Cloud Service Automation

Software Version: 4.70

For Microsoft Windows and Linux operating systems

Installation Guide

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Hewlett Packard Enterprise

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Installation Overview

This guide provides information for installing the Cloud Service Automation (CSA) application. Successful implementation of the application requires knowledge of the integrated products, as well as the CSA solution. Information in this guide augments information provided in the integrated products documentation but is not intended to replace that documentation. Primary product documentation contains the most up-to-date information. Cross references are provided to those documents where appropriate.

For information about how these parts fit together, see the *Cloud Service Automation Concepts Guide*.

You should review the *Cloud Service Automation System and Software Support Matrix* Guide for version requirements.

Guides are available on the HPE Software Support Web site at: https://softwaresupport.hpe.com. (This site requires a Passport ID). Select **Dashboards > Manuals**.

In order to install CSA, perform the following steps. It is recommended that you perform each step in the following order:

1. Configure a group and user.

2. Install and configure one of the following databases:

   a. "Install Microsoft SQL Server" on page 13

   b. "Install Oracle Database and JDBC Drivers" on page 9

   c. "Install PostgreSQL" on page 19

3. Install Operations Orchestration:

4. Install Cloud Service Automation:

   a. Install CSA for Windows

   b. Install CSA for Linux

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5. Secure the Marketplace Portal.

6. Update and redeploy the Service Manager Base Content Pack.

7. What's next?

8. "Appendix A: Install an Instance of the Marketplace Portal on a Remote System" on page 61

CSA Prerequisites

> **Important Note:** Individual platform, database, middleware, and integrations may vary widely for individual CSA installations.

Prior to any CSA installation, it is important to refer to the *Cloud Service Automation System and Software Support Matrix* Guide for a complete list of :

- Supported database versions.

- Supported platforms.

- Middleware options.

- Recommended integrations.

Guides are available on the HPE Software Support Web site at: https://softwaresupport.hpe.com. (This site requires a Passport ID). Select **Dashboards > Manuals**.

Operations Orchestration Installation steps (*Optional*)

The following installation steps are for users installing either an *embedded* instance of Operations Orchestration (OO), or installing an *external* instance of OO on Linux within the CSA installation. Installation of OO is optional in CSA.

Installation steps using the embedded instance of Operations Orchestration (*Optional*)

1. If you are installing CSA on a Linux server, "Configure a CSA Group and User for Linux (Required) " on page 8.

2. Install and configure a database :
    - Oracle
    - Microsoft SQL Server

    ◦ PostgreSQL

3. Install CSA

4. Secure the Marketplace Portal

5. What's next?

Installation steps with an external instance of Operations Orchestration (*Optional*)

1. If you are installing CSA on a Linux server, "Configure a CSA Group and User for Linux (Required)" on page 8.

2. Install and configure a database :

    ◦ Oracle

    ◦ Microsoft SQL Server

    ◦ PostgreSQL

3. Install Operations Orchestration.

4. Install CSA.

5. Secure the Marketplace Portal

6. Update and redeploy the Service Manager base content pack.

7. What's next?

Configure a CSA Group and User for Linux (Required)

Configure a group and user for CSA:

1. Log in to the system as the root user.

2. Create a group called `csagrp`. Enter the following:

   `groupadd csagrp`

3. Create a user called csauser and assign this user to the csagrp. Enter the following:

   RHEL: `useradd -g csagrp -m csauser -s /bin/bash`

4. Assign a password to the csauser. Enter the following:

   `passwd csauser`

   When prompted, enter the password.

Install and Configure a Database

During this step, you will need to install a database instance that will be used as the primary data-source for CSA. Oracle, MS SQL Server, and PostgreSQL are the available options for installation.

"Install Oracle Database and JDBC Drivers" below

Install Oracle Database and JDBC Drivers

Installing the Oracle database for CSA will involve the following steps:

Install the Oracle Database

Download the Oracle JDBC Drivers

Configure Oracle

Install the Oracle Database (Required)

For a list of supported database versions, refer to the *Cloud Service Automation System and Software Support Matrix*.
Guides are available on the HPE Software Support Web site at: https://softwaresupport.hpe.com.
(This site requires a Passport ID). Select **Dashboards > Manuals**.

Install the database according to the manufacturer's documentation. Database installation is typically done in partnership with a database administrator.

Configure multi-language support (Optional)

To support characters of any language worldwide, use Unicode (`AL32UTF8`) as Database Character Set (set property `NLS_CHARACTERSET = AL32UTF8`).

HPE also recommends setting the property `NLS_LENGTH_SEMANTICS = CHAR;`

Work with your database administrator to set the parameter (or refer to the manufacturer's documentation for more information).

> **Note:** Once the database is created, national language support cannot easily be changed.

Download Oracle JDBC Drivers (Required)

For a list of supported JDBC driver versions, refer to the *Cloud Service Automation System and Software Support Matrix*.

Download a supported version of the `JDBC.jar` file(s) and save them on the system on which CSA will be installed. Note the location where you save the file(s) as this information must be provided when CSA is installed.

Configure Oracle

> **Note:** These tasks must be completed before CSA is installed.

Separate database users are required for CSA and its components. You must create a separate database user for:

- Identity Management component
- CSA
- Embedded Operations Orchestration (Optional)

> **Note:** If you want to use external Operation Orchestration, no additional schema is needed.

Create Database Users for CSA

Work with the database administrator to create a database that is used by the embedded Operations Orchestration, CSA (if it has not already been created), and the Identity Management component. Refer to the *Operations Orchestration Database Guide* for more information about database requirements for Operations Orchestration.

> **Caution:** The database name and 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.

To create database users for CSA, follow these steps:

1. Create a user for CSA (for example, `csadbuser`) with permissions to create sessions, tables, views, sequences and to store data to the default tablespace. (Replace the `<csadbuser_password>` token with your desired user password.)

```
create user csadbuser identified by "<csadbuser_password>";

grant CREATE SESSION, CREATE TABLE, CREATE VIEW, CREATE SEQUENCE, UNLIMITED
TABLESPACE to csadbuser;
```

grant CREATE ANY SYNONYM to `csadbuser` ; -- *optional* - this step is needed only if you would like to use the reporting user (below).

Provide this username and password when prompted for the CSA database information during the installation of CSA.

2. (Optional) Create a read-only reporting user (for example, `CSAReportingDBUser`). The user is needed only if you want to use the reporting capabilities of CSA.(Replace the `<CSAReportingDBUser_password>` token with your desired user password.)

```
create user CSAReportingDBUser identified by "<CSAReportingDBUser_password>";

grant CREATE SESSION to CSAReportingDBUser_password;
```

Provide this username and password when prompted for the CSA reporting user information during the installation of CSA.

3. Create a user for the Identity Management component (for example, `csaidmdbuser`) with permissions to create sessions, tables and to store data to the default tablespace. (Replace the `<csaidmdbuser_password>` token with your desired user password.)

```
create user csaidmdbuser identified by "<csaidmdbuser_password>";

grant CREATE SESSION, CREATE TABLE, UNLIMITED TABLESPACE to csaidmdbuser;
```

Provide this username and password when prompted for the Identity Management component database information during the installation of CSA.

4. Create an user for the embedded Operations Orchestration (Optional - needed only if you want to install the embedded OO). For example, `csaoodbuser` with permissions to create sessions, tables, sequences and to store data to the default tablespace. (Replace the `<csaoodbuser_password>` token with your desired user password.)

```
create user csaoodbuser identified by "<csaoodbuser_password>";
```

```
grant CREATE SESSION, CREATE TABLE, CREATE SEQUENCE, UNLIMITED TABLESPACE to
csaoodbuser;
```

Provide this username and password when prompted for the Operations Orchestration database information during the installation or upgrade of CSA.

Create a Tablespace for LOBs (Recommended)

For performance reasons, HPE recommends that you create a new tablespace which stores LOBs for the `CSA_DOCUMENT` table. Work with your database administrator to create a tablespace to be used by CSA (or refer to the manufacturer's documentation for more information). HPE recommends that the initial tablespace size should be at least 3 GB.

Configure Oracle Tablespace

These tasks must be completed after CSA is installed.

Modify the CSA_DOCUMENT table such that LOB segments are stored in the tablespace. For example:

```
ALTER TABLE csa_document
 MOVE LOB(content)
 STORE AS (TABLESPACE <new_tablespace>);
```

Install Microsoft SQL Server

Refer to *Cloud Service Automation System and Software Support Matrix* Guide for a list of supported database versions.
Guides are available on the HPE Software Support Web site at: https://softwaresupport.hpe.com. (This site requires a Passport ID). Select **Dashboards > Manuals**.

Database installation is typically done in partnership with a database administrator. Microsoft SQL Server must be installed with Mixed Mode authentication. During the installation of Microsoft SQL Server, from the Database Engine Configuration dialog, for Authentication Mode, select **Mixed Mode (SQL Server authentication and Windows authentication)**.

Configure Microsoft SQL Server

These tasks must be completed before CSA is installed. Work with the database administrator to complete the following tasks (or refer to the manufacturer's documentation for more information).

Enable TCP/IP (Required)

TCP/IP must be enabled on the Microsoft SQL Server in order for CSA to log in to the database. By default, TCP/IP may be disabled on the Microsoft SQL Server. Verify the TCP/IP configuration.

From the SQL Server Configuration Manager:

1. Select **SQL Server Network Configuration > Protocols for *<instance_name>***.

2. Double-Click **TCP/IP** to open the TCP/IP Properties dialog.

3. From the TCP/IP Properties dialog, select the **IP Addresses** tab.

4. Verify TCP/IP is active and enabled, and verify the TCP port is set to 1433. Update any properties that are not set correctly.

Configure a Microsoft SQL Server User for CSA (Required)

An CSA database user is needed when installing CSA.

> **Caution:** The database name and 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.

To create a database user for CSA, do the following:

1. Log in to SQL Server as the sa user (or another user that can create logins, users and databases) using your favorite sql editor, for example, Microsoft SQL Server Management Studio.

2. Create a login for all needed CSA databases (for example, csadbuser):

```
CREATE LOGIN csadbuser WITH PASSWORD = '<csadbuser_password>';
```

You must provide this database username and password when prompted for the CSA , OO and the Identity Management component database information during the installation or upgrade of CSA.

3. Create a new database for CSA (for example, csadb) and a user (for example, csadbuser) within the database with db_owner role:

`CREATE DATABASE csadb;` -- optionally you can use COLLATE option with case insensitive collation, for example, `SQL_Latin1_General_Cp1_CI_AS;`

`USE csadb;` -- or connect to csadb in another way.

```
CREATE USER csadbuser FOR LOGIN csadbuser;
```

```
ALTER ROLE db_owner ADD MEMBER csadbuser;
```

It is recommended to set the following parameters on the `csadb` database:

```
ALTER DATABASE csadb SET ALLOW_SNAPSHOT_ISOLATION OFF;
```

```
ALTER DATABASE csadb SET READ_COMMITTED_SNAPSHOT ON;
```

> **Caution:** CSA requires 'Case Insensitive' Collation of the database. The CSA database collation and the `tempDB` collation in SQL server must be the same. You must provide this database name when prompted for the CSA database information during the installation of CSA.

4. (Optional) Create a reporting read-only user. The user is needed only if you want to use the reporting capabilities of CSA:

```
CREATE LOGIN CSAReportingDBUser WITH PASSWORD ='<CSAReportingDBUser_password>';
```

`USE csadb;` -- or you can connect to csadb in another way.

```
CREATE USER CSAReportingDBUser FOR LOGIN CSAReportingDBUser;
```

```
ALTER ROLE db_datareader ADD MEMBER CSAReportingDBUser;
```

Provide this login name and password when prompted for the CSA reporting database user during the installation of CSA.

5. Create a new database for the Identity Management component and a user (for example, `csadbuser`) within the database with the `db_owner` role:

```
CREATE DATABASE idmdb;
```

`USE idmdb;` -- or you can connect to idmdb in another way.

```
CREATE USER csadbuser FOR LOGIN csadbuser;
```

```
ALTER ROLE db_owner ADD MEMBER csadbuser;
```

It is recommended to set following parameters on idmdb database:

```
ALTER DATABASE idmdb SET ALLOW_SNAPSHOT_ISOLATION ON;
```

```
ALTER DATABASE idmdb SET READ_COMMITTED_SNAPSHOT ON;
```

> **Caution:** The Identity Management component requires 'Case Insensitive' Collation of the database. The Identity Management component database collation and the `tempDB` collation in SQL server must be the same. Provide this database name when prompted for the Identity Management component database information during the installation of CSA.

6. (Optional - needed only if you want to install embedded OO). Create a database for embedded Operations Orchestration (for example, csaoodb) and a user (for example, csadbuser) within the database with db_owner role.

Refer to the *Operations Orchestration Database Guide* for more information about database requirements for Operations Orchestration.

> **Note:** OO requires 'Case Sensitive' Collation of the database (for example, `SQL_Latin1_General_Cp1_CS_AS`):

```
CREATE DATABASE oodb COLLATE SQL_Latin1_General_Cp1_CS_AS;
USE oodb; -- or you can connect to the oodb in another way.
```

```
CREATE USER csadbuser FOR LOGIN csadbuser;
ALTER ROLE db_owner ADD MEMBER csadbuser;
```

As of the current release date of CSA in this guide, the mandatory database options for the Microsoft SQL Server for Operations Orchestration are:

ALLOW_SNAPSHOT_ISOLATION and READ_COMMITTED_SNAPSHOT:

ALTER DATABASE oodb SET ALLOW_SNAPSHOT_ISOLATION ON;

ALTER DATABASE oodb SET READ_COMMITTED_SNAPSHOT ON;

> **Caution:** You should verify the latest mandatory options and follow the instructions in the Operations Orchestration Database Guide when creating the Operations Orchestration database. Provide this database name when prompted for the Operations Orchestration database information during the installation of CSA.

Create a Filegroup for LOBs

(Optional – performance optimization) If you extensively attach documents to CSA artifacts, it might be convenient for performance reasons to separate the table CSA_DOCUMENT (containing attached documents) to a different filegroup on a standalone disk. Discuss this option with your database administrator to discover if it might be suitable in your case.

Example: Moving the CSA_DOCUMENT table to a non-default filegroup:

1. Create a filegroup with a file:

ALTER DATABASE csadb ADD FILEGROUP csa_lob_group;

ALTER DATABASE csadb ADD FILE (NAME = csa_lob_file, FILENAME= 'D:\DATA\csa_lob_file.mdf', SIZE = 3GB, FILEGROWTH = 10%) TO FILEGROUP csa_lob_group;

> **Note:** Please change FILENAME and SIZE parameters accordingly.

2. Create a new table CSA_DOCUMENT_NEW as a mirror of the original CSA_DOCUMENT table, that overrides the filegroup option:

use csadb;

create table CSA_DOCUMENT_NEW (

    CONSUMER_VISIBLE tinyint,

    CONTENT image,

    CONTENT_LENGTH numeric (19,0),

    DOC_ORDER int,

    HEIGHT nvarchar(255),

    MIME_TYPE nvarchar(255),

```
        URL nvarchar(255),

        WIDTH nvarchar(255),

        UUID nvarchar(255) not null,

        ARTIFACT_CONTEXT_ID nvarchar(255) not null,

        ARTIFACT_CONTEXT_TYPE_ID nvarchar(255),

        DOCUMENT_TYPE_ID nvarchar(255) not null,

        primary key (UUID)

        ) ON csa_lob_group;
```

create index FKB7B1E7C97F204E54_i on CSA_DOCUMENT_NEW (ARTIFACT_CONTEXT_ID);

create index FKB7B1E7C915AC76B9_i on CSA_DOCUMENT_NEW (ARTIFACT_CONTEXT_TYPE_ID);

create index FKB7B1E7C9E7C20D41_i on CSA_DOCUMENT_NEW (DOCUMENT_TYPE_ID);

alter table CSA_DOCUMENT_NEW add constraint FKB7B1E7C97F204E54 foreign key (ARTIFACT_CONTEXT_ID) references CSA_ARTIFACT;

alter table CSA_DOCUMENT_NEW add constraint FKB7B1E7C915AC76B9 foreign key (ARTIFACT_CONTEXT_TYPE_ID) references CSA_CATEGORY;

alter table CSA_DOCUMENT_NEW add constraint FKB7B1E7C9E7C20D41 foreign key (DOCUMENT_TYPE_ID) references CSA_CATEGORY;

alter table CSA_DOCUMENT_NEW add constraint FKB7B1E7C98A34BFD7 foreign key (UUID) references CSA_ARTIFACT;

> **Note:** For reference, see the latest definition of the CSA_DOCUMENT table and related indexes and constraints in `CSA_HOME\scripts\create-mssql-schema.sql`.

3. Copy data from the the original CSA_DOCUMENT table to CSA_DOCUMENT_NEW:

```
INSERT INTO CSA_DOCUMENT_NEW (CONSUMER_VISIBLE, CONTENT, CONTENT_LENGTH, DOC_ORDER,
HEIGHT, MIME_TYPE, URL, WIDTH, UUID, ARTIFACT_CONTEXT_ID, ARTIFACT_CONTEXT_TYPE_ID,
DOCUMENT_TYPE_ID)
SELECT CONSUMER_VISIBLE, CONTENT, CONTENT_LENGTH, DOC_ORDER, HEIGHT, MIME_TYPE,
URL, WIDTH, UUID, ARTIFACT_CONTEXT_ID, ARTIFACT_CONTEXT_TYPE_ID, DOCUMENT_TYPE_ID
FROM CSA_DOCUMENT;
```

4. Drop the original table CSA_DOCUMENT:

```
DROP TABLE CSA_DOCUMENT;
```

5. Rename CSA_DOCUMENT_NEW back to CSA_DOCUMENT:

```
EXEC sp_rename 'CSA_DOCUMENT_NEW', 'CSA_DOCUMENT';
```

Install PostgreSQL

Refer to *Cloud Service Automation System and Software Support Matrix*Guide for a list of supported database versions.
Guides are available on the HPE Software Support Web site at: https://softwaresupport.hpe.com.
(This site requires a Passport ID). Select **Dashboards > Manuals**.

Install the database according to the manufacturer's documentation. Database installation is typically done in partnership with a database administrator.

Configure PostgreSQL

Note: The following tasks must be completed before CSA is installed. Work with the database administrator to complete the following tasks (or refer to the manufacturer's documentation for more information).

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.

Configure PostgreSQL Users and Database (Required)

1. Log in to PostgreSQL server as the postgres user (or another user that can create users and databases) using your favorite sql editor, for example using psql: `psql -U postgres`

2. Create a CSA database user (for example, csadbuser). This user should inherit rights from parent roles:

```
create user csadbuser login password '<csadbuser_password>' inherit;
```

You must provide this database username and password when prompted for the CSA , OO and the Identity Management component database information during the installation or upgrade of CSA.

3. (*Optional*) Create a reporting read-only user. The user is needed only if you want to use the reporting capabilities of CSA:

```
create user csareportingdbuser login password '<csareportingdbuser_password>'
inherit;
```

If you configure this user, you must provide this user's username and password when prompted for the CSA reporting database user during the installation of CSA.

4. Create a new database for CSA (for example, csadb) with owner csadbuser.

```
create database csadb with owner=csadbuser;
```

Optionally, if you want to use reporting functionality, allow csareportingdbuser to connect to the csadb database:

```
grant connect on database csadb to csareportingdbuser;
```

5. (*Optional - needed only if you want to install embedded* OO) Create a database for embedded Operations Orchestration (for example, csaoodb).

Refer to the Operations Orchestration Database Guide for more information about database requirements for Operations Orchestration.

```
create database oodb with owner=csadbuser;
```

6. Create a new database for the Identity Management component.

```
create database idmdb with owner=csadbuser;
```

7. (Optional post install step) Grant read-only access for a reporting user. It is needed only if you want to use the reporting user.

This step has to be processed after the installation is finished, because database tables and views have to be created prior to running this command.

a) Connect to the csadb database. For example if you are using psql, use following statement:

```
\connect csadb
```

b) Grant read-only access for the reporting user with this command:

```
grant select on all tables in schema public to csareportingdbuser;
```

Install and Configure Cloud Service Automation

During one of the following steps, you will install a CSA instance. Operations Orchestration is an Optional application, but should be installed before installing CSA.

Install Operations Orchestration

Install Operations Orchestration to the correct version and patch level. See *Cloud Service Automation System and Software Support Matrix* for version requirements.

Guides are available on the HPE Software Support Web site at: https://softwaresupport.hpe.com. (This site requires a Passport ID). Select **Dashboards > Manuals**.

If you are using an existing installation of Operations Orchestration, you should verify that the correct versions of patches and updates have been applied.

> If you are using an earlier version of Operations Orchestration:
>
> **YOU MUST UPGRADE HPE OPERATIONS ORCHESTRATION TO VERSION 10.50 BEFORE INSTALLING CSA**.
>
> After upgrading to Operations Orchestration 10.50, update it by following the instructions below.
>
> **Caution:** The CSAInstaller installs an Embedded Operations Orchestration 10.60 instance during a new CSA 4.70 installation. The installer will also uninstall the same Embedded Operations Orchestration10.60 instance, regardless of whether it was loaded into a default or non-default installation path.

Update Operations Orchestration Version 10.21.0001 (Required)

Update Operations Orchestration version 10.21.0001 by installing hotfix **HF_27629**.

For your convenience, the hotfix is delivered with the CSA installation media. Locate the readme file for this hotfix and follow the instructions on how to upgrade Operations Orchestration.

Alternatively, you can download the hotfix from https://patch-central.corp.hpecorp.net/crypt-web/protected/viewContent.do?patchId=HF_27629.

Configure an Internal User (Required)

The CSA Installer will require the Operations Orchestration administrator credentials where administrator for this purpose is any user that has the ADMINISTRATOR and SYSTEM_ADMIN roles.

If you want to use HPE Single Sign-On and the user name for Operations Orchestration administrator is different than "admin", you may want to setup an account with user name as "admin" and assign ADMINISTRATOR and SYSTEM_ADMIN roles. This will enable you to click through from CSAto Operations Orchestrationwithout an extra login step.

You can review, add, or manage users and their roles in Operations Orchestration through the Operations Orchestration Central; click System Configuration, Security, Internal Users. Ensure that "Enable authentication" option is turned on (once the administrative user is defined).

Export Operations Orchestration's Root Certificate (Required)

Export Operations Orchestration's certificate from Operations Orchestration's truststore and, if Operations Orchestration and CSA are not installed on the same system, copy the certificate to the CSA system. This certificate will be imported into CSA's truststore by the CSA installer. TLS must be configured between CSA and Operations Orchestration.

For example, do the following:

1. On the system running Operations Orchestration, open a command prompt and change to the directory where Operations Orchestration is installed.

2. Run the following command:

   Windows:
   ```
   .\java\bin\keytool -export -alias tomcat -file C:\oo.crt -
   keystore .\Central\var\security\key.store -storepass changeit
   ```

   Linux:
   ```
   ./java/bin/keytool -export -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 Operations Orchestration is not running on the same system as CSA, copy `oo.crt` from the Operations Orchestration system to the system running CSA.

Note: The CSA 4.7 / CODAR 1.7 installer allows CSA to point to an external Operations Orchestration (OO) 10.60 instance without warning, regardless of whether OO is installed. The user should verify that all CSA content has been fully uploaded, then verify that the following use cases are working:

Import topology/sequence component/design;

Register an OO process in CSA based on an OO flow (PDT);

Fulfill topology/sequence design, invoke public actions, and then remove the topology/sequence design.

Install Cloud Service Automation for Windows

The following installation steps are for Windows:

> **Note:** Installation log files are written to the `%CSA_HOME%\_CSA_4_70_0_installation\Logs\` directory.

> **Important Note:** The memory requirements for any CSA installation are as follows:
>
> - A CSA installation with the External Operations Orchestration option requires a minimum of 4.5 GB *available* RAM.
>
> - A CSA installation with the Embedded Operations Orchestration option requires a minimum of 6 GB *available* RAM.
>
> - HPE strongly recommends installing CSA on a system with *at least* 16 GB RAM.
> For a complete listing of resource requirements and compatibility information, see the CSA Support and Compatibility Matrix for the relevant product release.

To install Cloud Service Automation (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. Unzip the `setup.zip` file. Go to the directory to which the files have been extracted and run the `setup.bat` installation file. A command window (which will display until the script has completed) and a dialog that shows the progress of installation preparation are displayed. Do not close either window. The installation preparation progress dialog will disappear when installation preparation has completed.

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 CSA is configured in the registry. However, CSA has been
   uninstalled (the CSA installation directory %CSA_HOME% does not exist). You
   must exit the installer and delete the entry in the registry before installing
   CSA. Refer to the 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 CSA entries from the `.com.zerog.registry.xml` file, and restart the installer.

5. Select **CSA and Marketplace Portal** and click **Next**.

   Selecting **CSA and Marketplace Portal** installs the entire CSA application, including the Cloud Service Management Console, Identity Management component, and Marketplace Portal, on the system.

   Selecting **Marketplace Portal** installs only the Marketplace Portal on the system.

   If you only want to install the Marketplace Portal, go to the top of this document and click **Change** to change the selections you made to create this document. The tasks to install both the CSA and Marketplace Portal are different from the tasks to install only the Marketplace Portal.

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

   The default location is `C:\Program Files\HPE\CSA`.

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

7. Select the JRE that will be used by 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 *Cloud Service Automation System and Software Support Matrix*.
   Guides are available on the HPE Software Support Web site at: https://softwaresupport.hpe.com. (This site requires a Passport ID). Select **Dashboards > Manuals**.

   OpenJDK JRE

   The OpenJDK JRE is bundled with CSA. If you want to use the OpenJDK JRE, select **Open JRE** and click **Next**.

   The default location in which the OpenJDK JRE is installed is `C:\Program Files\HPE\CSA\openjre`.

   Oracle JRE

If you have installed a supported version of Oracle JRE to be used by CSA, select **Oracle JRE**, choose 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 CSA, click **Choose** and select the location in which you installed the JRE that will be used by 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.

8. Install CSA database components onto the database instance to create the CSA database schema, if it does not exist.

   Click **Yes** to install CSA database components and create the CSA database schema. When you select this option, the CSA service automatically starts when you exit the installer.

   Click **No** if you are using an existing CSA database schema that was created as part of a prior successful installation of CSA version 4.70. When you select this option, you cannot use the installer to deploy sample content and the CSA service does not start when you exit the installer.

   > **Note:** In this version of CSA, Organizations are now stored in the Identity Management component, not in CSA. If you selected **Yes** during the installation, the CSA installer will populate the database and migrate the organizations automatically; however, if you selected **No** during the installation, you will need to populate the database and migrate organizations manually using CSA tools.

   Follow the next steps if you selected **No** during the installation and need to import content into the database and your organizations into the Identity Management component for CSA:

   a. Run the **SchemaInstallationTool** to populate the database.

   b. Run the **OrgMigrationTool** to migrate organizations from CSA to the Identity Management component.

   You can access the **SchemaInstallationTool** by using the following command:

   ○ Go to <CSA_HOME>\Tools\SchemaInstallationTool\

   ○ Run <JAVA_HOME>\bin\java.exe –jar schema-installation-tool.jar

   You can access the **OrgMigrationTool** by using the following command:

   ○ Go to <CSA_HOME>\Tools\OrgMigrationTool\

○ Run `<JAVA_HOME>\bin\java.exe -jar org-migration-tool.jar -c config.properties --csa.home <CSA_HOME> -t json -j <JDBC_DRIVER_JAR>`

Refer to the end of this section for information on how to start and stop the CSA service.

9. Select the type of database installed (Microsoft SQL Server, Oracle, or PostgreSQL) and click **Next**.

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 CSA system).

○ For a list of supported JDBC driver versions, refer to the *Cloud Service Automation System and Software Support Matrix Guide*.

○ Click **Choose** to select the correct JDBC directory.

10. Define the database instance on which the CSA database components should be installed or where the CSA database schema already exists. Enter the following database information and click **Next**.

Field Name	Description
Database Host	The hostname or IP address of the server where the database is located. When specifying an IPv6 address, it must be enclosed in square brackets. For example, `[f000:253c::9c10:b4b4]` or `[::1]`.
Database Port	The database port number, for example: **1433:** (Microsoft SQL Server),**1521:** (Oracle), **5432:** (PostgreSQL).
Database Name / Oracle service name	The global database or service name of the database instance on which the CSA database schema will be installed (for example, csadb). If you are creating a new CSA database schema, this is the database or service name of the database instance on which the CSA database components will be installed. If you are using an existing CSA database schema that was created as part of a prior successful installation of CSA version 4.70, this is the database or service name of the database instance on which the CSA database schema exists.
Database Username	The username of the database user you configured for CSA in the *Configure (Oracle / Microsoft SQL Server / PostgreSQL)* section of this guide (for example, csadbuser).
Database Password	The password for the database user.

If you created an Oracle reporting database role and read-only user, *OR* a MS SQL Server or PostgreSQL reporting database user when you configured the database, select the **Reporting User** checkbox and enter the following information:

Field Name	Description
CSA Reporting Database Username	The username of the database user you configured for reporting purposes for CSA in the *Configure Oracle / Microsoft SQL Server / PostgreSQL* section of this guide (for example, CSAReportingDBUser).
CSA Reporting Database Password	The password for the CSA reporting database user.

11. Enter the database information for the database used by the Identity Management component and click **Next**.

The database used by the Identity Management component must be the same type of database used by CSA (Microsoft SQL Server, Oracle, or PostgreSQL).

Field Name	Description
Database Host: MSSQL, Oracle, or PostgreSQL	The hostname or IP address of the server where the Identity Management component database is located. Note: When specifying an IPv6 address, it must be enclosed in square brackets. For example, `[f000:253c::9c10:b4b4]` or `[::1]`.
Database Port: MSSQL, Oracle, or PostgreSQL	The Identity Management component database port number, for example: **1433:** (Microsoft SQL Server),**1521:** (Oracle), **5432:** (PostgreSQL).
HPEIdentity Management component Database Name / Oracle Service Name	The global database or service name of the database instance used by the Identity Management component (for example, csaidmdb). For an Oracle database, this is the System ID (SID).
HPEIdentity Management componentDatabase Username	The username of the database user you configured for the Identity Management component database in the *Configure (Oracle / Microsoft SQL Server / PostgreSQL)* section of this guide (for example, csaidmdbuser or csadbuser).

Field Name	Description
HPEIdentity Management component Database Password	The password for the Identity Management component database user.

12. From the hostname configuration screen, enter the **fully-qualified domain name of the system on which you are installing CSA**. This name is used to generate the self-signed certificate and configure CSA, the Marketplace Portal, and the Identity Management component.

    The self-signed certificate is used when https browser requests are issued for the Cloud Service Management Console or the Marketplace Portal. This self-signed certificate expires 120 days after 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 CSA and manually reconfigure CSA and the Marketplace Portal to use this certificate. For more information, refer to the *Cloud Service Automation Configuration Guide*.

13. Specify if you want to install the embedded (new) Operations Orchestration instance with CSA or if you are integrating with an external (existing) instance of Operations Orchestration.

    External OO: Select **Use external OO** and click **Next1** and select **Enter** to integrate with an external (existing) instance of Operations Orchestration.

    Embedded OO: Select **Install embedded OO** and click **Next2** and select **Enter** to install the embedded Operations Orchestration.

    > If you are using unsupported version of Operations Orchestration, you will get a **warning** message. HPE recommends that you stop the current installation, check the System and Software Support Matrix document, install or upgrade to a supported Operations Orchestration version, then restart the CSA installation.

    > If you continue with the installation, you may get provisioning errors. Using an unsupported version of Operations Orchestration may also result in a limited amount of demo content that users can select for installation.

    > (**Not Recommended**) If you have understood the warning, click **Next** to continue with the installation.

Next, select the CSA content you would like to import. CSA and Codar are the available content options. If neither option is selected, the install will not proceed.

14. Define the Operations Orchestration instance with which CSA is to be integrated. Enter the following information and click **Next**.

Field Name	Description
HPE OO Hostname	The fully-qualified domain name or IP address of the server where Operations Orchestration is located. Specify the hostname that was used to generate Operations Orchestration's certificate.
	The hostname is used for TLS validation and to build the URL that the Cloud Service Management Console uses to interact with Operations Orchestration (for example, in the subscription event overview section of the **Operations** area in the Cloud Service Management Console, selecting the Process ID opens Operations Orchestration to the detailed page of the selected process when these properties are configured).
	When specifying an IPv6 address, it must be enclosed in square brackets. For example, [f000:253c::9c10:b4b4] or [::1].
HPE OO Port	The port number used to communicate with Operations Orchestration, such as 8443. The port number is used to build the URL that the Cloud Service Management Console uses to interact with Operations Orchestration. By default, Operations Orchestration uses this port and port 8080. Applications running on the system on which Operations Orchestration is installed should not be using these ports.
HPE OO User	The name of the user who logs in to Operations Orchestration Central. HP recommends that you use the admin userIf you followed all the steps documented in the *Install Operations Orchestration* section of this guide, this is the admin user.
HPE OO Password	The password used by the OO user to log in to Operations Orchestration Central. If you followed all the steps documented in the *Install Operations Orchestration* section of this guide, use the password cloud.
HPE OO Certificate File	The filename and location of Operations Orchestration's certificate from Operations Orchestration's truststore on the CSA system. If you have not already done so, export Operations Orchestration's certificate and copy it to the CSA system (see the *Install Operations Orchestration* section in this guide for more information) (see the *Initial Setup* section in this guide for more information).

This information is used to set the Operations Orchestration properties in the csa.properties file and import Operations Orchestration's certificate into CSA's truststore. Refer to the *Cloud Service Automation Configuration Guide* for more information about these properties.

15. Choose a location in which to install the embedded Operations Orchestration and click **Next**.

16. Configure an internal Operations Orchestration user and click **Next**. This user is used for provisioning topology designs.

Field Name	Description
HPE OO User Name	The name of the user used for provisioning topology designs. This user is given the ADMINISTRATOR and SYSTEM_ADMIN roles. The recommended username is **admin**.
HPE OO User Password	The password used by Operations Orchestration for the user who provisions topology designs. The recommended password is **cloud**.
HPE OO Port	The embedded Operations Orchestration port number, such as 8445, used to access Operations Orchestration Central. By default, Operations Orchestration uses this port and port 8080. The embedded Operations Orchestration should not use the same port as other applications running on the system.

17. Enter the database information for the database used by the embedded Operations Orchestration and click **Next**. The database used by the embedded Operations Orchestration must be the same type of database used by CSA *(Oracle / Microsoft SQL Server / PostgreSQL)* .

Field Name	Description
Database Host: MSSQL, Oracle, or PostgreSQL	The hostname or IP address of the server where the embedded Operations Orchestration database is located.
Database Port: MSSQL, Oracle, or PostgreSQL	The embedded Operations Orchestration database port number, for example: **1433:** (Microsoft SQL Server), **1521:** (Oracle), **5432:** (PostgreSQL).
HPE OO Database Name / Oracle Operations Orchestration service name	The service or global database name of the database instance used by the Identity Management component (for example, csaidmdb). For an Oracle database, this is the System ID (SID).
HPE OO Database Username	The username of the database user you configured for the Operations Orchestration database in the *Configure (Oracle / Microsoft SQL Server / PostgreSQL)* section of this guide (for example,

Field Name	Description
	csaidmdbuser or csadbuser).
HPE OO Database Password	The password for the Operations Orchestration database user.

18. By default, sample content (service designs and the components and Operations Orchestration flows required by the designs) are installed with CSA. You can choose to deploy this content during installation (making the sample service designs available in the Designs area of the Cloud Service Management Console) or deploy the content at a later time (refer to the *Cloud Service Automation Content Pack User's Guide* or *Cloud Service Automation Configuration Guide* for more information).

    To deploy the sample content during the CSA installation process, select **Install additional provider integration service designs, components and content** and click **Next**.

    To deploy the sample content at a later time, select **Skip content installation** and click **Next**.

    If you choose to skip content installation, you can install the content at a later time by running the Cloud Content Capsule Installer. Refer to the *Cloud Service Automation Content Pack User's Guide* or *Cloud Service Automation Configuration Guide* for more information.

    > **Note:** If you chose not to install the database components, this dialog will not display.

19. Review your selections and click **Install** to complete the installation.

20. 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.

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

22. Verify that the CSA, Elasticsearch 1.6.1, HPE Search Service, and Marketplace Portal, and Operations Orchestration Central services have started by navigating to **Start > Administrative Tools > Services**. It can take up to five minutes for the CSA to start. If one or more services have not started, right-click on the service and select **Start**.

    The installer creates the CSA and Marketplace Portal services. If you opted to install the CSA database components, the installer starts these services. The CSA service must be running in order to access the Cloud Service Management Console, and the Marketplace Portal service must be running in order to access the Marketplace Portal, and the Operations Orchestration Central service must be running in order to access Operations Orchestration Central.

To start, stop, and restart the CSA, Elasticsearch 1.6.1, HPE Search Service, and Marketplace Portal, and Operations Orchestration Central services, navigate to **Start > Administrative Tools > Services**, right-click on a service, and select the desired action.

Install Cloud Service Automation for Linux

The following installation steps are for Linux:

> **Note:** Installation log files are written to the `$CSA_HOME/_CSA_4_70_0_installation/Logs/` directory and are named `csa_*.txt`.

> **Important Note:** The memory requirements for any CSA installation are as follows:
>
> - A CSA installation with the External Operations Orchestration option requires a minimum of 4.5 GB *available* RAM.
>
> - A CSA installation with the Embedded Operations Orchestration option requires a minimum of 6 GB *available* RAM.
>
> - HPE strongly recommends installing CSA on a system with *at least* 16 GB RAM.
>
> For a complete listing of resource requirements and compatibility information, see the CSA Support and Compatibility Matrix for the relevant product release.

To install CSA, complete the following steps.

1. Log in to the system as the root user.

2. Install the unzip utility if it is not already installed. Enter the following:

   ```
   apt-get install unzip
   ```

3. Create an installation directory for CSA (this document assumes that you will install the product in `/usr/local/hpe/csa` and all examples used in this document are based on this assumption). Enter the following:

   ```
   mkdir -p /usr/local/hpe/csa
   ```

4. For the installation directory, set the owner to csauser and the group to csagrp. Enter the following:

   ```
   chown -R csauser:csagrp /usr/local/hpe/csa
   ```

5. Log out as the root user and log in as csauser.

6. Copy the CSA installation file (`setup.bin`) to the system and go to the directory in which it has been copied.

7. Verify that `setup.bin` is owned by csauser and csauser has full permissions to the file. If necessary, do the following:

a. Log in as the root user

b. Enter one or both of the following commands:

```
chown csauser setup.bin
chmod u+rwx setup.bin
```

c. Log out as the root user and log in as csauser.

8. Check the values of the CSA_HOME, PS1, and TITLEBAR environment variables. If they are set, verify that they do not contain any escape sequences. If any of these variables contain an escape sequence, the variable will cause the installer to fail. The variable must either be reset to a value that does not contain an escape sequence or must be unset.

9. Run the `setup.bin` installation file (as the csauser).

> **Note:** You must run `setup.bin` as the csauser. If you install CSA as another user, you may not be able to run CSA.

As the csauser, enter the following:

```
./setup.bin
```

10. Read the Introduction and click **enter** to continue with the installation.

11. Read the license agreement. Click **enter** to scroll through the entire agreement.

12. Select **Y** and **enter** to accept the license agreement and continue with the installation. Select **N** and **enter** to exit the installation.

If the following error message displays:

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

exit the installer. Locate the $HOME/.com.zerog.registry.xml file (for example, /home/csauser/.com.zerog.registry.xml), make a backup copy, delete all CSA entries from the .com.zerog.registry.xml file, and restart the installer.

13. Select **CSA and Marketplace Portal** and click **Enter**.

Selecting **CSA and Marketplace Portal** installs the entire CSA application, including the Cloud Service Management Console, Identity Management component, and Marketplace Portal, on the system.

Selecting **Marketplace Portal** installs only the Marketplace Portal on the system.

If you only want to install the Marketplace Portal, go to the top of this document and click **Change** to change the selections you made to create this document. The tasks to install both the CSA and Marketplace Portal are different from the tasks to install only the Marketplace Portal.

14. Enter a location in which to install CSA (enter the absolute path to the location) and select **enter**. Or, select **enter** to accept the default location.

    The default location is `/usr/local/hpe/csa`.

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

    If prompted, verify the installation folder. If the folder is correct, select **Y** and **enter** to continue with the installation. If the folder is not correct, select **N** and **enter** to re-enter the installation folder.

15. Select the JRE that will be used by CSA.

    In this documentation, the directory in which the JRE is installed will be referred to as `$CSA_JRE_HOME`.

    For a list of supported JREs, refer to the *Cloud Service Automation System and Software Support Matrix*.

    OpenJDK JRE

    The OpenJDK JRE is bundled with CSA. If you want to use the OpenJDK JRE, type **1** and select **Enter**.

    The default location in which the OpenJDK JRE is installed is `/usr/local/hpe/csa/openjre`.

    Oracle JRE

    If you have installed a supported version of Oracle JRE to be used by CSA, type **2** and select **Enter**. Type the location in which you installed this JRE and select **Enter**.

    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 CSA, type in the location in which you installed the JRE that will be used by CSA and select **Enter**.

16. Install CSA database components onto the database instance to create the CSA database schema, if it does not already exist.

    Type **Yes** to install CSA database components and create the CSA database schema. When you select this option, the CSA process automatically starts when you exit the installer.

Type **No** if you are using an existing HPECSA database schema that was created as part of a prior successful installation of CSA version 4.70. When you select this option, you cannot use the installer to deploy sample content and the CSA process does not start when you exit the installer.

> **Note:** In this version of CSA, Organizations are now stored in the Identity Management component, not in CSA. If you selected **Yes** during the installation, the CSA installer will populate the database and migrate the organizations automatically; however, if you selected **No** during the installation, you will need to populate the database and migrate organizations manually using CSA tools.

Follow the next steps if you selected **No** during the installation and need to import content into the database and your organizations into the Identity Management component for CSA:

- Run the **SchemaInstallationTool** to populate the database.
- Run the **OrgMigrationTool** to migrate organizations from CSA to the Identity Management component.

You can access the **SchemaInstallationTool** by using the following command:

- Go to <CSA_HOME>/Tools/SchemaInstallationTool/
- Run <JAVA_HOME>/bin/java –jar schema-installation-tool.jar

You can access the **OrgMigrationTool** by using the following command:

- Go to <CSA_HOME>/Tools/OrgMigrationTool/
- Run <JAVA_HOME>/bin/java –jar org-migration-tool.jar –c config.properties –csa.home <CSA_HOME> -t json –j <JDBC_DRIVER>

Refer to the end of this section for information on how to start and stop the CSA service.

17. Define the database instance on which the CSA database components should be installed. Enter the following database information (select **Enter** after each entry).

    a. Enter the type of database you have installed: MSSQL, Oracle, or PostgreSQL.

    > **Note:** 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 CSA system). For a list of supported JDBC driver versions, refer to the Cloud Service Automation System and Software Support Matrix .

    Guides are available on the HPE Software Support Web site at: https://softwaresupport.hpe.com. (This site requires a Passport ID). Select **Dashboards > Manuals**.

b. Enter the database hostname. This is the hostname or IP address of the server where the database is located. When specifying an IPv6 address, it must be enclosed in square brackets. For example, `[f000:253c::9c10:b4b4]` or `[::1]`. The default value is the IP address of the localhost (127.0.0.1).

c. Enter the database port. This is the database port number, for example: **1433:** (Microsoft SQL Server),**1521:** (Oracle), **5432:** (PostgreSQL).

d. Enter the Oracle service name or database name. This is the service or global database name of the database instance on which the CSA database schema will be installed. If you are creating a new CSA database schema, this is the service or database name of the database instance on which the CSA database components will be installed). If you are using an existing CSA database schema that was created as part of a prior successful installation of CSA version HPE 4.70, this is the service or database name of the database instance on which the CSA database schema already exists.

   If you followed the examples in this document, enter `csadb`.

e. Enter the CSA database user name. This is the user name of the database user you configured for HPE Cloud Service Automation in the *Configure (Oracle / Microsoft SQL Server / PostgreSQL)* section of this guide.

   If you followed the examples in this document, enter `csadbuser`.

f. Enter the CSA database password. This is the password for the CSA database user.

g. Enter the CSA reporting database username (optional). This is the username of the database user you configured for reporting purposes for CSA in the *Configure (Oracle / Microsoft SQL Server / PostgreSQL)* section of this guide.

   If you followed the examples in this document, enter `CSAReportingDBUser`.

h. Enter the CSA reporting database password. This is the password for the CSA reporting database user.

18. Provide the database instance used by the Identity Management component. Enter the following database information (select **Enter** after each entry).

a. Enter the database hostname. This is the hostname or IP address of the server where the database is located. When specifying an IPv6 address, it must be enclosed in square brackets. For example, `[f000:253c::9c10:b4b4]` or `[::1]`. The default value is the IP address of the localhost (127.0.0.1).

b. Enter the database port. This is the database port number, for example: **1433:** (Microsoft SQL

Server),**1521:** (Oracle), **5432:** (PostgreSQL).

   c. Enter the Oracle service or database name. This is the service or global database name of the database instance used by the Identity Management component.

      If you followed the examples in this document, enter `csaidmdb`.

   d. Enter the Identity Management component database user name. This is the user name of the database user you configured for the Identity Management component database in the *Configure (Oracle / Microsoft SQL Server / PostgreSQL)* section of this guide.

      If you followed the examples in this document, enter `csaidmdbuser` or `csadbuser`.

   e. Enter the CSA database password. This is the password for the Identity Management component database user.

19. Enter the CSA server hostname. This is the **fully-qualified domain name of the system on which you are installing CSA**. This name is used to generate the self-signed certificate and configure CSA, the Marketplace Portal, and the Identity Management component.

    The self-signed certificate is used when https browser requests are issued for the Cloud Service Management Console. Marketplace Portal. This self-signed certificate expires 120 days after 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 CSA and manually reconfigure CSA and the Marketplace Portal to use this certificate. For more information, refer to the *Cloud Service Automation Configuration Guide*.

20. > **Note:** You must enter the full domain name of the server. For example, if you are installing CSA on a system whose fully-qualified domain name is machine1.marketing.xyz.com, you must enter marketing.xyz.com. If you enter only xyz.com, you will not be able to log in to the Cloud Service Management Console.

21. Specify if you want to install the embedded (new) Operations Orchestration instance with CSA or if you are integrating with an external (existing) instance of Operations Orchestration.

    External OO: Select **Use external OO** and click **Next1** and select **Enter** to integrate with an external (existing) instance of Operations Orchestration.

    Embedded OO: Select **Install embedded OO** and click **Next2** and select **Enter** to install the embedded Operations Orchestration.

> If you are using unsupported version of Operations Orchestration, you will get a **warning** message. HPE recommends that you stop the current installation, check the System and Software Support Matrix document, install or upgrade to a supported Operations Orchestration version, then restart the CSA installation.
>
> If you continue with the installation, you may get provisioning errors. Using an unsupported version of Operations Orchestration may also result in a limited amount of demo content that users can select for installation.
>
> (**Not Recommended**) If you have understood the warning, click **Next** to continue with the installation.

Next, select the CSA content you would like to import. CSA and Codar are the available content options. If neither option is selected, the install will not proceed.

22. Define the Operations Orchestration instance with which CSA is to be integrated. Enter the following information (select **Enter** after each entry).

    a. Enter the OO hostname. This is referred to as the fully-qualified domain name or IP address of the server where Operations Orchestration is located. Specify the hostname that was used to generate Operations Orchestration's certificate. The hostname is used for TLS validation and to build the URL that the Cloud Service Management Console uses to interact with Operations Orchestration (for example, in the subscription event overview section of the **Operations** area in the Cloud Service Management Console, selecting the Process ID opens Operations Orchestration to the detailed page of the selected process when these properties are configured).

       When specifying an IPv6 address, it must be enclosed in square brackets. For example, `[f000:253c::9c10:b4b4]` or `[::1]`.

    b. Enter the OO port. This is the port number used to communicate with Operations Orchestration, such as 8443. The port number is used to build the URL that the Cloud Service Management Console uses to interact with Operations Orchestration. By default, Operations Orchestration uses this port and port 8080. Applications running on the system on which Operations Orchestration is installed should not be using these ports.

    c. Enter the OO user. This is the name of the user who logs in to Operations Orchestration Central. HP recommends that you use the `admin` userIf you followed all the steps documented in the *Install Operations Orchestration* section of this guide, this is the `admin` user.

d. Enter the OO password. This is the password used by the OO user to log in to Operations Orchestration Central. If you followed all the steps documented in the *Install Operations Orchestration* section of this guide, use the password `cloud`.

e. Re-enter the OO password.

f. Enter the OO certificate file. This is the filename and location of Operations Orchestration's certificate from Operations Orchestration's truststore on the CSA system. If you have not already done so, export Operations Orchestration's certificate and copy it to the CSA system (see the *Install Operations Orchestration* section in this guide for more information) (see the *Initial Setup* section in this guide for more information).

This information is used to set the Operations Orchestration properties in the `csa.properties` file and import Operations Orchestration's certificate into CSA's truststore. Refer to the *Cloud Service Automation Configuration Guide* for more information about these properties.

23. Enter a location in which to install the embedded Operations Orchestration.

24. Enter the database information for the database used by the embedded Operations Orchestration (select **Enter** after each entry). The database used by the embedded Operations Orchestration must be the same type of database used by CSA *(Oracle / Microsoft SQL Server / PostgreSQL)*.

a. Enter the database hostname. This is the hostname or IP address of the server where the embedded Operations Orchestration database is located.

b. Enter the database port. This is the embedded Operations Orchestration database port number, for example: **1433:** (Microsoft SQL Server),**1521:** (Oracle), **5432:** (PostgreSQL).

c. Enter the OO database or Oracle OO service name. This is the name of the database instance used by the embedded Operations Orchestration.

If you followed the examples in this document, enter `csaoodb`.

d. Enter the database username. This is the username of the database user you configured for the Operations Orchestration database.

If you followed the examples in this document, enter `csaoodbuser`.

e. Enter the database password. This is the password for the Operations Orchestration database user.

f. Enter the embedded Operations Orchestration port number, such as 8445. By default, Operations Orchestration uses this port and port 8080. The embedded Operations Orchestration should not use the same port as other applications running on the system.

25. Configure an internal Operations Orchestration user (select **Enter** after each entry). This user is

used for provisioning topology designs.

    a. Enter the OO username. This is the name of the user used for provisioning topology designs. This user is given the ADMINISTRATOR and SYSTEM_ADMIN roles. The recommended username is **admin**.

    b. Enter the OO password. This is the password used by Operations Orchestration for the user who provisions topology designs. The recommended password is **cloud**.

26. By default, sample content (service designs and the components and Operations Orchestration flows required by the designs) are installed with CSA. You can choose to deploy this content during installation (making the sample service designs available in the Designs area of the Cloud Service Management Console) or deploy the content at a later time (refer to the *Cloud Service Automation Content Pack User's Guide* for more information).

    To deploy the sample content during the CSA installation process, type **1** (Install additional provider integration service designs, components and content) and select **Enter**.

    To deploy the sample content at a later time, type **2** (Skip content installation) and select **Enter**.

    If you choose to skip content installation, you can install the content at a later time by running the Cloud Content Capsule Installer. Refer to the *Cloud Service Automation Content Pack User's Guide* or *Cloud Service Automation Configuration Guide* for more information.

    > **Note:** If you chose not to install the database components, this selection will not display.

27. Review your selections and select **Enter** to complete the installation or **Ctrl-c** to exit the installation.

28. When the installation completes, select **enter** to exit the installer.

    Define the CSA_HOME and JAVA_HOME environment variables for the csauser user. Set CSA_HOME to the location where CSA is installed. In a startup script for the csauser user (for example, `.bash_profile` (Red Hat Enterprise Linux)), add the following:

    ```
    export CSA_HOME=/usr/local/hpe/csa
    export JAVA_HOME=<csa_jre>$CSA_JRE_HOME
    ```

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

30.
    ```
    . ./.bash_profile
    ``` (Red Hat Enterprise Linux)

31. Create an CSA service and Marketplace Portal service to start and stop the CSA and Marketplace Portal processes.

a. Log in as the root user.

b. Go to the directory in which CSA is installed. For example:

```
cd /usr/local/hpe/csa
```

c. Copy the `csa` and `mpp` scripts to the `/etc/init.d` directory. Enter the following:

```
cp ./scripts/csa /etc/init.d
cp ./scripts/mpp /etc/init.d
```

d. Change permissions of the scripts. Enter the following:

```
chmod 755 /etc/init.d/csa
chmod 755 /etc/init.d/mpp
```

e. Log out as the root user.

32. Log in as csauser and start the CSA and Marketplace Portal services. Enter the following:

```
service csa start
service mpp start
```

33. As csauser, restart the Operations Orchestration Central service. Enter the following:

```
/usr/local/hpe/csa/OO/central/bin/central stop
/usr/local/hpe/csa/OO/central/bin/central start
```

The CSA service must be running in order to access the Cloud Service Management Console. You can start this service by running the command `service csa start`. You can restart this service by running the command `service csa restart`. You can stop the service by running the command `service csa stop`. You can check the status of the service by running the command `service csa status`.

The Marketplace Portal service must be running in order to access the Marketplace Portal. You can start this service by running the command `service mpp start`. You can restart this service by running the command `service mpp restart`. You can stop the service by running the command `service mpp stop`. You can check the status of the service by running the command `service mpp status`.

The Operations Orchestration Central service must be running in order to access Operations Orchestration Central. you can start this service by running the command `/usr/local/hpe/csa/OO/central/bin/central start`. you can stop this service by running the command `/usr/local/hpe/csa/OO/central/bin/central stop`.

Install Cloud Service Automation with Remote MPP for Windows

The following installation steps are for installing a remote instance of Marketplace Portal andCSA on Windows:

> **Note:** Installation log files are written to the `%CSA_HOME%\_CSA_4_70_0_installation\Logs\` directory.

> **Important Note:** The memory requirements for any CSA installation are as follows:
>
> - A CSA installation with the External Operations Orchestration option requires a minimum of 4.5 GB *available* RAM.
>
> - A CSA installation with the Embedded Operations Orchestration option requires a minimum of 6 GB *available* RAM.
>
> - HPE strongly recommends installing CSA on a system with *at least* 16 GB RAM.
> For a complete listing of resource requirements and compatibility information, see the CSA Support and Compatibility Matrix for the relevant product release.

To install a remote instance of the Marketplace Portal, 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. Unzip the `setup.zip` file. Go to the directory to which the files have been extracted and run the `setup.bat` installation file. A command window (which will display until the script has completed) and a dialog that shows the progress of installation preparation are displayed. Do not close either window. The installation preparation progress dialog will disappear when installation preparation has completed.

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 CSA is configured in the registry. However, CSA has been
   uninstalled (the CSA installation directory %CSA_HOME% does not exist). You
   must exit the installer and delete the entry in the registry before installing
   ```

```
CSA. Refer to the 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 CSA entries from the `.com.zerog.registry.xml` file, and restart the installer.

5. Select **Marketplace Portal** and click **Next**.

   Selecting **CSA and Marketplace Portal** installs the entire CSA application, including the Cloud Service Management Console, Identity Management component, and Marketplace Portal, on the system.

   Selecting **Marketplace Portal** installs only the Marketplace Portal on the system.

   If you want to install CSA and the Marketplace Portal, go to the top of this document and click **Change** to change the selections you made to create this document. The tasks to install only the Marketplace Portal are different from the tasks to install both CSA and the Marketplace Portal.

6. Choose a location in which to install the Marketplace Portal and click **Next** (`CSA_HOME` is set to this location).

   The default location is `C:\Program Files\HPE\CSA`.

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

   > **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.

7. Define the instance on which the CSA is installed and the location of the CSA certificate that was copied to the local system. Enter the following information and click **Next**.

Field Name	Description
CSA Host	The **fully-qualified domain name** of the system on which CSA is installed.
CSA Port	The port number used to communicate with CSA.
CSA Certificate	The name and location of the CSA certificate file that was copied from the CSA system to the local system.

8. From the Hostname Configuration screen, enter the **fully-qualified domain name** of this system, the one on which you are installing the Marketplace Portal, and click **Next**.

9. Review your selections and click **Install** to complete the installation.

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

11. Verify that the Marketplace Portal service has started by navigating to **Control Panel > Administrative Tools > Services**. If the service has not started, right-click on the service and select **Start**.

    The Marketplace Portal service must be running in order to access the Marketplace Portal.

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

Install Cloud Service Automation with Remote MPP for Linux

The following installation steps are for installing a remote instance of Marketplace Portal andCSA on Linux:

> **Note:** Installation log files are written to the `$CSA_HOME/_CSA_4_70_0_installation/Logs/` directory and are named `csa_*.txt`.

> **Important Note:** The memory requirements for any CSA installation are as follows:
>
> - A CSA installation with the External Operations Orchestration option requires a minimum of 4.5 GB *available* RAM.
>
> - A CSA installation with the Embedded Operations Orchestration option requires a minimum of 6 GB *available* RAM.
>
> - HPE strongly recommends installing CSA on a system with *at least* 16 GB RAM.
>
> For a complete listing of resource requirements and compatibility information, see the CSA Support and Compatibility Matrix for the relevant product release.

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

1. Log in to the system as the root user.

2. Install the unzip utility if it is not already installed. Enter the following:

   `apt-get install unzip`

3. Create an installation directory for CSA (this document assumes that you will install the product in `/usr/local/hpe/csa` and all examples used in this document are based on this assumption). Enter the following:

   `mkdir -p /usr/local/hpe/csa`

4. For the installation directory, set the owner to csauser and the group to csagrp. Enter the following:

   `chown -R csauser:csagrp /usr/local/hpe/csa`

5. Log out as the root user and log in as csauser.

6. Copy the CSA installation file (`setup.bin`) to the system and go to the directory in which it has been copied.

7. Verify that `setup.bin` is owned by csauser and csauser has full permissions to the file. If

necessary, do the following:

   a. Log in as the root user

   b. Enter the following commands:

```
chown csauser setup.bin
chmod u+rwx setup.bin
```

   c. Log out as the root user and log in as csauser.

8. Run the `setup.bin` installation file (as the csauser).

> **Note:** You must run `setup.bin` as the csauser. If you install CSA as another user, you may not be able to run CSA.

As the csauser, enter the following:

```
./setup.bin
```

9. Read the Introduction and click **enter** to continue with the installation.

10. Read the license agreement. Click **enter** to scroll through the entire agreement.

11. Select **Y** and **enter** to accept the license agreement and continue with the installation. Select **N** and **enter** to exit the installation.

If the following error message displays:

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

exit the installer. Locate the `$CSA_HOME/.com.zerog.registry.xml` file, make a backup copy, delete all CSA entries from the `.com.zerog.registry.xml` file, and restart the installer.

12. Select **Marketplace Portal** and select **Enter**.

Selecting **CSA and Marketplace Portal** installs the entire CSA application, including the Cloud Service Management Console, Identity Management component, and Marketplace Portal, on the system.

Selecting **Marketplace Portal** installs only the Marketplace Portal on the system.

If you want to install CSA and the Marketplace Portal, go to the top of this document and click **Change** to change the selections you made to create this document. The tasks to install only the Marketplace Portal are different from the tasks to install both CSA and the Marketplace Portal.

13. Enter a location in which to install CSA (enter the absolute path to the location) and select **enter**. Or, select **enter** to accept the default location.

    The default location is `/usr/local/hpe/csa`.

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

    If prompted, verify the installation folder. If the folder is correct, select **Y** and **enter** to continue with the installation. If the folder is not correct, select **N** and **enter** to re-enter the installation folder.

14. Define the instance on which the CSA is installed and the location of the CSA certificate that was copied to the local system. Enter the following information and select **Enter**.

Field Name	Description
CSA Host	The **fully-qualified domain name** of the system on which CSA is installed.
CSA Port	The port number used to communicate with CSA.
CSA Certificate	The name and location of the CSA certificate file that was copied from the CSA system to the local system.

15. From the Hostname Configuration screen, enter the **fully-qualified domain name** of this system, the one on which you are installing the Marketplace Portal, and click **Install** to complete the installation.

16. Review your selections and select **enter** to complete the installation or **ctrl-c** to exit the installation.

17. When the installation completes, select **enter** to exit the installer.

18. `export CSA_HOME=/usr/local/hpe/csa`

    Windows: `export JAVA_HOME=<csa_jre>`

    Linux: export JAVA_HOME=*$CSA_JRE_HOME*
    `export PATH=$PATH:/sbin`

19. Create the Marketplace Portal service to start and stop the Marketplace Portal process.

    a. Log in as the root user.

    b. Go to the directory in which the Marketplace Portal is installed. For example:

       `cd /usr/local/hpe/csa`

    c. Copy the `mpp` script to the `/etc/init.d` directory. Enter the following:

```
cp ./scripts/mpp /etc/init.d
```

    d.   Change permissions of the script. Enter the following:

```
chmod 755 /etc/init.d/mpp
```

    e.   Log out as the root user.

20.   Log in as csauser and start the Marketplace Portal service. Enter the following:

```
service mpp start
```

The Marketplace Portal service must be running in order to access the Marketplace Portal. You can start this service by running the command `service mpp start`. You can restart this service by running the command `service mpp restart`. You can stop the service by running the command `service mpp stop`. You can check the status of the service by running the command `service mpp status`.

Secure the Marketplace Portal

For security reasons, the Marketplace Portal file system must be protected by the operating system. Do the following:

Windows:

1. Open an elevated command prompt (a command prompt that is run as the administrator). For example, navigate to **All Programs > Accessories**. Right-click on **Command Prompt** and select **Run as administrator**.

2. From the elevated command prompt, run the following command:

   ```
   attrib +s +h "%CSA_HOME%\portal" /S /D /L
   ```

   where CSA_HOME is the directory in which CSA is installed.

3. Restart the CSA and Marketplace Portal services. For example, navigate to **Start > Administrative Tools > Services**. Right-click on the service and select **Restart**.

Linux:

1. Log in as the root user.

2. Run the following commands:

   ```
   chown csauser:csagrp $CSA_HOME/portal
   chmod 700 $CSA_HOME/portal
   ```

   where csauser and csagrp are the user and group you configured for CSA when you installed CSA and CSA_HOME is the directory in which CSA is installed.

3. Log out as root and log in as csauser.

4. Restart the csa and mpp services by running the following commands:

   ```
   service csa restart
   service mpp restart
   ```

Update and Redeploy the Service Manager Base Content Pack

Update and redeploy the `oo10-sm-cp-1.0.3.jar` base content pack. If you deployed an earlier version of the Service Manager base content pack, you must do the following (if this is a fresh installation of Operations Orchestration and you did not deploy an earlier version of the Service Manager base content pack, you do not have to complete these steps):

1. Stop the Operations Orchestration services:

   Windows:

   a. On the server that hosts Operations Orchestration, navigate to **Start** > **Administrative Tools** > **Services**.

   b. Right-click on the Operations Orchestration Central service and select **Stop**.

   c. If you installed the Remote Action Server (RAS), on all RAS systems (including localhost), navigate to **Start** > **Administrative Tools** > **Services**.

   d. Right-click on the Operations Orchestration RAS service and select **Stop**.

   Linux:

   a. On the server that hosts Operations Orchestration, run the following command:
   `<HPOOinstallation>/central/bin/central stop`

   For example, `/usr/local/hpe/csa/OO/central/bin/central stop`

   b. If you installed the Remote Action Server (RAS), on all RAS systems (including localhost), run the following command: `<HPOOinstallation>/ras/bin/ras stop`

   For example, `/usr/local/hpe/csa/OO/ras/bin/ras stop`

2. Clear the Operations Orchestration Central cache by deleting the following folder:

   `<HPOOinstallation>\central\var\cache`

   For example,

   Windows: `C:\Program Files\HPE\HP Operations Orchestration\central\var\cache`

   Linux: `/usr/local/hpe/csa/oo/central/var/cache`

3. If RAS is installed, clear the RAS artifact cache by deleting the following folder (on all RAS systems, including localhost):

   <HPOOinstallation>\ras\var\cache

   For example,

   Windows: `C:\Program Files\HPE\HP Operations Orchestration\ras\var\cache`

   Linux: `/usr/local/hpe/csa/oo/ras/var/cache`

4. Run the following SQL command against the Operations Orchestration database:

   ```
   DELETE from OO_ARTIFACTS where NAME =
   'org/apache/ws/security/wss4j/1.5.7/wss4j-1.5.7.pom' or NAME =
   'org/apache/ws/security/wss4j/1.5.7/wss4j-1.5.7.jar'
   ```

5. Start the Operations Orchestration services:

   Windows:

   a. On the server that hosts Operations Orchestration, navigate to **Start** > **Administrative Tools** > **Services**.

   b. Right-click on the Operations Orchestration Central service and select **Start**.

   c. If you installed the Remote Action Server (RAS), on all RAS systems (including localhost), navigate to **Start** > **Administrative Tools** > **Services**.

   d. Right-click on the Operations Orchestration RAS service and select **Start**.

   Linux:

   a. On the server that hosts Operations Orchestration, run the following command:
      <HPOOinstallation>/central/bin/central start

      For example, `/usr/local/hpe/csa/OO/central/bin/central start`

   b. If you installed the Remote Action Server (RAS), on all RAS systems (including localhost), run the following command: *<HPOOinstallation>*/ras/bin/ras start

      For example, `/usr/local/hpe/csa/OO/ras/bin/ras start`

6. Redeploy the `oo10-sm-cp-1.0.3.jar` base content pack:

   a. Log in to Operations Orchestration Central and click **Content Management**.

   b. Click the **Content Packs** tab.

   c. Click the **Deploy New Content** icon.

d. In the Deploy New Content dialog, in the upper left corner, click the **+** (Add files for deployment) icon.

e. Navigate to the `CSA_HOME\oo\ooContentPack` directory and select **oo10-sm-cp-1.0.3.jar**.

f. Click **Deploy**.

The deployment may take a few minutes and the dialog will show a progress bar.

g. Click **Close**.

What's next?

You have completed the initial installation and configuration of CSA and can begin familiarizing yourself with the capabilities of CSA.

- Launch the Cloud Service Management Console (type the following URL in a supported Web browser: `https://<csahostname>:8444/csa`) and log in using the out-of-the-box user (admin) and password (cloud).

- Launch the default Marketplace Portal (type the following URL in a supported Web browser: `https://<csahostname>:8444/mpp`) and log in using the out-of-the-box user (consumer) and password (cloud).

Global Search

> **Note**: Global Search (i.e. elasticsearch) is turned on by default in CSA 4.70. After installing CSA and creating CSA content (Create Offerings, Services, and so on.) the global search window should be visible and functioning properly.

Install a new Operations Orchestration license

After 90 days, the Operations Orchestration license that is packaged with CSA will expire and prompt you to install a new license.

You must contact HPE Customer Support to acquire the new license. After HPE Customer Support provides you with a new Operations Orchestration license, download it onto your system.

To install your new Operations Orchestration license:

1. Log on to Operations Orchestration.

2. Click System Configuration on the left pane.

3. Click the System Settings tab.

4. On the License tab, click the Install License button.

5. You are prompted to select the license file. Browse to the path in which you downloaded and installed the license file and select it.

6. Click OK.

The Operations Orchestration license is now installed.

Configure CSA

To complete the configuration of CSA, refer to the following documents:

- *Cloud Service Automation Configuration Guide*: The configuration guide describes the process for preparing LDAP for the Cloud Service Management Console and for consumer organizations, requesting software licenses, configuring secure connections, customizing the Cloud Service Management Console, configuring CSA to be compliant with FIPS 140-2, and performing other CSA customizations. The configuration guide also describes the process of how to import the sample Operations Orchestration flows included with CSA.

- *Cloud Service Automation Cluster Configuration Guide Using an Apache Web Server*: The cluster configuration guide describes how to configure the nodes in your clustered environment if you are using an Apache Web server or load balancer.

- *Cloud Service Automation Content Pack User's Guide*: This guide describes how to install and configure resource providers (such as Matrix OE, VMware vCenter, SiteScope, Universal CMDB, and Server Automation), how to deploy the sample Operations Orchestration flows included with CSA, how to deploy the sample resource offerings and service designs included with CSA that target these resource providers, and includes additional documentation on each of the out-of-the-box resource offerings and service designs. If you installed the additional provider integration service designs, components, and content during installation, the sample Operations Orchestration flows, resource offerings, and service designs have been deployed.

- *Cloud Service Automation Service Design Guide*: The service design guide describes how to use CSA to create automated, on-demand cloud services. The guide covers key concepts and steps for CSA service design, including sequenced and topology design models, the role of the service design, design layouts and components, service lifecycles, and service options.

When you have completed the initial installation and configuration of the Marketplace Portal, you can begin familiarizing yourself with the capabilities of the Marketplace Portal.

Launch the default Marketplace Portal (type the following URL in a supported Web browser: `https://<csahostname>:8444/mpp`) and log in using the out-of-the-box user (consumer) and password (cloud).

For more information about the Marketplace Portal, refer to the online help.

Checksum-checker Tool

HPE provides a checksum-checker tool, a new feature (since version 4.70), to verify the authenticity of CSA code files. This tool and a jarsigner tool that is included in Java JDK (but not in Java JRE) can be used to validate your CSA installation. The tool may uncover some modifications to CSA code files that may be malicious. It may be useful to run it after a breach is detected and mitigated to ensure that CSA code files has not been maliciously modified during a breach, or it can be useful for ordinary integrity check.

The tool is used post-installation.

Before Running the Checksum-checker Tool

Within your CSA installation, run a command line (Windows) or a shell (Linux) and navigate to the `CSA_HOME\CSA\Tools\Security` directory.

The first step is to verify that the checksum checker is signed. Execute the jarsigner command (available from Java JDK) in the specified directory:

```
jarsigner -verify checksum-checker.jar
```

You should get a response:

```
jar verified.
```

Once you verify the checksum-checker, you can use the tool to verify the rest of the CSA installation.

For complete assurance, you can run it with -verbose and -certs arguments to see if code signing certificate comes from HPE.

Once you verify the checksum-checker, you can use the tool to verify the rest of the CSA installation.

Using Checksum-checker

The tool can be used after mitigating potential security breach or just for plain file integrity validation.

To use the checksum-checker, follow these Steps (for plain file integrity validation without presence of adversary, you can skip directly to step 4):

1. Disconnect the systems from the network, to verify if the attacker has modified the CSA installation;

2. Check your OS to see if it is negatively affected;

3. Check the java files to verify if the Java is modified in any way;

4. Check checksum-checker with jarsigner (as described above);

5. Check to see if CSA code is modified via the checksum-checker. You can do this using the following command in the `CSA_HOME\Tools\Security` directory:

```
java -jar checksum-checker.jar
```

The tool will run through the files and give you the list of validated files. At the end of list there is a summary of files that did not pass the check.

For example, let's see what would the checksum-checker.jar will report if the `provider-tool` file (in the `CSA_HOME\Tools\ProviderTool` directory) has been modified.

The checksum-checker.jar will provide a message with the name of the file that has unexpected checksum at the end of its output like this:

```
Files with wrong checksums:
```

```
Tools/ProviderTool/provider-tool.jar
```

> **Note:** The checksum-checker tool can only verify CSA code files, not configuration files. It verifies only known files and ignores unknown ones. Checksum-checker will report wrong checksums for CSA applied hotfixes; it can only validate full version installations, patch releases, and version updates within CSA installations. The checksum checker uses SHA-256 algorithm for checksums.

The `checksum-checker.jar` can be also run from different directory than `CSA_HOME\Tools\Security` if argument `--installdir` followed by the location of `CSA_HOME` directory is specified.

Appendix A: 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 CSA.

See the *Cloud Service Automation System and Software Support Matrix*.
Guides are available on the HPE Software Support Web site at: https://softwaresupport.hpe.com.
(This site requires a Passport ID). Select **Dashboards > Manuals**.
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Complete the following tasks to install and configure the Marketplace Portal on a remote system:

- Copy the CSA certificate to the remote system.

- Configure a CSA Group and User.

- Install a JRE.

- Install CSA.

- Remove unneeded .war files.

- Configure the Marketplace Portal.

- Start the Marketplace Portal service.

- Launch the Marketplace Portal.

> **Note:** In the following instructions, **Windows:** `%CSA_HOME%` and **Linux:** `$CSA_HOME` represent the directory in which the Marketplace Portal is installed.

Copy the CSA Certificate

From the system on which CSA is installed, copy the CSA certificate to the system on which the remote instance of the Marketplace Portal will be installed.

On the system on which CSA is installed, the CSA certificate is located in:

`Windows: %CSA_HOME%\jboss-as\standalone\configuration\jboss.crt`

Linux: `$CSA_HOME/jboss-as/standalone/configuration/jboss.crt`.

Copy this file to the system on which you are installing the remote instance of the Marketplace Portal. Remember the name and location to which you have copied this certificate as you will be asked for this information when you install the remote instance of the Marketplace Portal.

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

Install CSA for MPP for Windows

Click on the link for information in this guide on how to install CSA with Remote MPP for Windows.

Install CSA for MPP for Linux

Click on the link for information in this guide on how to install CSA with Remote MPP for Linux.

Secure the Marketplace Portal

For security reasons, the Marketplace Portal file system must be protected by the operating system. Do the following:

Windows:

1. Open an elevated command prompt (a command prompt that is run as the administrator). For example, navigate to **All Programs > Accessories**. Right-click on **Command Prompt** and select **Run as administrator**.

2. From the elevated command prompt, run the following command:

   `attrib +s +h "%CSA_HOME%\portal" /S /D /L`

   where `CSA_HOME` is the directory in which CSA is installed.

3. Restart the CSA and Marketplace Portal services. For example, navigate to **Start > Administrative Tools > Services**. Right-click on the service and select **Restart**.

Linux:

1. Log in as the root user.

2. Run the following commands:

   ```
   chown csauser:csagrp $CSA_HOME/portal
   chmod 700 $CSA_HOME/portal
   ```

   where csauser and csagrp are the user and group you configured for CSA when you installed CSA
   and CSA_HOME is the directory in which CSA is installed.

3. Log out as root and log in as csauser.

4. Restart the csa and mpp services by running the following commands:

   ```
   service csa restart
   service mpp restart
   ```

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 CSA and the Cloud Service Management Console are installed:

   - **Windows:** edit the `%CSA_HOME%\jboss-as\standalone\deployments\csa.war\WEB-INF\classes\csa.properties` file.

   - **Linux:** edit the `$CSA_HOME/jboss-as/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 CSA.

   To restart CSA on Windows, complete the following steps:

   a. If you have configured CSA to be FIPS 140-2 compliant, create a 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\standalone\deployments\csa.war\WEB-INF\classes\csa.properties` file.

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

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

      This file is automatically deleted when the CSA service is started.

   b. On the server that hosts CSA, navigate to **Start** > **Administrative Tools** > **Services**.

   c. If global search is enabled, do the following:

      i. Right-click on the Elasticsearch 1.6.1 service and select **Restart**.

      ii. Wait for a minute for the Elasticsearch 1.6.1 service to restart, then right-click on

HPE Search Service and select **Restart**.

> **Note:** if global search is disabled, skip this step.

d. Right-click on the CSA service and select **Restart**.

e. Right-click on the Marketplace Portal service and select **Restart**.

f. If you installed an embedded Operations Orchestration instance, right-click on the Operations Orchestration Central service and select **Restart**.

To restart CSAon Linux, complete the following steps:

a. On the server that hosts CSA, type the following:

```
service csa restart
service mpp restart
```

b. If you installed an embedded Operations Orchestration instance, type:

```
<embeddedHPEOOinstallation>/central/bin/central stop
<embeddedHPEOOinstallation>/central/bin/central start
```

For example, type:
```
/usr/local/hpe/csa/OO/central/bin/central stop
/usr/local/hpe/csa/OO/central/bin/central start
```

Launch the Marketplace Portal

Launch the default remote instance of a Marketplace Portal

Launch the default remote instance of the Marketplace Portal by typing one of the following URLs in a supported Web browser:

- `https://<csahostname>:8444/mpp`

- `https://<mpphostname>:8089`

where:

- *<csahostname>* is the fully-qualified domain name of the system on which CSA is installed and the URL in the `CSA_HOME\jboss-as\standalone\deployments\mpp.war\index.html` file (on the system on which CSA is installed) has been updated to `https://<mpphostname>:8089`.

- *<mpphostname>* is the fully-qualified domain name of the system on which the Marketplace Portal instance resides.

Examples:

- `https://csa_system.abc.com:8444/mpp`

- `https://mpp_system.abc.com:8089`

The organization associated with the default Marketplace Portal is defined in the `CSA_HOME\portal\conf\mpp.json` file (on the system on which the Marketplace Portal instance resides). By default, this is the sample organization that is installed with 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 CSA 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 remote instance of a Marketplace Portal

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

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

where:

- *<mpphostname>* is the fully-qualified domain name of the system on which the Marketplace Portal instance resides.

- *<organization_identifier>* is the unique name that CSA 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://mpp_system.xyz.com:8089/org/ORGANIZATION_A`

> **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, Stop, or Restart the Marketplace Portal on the Remote System

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

Windows:

Note: In Windows, this feature is referred to as the Marketplace Portal Service.

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**.

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**.

Linux:

To stop Marketplace Portal, on the remote system, open a command prompt and type `service mpp stop`.

To restart Marketplace Portal, on the remote system, open a command prompt and type `service mpp restart`.

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Feedback on Installation Guide (Cloud Service Automation 4.70)

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We appreciate your feedback!