot contain more than one dollar sign symbol (\$). For example, C:\HP\C\$A\Java and C:\HP\CSA\Java\$ are valid paths. However C:\HP\C\$A\Java\$ and C:\HP\C\$\$A\Java are not valid paths.

6. Choose a location in which to install HP CSA and click **Next** (%CSA_HOME% is set to this location).

The default location is C:\Program Files\Hewlett-Packard\CSA.

Note: If the directory in which you choose to install HP CSA is not empty, existing content in the directory may be overwritten or deleted when HP CSA is installed, upgraded, or

uninstalled.

Caution:

The entire directory path cannot contain more than one dollar sign symbol (\$). For example, C:\HP\C\$\Java and C:\HP\CSA\Java\$ are valid paths. However C:\HP\C\$\Java\$ and C:\HP\C\$\$\Java are not valid paths.

7. Define the database instance where the HP CSA database schema already exists. Enter the database information and click **Next**.

Field Name	Description
Database Type	<p>The type of database you have installed (Microsoft SQL Server or Oracle).</p> <p>For an Oracle database, you must also enter the JDBC Driver Directory. This is the absolute directory path to the location of the JDBC drivers (these are the JDBC drivers you downloaded onto the HP CSA system). For a list of supported JDBC driver versions, refer to the <i>HP Cloud Service Automation System and Software Support Matrix</i>, available on the HP Software Support Web site at http://h20230.www2.hp.com/selfsolve/manuals/ (this site requires</p> <p>Caution: The entire directory path cannot contain more than one dollar sign symbol (\$). For example, C:\HP\C\$\Java and C:\HP\CSA\Java\$ are valid paths. However C:\HP\C\$\Java\$ and C:\HP\C\$\$\Java are not valid paths.</p>
Database Name	The name of the database instance on which the HP CSA database schema exists. For an Oracle database, this is the System ID (SID).
Database Host	The hostname or IP address of the server where the database is located.
Database Port	The database port number, such as 1433 (Microsoft SQL Server) or 1521 (Oracle).
CSA Database Username	The username of the database user you configured for HP CSA after installing the database.
CSA Database Password	The password for the database user.

Field Name	Description
CSA Reporting Database Username	Optional. The username of the database user you configured for reporting purposes for HP CSA after installing the database.
CSA Reporting Database Password	The password for the CSA reporting database user.

- Click **No**, do not install database components as you are using an existing HP CSA database schema.
- From the Enter host name screen, enter the **fully-qualified domain name of the system on which you are installing HP CSA**. The fully-qualified domain name is used to generate the self-signed SSL certificate which is used when https browser requests are issued for the Marketplace Portal. This self-signed certificate expires 120 days after HP CSA is installed.

Caution: If you enter an IP address, after installation completes, you must manually generate a self-signed certificate using the fully-qualified domain name of the system on which you installed HP CSA and manually reconfigure HP CSA and the Marketplace Portal to use this certificate. For more information, refer to the *HP Cloud Service Automation Configuration Guide*.

- Review your selections and click **Install** to complete the installation.
- In some instances, you may be asked to restart your system.

Click **Yes, restart my system** to restart your system when you exit the installer.

Click **No, I will restart my system myself** to restart your system at a more convenient time.

- Click **Done** to exit the installer.

To start, stop, and restart the HP Cloud Service Automation and Marketplace Portal services, navigate to **Control Panel > Administrative Tools > Services**, right-click on a service, and select the desired action.

Remove Unneeded Files

Because the Cloud Service Management Console is not being run on the remote system, the files for the Cloud Service Management Console should be deleted.

1. On the remote system, go to the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\` directory.
2. Delete the following directories (including subdirectories and all of its content) and files (if present):
 - `csa.war`
 - `csa.war.deployed` or `csa.war.dodeploy`
 - `csa-provider-help.war`
 - `csa-provider-help.war.deployed` or `csa-provider-help.war.dodeploy`
 - `idm-service.war`
 - `idm-service.war.deployed` or `idm-service.war.dodeploy`

Configure the Marketplace Portal

The remote instance of the Marketplace Portal must be configured to use the system on which HP CSA and the Identity Management component is installed. Do the following:

1. Copy `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\jboss.crt` from the system on which the Cloud Service Management Console is running to `%CSA_HOME%\portal\conf\jboss.crt` on the remote system.

This file is needed for SSL verification which, by default, is enabled for the Marketplace Portal.

2. Open the `%CSA_HOME%\portal\conf\mpp.json` file in a text editor.
3. Update the `url` attribute value for the provider. Enter the URL to the system on which HP CSA is installed. Use the fully-qualified domain name of the system. For example, `https://csa_system.xyz.com:8444`.
4. Update the `ca` attribute value for the provider. Enter the path to the SSL certificate file that you copied from the system on which the Cloud Service Management Console is running. For example, `..\conf\jboss.crt`.
5. Update the `url` attribute value for the `idmProvider`. Enter the URL to the system on which the Identity Management component is installed. Use the fully-qualified domain name of the system. For example, `https://csa_system.xyz.com:8444`.
6. If you changed the password for the `idmTransportUser` on the system on which HP CSA is installed, update the `password` attribute value for the `idmProvider` for the Marketplace Portal. To encrypt a Marketplace Portal password:
 - a. Open a command prompt and change to the `%CSA_HOME%\portal\bin` directory. For example:

```
C:\Program Files\Hewlett-Packard\CSA\portal\bin
```

- b. Run the following command:

```
..\..\node.js\node passwordUtil --keyfilePath <keyfile> --password  
<myPassword>
```

where <keyfile> is the path to (absolute or relative to the bin directory) and name of the file that contains the Marketplace Portal's encrypted symmetric key (if the file does not exist, it will create the file) and <myPassword> is the password to be encrypted.

7. Copy the encrypted password to the `password` attribute value. An encrypted password is preceded by `ENC` without any separating spaces and is enclosed in parentheses. For example `ENC(3oKr7eAo25bEn3Zn2t9wIA==)`

Note: The password should be the same password that has been configured for the `securityIdmTransportUserPassword` property in the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties` file and the `idmTransportUser` property in the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\classes\integrationusers.properties` file. See ["Change HP CSA Out-of-the-Box User Accounts" on page 90](#) for more information about changing this password.

8. Update the `ca` attribute value for the `idmProvider`. Enter the path to the SSL certificate file that you copied from the system on which the Cloud Service Management Console is running. For example, `..\conf\jboss.crt`.
9. Save and exit the file.

Start the Marketplace Portal Service on the Remote System

To start the Marketplace Portal service, do the following:

1. Navigate to the Services screen (**Control Panel > Administrative Tools > Services**).
2. Right-click on the **Marketplace Portal** service and select **Start**.

Launch the Marketplace Portal

Launch an organization's Marketplace Portal by typing the following URL in a supported Web browser:

```
https://<csahostname>:8089/org/<organization_identifier>
```

where:

- `<csahostname>` is the fully-qualified domain name of the system on which the Marketplace Portal instance resides and that was used when HP CSA was installed.
- `<organization_identifier>` is the unique name that HP Cloud Service Automation assigns to the organization, based on the organization display name (the organization identifier can be found in the General Information section of the **Organizations** tile of the Cloud Service Management Console)

Example:

```
https://csa_system.xyz.com:8089/org/ORGANIZATIONA
```

Caution: Do not launch more than one organization-specific Marketplace Portal from the same browser session. For example, if you launch ORGANIZATION_A's Marketplace Portal in a browser, do not open a tab or another window from that browser and launch ORGANIZATION_B's Marketplace Portal. Otherwise, the user who has logged in to the Marketplace Portal launched for ORGANIZATION_A will start to see data for ORGANIZATION_B.

Instead, start a new browser session to launch another organization's Marketplace Portal.

Update the Marketplace Portal in the Cloud Service Management Console

The URL to launch the Marketplace Portal is displayed in the Cloud Service Management Console. Edit the `csa.properties` file to update this URL. Do the following:

1. On the system on which HP CSA and the Cloud Service Management Console are installed, edit the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties` file.
2. Update the `csa.subscriber.portal.url` property value. Set the hostname to the fully-qualified domain name or IP address of the system on which the Marketplace Portal is remotely installed.
3. Save and exit the file.
4. Restart HP CSA.

See ["Restart HP CSA" on page 172](#) for detailed information on how to restart HP CSA.

Stop or Restart the Marketplace Portal Service on the Remote System

Use the following instructions to stop or restart the Marketplace Portal service on the remote system.

To stop the Marketplace Portal service, do the following:

1. Navigate to the Services screen (**Control Panel > Administrative Tools > Services**).
2. Right-click on the **Marketplace Portal** service and select **Stop**.

To restart the Marketplace Portal service, do the following:

1. Navigate to the Services screen (**Control Panel > Administrative Tools > Services**).
2. Right-click on the **Marketplace Portal** service and select **Restart**.

Encrypt a Marketplace Portal Password

To encrypt a Marketplace Portal password:

1. Open a command prompt and change to the %CSA_HOME%\portal\bin directory. For example:

```
C:\Program Files\Hewlett-Packard\CSA\portal\bin
```

2. Run the following command:

```
..\..\node.js\node passwordUtil --keyfilePath <keyfile> --password  
<myPassword>
```

where <keyfile> is the path to (absolute or relative to the bin directory) and name of the file that contains the Marketplace Portal's encrypted symmetric key (if the file does not exist, it will create the file) and <myPassword> is the password to be encrypted.

Chapter 5

Advanced Configuration and Integration

This chapter provides information for more advanced configuration and integration tasks.

Tasks include:

- ["Configure SSL for Client Browsers" below](#) (required when the HP CSA self-signed certificate expires)
- ["Import Large Archives" on page 99](#) (optional)
- ["Change HP CSA Out-of-the-Box User Accounts" on page 90](#) (optional)
- ["Update the HP CSA Database User or Password" on page 97](#) (required if you change the database user or password)
- ["Configure IPv6 for HP CSA" on page 101](#) (optional)
- ["Configure HP CSA for FIPS 140-2 Compliance" on page 102](#) (optional)
- ["Configure the Marketplace Portal" on page 126](#) (optional)
- ["Integrate HP CSA with a Common Access Card" on page 139](#) (optional)
- ["Integrating HP CSA Using a Single Sign-On" on page 145](#) (optional)
- ["Install the HP CSA Database Schema" on page 161](#) (optional)
- ["Configure the CSA Reporting Database User" on page 167](#) (optional)

Configure SSL for Client Browsers

The Cloud Service Management Console is configured to require https (http over SSL) for client browsers. For an SSL connection to be established, an SSL certificate must first be installed on the HP Cloud Service Automation (HP CSA) server.

A self-signed certificate is created and configured when HP CSA is installed and is configured with the fully-qualified domain name that was entered during the installation. This self-signed certificate is used when https browser requests are issued for the Cloud Service Management Console and expires 120 days after HP CSA is installed.

When client browsers connect to the Cloud Service Management Console in this default configuration, the client browser will usually issue warnings that the certificate was not issued by a trusted authority. The end user can choose to continue to the Web site or close the browser.

Although the self-signed certificate can be used in production, HP recommends that you replace this certificate by [configuring a Certificate Authority-signed or subordinate Certificate Authority-signed certificate](#). Or, you can replace this certificate by [configuring a self-signed certificate](#).

Note: If you have configured HP CSA to be compliant with FIPS 140-2, you must substitute the HP CSA SSL truststore (for example, `csa_ssl_truststore.p12`) for the Java truststore (`cacerts`) and substitute the HP CSA SSL truststore password for the Java truststore password (`changeit`) in the examples. See ["Create a New Keystore and Truststore for SSL Communication" on page 112](#) for more information about the HP CSA SSL truststore and password.

Configure HP CSA to Use a Certificate Authority-Signed or Subordinate Certificate Authority-Signed Certificate

This section describes the process you should follow to obtain, install, and configure a Certificate Authority-signed or subordinate Certificate Authority-signed certificate for use by HP CSA. The process by which you acquire a certificate depends on your organization. Some organizations issue certificates that are signed by a corporate Certificate Authority and some organizations get certificates from a trusted third party Certificate Authority, such as VeriSign. You should perform the following general steps, which are described in detail below:

1. Create a keystore and a self-signed certificate
2. Create a certificate signing request
3. Submit the certificate signing request to a Certificate Authority
4. Import the Certificate Authority's root certificate
5. Import the Certificate Authority-signed certificate
6. Configure the Marketplace Portal
7. Configure the Web server
8. Configure client browsers
9. Test the SSL connection

Note: In the following instructions, `%CSA_HOME%` is the directory in which HP Cloud Service Automation is installed (for example, `C:\Program Files\Hewlett-Packard\CSA`) and the `keytool` utility is included with the JRE.

Also, the following instructions are applicable for subordinate Certificate Authorities. Wherever the Certificate Authority is mentioned, the subordinate Certificate Authority is implied. For example, if the content states to submit the certificate to a Certificate Authority, you may also submit the certificate to a subordinate Certificate Authority.

Step 1: Create a Keystore and Self-Signed Certificate

Create a self-signed certificate to send with your request to a Certificate Authority by doing the following:

1. Open a command prompt and change directories to %CSA_HOME%.
2. Run the following command:

```
"<csa_jre>\bin\keytool" -genkeypair -alias csa_ca_signed  
-validity 365 -keyalg rsa -keysize 2048 -keystore  
.\jboss-as-7.1.1.Final\standalone\configuration\keystore_ca_signed
```

where <csa_jre> is the directory in which the JRE that is used by HP CSA is installed.

You can use different values for -alias, -validity, -keysize and -keystore. These instructions assume that you will use the -alias and -keystore values recommended here; you will have to adjust the commands accordingly if you use different values.

3. Enter a keystore password.

This password is used to control access to the keystore. This password must be the same as the password you enter for the key later in this procedure.

4. When you are prompted for your first and last name, enter the fully qualified domain name of the HP CSA server.
5. Follow the prompts to enter the remaining organization and location values.
6. Enter the keystore password you supplied earlier to use as the key password.

Although `keytool` allows you to enter different passwords for the keystore and the key, the two passwords must be the same to work with HP CSA.

Step 2: Create a Certificate Signing Request

To enable a Certificate Authority to sign the self-signed certificate, you will need to create a Certificate Signing Request using the following procedure:

1. Open a command prompt and change directories to %CSA_HOME%.
2. Run the following command:

```
"<csa_jre>\bin\keytool" -certreq -alias csa_ca_signed  
-file C:\csacsr.txt -keystore  
.\jboss-as-7.1.1.Final\standalone\configuration\keystore_ca_signed
```

where <csa_jre> is the directory in which the JRE that is used by HP CSA is installed.

3. When you are prompted for a password, enter the password you supplied for the keystore and key when you created the keystore and self-signed certificate in step 1.

Step 3: Submit the Certificate Signing Request to a Certificate Authority

Submit the Certificate Signing Request to the Certified Authority following the procedure used by your organization or the third-party provider. After the submission has been processed, you will receive a Certificate Authority-signed certificate and a root certificate for the Certificate Authority.

In our example, we will assume the Certificate Authority's root certificate is named `csaca.crt`, the Certificate Authority-signed certificate is named `csa_ca_signed.crt`, and that both are located in `C:\`.

Step 4: Import the Certificate Authority's Root Certificate

This step configures the JRE so it trusts the Certificate Authority that has signed your certificate. The JRE ships with a list of common, trusted Certificate Authority certificates that are stored in a keystore named `cacerts`. If the Certificate Authority used to sign your certificate is well known, it is likely that this root certificate is already present in the `cacerts` keystore. It is recommended that you perform the following steps even if you suspect that the certificate is already installed. The `keytool` command will detect if the certificate is already present, and you can exit the import process if the certificate exists.

1. Open a command prompt.
2. Run the following command:

```
"<csa_jre>\bin\keytool" -importcert -alias csaca -file C:\csaca.crt -trustcacerts -keystore "<csa_jre>\lib\security\cacerts"
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

3. When prompted for the keystore password, enter `changeit`.
4. Enter `yes` when prompted to trust the certificate.

Step 5: Import the Certificate Authority-Signed Certificate

1. Open a command prompt and change directories to `%CSA_HOME%`.
2. Run the following command:

```
"<csa_jre>\bin\keytool" -importcert -alias csa_ca_signed -file C:\csa_ca_signed.crt -trustcacerts -keystore .\jboss-as-7.1.1.Final\standalone\configuration\keystore_csa_signed
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

Use this alias and keystore name when you configure the Web server.

3. When prompted, enter the password for the key and keystore.

Use this password when you configure the Web server.

Step 6: Configure the Marketplace Portal

This step configures the Marketplace Portal to use the Certificate Authority-signed certificate.

1. Open the `%CSA_HOME%\portal\conf\mpp.json` file in a text editor.
2. Update the `ca` attribute value for the provider. Enter the path to the SSL certificate file that you imported in step 5. For example, `C:\csa_ca_signed.crt`.
3. Update the `ca` attribute value for the `idmProvider`. Enter the path to the SSL certificate file that you imported in step 5. For example, `C:\csa_ca_signed.crt`.
4. Save and exit the file.

Step 7: Configure the Web Server

1. Open `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml` in a text editor.
2. Locate the following entry:

```
<ssl name="ssl" key-alias="CSA" certificate-key-file=
"%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\
.keystore" verify-client="false"/>
```

3. Add a new attribute named `password` with a value that corresponds to the password you selected for the keystore, change the name of the `key-alias` to the alias you used in step 5, and change the name of the `certificate-key-file` to the keystore you used in step 5.

```
<ssl name="ssl" key-alias="csa_ca_signed" certificate-key-file=
"%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\
.keystore_ca_signed" password="keystorePassword"
verify-client="false"/>
```

Note: This example stores the password in clear text. If you want to use an encrypted password, follow the instructions at <https://community.jboss.org/wiki/JBossAS7SecuringPasswords> to create a password vault for JBoss.

Note: If you are using the vault scripts, verify that the %JAVA_HOME% environment variable has been defined, verify that %JAVA_HOME% has been set to the directory in which the JRE that is used by HP CSA is installed, and, if the directory path name includes a space, that the value has been enclosed in quotations marks. For example, to set %JAVA_HOME% to a directory path name that includes a space, from a command prompt, type

```
set JAVA_HOME="C:\Program Files\Hewlett-Packard\CSA\jre"
```

To verify that %JAVA_HOME% has been defined, from a command prompt, type
echo %JAVA_HOME%.

The following is an example of an encrypted password attribute using the JBoss password vault:

```
password="$${VAULT::<vault_block_example>::password::N2NhZDz0MtES0ZGE4MmEtX0}"
```

4. Restart the HP Cloud Service Automation service.

See ["Restart HP CSA" on page 172](#) for detailed information on how to restart HP CSA.

5. After the service has started, review the log files in %CSA_HOME%\jboss-as-7.1.1.Final\standalone\log\ and verify that no SSL or keystore errors are present.

Step 8: Configure Client Browsers

The client browser must be configured to trust certificates that are signed by the Certificate Authority. In most situations, this step will already have occurred. Client browsers are likely to already trust well-known third-party Certificate Authorities, or will have previously accessed and trusted Web sites that use internal Certificate Authority root certificates.

To test whether or not the browser on a client system is configured to trust certificates signed by your Certificate Authority, open a supported Web browser and navigate to `https://<csahostname>:8444/csa`. If you do not see a certificate warning, then the browser is configured properly.

If client browsers need to be configured to trust certificates signed by your Certificate Authority, then you will need to make the root certificate available to clients so it can be installed in the browser. The process of installing the root certificate will vary based on the browser.

- **Microsoft Internet Explorer and Chrome:** From Windows Explorer, double-click on the .crt file to begin the import process. Install the certificate in the Trusted Root Certification Authorities store. For information on how to import the certificate, refer to the browser's online documentation.
- **Firefox:** To begin the import process, select **Tools > Options**, select **Advanced**, select the **Encryption** tab, and click **View Certificates**. Import the root certificate into the Authorities tab. For information on how to import the certificate, refer to the browser's online documentation.

Step 9: Test SSL Connections

To test the SSL connection to the Cloud Service Management Console, on a client system, open a supported Web browser and navigate to `https://<csahostname>:8444/csa` where `<csahostname>` is the fully-qualified domain name of the system that was used when the SSL certificate was created. If the client browser is configured to accept the Certificate Authority's root certificate and the Web application opens without a certificate warning, then you have successfully configured HP Cloud Service Automation to use a Certificate Authority-signed certificate. If a certificate warning is displayed, review steps 1-8 to be sure they were followed as documented.

Configure HP CSA to Use a Self-Signed Certificate

This section describes the process you should follow to obtain, install, and configure a self-signed certificate for use by HP CSA.

In general, HP recommends that you replace HP CSA's self-signed certificate with a Certificate Authority-signed certificate. However, you may consider replacing HP CSA's self-signed with a self-signed certificate you create in the following situations:

- HP CSA's self-signed certificate has expired and you do not want to configure a Certificate Authority-signed certificate at this time.
- The hostname that you entered when you installed HP CSA has changed (the hostname you entered during installation is used to configure HP CSA's self-signed certificate).
- You entered an IP address instead of the fully-qualified domain name when HP CSA was installed.
- Obtaining a Certificate Authority-signed certificate is not an option in your environment.

You should perform the following general steps, which are described in detail below:

1. Create a keystore and a self-signed certificate
2. Export the self-signed certificate
3. Import the self-signed certificate as a trusted certificate
4. Configure the Marketplace Portal
5. Configure the Web server
6. Configure client browsers (optional)
7. Test the SSL connection

Note: In the following instructions, `%CSA_HOME%` is the directory in which HP Cloud Service Automation is installed (for example, `C:\Program Files\Hewlett-Packard\CSA`) and the `keytool` utility is included with the JRE.

Step 1: Create a Keystore and Self-Signed Certificate

Create a self-signed certificate by doing the following:

1. Open a command prompt and change directories to %CSA_HOME%.
2. Run the following command:

```
"<csa_jre>\bin\keytool" -genkeypair -alias csa_self_signed  
-validity 365 -keyalg rsa -keysize 2048  
-keystore .\jboss-as-7.1.1.Final\standalone\configuration\  
.keystore_self_signed [-ext san=ip:<ip_address>]
```

where <csa_jre> is the directory in which the JRE that is used by HP CSA is installed and -ext san=ip:<ip_address> is the option to specify the IP address of the system on which HP CSA is installed. This option is required if you specified an IP address instead of the fully-qualified domain name when you installed HP CSA. If you specified the fully-qualified domain name during installation, you may omit this option.

You can use different values for -alias, -validity, -keysize and -keystore. These instructions assume that you will use the -alias and -keystore values recommended here; you will have to adjust the commands accordingly if you use different values.

3. Enter a keystore password.

This password is used to control access to the keystore. This password must be the same as the password you enter for the key later in this procedure.

4. When you are prompted for your first and last name, enter the fully qualified domain name of the HP CSA server.
5. Follow the prompts to enter the remaining organization and location values.
6. Enter the keystore password you supplied earlier to use as the key password.

Although keytool allows you to enter different passwords for the keystore and the key, the two passwords must be the same to work with HP CSA.

Step 2: Export the Self-Signed Certificate

Export the self-signed certificate using the following procedure:

1. Open a command prompt and change directories to %CSA_HOME%.
2. Run the following command:

```
"<csa_jre>\bin\keytool" -export -alias csa_self_signed  
-file C:\csa_self_signed.crt
```

```
-keystore .\jboss-as-7.1.1.Final\standalone\configuration\  
.keystore_self_signed
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

3. When you are prompted for a password, enter the keystore password used in step 1.

Step 3: Import the Self-Signed Certificate as a Trusted Certificate

This step configures the JRE so it trusts the self-signed certificate.

1. Open a command prompt.
2. Run the following command:

```
"<csa_jre>\bin\keytool" -importcert -alias csa_self_signed  
-file C:\csa_self_signed.crt -trustcacerts  
-keystore "<csa_jre>\lib\security\cacerts"
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

3. When prompted for the keystore password, enter `changeit`.
4. Enter `yes` when prompted to trust the certificate.

Step 4: Configure the Marketplace Portal

This step configures the Marketplace Portal to use the self-signed certificate.

1. Open the `%CSA_HOME%\portal\conf\mpp.json` file in a text editor.
2. Update the `ca` attribute value for the provider. Enter the path to the SSL certificate file that you exported in step 2. For example, `C:\csa_self_signed.crt`.
3. Update the `ca` attribute value for the `idmProvider`. Enter the path to the SSL certificate file that you exported in step 2. For example, `C:\csa_self_signed.crt`.
4. Save and exit the file.

Step 5: Configure the Web Server

1. Open `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml` in a text editor.
2. Locate the following entry:

```
<ssl name="ssl" key-alias="CSA" certificate-key-file=  
"%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\  
.keystore" verify-client="false"/>
```

3. Add a new attribute named `password` with a value that corresponds to the password you selected for the keystore, change the name of the `key-alias` to the alias you used in step 2, and change the name of the `certificate-key-file` to the keystore you used in step 2.

```
<ssl name="ssl" key-alias="csa_self_signed"  
certificate-key-file="%CSA_HOME%\jboss-as-7.1.1.Final\standalone\  
configuration\.keystore_self_signed" password="keystorePassword" verify-  
client="false"/>
```

Note: This example stores the password in clear text. If you want to use an encrypted password, follow the instructions at <https://community.jboss.org/wiki/JBossAS7SecuringPasswords> to create a password vault for JBoss.

Note: If you are using the vault scripts, verify that the `%JAVA_HOME%` environment variable has been defined, verify that `%JAVA_HOME%` has been set to the directory in which the JRE that is used by HP CSA is installed, and, if the directory path name includes a space, that the value has been enclosed in quotations marks. For example, to set `%JAVA_HOME%` to a directory path name that includes a space, from a command prompt, type

```
set JAVA_HOME="C:\Program Files\Hewlett-Packard\CSA\jre"
```

To verify that `%JAVA_HOME%` has been defined, from a command prompt, type

```
echo %JAVA_HOME%.
```

The following is an example of an encrypted password attribute using the JBoss password vault:

```
password="$${VAULT::<vault_block_example>::password::N2NhZDzOMtES0ZGE4MmEtx0}"
```

4. Restart the HP Cloud Service Automation service.

To restart HP CSA:

- a. If you have configured HP CSA to be FIPS 140-2 compliant, create an HP CSA encryption keystore password file. The name and location of this file must match the value configured for the `keystorePasswordFile` property in the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties` file.

The password file must contain only the following content: `keystorePassword=<HP CSA encryption keystore password>`

where *<HP CSA encryption keystore password>* is the HP CSA encryption keystore password in clear text.

This file is automatically deleted when the HP Cloud Service Automation service is started.

- b. On the server that hosts HP Cloud Service Automation, navigate to **Control Panel > Administrative Tools > Services**.
 - c. Right-click on the HP Cloud Service Automation service and select **Restart**.
 - d. Right-click on the HP Marketplace Portal service and select **Restart**.
5. After the service has started, review the log files in `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\log\` and verify that no SSL or keystore errors are present.

Step 6: Configure Client Browsers (Optional)

Because the self-signed certificate is not signed by a Certificate Authority, when accessing the Cloud Service Management Console, warning messages are displayed in the browser (these messages do not affect normal operations of HP CSA). To avoid these warning messages, import the `csa_self_signed.crt` file or add an exception.

- **Microsoft Internet Explorer and Chrome:** From Windows Explorer, double-click on the `csa_self_signed.crt` file to begin the import process. Install the certificate in the Trusted Root Certification Authorities store. For information on how to import the certificate, refer to the browser's online documentation.
- **Firefox:** Add an exception by opening the browser and navigating to `https://<csahostname>:8444/csa` where *<csahostname>* is the fully-qualified domain name of the system on which HP CSA is running. When the **This Connection is Untrusted** page opens, select **I Understand the Risks**, click the **Add Exception** button, verify the Server Location, and click **Confirm Security Exception**. For information on how to import the certificate, refer to the browser's online documentation.

Step 7: Test SSL Connections

To test the SSL connection to the Cloud Service Management Console, on a client system, open a supported Web browser and navigate to `https://<csahostname>:8444/csa` where *<csahostname>* is the fully-qualified domain name of the system that was used when the SSL certificate was created. If the client browser is configured to accept the self-signed certificate (that is, you have completed step 6) and the Web application opens without a certificate warning, then you have successfully configured HP CSA to use a self-signed certificate. If you did not complete step 6, verify that the only certificate warning relates to the certificate not being issued by a trusted authority. If any other certificate warning is displayed, review steps 1-6 to be sure they were followed as documented.

Change HP CSA Out-of-the-Box User Accounts

HP CSA ships with built-in user accounts. The user accounts are used to authenticate REST API calls and for initial setup and experimentation with the product. For security reasons, you may want to disable or change the passwords associated with these accounts (do not change the usernames).

Note: Do not create users in your LDAP directory that match the out-of-the-box users provided by HP Cloud Service Automation (the out-of-the-box users are `admin`, `cdaInboundUser`, `csaCatalogAggregationTransportUser`, `csaReportingUser`, `csaTransportUser`, `idmTransportUser`, and `ooInboundUser`). Creating the same users in LDAP may allow the out-of-the-box users unintended access to the Cloud Service Management Console or give the LDAP users unintended privileges.

Cloud Service Management Console User Accounts

The following users ship out-of-the-box and are used with the Cloud Service Management Console:

admin User: Cloud Service Management Console

Username	admin
Default Password	cloud
Usage	This account is used to initially log in to the Cloud Service Management Console to configure the provider organization.
To Disable	<p>You should disable this account only after you have set up and verified a user with the CSA Administrator role in the Cloud Service Management Console.</p> <p>Edit the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\applicationContext-security.xml</code> file (where <code>%CSA_HOME%</code> is the directory in which HP Cloud Service Automation is installed) and comment out the following:</p> <pre><user name="admin" password="{securityAdminPassword}" authorities="ROLE_REST" /></pre> <p>The content should look like the following:</p> <pre><!-- <user name="admin" password="{securityAdminPassword}" authorities="ROLE_REST" /> --></pre>

admin User: Cloud Service Management Console, continued

To Change Password	<p>Edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties file (where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed) and update the value of the securityAdminPassword property. Determine a suitable new password (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses. Ensure there is no blank space at the end of the value.</p> <p>After modifying the csa.properties file, restart HP CSA. See "Restart HP CSA" on page 172 for detailed information on how to restart HP CSA.</p>
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csaCatalogAggregationTransportUser User: Cloud Service Management Console

Username	csaCatalogAggregationTransportUser
Default Password	cloud
Usage	This account is used to authenticate REST API calls.
To Disable	Do not disable this account.
To Change Password	<p>If you change the password to this account, you must update the value of the securityCatalogAggregationTransportUserPassword property in csa.properties. You must also update the password using the catalog aggregation registration REST APIs.</p> <p>Edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties file (where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed) and update the value of the securityCatalogAggregationTransportUserPassword property. Determine a suitable new password (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses. Ensure there is no blank space at the end of the value.</p> <p>After modifying the csa.properties file, restart HP CSA. See "Restart HP CSA" on page 172 for detailed information on how to restart HP CSA.</p>

csaReportingUser User: Cloud Service Management Console

Username	csaReportingUser
Default Password	cloud

csaReportingUser User: Cloud Service Management Console, continued

Usage	This account is used when a subscription is ordered or modified and a field for the subscription includes a dynamically generated list. The dynamically generated list is a subscriber option property configured to use a dynamic query. The dynamic query uses this account to access HP Cloud Service Automation to determine the values that will appear in the list. This account has read-only access to HP Cloud Service Automation.
To Disable	Do not disable this account.
To Change Password	<p>Edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties file (where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed) and update the value of the securityCsaReportingUserPassword property. Determine a suitable new password (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses. Ensure there is no blank space at the end of the value.</p> <p>After modifying the csa.properties file, restart HP CSA. See "Restart HP CSA" on page 172 for detailed information on how to restart HP CSA.</p>

csaTransportUser User: Cloud Service Management Console

Username	csaTransportUser
Default Password	csaTransportUser
Usage	This account is used to authenticate REST API calls.
To Disable	Do not disable this account.

csaTransportUser User: Cloud Service Management Console, continued

To Change Password	<p>If you change the password to this account, you must update the value of the securityTransportPassword property in the csa.properties file and the idm.csa.password property in the applicationContext.properties file (you must use the same password). You must also update and use the same password for every REST API call that uses the password.</p> <p>Updating the securityTransportPassword property in csa.properties</p> <p>Edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties file (where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed) and update the value of the securityTransportPassword property. Determine a suitable new password (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses. Ensure there is no blank space at the end of the value.</p> <p>Updating the idm.csa.password property in applicationContext.properties</p> <p>Edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\spring\applicationContext.properties file and update the value of the idm.csa.password property. Use the same encrypted password that you entered for the securityTransportPassword property in the csa.properties file.</p> <p>After modifying and saving the changes to the files, restart HP CSA. See "Restart HP CSA" on page 172 for detailed information on how to restart HP CSA.</p>
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idmTransportUser User: Cloud Service Management Console

Username	idmTransportUser
Default Password	idmTransportUser
Usage	This account is used to authenticate REST API calls.
To Disable	Do not disable this account.

idmTransportUser User: Cloud Service Management Console, continued

To Change Password	<p>If you change the password to this account, you must update the value of the <code>securityIdmTransportUserPassword</code> property in the <code>csa.properties</code> file, the <code>idmTransportUser</code> property in the <code>integrationusers.properties</code> file, and the <code>password</code> attribute in the <code>idmProvider</code> section of the <code>mpp.json</code> file (you must use the same password). You must also update and use the same password for every REST API call that uses the password.</p> <p>Updating the <code>securityIdmTransportUserPassword</code> property in <code>csa.properties</code></p> <p>Edit the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties</code> file (where <code>%CSA_HOME%</code> is the directory in which HP Cloud Service Automation is installed) and update the value of the <code>securityIdmTransportUserPassword</code> property. Determine a suitable new password (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by <code>ENC</code> without any separating spaces and is enclosed in parentheses. Ensure there is no blank space at the end of the value.</p> <p>Updating the <code>idmTransportUser</code> property in <code>integrationusers.properties</code></p> <p>Note: This property not only contains the password, but also the roles that control access to HP CSA and if the account is enabled.</p> <p>By default, the unencrypted value of this property is: <code>idmTransportUser,ROLE_ADMIN,PERM_IMPERSONATE,enabled</code></p> <p>Edit the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\classes\integrationusers.properties</code> file and update the value of the <code>idmTransportUser</code> property. Use the same password that you used for the <code>securityIdmTransportUserPassword</code> property in the <code>csa.properties</code> file and encrypt the entire value of the <code>idmTransportUser</code> property, including the roles and account status (see "Encrypt a Password" on page 173 for instructions on how to encrypt this value). The encrypted value is preceded by <code>ENC</code> without any separating spaces and is enclosed in parentheses. Ensure there is no blank space at the end of the value.</p> <p>Updating the password attribute in <code>mpp.json</code></p> <p>Edit the <code>%CSA_HOME%\portal\conf\mpp.json</code> file (where <code>%CSA_HOME%</code> is the directory in which HP Cloud Service Automation is installed) and update the value of the <code>password</code> attribute in the <code>idmProvider</code> section and the <code>keyfile</code> attribute. Use the same password that you used for the <code>securityIdmTransportUserPassword</code> property in the <code>csa.properties</code> file and encrypt this password using the password utility that is provided by the Marketplace Portal:</p> <ol style="list-style-type: none">1. Open a command prompt and navigate to the <code>%CSA_HOME%\portal\bin</code> directory. For example: <pre>C:\Program Files\Hewlett-Packard\CSA\portal\bin</pre>
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idmTransportUser User: Cloud Service Management Console, continued

	<p>2. Run the following command:</p> <pre>..\..\node.js\node passwordUtil</pre> <p>When prompted, enter the name and location of the keyfile to generate (for example, ../conf/keyfile) and the password to encrypt.</p> <p>3. An encrypted password is displayed. Copy the encrypted password to the password attribute value in the idmProvider section. An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses. Ensure there is no blank space at the end of the value. For example ENC(3oKr7eAo25bEn3Zn2t9wIA==)</p> <p>4. Copy the keyfile name and location to the keyfile attribute.</p> <p>After modifying and saving the changes to the files, restart HP CSA. See "Restart HP CSA" on page 172 for detailed information on how to restart HP CSA and the Marketplace Portal.</p>
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oolnboundUser User: Cloud Service Management Console

Username	oolnboundUser
Default Password	cloud
Usage	This account is used by HP Operations Orchestration to authenticate REST API calls with HP Cloud Service Automation.
To Disable	Do not disable this account.
To Change Password	<p>If you change the password to this account, you must update the value of the security0oInboundUserPassword property in csa.properties. You must also update and use the same password for the CSA_REST_CREDENTIALS system account in HP Operations Orchestration (located in the Configuration folder of the Public Repository).</p> <p>Edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties file (where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed) and update the value of the security0oInboundUserPassword property. Determine a suitable new password (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses. Ensure there is no blank space at the end of the value.</p> <p>After modifying the csa.properties file, restart HP CSA. See "Restart HP CSA" on page 172 for detailed information on how to restart HP CSA.</p>

cdainboundUser User: Cloud Service Management Console

Username	cdainboundUser
Default Password	cloud
Usage	This account is used by HP Continuous Delivery Automation (HP CDA) to authenticate REST API calls with HP Cloud Service Automation.
To Disable	Do not disable this account.
To Change Password	<p>If you change the password to this account, you must update the value of the <code>securityCdaInboundUserPassword</code> property in <code>csa.properties</code>. You must also update and use the same password in HP CDA.</p> <p>Edit the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties</code> file (where <code>%CSA_HOME%</code> is the directory in which HP Cloud Service Automation is installed) and update the value of the <code>securityCdaInboundUserPassword</code> property. Determine a suitable new password (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by <code>ENC</code> without any separating spaces and is enclosed in parentheses. Ensure there is no blank space at the end of the value.</p> <p>After modifying the <code>csa.properties</code> file, restart HP CSA. See "Restart HP CSA" on page 172 for detailed information on how to restart HP CSA.</p>

Marketplace Portal User Account

The following is a sample user that ships with HP CSA and is used to access the Marketplace Portal:

consumer User: Marketplace Portal

Username	consumer
Default Password	cloud
Usage	This account is used to initially log in to and experiment with the Marketplace Portal (LDAP does not have to be configured). This user belongs to the "CSA consumer internal group" and is a member of the "CSA Consumer" organization (both the group and organization are provided as samples).

consumer User: Marketplace Portal, continued

To Disable	<p>Note: This property not only determines if the account is enabled, it also contains the password and the roles that control access to HP CSA.</p> <p>By default, the unencrypted value of this property is: ccloud,SERVICE_CONSUMER,ROLE_REST,enabled</p> <p>Edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\classes\csa-consumer-users.properties file. Update the consumer property to disable this user account. For example, set consumer to the following value (this value should be encrypted):</p> <p>ccloud,SERVICE_CONSUMER,ROLE_REST,disabled</p> <p>See "Encrypt a Password" on page 173 for instructions on how to encrypt this value). The encrypted value is preceded by ENC without any separating spaces and is enclosed in parentheses. Ensure there is no blank space at the end of the value.</p>
To Change Password	<p>Note: This property not only contains the password, but also the roles that control access to HP CSA and if the account is enabled.</p> <p>By default, the unencrypted value of this property is: ccloud,SERVICE_CONSUMER,ROLE_REST,enabled</p> <p>Edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\classes\csa-consumer-users.properties file. Update the password portion of the consumer value and encrypt the entire value, including the roles and account status (see "Encrypt a Password" on page 173 for instructions on how to encrypt this value). The encrypted value is preceded by ENC without any separating spaces and is enclosed in parentheses. Ensure there is no blank space at the end of the value.</p>

Update the HP CSA Database User or Password

If you changed the user or password of the database used by HP Cloud Service Automation, you must update the JBoss DataSource and other files that store this information.

1. On the system running HP Cloud Service Automation, open a command prompt and change to the directory %CSA_HOME%\jboss-as-7.1.1.Final where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed.
2. Run the following command to generate an encoded version of the new database password:

```
"<csa_jre>\bin\java" -cp "modules\org\jboss\logging\main\jboss-logging-3.1.0.GA.jar;modules\org\picketbox\main\
```

```
picketbox-4.0.7.Final.jar"  
org.picketbox.datasource.security.SecureIdentityLoginModule <password>
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

Copy the encoded password value that is returned (do not include spaces).

3. Stop the HP Cloud Service Automation service.

To stop HP CSA:

- a. On the server that hosts HP Cloud Service Automation, navigate to **Control Panel > Administrative Tools > Services**.
 - b. Right-click on the HP Cloud Service Automation service and select **Stop**.
 - c. Right-click on the HP Marketplace Portal service and select **Stop**.
4. In a text editor, open the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml` file.
 5. In the file, locate the following content:

Microsoft SQL Server

```
<security-domain name="csa-encryption-sec" cache-type="default">  
  <authentication>  
    <login-module  
code="org.picketbox.datasource.security.SecureIdentityLoginModule"  
flag="required">  
      <module-option name="username" value="<old_user_name>"/>  
      <module-option name="password" value="<old_encoded_password>"/>  
      <module-option name="managedConnectionFactoryName"  
value="jboss.jca:service=LocalTxCM,name=mssqlDS"/>  
    </login-module>  
  </authentication>  
</security-domain>
```

Oracle

```
<security-domain name="csa-encryption-sec" cache-type="default">  
  <authentication>  
    <login-module  
code="org.picketbox.datasource.security.SecureIdentityLoginModule"  
flag="required">  
      <module-option name="username" value="<old_user_name>"/>  
      <module-option name="password" value="<old_encoded_password>"/>  
      <module-option name="managedConnectionFactoryName"  
value="jboss.jca:service=LocalTxCM,name=OracleDS"/>  
    </login-module>
```

```
</authentication>  
</security-domain>
```

6. Replace `<old_encoded_password>` with the new encoded password you copied in step 2 and `<old_user_name>` with the new user name.
7. Save the `standalone.xml` file.
8. Restart HP Cloud Service Automation service.

See ["Restart HP CSA" on page 172](#) for detailed information on how to restart HP CSA.

9. If you are using the process definition tool to import HP Operations Orchestration flows, update the `db.user` and `db.password` properties in the `db.properties` file in `%CSA_HOME%\Tools\ProcessDefinitionTool` or the working directory where the process definition tool is run.

The `db.password` property value should be *encrypted* (see ["Encrypt a Password" on page 173](#) for instructions on encrypting passwords). An encrypted password is preceded by `ENC` without any separating spaces and is enclosed in parentheses.

Import Large Archives

Archives exported from HP CSA can be imported to install artifacts or update existing artifacts in HP CSA. Archives can be imported using the HP CSA Content Archive Tool, the Cloud Service Management Console, or the REST API.

The default configuration for importing archives supports an archive up to 1.5 MB in size. When an archive larger than 1.5 MB is imported (typically, a catalog), the import operation may hang or take a very long time to complete. If an archive is larger than 1.5 MB, HP recommends using the Content Archive Tool and increasing the JVM heap size to greater than 1 GB (the default JVM heap size).

Import Large Archives Using the HP CSA Content Archive Tool

If you want to import an archive larger than 1.5 MB, HP recommends using the Content Archive Tool because the tool uses its own JVM heap (it does not share the JVM heap used by HP CSA). When you reconfigure the JVM heap size for the tool, you do not need to restart HP CSA and HP CSA performance is not affected by the import.

To increase the JVM heap size when running the Content Archive Tool, add the `-Xms<heap_size>M -Xmx<heap_size>M` options to the command line. For example, to increase the JVM heap size to 2 GB, type:

```
"<csa_jre>\bin\java -Xms2048M -Xmx2048M -jar content-archive-tool.jar -i -z  
catalog_archive.zip
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

Note: By default, the JVM heap size used by the Content Archive Tool is 1 GB. If you want to use a larger JVM heap size, you must always specify the two options listed above when running the Content Archive Tool.

For more information about the Content Archive Tool, refer to the *HP Cloud Service Automation Content Archive Tool* guide.

Import Large Archives from the Cloud Service Management Console or through the REST API

If you want to import an archive larger than 1.5 MB, HP recommends using the Content Archive Tool. If you must use the Cloud Service Management Console or REST API to import a large archive, you must update the JVM heap size for HP CSA which requires HP CSA to be restarted. Also, importing a large archive from the Cloud Service Management Console or through the REST API may slow the performance of HP CSA.

To increase the JVM heap size before importing a large archive from the Cloud Service Management Console or through the REST API, do the following:

1. Stop HP CSA.

To stop HP CSA:

- a. On the server that hosts HP Cloud Service Automation, navigate to **Control Panel > Administrative Tools > Services**.
- b. Right-click on the HP Cloud Service Automation service and select **Stop**.
- c. Right-click on the HP Marketplace Portal service and select **Stop**.

2. Increase the JVM heap size for HP CSA.

- a. Open the `%CSA_HOME%\jboss-as-7.1.1.Final\bin\standalone.conf.bat` file in a text editor.

- b. Locate the following line:

```
set "JAVA_OPTS=%JAVA_OPTS% -Xms1024M -Xmx1024M -XX:PermSize=256M  
-XX:MaxPermSize=256M"
```

- c. Increase the JVM heap size (by default, the JVM heap size is 1 GB). For example, to change the JVM heap size to 2 GB, change the line to:

```
set "JAVA_OPTS=%JAVA_OPTS% -Xms2048M -Xmx2048M -XX:PermSize=256M  
-XX:MaxPermSize=256M"
```

- d. Save and close the file.

3. Start HP CSA.

To start HP CSA:

- a. If you have configured HP CSA to be FIPS 140-2 compliant, create an HP CSA encryption keystore password file. The name and location of this file must match the value configured for the `keystorePasswordFile` property in the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties` file.

The password file must contain only the following content: `keystorePassword=<HP CSA encryption keystore password>`

where `<HP CSA encryption keystore password>` is the HP CSA encryption keystore password in clear text.

This file is automatically deleted when the HP Cloud Service Automation service is started.

- b. On the server that hosts HP CSA, navigate to **Control Panel > Administrative Tools > Services**.
- c. Right-click on the HP Cloud Service Automation service and select **Start**.
- d. Right-click on the HP Marketplace Portal service and select **Start**.

For more information about importing archives from the Cloud Service Management Console, refer to the HP Cloud Service Management Console Help. For more information about importing archives through the REST API, refer to the *HP CSA API Reference* guide.

Configure IPv6 for HP CSA

This section explains how to configure HP CSA to support IPv6 (both dual-stack and IPv6-only). Make sure that IPv6 has been implemented on the system on which HP CSA is running (including configuring the network and DNS) and that your Web browser, such as Firefox or Chrome, have been enabled for IPv6 support.

To configure HP CSA to support IPv6, open `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml` in a text editor and make the following changes:

1. Locate and comment out the following line:

```
<property name="java.net.preferIPv4Stack" value="true" />
```

2. Add the following two lines below the commented out line:

```
<property name="java.net.preferIPv4Stack" value="false" />  
<property name="java.net.preferIPv6Addresses" value="true" />
```

3. Locate and comment out the following line:

```
<wsdl-host>${jboss.bind.address:127.0.0.1}</wsdl-host>
```

4. Add the following line below the commented out line:

```
<wsdl-host>${jboss.bind.address:[::1]}</wsdl-host>
```

5. Locate and comment out the following line:

```
<inet-address value="${jboss.bind.address.management:127.0.0.1}" />
```

6. Add the following line below the commented out line:

```
<inet-address value="${jboss.bind.address.management:[::1]}" />
```

7. Locate and comment out the following line:

```
<inet-address value="${jboss.bind.address:0.0.0.0}" />
```

8. Add the following line below the commented out line:

```
<inet-address value="${jboss.bind.address:[::]}" />
```

To configure the Marketplace Portal to support IPv6, do the following:

- Open the %CSA_HOME%\portal\conf\mpp.json file in a text editor.
- In the general attribute section (for example, after the uid attribute), add a bindIP attribute and set the value to the IPv6 address to which the Marketplace Portal binds.
- Save and close the file.

To configure HP CSA tools (such as the process definition tool, purge tool, schema installation tool, provider tool, or content archive tool) to support IPv6, when configuring the db.url, dbUrl, or jdbc.databaseUrl attribute in the database file used by the tool (for example, config.properties, jdbc.properties, or db.properties), enclose the IPv6 address in square brackets (for example, [f000:253c::9c10:b4b4] or [::1]).

Configure HP CSA for FIPS 140-2 Compliance

This section explains how to configure HP CSA to be compliant with Federal Information Processing Standards (FIPS) 140-2.

Note: HP CSA that is compliant with FIPS 140-2 supports the Microsoft SQL database and Oracle JRE only. For more information about application and version requirements, refer to the *HP Cloud Service Automation System and Software Support Matrix*.

FIPS 140-2 is a standard for security requirements for cryptographic modules defined by the National Institute of Standards and Technology (NIST). To view the publication for this standard, go to:

csrc.nist.gov/publications/fips/fips140-2/fips1402.pdf

After you have configured HP CSA for FIPS 140-2 compliance, HP CSA uses or complies with the following:

- RSA BSAFE Crypto software
- Keystore and truststore: PKCS #12
- Asymmetric algorithm: RSA
- Symmetric-key algorithm: AES
- Random number generation algorithm: HMAC DRBG (128-bit)
- Hashing algorithm: SHA-256

Prerequisites

Before configuring HP CSA to be compliant with FIPS 140-2, do the following:

1. Verify that you are configuring a new or fresh installation of HP CSA version 4.00 to be compliant with FIPS 140-2. You cannot configure an upgraded installation of HP CSA version 4.00 or an installation of HP CSA version 4.00 that is in use.
2. Back up the following directories:
 - %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\
 - %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\
 - %CSA_HOME%\portal\conf\
 - %CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\
<csa_jre>\lib\security
(where <csa_jre> is the directory in which the JRE that is used by HP CSA is installed)
3. Download and install the Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files from the following site:

<http://www.oracle.com/technetwork/java/javase/downloads/jce-7-download-432124.html>

Refer to the `Readme.txt` file from the downloaded content for information on how to deploy the files and upgrade the JRE used by HP CSA.

4. Install the RSA BSAFE Crypto software files. On the system on which HP CSA is installed, unzip `\rsa\CSAFIPS.zip` to `<csa_jre>\lib\ext\` (where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed).

Note: Once you have configured HP CSA to be compliant with FIPS 140-2, you cannot revert

back to the standard configuration unless you uninstall and re-install HP CSA.

Examples Used in this Section

The following table is a quick reference to the items and values used in the FIPS 140-2 examples. Also included are the names used in this document to reference the items. If you choose to use different values for these items, you must substitute the different value in all of the FIPS 140-2 examples in this document.

Item	Referenced as	Description	Value Used in Examples
Directory where HP CSA is installed	%CSA_HOME%	The directory in which the HP CSA product is installed.	C:\Program Files\ Hewlett-Packard\CSA
Directory where the JRE used by HP CSA is installed	<csa_jre>	The directory in which the JRE used by the HP CSA product is installed. For example, C:\Program Files\ Java\CSA\jre\jre.	<csa_jre>
Keystore for encryption	HP CSA encryption keystore	The keystore that stores the keypair that is used to encrypt and decrypt HP CSA's symmetric key (also known as the secret key). HP CSA's symmetric key is used to encrypt and decrypt HP CSA's data.	%CSA_HOME%\ jboss-as-7.1.1.Final\ standalone\configuration\ csa_encryption_ keystore.p12
Keystore alias for encryption	HP CSA encryption keystore alias	The alias is a name assigned to identify a keypair in the HP CSA encryption keystore. This keypair is used by HP CSA to encrypt and decrypt HP CSA's symmetric key.	csa_encryption_key
Key for encryption	HP CSA encryption keystore file or encrypted symmetric key	This is the file containing HP CSA's encrypted symmetric key and used by HP CSA to encrypt and decrypt data in HP CSA.	%CSA_HOME%\ jboss-as-7.1.1.Final\ standalone\configuration\ key.dat

Item	Referenced as	Description	Value Used in Examples
Keystore password for encryption	HP CSA encryption keystore password	This is the password used to access the HP CSA encryption keystore.	<HP CSA encryption keystore password>
Keystore for SSL	HP CSA server keystore	This is a file that stores the keypair used for SSL communication and is the identity of the HP CSA server.	%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\keystore_csaID.p12
Keystore alias for SSL	HP CSA server keystore alias	The alias is a name assigned to identify the HP CSA SSL keypair. When used with keytool's -export option, the alias is the name used by the HP CSA server keystore to identify the SSL certificate.	csa_fips
Keystore password for SSL	HP CSA server keystore password	This is the password used to access the HP CSA server keystore.	<HP CSA server keystore password>
SSL certificate for HP CSA	HP CSA's certificate	This is the SSL certificate for HP CSA that must be imported into an application's truststore if HP CSA communicates with this application using SSL.	C:\csa_fips.crt
Truststore for SSL	HP CSA server truststore	This is the truststore that holds all certificates for trusted applications that communicate with HP CSA using SSL.	%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\csa_server_truststore.p12
Truststore alias for SSL	HP CSA server truststore alias	When used with keytool's -import option, the alias is a name assigned to identify the certificate imported into the HP CSA SSL truststore. Typically the truststore alias is identical to the keystore alias used to generate the certificate.	csa_fips (alias for HP CSA's SSL certificate) pas (alias for the root certificate of HP Operations Orchestration's Certificate Authority)

Item	Referenced as	Description	Value Used in Examples
Truststore password for SSL	HP CSA server truststore password	This is the password used to access the HP CSA server truststore.	<i><HP CSA server truststore password></i>

Configuration

Complete the following steps to configure HP CSA to be compliant with FIPS 140-2:

- ["Stop HP CSA" below](#)
- ["Update applicationContext.xml to be FIPS 140-2 Compliant" on the facing page](#)
- ["Configure Properties in the Java Security File" on page 108](#)
- ["Create an HP CSA Encryption Keystore" on page 109](#)
- ["Create a New Keystore and Truststore for SSL Communication" on page 112](#)
- ["Re-Encrypt HP CSA Passwords" on page 120](#)
- ["Configure HP CSA Properties" on page 123](#)
- ["Configure the Identity Management Component" on page 133](#)
- ["Configure the Marketplace Portal" on page 126](#)
- ["Start HP CSA" on page 138](#)
- ["Test SSL Connections" on page 138](#)

Stop HP CSA

To stop HP CSA:

1. On the server that hosts HP Cloud Service Automation, navigate to **Control Panel > Administrative Tools > Services**.
2. Right-click on the HP Cloud Service Automation service and select **Stop**.
3. Right-click on the HP Marketplace Portal service and select **Stop**.

Update applicationContext.xml to be FIPS 140-2 Compliant

The applicationContext.xml file for the Cloud Service Management Console must be updated to be FIPS 140-2 compliant. Do the following:

1. Open the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\applicationContext.xml file in a text editor. For example, edit the following file:

```
C:\Program Files\Hewlett-Packard\CSA\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\applicationContext.xml
```

2. Locate the START Standard Mode Configuration comment and comment out the following content that appears between the START Standard Mode Configuration and END Standard Mode Configuration comments:

```
<bean id="simpleEncryptionConfiguration"  
class="com.hp.csa.security.CSASimplePBENConfig" init-method="init">  
</bean>
```

```
<bean id="configurationEncryptor"  
class="org.jasypt.encryption.pbe.StandardPBEStrngEncryptor">  
  <property name="config" ref="simpleEncryptionConfiguration" />  
</bean>
```

```
<bean id="propertyConfigurer" class="org.jasypt.spring.properties.  
EncryptablePropertyPlaceholderConfigurer">  
  <constructor-arg ref="configurationEncryptor" />  
  <property name="locations">  
    <list>  
      <value>classpath:csa.properties</value>  
      <value>classpath:swagger.properties</value>  
    </list>  
  </property>  
</bean>
```

3. Locate the START FIPS Mode Configuration comment and uncomment the following content that appears between the START FIPS Mode Configuration and END FIPS Mode Configuration comments:

```
<bean id="configurationEncryptor"  
class="com.hp.csa.security.util.CSA SecurityHelper" />
```

```
<bean id="propertyConfigurer" class=  
"com.hp.csa.security.CSAEncryptablePropertyPlaceholderConfigurer">  
  <constructor-arg ref="configurationEncryptor" />  
  <property name="locations">
```

```
<list>
  <value>classpath:csa.properties</value>
</list>
</property>
</bean>
```

4. Save and close the file.

Configure Properties in the Java Security File

Edit the Java security file for the JRE to add additional security providers and configure properties for FIPS 140-2 compliance. Open the `<csa_jre>\lib\security\java.security` file in an editor (where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed) and do the following:

1. For every provider listed (in the format `security.provider.<nn>=<provider_name>`), increment the preference order number (`<nn>`) by one. For example, change a provider entry from `security.provider.1=sun.security.provider.Sun` to `security.provider.2=sun.security.provider.Sun`.
2. Add a new default provider (RSA JCE). Add the following provider to the top of the provider list:

```
security.provider.1=com.rsa.jsafe.provider.JsafeJCE
```

3. Update the SunJSSE provider to use packages that are compliant with FIPS 140-2.

For example, change the following entry from:

```
security.provider.<nn>=com.sun.net.ssl.internal.ssl.Provider
```

to

```
security.provider.<nn>=com.sun.net.ssl.internal.ssl.Provider JsafeJCE
```

4. Set the default keystore type to PKCS #12. Edit or add the following entry:

```
keystore.type=PKCS12
```

5. Add the following entry to ensure RSA BSAFE is used in FIPS 140-2 compliant mode:

```
com.rsa.cryptoj.fips140initialmode=FIPS140_SSL_MODE
```

6. Set the default random number generation algorithm to HMAC DRBG with 128-bit security strength:

```
com.rsa.crypto.default.random = HMACDRBG128
```

7. Exit and save the `java.security` file.

Create an HP CSA Encryption Keystore

This section describes an example of how to create a keystore, referred to in this document as the HP CSA encryption keystore, that is used by HP CSA to encrypt and decrypt a key. This key is used to encrypt and decrypt the data in HP CSA. The validity period assigned to the HP CSA encryption keystore is not used by HP CSA.

The examples used in this document saves the keystore in the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\` directory. You may choose to store the keystore in any location; however, you must remember to use that location in any other subsequent example.

Note: In the following examples, `%CSA_HOME%` is the directory in which HP Cloud Service Automation is installed (for example, `C:\Program Files\Hewlett-Packard\CSA`), the `keytool` utility is included with the JRE, and a JRE has been installed for HP CSA in `<csa_jre>`.

The following is an example of how to create the HP CSA encryption keystore:

1. Open a command prompt and change directories to `%CSA_HOME%`.
2. Run the following command:

```
"<csa_jre>\bin\keytool" -genkey -alias csa_encryption_key  
-validity 365 -keyalg rsa -keysize 2048 -storetype PKCS12  
-keystore .\jboss-as-7.1.1.Final\standalone\configuration\  
csa_encryption_keystore.p12
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

You can use different values for `-alias`, `-validity`, `-keysize` and `-keystore`. These instructions assume that you will use the `-alias` and `-keystore` values recommended here; you will have to adjust the commands accordingly if you use different values.

Because the HP CSA encryption keystore is used by HP CSA to only encrypt and decrypt a key and not to generate certificates, you can enter any value for `-validity`. The validity period assigned to the HP CSA encryption keystore is not used by HP CSA.

3. Enter a keystore password (referred to in this document as the HP CSA encryption keystore password).

This password is used to control access to the keystore. This password must be the same as the password you enter for the key in step 5 of this task.

Note: You must create a password file with this password whenever HP CSA is started. See ["Start HP CSA" on page 171](#) for more information.

4. Follow the prompts to enter your first and last name, organization, and location values.
5. Enter the keystore password you supplied earlier to use as the key password.

Although `keytool` allows you to enter different passwords for the keystore and the key, the two passwords must be the same to work with HP CSA.

Generate an Encrypted Symmetric Key

This section describes an example of how to generate an encrypted symmetric key that is used by HP CSA to encrypt and decrypt data. This key is also used to encrypt the passwords for the Cloud Service Management Console.

Caution: Do NOT generate the key more than one time.

The following is an example of how to generate an encrypted symmetric key:

1. Open a command prompt and change to the `%CSA_HOME%\scripts` directory. For example:

```
C:\Program Files\Hewlett-Packard\CSA\scripts
```

2. Run the following command (this example uses the same example names from ["Create an HP CSA Encryption Keystore" on the previous page](#)):

```
"<csa_jre>\bin\java" -jar passwordUtil.jar genAndEncKey JsafeJCE ../jboss-as-7.1.1.Final/standalone/configuration/csa_encryption_keystore.p12 <HP CSA encryption keystore password> csa_encryption_key ../jboss-as-7.1.1.Final/standalone/configuration/key.dat
```

Note: The path separators used in the `passwordUtil.jar` script options are forward slashes (/). You can also use double backward slashes (\) as your path separators.

In this example, the encrypted symmetric key is saved to:

```
%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\key.dat
```

Note: You will use this file name and location when encrypting HP CSA passwords for the Cloud Service Management Console.

If you used different names for the keystore, alias, or encrypted symmetric key file, here is an example of the command without using the example names:

```
"<csa_jre>\bin\java" -jar "%CSA_HOME%\scripts\passwordUtil.jar" genAndEncKey JsafeJCE <HP CSA encryption keystore> <HP CSA encryption keystore password>
```

<HP CSA encryption keystore alias>
<Location and name of the encrypted symmetric key>

Note: If you use path separators in the `passwordUtil.jar` script options, use either a single forward slash (/) or double backward slashes (\\) as your path separator.

When to Regenerate the HP CSA Encryption Keystore or Encrypted Symmetric Key

You should not regenerate the HP CSA encryption keystore or encrypted symmetric key unless one of the following occurs:

- The HP CSA encryption keystore or encrypted symmetric key was deleted and is not recoverable.
- The HP CSA encryption keystore or encrypted symmetric key was regenerated and the original file is not recoverable.
- The HP CSA encryption keystore password is not retained.

Locate your situation in the table below and perform the tasks starting at the listed step.

Situation	Start at:
Lost HP CSA encryption keystore	Step 1
Lost encrypted symmetric key	Step 2
Regenerated HP CSA encryption keystore	Step 1
Regenerated encrypted symmetric key	Step 3
Forgotten HP CSA encryption keystore password	Step 1

Tasks to perform:

1. Regenerate the HP CSA encryption keystore (see "[Create an HP CSA Encryption Keystore](#)").
2. Regenerate the encrypted symmetric key (see "[Generate an Encrypted Symmetric Key](#)").
3. Encrypt HP CSA passwords (see "[Re-Encrypt HP CSA Passwords](#)" on page 120).
4. Configure HP CSA properties (see "[Configure HP CSA Properties](#)" on page 123). As applicable, update the `keystore`, `keyAlias`, `encryptedKeyFile`, and `csaTruststorePassword` property values.
5. Reset the password for every organization's LDAP access point:

Update the passwords for the following users in the CSA_ACCESS_POINT table in the database.

- a. Open an SQL client to your database.
 - b. Run the following: `update CSA_ACCESS_POINT set password=null;`
 - c. Launch the Cloud Service Management Console by typing the following URL in a supported Web browser: `https://<csahostname>:8444/csa` where `<csahostname>` is the fully-qualified domain name of the system on which the Cloud Service Management Console resides.
 - d. Log in to the Cloud Service Management Console as the CSA Administrator.
 - e. Click the **Organizations** tile.
 - f. In the left-navigation frame, select an organization.
 - g. From the organization's navigation frame, select **LDAP**.
 - h. Enter the password in the **Password** and **Retype Password** fields.
 - i. Click **Save Changes**.
 - j. Repeat steps f - i for every organization.
6. Restart HP CSA.

See "[Restart HP CSA](#)" on page 172 for detailed information on how to restart HP CSA.

Create a New Keystore and Truststore for SSL Communication

To comply with FIPS 140-2, the keystore and truststore (that store the keys and certificates used for SSL communication between HP CSA and other applications) must support PKCS #12: Personal Information Exchange Syntax Standard (PKCS #12). You must create a new keystore and truststore for HP CSA for PKCS #12.

This section describes the process you should follow to obtain, install, and configure a certificate that supports PKCS #12 for use by HP CSA.

Perform the following tasks (described in more detail in the sections that follow the list below):

1. Create the HP CSA server keystore that supports PKCS #12
2. Create HP CSA's certificate, create a truststore that supports PKCS #12, and import certificate(s)
3. Configure the Web server

4. Import the HP Operations Orchestration certificate as a trusted certificate
5. Import the certificates for other applications as trusted certificates
6. Configure client browsers (optional)

Note: In the following examples, %CSA_HOME% is the directory in which HP Cloud Service Automation is installed (for example, C:\Program Files\Hewlett-Packard\CSA), the keytool utility is included with the JRE (you may choose to use a different utility), and a JRE has been installed for HP CSA in <csa_jre>.

Step 1: Create an HP CSA Server Keystore that Supports PKCS #12

Create the HP CSA server keystore. For example, do the following:

1. Open a command prompt and change directories to %CSA_HOME%.
2. Run the following command:

```
"<csa_jre>\bin\keytool" -genkey -alias csa_fips -validity 365  
-keyalg rsa -keysize 2048 -storetype PKCS12 -keystore  
.\jboss-as-7.1.1.Final\standalone\configuration\keystore_csaID.p12
```

You can use different values for -alias, -validity, -keysize and -keystore. These instructions assume that you will use the -alias and -keystore values recommended here; you will have to adjust the commands accordingly if you use different values.

3. Enter a keystore password (referred to in this document as the HP CSA server keystore password).

This password is used to control access to the keystore. This password must be the same as the password you enter for the key in task 6 of this step.

4. When you are prompted for your first and last name, enter the fully qualified domain name of the HP CSA server.
5. Follow the prompts to enter the remaining organization and location values.
6. Enter the keystore password you supplied earlier to use as the key password.

Although keytool allows you to enter different passwords for the keystore and the key, the two passwords must be the same to work with HP CSA.

Step 2: Create HP CSA's Certificate, Create a Truststore that Supports PKCS #12, and Import Certificate(s)

This section shows examples on how to export a self-signed certificate, create a Certificate Authority-signed certificate (optional), create the HP CSA server truststore that supports PKCS #12, and import the certificates into the truststore and keystore.

Select the type of certificate you will be using (self-signed or Certificate Authority-signed) and complete one of the applicable sections below.

Using a Self-Signed Certificate

Export a self-signed certificate, create the HP CSA server truststore that supports PKCS #12, and import the self-signed certificate into the HP CSA server truststore. For example:

1. Open a command prompt and change directories to %CSA_HOME%.
2. Export a self-signed certificate by exporting HP CSA's certificate:
 - a. Run the following command:

```
"<csa_jre>\bin\keytool" -export -alias csa_fips  
-file C:\csa_fips.crt -storetype PKCS12 -keystore  
.\jboss-as-7.1.1.Final\standalone\configuration\keystore_csaID.p12
```
 - b. When you are prompted for a password, enter the HP CSA server keystore password used in step 1 (where you created the HP CSA server keystore that supports PKCS #12).
3. Create a truststore that supports PKCS #12 and import the self-signed certificate:
 - a. Run the following command:

```
"<csa_jre>\bin\keytool" -importcert -alias csa_fips  
-file C:\csa_fips.crt -trustcacerts -keystore  
.\jboss-as-7.1.1.Final\standalone\configuration\csa_server_truststore.p12
```
 - b. When prompted, enter a truststore password (referred to in this document as the HP CSA server truststore password). You will need this password when you import the HP Operations Orchestration and other certificates.
 - c. Enter yes when prompted to trust the certificate.

Using a Certificate Authority-Signed Certificate

Create a self-signed certificate, create a Certificate Authority-signed certificate, import the Certificate Authority-signed certificate into the HP CSA server keystore, create the HP CSA server truststore that supports PKCS #12, and import the root certificate into the HP CSA server truststore. For example:

1. Open a command prompt and change directories to %CSA_HOME%.
2. To create a Certificate Authority-signed certificate, you must create a certificate signing request and submit the certificate signing request to a Certificate Authority:
 - a. From the command prompt, run the following command:

```
"<csa_jre>\bin\keytool" -certreq -alias csa_fips  
-file C:\csacsrfips.csr -keystore  
.\jboss-as-7.1.1.Final\standalone\configuration\keystore_csaID.p12
```
 - b. When you are prompted for a password, enter the HP CSA server keystore password used in step 1 (where you created the HP CSA server keystore that supports PKCS #12).
 - c. Submit the Certificate Signing Request (C:\csacsrfips.csr) to the Certified Authority following the procedure used by your organization or a third-party provider. After the submission has been processed, you will receive a Certificate Authority-signed certificate (referred to as C:\ca_signed.crt in the example below) and a root certificate (referred to as C:\ca_root.crt in the example below) for the Certificate Authority.
3. Import the Certificate Authority-signed certificate into the HP CSA server keystore:
 - a. Open a command prompt and change directories to %CSA_HOME%.
 - b. From the command prompt, run the following command:

```
"<csa_jre>\bin\keytool" -importcert -alias ca_signed  
-file C:\ca_signed.crt -keystore  
.\jboss-as-7.1.1.Final\standalone\configuration\keystore_csaID.p12
```
 - c. When you are prompted for a password, enter the HP CSA server keystore password used in step 1 (where you created the HP CSA server keystore that supports PKCS #12).
4. Create a truststore that supports PKCS #12 and import the root certificate:
 - a. From the command prompt, run the following command:

```
"<csa_jre>\bin\keytool" -importcert -alias ca_root  
-file C:\ca_root.crt -trustcacerts -keystore  
.\jboss-as-7.1.1.Final\standalone\configuration\csa_server_truststore.p12
```
 - b. When prompted, enter a truststore password (referred to in this document as the HP CSA server truststore password). You will need this password when you import the HP Operations Orchestration and other certificates.
 - c. Enter yes when prompted to trust the certificate.

Step 3: Configure the Web Server

1. Encrypt the HP CSA server keystore password and datasource (database) password using the vault scripts. Follow the instructions at <https://community.jboss.org/wiki/JBossAS7SecuringPasswords> to create a password vault for JBoss. You will use the encrypted passwords in the following tasks of this step.

Note: If you are using the vault scripts, verify that the %JAVA_HOME% environment variable has been defined, verify that %JAVA_HOME% has been set to the directory in which the JRE that is used by HP CSA is installed, and, if the directory path name includes a space, that the value has been enclosed in quotations marks. For example, to set %JAVA_HOME% to a directory path name that includes a space, from a command prompt, type

```
set JAVA_HOME="C:\Program Files\Hewlett-Packard\CSA\jre"
```

To verify that %JAVA_HOME% has been defined, from a command prompt, type
echo %JAVA_HOME%.

The following is an example of an encrypted password attribute using the JBoss password vault:

```
password="${VAULT::<vault_block_example>:password::N2NhztMtNES00ZGE4MmEtX0}"
```

2. Open %CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml in a text editor.
3. Locate the following entry for the SSL keystore password (this entry may have been modified):

```
<ssl name="ssl" key-alias="CSA" certificate-key-file=  
"%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\  
.keystore" verify-client="false"/>
```

4. Update the entry by:
 - Removing the name and key-alias attributes and values
 - Changing the value of certificate-key-file to the keystore you created in step 1 (%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\keystore_csaID.p12)
 - Adding or changing the value of password to the encrypted value of the HP CSA server keystore password you generated in task 1 of this step
 - Adding or changing the value of protocol to TLSv1
 - Adding the attribute keystore-type and setting its value to PKCS12

For example:

```
<ssl name="ssl" key-alias="CSA"
certificate-key-file="%CSA_HOME%\jboss-as-7.1.1.Final\
standalone\configuration\keystore_csaID.p12"
password="{VAULT::<vault_block_ssl>:password::BdBDkaoLEhjodLsa0I0x0}"
protocol="TLSv1"
keystore-type="PKCS12"
verify-client="false"/>
```

5. Locate the following entry for the datasource password (this entry may have been modified):

Microsoft SQL Server

```
<datasource jndi-name="java:jboss/datasources/csaDS" pool-name="mssqlDS">
  <connection-url>jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=request
  </connection-url>
  <driver>mssqlDriver</driver>
  <pool>
    <min-pool-size>10;</min-pool-size>
    <max-pool-size>200;</max-pool-size>
    <prefill>>true;</prefill>
  </pool>
  <security>
    <security-domain>csa-encryption-sec;</security-domain>
  </security>
</datasource>
```

6. Replace the security-domain entry with the datasource username and password, setting the password value to the encrypted value of the datasource password you generated in task 1 of this step. For Microsoft SQL Server, also update the connection-url ssl attribute value from request to authenticate (if it has not already been updated).

For example:

Microsoft SQL Server

```
<datasource jndi-name="java:jboss/datasources/csaDS" pool-name="mssqlDS">
  <connection-url>
    jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=requestauthenticate
  </connection-url>
  <driver>mssqlDriver</driver>
  <pool>
    <min-pool-size>10;</min-pool-size>
    <max-pool-size>200;</max-pool-size>
    <prefill>>true;</prefill>
  </pool>
  <security>
    <del>security-domain>csa-encryption-sec;</del></security-domain>
    <user-name>datasource_username</user-name>
  </security>
</datasource>
```

```
<password>
  ${VAULT::<vault_block_datasource>::password::AjkhLDFObLgeMmEtX0}
</password>
</security>
</datasource>
```

7. Locate and delete the following entry for the datasource password (this entry may have been modified):

Microsoft SQL Server

```
<security-domain name="csa-encryption-sec" cache-type="default">
  <authentication>
    <login-module
      code="org.picketbox.datasource.security.SecureIdentityLoginModule"
      flag="required">
      <module-option name="username" value="<old_user_name>"/>
      <module-option name="password" value="<old_encoded_password>"/>
      <module-option name="managedConnectionFactoryName"
        value="jboss.jca:service=LocalTxCM,name=mssqlDS"/>
    </login-module>
  </authentication>
</security-domain>
```

8. Add the following vault properties to <server xmlns="urn:jboss:domain:1.2">. Set the values as applicable to your system setup.

```
<vault>
  <vault-option name="KEYSTORE_URL" value="C:\vault\vault.keystore"/>
  <vault-option name="KEYSTORE_PASSWORD" value="MASK-2PtpNyQsI1E7t"/>
  <vault-option name="KEYSTORE_ALIAS" value="vault"/>
  <vault-option name="SALT" value="12345678"/>
  <vault-option name="ITERATION_COUNT" value="50"/>
  <vault-option name="ENC_FILE_DIR" value="C:\vault\"/>
</vault>
```

Step 4: Import the HP Operations Orchestration Certificate as a Trusted Certificate

Because the integration of HP CSA and HP Operations Orchestration requires SSL, you must import the HP Operations Orchestration certificate.

For each system running HP CSA, import the root certificate of each HP Operations Orchestration's Certificate Authority (you must first export HP Operations Orchestration's certificate from HP Operations Orchestration's truststore and then import it into the HP CSA server truststore).

The following is an example of how to export the HP Operations Orchestration certificate and import it into the HP CSA server truststore.

1. On the system running HP Operations Orchestration, open a command prompt and change the directory to %ICONCLUDE_HOME% (Windows) or \$ICONCLUDE_HOME (Linux).

2. Run the following command:

HP Operations Orchestration 9.x, Windows

```
.\jre1.6\bin\keytool -exportcert -alias pas -file C:\oo.crt  
-keystore .\Central\conf\rc_keystore -storepass bran507025
```

HP Operations Orchestration 10, Windows

```
.\jre1.6\bin\keytool -exportcert -alias tomcat -file C:\oo.crt  
-keystore .\Central\var\security\key.store -storepass changeit
```

HP Operations Orchestration 9.x, Linux

```
./jre1.6/bin/keytool -exportcert -alias pas -file /tmp/oo.crt  
-keystore ./Central/conf/rc_keystore -storepass bran507025
```

HP Operations Orchestration 10, Linux

```
./jre1.6/bin/keytool -exportcert -alias tomcat -file /tmp/oo.crt  
-keystore ./Central/var/security/key.store -storepass changeit
```

where C:\oo.crt and /tmp/oo.crt are examples of filenames and locations used to store the exported root certificate (you can choose a different filename and location).

3. If HP Operations Orchestration is not running on the same system as HP Cloud Service Automation, copy oo.crt from the HP Operations Orchestration system to the system running HP Cloud Service Automation (in this example, the file is copied to C:\).
4. On the system running HP CSA, change the directory to %CSA_HOME% and run the following command:

```
"<csa_jre>\bin\keytool" -importcert -alias <pas|tomcat>  
-file C:\oo.crt -keystore  
.\jboss-as-7.1.1.Final\standalone\configuration\csa_server_truststore.p12  
-storepass <HP CSA server truststore password>
```

5. When prompted to trust the certificate, enter yes.

Step 5: Import the Certificates for other Applications as Trusted Certificates

If other applications, such as the database, LDAP, SMTP, HP Operations Orchestration Load Balancer, or HP Continuous Delivery Automation require SSL, you must import the other applications' certificates into the HP CSA server truststore.

The following is an example of how to import another application's certificate into the HP CSA server truststore.

1. Export the certificate for the application and copy the certificate file to the system running HP CSA.
2. Import this certificate into the HP CSA server truststore.

For example, run the following command on the system running HP CSA:

```
"<csa_jre>\bin\keytool" -importcert -alias <alias>  
-file <filename.crt> -trustcacerts  
-keystore "%CSA_HOME%\jboss-as-7.1.1.Final\standalone\  
configuration\csa_server_truststore.p12"  
-storepass <HP CSA server truststore password>
```

Step 6: Configure Client Browsers (Optional)

If HP CSA's certificate is not signed by a Certificate Authority, when accessing the Cloud Service Management Console, warning messages are displayed in the browser (these messages do not affect normal operations of HP CSA). To avoid these warning messages, import the `csa_fips.crt` file or add an exception.

- **Microsoft Internet Explorer and Chrome:** From Windows Explorer, double-click on the `csa_fips.crt` file to begin the import process. Install the certificate in the Trusted Root Certification Authorities store. For information on how to import the certificate, refer to the browser's online documentation.
- **Firefox:** Add an exception by opening the browser and navigating to `https://<csahostname>:8444/csa` where `<csahostname>` is the fully-qualified domain name of the system on which HP CSA is running. When the **This Connection is Untrusted** page opens, select **I Understand the Risks**, click the **Add Exception** button, verify the Server Location, and click **Confirm Security Exception**. For information on how to import the certificate, refer to the browser's online documentation.

Re-Encrypt HP CSA Passwords

This section describes how to generate and replace the passwords used by HP CSA. You will be generating new passwords using FIPS 140-2 compliant utilities.

Note: In the following instructions, `%CSA_HOME%` is the directory in which HP Cloud Service Automation is installed (for example, `C:\Program Files\Hewlett-Packard\CSA`) and a JRE has been installed for HP CSA in `<csa_jre>`.

Generate and replace the passwords for the following HP CSA properties:

- `csaTruststorePassword`
- `securityAdminPassword`
- `securityCsaReportingUserPassword`

- securityTransportPassword
- securityOolInboundUserPassword
- securityCdaInboundUserPassword
- securityIdmTransportUserPassword
- securityCatalogAggregationTransportUserPassword
- securityEncryptedSigningKey

Generate and replace the passwords for the following tools:

- Content archive tool
- Purge tool
- Process definition tool
- Provider tool
- Schema installation tool

To generate and replace existing passwords used by HP CSA, do the following:

1. Open a command prompt and change to the %CSA_HOME%\scripts directory. For example:

```
C:\Program Files\Hewlett-Packard\CSA\scripts
```

2. Generate a password by running the following command (this example uses the same example names from ["Create an HP CSA Encryption Keystore" on page 109](#)):

```
"<csa_jre>\bin\java" -jar passwordUtil.jar encrypt <password> JsafeJCE  
../jboss-as-7.1.1.Final/standalone/configuration/csa_encryption_keystore.p12  
<HP CSA encryption keystore password> csa_encryption_key  
../jboss-as-7.1.1.Final/standalone/configuration/key.dat
```

Note: The path separators used in the passwordUtil.jar script options are forward slashes (/). You can also use double backward slashes (\) as your path separators.

The encrypted value of the password is displayed.

If you used different names for the keystore, alias, or encrypted symmetric key file, here is an example of the command without using the example names:

```
"<csa_jre>\bin\java" -jar "%CSA_HOME%\scripts\passwordUtil.jar" encrypt  
<password> JsafeJCE <HP CSA encryption keystore>  
<HP CSA encryption keystore password>  
<HP CSA encryption keystore alias>  
<Location and name of the encrypted symmetric key>
```

Note: If you use path separators in the `passwordUtil.jar` script options, use either a single forward slash (/) or double backward slashes (\\) as your path separator.

3. To update HP CSA properties used by the Cloud Service Management Console, edit the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties` file. Update the password for the following properties:

- `csaTruststorePassword`
- `securityAdminPassword`
- `securityCsaReportingUserPassword`
- `securityTransportPassword` (use the same password for the Identity Management component)
- `securityOoInboundUserPassword`
- `securityCdaInboundUserPassword`
- `securityIdmTransportUserPassword` (use the same password for the Identity Management component and Marketplace Portal)
- `securityCatalogAggregationTransportUserPassword`
- `securityEncryptedSigningKey` (use the same password for the Identity Management component)

See "[Configure the Identity Management Component](#)" on page 133 for more information about configuring password for the Identity Management component.

Note: In the properties file, the encrypted password value must be preceded by `ENC` without any separating spaces and is enclosed in parentheses.

For more information about these properties, refer to the *HP Cloud Service Automation Configuration Guide*.

4. Update the password property value defined in the database property file for the following tools:

- Content archive tool
- Purge tool
- Process definition tool
- Provider tool
- Schema installation tool

Configure HP CSA Properties

To configure HP CSA properties for FIPS 140-2 compliance:

1. Open a command prompt and change to the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes` directory. For example:

```
C:\Program Files\Hewlett-Packard\CSA\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes
```

2. Open the `csa.properties` file in an editor and configure the following properties:

Property	Description
<code>useExternalProvider</code>	<p>Required if enabling FIPS 140-2 compliance mode. To enable, set this property to true. To disable, set this property to false or comment it out.</p> <p>When enabled, HP CSA uses the RSA BSAFE libraries to encrypt and decrypt passwords. If a password was encrypted using different libraries (for example, if the password was encrypted before this property is enabled), the resulting decrypted password will not be valid.</p> <p>If you cannot connect to the database after you have configured HP CSA for FIPS 140-2 compliance, try re-encrypting the database password in the database properties file.</p> <p>Default: commented out/disabled</p>
<code>securityProviderName</code>	<p>Required if FIPS 140-2 compliance mode is enabled. The name of the FIPS 140-2 compliant provider. By default, HP CSA uses the RSA BSAFE provider and this property should be set to <code>JsafeJCE</code>.</p>

Property	Description
keySize	<p>Optional. The key size used for HP CSA encryption. By default, the key size is 128. If you manually enter a different key size when encrypting a password, uncomment this property and configure the value to the key size used to encrypt the passwords.</p> <p>Note: All passwords must be encrypted using the same key size.</p> <p>By default, the password encryption utility encrypts all passwords using a key size of 128 (even if you do not specify a key size when running the utility).</p>
keystore	<p>Required if FIPS 140-2 compliance mode is enabled. The absolute path to and file name of the HP CSA encryption keystore. This is the keystore that supports PKCS #12 and stores the key used by HP CSA to encrypt and decrypt data in HP CSA.</p> <p>Example (this example uses the same example name from "Create an HP CSA Encryption Keystore" on page 109):</p> <pre>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\csa_encryption_keystore.p12</pre>
keyAlias	<p>Required if FIPS 140-2 compliance mode is enabled. The alias used to identify the HP CSA encryption key in the HP CSA encryption keystore.</p> <p>Example (this example uses the same example name from "Create an HP CSA Encryption Keystore" on page 109):</p> <pre>csa_encryption_key</pre>

Property	Description
keystorePasswordFile	<p>Required if FIPS 140-2 compliance mode is enabled. The absolute path to and file name of the HP CSA encryption keystore password. This is a temporary file that stores the HP CSA encryption keystore password in clear text. This file is required to start the HP CSA service and is automatically deleted when the service is started.</p> <p>The password file must contain only the following content: keystorePassword=<HP CSA encryption keystore password></p> <p>where <HP CSA encryption keystore password> is the HP CSA encryption keystore password in clear text.</p>
encryptedKeyFile	<p>Required if FIPS 140-2 compliance mode is enabled. The location of the HP CSA encrypted symmetric key.</p> <p>Example (this example uses the same example name from "Create an HP CSA Encryption Keystore" on page 109):</p> <pre>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\key.dat</pre>
csaTruststore	<p>Required. The HP Cloud Service Automation keystore that stores trusted Certificate Authority certificates.</p> <div style="background-color: #f0f0f0; padding: 10px; margin: 10px 0;"> <p>Note: This property is located in another section of the <code>csa.properties</code> file. Its description is repeated here as its value should be updated when HP CSA has been configured to be compliant with FIPS 140-2.</p> </div> <p>Example (this example uses the same example name of the HP CSA server truststore from "Create an HP CSA Encryption Keystore" on page 109):</p> <pre>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\csa_server_truststore.p12</pre>

Property	Description
csaTruststorePassword	<p>Required. The encrypted password of the HP Cloud Service Automation keystore (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.</p> <p>Default: No default specified</p> <p>Example</p> <p>ENC(9eC7TTnB0uG0GK5U648UITcEV5AuV5T)</p> <p>Note: This property is located in another section of the <code>csa.properties</code> file. Its description is repeated here as its value should be updated when HP CSA has been configured to be compliant with FIPS 140-2.</p> <p>This is the <code><HP CSA server truststore password></code> from "Create an HP CSA Encryption Keystore" on page 109.</p>

3. Copy these property values to the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\classes\idm-service.properties` file. The property values must be the same in both files.

Configure the Marketplace Portal

This section describes how to make the Marketplace Portal comply with FIPS 140-2. The section lists the required software and provides procedures for building the necessary components.

Prerequisites

The Marketplace Portal NodeJS distribution is built with OpenSSL. However, it is statically linked only and therefore not FIPS-compliant. For FIPS compliance, you must re-compile NodeJS and OpenSSL. The Marketplace Portal must also use the NodeJS HTTPS module with SSL and crypto to enable password encryption and decryption.

You will need the following software to configure FIPS compliance:

- OpenSSL source code 1.0.1e or above
- OpenSSL FIPS Object Module 2.0.5 or above
- NodeJS source code v0.10.21

- Visual Studio 2010 or 2012
- Netwide Assembler (NASM) 2.10.09
- ActivePerl 5.18.1.1800
- Python 2.6 or 2.7

Configure the OpenSSL FIPS Object Module

The Marketplace Portal component and the Marketplace Portal password utility component are integrated with a third-party FIPS 140-2 compliant cryptographic module called OpenSSL FIPS Object Module v2.0. When the Marketplace Portal is compliant, its functions and procedures (such as SSL/TLS connections and encryption of stored sensitive data, which require cryptography such as secure hash, encryption, and digital signature) use the cryptography services from the OpenSSL FIPS Object Module configured to run in FIPS mode.

Compile the OpenSSL FIPS Object Module

Enter the following commands:

```
"C:\Program Files (x86)\Microsoft Visual Studio 10.0\Common7\Tools\vsvars32.bat"  
cd c:\openssl-fips-2.0.5  
set PROCESSOR_ARCHITECTURE=x86  
ms\do_fips  
ms\do_nasm  
nmake -f ms\ntdll.mak test  
nmake -f ms\ntdll.mak install
```

The files are copied to the C:\usr\local\ssl\fips-2.0 folder. (If the files are copied to another destination, you must unset the FIPS_DIR environment variable.)

Compile OpenSSL

1. Enter the following commands:

```
"C:\Program Files (x86)\Microsoft Visual Studio  
10.0\Common7\Tools\vsvars32.bat"  
cd c:\openssl-1.0.1e  
perl Configure VC-WIN32 fips --with-fipslibdir=C:\usr\local\ssl\fips-2.0\lib  
--with-fipsdir=C:\usr\local\ssl\fips-2.0  
ms\do_nasm
```

2. Edit the ms\ntdll.mak file.
3. Locate the BASEADDR line as follows:

```
$(O_CRYPT0): $(CRYPTO0BJ) $(O_FIPSCANISTER) $(PREMAIN_DSO_EXE)  
SET FIPS_LINK=$(LINK)
```

```
SET FIPS_CC=$(CC)
SET FIPS_CC_ARGS=/Fo$(OBJ_D)\fips_premain.obj $(SHLIB_CFLAGS) -c
SET PREMAIN_DSO_EXE=$(PREMAIN_DSO_EXE)
SET FIPS_SHA1_EXE=$(FIPS_SHA1_EXE)
SET FIPS_TARGET=$(O_CRYPT)
SET FIPSLIB_D=$(FIPSLIB_D)
$(FIPSLINK) $(MLFLAGS) /map /base:$(BASEADDR) /out:$(O_CRYPT)
/def:ms/LIBEAY32.def @<<
$(SHLIB_EX_OBJ) $(CRYPTOOBJ) $(O_FIPSCANISTER) $(EX_LIBS) $(OBJ_D)\fips_
premain.obj
<<
IF EXIST $@.manifest mt -nologo -manifest $@.manifest -
outputresource:$@;2
```

4. Add the /fixed option to the linker options as follows:

```
$(FIPSLINK) $(MLFLAGS) /map /fixed /base:$(BASEADDR) /out:$(O_CRYPT)
/def:ms/LIBEAY32.def @<<
$(SHLIB_EX_OBJ) $(CRYPTOOBJ) $(O_FIPSCANISTER) $(EX_LIBS) $(OBJ_D)\fips_
premain.obj
```

5. Enter the following commands:

```
nmake -f ms\ntdll.mak clean
nmake -f ms\ntdll.mak install
```

The files are copied to the C:\usr\local\ssl folder.

Verify That FIPS is Compiled Correctly for OpenSSL

Enter the following commands:

```
cd c:\usr\local\ssl\bin
openssl version
```

The command output should indicate the presence of FIPS.

Configure NodeJS

You must modify and then compile NodeJS to enable FIPS support.

Modify NodeJS Source Code to Add FIPS Support

1. Enter the following command:

```
python configure --dest-cpu=ia32 --shared-openssl --shared-openssl-libname=libeay32,ssleay32 --shared-openssl-includes=c:\usr\local\ssl\include
```

2. Open node.sln in Visual Studio.

3. Change the configuration to Release.
4. Open the linker input project properties for `mksnapshot.ia32` and remove `libeasy32.lib` and `ssleay32.dll` from the additional dependencies.
5. Open the linker general project properties for the node and add `c:\usr\local\ssl\lib` to the additional library directories.
6. Edit the `src/node.cc` file.
7. Include the `crypto.h` file at line 78:

```
#if HAVE_OPENSSL
#include "node_crypto.h"
#include "openssl/crypto.h"
#endif
```

8. Add `FIPS_mode_set` at line 2299 (after adding `openssl/crypto.h`):

```
void SetupProcessObject(...)
{
...
#if HAVE_OPENSSL
...
if(!FIPS_mode_set(1)){
    fprintf(stderr,"OpenSSL shared library does not support FIPS mode");
    exit(1);
}
...
#endif
...
}
```

9. Edit the `../../src/object.cc` file in project `v8_base`.
10. Comment out the assertion check at line 4698:

```
//ASSERT(target->instance_descriptors()->GetKey(descriptor_number) == name);
```

Compile NodeJS

Complete the following steps:

1. Open `node.sln` in Visual Studio.
2. Build a solution.
3. Copy the `libeasy32.dll` and `ssleay32.dll` files from the `C:\usr\local\ssl\bin` folder to

the %CSA_HOME%\node.js folder.

4. Copy the Release\node.exe file to the %CSA_HOME%\node.js folder.

Verify That the Node Has FIPS Compiled Correctly

1. Create a new script named test_fips.js to determine if FIPS is compiled correctly:

```
#!/usr/bin/env node
'use strict';
var crypto = require('crypto');
var cipher = crypto.createCipher('bf','12345');
var encrypted = cipher.update('encrypt this very long string' , 'utf8', 'base64');
encrypted = encrypted + cipher.final('base64');
var decipher = crypto.createDecipher('bf','12345');
var decrypted = decipher.update(encrypted, 'base64', 'utf8');
decrypted = decrypted + decipher.final('utf8');
console.log( 'encrypted: ' + encrypted );
console.log( 'decrypted: ' + decrypted );
```

2. Enter the following command to execute the test_fips.js script:

```
./node test_fips.js
```

The script should fail, which verifies that the node is compiled properly for FIPS.

Encrypt Passwords

The Marketplace Portal implements password encryption via PBES2 using the NodeJS crypto library. The key is hard coded in the JavaScript (JS), but it is not directly used. Instead, the key is used to decrypt a randomly-generated key that is encrypted and saved in a keyfile, which will be protected by the file system.

Note: Make sure the file system in which the Marketplace Portal exists is protected by the operating system, so that no one without permission can read or edit files or folders.

Keyfile, Encryption, and Decryption Workflow

Create a Keyfile

1. Generate password (the real password use to encrypt any message).
2. Generate the salt.
3. Use the master password (hard coded) to generate a derived key (PBKDF2).

4. Use the derived key to encrypt a password using 3DES (PBES2).
5. Save the salt and the encrypted password to a keyfile.

Encrypt

1. If the keyfile does not exist, create one; otherwise, read the keyfile to obtain the salt and the encrypted password.
2. Decrypt the encrypted password with a master password to get the derived key.
3. Encrypt plain text (UTF-8) with a derived key (Base64) and salt (Base64) to get the encrypted message.

Decrypt

1. Read the keyfile to obtain the salt and the encrypted password .
2. Decrypt the encrypted password with the master password to get the derived key.
3. Decrypt the encrypted message with the derived key and salt to get the plaintext message.

Encrypt a Password

The Marketplace Portal provides a password utility (`passwordUtil.js`), which you use to encrypt a password and generate a keyfile.

Following is the password utility syntax.

```
cd %CSA_HOME%\portal\bin
..\..\node.js\node passwordUtil.js --help
..\..\node.js\node passwordUtil.js --keyfilePath <keyfile path> --password <password to encrypt>
```

Following is an example.

```
..\..\node.js\node passwordUtil.js
Please enter location of the key file *keyfile*
Please enter password to encrypt -password hidden-
Encrypted password is TPhdYjB72z+v+pHdscGskQ==
```

Configure Settings for Keyfile, Session ID Cookie Secret, IdM Transport User Password, and SSL Keyfile or Truststore Passphrase

1. Edit the %CSA_HOME%\portal\conf\mpp.json file:

```
{
  "uid": "ccue_mpp",
  "port": 8089,
  "defaultOrganizationName": "CSA_CONSUMER",
  "keyfile": "conf/keyfile",
  "session": {
    "cookieSecret": "enc(dqmtAEFpkRd4DYpx4pDMzQ==)",
    "timeoutDuration": 1800,
    "cleanupInterval": 3600
  },
  "provider": {
    "url": "https://localhost:8444",
    "contextPath": "/csa/api/mpp"
  },
  "idmProvider": {
    "url": "https://localhost:8444",
    "contextPath": "/idm-service",
    "username": "idmTransportUser",
    "password": "enc(2JQmsT2352L4XdiIVldKnoZn8p09Pdn+)"
  },
  "https": {
    "enabled": true,
    "options": {
      "key": "../conf/server.key",
      "cert": "../conf/server.crt",
      "passphrase": "enc(2b+Ux fd5ionF7mP sasARvg==)"
    }
  },
  "ha": {
    "enabled": false,
    "numWorkers": 2,
    "redis": {
      "options": {
        "host": "localhost",
        "port": 6379
      }
    }
  }
}
```

2. Set the following parameters:

- `mpp.keyfile` is the location of the key file generated by the Marketplace Portal password utility (`passwordUtil.js`).
- `mpp.session.cookieSecret` is the secret passphrase to encrypt the session ID cookie on the browser. This is an encryptable field, so make sure you enclose it with `enc()`.
- `mpp.idmProvider.password` is the transport user used to connect to Identity Management (IdM). This is an encryptable field, so make sure you enclose it with `enc()`.
- `mpp.https.options.passphrase` is the passphrase of the SSL keyfile or truststore. This is an encryptable field, so make sure you enclose it with `enc()`.

Note: Do not copy the encrypted password from this example, because the encryption key and salt are generated and stored in the keyfile. However, you can reuse the keyfile for multiple systems, and the encrypted password in the `mpp.json` file will be the same.

Configure SSL

The Marketplace Portal uses the NodeJS HTTPS module to enable SSL. OpenSSL is used to perform the encryption and decryption.

FIPS 140-2 supports only TLS. You must configure the Marketplace Portal to use a FIPS-compliant cipher as follows.

1. Edit the `%CSA_HOME%\portal\conf\mpp.json` file:

```
"https": {
  "enabled": true,
  "options": {
    "key": "../conf/key.pem",
    "cert": "../conf/cert.pem",
    "secureProtocol": "TLSv1_server_method",
    "ciphers": "TLS_RSA_WITH_3DES_EDE_CBC_SHA:HIGH:!MD5:!aNULL:!EDH",
    "passphrase": "ENC(pEYj2aVNBvUyH85PDnVjZg==)"
  }
},
```

2. Set the `secureProtocol` parameter to `TLSv1_server_method`.
3. Set the `ciphers` parameter to `TLS_RSA_WITH_3DES_EDE_CBC_SHA`.

Configure the Identity Management Component

If you are using the Identity Management component, to configure the Identity Management component for FIPS 140-2 compliance, do the following:

1. Update the `applicationContext.xml` file.
2. Re-encrypt passwords.
3. Update the `idm-security.properties` file.

Note: The examples in this section explain how to configure the Identity Management component that is installed on the same instance as HP CSA, where HP CSA is configured in a standalone environment. If your environment is different, files may be located in a different directory.

In the following instructions, `%CSA_HOME%` is the directory in which HP Cloud Service Automation is installed (for example, `C:\Program Files\Hewlett-Packard\CSA`) and `<csa_jre>` is the directory in which the JRE used by HP CSA has been installed.

Update the `applicationContext.xml` File

The `applicationContext.xml` file for the Cloud Service Management Console must be updated to be FIPS 140-2 compliant. Do the following:

1. Open the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\spring\applicationContext.xml` file in a text editor.
2. Locate the `START Standard Mode Configuration` comment and comment out the following content that appears between the `START Standard Mode Configuration` and `END Standard Mode Configuration` comments:

```
<bean id="simpleEncryptionConfiguration"  
class="com.hp.csa.security.CSASimplePBConfig" init-method="init">  
</bean>
```

```
<bean id="configurationEncryptor"  
class="org.jasypt.encryption.pbe.StandardPBEStrategyEncryptor">  
  <property name="config" ref="simpleEncryptionConfiguration" />  
</bean>
```

```
<bean id="propertyConfigurer" class="org.jasypt.spring.properties.  
EncryptablePropertyPlaceholderConfigurer">  
  <constructor-arg ref="configurationEncryptor" />  
  <property name="locations">  
    <list>  
      <value>classpath:csa.properties</value>  
      <value>classpath:swagger.properties</value>  
    </list>  
  </property>  
</bean>
```

3. Locate the `START FIPS Mode Configuration` comment that appears immediately after the `Standard Mode Configuration` section and uncomment the following content that appears between the `START FIPS Mode Configuration` and `END FIPS Mode Configuration` comments:

```
<bean id="configurationEncryptor"  
class="com.hp.csa.security.util.CSASecurityHelper" />  
  
<bean id="propertyConfigurer" class=  
"com.hp.csa.security.CSAEncryptablePropertyPlaceholderConfigurer">  
  <constructor-arg ref="configurationEncryptor" />  
  <property name="locations">  
    <list>  
      <value>/WEB-INF/spring/applicationContext.properties</value>  
    </list>  
  </property>  
</bean>
```

4. Locate the `START FIPS Mode Configuration` comment for the `csaTemplateFactory` bean and uncomment the following content that appears between the `START FIPS Mode Configuration` and `END FIPS Mode Configuration` comments:

```
<property name="fipsEnabled" value="true" />
```

5. Locate the `START FIPS Mode Configuration` comment for the `keystoneTemplateFactory` bean and uncomment the following content that appears between the `START FIPS Mode Configuration` and `END FIPS Mode Configuration` comments:

```
<property name="fipsEnabled" value="true" />
```

6. Save and close the file.

Re-Encrypt Passwords

This section describes how to generate and replace the passwords used by the Identity Management component. You will be generating new passwords using FIPS 140-2 compliant utilities.

Generate and replace the passwords for the following Identity Management component properties:

- `idm.csa.password`
- `idm.encryptedSigningKey`
- `idm.keystone.transportPassword`
- `consumer`
- `idmTransportUser`

Note: The default password values for these properties are provided in the steps below (they will appear in parentheses after the property name).

To generate and replace existing passwords used by the Identity Management component, do the following:

1. Open a command prompt and change to the %CSA_HOME%\scripts directory. For example:

```
C:\Program Files\Hewlett-Packard\CSA\scripts
```

2. Generate a password by running the following command (this example uses the same example names from ["Create an HP CSA Encryption Keystore" on page 109](#)):

```
"<csa_jre>\bin\java" -jar passwordUtil.jar encrypt <password> JsafeJCE  
../jboss-as-7.1.1.Final/standalone/configuration/csa_encryption_keystore.p12  
<HP CSA encryption keystore password> csa_encryption_key  
../jboss-as-7.1.1.Final/standalone/configuration/key.dat
```

Note: The path separators used in the passwordUtil.jar script options are forward slashes (/). You can also use double backward slashes (\) as your path separators.

The encrypted value of the password is displayed.

If you used different names for the keystore, alias, or encrypted symmetric key file, here is an example of the command without using the example names:

```
"<csa_jre>\bin\java" -jar "%CSA_HOME%\scripts\passwordUtil.jar" encrypt  
<password> JsafeJCE <HP CSA encryption keystore>  
<HP CSA encryption keystore password>  
<HP CSA encryption keystore alias>  
<Location and name of the encrypted symmetric key>
```

Note: If you use path separators in the passwordUtil.jar script options, use either a single forward slash (/) or double backward slashes (\) as your path separator.

3. Open the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\spring\applicationContext.properties file in a text editor and do the following:
 - a. Update the idm.csa.password (csaTransportUser) property. idm.csa.password must be the same password you configured for the securityTransportPassword property (which is configured in the csa.properties file). See ["Re-Encrypt HP CSA Passwords" on page 120](#) for more information about encrypting the securityTransportPassword password property.
 - b. Update the idm.encryptedSigningKey (cloud) property. idm.encryptedSigningKey

must be the same password you configured for the `securityEncryptedSigningKey` property (which is configured in the `csa.properties` file). See ["Re-Encrypt HP CSA Passwords" on page 120](#) for more information about encrypting the `securityEncryptedSigningKey` password property.

- c. If you are using Keystone, update the `idm.keystone.transportPassword` property. `idm.keystone.transportPassword` must be the password you configured for the user defined by the `idm.keystone.transportUsername` property and is located above the `idm.keystone.transportPassword` property.
 - d. Save and close the file.
4. Open the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\classes\csa-consumer-users.properties` file in a text editor and do the following:
 - a. Update the `consumer` (`cloud,SERVICE_CONSUMER,ROLE_REST,enabled`) property.

Note: This property not only contains the password, but also the roles that control access to HP CSA and if the account is enabled.

This entire value must be encrypted.

- b. Save and close the file.
5. Open the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\classes\integrationusers.properties` file in a text editor and do the following:
 - a. Update the `idmTransportUser` (`idmTransportUser,ROLE_ADMIN,PERM_IMPERSONATE,enabled`) property.

Note: This property not only contains the password, but also the roles that control access to HP CSA and if the account is enabled.

This entire value must be encrypted.

The password in the `idmTransportUser` value must be the same password you configured for both the `securityIdmTransportUserPassword` property (configured in the `csa.properties` file) and the `password` attribute (configured in the `idmProvider` section of the `mpp.json` file). See ["Re-Encrypt HP CSA Passwords" on page 120](#) for more information about encrypting the `securityIdmTransportUserPassword` password property. See ["Encrypt a Marketplace Portal Password" on page 78](#) for more information about encrypting the `password` attribute.

- b. Save and close the file.

Update the `idm-security.properties` File

Enable the FIPS 140-2 security settings in the `idm-security.properties` file. Do the following:

1. Open the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\classes\idm-service.properties` file in a text editor.
2. Verify that the FIPS 140-2 property values in this file are the same values that are configured in the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties` file. You should have already copied these values (see ["Configure HP CSA Properties" on page 123](#) for more information about these properties).
3. Save and close the file.

Start HP CSA

To start HP CSA:

1. If you have configured HP CSA to be FIPS 140-2 compliant, create an HP CSA encryption keystore password file. The name and location of this file must match the value configured for the `keystorePasswordFile` property in the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties` file.

The password file must contain only the following content: `keystorePassword=<HP CSA encryption keystore password>`

where `<HP CSA encryption keystore password>` is the HP CSA encryption keystore password in clear text.

This file is automatically deleted when the HP Cloud Service Automation service is started.

2. On the server that hosts HP CSA, navigate to **Control Panel > Administrative Tools > Services**.
3. Right-click on the HP Cloud Service Automation service and select **Start**.
4. Right-click on the HP Marketplace Portal service and select **Start**.

After the service has started, review the log files in `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\log\` and verify that no SSL or keystore errors are present.

Test SSL Connections

To test the SSL connection to the Cloud Service Management Console, on a client system, open a supported Web browser and navigate to `https://<csahostname>:8444/csa` where `<csahostname>` is the fully-qualified domain name of the system that was used when the SSL certificate was created. If the client browser is configured to accept HP CSA's certificate and the Web application opens without a certificate warning, then you have successfully configured HP CSA to use HP CSA's certificate. If you did not configure the client browser to accept

HP CSA's certificate, verify that the only certificate warning relates to the certificate not being issued by a trusted authority. If any other certificate warning is displayed, review all steps in ["Create a New Keystore and Truststore for SSL Communication" on page 112](#) to be sure they were followed as documented.

Integrate HP CSA with a Common Access Card

This section provides information about the integration between a Common Access Card (CAC) and HP CSA, where CAC is used as the user authentication mechanism. By configuring CAC, you are able to log into HP CSA using a Personal Identity Verification (PIV) card.

After integrating HP CSA with CAC, you can log in to the Cloud Service Management Console and the Marketplace Portal using a PIV card with a valid certificate, log in to the Cloud Service Management Console and the Marketplace Portal using an HP CSA out-of-the-box user account without a PIV card, and cannot log in to the Cloud Service Management Console and the Marketplace Portal as a valid LDAP user without a PIV card.

For the Cloud Service Management Console and for the Marketplace Portal, SSO cannot be enabled at the same time as CAC. Only the JKS keystore type is supported for CAC.

Configure HP CSA

Complete the following steps to integrate HP CSA with CAC:

- [Stop HP CSA](#)
- [Update JBoss configuration to set up client authentication](#)
- [Configure the Cloud Service Management Console](#)
- [Configure the Marketplace Portal](#)
- [Configure certificate revocation](#)
- [Start HP CSA](#)

Stop HP CSA

To stop HP CSA:

1. On the server that hosts HP Cloud Service Automation, navigate to **Control Panel > Administrative Tools > Services**.
2. Right-click on the HP Cloud Service Automation service and select **Stop**.
3. Right-click on the HP Marketplace Portal service and select **Stop**.

Update JBoss Configuration to Set Up Client Authentication

To update the JBoss configuration, do the following:

1. Download the CA certificate for the digital certificate from the PIV card.
2. Import the CA certificate into a new truststore (it must be a JKS truststore). For example, if you named the CA certificate from step 1 `CACcert.cer`, saved it in `C:\`, and want to create a truststore named `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\piv_keystore`, run the following command:

```
"%csa_jre%\bin\keytool" -importcert -file C:\CACcert.cer -alias caccert -  
keystore %CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\piv_  
keystore -storepass changeit
```

3. In the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml` file, add the `ca-certificate-file=<location of truststore>` attribute to the `<ssl>` element and update the `verify-client` parameter in the `<ssl>` element to `want`. For example, change the following from:

```
<ssl name="ssl" key-alias="CSA" certificate-key-file="%CSA_HOME\  
jboss-as-7.1.1.Final\standalone\configuration\keystore"  
verify-client="false"/>
```

to

```
<ssl name="ssl" key-alias="CSA" certificate-key-file="%CSA_HOME\  
jboss-as-7.1.1.Final\standalone\configuration\keystore"  
ca-certificate-file="%CSA_HOME%\jboss-as-7.1.1.Final\standalone\  
configuration\piv_keystore" verify-client="falsewant" />
```

Configure the Cloud Service Management Console

Complete the following steps to integrate the Cloud Service Management Console with CAC:

1. Open the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties` file in a text editor and uncomment the following line:

```
enableCAC=true
```

2. Update the Spring Security configuration. Open the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\applicationContext-security.xml` file in a text editor and make the following changes:

- a. Locate the IDM Authentication comment and comment out the content that follows it:

```
<!--<security:authentication-provider ref="idmAuthProvider"/>-->
```

- b. Locate the x509 and custom filter config for CAC comment and uncomment the content that follows it:

```
<x509 subject-principal-regex="CN=(.*?)," user-service-  
ref="cacUserDetailsService" />  
<custom-filter position="LAST" ref="cacFilter" />
```

Note: The `<x509 subject-principal-regex="CN=(.*?)," user-service-ref="cacUserDetailsService" />` line uses a regular expression to let Spring know that it should extract the CN (Common Name) from the certificate and use it as the username of the user to load the user details. If the username is not stored as the CN in the certificate, you can change the regex to pick it up from the relevant field. The `<custom-filter position="LAST" ref="cacFilter" />` line defines the custom filter to be used and specifies that it will need to be set as the LAST filter in the chain of filters.

- c. Locate the logout configuration for CAC comment and uncomment the content that follows it:

```
<logout logout-success-url="http://www.hp.com"  
invalidate-session="true" />
```

Update the value of the `logout-success-url` attribute of the `<logout>` element to point to a URL of your choice (outside of the HP CSA application URLs).

Note: The URL must start with `http://` and cannot start with just `www`.

- d. Locate the Bean definitions for CAC comment and uncomment the content that follows it:

```
<beans:bean id="cacUserDetailsService"  
class="com.hp.csa.authn.impl.CACUserDetailsServiceImpl">  
  <beans:property name="restRole" value="ROLE_REST" />  
</beans:bean>  
<beans:bean id="cacFilter" class="com.hp.csa.authn.impl.CACFilter" />
```

Configure the Marketplace Portal

Complete the following steps to integrate the Marketplace Portal with CAC:

1. Open the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\spring\applicationContext-security.xml` file in a text

editor.

2. Uncomment the CAC CONFIG section so that it appears as follows:

```
<!-- CAC CONFIG -->
<security:http pattern="/idm/v0/login" use-expressions="true" auto-
config="false">
    <security:http-basic />
    <security:custom-filter ref="requestTokenCompositeFilter"
position="FIRST"/>
    <security:x509 subject-principal-regex="CN=(.*?)," user-service-
ref="cacUserDetailsService" />
    <security:custom-filter position="LAST" ref="cacFilter" />
</security:http>
```

Note: The `<security:x509 subject-principal-regex="CN=(.*?)," user-service-ref="cacUserDetailsService" />` line uses a regular expression to let Spring know that it should extract the CN (Common Name) from the certificate and use it as the username of the user to load the user details. If the username is not stored as the CN in the certificate, you can change the regex to pick it up from the relevant field. The `<security:custom-filter position="LAST" ref="cacFilter" />` line defines the custom filter to be used and specifies that it will need to be set as the LAST filter in the chain of filters.

3. Uncomment the CAC CONFIG FILTER section so that it appears as follows:

```
<!-- CAC CONFIG FILTER -->
<bean id="cacFilter"
    class="com.hp.ccue.identity.filter.certificate.CertificateFilter">
    <property name="generateTokenUtil" ref="generateTokenUtil" />
    <property name="loginRedirectionHandler" ref="loginRedirectionHandler"/>
    <property name="tokenFactory" ref="tokenFactory"/>
    <property name="authenticationProvider" ref="cacLdapAuthProvider"/>
</bean>
<!-- CAC CONFIG -->
```

4. Uncomment the GenerateResponseTokenUtil section so that it appears as follows:

```
<!--GenerateResponseTokenUtil-->
<bean name="generateTokenUtil"
    class="com.hp.ccue.identity.util.GenerateResponseTokenUtil" />
<!--GenerateResponseTokenUtil-->
```

5. Uncomment the Redirect handler for CAC / SSO section so that it appears as follows:

```
<!--Redirect handler for CAC / SSO-->
<bean id="loginRedirectionHandler"
```

```
class="com.hp.ccue.identity.filter.LoginRedirectionHandler">
  <property name="tokenService" ref="tokenService"/>
</bean>
<!--Redirect handler for CAC / SSO-->
```

6. Open the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\spring\applicationContext.xml file in a text editor.
7. Uncomment the Certificate Authentication Configuration section so that it appears as follows:

```
<!-- START Certificate Authentication Configuration -->
<bean id="caLdapAuthProvider"
class="com.hp.ccue.identity.filter.certificate.CertificateLdapAuthentication
Provider">
  <property name="config" ref="csaAuthConfig"/>
  <property name="templateFactory" ref="csaTemplateFactory"/>
</bean>
<bean id="cacUserDetailsService">
  <property name="restRole" value="ROLE_ADMIN" />
</bean>
<!-- END Certificate Configuration -->
```

8. Comment out activeDirectoryAuthProvider and ldapAuthProvider so that they appear as follows:

```
<bean id="multiTenantAuthProvider"
class="com.hp.ccue.identity.authn.MultiTenantAuthenticationProvider">
  <property name="providers">
    <list>
      <!-- <ref bean="activeDirectoryAuthProvider"/>
      <!-- <ref bean="ldapAuthProvider"/> -->
      <ref bean="seededAuthProvider"/>
    </list>
  </property>
  .....
</bean>
</bean>
```

9. Optional. Customize the logout message for your locale (language).
 - a. Open the %CSA_HOME%\portal\node_modules\mpp-ui\dist\locales\en\rb.json file in a text editor.
 - b. Modify the youAreOut text. For example, for English locales, you can modify the text as follows:

```
"logout":{
  ...
  "youAreOut": "You have been successfully logged out. Please close
```

```
you browser window.",  
    ...  
},
```

For other locales, modify the corresponding `rb.json` files.

- c. Open the `%CSA_HOME%\portal\node_modules\mpp-ui\dist\themes\pilot\styles\main.css` file and the `%CSA_HOME%\portal\node_modules\mpp-ui\dist\themes\default\styles\main.css` file in a text editor.
- d. Hide the buttons for closing the browser and returning to the login page by appending the following text to the end of each file:

```
#loginBtn,#loginBtn2 {display:none;}
```

Configure Certificate Revocation

You will need to revoke a certificate if it has been compromised in any way or if an employee leaves your organization.

The following are the methods to revoke a certificate:

- Configure HP CSA to use a Certificate Revocation List (CRL)
- Configure HP CSA to Use a Certificate Revocation List Distribution Point (CRL DP)
- Configure HP CSA to Use the Online Certificate Status Protocol (OCSP)

Configure HP CSA to Use a Certificate Revocation List

The following is an example of how to revoke a certificate that was generated by the certificate authority and publish a Certificate Revocation List (CRL) that contains this certificate ID in the list. The CRL must already exist. You will download and save it in a folder on the system where HP CSA is installed and point to its location using the `ca-revocation-url` parameters.

1. Copy the CRL file to the system where HP CSA is installed (for example, copy it to the `<crl_file_directory>` directory).
2. In the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml` file, add the `ca-revocation-url="<crl_file_directory>"` attribute to the `<ssl>` element. For example, change the following from:

```
<ssl name="ssl" key-alias="CSA" certificate-key-file="%CSA_HOME%\  
jboss-as-7.1.1.Final\standalone\configuration\keystore"  
ca-certificate-file="<csa_jre>\lib\security\cacerts"  
verify-client="want"/>
```

to


```
<ssl name="ssl" key-alias="CSA" certificate-key-file="%CSA_HOME%\
jboss-as-7.1.1.Final\standalone\configuration\.keystore"
ca-certificate-file="<csa_jre>\lib\security\cacerts"
verify-client="want" ca-revocation-url="<crl_file_directory>" />
```

3. Log in to the Cloud Service Management Console or the Marketplace Portal using a revoked certificate. The Secure Connection Failed message should display in the browser.

After restarting HP CSA (described below), you should log in to the Cloud Service Management Console or the Marketplace Portal using a revoked certificate. The Secure Connection Failed message should display in the browser.

Configure HP CSA to Use a Certificate Revocation List Distribution Point

To enable a Certificate Revocation List Distribution Point (CRL DP), edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml file and enable revocation and CRL DP by adding the following lines under <system-properties>:

```
<property name="com.sun.net.ssl.checkRevocation" value="true"/>
<property name="com.sun.security.enableCRLDP" value="true"/>
```

Configure HP CSA to Use the Online Certificate Status Protocol

To enable the Online Certificate Status Protocol (OCSP), do the following:

1. Edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml file and enable revocation by adding the following line under <system-properties>:

```
<property name="com.sun.net.ssl.checkRevocation" value="true"/>
```

2. Edit the <csa_jre>\lib\security\java.security file and uncomment the following line (where <csa_jre> is the directory in which the JRE that is used by HP CSA is installed):

```
ocsp.enable=true
```

Start HP CSA

See ["Start HP CSA" on page 171](#) for detailed information on how to start HP CSA.

Integrating HP CSA Using a Single Sign-On

This section describes how to integrate HP CSA using a single sign-on. As provided out-of-the-box, HP CSA supports the deployment of a single sign-on (SSO) solution using CA SiteMinder. Refer to

"[Integrating HP CSA with CA SiteMinder](#)" on page 149 for details about how to integrate HP CSA with CA SiteMinder.

While HP CSA provides a single sign-on solution out-of-the-box, there are a variety of scenarios where you may need to perform the integration with HP CSA using a generic or custom SSO. For example, you may be using:

- an implementation where you need to authenticate with an SSO vendor other than CA SiteMinder.
- a different deployment architecture than what is provided by HP CSA.
- a different version of CA SiteMinder than what is supported by HP CSA.
- an entirely different architecture than that which is supported.

In such cases it makes sense to create a custom SSO solution so that you can extend the HP-provided implementation to your own.

For the Cloud Service Management Console and for the Marketplace Portal, SSO cannot be enabled at the same time as CAC.

Verify the HP CSA Provider Organization's LDAP Server Configuration

You should verify that an LDAP user can log into the Cloud Service Management Console and the Marketplace Portal, which should already be configured. By performing this verification, you can be confident that any login issues that occur after integration have nothing to do with this particular configuration.

If there are any login issues, then update or configure the LDAP server for both the provider organization and the consumer organization from the Cloud Service Management Console, which is the interface from which you perform all administration tasks for *both* the Cloud Service Management Console and the Marketplace Portal.

Note: You must configure each HP CSA Provider organization to use the same LDAP server used by the custom SSO Server. If you do not configure this access point, no one will be able to access the Cloud Service Management Console.

To configure or update the provider organization's LDAP server:

1. Launch the Cloud Service Management Console by typing the following URL in a supported Web browser: `https://<csahostname>:8444/csa` where `<csahostname>` is the fully-qualified domain name of the system on which the Cloud Service Management Console resides.
2. Log in to the Cloud Service Management Console as a CSA Administrator.
3. Click the **Organizations** tile.

4. In the left-navigation frame, select the provider organization.
5. From the provider organization's navigation frame, select **LDAP**.
6. Update the LDAP server information.
7. Click **Save**.

Verify the HP CSA Consumer Organization's LDAP Server Configuration

Note: The same LDAP server must be used by the HP CSA Provider organization, HP CSA consumer organization and custom SSO Server.

To configure or update the consumer organization's LDAP server:

1. Launch the Cloud Service Management Console by typing the following URL in a supported Web browser: `https://<csahostname>:8444/csa` where `<csahostname>` is the fully-qualified domain name of the system on which the Cloud Service Management Console resides.
2. Log in to the Cloud Service Management Console as the CSA Administrator.
3. Click the **Organizations** tile.
4. In the left-navigation frame, select a consumer organization.
5. From the consumer organization's navigation frame, select **LDAP**.
6. Update the LDAP server information.
7. Click **Save**.
8. Repeat these steps for every consumer organization configured in HP CSA.

Only the `/csa` and `/mpp` contexts are supported (this is required by the SSO proxy setup).

Configure the Custom SSO Server to Work with HP CSA

To configure your custom SSO server to work with HP CSA, follow the instructions provided with your SSO application.

Stop HP CSA

To stop HP CSA:

1. On the server that hosts HP Cloud Service Automation, navigate to **Control Panel > Administrative Tools > Services**.
2. Right-click on the HP Cloud Service Automation service and select **Stop**.
3. Right-click on the HP Marketplace Portal service and select **Stop**.

Configure the Cloud Service Management Console

To configure the Cloud Service Management Console:

1. Update the `applicationContext-security.xml` file as appropriate for your custom SSO solution (based on the Spring Security Framework documentation).
2. Update the `csa.properties` file by uncommenting the string `enableSSO=true` and setting the value of `csa.subscriber.portal.url` to `{<protocol>}://{<host>}/mpp/org/{<orgName>}`.

Configure the Marketplace Portal

To configure the Marketplace Portal:

1. Change `proxy` in the `mpp.json` file to the IP address of the proxy to be used by SSO. See the *Configure Proxy Mapping* section for details.
2. Update the `applicationContext-security.xml` file as appropriate for your custom SSO solution (based on the Spring Security Framework documentation).
3. Update the `applicationContext.xml` file as appropriate for your custom SSO solution (based on the Spring Security Framework documentation).
4. Optional. Customize the logout message for your locale (language) in the appropriate locale-specific `rb.json` file.
5. Hide the buttons for closing the browser and returning to the login page by appending the following text to the ends of the two `main.css` files: `#loginBtn,#loginBtn2 {display:none;}`.

Configure Proxy Mapping

To configure proxy mapping:

1. Map the `/csa` proxy to the HP CSA deployment.
2. Map the `/idm-service` proxy to the identity management (IdM) deployment.
3. Map the `/mpp` proxy to the Marketplace Portal deployment.

Start HP CSA

To start HP CSA:

1. On the server that hosts HP CSA, navigate to **Control Panel > Administrative Tools > Services**.
2. Right-click on the HP Cloud Service Automation service and select **Start**.
3. Right-click on the HP Marketplace Portal service and select **Start**.

Verify the SSO Integration

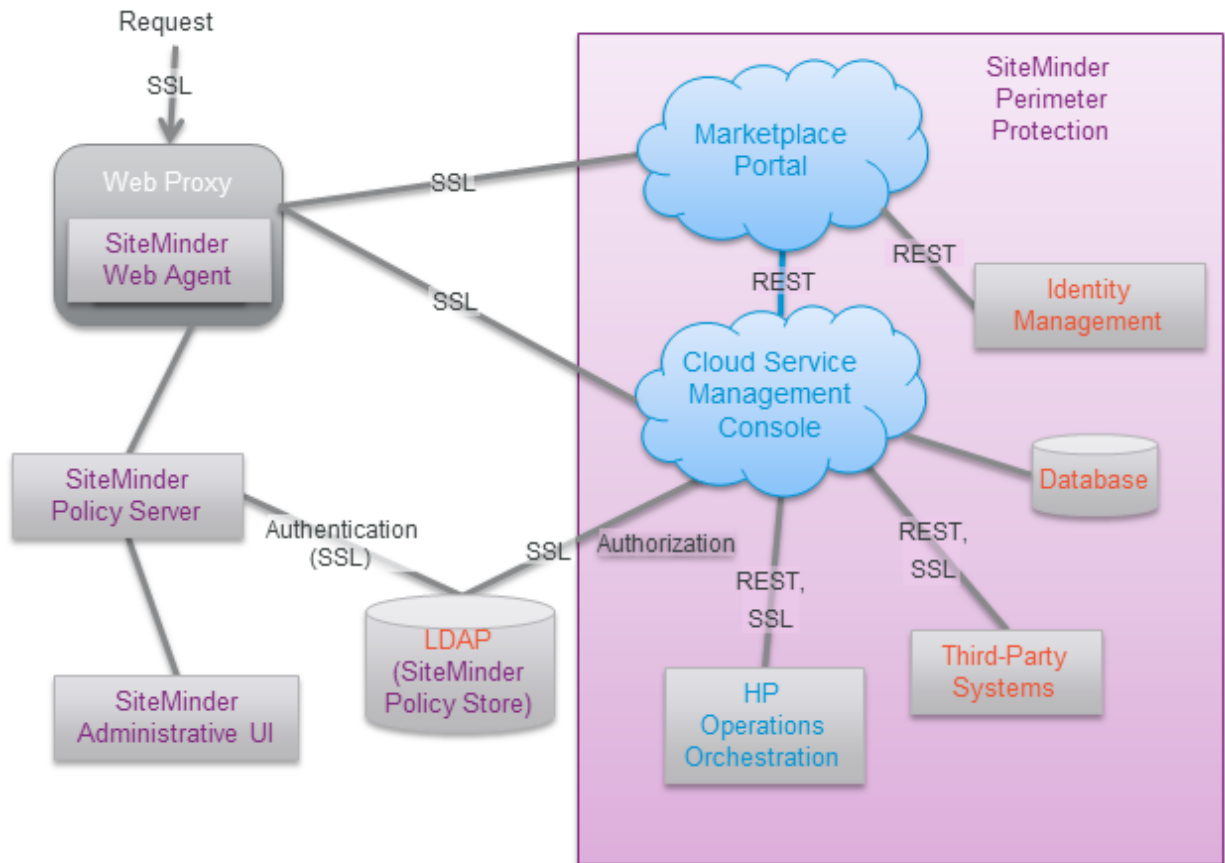
You should verify that the SSO integration works by logging into both the Cloud Service Management Console and the Marketplace Portal using the newly-integrated SSO solution.

Integrating HP CSA with CA SiteMinder

HP CSA as well as SiteMinder with a reverse proxy solution must already be installed and configured before you can integrate them. The LDAP server shared by HP CSA and SiteMinder must be configured for the HP CSA provider and consumer organization (from the Cloud Service Management Console) before integration between HP CSA and SiteMinder is started.

SiteMinder is made up of several components that work with HP CSA and your LDAP server to provide secure access. The information provided in this section configures HP CSA to work with a reverse proxy solution, as shown in the following diagram.

Supported SiteMinder Deployment Architecture



For more information about how to install and configure CA SiteMinder for a reverse proxy solution, refer to the *Configure Reverse Proxy Servers* section in the *Web Agent Configuration Guide* (a Web Agent guide), which is located at the following URL:

https://supportcontent.ca.com/cadocs/0/CA%20SiteMinder%20r12%20SP2-ENU/Bookshelf_Files/HTML/index.htm?toc.htm?1004185.html

Complete the following steps to integrate HP CSA and SiteMinder:

- Configure the HP CSA Provider and Consumer Organization's LDAP Server
- Configure the SiteMinder Policy Server for HP CSA integration
- Configure HP CSA for SiteMinder integration
- Customize the logout page (optional)

Configure the HP CSA Provider Organization's LDAP Server

You must configure the HP CSA provider organization to use the same LDAP server used by the SiteMinder Policy Server. If you do not configure this access point before integrating HP CSA and SiteMinder, you will not be able to access HP CSA after integration.

Caution: LDAP must be configured for the HP CSA provider organization before you begin the integration between HP CSA and SiteMinder. After integrating HP CSA and SiteMinder, you can only log in to the Cloud Service Management Console via SiteMinder using a valid user from this LDAP directory. The out-of-the-box HP CSA users can no longer be used to log in to HP CSA.

When using the REST API, the out-of-the-box HP CSA users are still valid after integration.

To configure the provider organization's LDAP server, do the following:

1. Launch the Cloud Service Management Console by typing the following URL in a supported Web browser: `https://<csahostname>:8444/csa` where `<csahostname>` is the fully-qualified domain name of the system on which the Cloud Service Management Console resides.
2. Log in to the Cloud Service Management Console as a CSA Administrator.
3. Click the **Organizations** tile.
4. In the left-navigation frame, select the provider organization.
5. From the provider organization's navigation frame, select **LDAP**.
6. Update the LDAP server information.
7. Click **Save**.

Configure the HP CSA Consumer Organization's LDAP Server

You must configure each HP CSA consumer organization to use the same LDAP server used by the SiteMinder Policy Server. If you do not configure this access point, no one will be able to access the Marketplace Portal.

To configure a consumer organization's LDAP server, do the following:

1. Launch the Cloud Service Management Console by typing the following URL in a supported Web browser: `https://<csahostname>:8444/csa` where `<csahostname>` is the fully-qualified domain name of the system on which the Cloud Service Management Console resides.
2. Log in to the Cloud Service Management Console as the CSA Administrator.
3. Click the **Organizations** tile.
4. In the left-navigation frame, select a consumer organization.
5. From the consumer organization's navigation frame, select **LDAP**.
6. Update the LDAP server information.

7. Click **Save**.
8. Repeat these steps for every consumer organization configured in HP CSA.

Configure the SiteMinder Policy Server for HP CSA Integration

Complete the following steps to configure the SiteMinder Policy Server for HP CSA integration.

1. Navigate to **Control Panel > Administrative Tools > Services**.
2. Right-click on the HP Marketplace Portal service and select **Stop**.
3. Configure the SiteMinder Policy Server to use the LDAP server that will be shared between HP CSA and SiteMinder.
4. Configure the SiteMinder Policy Server idle timeout, the Cloud Service Management Console session timeout, and the Marketplace Portal session timeout to be the same amount of time, regardless of the units (minutes or seconds) used by the parameters in the respective configuration files. By default, the session timeout value for the Cloud Service Management Console is 60 minutes, and for the Marketplace Portal, it is 1800 seconds.

The session timeout for the Cloud Service Management Console is configured using the `session-timeout` parameter in the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\web.xml` file:

```
...
<session-config>
...
  <session-timeout>60</session-timeout>
...
```

The session timeout for the Marketplace Portal is configured using the `timeoutDuration` parameter in the `%CSA_HOME%\portal\conf\mpp.json` file:

```
...
"session": {
...
  "timeoutDuration": 1800,
...
}
```

The timeout should match that of the `timeoutDuration` parameter in the `%CSA_HOME%\portal\conf\mpp.json` file:

5. Configure the SiteMinder Policy Server cleanup interval for the Marketplace Portal. By default, the cleanup interval is 3600 seconds.

The cleanup interval for the Marketplace Portal is configured using the `cleanupInterval` parameter in the `%CSA_HOME%\portal\conf\mpp.json` file:

```
...  
"session": {  
...  
  "cleanupInterval": 3600  
...  
}
```

The `cleanupInterval` parameter is not directly related to the `timeoutDuration` parameter, but it should be twice that of the `timeoutDuration` parameter.

6. To process image file names that contain spaces, from the SiteMinder Policy Server, either comment out the `BadUrlChars` parameter or modify the SiteMinder Policy Server to allow image file names that contain spaces.
7. Navigate to **Control Panel > Administrative Tools > Services**.
8. Right-click on the HP Marketplace Portal service and select **Start**.

Configure HP CSA for SiteMinder Integration

To configure HP CSA for SiteMinder integration, you must:

- Stop HP CSA
- Configure the Cloud Service Management Console
- Configure the Marketplace Portal
- Start HP CSA

Stop HP CSA

To stop HP CSA:

1. On the server that hosts HP Cloud Service Automation, navigate to **Control Panel > Administrative Tools > Services**.
2. Right-click on the HP Cloud Service Automation service and select **Stop**.
3. Right-click on the HP Marketplace Portal service and select **Stop**.

Configure the Cloud Service Management Console

Complete the following steps to configure the Cloud Service Management Console for a SiteMinder reverse proxy solution. Update the `applicationContext-security.xml` file:

1. Navigate to the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF directory where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed. For example:

```
C:\Program Files\Hewlett-Packard\CSA\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF
```

2. Make a backup copy of the applicationContext-security.xml file.
3. Open the applicationContext-security.xml file in a text editor.
4. Locate the SSO Authentication Provider comment and uncomment the following content that appears after this comment:

```
<security:authentication-provider ref='ssoAuthenticationProvider' />
```

5. Locate the custom filter config for SSO comment and uncomment the following content that appears after this comment:

```
<custom-filter position="PRE_AUTH_FILTER" ref="ssoSiteminderFilter" />
```

6. Locate the logout configuration for SSO comment and comment out the following content that appears before this comment:

```
<logout logout-success-url="/login" invalidate-session="true" />
```

For example:

```
<-- <logout logout-success-url="/login" invalidate-session="true" /> -->
```

7. Locate the logout configuration for SSO comment and uncomment the following content that appears after this comment:

```
<logout logout-success-url="/ssologout.jsp" invalidate-session="true"/>
```

8. Locate the Bean definitions for SSO comment and uncomment the following content that appears after this comment:

```
<beans:bean id="ssoSiteminderFilter"  
  class="com.hp.csa.authn.impl.SSOHeaderAutheticationFilter">  
  <beans:property name="principalRequestHeader" value="SM_USER" />  
  <beans:property name="authenticationManager"  
    ref="authenticationManager" />  
  <beans:property name="exceptionIfHeaderMissing" value="true" />  
  <beans:property name="ignoreURLContaining" value="/csa/rest/" />  
</beans:bean>
```

```
<beans:bean id="ssoAuthenticationProvider"  
  class="org.springframework.security.web.authentication.preauth.  
  PreAuthenticatedAuthenticationProvider">  
  <beans:property name="preAuthenticatedUserDetailsService">
```

```
<beans:bean id="userDetailsServiceWrapper"  
  class="org.springframework.security.core.userdetails.  
  UserDetailsByNameServiceWrapper">  
  <beans:property name="userDetailsService"  
    ref="ssoPreAuthenticatedUserDetailsService" />  
  </beans:bean>  
</beans:property>  
</beans:bean>  
<beans:bean id="ssoPreAuthenticatedUserDetailsService"  
  class="com.hp.csa.authn.impl.SSOUserDetailsService">  
  <beans:property name="restRole" value="ROLE_REST" />  
</beans:bean>
```

9. Navigate to the classes subdirectory (%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes).
10. Open the `csa.properties` file in a text editor.
11. Edit the following line to configure the URL to display for the organization in the Cloud Service Management Console:

```
csa.subscriber.portal.url={protocol}://{host}/mpp/org/{orgName}
```

You can define a hard-coded URL or a URL that is replaced by information as known by the client-side browser. The following tokens are supported: `protocol` (`http` or `https`), `host` (the host in the browser URL used to access the Cloud Service Management Console), and `orgName` (the organization name of the selected organization in the browser). For example, if the client URL is `https://csa-server.company.com:8444/csa`, for a selected organization named `devteam`, then after the token replacement, the client displays a URL of `https://csa-server.company.com:8089/#/login/devteam`. No port is defined, and the `mpp` context is added to the URL. The context should be the same as is defined for the Marketplace Portal in the `mpp.json` file.

12. Locate the `Needed for SSO` comment and uncomment the following content:

```
enableSSO=true
```

Configure the Marketplace Portal

Complete the following steps to configure the Marketplace Portal for a SiteMinder reverse proxy solution.

1. Open the `%CSA_HOME%\portal\conf\mpp.json` file in a text editor.
2. In the `idmProvider` section, for `returnUrl`, change `proxy` to the IP address of the proxy to be used by SSO, and add `redirectURL` as follows with the proxy IP address as well:

```
"idmProvider": {
```

```
.....  
    "returnUrl": "https://{proxy}/mpp",  
    "redirectUrl": "https://{proxy}",  
    .....  
}
```

For example:

```
"idmProvider": {  
    .....  
    "returnUrl": "https://101.32.24.101/mpp",  
    "redirectUrl": "https://101.32.24.101",  
    .....  
}
```

To enable SSO for the Marketplace Portal, you must also set up a proxy for the Marketplace Portal and for the IdM service. The mapping for the Marketplace Portal should use the same context name (`mpp`) and proxy port as defined in the `%CSA_HOME%\portal\conf\mpp.json` file.

3. Enable the proxy element to be used by SSO by setting `enabled` to `true` as follows:

```
"proxy": {  
    "enabled": true,  
    "port": 8090,  
    "contextPath": "/mpp"  
}
```

You can also customize the value for the port, but you also must make the corresponding change in the SSO configuration for the Marketplace Portal. Do not modify the `contextPath` setting (it must remain set to `/mpp`). See the *Configure Proxy Mapping* section for details.

4. Open the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\spring\applicationContext-security.xml` file in a text editor.
5. Uncomment the SSO CONFIG section so that it appears as follows:

```
<!-- SSO CONFIG -->  
  
<security:http pattern="/idm/v0/login" use-expressions="true" auto-  
config="false">  
    <security:http-basic />  
    <security:custom-filter ref="requestTokenCompositeFilter"  
position="FIRST"/>  
    <security:custom-filter position="PRE_AUTH_FILTER"
```

```
ref="ssoSiteminderFilter" />
    <security:custom-filter position="LAST" ref="ssoFilter" />

</security:http>
```

6. Uncomment the next SSO CONFIG section so that it appears as follows:

```
<!-- SSO CONFIG -->
<security:authentication-manager id="ssoAuthManager">
    <security:authentication-provider ref="ssoAuthenticationProvider"/>
</security:authentication-manager>

<bean id="ssoSiteminderFilter"
class="org.springframework.security.web.authentication.preauth.RequestHeader
AuthenticationFilter">
    <property name="principalRequestHeader" value="SM_USER"/>
    <property name="authenticationManager" ref="ssoAuthManager" />
    <property name="exceptionIfHeaderMissing" value="true" />
</bean>

<bean id="ssoFilter" class="com.hp.ccue.identity.filter.sso.SSOFilter">
    <property name="generateTokenUtil" ref="generateTokenUtil" />
    <property name="tokenFactory" ref="tokenFactory"/>
    <property name="loginRedirectionHandler" ref="loginRedirectionHandler"/>
</bean>

<!-- SSO CONFIG -->
```

7. Uncomment the GenerateResponseTokenUtil section so that it appears as follows:

```
<!--GenerateResponseTokenUtil-->

<bean name="generateTokenUtil"
class="com.hp.ccue.identity.util.GenerateResponseTokenUtil" />

<!--GenerateResponseTokenUtil-->
```

8. Uncomment the Redirect handler for CAC / SSO section so that it appears as follows:

```
<!--Redirect handler for CAC / SSO-->

<bean id="loginRedirectionHandler">
    <property name="tokenService" ref="tokenService"/>
</bean>

<!--Redirect handler for CAC / SSO-->
```

9. Open the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\spring\applicationContext.xml file in a text editor.
10. Uncomment the START SSO Configuration section so that it appears as follows:

```
<!-- START SSO Configuration -->

<bean id="ssoAuthenticationProvider"
class="org.springframework.security.web.authentication.preauth.PreAuthenticat
tedAuthenticationProvider">
    <property name="preAuthenticatedUserDetailsService">
        <bean id="userDetailsServiceWrapper"
class="org.springframework.security.core.userdetails.UserDetailsService
eWrapper">
            <property name="userDetailsService"
ref="ssoPreAuthenticatedUserDetailsService" />
        </bean>
    </property>
</bean>

<bean id="ssoPreAuthenticatedUserDetailsService"
class="com.hp.ccue.identity.filter.sso.SSOUserDetailsServiceImpl">
    <property name="restRole" value="ROLE_REST" />
</bean>

<!-- END SSO Configuration -->
```

11. Open the %CSA_HOME%\portal\node_modules\mpp-ui\dist\themes\pilot\styles\main.css file and the %CSA_HOME%\portal\node_modules\mpp-ui\dist\themes\default\styles\main.css file in a text editor.
12. Hide the buttons for closing the browser and returning to the login page by appending the following text to the end of each file: #loginBtn,#loginBtn2 {display:none;}.

Start HP CSA

Start HP CSA:

1. On the server that hosts HP CSA, navigate to **Control Panel > Administrative Tools > Services**.
2. Right-click on the HP Cloud Service Automation service and select **Start**.
3. Right-click on the HP Marketplace Portal service and select **Start**.

Launch the Marketplace Portal

After completing the Marketplace Portal changes and restarting HP CSA, launch the Marketplace Portal using the URL: `https://<proxy_server_ip>/mpp/`. Depending on the Web agent configuration being used, a proxy server port *may* be required.

Customize the Logout Page (Optional)

After clicking the Log out link from the Cloud Service Management Console or the Marketplace Portal, the user is directed to a logout page. This page is customizable.

The following is the name and location of the logout file. There is one file for the Cloud Service Management Console and another file for the Marketplace Portal.

- Cloud Service Management Console:

```
%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\  
csa.war\WEB-INF\ssologout.jsp
```

where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed. For example:

```
C:\Program Files\Hewlett-Packard\CSA\jboss-as-7.1.1.Final\  
standalone\deployments\csa.war\WEB-INF\ssologout.jsp
```

- Marketplace Portal:

```
%CSA_HOME%\portal\node_modules\mpp-ui\dist\locales\en\rb.json
```

where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed. For example:

```
C:\Program Files\Hewlett-Packard\CSA\portal\node_modules\mpp-  
ui\dist\locales\en\rb.json
```

In the above example, the `rb.json` file is for the English locale (language) and is therefore in the `en` folder.

You customize the logout message for your locale by modifying the `youAreOut` text. For example, for English locales, you can modify the text as follows:

```
"logout":{  
  ...  
  "youAreOut": "Please close your browser window. This prevents the  
possibility of someone pressing the 'Back' button on your browser and  
possibly viewing confidential information.",  
  ...  
}
```

},

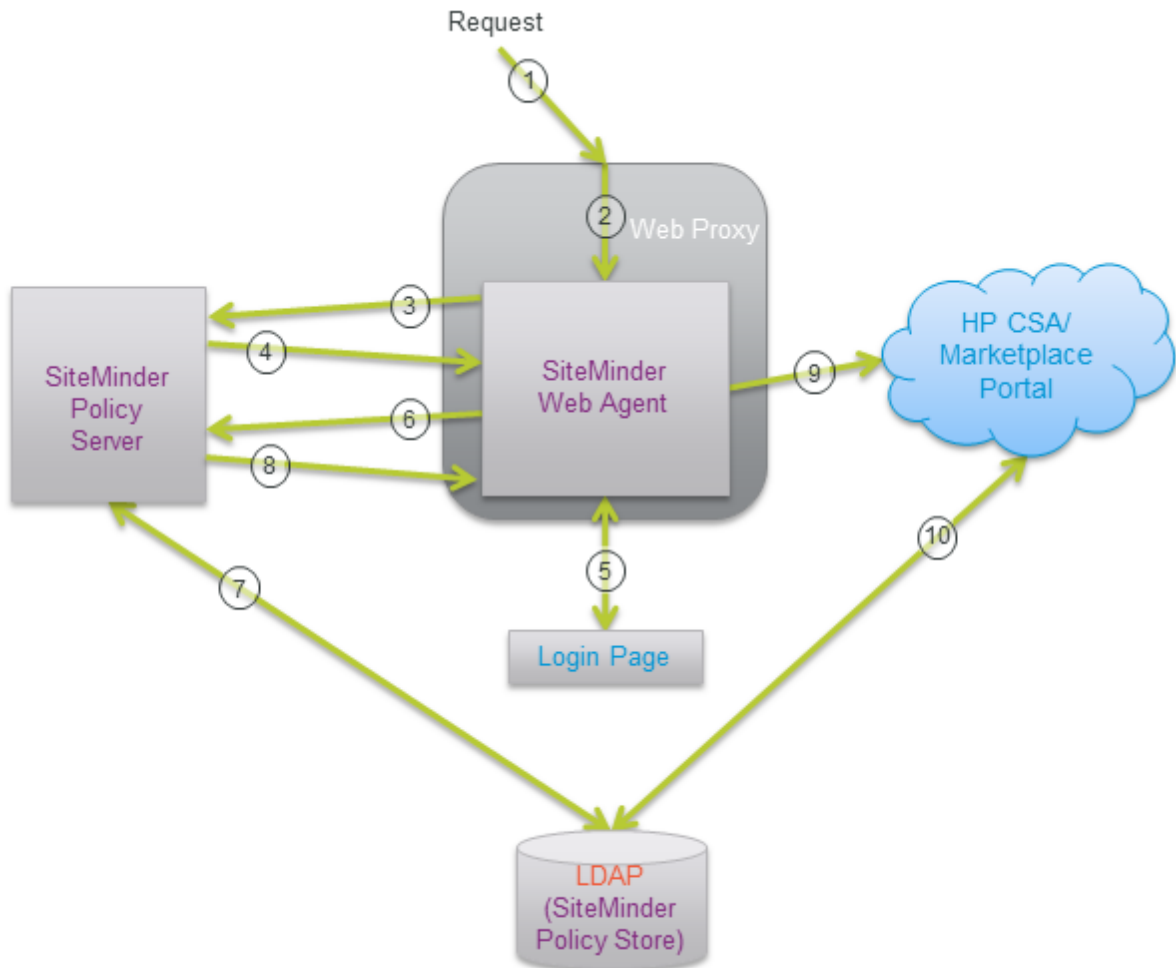
For other locales, modify the corresponding `rb.json` files.

Note: By default, after logging out, the user must close the Web browser in order to completely clear the SiteMinder session.

The logout page can be customized to point to a SiteMinder logout page if one is available.

Request Flow

The following diagram shows how a request is processed when HP CSA and SiteMinder are integrated.



1. A user sends a request to launch the Marketplace Portal.
2. The request is intercepted by the SiteMinder Web Agent.

3. The SiteMinder Web Agent queries the SiteMinder Policy Server to determine if it is a protected URL.
4. The SiteMinder Policy Server verifies that the URL is protected.
5. The user is redirected by the SiteMinder Web Agent to a login page where the user's credentials are collected.
6. The SiteMinder Web Agent sends the user's credentials to the SiteMinder Policy Server for authentication.
7. The SiteMinder Policy Server authenticates the user's credentials using the LDAP server (SiteMinder Policy Store).
8. The verification of the authenticated user is returned to the SiteMinder Web Agent.
9. The SiteMinder Web Agent redirects the user's request to launch the Marketplace Portal, which uses Identity Management (IdM) to generate the necessary token.
10. The Marketplace Portal uses LDAP to perform the authorization.

Additional requests from the user using the same SiteMinder session are automatically directed by the SiteMinder Web Agent to HP CSA.

Install the HP CSA Database Schema

The schema installation tool is used to upgrade the existing HP CSA database schema or install a fresh database schema without re-installing HP CSA. Use this tool if you did not install HP CSA database components onto the database during installation, did not upgrade the database schema during an upgrade, or if you want to drop the existing schema and install a fresh HP CSA database schema. You can also use this tool to complete an upgrade if the upgrade failed, the database schema was not updated, the failure was not due to a database problem, and the problem can be fixed without rerunning the upgrade installer. For example, if the upgrade failed but can be completed successfully by manual configuration but the database schema was not updated, you can simply make the manual changes to complete the upgrade and run the schema installation tool instead of reverting HP CSA back to the previous version and running the upgrade installer again.

Note: Do not run this tool if you installed the database components during the installation of HP CSA or if you upgraded the database schema when you upgraded HP CSA.

If you run this tool on an existing schema (where HP CSA has been upgraded but the database schema was not upgraded), the schema is upgraded and no data in the database is lost. However, if you drop the existing schema and run this tool, all data in the database associated with the dropped schema is lost. Once you run the tool, a fresh schema is installed and you cannot revert back to the dropped schema.

Caution: Once you drop an existing schema and run the database schema installation tool, you cannot revert back to the dropped schema.

Upgrading or Installing the Database Schema

To upgrade or install a fresh HP CSA database schema, do the following:

1. If HP CSA is running, stop HP CSA.

To stop HP CSA:

- a. On the server that hosts HP Cloud Service Automation, navigate to **Control Panel > Administrative Tools > Services**.
 - b. Right-click on the HP Cloud Service Automation service and select **Stop**.
 - c. Right-click on the HP Marketplace Portal service and select **Stop**.
2. Change to the %CSA_HOME%\Tools\SchemaInstallationTool\ directory where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed.
 3. During upgrade or installation of HP CSA, a file named db.properties was generated in %CSA_HOME%\Tools\SchemaInstallationTool\. Verify the property values in this file. If you changed any database property values in the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml file after installation, the values in db.properties may not be up-to-date.

If you have dropped the existing database schema and are installing a fresh database schema after upgrading to HP CSA4.00, you must update the driverFiles property value. The properties defined in db.properties are described in the table.

Property Name	Description
dbUrl	<p>The JDBC URL. When specifying an IPv6 address, it must be enclosed in square brackets (see examples below).</p> <p>Examples</p> <p>Oracle (SSL not enabled): <code>jdbc.databaseUrl=jdbc:oracle:thin:@127.0.0.1:1521:XE</code></p> <p>Oracle (SSL not enabled, using an IPv6 address): <code>jdbc.databaseUrl=jdbc:oracle:thin:@[f000:253c::9c10:b4b4]:1521:XE</code></p> <p>Oracle (SSL enabled, HP CSA does not check the database DN): <code>jdbc.databaseUrl=jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL = TCPS)(HOST = <host>)(PORT = 1521))) (CONNECT_DATA =(SERVICE_NAME = ORCL)))</code> where <host> is the name of the system on which the Oracle database server is installed.</p> <p>Oracle (SSL enabled, HP CSA checks the database DN): <code>jdbc.databaseUrl=jdbc:oracle:thin:@(DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL = TCPS)(HOST = <host>)(PORT = 1521))) (CONNECT_DATA = (SERVICE_NAME = ORCL))(SECURITY=(SSL_SERVER_CERT_DN="CN=abc,OU=dbserver,O=xyz,L=Sunnyvale,ST=CA,C=US")))</code> where <host> is the name of the system on which the Oracle database server is installed and the values for SSL_SERVER_CERT_DN are for the DN of the Oracle database server.</p> <p>MS SQL (SSL not enabled): <code>jdbc.databaseUrl=jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=request</code></p> <p>MS SQL (SSL not enabled, using an IPv6 address): <code>jdbc.databaseUrl=jdbc:jtds:sqlserver://[::1]:1433/example;ssl=request</code></p> <p>MS SQL (SSL enabled): <code>jdbc.databaseUrl=jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=authenticate</code></p> <p>MS SQL (FIPS 140-2 compliant): <code>jdbc.databaseUrl=jdbc:jtds:sqlserver://127.0.0.1:1433/example;ssl=authenticate</code></p>

Property Name	Description
dbUserName	The user name of the database user you configured for HP Cloud Service Automation after installing the database.
dbPassword	<p>The password for the database user. The password should be encrypted (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.</p> <p>While you may enter a password in clear text, after you run the tool, the clear text password is automatically replaced by an encrypted password.</p> <p>If you have configured HP CSA to be FIPS 140-2 compliant, encrypt this password after you have configured CSA to be FIPS 140-2 compliant (that is, you should use the updated encryption tools to encrypt the password).</p> <p>Example</p> <pre>dbPassword=ENC(fc5e38d38a5703285441e7fe7010b0)</pre>

Property Name	Description
driverFiles	<p>The database driver files used by this tool. If you are running a fresh installation of HP CSA 4.00 (you did not upgrade to HP CSA 4.00), you do not need to change these values.</p> <p>If you have upgraded to HP CSA 4.00 and want to upgrade the existing schema, you do not need to change these values.</p> <p>If you have upgraded to HP CSA 4.00, have dropped the existing database schema, and are installing a fresh database schema, you must update this value to the following:</p> <p>Oracle (upgrade and dropped schema only) driverFiles=%CSA_HOME%\scripts\schemainstallforupg\create-oracle-schema.sql, %CSA_HOME%\scripts\schemainstallforupg\create-oracle-topology-schema.sql, %CSA_HOME%\scripts\schemainstallforupg\oracle\seed_data_driver.sql, %CSA_HOME%\scripts\reporting\oracle\install_views_driver.sql, %CSA_HOME%\scripts\reporting\oracle\grant-reporting-user.sql</p> <p>PostgreSQL (upgrade and dropped schema only) driverFiles=%CSA_HOME%\scripts\schemainstallforupg\create-postgres-schema.sql, %CSA_HOME%\scripts\schemainstallforupg\create-postgres-topology-schema.sql, %CSA_HOME%\scripts\schemainstallforupg\postgres\seed_data_driver.sql, %CSA_HOME%\scripts\reporting\postgres\install_views_driver.sql, %CSA_HOME%\scripts\reporting\postgres\grant-reporting-user.sql</p> <p>Microsoft SQL (upgrade and dropped schema only) driverFiles=%CSA_HOME%/scripts/schemainstallforupg/alterdb.sql, %CSA_HOME%\scripts\schemainstallforupg\create-mssql-schema.sql, %CSA_HOME%\scripts\schemainstallforupg\create-mssql-topology-schema.sql, %CSA_HOME%\scripts\schemainstallforupg\mssql\seed_data_driver.sql,</p>

Property Name	Description
	<p>Note: Add the grant-reporting-user.sql file only if you have created the reporting database user for HP CSA.</p>
jdbcDriverClassName	<p>The JDBC driver class. Do not change this value.</p> <p>Examples</p> <p>Oracle: jdbc.driverClassName=oracle.jdbc.driver.OracleDriver MS SQL: jdbc.driverClassName=net.sourceforge.jtds.jdbc.Driver PostgreSQL: jdbc.driverClassName=org.postgresql.Driver</p>
jdbcDriverDir	<p>The location of the JDBC driver(s) used by this tool. Do not change this value.</p>

- Run the following command:

Oracle (SSL not enabled), MS SQL, and PostgreSQL

```
"<csa_jre>\bin\java" -jar schema-installation-tool.jar
```

where <csa_jre> is the directory in which the JRE that is used by HP CSA is installed.

Oracle (SSL enabled, HP CSA does not check the database DN, client authentication is enabled on the Oracle database server)

```
"<csa_jre>\bin\java" -Djavax.net.ssl.keyStore="<certificate_key_file>"
-Djavax.net.ssl.keyStorePassword=<certificate_key_file_password>
-Djavax.net.ssl.keyStoreType=<certificate_key_file_type>
-jar schema-installation-tool.jar
```

where certificate_key_file is the same keystore file defined by the certificate-key-file attribute in the ssl element of the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml file (for example, %CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\keystore), certificate_key_file_password is the password to the keystore file (for example, changeit), certificate_key_file_type is the keystore type (for example, JKS or PKCS12) and <csa_jre> is the directory in which the JRE that is used by HP CSA is installed.

Oracle (SSL enabled, HP CSA does not check the database DN, client authentication is NOT enabled on the Oracle database server)

```
"<csa_jre>\bin\java" -jar schema-installation-tool.jar
```

where <csa_jre> is the directory in which the JRE that is used by HP CSA is installed.

Oracle (SSL enabled, HP CSA checks the database DN, client authentication is enabled on the Oracle database server)

```
"<csa_jre>\bin\java" -Doracle.net.ssl_server_dn_match=true  
-Djavax.net.ssl.keyStore="<certificate_key_file>"  
-Djavax.net.ssl.keyStorePassword=<certificate_key_file_password>  
-Djavax.net.ssl.keyStoreType=<certificate_key_file_type>  
-jar schema-installation-tool.jar
```

where `certificate_key_file` is the same keystore file defined by the `certificate-key-file` attribute in the `ssl` element of the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml` file (for example, `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\keystore`), `certificate_key_file_password` is the password to the keystore file (for example, `changeit`), `certificate_key_file_type` is the keystore type (for example, `JKS` or `PKCS12`), and `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

Oracle (SSL enabled, HP CSA checks the database DN, client authentication is NOT enabled on the Oracle database server)

```
"<csa_jre>\bin\java" -Doracle.net.ssl_server_dn_match=true  
-jar schema-installation-tool.jar
```

where `<csa_jre>` is the directory in which the JRE that is used by HP CSA is installed.

Configure the CSA Reporting Database User

This section explains how to configure the CSA reporting database user and role and run the schema installation script to define a read-only user required to use the reporting capabilities of HP CSA.

If you already configured the CSA reporting database user and role and defined the CSA reporting database user when running the installer or upgrade installer, you do not need to repeat these steps (the CSA reporting database user is already configured).

If you installed or upgraded HP CSA but did not configure the CSA reporting database user during the installation or upgrade and want to use the reporting capabilities of HP CSA, complete the tasks in this section.

To configure the CSA reporting database user, do the following:

1. Create a read-only user.

Caution: The username cannot contain more than one dollar sign symbol (\$). For example, `c$adb` is a valid name but `c$$adb` and `cadb` are not valid names.

For example, do one of the following, based on the database you are using with HP CSA:

Oracle

Run the following commands to create the CSAReportingDBRole role and CSAReportingDBUser user:

```
Create user CSAReportingDBUser identified by CSAReportingDBUser;  
Create role CSAReportingDBRole;  
Grant CREATE SESSION to CSAReportingDBUser;  
Grant CSAReportingDBRole to CSAReportingDBUser;  
Alter user CSAReportingDBUser default role CSAReportingDBRole;
```

You will also need to add the CREATE ANY SYNONYM privilege to the HP CSA database user. This allows the HP CSA database user to create synonyms for the HP CSA reporting (read-only) database user.

For example, if the HP CSA database user is named CSADBUser, run the following command:

```
Grant CREATE ANY SYNONYM to CSADBUser
```

Microsoft SQL

Add a reporting database user (CSAReportingDBUser) to the HP CSA database with no roles:

```
CREATE LOGIN CSAReportingDBUser WITH PASSWORD = '<csareportingdbuser_  
password>';  
CREATE USER CSAReportingDBUser FOR LOGIN CSAReportingDBUser WITH DEFAULT_  
SCHEMA = csa;
```

PostgreSQL

From the psql prompt, enter the following:

```
CREATE ROLE CSAReportingDBUser LOGIN PASSWORD '<csareportingdbuser_password>'  
NOSUPERUSER NOCREATEDB NOCREATEROLE INHERIT;  
GRANT CONNECT ON DATABASE csadb to CSAReportingDBUser;
```

2. Run the following script:

Oracle

```
%CSA_HOME%\scripts\reporting\oracle\grant-reporting-user.sql
```

Microsoft SQL

```
%CSA_HOME%\scripts\reporting\mssql\grant-reporting-user.sql
```

PostgreSQL

```
%CSA_HOME%\scripts\reporting\postgresql\grant-reporting-user.sql
```


3. Restart HP CSA.

To restart HP CSA:

- a. If you have configured HP CSA to be FIPS 140-2 compliant, create an HP CSA encryption keystore password file. The name and location of this file must match the value configured for the `keystorePasswordFile` property in the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties` file.

The password file must contain only the following content: `keystorePassword=<HP CSA encryption keystore password>`

where `<HP CSA encryption keystore password>` is the HP CSA encryption keystore password in clear text.

This file is automatically deleted when the HP Cloud Service Automation service is started.

- b. On the server that hosts HP Cloud Service Automation, navigate to **Control Panel > Administrative Tools > Services**.
 - c. Right-click on the HP Cloud Service Automation service and select **Restart**.
 - d. Right-click on the HP Marketplace Portal service and select **Restart**.
4. The CSA reporting database user can access the data using the following view:

`RPT_RSC_CAPACITY_V`

Chapter 6

Common HP CSA Tasks

This chapter provides information on how to perform common HP CSA tasks.

Tasks include:

- "Launch the Cloud Service Management Console" below
- "Launch the Marketplace Portal" below
- "Start HP CSA" on the next page
- "Stop HP CSA" on page 172
- "Restart HP CSA" on page 172
- "Encrypt a Password" on page 173
- "Uninstall HP CSA" on page 173

Launch the Cloud Service Management Console

Launch the Cloud Service Management Console by typing the following URL in a supported Web browser: `https://<csahostname>:8444/csa` where `<csahostname>` is the fully-qualified domain name of the system on which the Cloud Service Management Console resides.

Launch the Marketplace Portal

Launch the default Marketplace Portal

Launch the default Marketplace Portal by typing one of the following URLs in a supported Web browser:

- `https://<csahostname>:8444/mpp`
- `https://<csahostname>:8089`

where `<csahostname>` is the fully-qualified domain name of the system on which the Marketplace Portal instance resides and that was used when HP CSA was installed.

For example: `https://csa_system.abc.com:8444/mpp`

The organization associated with the default Marketplace Portal is defined in the `%CSA_HOME%\portal\conf\mpp.json` file. By default, this is the sample organization that is installed with HP CSA (CSA_CONSUMER). To modify the organization associated with the default Marketplace Portal, modify the `defaultOrganizationName` property value by setting it to the `<organization_identifier>` of the desired organization, where `<organization_identifier>` is the unique name that

HP Cloud Service Automation assigns to the organization, based on the organization display name (the organization identifier can be found in the General Information section of the **Organizations** tile of the Cloud Service Management Console).

Launch an organization-specific Marketplace Portal

Launch an organization's Marketplace Portal by typing the following URL in a supported Web browser:

```
https://<csahostname>:8089/org/<organization_identifier>
```

where:

- *<csahostname>* is the fully-qualified domain name of the system on which the Marketplace Portal instance resides and that was used when HP CSA was installed.
- *<organization_identifier>* is the unique name that HP Cloud Service Automation assigns to the organization, based on the organization display name (the organization identifier can be found in the General Information section of the **Organizations** tile of the Cloud Service Management Console)

Example:

```
https://csa_system.xyz.com:8089/org/ORGANIZATIONA
```

Caution: Do not launch more than one organization-specific Marketplace Portal from the same browser session. For example, if you launch ORGANIZATION_A's Marketplace Portal in a browser, do not open a tab or another window from that browser and launch ORGANIZATION_B's Marketplace Portal. Otherwise, the user who has logged in to the Marketplace Portal launched for ORGANIZATION_A will start to see data for ORGANIZATION_B.

Instead, start a new browser session to launch another organization's Marketplace Portal.

Start HP CSA

To start HP CSA:

1. If you have configured HP CSA to be FIPS 140-2 compliant, create an HP CSA encryption keystore password file. The name and location of this file must match the value configured for the `keystorePasswordField` property in the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties` file.

The password file must contain only the following content: `keystorePassword=<HP CSA encryption keystore password>`

where *<HP CSA encryption keystore password>* is the HP CSA encryption keystore password in clear text.

This file is automatically deleted when the HP Cloud Service Automation service is started.

2. On the server that hosts HP CSA, navigate to **Control Panel > Administrative Tools > Services**.
3. Right-click on the HP Cloud Service Automation service and select **Start**.
4. Right-click on the HP Marketplace Portal service and select **Start**.

Restart HP CSA

To restart HP CSA:

1. If you have configured HP CSA to be FIPS 140-2 compliant, create an HP CSA encryption keystore password file. The name and location of this file must match the value configured for the `keystorePasswordFile` property in the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties` file.

The password file must contain only the following content: `keystorePassword=<HP CSA encryption keystore password>`

where *<HP CSA encryption keystore password>* is the HP CSA encryption keystore password in clear text.

This file is automatically deleted when the HP Cloud Service Automation service is started.

2. On the server that hosts HP Cloud Service Automation, navigate to **Control Panel > Administrative Tools > Services**.
3. Right-click on the HP Cloud Service Automation service and select **Restart**.
4. Right-click on the HP Marketplace Portal service and select **Restart**.

Stop HP CSA

To stop HP CSA:

1. On the server that hosts HP Cloud Service Automation, navigate to **Control Panel > Administrative Tools > Services**.
2. Right-click on the HP Cloud Service Automation service and select **Stop**.
3. Right-click on the HP Marketplace Portal service and select **Stop**.

Encrypt a Password

To encrypt a password (for use with HP CSA configuration only; see "[Encrypt a Marketplace Portal Password](#)" on page 78 for information on how to encrypt a Marketplace Portal password):

1. Open a command prompt and change to the %CSA_HOME%\scripts directory. For example:

```
C:\Program Files\Hewlett-Packard\CSA\scripts
```

2. Run the following command:

```
"<csa_jre>\bin\java" -jar passwordUtil.jar encrypt <myPassword>
```

If you have configured HP CSA to be FIPS 140-2 compliant, run the following command (this example uses the same example names from the *Create an HP CSA Encryption Keystore* section):

```
"<csa_jre>\bin\java" -jar passwordUtil.jar encrypt <password> JsafeJCE  
../jboss-as-7.1.1.Final/standalone/configuration/csa_encryption_keystore.p12  
<HP CSA encryption keystore password> csa_encryption_key  
../jboss-as-7.1.1.Final/standalone/configuration/key.dat
```

Note: The path separators used in the passwordUtil.jar script options are forward slashes (/). You can also use double backward slashes (\) as your path separators.

If you used different names for the keystore, alias, or encrypted symmetric key file, here is an example of the command without using the example names:

```
"<csa_jre>\bin\java" -jar "%CSA_HOME%\scripts\passwordUtil.jar" encrypt  
<password> JsafeJCE <HP CSA encryption keystore>  
<HP CSA encryption keystore password>  
<HP CSA encryption keystore alias>  
<Location and name of the encrypted symmetric key>
```

Note: If you use path separators in the passwordUtil.jar script options, use either a single forward slash (/) or double backward slashes (\) as your path separator.

Uninstall HP CSA

Uninstalling HP CSA removes the %CSA_HOME% directory and all of its contents (where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed). If all the contents in %CSA_HOME% are not deleted, you must manually delete them and the %CSA_HOME% directory.

Note: The HP CSA database is NOT updated or uninstalled.

To uninstall HP CSA:

1. Stop the HP CSA and Marketplace Portal services.

To stop HP CSA:

- a. On the server that hosts HP Cloud Service Automation, navigate to **Control Panel > Administrative Tools > Services**.
- b. Right-click on the HP Cloud Service Automation service and select **Stop**.
- c. Right-click on the HP Marketplace Portal service and select **Stop**.

2. Verify that the services were stopped.

If the HP CSA service is still running, open a command prompt, navigate to %CSA_HOME%\jboss-as-7.1.1.Final\bin, and run the following command:

```
jboss-cli.bat --connect --command=:shutdown
```

3. Close all instances of Windows Explorer, close all command prompts, and exit all programs that are running on the system.
4. Navigate to **Control Panel > Uninstall a program**.
5. Right-click on **HP CSA** and select **Uninstall/Change**.
6. Click **Uninstall**.
7. Delete the %CSA_HOME% directory and any remaining contents, if they exist.
8. If they exist, delete all HP CSA entries from the following file:

C:\Program Files\Zero G Registry\.com.zerog.registry.xml

Appendix A

Cloud Service Management Console Properties

This section lists and describes the properties that can be configured for the Cloud Service Management Console, which are located in one of the following files:

- %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties
- %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\web.xml

where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed.

The following areas contain properties that can be configured (for many properties, default values are provided):

- [Authentication](#)
- [Security Banner](#)
- [Marketplace Portal URL](#)
- [Security](#)
- [HP Cloud Service Automation keystore](#)
- [Service request processor scheduler](#)
- [Auditing](#)
- [Process execution manager](#)
- [Lifecycle engine](#)
- [Approval engine scheduler](#)
- [LDAP cache scheduler](#)
- [Clustering](#)
- [Dynamic property](#)
- [HP CDA integration](#)
- [Marketplace Portal](#)

- [FIPS 140-2](#)
- [Common access card](#)
- [Single sign-on](#)
- [Process Executor Delegate](#)
- [Session timeout](#)

After modifying the `csa.properties` file, restart HP CSA. See ["Restart HP CSA" on page 172](#) for detailed information on how to restart HP CSA.

Authentication

These properties are used for authentication.

These properties are configured in `csa.properties`.

Property	Description
<code>csa.provider.hostname</code>	Required. The fully-qualified domain name of the system on which HP Cloud Service Automation is running. If you change this hostname, you must update the value of the <code>idm.csa.hostname</code> property in the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\spring\applicationContext.properties</code> file.
<code>csa.provider.port</code>	Required. The port used to connect to the system on which HP Cloud Service Automation is running. If you change this port, you must update the value of the <code>idm.csa.port</code> property in the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\spring\applicationContext.properties</code> file.
<code>csa.provider.rest.protocol</code>	Required. The protocol used by the REST API to connect to the system on which HP Cloud Service Automation is running. This attribute must be set to https . If you change this protocol, you must update the value of the <code>idm.csa.protocol</code> property in the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\spring\applicationContext.properties</code> file.
<code>csa.orgName.identifier</code>	Required. The provider organization identifier assigned to the organization who is providing this instance of the Cloud Service Management Console. This attribute must be set to CSA-Provider .

Security Banner Attributes

The attributes in the following table are used by the Cloud Service Management Console to enable or disable the display of a disclaimer upon logging in to the Cloud Service Management Console and a color-coded banner that appears at the top and bottom of the Cloud Service Management Console.

These properties are configured in `csa.properties`.

Attribute	Description
<code>csa.provider.agency</code>	<p>By default, this attribute is commented out. When this attribute is commented out or does not contain a valid value, the login disclaimer and color-coded banners are not displayed for the Cloud Service Management Console.</p> <p>If you want to enable the login disclaimer and color-coded banners, uncomment this attribute and set the value to GOVERNMENT. If set to any other value, the login disclaimer and color-coded banners are not displayed.</p> <p>To edit the disclaimer page, edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\static\template\disclaimerNote.jsp file.</p> <p>To edit the disclaimer content, edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\msgs\messages_en.properties file.</p>

Attribute	Description
csa.provider. contentType	<p>By default, this attribute is commented out. This attribute defines the color and content that displays in the security banner. The security banners appear at the top and bottom of the Cloud Service Management Console.</p> <p>The following values are provided out-of-the-box:</p> <ul style="list-style-type: none"> UNCLASSIFIED. The banner is light green and contains no content. An example is shown below. <div style="background-color: #90EE90; width: 100%; height: 20px; margin: 5px 0;"></div> UNCLASSIFIED_FOUO. For official use only. The banner is light green and displays the text "FOUO." An example is shown below. <div style="background-color: #90EE90; width: 100%; height: 20px; text-align: center; margin: 5px 0;">FOUO</div> UNCLASSIFIED_NOFORN. Not releasable to foreign nationals. The banner is light green and displays the text "NOFORN." An example is shown below. <div style="background-color: #90EE90; width: 100%; height: 20px; text-align: center; margin: 5px 0;">NOFORN</div> CONFIDENTIAL. The banner is light blue and displays the text "CONFIDENTIAL." An example is shown below. <div style="background-color: #ADD8E6; width: 100%; height: 20px; text-align: center; margin: 5px 0;">CONFIDENTIAL</div> CONFIDENTIAL_FOUO. The banner is light blue and displays the text "CONFIDENTIAL-FOUO." An example is shown below. <div style="background-color: #ADD8E6; width: 100%; height: 20px; text-align: center; margin: 5px 0;">CONFIDENTIAL-FOUO</div> CONFIDENTIAL_NOFORN. The banner is light blue and displays the text "CONFIDENTIAL-NOFORN." An example is shown below. <div style="background-color: #ADD8E6; width: 100%; height: 20px; text-align: center; margin: 5px 0;">CONFIDENTIAL-NOFORN</div> SECRET. The banner is red and displays the text "SECRET." An example is shown below. <div style="background-color: #FF0000; width: 100%; height: 20px; text-align: center; margin: 5px 0;">SECRET</div> TOPSECRET. The banner is orange and displays the text "TOPSECRET." An example is shown below. <div style="background-color: #FF8C00; width: 100%; height: 20px; text-align: center; margin: 5px 0;">TOPSECRET</div> <p>To edit the banner content, edit the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\ deployments\csa.war\WEB-INF\classes\ msgs\messages_en.properties file.</p>

Marketplace Portal URL

This property is used to define the URL of the Marketplace Portal for an organization and is displayed in the Cloud Service Management Console.

This property is configured in `csa.properties`.

Property	Description
<code>csa.subscriber.portal.url</code>	<p>The URL used to access the Marketplace Portal of an organization and is displayed in the Organization URL field in the General Information section of an organization's page in the Cloud Service Management Console.</p> <p>You can use specific values or one or more of the following variables:</p> <ul style="list-style-type: none">• <code>{protocol}</code> - The protocol used to connect to the Marketplace Portal. This is either <code>http</code> or <code>https</code>. The variable value is the same protocol used to access the Cloud Service Management Console.• <code>{host}</code> - The fully-qualified domain name or IP address of the system on which the Marketplace Portal is installed. The variable value is the same host on which the Cloud Service Management Console is installed.• <code>{orgName}</code> - The organization's name. The variable value is the Organization Identifier displayed in the General Information section of an organization's page. The Organization Identifier is based on the value entered in the Organization Display Name field. <p>The port configured for the Marketplace Portal in this property should match the <code>port</code> attribute value configured in the <code>%CSA_HOME%\portal\conf\mpp.json</code> file.</p> <p>If a variable's value is incorrect, you can enter a specific value in place of the variable. For example, <code>https://{host}:8089/org/{orgName}</code> or <code>{protocol}://csa_system.xyz.com:8089/#/login/marketing</code></p> <p>Default: <code>{protocol}://{host}:8089/org/{orgName}</code></p>

Security

These properties are used to configure encrypted passwords (see ["Encrypt a Password" on page 173](#) for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.

These properties are configured in `csa.properties`.

Property	Description
securityAdminPassword	<p>Required. The encrypted password used by the out-of-the-box admin user (defined in the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\applicationContext-security.xml file). The admin user account is used for initial login to the Cloud Service Management Console and can also be used to authenticate REST API calls.</p> <p>The password should be encrypted (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.</p> <p>If you change this password, you must also update the password of any REST API calls that use this password. For more information about the REST APIs, refer to the <i>HP Cloud Service Automation Integration Guide</i>.</p>
securityCsaReportingUserPassword	<p>Required. The encrypted password used by the out-of-the-box csaReportingUser user (defined in the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\applicationContext-security.xml file). The csaReportingUser user account is used when a subscription is ordered or modified and a field for the subscription includes a dynamically generated list. The dynamically generated list is a subscriber option property configured to use a dynamic query. The dynamic query uses this account to access HP Cloud Service Automation to determine the values that will appear in the list. This account has read-only access to HP Cloud Service Automation.</p> <p>The password should be encrypted (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.</p> <p>If you change this password, you must also update the password of any REST API calls that use this password. For more information about the REST APIs, refer to the <i>HP Cloud Service Automation Integration Guide</i>.</p>

Property	Description
securityTransportUserName	<p>Required. The out-of-the-box user used to authenticate REST API calls between the Marketplace Portal and Cloud Service Management Console (it should not be used to log in to the Cloud Service Management Console).</p> <p>If you change this username, you must update the value of the <code>idm.csa.username</code> property in the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\spring\applicationContext.properties</code> file.</p> <p>For more information about the integration user account, see "Change HP CSA Out-of-the-Box User Accounts" on page 90. For more information about the REST APIs, refer to the <i>HP Cloud Service Automation Integration Guide</i>.</p>
securityTransportPassword	<p>Required. The encrypted password used by the out-of-the-box <code>csaTransportUser</code> user (defined in the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\applicationContext-security.xml</code> file). The <code>csaTransportUser</code> user account is used to authenticate REST API calls between the Marketplace Portal and Cloud Service Management Console (it should not be used to log in to the Cloud Service Management Console).</p> <p>The password should be encrypted (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by <code>ENC</code> without any separating spaces and is enclosed in parentheses.</p> <p>If you change this password, you must update the value of the <code>idm.csa.password</code> property in the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\spring\applicationContext.properties</code> file.</p> <p>For more information about the integration user account, see "Change HP CSA Out-of-the-Box User Accounts" on page 90. For more information about the REST APIs, refer to the <i>HP Cloud Service Automation Integration Guide</i>.</p>

Property	Description
<p>securityOolnbound UserPassword</p>	<p>Required. The encrypted password used by the out-of-the-box ooInboundUser user (defined in the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\applicationContext-security.xml file). The oolnboundUser user account is used by HP Operations Orchestration to authenticate REST API calls with HP Cloud Service Automation (it should not be used to log in to the Cloud Service Management Console).</p> <p>The password should be encrypted (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.</p> <p>If you change this password, you must also update and use the same password for the CSA_REST_CREDENTIALS system account in HP Operations Orchestration (see "HP Operations Orchestration Settings" on page 210 and the <i>HP Cloud Service Automation Installation Guide</i>).</p>
<p>securityCdaInbound UserPassword</p>	<p>Required. The encrypted password used by the out-of-the-box cdaInboundUser user (defined in the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\applicationContext-security.xml file). The cdaInboundUser user account is used by HP CDA to authenticate REST API calls with HP Cloud Service Automation (it should not be used to log in to the Cloud Service Management Console).</p> <p>The password should be encrypted (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.</p> <p>If you change this password, you must also update and use the same password in HP CDA. For more information about this user account, see "Change HP CSA Out-of-the-Box User Accounts" on page 90.</p>

Property	Description
securityIdmTransportUserPassword	<p>Required. The encrypted password used by the out-of-the-box <code>idmTransportUser</code> user (defined in the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\applicationContext-security.xml</code> file). The <code>idmTransportUser</code> user account is used to authenticate REST API calls (it should not be used to log in to the Cloud Service Management Console).</p> <p>The password should be encrypted (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by <code>ENC</code> without any separating spaces and is enclosed in parentheses.</p> <p>If you change this password, you must also update the following passwords (you must use the same password):</p> <ul style="list-style-type: none">• the <code>idmTransportUser</code> property in the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\classes\integrationusers.properties</code> file.• the <code>password</code> attribute in the <code>idmProvider</code> section of the <code>%CSA_HOME%\portal\conf\mpp.json</code> file (this password uses a different password encryption utility; see "Encrypt a Marketplace Portal Password" on page 78 for more information about encrypting the password attribute).• the password of any REST API calls that use this password. <p>For more information about this user account, see "Change HP CSA Out-of-the-Box User Accounts" on page 90.</p>

Property	Description
<p>securityCatalog AggregationTransport UserPassword</p>	<p>Required. The encrypted password used by the out-of-the-box csaCatalogAggregationTransportUser user (defined in the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\applicationContext-security.xml file). The csaCatalogAggregationTransportUser user account is used to authenticate catalog aggregation REST API calls with HP Cloud Service Automation (it should not be used to log in to the Cloud Service Management Console).</p> <p>The password should be encrypted (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.</p> <p>If you change this password, you must also update the password using the catalog aggregation registration REST APIs. For more information about this user account, see "Change HP CSA Out-of-the-Box User Accounts" on page 90.</p>
<p>securityEncrypted SigningKey</p>	<p>HP CSA's encrypted signing key used to encrypt and decrypt authentication data passed between HP CSA and the HP Identity Management component.</p> <p>If you change this key, you must also update the idm.encryptedSigningKey property in the %CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\spring\applicationContext.properties file.</p> <p>The key should be encrypted (see "Encrypt a Password" on page 173 for instructions on how to encrypt this key). The encrypted key is preceded by ENC without any separating spaces and is enclosed in parentheses.</p>
<p>com.hp.ccue.consumption disallowedExtensions</p>	<p>A comma-delimited list of the file extensions that designate the types of documents or files that cannot be uploaded to the Cloud Service Management Console</p> <p>Default: exe,bat,com,cmd</p>

HP Cloud Service Automation Keystore

These properties are used to configure information about HP Cloud Service Automation's keystore.

These properties are configured in `csa.properties`.

Property	Description
<code>csaTruststore</code>	<p>Required. The HP Cloud Service Automation keystore that stores trusted Certificate Authority certificates.</p> <p>Default: No default specified</p> <p>Example</p> <p><code>C:\Program Files\Hewlett-Packard\CSA\jre\lib\security\cacerts</code></p>
<code>csaTruststorePassword</code>	<p>Required. The encrypted password of the HP Cloud Service Automation keystore (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by <code>ENC</code> without any separating spaces and is enclosed in parentheses.</p> <p>Default: No default specified</p> <p>Example</p> <p><code>ENC(9eC7TTnB0uG0GK5U648UITcEV5AuV5T)</code></p>

Service Request Processor Scheduler

These properties are used to configure the service request processor scheduler. The service request processor scheduler validates a consumer's requests, initiates the approval process, if configured, and maintains a request's status.

These properties are configured in `csa.properties`.

Property	Description
<code>serviceRequestProcessorScheduler.maxInstancesToProcess</code>	Optional. The maximum number of service requests the service request processor can process when it checks the start and end dates of submitted subscriptions. Default: 100
<code>serviceRequestProcessorScheduler.period</code>	Optional. How often, in milliseconds, the service request processor checks the start and end dates of submitted subscriptions. Default: 5000 (5 seconds)

Auditing

This property is used to configure auditing.

This property is configured in `csa.properties`.

Property	Description
<code>csaAuditEnabled</code>	Optional. Enable or disable auditing, which tracks user activities and system-generated events. Messages are logged to the <code>CSA_AUDIT_EVENT</code> table in the database. Default: true (enabled)

Process Execution Manager

These properties are used to configure the process execution manager. The process execution manager starts internal actions and HP Operations Orchestration flow actions, checks the status of process instances, and performs callback once the actions are completed.

These properties are configured in `csa.properties`.

Property	Description
<code>com.hp.csa.ProcessExecutor.THREAD_WAKEUP_TIME</code>	Optional. How often, in milliseconds, the process execution manager starts new process instances (which start HP Operations Orchestration flows) and checks the status of process instances. Default: 5000 (5 seconds)
<code>com.hp.csa.ProcessExecutor.THREAD_POOL_CORE_SIZE</code>	Optional. The maximum number of threads used to run process instances. Default: 2
<code>com.hp.csa.PEM.PARAM_PROCESS_INSTANCE_ID</code>	Optional. The token that stores the process instance ID and is used when HP Cloud Service Automation starts an HP Operations Orchestration flow. Default: <code>CSA_PROCESS_ID</code>
<code>com.hp.csa.PEM.PARAM_CONTEXT_ID</code>	Optional. The token that stores the artifact ID of the artifact that owns the action that executes the HP Operations Orchestration flow. Default: <code>CSA_CONTEXT_ID</code>

Lifecycle Engine

These properties are used to configure the lifecycle engine. The lifecycle engine processes service instances and executes lifecycle actions.

These properties are configured in `csa.properties`.

Property	Description
<code>com.hp.csa.LifecycleExecutor.THREAD_WAKEUP_TIME</code>	Optional. How often, in milliseconds, the lifecycle engine checks for service components that it needs to transition. Default: 5000 (5 seconds)
<code>com.hp.csa.LifecycleExecutor.THREAD_POOL_SIZE</code>	Optional. The maximum number of threads used to transition service components. Default: 2

Approval Engine Scheduler

This property is used to configure the approval engine scheduler. The approval engine scheduler checks each approver's response to a pending approval process to see if the process can be marked as completed and updates the decision and status of an approval process, as needed.

This property is configured in `csa.properties`.

Property	Description
<code>com.hp.csa.ApprovalDecisionMaker.THREAD_WAKEUP_TIME</code>	Optional. How often, in minutes, the approval engine scheduler checks for completion of an approval process to determine if an approval process should be approved or denied. Default: 1

LDAP Cache Scheduler

These properties are used to configure the LDAP cache scheduler. The LDAP cache scheduler checks the age of the user group cache and deletes it if it has expired.

For users who can log in to the Cloud Service Management Console or Marketplace Portal, certain actions require authorization (verification if the user belongs to a group). When authorization is requested for a user, HP CSA checks for group membership by using the cache. If the cache does not exist, LDAP is queried for the user's user groups which are temporarily cached to the database. After a configured expiration time, the cache is deleted. During a single session, the cache may be deleted and refreshed as needed.

These properties are configured in `csa.properties`.

Property	Description
<code>com.hp.csa.UserGroupExecutor.THREAD_WAKEUP_TIME</code>	Optional. How often, in minutes, the LDAP cache scheduler checks for user group caches that have expired. This number should be less than the value configured for <code>com.hp.csa.UserGroupExecutor.CACHE_EXPIRATION_TIME</code> . Default: 20
<code>com.hp.csa.UserGroupExecutor.CACHE_EXPIRATION_TIME</code>	Optional. How long, in minutes, LDAP user groups for a user are temporarily cached in the database before they are deleted. This time should be greater than the value configured for <code>com.hp.csa.UserGroupExecutor.THREAD_WAKEUP_TIME</code> . Default: 30
<code>com.hp.csa.UserGroupExecutor.UserGroupDeletionBatchSize</code>	Optional. The maximum number of user IDs that are deleted in a single batch from the cache. This number cannot be larger than 1,000. Default: 250

Clustering

This property is used to configure clustering.

This property is configured in `csa.properties`.

Property	Description
deploymentMode	<p>Required. The mode in which HP CSA is running (single or clustered). When set to <code>single</code>, HP CSA runs in standalone mode (on a single instance) and all HP CSA services are run on this instance. When set to <code>clustered</code>, HP CSA runs in domain mode (in a clustered environment) and all HP CSA services are run on the master node.</p> <p>If you are using Microsoft SQL Server as your database, this property must be set to <code>single</code>.</p> <p>Default: <code>single</code></p>

Dynamic Property

These configuration properties are used to limit the amount of time to retrieve data and the amount of data retrieved when using a dynamic property. A dynamic property is a Dynamic Query value entry method for a subscriber option property that defines what information is retrieved. A dynamic property allows the Service Designer to list a dynamic set of values that change based on the user context (for example, the organization to which the user belongs).

These properties are configured in `csa.properties`.

Property	Description
DynamicPropertyFetch.READ_TIMEOUT	<p>Optional. How long, in milliseconds, HP Cloud Service Automation attempts to fetch or retrieve data for dynamic properties.</p> <p>Default: 3000 (3 seconds)</p>
DynamicPropertyFetch.RESPONSE_SIZE	<p>Optional. The maximum amount of data, in bytes, that can be retrieved for dynamic properties.</p> <p>Default: 50000</p>

Group Approval

This configuration property is used when configuring a group approval template.

This property is configured in `csa.properties`.

Property	Description
<code>csa.group.numberOfApprovers</code>	Optional. The maximum number of members in an LDAP group used for approvals. For reasonable performance, do not specify more than ten (10) members. Default: 10

HP CDA Integration

This configuration property is used when integrating with HP Continuous Delivery Automation (HP CDA).

This property is configured in `csa.properties`.

Property	Description
<code>defaultDaysToExtendExpirationDate</code>	Optional. How long, in days, HP Cloud Service Automation automatically extends an expired subscription if the subscription is based on HP CDA designs and other services depend on this subscription. If a subscription is based on HP CDA designs and other services depend on the HP Cloud Service Automation service subscription, this subscription cannot be canceled. Default: 1

Marketplace Portal

These properties are the default values displayed in the Cloud Service Management Console that are used to configure the Marketplace Portal for an organization. The values configured in the Cloud Service Management Console take precedence over the values set in this properties file.

These properties are configured in `csa.properties`.

Property	Description
csa.consumer.featuredCategory	<p>Optional. The default value of the Featured Category field displayed in the Cloud Service Management Console of a selected organization. This value may be overwritten in the Cloud Service Management Console. The value configured in the Cloud Service Management Console takes precedence over this value.</p> <p>This is the category that is used when displaying service offerings in the Marketplace Portal.</p> <p>The value entered for this attribute is the name of a category configured in the Cloud Service Management Console but is in all capitalized letters and replaces any spaces with an underscore (_). For example, if you configure a category named e-mail Servers and want to feature this category, you would set this attribute to E-MAIL_SERVERS.</p> <ul style="list-style-type: none"> • ACCESSORY • APPLICATION_SERVERS - Default. • APPLICATION_SERVICES • BACKUP_SERVICES • CRM • DATABASE_SERVERS • FILE_SERVERS • HARDWARE • MAIL_SERVICES • NETWORK_SERVICES • PLATFORM_SERVICES • SIMPLE_SYSTEM • SOFTWARE • WEB_HOSTING_SERVICES <p>For more information about the featured services, refer to the <i>Marketplace Portal Help</i>. For more information about configuring categories for a catalog, refer to the <i>HP Cloud Service Management Console Help</i>. Online help content is available in a printable PDF format on the HP Software Support Web site at http://h20230.www2.hp.com/selfsolve/manuals/ (this site requires that you register with HP Passport).</p>

Property	Description
	Default: APPLICATION_SERVERS
csa.consumer. endDatePeriod	<p>Optional. The default value of the Subscription End Date field displayed in the Cloud Service Management Console of a selected organization. This value may be overwritten in the Cloud Service Management Console. The value configured in the Cloud Service Management Console takes precedence over this value.</p> <p>This is the maximum length of a subscription, in months, if a requested end date is specified. When a subscriber selects a requested start date and requests an end date, the length of the subscription cannot be longer than the value of this property. The maximum allowed value is 12 months. For example, if the subscriber selects a requested start date of June 15, 2012, based on the default value of this property, the requested end date cannot be later than June 14, 2013. If no end date is selected, this value is ignored.</p> <p>Default: 12 (months)</p>
csa.consumer. legalNoticeUrl	<p>Optional. The default value of the Privacy Statement Link field displayed in the Cloud Service Management Console of a selected organization. This value may be overwritten in the Cloud Service Management Console. The value configured in the Cloud Service Management Console takes precedence over this value.</p> <p>This is a link to an organization's privacy statement and, when enabled in the Cloud Service Management Console, appears on the login page below the copyright statement.</p> <p>Default: HP's online privacy statement</p>
csa.consumer. termsOfUseUrl	<p>Optional. The default value of the Terms and Conditions Link field displayed in the Cloud Service Management Console of a selected organization. This value may be overwritten in the Cloud Service Management Console. The value configured in the Cloud Service Management Console takes precedence over this value.</p> <p>This is a link to an organization's terms and conditions statement and, when enabled in the Cloud Service Management Console, appears when a subscriber is ordering a service.</p> <p>Default: HP's terms of use statement</p>

FIPS 140-2 Configuration

These configuration properties are used to configure HP CSA to be compliant with FIPS 140-2.

Note: The `csaTruststore` and `csaTruststorePassword` properties are repeated here because you may need to update them for FIPS 140-2 configuration. These properties are configured in a different section of the `csa.properties` file.

These properties are configured in `csa.properties`.

Property	Description
<code>useExternalProvider</code>	<p>Required if enabling FIPS 140-2 compliance mode. To enable, set this property to true. To disable, set this property to false or comment it out.</p> <p>When enabled, HP CSA uses the RSA BSAFE libraries to encrypt and decrypt passwords. If a password was encrypted using different libraries (for example, if the password was encrypted before this property is enabled), the resulting decrypted password will not be valid.</p> <p>If you cannot connect to the database after you have configured HP CSA for FIPS 140-2 compliance, try re-encrypting the database password in the database properties file.</p> <p>Default: commented out/disabled</p>
<code>securityProviderName</code>	<p>Required if FIPS 140-2 compliance mode is enabled. The name of the FIPS 140-2 compliant provider. By default, HP CSA uses the RSA BSAFE provider and this property should be set to <code>JsafeJCE</code>.</p>
<code>keySize</code>	<p>Optional. The key size used for HP CSA encryption. By default, the key size is 128. If you manually enter a different key size when encrypting a password, uncomment this property and configure the value to the key size used to encrypt the passwords.</p> <p>Note: All passwords must be encrypted using the same key size.</p> <p>By default, the password encryption utility encrypts all passwords using a key size of 128 (even if you do not specify a key size when running the utility).</p>

Property	Description
keystore	<p>Required if FIPS 140-2 compliance mode is enabled. The absolute path to and file name of the HP CSA encryption keystore. This is the keystore that supports PKCS #12 and stores the key used by HP CSA to encrypt and decrypt data in HP CSA.</p> <p>Example (this example uses the same example name from "Create an HP CSA Encryption Keystore" on page 109):</p> <pre>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\csa_encryption_keystore.p12</pre>
keyAlias	<p>Required if FIPS 140-2 compliance mode is enabled. The alias used to identify the HP CSA encryption key in the HP CSA encryption keystore.</p> <p>Example (this example uses the same example name from "Create an HP CSA Encryption Keystore" on page 109):</p> <pre>csa_encryption_key</pre>
keystorePasswordFile	<p>Required if FIPS 140-2 compliance mode is enabled. The absolute path to and file name of the HP CSA encryption keystore password. This is a temporary file that stores the HP CSA encryption keystore password in clear text. This file is required to start the HP CSA service and is automatically deleted when the service is started.</p> <p>The password file must contain only the following content:</p> <pre>keystorePassword=<HP CSA encryption keystore password></pre> <p>where <HP CSA encryption keystore password> is the HP CSA encryption keystore password in clear text.</p>
encryptedKeyFile	<p>Required if FIPS 140-2 compliance mode is enabled. The location of the HP CSA encrypted symmetric key.</p> <p>Example (this example uses the same example name from "Create an HP CSA Encryption Keystore" on page 109):</p> <pre>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\key.dat</pre>

Property	Description
csaTruststore	<p>Required. The HP Cloud Service Automation keystore that stores trusted Certificate Authority certificates.</p> <p>Note: This property is located in another section of the <code>csa.properties</code> file. Its description is repeated here as its value should be updated when HP CSA has been configured to be compliant with FIPS 140-2.</p> <p>Example (this example uses the same example name of the HP CSA SSL truststore from "Create an HP CSA Encryption Keystore" on page 109):</p> <pre>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\ configuration\csa_ssl_truststore.p12</pre>
csaTruststorePassword	<p>Required. The encrypted password of the HP Cloud Service Automation keystore (see "Encrypt a Password" on page 173 for instructions on encrypting passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.</p> <p>Default: No default specified</p> <p>Example</p> <pre>ENC(9eC7TTnB0uG0GK5U648UITcEV5AuV5T)</pre> <p>Note: This property is located in another section of the <code>csa.properties</code> file. Its description is repeated here as its value should be updated when HP CSA has been configured to be compliant with FIPS 140-2.</p> <p>This is the <code><HP CSA SSL truststore password></code> from "Create an HP CSA Encryption Keystore" on page 109.</p>

Common Access Card

This property is used to enable integration between Common Access Card (CAC) and HP CSA.

This property is configured in `csa.properties`.

Property	Description
enableCAC	<p>Optional. Enable integration between CAC and HP CSA, where the CAC is used as an approval mechanism. To enable, this property must be uncommented and set to true. To disable, either comment out the property or set it to false.</p> <p>Default: (disabled)</p>

Single Sign-On

This property is used to enable integration between CA SiteMinder and HP CSA.

This property is configured in `csa.properties`.

Property	Description
enableSSO	Optional. Enable integration between CA SiteMinder and HP CSA, where the SiteMinder is used for single sign-on. To enable, this property must be uncommented and set to true. To disable, either comment out the property or set it to false. Default: (disabled)

Process Executor Delegate

These properties are used to configure the process executor delegate. The process executor delegate handles processing of the process instances. It discovers the ready instances, submits them to different thread pools for processing based on process definition and model type (sequenced or topology).

These properties are configured in `csa.properties`.

Property	Description
<code>com.hp.csa.service.process.ProcessExecutorDelegate.INTERNAL_POOL_SIZE</code>	Optional. The maximum number of threads used for processing internal executors (for example, clone patterns). Default: 2
<code>com.hp.csa.service.process.ProcessExecutorDelegate.EXTERNAL_POOL_SIZE</code>	Optional. The maximum number of threads used for processing external executors (for example, HP Operations Orchestration). Default: 2
<code>com.hp.csa.service.process.ProcessExecutorDelegate.CALLBACK_POOL_SIZE</code>	Optional. The maximum number of threads used by the callback pool. Default: 2
<code>com.hp.csa.service.process.ProcessExecutorDelegate.MONITOR_POOL_SIZE</code>	Optional. The maximum number of threads used by the monitor pool. Default: 2

Session Timeout

This property is used to configure the Cloud Service Management Console session.

This property is configured in `web.xml`.

Property	Description
session-timeout	Optional. The amount of inactivity, in minutes, that causes the Cloud Service Management Console session to time out. Default: 60

Restart the HP Cloud Service Automation Service

After modifying the `csa.properties` file, restart HP CSA. See ["Restart HP CSA" on page 172](#) for detailed information on how to restart HP CSA.

Appendix B

Marketplace Portal Attributes

This section lists and describes the attributes that can be configured for the Marketplace Portal. Recommended modifications to the values can be found in the related feature's section in this guide or other documentation (for example, refer to the Identity Management component section in this guide for more information about the Identity Management component-related attributes).

The attributes are located in the following file:

```
%CSA_HOME%\portal\conf\mpp.json
```

where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed.

The following areas contain attributes that can be configured (for many attributes, default values are provided):

- [General Marketplace Portal attributes](#)
- [Provider attributes](#)
- [Identity Management component attributes](#)
- [SSL attributes](#)
- [High availability attributes](#)
- [Logging attributes](#)
- [Proxy server attributes](#)

General Marketplace Portal Attributes

These attributes are general purpose attributes that can be configured for the Marketplace Portal.

Attribute	Description
uid	A unique identifier of the Marketplace Portal process used only on Linux systems. Default: ccue_mpp

Attribute	Description
port	<p>The port used to connect to the system on which the Marketplace Portal is running.</p> <p>The port configured for the Marketplace Portal in this attribute should match the port value configured for the <code>csa.subscriber.portal.url</code> property in the <code>%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\classes\csa.properties</code> file.</p> <p>Default: 8089</p>
defaultOrganizationName	<p>The organization identifier of the organization that is accessed by the Marketplace Portal when the Marketplace Portal is launched from a URL that does not specify the organization. The organization identifier is the unique name that HP Cloud Service Automation assigns to the organization, based on the organization display name (the organization identifier can be found in the General Information section of the Organizations tile of the Cloud Service Management Console).</p> <p>Default: CSA_CONSUMER</p>
defaultHelpLocale	<p>The language in which the online help is presented. Available languages can be found in the <code>%CSA_HOME%\portal\node_modules\mpp-ui\dist\ccue-marketplaceportal-help\help\<defaultHelpLocale></code> directory.</p> <p>Default: en_US (English)</p>
defaultHelpPage	<p>The name of the help file that is launched if there is no context-sensitive help available for a topic.</p> <p>The page is relative to <code>%CSA_HOME%\portal\node_modules\mpp-ui\dist\ccue-marketplaceportal-help\help\<defaultHelpLocale></code> and uses the <code>defaultHelpLocale</code> to determine which language to use.</p> <p>Default: MarketplacePortal_Help_CSA.htm</p>
keyfile	<p>The file that contains the Marketplace Portal's encrypted symmetric key and is used by the Marketplace Portal to encrypt and decrypt data in the Marketplace Portal. The path to the file can be absolute or relative to the <code>%CSA_HOME%\portal\bin</code> directory.</p> <p>If this file does not exist, it can be generated using the <code>%CSA_HOME%\portal\bin\passwordUtil</code> utility (see "Encrypt a Marketplace Portal Password" on page 78 for more information).</p> <p>Default: ../conf/keyfile</p>

Attribute	Description
rejectUnauthorized	<p>Allows the Marketplace Portal to accept or reject requests based on the type of certificate passed. If enabled (set to true), the Marketplace Portal will only accept requests that use a Certificate Authority-signed or subordinate Certificate Authority-signed certificate and it will reject requests that use a self-signed certificate.</p> <p>If disabled (set to false), the Marketplace Portal will accept requests that use a Certificate Authority-signed, subordinate Certificate Authority-signed certificate, or a self-signed certificate.</p> <p>Default: false</p>
session: cookieSecret	<p>The authentication cookie used to verify if a user is logged in and to encrypt the user's identification.</p> <p>The cookie/password should be encrypted (see "Encrypt a Marketplace Portal Password" on page 78 for instructions on encrypting Marketplace Portal passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.</p>
session: timeoutDuration	<p>The amount of inactivity, in seconds, that causes the Marketplace Portal session to time out.</p> <p>Default: 1800 (30 minutes)</p>
session: cleanupInterval	<p>How often, in seconds, a background process is run to clean up expired sessions.</p> <p>Default: 3600 (1 hour)</p>

Provider Attributes

These attributes are used to configure how the Marketplace Portal interacts with HP CSA.

Attribute	Description
url	<p>The URL to access HP CSA.</p> <p>Default: https://localhost:8444</p>
contextPath	<p>The context path to access HP CSA.</p> <p>Default: /csa/api/mpp</p>

Attribute	Description
strictSSL	<p>When enabled, the Marketplace Portal verifies the validity of the hostname and expiration date of the SSL certificate used to access the Cloud Service Management Console (the certificate of the host that is being connected to by the Marketplace Portal).</p> <p>When enabled, if the hostname configured for the SSL certificate is not valid, access is denied to the Marketplace Portal. To check if this is causing access problems to the Marketplace Portal, look for the following error message in the %CSA_HOME%\portal\logs\mpp.log file:</p> <pre>ERROR GetPost : java.security.cert.CertificateException: No name matching <csa.provider.hostname> found</pre> <p>Default: true (enabled)</p>
secureProtocol	<p>Used for FIPS 140-2 compliance. Determines the connection method used and understood by the server.</p> <p>Default: SSLv23_server_method</p>
ca	<p>Used only when strictSSL is enabled. The path to and name of the file that is an actual certificate or contains a comma-delimited list of certificates for HP CSA, which may include Certificate Authority-signed and self-signed certificates. If you are using a self-signed certificate, it must be listed in this file. The path to the file can be absolute or relative to the %CSA_HOME%\portal\bin directory.</p> <p>The certificates must be in a PEM or DER format.</p> <p>To use the self-signed certificate generated during the installation of HP CSA, set this attribute's value to %CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\jboss.crt where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed.</p>

Identity Management component Attributes

These attributes are used to configure how the Marketplace Portal interacts with the Identity Management component.

Attribute	Description
url	<p>The URL to access the Identity Management component.</p> <p>Default: https://localhost:8444</p>
returnUrl	<p>If proxy configuration is enabled, this is the URL to which the Identity Management component is redirected after authentication has succeeded.</p> <p>Default: https://localhost:8089</p>

Attribute	Description
contextPath	The context path to access the Identity Management component. Default: /idm-service
username	The name of the account used by HP CSA to authenticate REST API calls. Default: idmTransportUser
password	The encrypted password for the username (see "Encrypt a Marketplace Portal Password" on page 78 for instructions on encrypting Marketplace Portal passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses. See "Change HP CSA Out-of-the-Box User Accounts" on page 90 for more information about this account.
strictSSL	When enabled, the Marketplace Portal verifies the validity of the hostname and expiration date of the SSL certificate used to access the Identity Management component (the certificate of the host that is being connected to by the Marketplace Portal). When enabled, if the hostname configured for the SSL certificate is not valid, access is denied to the Marketplace Portal. To check if this is causing access problems to the Marketplace Portal, look for the following error message in the %CSA_HOME%\portal\logs\mpp.log file: ERROR GetPost : java.security.cert.CertificateException: No name matching <csa.provider.hostname> found Default: true (enabled)
secureProtocol	Used for FIPS 140-2 compliance. Determines the connection method used and understood by the server. Default: SSLv23_server_method
ca	Used only when strictSSL is enabled. The path to and name of the file that is an actual certificate or contains a comma-delimited list of certificates for the Identity Management component, which may include Certificate Authority-signed and self-signed certificates. If you are using a self-signed certificate, it must be listed in this file. The path to the file can be absolute or relative to the %CSA_HOME%\portal\bin directory. The certificates must be in a PEM or DER format. To use the self-signed certificate generated during the installation of HP CSA, set this attribute's value to %CSA_HOME%\jboss-as-7.1.1.Final\standalone\configuration\jboss.crt where %CSA_HOME% is the directory in which HP Cloud Service Automation is installed.

SSL Attributes

These attributes are used to configure SSL for the Marketplace Portal.

Attribute	Description
enabled	<p>Determines the protocol used by the Marketplace Portal. If enabled (set to true), the Marketplace Portal uses the HTTPS protocol. If disabled (set to false), the Marketplace Portal uses the HTTP protocol.</p> <p>The options listed below are used only when this attribute is enabled. Additional options may be specified and are defined at http://nodejs.org/api/tls.html#tls_tls_createserver_options_secureconnectionlistener.</p> <p>Default: true</p>
options: pfx	<p>The file that contains the Marketplace Portal's private key, self-signed certificate, and Certificate Authority-signed certificates (also known as a PKCS #12 archive). The path to the file can be absolute or relative to the %CSA_HOME%\portal\bin directory.</p> <p>Default: ../conf/.mpp_keystore</p>
options: passphrase	<p>The encrypted password used to access the pfx (see "Encrypt a Marketplace Portal Password" on page 78 for instructions on encrypting Marketplace Portal passwords). An encrypted password is preceded by ENC without any separating spaces and is enclosed in parentheses.</p>
options: secureProtocol	<p>Used for FIPS 140-2 compliance. Determines the connection method used and understood by the server.</p> <p>Default: SSLv23_server_method</p>

High Availability Attributes

These attributes are used to configure the Marketplace Portal in a clustered environment. For more information on how to configure HP CSA in a clustered environment, refer to *Configuring an HP CSA Cluster for Server Failover*.

Attribute	Description
enabled	<p>Determines the environment in which HP CSA is running. If enabled (set to true), the Marketplace Portal is running in a clustered environment. If disabled (set to false), the Marketplace Portal is running in a standalone environment.</p> <p>Default: false</p>
numWorkers	<p>The number of workers on which to deploy the Marketplace Portal. Each worker is deployed on each CPU and is therefore bound by the number of CPUs on the host.</p> <p>Default: 2</p>

Attribute	Description
redis: options: host	The hostname of the system on which the Redis data structure server is running. Default: localhost
redis: options: port	The port to connect to the Redis data structure server. Default: 6379

Logging Attributes

These attributes are used to configure logging.

Attribute	Description
console: enabled	Determines if messages are written to the console. If enabled (set to true), messages are displayed in the console. If disabled (set to false), messages are not displayed in the console. Default: false
console: level	The level of logging. For example, error, warn, info, debug, or trace. Default: info
file: enabled	Determines if messages are written to a log file. If enabled (set to true), messages are logged to a file (%CSA_HOME%\portal\logs\mpp.log). If disabled (set to false), messages are not logged to a file. Default: true
file: level	The level of logging. For example, error, warn, info, debug, or trace. Default: info
file: maxSizeMB	The maximum size to which the log file can grow, in megabytes, before it is archived. Default: 10
file: maxFile	The maximum number of archived log files. Default: 10

Attribute	Description
cef: enabled	<p>If the Marketplace Portal logging has been integrated with ArcSight Logger, determines if log events are sent and stored in ArcSight Logger. If enabled (set to true), log events are sent and stored in ArcSight Logger. If disabled (set to false), log events are not sent and stored in ArcSight Logger.</p> <p>For information on HP CSA and ArcSight Logger integration, see the <i>Integration with ArcSight Logger</i> technical white paper.</p> <p>Default: false</p>
cef: address	<p>The hostname of the system on which the ArcSight Logger is installed.</p> <p>Default: localhost</p>
cef: port	<p>The port used to connect to the system on which the ArcSight Logger is installed.</p> <p>Default: 9876</p>
cef: level	<p>The level of logging. For example, error, warn, info, or debug.</p> <p>Default: warn</p>

Proxy Attributes

These attributes are used to configure proxy settings for the Marketplace Portal.

Attribute	Description
enabled	<p>Determines if a proxy (an alternate URL using a different port and context path) is used to access the Marketplace Portal (for example, you may need to use a proxy, such as <code>http://localhost:8090/mpp</code> instead of <code>http://localhost:8089</code>, when the Marketplace Portal is integrated with a single sign-on solution). If enabled (set to true), the Marketplace Portal uses a proxy. If enabled, you must update the <code>returnUrl</code> attribute to use the proxy for the Identity Management component (this attribute is also located in the <code>mpp.json</code> file).</p> <p>If disabled (set to false), the Marketplace Portal does not use a proxy.</p> <p>Default: false</p>
port	<p>The port used for proxying.</p> <p>Default: 8090</p>
contextPath	<p>The mount path to which the Marketplace Portal is forwarded.</p> <p>Default: /mpp</p>

Appendix C

HP Operations Orchestration Settings

This section is provided as a reference only. The listed HP Operations Orchestration settings are configured in HP Operations Orchestration Studio and are used to integrate HP Operations Orchestration and HP CSA. These settings should have been configured as part of installing HP CSA. Information on how to configure these settings can be found in the *HP Cloud Service Automation Installation Guide*.

The following areas contain settings that can be configured from HP Operations Orchestration Studio:

- [Remote Action Services](#)
- [System Accounts](#)
- [System Properties](#)

Remote Action Services

Setting	Description
RAS_Operator_Path	<p>Required. The name and URL that accesses the RAS used by HP Operations Orchestration Central.</p> <p>HP recommends the following value:</p> <pre>https://<FQDN>:9004/RAS/services/RCAgentService</pre> <p>where <FQDN> is the fully qualified domain name or IP address of the HP Operations Orchestration host. Do not use localhost in the URL. Using localhost does not work correctly even though it appears to work when you run HP Operations Orchestration Studio on the same machine as the RAS.</p> <p>RAS must be run on the same system as HP Operations Orchestration Studio. Running HP Operations Orchestration Studio on another machine produces errors and turns flows red with a cryptic error message about result assignments to result variables that do not exist.</p>

System Accounts

Setting	Description
CSA_REST_CREDENTIALS	<p>Required. Credentials for HP CSA REST authentication.</p> <p>HP recommends the Credentials are set to the following values:</p> <ul style="list-style-type: none"> • User Name: oolnboundUser • Password: cloud <p>Note: The User Name configured for the CSA_REST_CREDENTIALS System Account setting must match the Property Value configured for the CSA_OO_USER System Property setting.</p>

System Properties

Setting	Description
CSA_DMA_WorkflowTimeout	<p>Required. The amount of time, in seconds, to wait for a DMA workflow to complete.</p> <p>Default Property Value: 3600</p>
CSA_NA_CreateVlanScript	<p>Required. The name of the HP Network Automation command script to create a VLAN that was imported when you integrated HP Network Automation with HP CSA.</p> <p>Default Property Value: HPN Create Vlan</p>
CSA_NA_DeleteVlanScript	<p>Required. The name of the HP Network Automation command script to delete a VLAN that was imported when you integrated HP Network Automation with HP CSA.</p> <p>Default Property Value: HPN Delete Vlan</p>

System Properties, continued

Setting	Description
CSA_OO_USER	<p>Required. The user that communicates with HP CSA using the REST API.</p> <p>Default Property Value:</p> <p>oolnboundUser</p> <div style="background-color: #e0e0e0; padding: 5px; margin-top: 10px;"> <p>Note: The Property Value configured for the CSA_OO_USER System Property setting must match the User Name configured for the CSA_REST_CREDENTIALS System Account setting.</p> </div>
CSA_REST_URI	<p>Required. The URI used to communicate with HP Cloud Service Automation using the REST API.</p> <p>HP recommends the following Property Value:</p> <p><code>https://<csa_hostname>:8444/csa/rest</code></p>
CSA_SiteScope_MonitoringLockId	<p>Required. HP SiteScope monitoring lock ID.</p> <p>Default Property Value:</p> <p>SiteScope Lock for Deploying Monitors</p>
CSA_SiteScope_RootMonitorGroup	<p>Required. The default name of the HP SiteScope root monitor group path.</p> <p>Default Property Value:</p> <p>CSA Monitors</p>
CSA_SiteScope_MonitoringSleepTime	<p>Required. The amount of time, in seconds, to wait before acquiring the HP SiteScope monitoring lock. This time may be increased if there are a large number of subscription requests.</p> <p>Default Property Value:</p> <p>30</p>
CSA_vCenterPropertyCollectionTimeout	<p>Required. How often, in seconds, properties are collected about a deployed virtual machine.</p> <p>Default Property Value:</p> <p>1800</p>

Appendix D

Identity Management Configuration

If you are using the Identity Management component, the identity service and its components require configuration. Because it is a Spring Framework application, most of its configuration is defined in the `applicationContext.xml` file, although key attributes are externalized to the `applicationContext.properties` file. Both files are in `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\idm-service.war\WEB-INF\spring\`.

You should make most common configuration changes to the `applicationContext.properties` file. To avoid service disruptions, only advanced users who understand the Spring Framework should change the `applicationContext.xml` file.

You must also configure the Java Relying Party Library.

Note: You should always make a copy of a configuration file before editing it.

External Configuration

Selected settings are pulled from the `applicationContext.properties` file, which you can override by an external properties file set as a JVM argument: `-Didm.properties="<external_properties_filename>".` You can add this JVM argument to the `JAVA_OPTS` environment variable or by editing the `standaloneconf.bat` file in `%CSA_HOME%\jboss-as-7.1.1.Final\bin\` to add it to `JAVA_OPTS` for the HP CSA JBoss container.

The table below describes the properties that are set in the properties file. These properties are required (although if you set the `idm.keystone.enabled` property to `false`, all other `idm.keystone*` properties in this table are ignored).

If you are integrating with Keystone, the `idm.keystone*` properties must match the Keystone network location, transport user credentials, and so on. All `idm.csa*` properties and all `ConvergedLdapAuthConfig` properties (which are listed in the *ConvergedLdapAuthConfig* section below) must match the HP CSA network location and transport user credentials.

Property Name	Description
<code>idm.ssl.requireValidCertificate</code>	Flag indicating whether valid certificates are required: true or false
<code>idm.csa.protocol</code>	The protocol used to access the HP CSA instance: http or https
<code>idm.csa.hostname</code>	The hostname or IP address of the HP CSA server
<code>idm.csa.port</code>	The port number used by the HP CSA server
<code>idm.csa.username</code>	The username for the HP CSA integration account

Property Name	Description
<code>idm.csa.password</code>	The password for the HP CSA integration account. For improved security, this value should be encrypted.
<code>idm.encryptedSigningKey</code>	The shared signing key for all token factory objects. For improved security, this value should be encrypted.
<code>idm.keystone.enabled</code>	Flag indicating whether secondary authentication through Keystone is enabled: <code>true</code> or <code>false</code>
<code>idm.keystone.required</code>	Flag indicating whether successful secondary authentication through Keystone is required for authentication to succeed: <code>true</code> or <code>false</code>
<code>idm.keystone.protocol</code>	The protocol used to access the Keystone instance: <code>http</code> or <code>https</code>
<code>idm.keystone.hostname</code>	The hostname or IP address of the Keystone server
<code>idm.keystone.port</code>	The port number used by the Keystone server. Typically 5000.
<code>idm.keystone.servicePath</code>	The service path where the Keystone service listens. The typical value is <code>v3</code> .
<code>idm.keystone.domainName</code>	The OpenStack domain name to use for all authentication on the Keystone server. The typical value is <code>Default</code> .
<code>idm.keystone.transportUsername</code>	The username for the integration account used to communicate with Keystone and perform HP Cloud OS or OpenStack operations.
<code>idm.keystone.transportPassword</code>	The password for the integration account used to communicate with Keystone and perform HP Cloud OS or OpenStack operations. For improved security, this value should be encrypted.
<code>idm.keystone.transportProject</code>	The Keystone project name for the integration account. All Keystone users must belong to a project whose name exactly matches the HP CSA organization ID used to log in — including case (for example, a Keystone project name of <code>project_name</code> will not match an HP CSA organization ID of <code>PROJECT_NAME</code>).

Configure Seeded Authentication

The top-level configuration file for seeded authentication is specified by the `configFile` property of the `SeededAuthenticationProvider` bean defined in the `applicationContext.xml` configuration file. In the default configuration, this file is `seededorgs.properties`, but it can be changed. Each line in this file contains a key-value pair. The key is an HP CSA organization ID, and the value is the

name of another properties file that contains the users for that organization. By default, the following organizations are configured to use the specified files.

Organization	User File
CSA_CONSUMER	csa-consumer-users.properties

You can define additional organizations or change the user file associated with any organization. Each line in each user file contains a key-value pair. The key is the username, and the value is a comma-separated list of the password, granted authorities, and an optional flag indicating whether the account is enabled. For improved security, the *entire* value should be encrypted. Following is an example of a line from a user file that defines a user named `consumer` with the password `c1oud` and granted the `SERVICE_CONSUMER` and `ROLE_REST` authorities.

```
consumer=c1oud,SERVICE_CONSUMER,ROLE_REST,enabled
```

Configure the Java Relying Party Library

The Java Relying Party Library is a set of classes provided by the identity service that abstract and simplify invoking the service from Java applications, such as HP CSA. You modify the properties listed in this section in the `%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-INF\applicationContext-security.xml` file. The `tokenFactory` property value should be the same for all `AuthenticationProvider` beans (listed in the *Internal Configuration* section below) in the identity service and in the Java Relying Party library.

IdentityServiceConfig

Configures the connection to the identity service.

Class: `com.hp.ccue.identity.rp.IdentityServiceConfig`

Property Name	Description
<code>protocol</code>	The protocol (<code>http</code> or <code>https</code>) to use to connect to the identity service
<code>hostname</code>	The hostname or IP address of the server running the identity service
<code>port</code>	The port number where the identity service is running, typically <code>8444</code>
<code>servicePath</code>	The path on the server to the identity service, typically <code>idm-service</code>

IdentityAuthenticationProvider

Abstracts the invocation of the identity service to perform authentication.

Class: `com.hp.ccue.identity.rp.IdentityAuthenticationProvider`

Property Name	Description
<code>templateFactory</code>	Creates the <code>RestTemplate</code> object that facilitates performing REST calls

Property Name	Description
configuration	Network configuration of the identity service to connect to perform authentication: an <code>IdentityServiceConfig</code> object
tokenFactory	The token factory to validate returned tokens
tenantHeaderName	The name of the HTTP header where the tenant name is passed. The default is <code>HP-Tenant-Name</code>

HeaderAuthenticationProvider

Performs authentication based on a token passed in an HTTP header.

Class: `com.hp.ccue.identity.rp.HeaderAuthenticationProvider`

Property Name	Description
headerName	The name of the HTTP header where the token is transferred
tokenValidator	The <code>TokenValidator</code> object to use to validate tokens

Internal Configuration

The `applicationContext.xml` file defines the configuration of the classes in the identity service. The `tokenFactory` property value should be the same for all `AuthenticationProvider` beans (listed in the sections below) in the identity service and in the Java Relying Party library.

Note: Modify this file only if you cannot express the necessary configuration change in the `applicationContext.properties` file. The `applicationContext.xml` file must follow the syntax rules specified by the Spring Framework. In the following tables, the default values are used if no values are provided in the configuration file. You can configure items marked as externalized in the `applicationContext.properties` file.

InfinispanTokenStore

Defines the persistence mechanism for request tokens. Most attributes of this object define how the identity service behaves in high availability (HA) or clustered deployments.

Class: `com.hp.ccue.identity.ha.InfinispanTokenStore`

Property Name	Description
lifetimeSeconds lifetimeMinutes lifetimeHours	<p>Required. Time (in seconds, minutes, or hours) that an entry is permitted to remain in the token store. These properties determine the amount of time that the login page is valid. The lifetime as installed is 60 minutes. More permissive organizations should use a larger value; more restrictive organizations should use a smaller value.</p> <p>Default value: (None)</p> <p>Externalized: No</p>
clusterEnabled	<p>Required in a clustered environment. A flag indicating whether clustering should be enabled: true or false</p> <p>Default value: false</p> <p>Externalized: No</p>
clusterConfigFile	<p>Required in a clustered environment. The filename of the jgroups.xml configuration file that defines the cluster. Setting this property forces the clusterEnabled property to true.</p> <p>Default value: (None)</p> <p>Externalized: No</p>
configFile	<p>Required in a clustered environment. The filename of the Infinispan XML configuration file. The settings in this configuration file override the values in the clusterEnabled and clusterConfigFile properties.</p> <p>Default value: (None)</p> <p>Externalized: No</p>

JwtTokenFactory

Defines how tokens are created.

Class: com.hp.ccue.identity.domain.JwtTokenFactory

Property Name	Description
lifetimeMinutes	<p>Required. The lifetime of the token, in minutes. The lifetime as installed is 30 minutes. Reducing this value will render tokens invalid faster and thus requires a more-frequent token refresh, which might reduce performance. Increasing this value allows tokens to last longer, which might allow someone who has intercepted a valid token to access the system for a period of time.</p> <p>Default value: (None)</p> <p>Externalized: No</p>

Property Name	Description
defaultTypeName	Optional. Default type of JWT token to create: PLAINTEXT, SIGNED, or ENCRYPTED Default value: PLAINTEXT Externalized: No
signingKey	Required if defaultTypeName is set to SIGNED. This is a Base64-encoded byte array representing the key used to sign signed tokens. If defaultTypeName is set to SIGNED, this value must be the same for all components that validate tokens. For improved security, this item should be encrypted. Default value: (None) Externalized: idm.encryptedSigningKey
refreshEnabled	Optional. Boolean value indicating whether token refresh is enabled: true or false. The recommended value is true. Default value: true Externalized: No

ConvergedLdapAuthConfig

Defines the configuration for connecting to an HP CSA server to get LDAP configuration information. The `idm.csa*` external properties (which are listed in the *External Configuration* section above) and all `ConvergedLdapAuthConfig` properties must match the HP CSA network location and transport user credentials.

Class: `com.hp.ccue.identity.ldap.ConvergedLdapAuthConfig`

Property Name	Description
providerProtocol	Required if using ActiveDirectory or LDAP. <code>http</code> or <code>https</code> , depending on the protocol used by the HP CSA instance Default value: (None) Externalized: <code>idm.csa.protocol</code>
providerHostname	Required if using ActiveDirectory or LDAP. Hostname or IP address of the HP CSA server Default value: (None) Externalized: <code>idm.csa.hostname</code>

Property Name	Description
providerPort	Required if using ActiveDirectory or LDAP. Port number used by the HP CSA server Default value: (None) Externalized: idm.csa.port
securityTransportUsername	Required if using ActiveDirectory or LDAP. Username for the HP CSA integration account Default value: (None) Externalized: idm.csa.username
securityTransportPassword	Required if using ActiveDirectory or LDAP. Password for the HP CSA integration account Default value: (None) Externalized: idm.csa.password

ConvergedActiveDirectoryAuthenticationProvider and ConvergedLdapAuthenticationProvider

Performs authentication with Active Directory and LDAP authentication mechanisms.

Class: com.hp.ccue.identity.ldap.ConvergedActiveDirectoryAuthenticationProvider, com.hp.ccue.identity.ldap.ConvergedLdapAuthenticationProvider

Property Name	Description
config	Required if using ActiveDirectory or LDAP. The ConvergedLdapAuthConfig that represents the HP CSA server to use to get the LDAP configuration for each organization Default value: (None) Externalized: No
tokenFactory	Required if using ActiveDirectory or LDAP. The token factory for creating identity tokens in response to successful authentications Default value: (None) Externalized: No

SeededAuthenticationProvider

Performs seeded authentication.

Class: com.hp.ccue.identity.seeded.SeededAuthenticationProvider

Property Name	Description
configFile	Required if using seeded authentication. Typically <code>seededorgs.properties</code> , which is the file that defines the seeded organizations Default value: (None) Externalized: No
tokenFactory	Required if using seeded authentication. The token factory for creating identity tokens in response to successful authentications Default value: (None) Externalized: No

IdentityAuthenticationProvider

Performs integration account authentication.

Class: `com.hp.ccue.identity.seeded.IntegrationAuthenticationProvider`

Property Name	Description
configFile	Required. Typically <code>integrationusers.properties</code> , which is the file that defines the seeded organizations Default value: (None) Externalized: No
tokenFactory	Required. The token factory for creating identity tokens in response to successful authentications Default value: (None) Externalized: No

MultiTenantAuthenticationProvider

Connects to mechanism-specific authentication providers.

Class: `com.hp.ccue.identity.authn.MultiTenantAuthenticationProvider`

Property Name	Description
providers	Required. List of AuthenticationProvider objects that provide mechanism-specific authentication Default value: (None) Externalized: No
secondary Enabled	Required if using Keystone. Flag that indicates whether the secondary authentication path (Keystone) is enabled Default value: false Externalized: idm.keystone.enabled
secondary Provider	Required if using Keystone. Reference to Authentication provider bean to use for secondary authentication path. The Keystone authentication provider is the only one that supports this type of usage. Default value: (None) Externalized: No
secondary Required	Required if using Keystone. Flag that indicates whether secondary (Keystone) authentication must succeed in order for authentication to be considered a success. Default value: false Externalized: idm.keystone.required

IdentityServiceImpl

The identity service implementation object.

Class: com.hp.ccue.identity.service.IdentityServiceImpl

Property Name	Description
provider	Required. Reference to the AuthenticationProvider bean to use to perform authentication. This is the MultiTenantAuthenticationProvider Default value: (None) Externalized: No
tokenFactory	Required. The token factory for creating identity tokens in response to successful authentications Default value: (None) Externalized: No

IdentityController

The controller object that provides the REST API for the identity service.

Class: `com.hp.ccue.identity.service.IdentityController`

Property Name	Description
<code>identityService</code>	Required. The <code>IdentityService</code> object that implements the identity service. You must set the value of this to the <code>IdentityServiceImpl</code> instance. Default value: (None) Externalized: No

KeystoneAuthenticationProvider

Uses Keystone (if used) to perform authentication.

Class: `com.hp.ccue.identity.keystone.KeystoneAuthenticationProvider`

Property Name	Description
<code>templateFactory</code>	Required. Creates the <code>RestTemplate</code> object that facilitates performing REST calls Default value: (None) Externalized: No
<code>configuration</code>	Required. Network configuration of the Keystone service to connect to in order to perform authentication: a <code>KeystoneConfig</code> object Default value: (None) Externalized: No
<code>tokenFactory</code>	Required. The token factory to validate returned tokens Default value: (None) Externalized: No

KeystoneConfig

Identifies the Keystone endpoint for authentication.

Property Name	Description
protocol	Optional if the default value is not acceptable. The protocol to access Keystone Default value: http Externalized: <code>idm.keystone.protocol</code>
hostname	Required. Optional if the default value is not acceptable. The hostname or IP address of the Keystone server Default value: (None) Externalized: <code>idm.keystone.hostname</code>
port	Optional if the default value is not acceptable. The port number for Keystone on hostname Default value: 5000 Externalized: <code>idm.keystone.port</code>
servicePath	Optional if the default value is not acceptable. The service path to the Keystone API on the Keystone server Default value: v3 Externalized: <code>idm.keystone.servicePath</code>
domainName	Optional if the default value is not acceptable. The Keystone domain name under which all operations are performed Default value: Default Externalized: <code>idm.keystone.domainName</code>
transportUsername	Required. The username for the Keystone transport user Default value: (None) Externalized: <code>idm.keystone.transportUsername</code>
transportPassword	Required. The password for the Keystone transport user Default value: (None) Externalized: <code>idm.keystone.transportPassword</code>
transportProject	Required. The project for the Keystone transport user Default value: (None) Externalized: <code>idm.keystone.transportProject</code>

RestTemplateFactoryImpl

Configures how REST services are invoked.

Class: com.hp.ccue.identity.rest.RestTemplateFactoryImpl

Property Name	Description
fipsEnabled	<p>A flag that indicates whether the template factory should ignore settings that interfere with FIPS 140-2 compliance</p> <p>Default value: false</p> <p>Externalized: No</p>
wrapEnabled	<p>A flag that indicates whether the template factory should wrap JSON output in its specified root value or assume that incoming JSON is wrapped in the root value. This setting depends on the REST service being invoked. For template factories used to invoke HP CSA REST APIs, it should be set to false; for template factories used to invoke Keystone REST APIs, it should be set to true.</p> <p>Default value: true</p> <p>Externalized: No</p>
requireValidCertificate	<p>A flag that indicates whether the template factory should perform certificate validation and hostname verification (true) or ignore them (false). If this value is set to true, then the corresponding server host names for all beans that use that template factory must be given in a way that matches the certificate for that server (a fully-qualified domain name is generally required).</p> <p>Default value: true</p> <p>Externalized: idm.ssl.requireValidCertificate</p>

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Feedback on Cloud Service Automation, 4.00 Configuration Guide

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to CSAdocs@hp.com.

