

HP Continuous Delivery Automation

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Installation and Configuration Guide

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About this Guide

This guide explains how to install and configure the HP Continuous Delivery Automation (HP CDA) software. HP recommends that each chapter be read and all procedures be performed in the order presented in this guide. This guide contains the following chapters:

- Chapter 1: This chapter provides information that is important in order to successfully install and configure HP CDA. It also provides an “at a glance” overview of the HP CDA installation and configuration procedure.
- Chapter 2: This chapter contains important information pertaining to the providers that can be integrated with HP CDA.
- Chapter 3: This chapter contains the procedures that must be followed in the order presented to install and configure HP CDA.
- Chapter 4: This chapter explains how to uninstall HP CDA.

This guide also contains these additional sections:

- Appendix A: This appendix explains how to configure HP CDA to run as a service.
- Appendix B: This appendix explains how to configure LWSSO on an HP CDA Linux server after initial installation and configuration has taken place where the HP CDA server does not have a desktop environment.
- Appendix C: This appendix explains how to configure HP CDA when HP CDA and HP CSA are installed on the same physical server.
- Appendix D: This appendix provides some best practices for using Opscode Chef Server as a deployer with HP CDA.
- Appendix E: This appendix lists other HP publications that are available for the HP CDA product.

1 Installation and Configuration Overview

This chapter contains information that is necessary to note before beginning the HP CDA installation and configuration process. Make sure that all system requirements are satisfied before beginning installation and configuration.

This chapter contains the following sections:

- HP CDA System Requirements
- HP CDA Database
- User Authentication and Management
- Service Providers
- HP CDA Installation and Configuration at a Glance

HP CDA System Requirements

This section lists the system requirements for HP CDA.

HP CDA System Requirements - Production Environments

- 1 Dual Core or Quad Core 64-bit processor
- 6 GB RAM
- 3 GB or more free hard disk space
- Network bandwidth of 1 Gb/second or higher

HP CDA System Requirements – Development or Evaluation Environments

- 1 Dual Core or Quad Core 64-bit processor
- 2 GB RAM
- 3 GB free hard disk space
- Network bandwidth of 100Mb/second or higher

Platform Software Requirements

In addition to the system requirements, the Java SE Development Kit (JDK) must be installed on the HP CDA platform *before starting the installation process*. Refer to the HP CDA *Support Matrix* for information about supported versions of the JDK.

Example Configuration

For a production environment with 500 concurrent users, the following minimum example configuration is recommended on a physical hardware platform running HP CDA:

- HP ProLiant BL280c G6 E5506 2G (1P)
- Intel® Xeon® E5506 (4 core, 2.13 GHz, 4 MB L3, 80W)

- 6GB RAM – assuming 64-bit OS and JDK
- HP 60GB 1.5G SATA 5.4K SFF HDD - 379306-B21
- 1GbE NC362i 2 Ports

HP CDA Database

HP CDA requires a database to be used as a datastore for information such as artifacts that are stored in the definitive software library (DSL). The following databases are supported for use with HP CDA. The installation and configuration procedures in this document provide information for installing and configuring these databases:

- Oracle Database
- Microsoft SQL Server
- PostgreSQL

Note: Refer to the HP CDA *Support Matrix* for information about supported versions of the databases.

Note: If HP CDA is to be installed on a Windows server, you can choose to use an embedded version of PostgreSQL in lieu of the external databases listed above. If the embedded PostgreSQL option is desired, it is installed automatically when the HP CDA installer is run.

HP Cloud Service Automation

HP CDA does not provide an end-user, self-service portal to make the various infrastructure and application services it creates available for consumption within the customer’s organization. HP Cloud Service Automation (HP CSA), a separate product from HP, can be integrated with HP CDA to provide the self-service portal. Refer to the HP CDA *Support Matrix* for information about supported versions of HP CSA.

User Authentication and Management

By default, HP CDA utilizes the database user store for storage of user information and user authentication. HP recommends that HP CDA be set up to use external authentication and authorization. HP CDA can also optionally use Single Sign-On (SSO) technology for convenient single point user authentication to all associated providers. The following optional external user authentication and management technologies are supported for use with HP CDA:

- LDAP
- HP Lightweight SSO

Service Providers

HP CDA integrates with several service providers that provide various services, such as infrastructure provisioning, application deployment, and platform monitoring services. The following lists the various service providers that are supported for integration and use with HP CDA.

Note: Chapter 2, “HP CDA Service Providers” provides important installation and configuration information for each service provider as they relate to HP CDA.

Artifact Providers

- Concurrent Versions System (CVS)
- Jenkins
- Subversion (SVN)

Provisioning Providers

- Cloud Connector
- HP CloudSystem Matrix
- Existing Infrastructure

Deployment Providers

- Opscode Chef
- HP Database and Middleware Automation (HP DMA)
- HP Operations Orchestration (HP OO)
- Secure Shell (SSH)
- HP Server Automation (HP SA)

Monitoring Providers

Note: Monitoring providers are integrated with HP CDA when monitoring is set up.

- HP Diagnostics
- Nagios (Nagios Enterprises)
- HP Operations Manager
- HP SiteScope

Infrastructure Services

Note: The following services are available through Provisioning Providers.

- HP Cloud Services
- Amazon EC2
- Microsoft Hyper-V
- VMware vCenter
- Physical Hardware

HP CDA Installation and Configuration at a Glance

This section provides an overview of the general procedure that is required to set up the HP CDA environment, install the HP CDA application, integrate HP CDA with HP CSA, and integrate HP CDA with the necessary service providers. When all of the steps in this section have been completed, HP CDA will be ready for use. For detailed installation and configuration information, see Chapter 3, [“Installing and Configuring HP CDA.”](#)

1. Make sure that the HP CDA environment is properly planned.

A HP CDA environment consists of the HP CDA server itself, service providers that integrate with HP CDA, and other support components, such as DNS servers. Proper environment planning is essential to ensure a successful HP CDA installation. Use the following information when planning the HP CDA environment:

- The service providers that comprise the HP CDA environment can be existing installations or new installations. If you plan to incorporate existing service provider installations into the environment, you must check the versions against the *HP CDA Solution and Software Support Matrix* to make sure that those versions are supported.
- At least one service provider must exist in the HP CDA environment for infrastructure provisioning and for platform software and application deployment. The section entitled “Service Providers” lists the provisioning and deployment providers that are available, and Chapter 2 “[HP CDA Service Providers](#)” provides important information regarding each of the service providers.
- In order for HP CDA to provide an end-user, self-service portal, it must be integrated with HP Cloud Service Automation (HP CSA). HP CSA can be an existing installation or a new installation, but you must check the HP CSA version against the *HP CDA Solution and Software Support Matrix* to make sure that its version is supported.
- Monitoring is optional in the environment. The section entitled “[Monitoring Providers](#)” lists the monitoring providers that are available, and Chapter 2 “[HP CDA Service Providers](#)” provides important information regarding each of the monitoring providers.
- The infrastructure on which the various components of the HP CDA environment are deployed can be physical, virtual, cloud-based, or a combination. Regardless of the nature of the HP CDA environment components, they should be able to communicate with each other with the least amount of latency as is possible for best performance.

2. Install the servers that will host the HP CDA database, DNS server, and HP CDA.

At a minimum, the machine or machines on which the HP CDA database, HP CDA application, DNS server, and NTP client (if necessary) need to be installed and set up at this point. If you will be using existing products, such as an existing database instance, you need to check the version of those products against the *HP CDA Support Matrix*.

Note: HP CDA includes an embedded version of the PostgreSQL database that can be installed and used in lieu of an external database. If you plan to use the embedded PostgreSQL database, then no additional database machine needs to be installed and prepared.

3. Install the servers that will host HP CSA and the HP CDA service providers.

While not absolutely necessary at this point, you can finish installing and setting up the infrastructure for the remainder of the HP CDA environment at this time. If you do not complete HP CDA environment installation and set-up now, you must complete it later and install the HP CSA and service provider software before they are integrated with HP CDA. Those steps take place in steps 12 and 13 of this procedure. You should also refer to Chapter 2 “[HP CDA Service Providers](#)” for important information about the service providers.

4. Begin configuration of the HP CDA environment.

At this point, the minimum requirements for the HP CDA environment have been satisfied. In this step, you will begin to configure the HP CDA environment. Refer to the following sections in this document for the information necessary to complete this step:

- [Configure DNS](#)

- [Configure NTP](#)
- [Install the JDK](#)

5. Prepare the HP CDA database.

The HP CDA installer has the capability to set up the database when it runs. In certain situations where, for example, different groups within an organization manage different types of applications, or a high level of security is required within the organization, a HP CDA database might need to be prepared outside of the HP CDA installer.

If the HP CDA database needs to be prepared outside of the HP CDA installer, then refer to the following sections in this document for the information necessary to complete this step:

- [Install the Database Drivers](#)
- Enable distributed transactions (Microsoft SQL Database Only)
- [Prepare the HP CDA database](#)

6. Configure advanced Lightweight Single Sign-on, if necessary.

HP Lightweight SSO (LWSSO), HP's implementation of single sign-on technology, can optionally be used for access control to component products in the HP CDA environment.

Basic LWSSO configuration is done when the HP CDA installer is run and does not need to be done now. For advanced LWSSO configuration, which allows more LWSSO parameters to be configured, refer to the following section in this document:

- [Configure LWSSO \(advanced configuration\)](#)

7. Place the license key file on the HP CDA machine.

Refer to the following section in this document for the information necessary to complete this step:

- [Place the license key file on the HP CDA machine](#)

8. Run the HP CDA installer to install the HP CDA application.

Installation of the HP CDA application on its designated platform consists of copying the HP CDA installation wizard, known as the HP CDA installer, to the platform and running it. The installer then guides you through the installation process. Refer to the following section for details and procedures necessary to successfully complete the installation of the HP CDA application:

- [Install HP CDA](#)

9. Secure the HP CDA \bin directory against unauthorized access.

Securing the \bin directory is crucial to protecting against the unauthorized access of certain HP CDA system files. Refer to the following section in this document for the information necessary to complete this step:

- Secure the \bin directory

10. Grant the JBoss JTA recovery module access to database tables.

The JBoss JTA recovery module needs to be granted access to some system database tables in order to search for pending transactions. This should be done now that the database tables have been created by the HP CDA installer.

Refer to the following section in this document for the information necessary to complete this step:

- [Grant JBoss JTA recovery module access to database tables](#)

11. Start the HP CDA application and log in to the HP CDA user interface.

This is the final step in the basic HP CDA application installation and configuration process. It verifies that HP CDA has been successfully installed and configured. Refer to the following sections in this document for the information and procedures necessary to complete this step:

- [Start the HP CDA application](#)
- [Log in to the HP CDA User Interface](#)

12. Integrate HP CDA with HP CSA

HP CDA does not provide an end-user, self-service portal to make the various infrastructure and application services it creates available for consumption within the customer's organization. HP Cloud Service Automation (HP CSA), a separate product from HP, can be integrated with HP CDA to provide the self-service portal. Refer to the following section in this document for the information necessary to Integrate HP CDA with HP CSA:

- Integrate HP CDA with HP CSA

13. Integrate the HP CDA service providers.

This step integrates the HP CDA service providers so that they can communicate and function with HP CDA. At the completion of this step, the entire HP CDA environment will be ready for use.

Refer to Chapter 2 "[HP CDA Service Providers](#)" for important information about each service provider, and refer to the following section in this document for the integration procedures:

- Integrate the HP CDA service providers

2 HP CDA Service Providers

HP CDA integrates with several service providers that provide various services, such as infrastructure provisioning, application deployment, and platform monitoring services. Where these service providers are installed depends on the design of your HP CDA environment. Refer to the *HP CDA Support Matrix* for detailed information about supported versions of the service providers, and consult the service provider documentation for system requirements and other important configuration information related to each service provider. This chapter provides important installation and configuration information for each service provider as they relate to HP CDA. It contains the following sections:

- Opscode Chef
- Cloud Connector
- HP CloudSystem Matrix
- Concurrent Versions System (CVS)
- HP Database and Middleware Automation (HP DMA)
- Jenkins
- HP Operations Orchestration (HP OO)
- Secure Shell (SSH)
- HP Server Automation (HP SA)
- Subversion (SVN)

Note: HP CDA also includes a service provider called the Existing Infrastructure provider that allows for the creation of infrastructure templates from compute resources that have been provisioned outside of HP CDA. As the Existing Infrastructure provider is a feature that is included with the HP CDA product, it is automatically integrated via a plugin configuration when HP CDA is installed and requires no additional configuration.

Opscode Chef

Opscode Chef can be used to provide deployment services to HP CDA at the platform and application levels. See the *HP CDA Support Matrix* for detailed information about supported versions of Opscode Chef.

Note: See also Appendix D “Opscode Chef Best Practices” for additional important information regarding using Chef Server with HP CDA.

Note: A new installation of Chef can be integrated with HP CDA, or an existing Chef installation can be integrated. If a new installation of Chef is to be used, it does not need to be installed at this point in this procedure, but it must be installed and configured before the Chef integration steps are performed.

If a new installation of Chef is to be used with HP CDA, install it according to manufacturer recommendations. Regardless of whether a new installation of Chef is used or an existing installation is used, note the following parameters, since you will need them later when integrating Chef with HP CDA:

- **FQDN of Chef server**
- **Chef administrator username**
- **Chef administrator password**

- **Chef server SSH port**
- **Cookbooks directory on Chef server**
- **Chef server key files directory**
- **Chef client SSH port**

The following information is also essential to note in order to successfully integrate Chef into the HP CDA environment:

- If Chef will be the deployer for public cloud-based resources, then the Chef server must be set up so that it is also located in the public cloud. If HP CDA is to deploy to “private cloud-based” (internal) resources as well as public cloud-based resources, then a separate Chef server must be set up for each. The Chef server that is located in the public cloud cannot deploy to the private cloud, and vice-versa.
- If LDAP or HP Lightweight SSO (HP LWSSO) is to be used within the HP CDA environment, Chef must also be configured accordingly to function with those products and technologies.
- Chef must be configured for the types of infrastructure machines (for example, Windows or Linux server groups) on which it will deploy applications.

Cloud Connector

Cloud Connector can be used to provide infrastructure provisioning services. See the *HP CDA Support Matrix* for detailed information about supported versions of Cloud Connector.

Note: You can integrate a new installation of Cloud Connector with HP CDA, or you can integrate an existing Cloud Connector installation. If you use a new installation of Cloud Connector, you do not need to install it at this point in this procedure, but you must install and configure it before you perform the Cloud Connector integration steps.

If a new installation of Cloud Connector is to be used with HP CDA, install it according to HP recommendations. Regardless of whether a new installation of Cloud Connector is used or an existing installation is used, note the following parameters, since you will need them later when integrating Cloud Connector with HP CDA:

- **Base URI for the service discovery service**
- **Name of the project to be used for the HP CDA integration**
- **Name of a user with the project_admin role in the project to be used for the HP CDA integration**
- **Password of the project_admin role user**
- **Name of a user with the project_user role in the project to be used for the HP CDA integration**
- **Password for the project_user role user**
- **URI of the Cloud Administration Dashboard**

The following information is also essential to note in order to successfully integrate Cloud Connector into the HP CDA environment:

- If LDAP or HP Lightweight SSO (HP LWSSO) is to be used within the HP CDA environment, Cloud Connector must also be configured accordingly to function with those products and technologies.

HP CloudSystem Matrix

HP CloudSystem Matrix can be used to provide infrastructure design and provisioning services. See the *HP CDA Support Matrix* for detailed information about supported versions of HP CloudSystem Matrix.

Note: You can integrate a new installation of HP CloudSystem Matrix with HP CDA, or you can integrate an existing HP CloudSystem Matrix installation. If you use a new installation of HP CloudSystem Matrix, you do not need to install it at this point in this procedure, but you must install and configure it before you perform the HP CloudSystem Matrix integration steps.

If you will be performing a new installation of HP CloudSystem Matrix for use with HP CDA, install it according to HP recommendations.

Note: If you will be using HP CloudSystem Matrix to provision virtual resources, the document entitled *HP Matrix Operating Environment 7.1 Installation and Configuration Guide for Provisioning with Virtual Resources* that is available at the HP Insight Management portal site (<http://www.hp.com/go/matrixoe/docs>) explains the process.

Regardless of whether a new installation of HP CloudSystem Matrix is used or an existing installation is used, note the following parameters since you will need them later when integrating HP CloudSystem Matrix with HP CDA:

- **User name**
- **User password**
- **HP CloudSystem Matrix server URL**

The following information is also essential to note in order to successfully integrate HP CloudSystem Matrix into the HP CDA environment:

- If LDAP or HP Lightweight SSO (HP LWSSO) is to be used within the HP CDA environment, HP CloudSystem Matrix must also be configured accordingly to function with those products and technologies.
- HP CDA supports the following providers for infrastructure provisioning services through HP CloudSystem Matrix - VMware vCenter, Microsoft Hyper-V, Amazon EC2, and HP Cloud Services. HP CDA also supports provisioning of physical hardware resources. HP CloudSystem Matrix must be configured accordingly to function with any such infrastructure providers that will be used. More information can be found in the HP CloudSystem Matrix documentation. Go to the HP Software Product Manuals website at <http://support.openview.hp.com/selfsolve/manual> to access the documentation. An HP Passport sign-in is required to access that site.

Concurrent Versions System (CVS)

CVS is a version control system that can be used as an artifact provider to HP CDA. See the *HP CDA Support Matrix* for detailed information about supported versions of CVS.

Note: A new installation of a CVS server can be integrated with HP CDA, or an existing CVS server installation can be integrated. If a new installation of a CVS server is to be used, it does not need to be installed at this point in this procedure, but it must be installed and configured before the CVS integration steps are performed.

Note: If HP CDA is to be integrated with a CVS server, a CVS command-line client that is based upon CVS version 1.12.13 or higher needs to be installed on the same machine as HP CDA. Refer to "Concurrent Versions System (CVS)" in the section entitled "Integrate the HP CDA service providers" for important configuration information related to the CVS command-line client.

If a new installation of a CVS server is to be used with HP CDA, install it according to manufacturer recommendations. Regardless of whether a new installation of a CVS server is used or an existing installation is used, note the following parameters, since you will need them later when integrating the CVS server with HP CDA:

- **FQDN of CVS host**
- **User that has access the CVS repository**
- **Path on the CVS server to the CVS repository to be used by HP CDA**
- **Full path to the CVS client executable on the HP CDA server machine**

The following information is also essential to note in order to successfully integrate CVS into the HP CDA environment:

- If LDAP or HP Lightweight SSO (HP LWSSO) is to be used within the HP CDA environment, CVS must also be configured accordingly to function with those products and technologies.

HP Database and Middleware Automation (HP DMA)

HP DMA shares a common infrastructure with HP Server Automation. HP DMA can be used to provide application deployment services to HP CDA. In order to use HP DMA with HP CDA, HP SA must be integrated into the HP CDA environment.

Although HP DMA shares a common infrastructure with HP SA, it is integrated into HP CDA as a separate provider.

Note: You will use the same parameters that were noted for HP SA when integrating HP DMA with HP CDA.

Jenkins

Jenkins is server-based continuous integration (CI) software that might be used by application software development to manage the source code integration and software build processes. Jenkins can be integrated with HP CDA so that CDA can access application artifacts from the Jenkins build repository during application deployment. See the *HP CDA Support Matrix* for detailed information about supported versions of Jenkins.

Note: A new installation of Jenkins can be integrated with HP CDA, or an existing Jenkins installation can be integrated. If a new installation of Jenkins is to be used, it does not need to be installed at this point in this procedure, but it must be installed and configured before the Jenkins server integration steps are performed.

If a new installation of Jenkins is to be used with HP CDA, install it according to manufacturer recommendations. Regardless of whether a new installation of Jenkins is used or an existing installation is used, note the following parameters, since you will need them later when integrating Jenkins with HP CDA:

- **Jenkins server URL**
- **Jenkins server Login username (if security is enabled on Jenkins server)**
- **Jenkins server Login password (if security is enabled on Jenkins server)**

The following information is also essential to note in order to successfully integrate Jenkins into the HP CDA environment:

- If LDAP or HP Lightweight SSO (HP LWSSO) is to be used within the HP CDA environment, Jenkins must also be configured accordingly to function with those products and technologies.

HP Operations Orchestration (HP OO)

HP OO can be used to provide application deployment services to HP CDA. See the *HP CDA Support Matrix* for detailed information about supported versions of HP OO.

Note: A new installation of HP OO can be integrated with HP CDA, or an existing HP OO installation can be integrated. If a new installation of HP OO is to be used, it does not need to be installed at this point in this procedure, but it must be installed and configured before the HP OO integration steps are performed.

If a new installation of HP OO is to be used with HP CDA, install it according to HP recommendations. Regardless of whether a new installation of HP OO is used or an existing installation is used, note the following parameters, since you will need them later when integrating HP OO with HP CDA:

- **FQDN of HP OO host**
- **HP OO SSH port**
- **Protocol used for web communications (HTTP/HTTPS)**
- **Auto-trust public certificates (Yes/No)**
- **User used for authenticating with the HP OO server**
- **The password for the user**

The following information is also essential to note in order to successfully integrate HP OO into the HP CDA environment:

- If LDAP or HP Lightweight SSO (HP LWSSO) is to be used within the HP CDA environment, HP OO must also be configured accordingly to function with those products and technologies.

Secure Shell (SSH)

The SSH deployer can be used to provide deployment services to HP CDA. The SSH deployer is incorporated into HP CDA. If you plan to use the SSH deployer with HP CDA, note the following parameters, since you will need them later when creating an SSH deployer plugin configuration:

- **The SSH port**
- **Name of the key to be used for authentication**

Note: Refer to the HP CDA administration online help for information on importing and storing key files on the HP CDA server.

HP Server Automation (HP SA)

HP SA can be used to provide deployment services to HP CDA at the platform and application levels. See the *HP CDA Support Matrix* for detailed information about supported versions of HP SA.

Note: A new installation of HP SA can be integrated with HP CDA, or an existing HP SA installation can be integrated. If a new installation of HP SA is to be used, it does not need to be installed at this point in this procedure, but it must be installed and configured before the HP SA integration steps are performed.

If a new installation of HP SA is to be used with HP CDA, install it according to HP recommendations. Regardless of whether a new installation of HP SA is used or an existing installation is used, note the following parameters, since you will need them later when integrating HP SA with HP CDA:

- **FQDN of HP SA server**

- **HP SA administrator username**
- **HP SA administrator password**

The following information is also essential to note in order to successfully integrate HP SA into the HP CDA environment:

- If LDAP or HP Lightweight SSO (HP LWSSO) is to be used within the HP CDA environment, HP SA must also be configured accordingly to function with those products and technologies.

Subversion (SVN)

SVN is an open source software versioning and revision control system that can be used as an artifact provider to HP CDA. See the *HP CDA Support Matrix* for detailed information about supported versions of SVN.

Note: A new installation of an SVN server can be integrated with HP CDA, or an existing SVN server installation can be integrated. If a new installation of an SVN server is to be used, it does not need to be installed at this point in this procedure, but it must be installed and configured before the SVN integration steps are performed.

Note: If HP CDA is to be integrated with a SVN server, a SVN client must be installed on the same machine as HP CDA.

If a new installation of an SVN server is to be used with HP CDA, install it according to manufacturer recommendations. Regardless of whether a new installation of SVN is used or an existing installation is used, note the following parameters, since you will need them later when integrating the SVN server with HP CDA:

- **SVN repository URL**
- **User for repository read access authentication (if configured on the SVN server)**
- **The password for the user**
- **Full path to the SVN client executable on the HP CDA server machine**

The following information is also essential to note in order to successfully integrate SVN into the HP CDA environment:

- If LDAP or HP Lightweight SSO (HP LWSSO) is to be used within the HP CDA environment, SVN must also be configured accordingly to function with those products and technologies.

3 Installing and Configuring HP CDA

This chapter contains the information and procedures that are needed to install and configure HP CDA. To successfully install and configure HP CDA, read and perform the procedures in the following sections in the order presented, unless otherwise noted.

Note: Do not begin installation and configuration until you have read the information presented in Chapter 1 “Installation and Configuration Overview”.

This chapter contains the following sections:

- Configure DNS
- Configure NTP
- Install the JDK
- Install the Database Drivers
- Enable distributed transactions (Microsoft SQL Database Only)
- Prepare the HP CDA database
- Configure LWSSO (advanced configuration)
- Place the license key file on the HP CDA machine
- Install HP CDA
- Secure the \bin directory
- Grant JBoss JTA recovery module access to database tables
- Start the HP CDA application
- Log in to the HP CDA User Interface
- Integrate HP CDA with HP CSA
- Integrate the HP CDA service providers

Configure DNS

Each of the HP CDA solution products is required to communicate using DNS name and address resolution. HP recommends using statically assigned IP addresses or static DHCP leases for the HP CDA solution products.

Configure NTP

All HP CDA core machines should be configured to synchronize with a Network Time Protocol (NTP) source that is continuously available, or otherwise obtain time derived from an accurate time source. In addition, the time zone configuration and daylight savings rules should be configured consistently on all platforms.

All Microsoft Windows domain machines automatically sync with an Active Directory server and therefore do not need to be explicitly configured for NTP. For Linux machines, NTP needs to be configured. For general technical information on NTP, see the following web site:

<http://www.ntp.org/>

Virtual Machine templates should also include a reference to an NTP source in their configuration.

Install the JDK

HP CDA is a Java Enterprise Edition (Java EE) application that must be deployed to a J2EE application server. See the *HP CDA Support Matrix* for detailed information about supported versions of the JDK.

The application server requires that the Java SE Development Kit (JDK) be installed on the platform on which HP CDA will be deployed. The following instructions explain how to install the JDK:

1. Download a supported version of the JDK from <http://www.oracle.com/technetwork/java/javase/downloads/index.html>.
2. Install the JDK.
3. Create a new environment variable called JAVA_HOME with a value corresponding to the full path where the JDK installed. For example:
 - *Windows:* \Program Files\Java\jdk1.7.0_09
 - *Linux:* /usr/java/jdk1.7.0_09
4. Edit the path variable by appending the following:
 - *Windows:* ;%JAVA_HOME%\jre\bin
 - *Linux:* :\$JAVA_HOME/jre/bin
5. At the command prompt, enter the following command and make sure that the command output lists the JDK directory:
 - *Windows:* echo %JAVA_HOME%
 - *Linux:* echo \$JAVA_HOME
6. Enter the following command at the command prompt, and make sure that the path includes the jre\bin (or jre/bin) directory:
 - *Windows:* path
 - *Linux:* echo \$path
7. Change directories to the directory in which the JDK is installed and execute the `java -version` command to verify that the installed version of Java is the correct version.

Install the Database Drivers

In order for HP CDA to interact with its associated database, a Java Database Connectivity (JDBC) driver must be available on the HP CDA platform. This section provides JDBC driver information for the Oracle, Microsoft SQL, and PostgreSQL databases.

[ojdbc and orai18n drivers \(Oracle Database Only\)](#)

The `ojdbc` driver must be downloaded to the HP CDA platform in order for the HP CDA application to interact with an associated Oracle database, and the `orai18n` driver also needs to be downloaded for international language support. See the *HP CDA Support Matrix* for detailed information about supported versions of the database drivers.

Download the supported versions of the database driver .jar files from <http://www.oracle.com/technetwork/database/features/jdbc/index-091264.html> and save them to a location on the platform on which HP CDA will be installed. The actual location (directory) where the ojdbc .jar file is saved is not important. Do not execute the ojdbc.jar file. Note the full path where the ojdbc driver .jar file has been saved, as well as the driver file name; you will need them during HP CDA installation.

- **OJDBC driver .jar file full path**
- **OJDBC driver .jar file name**

sqljdbc driver (Microsoft SQL Database Only)

A sqljdbc driver must be installed on the HP CDA platform in order for the HP CDA application to interact with an associated Microsoft SQL database. See the *HP CDA Support Matrix* for detailed information about the supported version of the sqljdbc driver.

The following instructions explain how to install the SQL Server JDBC driver.

1. Download the Microsoft SQL Server JDBC Driver 3.0 package from <http://www.microsoft.com/download/en/details.aspx?id=21599> and save it to a temporary directory on the platform on which the Microsoft SQL database will be created.
2. Extract the SQL Server JDBC Driver 3.0 package.

Note: HP recommends that the driver be extracted to the following directory:

- *Windows:* %ProgramFiles%\Microsoft SQL Server JDBC Driver 3.0
 - *Linux:* \$ProgramFiles/Microsoft SQL Server JDBC Driver 3.0
3. After extraction, copy the sqljdbc4.jar file that is included in the package to the HP CDA platform, and note the path where the file has been saved, since you will need it during HP CDA installation.

- **Sqljdbc4 driver full path**

Jdbc driver (PostgreSQL Database Only)

The jdbc driver must be downloaded to the HP CDA platform in order for the HP CDA application to interact with an associated PostgreSQL database. See the *HP CDA Support Matrix* for detailed information about supported versions of the database drivers.

Download the supported version of the database driver .jar file from <http://jdbc.postgresql.org/download.html> and save it to a location on the platform on which HP CDA will be installed. The actual location (directory) where the jdbc.jar file is saved is not important. Do not execute the jdbc.jar file. Note the full path where the jdbc driver .jar file has been saved, as well as the driver file name; you will need them during HP CDA installation.

- **JDBC driver .jar file full path**
- **JDBC driver .jar file name**

Enable distributed transactions (Microsoft SQL Database Only)

Enable XA transactions on the Microsoft SQL database platform. Instructions for performing that operation can be found in the SQL Server JDBC Driver 3.0 help. Configuration instructions are included in the help topic entitled "Understanding XA Transactions."

Prepare the HP CDA database

This section provides information that is important to know in order to set up the database for HP CDA.

Note: If HP CDA is being installed on a Windows server, you can choose to use an embedded version of PostgreSQL in lieu of an external installation of a database. If the embedded PostgreSQL option is desired, the database information presented in the remainder of this section can be skipped, as the embedded PostgreSQL database is installed when the HP CDA installer is run, rather than needing to be installed and configured beforehand.

Oracle database – important information

If the Oracle Database software needs to be installed for HP CDA, install it now according to the manufacturer's documentation. See the *HP CDA Support Matrix* for detailed information about supported versions of Oracle Database.

Database installation and configuration is typically done in partnership with a database administrator. Consider the following points during and after the Oracle installation:

- HP strongly recommends creating a database that uses the Unicode for Database Character Set (NLS_CHARACTERSET=AL32UTF8).
- HP recommends setting the `cursor_sharing` parameter to `FORCE` to improve performance and economize shared pool usage.

Note: If the exception `'ORA-01425: Escape character must be string of length 1'` occurs, set `cursor_sharing=EXACT` or request a patch from Oracle for defect #9689594.

- Full Text Search in HP CDA is an optional feature of limited use. To use HP CDA full text search, include the **Oracle Text** extension when installing the Oracle server. The **Oracle Text** extension is applied to Oracle by default.
- After the database has been installed, Oracle indexing must be enabled if full text search is to be used. For details, see the sub-section entitled "Enabling Oracle database full text search."

An Oracle database needs to be available to HP CDA before the CDA installer is run. If an Oracle database does not exist for HP CDA, create it now.

Note the following information, since you will need it later during HP CDA installation:

- **Oracle Database server address**
- **Oracle Database server port**
- **Oracle database name**

During HP CDA installation, either of the following two database setup scenarios will be available:

- Create Tablespace – In this scenario, a tablespace and schema are created in the existing database.

If this scenario is chosen, an account with proper credentials will be automatically set up by the HP CDA installer and the tablespace and schema will be automatically created. The installer will need the name and password of the database administrator (DBA). If you plan to use the Create Tablespace scenario, note the following information, since you will need it later during HP CDA installation:

- **Database administrator name**
- **Database administrator password**
- **Name of tablespace to be created**

- **Path to store the tablespace file**
- **Name of user account to be created**
- **Password for the user account to be created**
- Create Schema - In this scenario, a schema is created in an existing tablespace.

If this scenario is chosen, you must create a new tablespace and datafile, and create a power user with the new tablespace as its default tablespace that can create schema items. The power user account must be able to connect to the database and create tables, indexes, and sequences.

Note: To use the HP CDA full text search feature on the database, grant the power user account the privilege to execute "CTXSYS"."CTX_DDL". See ["Enabling Oracle database full text search"](#) for more information.

If you plan to use the Create Schema scenario, note the following information, since you will need it later during HP CDA installation:

- **Existing database name**
- **Power username**
- **Power user password**

Note: The JBoss JTA recovery module of embedded JBoss 7.1 will need to be granted access to some system database tables in order to search for pending transactions. To grant those privileges, run the following commands from the Oracle sqlplus console:

```
GRANT SELECT ON sys.dba_pending_transactions TO <db_user>;
GRANT SELECT ON sys.pending_trans$ TO <db_user>;
GRANT SELECT ON sys.dba_2pc_pending TO <db_user>;
GRANT EXECUTE ON sys.dbms_system TO <db_user>;
```

Enabling Oracle database full text search (optional)

To enable full text search, you must create indexes and schedule their update. Connect to the database using the same credentials used during installation, and then using the Oracle sqlplus console, execute the following commands. The commands also show how to synchronize indexes every midnight.

Note: The database user does not have permission to create FTS indexes by default and must be given that permission.

```
sqlplus system/password@connect_identifier
-- add permission to create indexes
GRANT EXECUTE ON "CTXSYS"."CTX_DDL" TO user;
-- add "create job" permission to <user>
GRANT CREATE JOB TO user;
exit;

sqlplus user/password@connect_identifier
CREATE INDEX idx_ry_resource_meta ON ry_resource(m_extensions)
INDEXTYPE IS CTXSYS.CONTEXT PARAMETERS
('FILTER CTXSYS.NULL_FILTER SECTION
GROUP CTXSYS.NULL_SECTION_GROUP
```

```

SYNC (EVERY "TRUNC(SYSDATE)+1") TRANSACTIONAL');

CREATE INDEX idx_ry_resource_data ON ry_resource(data)
INDEXTYPE IS CTXSYS.CONTEXT PARAMETERS
('FILTER CTXSYS.NULL_FILTER SECTION
GROUP CTXSYS.NULL_SECTION_GROUP
SYNC (EVERY "TRUNC(SYSDATE)+1") TRANSACTIONAL');

```

To enable full text search of pdf, doc, and other document types, use `AUTO_FILTER` in the definition of the `idx_ry_resource_data` index:

```

CREATE INDEX idx_ry_resource_data ON ry_resource(data)
INDEXTYPE IS CTXSYS.CONTEXT PARAMETERS
('FILTER CTXSYS.AUTO_FILTER');

```

Warning: Do not implement index synchronization `ON COMMIT`. It can cause Oracle thread termination, returning this error message: `ORA-error stack (07445[ACCESS_VIOLATION])` logged in `filename.log`. (Tested on Oracle 10gR2 - 10.2.0.1). Use regular synchronization together with the `TRANSACTIONAL` parameter.

Note: Not all document types can be indexed correctly. For details, see http://download.oracle.com/docs/cd/B19306_01/text.102/b14218/afilsupt.htm#i634493.

Synchronizing Indexes

The following example shows how to execute index synchronization manually:

```

sqlplus user/password@connect_identifier
CALL CTX_DDL.SYNC_INDEX('idx_ry_resource_meta', '2M');
CALL CTX_DDL.SYNC_INDEX('idx_ry_resource_data', '2M');

```

Creating an Indexing Stoplist

You can optionally manage a stoplist by removing words that could frequently appear in documents. By default, the Oracle index stoplist includes words such as "to". Full-text searches including these words return a false empty result. Alternatively, the database administrator should provide HP CDA users with the stoplist and a warning not to use these terms in full-text searches. An example of commands to set up a stoplist on Oracle is shown in the following example:

```

call CTX_DDL.CREATE_STOPLIST('MyStoplist');
call CTX_DDL.ADD_STOPWORD('MyStoplist', 'a');
Add a word that should not be indexed. Repeat the command for each word to be
excluded.
-- Include the DROP INDEX commands only if an index already exists.
DROP INDEX idx_ry_resource_meta;
DROP INDEX idx_ry_resource_data;
CREATE INDEX idx_ry_resource_meta on ry_resource(m_extensions)
indextype is ctxsys.context parameters
('filter ctxsys.null_filter section group CTXSYS.NULL_SECTION_GROUP
STOPLIST MyStoplist
SYNC (EVERY "TRUNC(SYSDATE)+1") TRANSACTIONAL') ;

```



```
CREATE INDEX idx_ry_resource_data on ry_resource(data) indextype is
ctxsys.context parameters
('filter ctxsys.null_filter section group CTXSYS.NULL_SECTION_GROUP
STOPLIST MyStoplist
SYNC (EVERY "TRUNC(SYSDATE)+1") TRANSACTIONAL');
```

Microsoft SQL database – important information

If the MSSQL Database software needs to be installed for HP CDA, install it now according to the manufacturer’s documentation. See the *HP CDA Support Matrix* for detailed information about supported versions of MSSQL Database software.

Database installation and configuration is typically done in partnership with a database administrator. Consider the following points during and after the MSSQL installation:

- If you intend to use user accounts in HP CDA that will contain non-Latin characters, you must set the default collation on the database to cover all such non-Latin characters.
- HP CDA requires case-sensitive collation. Use a server with case-sensitive collation or manage database manually using the “Create Schema” option.
- To prevent some possible deadlocks, HP recommends executing the following statement:
ALTER DATABASE [database_name] SET READ_COMMITTED_SNAPSHOT ON;
- Full Text Search in HP CDA is an optional feature of limited use. If you want to use the full-text search feature in HP CDA, make sure that the full-text search engine is installed together with the database engine during the installation of MSSQL Server.
- After installation, if you require HP CDA Full Text Search to be enabled, set up indexes on MSSQL. For details, see the sub-section entitled “[Enabling MSSQL database full text search.](#)”
- After installing MSSQL Server, use the SQL Server Configuration Manager to enable the TCP/IP protocol and set a static incoming connection listening port (for example, 1433).

Note the following information, since you will need it later during HP CDA installation:

- **SQL database server address**
- **SQL database server port**

The HP CDA installer also requires the following:

- A login to hold tables in the HP CDA database. This login must have the database creator role and must be able to access the master database for XA-related stored procedures.
- A user in the master database for the HP CDA database login that has the SqlJDBCXAUser role assigned to it.
- A common user for the HP CDA database login.

Go to the procedure entitled “[Create a common HP CDA user login in the server and a user in the HP CDA database](#)” to create the HP CDA database common user, and then note the following information, since you will need it later during HP CDA installation:

- **HP CDA database common username**
- **HP CDA database common user password**

During HP CDA installation, either of the following two database setup scenarios will be available:

- Create Database – In this scenario, a database and schema are created.

If this scenario is chosen, the HP CDA database login is used by the installer to arrange the database that is created. The database that is created inherits collation from the MSSQL server default collation. HP CDA requires case-sensitive collation, so use a server with case-sensitive collation.

- **Create Schema** - In this scenario, a schema is created in an existing database.

If this scenario is chosen, you must use the HP CDA database login to pre-create a database with case-sensitive collation.

Note: If you wish to create the database on behalf of an existing account rather than the created login, or use an existing account with an existing database, you must grant “create table” privileges to the existing account.

Create the database now and note the database name, since you will need it later during HP CDA installation:

- **HP CDA database name**

Create a common HP CDA user login in the server and a user in the HP CDA database

1. Open Microsoft SQL Server Management Studio.
2. Click the **New Query** button, enter the following query into the pane that appears in the right pane, and then click the **Execute** button to create a common user and login for the HP CDA database.

For example: Considering these parameters; Common HP CDA user=*cda_user*; HP CDA database=*database name you noted earlier*; Password=*p@ssw0rd*; execute the following query:

```
USE [master]
GO
CREATE LOGIN [cda_user] WITH PASSWORD=N'p@ssw0rd',
DEFAULT_DATABASE=[master], CHECK_EXPIRATION=OFF, CHECK_POLICY=OFF
GO
USE [cdadb]
GO
CREATE USER [cda_user] FOR LOGIN [cda_user]
GO
```

3. Execute the following query to grant the common HP CDA user database read, write, and DDL administrator privileges to the HP CDA database tables:

```
USE [cdadb]
GO
EXEC sp_addrolemember N'db_datawriter', N'cda_user'
GO
USE [cdadb]
GO
EXEC sp_addrolemember N'db_datareader', N'cda_user'
GO
USE [cdadb]
GO
```

```
EXEC sp_addrolemember N'db_ddladmin', N'cda_user'
GO
```

- Execute the following query to create the common HP CDA user in the master database and add that user to the SqlJDBCXAUser role:

```
USE [master]
GO
CREATE USER [cda_user] FOR LOGIN [cda_user]
GO
USE [master]
GO
EXEC sp_addrolemember N'SqlJDBCXAUser', N'cda_user'
GO
```

- Execute the following query to grant CONTROL permissions for the database (**HP CDA database name**) to the database common user (**HP CDA database common username**):

```
USE [<db_name>];
GRANT CONTROL TO [<db_username>];
GO
```

Enabling MSSQL database full text search (optional)

To enable full text search you must enable the service and create a full text catalog and indexes. Use MSSQL Server Management Studio or the sqlcmd command line tool. Connect to the database using the same parameters used during HP CDA installation.

- Make sure that the SQL Server Fulltext Search service is running and that the database is fulltext enabled.

By default, new databases are full-text enabled unless you create them with MSSQL Server Management Studio. In this case, select the database in the Object Explorer window and select Properties→Files, and then select Use full-text indexing.

- To create a full-text catalog, execute the following command:

```
sqlcmd -U <user> -P <password> -d <database>
CREATE FULLTEXT CATALOG ry_resource_ftsc
go
```

Note: You must have CREATE FULLTEXT CATALOG permission.

It is possible to reuse an existing full-text catalog, but HP recommends creating a new one for independent management purposes. For more details, see <http://msdn2.microsoft.com/en-us/library/ms189520.aspx>.

- Do one of the following:

- To create a full-text index that is synchronized immediately after any data changes, execute the following command:

```
sqlcmd -U <user> -P <password> -d <database>
CREATE FULLTEXT INDEX ON ry_resource(m_extensions TYPE COLUMN
m_extensions_fe LANGUAGE 0x0, data TYPE COLUMN data_fe LANGUAGE 0x0)
```

```
KEY INDEX pk_resource ON ry_resource_ftsc WITH CHANGE_TRACKING AUTO
go
```

- To create a full-text index that is synchronized manually, execute the following command:

```
sqlcmd -U <user> -P <password> -d <database>

CREATE FULLTEXT INDEX ON ry_resource(m_extensions TYPE COLUMN
m_extensions_fe LANGUAGE 0x0, data TYPE COLUMN data_fe LANGUAGE 0x0)

KEY INDEX pk_resource ON ry_resource_ftsc WITH CHANGE_TRACKING OFF, NO
POPULATION

go
```

For more details, see <http://msdn2.microsoft.com/en-us/library/ms187317.aspx>.

To synchronize the index manually, execute the following command:

```
sqlcmd -U <user> -P <password> -d <database>

ALTER FULLTEXT INDEX ON ry_resource START FULL POPULATION

go
```

The statement executes asynchronously, so population may take some time. To verify the population status, execute the command:

```
SELECT FULLTEXTCATALOGPROPERTY('ry_resource_ftsc','PopulateStatus')

go
```

Index population is complete when the population status is 0.

Searching Uploaded Documents with MSSQL

MSSQL supports only a limited set of document types after installation. Typically, it does support Microsoft ".doc" files, but does not support ".docx", ".xlsx" and ".pdf" files. The list of all supported document types can be obtained by the following SQL command:

```
SELECT * FROM sys.fulltext_document_types
```

If the list does not contain a document type that you need to include in the full text search, ask your DBA to obtain and install an iFilter for the missing document type.

- Foxit provides a high performance PDF iFilter for 32-bit and x64 systems. For details, go to <http://www.foxitsoftware.com/pdf/ifilter>.
- Adobe provides a PDF iFilter for 32-bit and x64 systems. For details, go to <http://www.adobe.com/support/downloads/detail.jsp?ftplD=4025&promoid=GYUNB>.
- Microsoft provides iFilters for MS-Office 2007/2010 document types including docx and xlsx. For details, go to <http://support.microsoft.com/default.aspx?scid=kb;en-us;945934>.

PostgreSQL database – important information

Note: The information in this section is applicable when an external installation of the PostgreSQL database is to be used with HP CDA. If the embedded version of PostgreSQL is to be used, the PostgreSQL information presented in this section does not apply and can be skipped.

If the PostgreSQL Database software needs to be installed for HP CDA, install it now according to the manufacturer's documentation. See the *HP CDA Support Matrix* for detailed information about supported versions of PostgreSQL Database software.

Database installation and configuration is typically done in partnership with a database administrator. Consider the following points during and after the PostgreSQL installation:

- If you plan to have the HP CDA installer create a schema in an existing database during HP CDA installation and non-Latin character support is needed, use 8-bit Unicode (UTF8) encoding when creating the database (example, use command `CREATE DATABASE <db_name> OWNER <db_user> ENCODING 'UTF8'`).
- Full Text Search in HP CDA is an optional feature of limited use. After installation, if you require HP CDA Full Text Search to be enabled, you must enable the PostgreSQL full text search function and optionally set up indexes. For details, see the sub-section entitled “[Enabling PostgreSQL database full text search.](#)”

During HP CDA installation, either of the following two database setup scenarios will be available:

- Create Database – In this scenario, a new database is created.

If this scenario is chosen, an account with proper credentials will be set up by the HP CDA installer and the database and schema will be automatically created. The installer will need the name and password of the database administrator (DBA). If you plan to use the Create Database scenario, note the following information, since you will need it later during HP CDA installation:

- **PostgreSQL Database server address**
- **PostgreSQL Database server port**
- **Name of database to be created**
- **Database administrator name**
- **Database administrator password**
- **Name of the default database (“postgres” as named by the system)**
- **Name of new database user account to be created**
- **Password for the user account to be created**

- Create Schema - In this scenario, a schema is created in an existing database.

If this scenario is chosen, you must create a database and a user for that database prior to running the HP CDA installer, as this scenario assumes a database already exists. If non-Latin character support is needed, you also need to use 8-bit Unicode (UTF8) encoding when creating the database.

If you plan to use the Create Schema scenario, note the following information, since you will need it later during HP CDA installation:

- **PostgreSQL Database server address**
- **PostgreSQL Database server port**
- **Existing database name**
- **Existing database user name**
- **Existing database user password**

Enabling PostgreSQL database full text search (optional)

To enable full text search on PostgreSQL, create a new function “convert_from_immutable.” Connect to the database as the administrator in order to have permission to create the function. You can use the PostgreSQL Query Tool or other SQL console to execute the following:

```
CREATE OR REPLACE FUNCTION convert_from_immutable(bytea, name)
```

```

RETURNS text AS 'pg_convert_from'
LANGUAGE internal IMMUTABLE STRICT
COST 1;

```

PostgreSQL does not require that indexes be created in order to enable full text search, but indexes are recommended for faster performance. Connect to the database using the same credentials used during installation. Create a generalized inverted index (GIN index) on the `ry_resource.data` and `ry_resource.m_extensions` columns with 'simple' configuration as follows:

```

CREATE INDEX idx_ry_resource_meta ON ry_resource USING
gin(to_tsvector('simple', convert_from_immutable(m_extensions, 'UTF8')));
CREATE INDEX idx_ry_resource_data ON ry_resource USING
gin(to_tsvector('simple', convert_from_immutable(data, 'UTF8')));

```

Configure LWSSO (advanced configuration)

HP Lightweight SSO is HP's implementation of single sign-on (SSO) technology. It optionally can be used for access control to component products in the HP CDA environment. If LWSSO is to be used, basic and advanced LWSSO configuration options are available when HP CDA is installed.

Basic LWSSO configuration requires that the SSO domain and pass-phrase be entered during HP CDA installation. A default LWSSO keystore file is provided for use with basic configuration.

Advanced LWSSO configuration allows more LWSSO parameters, such as `cipherType`, `engineName`, `paddingModeName`, `keySize` and `encodingMode`, to be configured, but requires in-depth knowledge of these parameters and how to modify them in an XML configuration file. Advanced configuration also allows a keystore file other than the default file to be used.

A required XML configuration file template called `LWSSO-template.xml` is available in the `<cda_home_directory>/conf/` directory. If advanced LWSSO configuration is required, either the LWSSO administrator can copy, rename, and modify the template file, or use an existing LWSSO configuration file that is imported to the HP CDA machine. The LWSSO administrator can also import a keystore file to the HP CDA machine, or use the default file.

Note: No instructions on how to configure the template file are provided, as it is assumed that the administrator performing the advanced configuration already has the knowledge to do so.

If advanced LWSSO is to be used, it should be performed now. The following information should also be noted, as it will be needed later during HP CDA installation:

- **LWSSO configuration file directory and file name**
- **LWSSO keystore file directory and file name**

Place the license key file on the HP CDA machine

If you have received an HP CDA license key file from your HP sales representative, store it in a directory on the HP CDA machine, and then note the directory, since you will need it later during HP CDA installation:

- **HP CDA license key file directory**

Note: If the version of HP CDA that you are installing has been purchased by your organization for business use, a license key was supplied to the organization by your HP sales representative. If the version of HP CDA

that you are installing is for evaluation purposes, a license key file will not be required and you can skip this step.

Install HP CDA

To install HP CDA, complete the sub-procedures in this section in the order presented.

Note: If you will be specifying the embedded version of the PostgreSQL database for use with HP CDA, you must log in to the machine on which HP CDA is being installed as a user with administrative credentials before you run the HP CDA installer wizard.

Start the HP CDA installer wizard

1. Do one of the following to start the HP CDA installer:
 - *Windows:* Execute the HP CDA installer .jar file located on the installation CD or in your distribution directory by double-clicking on it.
 - *Windows or Linux:* Change directories to the directory in which the HP CDA .jar file is located, and then execute the following command:

```
java -jar <cda_jar_filename>.jar
```
2. Click **OK** in the warning box that reads "This application needs to be launched with JDK," if it appears.

Note: Do not run more than one instance of the HP CDA installer. Parallel execution of the HP CDA installer is not supported.

Begin entering installation parameters

1. Click **Next** on the welcome screen.
2. After reading and accepting the terms of the end user license agreement, select the **I accept the terms of the license agreement** radio button, and then click **Next**.
3. In the screen that appears, click **Next** to accept the default installation folder, or select a different installation folder and then click **Next**.
4. Use the **Add...** or **Remove...** buttons to specify any updates that need to be applied to the installation and then click **Next**.
5. Select the **Enable** radio button, enter an encryption passphrase into the **Master Passphrase** and **Confirm Passphrase** fields, and then click **Next**.

Warning: Note the master passphrase since passwords stored in the HP CDA file system and database will be unreadable without it, and some supplied HP CDA command line tools require it. Selecting the **Disable** radio button is not recommended.

Enter database parameters

1. Select one of these radio buttons for the database that will be used as the datastore for HP CDA and then click **Next**:
 - **Oracle 11g**
 - **MSSQL 2008**
 - **PostgreSQL 9.1**

- **PostgreSQL 9.1 Embedded**

Note: If you chose **PostgreSQL 9.1 Embedded** database, go directly to the procedure entitled “All databases – data file folder” to continue.

2. If you chose the Oracle database, select one of the following options, and then click **Next**:
 - **Create tablespace:** Select this radio button to create a new tablespace, user and schema. An existing database and database administrator (DBA) credentials are required.
 - **Create schema:** Select this radio button to create a schema in an existing database that has been created by the database administrator. A power-user account must be present in an existing database with an empty schema (recommended) and have privileges to create tables and indexes.
3. If you chose the Microsoft SQL database, select one of the following options and then click **Next**:
 - **Create database:** Select this radio button to create a new database and schema. An existing user with the database creator role is required.
 - **Create schema:** Select this radio button to create a schema in an existing database that has been created by the database administrator (DBA). An account must exist in an existing database with an empty schema (recommended) and have privileges to create tables and indexes.
4. If you chose the non-embedded postgresQL database, select one of the following options and then click **Next**:
 - **Create database:** Select this radio button to create a new database and schema. An existing user with the database creator role is required.
 - **Create schema:** Select this radio button to create a schema in an existing database that has been created by the database administrator (DBA). An account must exist in an existing database with an empty schema (recommended) and have privileges to create tables and indexes.
5. If you chose the embedded postgresQL database, go to “All databases – data file folder.”

Oracle database – Create Tablespace option

1. Specify the database connection properties as described:
 - If you are specifying database connection properties by components, select the **By Components** radio button and then fill in the information as described:
 - **Database Server Address:** The FQDN (recommended) or IP address where the database is installed. Enter the FQDN or IP address you noted earlier in this procedure. Make sure that the database server can be reached using the addressing scheme you enter in this field.
 - **Database Server Port:** The connection port for the database. Enter the Oracle Database server port you noted earlier in this procedure.

Note: You can click the **Get Default DB Port** button to fill in the field with the default database port number.
 - **Existing Database Name:** The name of the database. Enter the Oracle database name you noted earlier in this procedure.
 - If you are specifying database connection properties using a connection string, select the **Full Connection String** radio button and enter the connection string in the adjacent text box in the following format:

```
jdbc:oracle:thin:@<addr>:<port>/<db_name>
```
2. Enter the database administrator information as described:

- **Database Administrator Name:** The name of the database administrator (DBA). Enter the database administrator name you noted earlier in this procedure.
 - **Database Administrator Password:** The password of the database administrator. Enter the database administrator password you noted earlier in this procedure.
3. Click **Next**.
 4. Enter the new tablespace information as described and then click **Next**:
 - **New Database Tablespace:** The name of the tablespace that will be created when the HP CDA installer runs.
 - **Tablespace Datafile:** The full path and file name of the tablespace datafile that will be associated with the tablespace.
 - **New Database User Name:** The name of the database user that will be created when the HP CDA installer runs.
 - **Database User Password:** The password to be assigned to the database user.
 - **Confirm Password:** The password to be assigned to the database user, entered again.

Oracle Database – Create Schema option

1. Specify the database connection properties:
 - If you are specifying database connection properties by components, select the **By Components** radio button and fill in the information as described:
 - **Database Server Address:** The FQDN (recommended) or IP address where the database is installed. Enter the FQDN or IP address you noted in this procedure. Make sure that the database server can be reached using the addressing scheme you enter in this field.
 - **Database Server Port:** The connection port for the database. Enter the Oracle Database server port you noted earlier in this procedure.

Note: You can click the **Get Default DB Port** button to fill in the field with the default database port number.
 - **Existing Database Name:** The name of the database. Enter the Oracle database name you noted earlier in this procedure.
 - If you are specifying database connection properties using a connection string, select the **Full Connection String** radio button and then enter the connection string in the adjacent text box in the following format:

`jdbc:oracle:thin:@<addr>:<port>/<db_name>`
2. Enter the existing database information as described and then click **Next**:
 - **Existing Database User Name:** The name of the existing database user who has credentials to create the schema. Enter the name of the power user you noted earlier in this procedure.
 - **Database User Password:** The password of the power user you noted earlier in this procedure.

Microsoft SQL database – Create Database option

Enter the database information as described and then click **Next**:

- **Database Server Address:** The FQDN (recommended) or IP address where the database is installed. Enter the FQDN or IP address you noted earlier in this procedure. Make sure that the database server can be reached using the addressing scheme you enter in this field.
- **Database Server Port:** The incoming connection listening port used by the MSSQL server. This is 1433 by default.

Note: You can click the **Get Default DB Port** button to fill in the field with the default database port number.

- **New Database Name:** The name of the database to be created.
- **Existing Database User Name:** The database user to be used by HP CDA for database creation. Enter the HP CDA database username you noted earlier in this procedure.
- **Database User Password:** The password of the HP CDA database user. Enter the HP CDA database user password you noted earlier in this procedure.

Microsoft SQL database – Create Schema option

Enter the database information as described, and then click **Next**:

- **Database Server Address:** The FQDN (recommended) or IP address where the database is installed. Enter the FQDN or IP address you noted earlier in this procedure. Make sure that the database server can be reached using the addressing scheme you enter in this field.
- **Database Server Port:** The incoming connection listening port used by the MSSQL server. This is 1433 by default.
- **Existing Database Name:** The name of the database in which the schema is to be created. Enter the HP CDA database name you noted earlier in this procedure.
- **Existing Database User Name:** The database user to be used by HP CDA for database access and schema creation. Enter the HP CDA database username you noted earlier in this procedure.
- **Database User Password:** The password of the HP CDA database user. Enter the HP CDA database user password you noted earlier in this procedure.

Non-Embedded PostgreSQL – Create Database option

Enter the database information as described and then click **Next**:

- **Database Server Address:** The FQDN (recommended) or IP address of the database server where the database is to be created. Enter the FQDN or IP address you noted earlier in this procedure. Make sure that the database server can be reached using the addressing scheme you enter in this field.
- **Database Server Port:** The incoming connection listening port used by the PostgreSQL server. This is 5432 by default.

Note: You can click the **Get Default DB Port** button to fill in the field with the default database port number.

- **New Database Name:** The name of the database to be created.
- **Database Administrator Name:** The name of the database administrator (DBA). Enter the database administrator name you noted earlier in this procedure.

- **Database Administrator Password:** The password of the database administrator. Enter the database administrator password you noted earlier in this procedure.
- **Database Administrator Database:** The name of the default database that is created during initialization. This database is named `postgres` by the system.
- **New Database User Name:** The name to be given to the user of the database being created.
- **Database User Password:** The password to be given to the new database user.
- **Confirm Password:** The new database user password, entered again.

Non-Embedded PostgreSQL – Create Schema option

Enter the database information as described and then click **Next**:

- **Database Server Address:** The FQDN (recommended) or IP address where the database is installed. Enter the FQDN or IP address you noted earlier in this procedure. Make sure that the database server can be reached using the addressing scheme you enter in this field.
- **Database Server Port:** The incoming connection listening port used by the PostgreSQL server. This is 5432 by default.

Note: You can click the **Get Default DB Port** button to fill in the field with the default database port number.

- **Existing Database Name:** The name of the database in which the schema is to be created. Enter the HP CDA database name you noted earlier in this procedure.
- **Existing Database User Name:** The database user to be used by HP CDA for database creation. Enter the HP CDA database username you noted earlier in this procedure.
- **Database User Password:** The password of the HP CDA database user.

All external databases – JDBC driver path

Enter or select the full path and file name for the JDBC driver that you noted earlier in this procedure into the **JDBC Drivers....** field and then click **Next**.

Note: If more than one JDBC driver might be specified, separate the entries with commas.

Note: If a warning message appears after clicking **Next** stating that the `i18n.jar` file is missing and your installation scenario does not require that file, dismiss the warning by clicking the **OK** button.

All databases – data file folder

Browse to and select a different data file folder or leave the default data file folder as specified, and then click **Next**.

When binary files that are larger than a preset amount of bytes are saved in HP CDA, they are stored to the data file folder.

All databases –repository import

Choose one of the following radio buttons to select the data that will be imported to the HP CDA database and then click **Next**.

- **Initial Import:** Select this radio button if a new database or schema is being created as part of the HP CDA installation process. If chosen, only the initial bootstrap image will be installed.

- **Custom Import:** Select this radio button to import the custom data image in the **Custom Image Path** field. Custom images are created using the export tool.

Enter endpoint properties

1. Enter the endpoint properties as described and then click **Next**.
 - **Hostname:** The FQDN (recommended) or IP address of the server where the HP CDA web-site will be visible to the user. Make sure that the server can be reached using the addressing scheme you enter in this field.
 - **Port Numbers**
 - **HTTP:** If necessary, select the checkbox and enter the port number on which the application server will listen for incoming HTTP connections. For example, JBoss listens for incoming HTTP connections on port 8080 by default.
 - **HTTPS:** If necessary, select the checkbox and enter the port number on which the application server will listen for incoming HTTP secure (HTTPS) connections. For example, JBoss listens for incoming HTTPS connections on port 8443 by default.
 - **Enforce HTTPS:** Select the checkbox, if necessary, to enforce secured URLs.
 - **Verify Certificates:** Select the checkbox, if necessary, to validate HTTPS communications against SSL certificates.
 - **Web Context:** This entry, along with the hostname and port, will constitute the Web browser URL for the HP CDA login screen; for example:
`https://server1.dept.company.com:8443/cda`, where `cda` is the web context. The Web context cannot contain spaces.
2. If you changed the Web Context from the default (`cda`), click **OK** in the warning box that follows to dismiss it.

Enter user authentication parameters

Select the relevant checkboxes for the authentication options that will be used with internal (“Built-in”) HP CDA user authentication and management and then click **Next**.

- **HP Lightweight SSO Integration:** Select this checkbox if single sign-on (SSO) technology will be used for access control to component products in the HP CDA environment. If this checkbox is selected, you will need to configure LWSSO. “[HP Lightweight SSO integration](#)” explains the screens presented and the instructions necessary to configure LWSSO.

Note: LWSSO integration is necessary in certain situations, such as to access HP CDA functionality within HP ALM.
- **Multi-tenant:** Select this checkbox to have HP CDA set up as a multi-tenancy application during installation.

Note: If only this checkbox has been selected, go to “Enter administrator, system email, and SMTP server configuration parameters.”

- **LDAP Integration:** Select this checkbox if HP CDA will use LDAP for user management. If this checkbox is selected, you will need to configure LDAP. “[LDAP integration](#)” explains the screens presented and the instructions necessary to configure LDAP.

CAUTION: If you intend to use LDAP with HP CDA for user management, you *must* configure it as part of the HP CDA initial installation and configuration process. Configuration of LDAP after initial installation and configuration is *not* supported.

HP Lightweight SSO integration

Note: If you do not perform HP LWSSO integration during HP CDA installation and configuration, you can perform it later by running the HP CDA setup utility (setup.bat) in advanced mode. To run setup.bat in advanced mode:

1. Log in to the machine on which HP CDA is installed and change directories to the following directory:
 - *Windows:* `<cda_home_directory>\bin`
 - *Linux:* `<cda_home_directory>/bin`
2. Execute the following command to start the HP CDA setup utility in advanced mode:
 - *Windows:* `setup.bat -n Advanced`
 - *Linux:* `./ setup.sh -n Advanced`

The following procedure explains HP LWSSO integration.

1. Choose one of the following radio buttons to select the type of HP Lightweight SSO configuration to be used and then click **Next**.
 - **Basic:** Select this radio button if basic HP Lightweight SSO configuration information is to be used.
 - **Advanced:** Select this radio button if advanced HP Lightweight SSO configuration information is to be used.
2. If you chose the **Basic** radio button, enter the basic LWSSO configuration information as described, and then click **Next**:
 - **Domain:** The domain that includes the systems participating in SSO. `localhost` or a domain name including an IP address cannot be used.
 - **Pass-phrase:** The pass-phrase being used by all HP products using LWSSO. A pass-phrase can be one or more UTF-8 characters, but HP recommends that standard password best practices be implemented when choosing a pass-phrase. The pass-phrase is case-sensitive.
 - **Confirm Pass-phrase:** The LWSSO pass-phrase, entered again.
3. If you chose the **Advanced** radio button, enter the advanced LWSSO configuration information as described, and then click **Next**:
 - **Lightweight SSO Configuration File:** Browse to and select the lightweight SSO configuration file. You noted the directory and name of this file earlier in this procedure.
 - **Keystore with Lightweight SSO Keys:** Browse to and select the keystore file containing the lightweight SSO keys. You noted the directory and name of this file earlier in this procedure.

LDAP integration

CAUTION: If you intend to use LDAP with HP CDA for user management, you *must* configure it as part of the HP CDA initial installation and configuration process. Configuration of LDAP after initial installation and configuration is *not* supported.

Note: LDAP integration is typically performed by the LDAP administrator. Much of the information entered into the LDAP integration screens can be determined from the LDAP store to be used in the CDA environment.

1. Enter the following LDAP service information and then click **Next**:
 - **Naming Provider URL:** The URL of the LDAP service. The format is `ldap://<ldap.example.com>:<prt>` where `<ldap.example.com>` is the fully qualified LDAP server domain name, and `<prt>` is the LDAP server listening port, typically 389.
 - **Initial Naming Factory:** The fully qualified class name of the factory class that creates the initial context for the LDAP service provider. HP recommends that this field not be modified (leave the default value as-is).
 - **Security Principal:** The username of the account that has privileges to connect to the LDAP server.
 - **Password:** The password of the security principal.
 - **Security Protocol:** The name of the security protocol. The security protocol is `simple` by default. The LDAP administrator should know the security protocol to use based on the environment and platform.
 - **Case Sensitivity:** Select the **Case sensitive user names** checkbox if you want login names to be case sensitive. This checkbox should remain unselected for Active Directory or Sun ONE Directory Server. For other directory service implementations, contact your LDAP administrator.
2. Enter the following LDAP user search rules and then click **Next**:
 - **Search Filter:** The object class specifying the type of information to include in the search. For the LDAP user search rules screen, the information type is user-related. For example, "objectClass=User" might be specified in the case of Active Directory.
 - **Search Base:** The root location in the LDAP directory service where user information to be searched is located. For example, "cn=Users,dc=ldapsrv1,dc=acme,dc=com" in the case of Active Directory.
 - **Search Scope:** Select the **Subtree scope** radio button to search all subordinate entries of the location specified by the **Search Base** parameter, or select the **One level scope** radio button to search only entries that are immediate subordinates of the location specified by the **Search Base** parameter.

Note: If users are all located in the Search Base, HP recommends that you select the **One level scope** radio button.
 - **Results Limit:** The maximum number of objects for which the LDAP server will return data.
3. Use the **Add...** or **Remove...** buttons to specify mappings between application platform user properties (Platform Account Property column) and LDAP attributes (LDAP Property column), and then click **Next**.
4. Enter the following LDAP group search rule information and then click **Next**:

- **Search Filter** The object class specifying the type of information to include in the search. For the LDAP group search rule screen, the information type is group-related. For example, “objectClass=group” might be specified in the case of Active Directory.
 - **Search Base**: The root location in the LDAP directory service where group information to be searched is located. For example, “ou=Groups,dc=ldapsrv1,dc=acme,dc=com” in the case of Active Directory.
 - **Search Scope**: Select the **Subtree scope** radio button to search all subordinate entries of the location specified by the **Search Base** parameter, or select the **One level scope** radio button to search only entries that are immediate subordinates of the location specified by the **Search Base** parameter.
 - **Results Limit**: The maximum number of objects for which the LDAP server will return data.
5. Use the **Add...** or **Remove...** buttons to specify mappings between application platform group properties (Platform Account Property column) and LDAP attributes (LDAP Property column), and then click **Next**.

Enter administrator, system email, and SMTP server configuration parameters

1. Enter the following HP CDA administrator account information.
 - If LDAP integration was not performed:
 - **Administrator Username**: The username that the HP CDA administrator will use to log in to HP CDA.
 - **Administrator Password**: The password that the HP CDA administrator will use to log in to HP CDA.
 - **Confirm Password**: The password that was entered into the **Administrator Password** field.
 - **Administrator Email**: The email address of the HP CDA administrator.
 - If LDAP integration was performed:
 - **Administrator Username**: The username that the HP CDA administrator will use to log in to HP CDA. The administrator username is `admin` by default.
2. Enter into the **System Email** field the email address that HP CDA will use as the sender address for email notifications that it generates, and then click **Next**.
3. Enter the SMTP server authentication information described, and then click **Next**:
 - **Server**: The hostname of the SMTP server that will act as the outgoing mail server for HP CDA.
 - **Authenticate**: Select this checkbox if the connection between HP CDA and the SMTP server will be secured using SSL.
 - **Username**: The username to be used by HP CDA for SSL authentication, if the **Authenticate** checkbox is selected.
 - **Password**: The password to be used by HP CDA for SSL authentication, if the **Authenticate** checkbox is selected.

Enter software use license details

Select the **Enter license key file** radio button, browse to and select the license key file that has been stored on the HP CDA server machine, and then click **Next**:

Note: The HP CDA license key was provided to you by your HP sales representative.

Note: Choose the **Install a 90-day instant-on version** radio button only if HP CDA is being installed for evaluation purposes.

Install HP CDA as an OS Service (Optional)

To configure HP CDA to run as an operating system service, select the checkbox in this screen, and then enter the name to be given to the service in the **Service name** field.

When HP CDA runs as a service, it will continue to run should the administrator log off and then back onto the HP CDA server machine. It will also restart if the machine reboots.

Note: To subsequently configure HP CDA to run as a service after HP CDA installation and configuration is complete, you can perform one of the following procedures in Appendix A:

- If HP CDA is installed on a Linux server, perform the procedure “[Configuring HP CDA to Run as a Linux Service.](#)”
- If HP CDA is installed on a Windows server, perform the procedure “[Configuring HP CDA to Run as a Windows Service.](#)”

Appendix A also contains procedures that explain how to uninstall the HP CDA services.

Finish installing HP CDA

1. Click **Next** in the following screen to start the HP CDA installation. The “Installation Progress” bar on the next screen indicates the progress of the installation. When installation finishes successfully, the progress bar shows 100% complete, the message Done. Click ‘Next’ to continue appears in the “Progress Output” box, and the **Next** button on the screen becomes active.

Note: The installation log file, which includes messages that have been sent to the **Progress Output** box, can be viewed post-installation in the following directory on the HP CDA machine:

Windows: <cda_install_dir>\log\

Linux: <cda_install_dir>/log

The name of the installation log file is `install`.

2. When the installation completes as described, click **Next**.
3. After reading the important post-installation information on the screen, click **Finish** to close the HP CDA installer.

Secure the \bin directory

Caution: Securing the \bin directory as described in this section is crucial to protecting the HP CDA system against unauthorized access. If the \bin directory is not secured as described, unauthorized access to certain HP CDA system files will be possible compromising the integrity of the system.

Ensure that only users with system administration privileges have read/write access to the \bin directory. All other users should not be able to read or write to any files in that directory, nor add or delete files from that directory. The \bin directory is located as follows:

- *Windows:* <cda_home_directory>\bin
- *Linux:* <cda_home_directory>/bin

Grant JBoss JTA recovery module access to database tables

Note: Skip this section if the Oracle database “Create Tablespace” option was *not* used during HP CDA installation.

The JBoss JTA recovery module of embedded JBoss 7.1 will need to be granted access to some system database tables in order to search for pending transactions. Now that the HP CDA installer has run and the database tables and user have been created, run the following commands from the Oracle sqlplus console to grant those privileges:

```
GRANT SELECT ON sys.dba_pending_transactions TO <db_user>;
GRANT SELECT ON sys.pending_trans$ TO <db_user>;
GRANT SELECT ON sys.dba_2pc_pending TO <db_user>;
GRANT EXECUTE ON sys.dbms_system TO <db_user>;
```

Start the HP CDA application

1. Log in to the machine on which HP CDA is installed and change directories to the following directory:
 - *Windows:* <cda_home_directory>\bin
 - *Linux:* <cda_home_directory>/bin
2. Execute the following command to start the HP CDA server:
 - *Windows:* serverstart.bat
 - *Linux:* ./serverstart.sh

Various messages will scroll in the display as the server starts. When the message “JBoss AS 7.1.0.Final “Thunder” started in xxxxxms” appears and messages stop scrolling, the server has started.

Note: If HP CDA had been installed as a service in the section entitled “Install HP CDA as an OS Service (Optional),” then you can start HP CDA as a service as follows:

- *Windows:* Use the Windows Services Console (services.msc)
- *Linux:* Use the command; `service <serviceName> start`

Where <serviceName> is the name given to the HP CDA service in the procedure.

When you start HP CDA as a service, you might receive an indication that the service has started within a few seconds, but in reality, a few minutes might elapse before the HP CDA application is fully initialized and available.

Log in to the HP CDA User Interface

1. Open a Web browser on a client machine, such as a laptop in the HP CDA network domain, and enter one of the following as the URL to browse:

For Standard HTTP:

```
http://<hostname>:<http_port>/<web_context>
```

For HTTP Secure:

```
https://<hostname>:<https_port>/<web_context>
```

Where the *hostname*, *port*, and *web context* are as they were entered for the endpoint properties during HP CDA installation.

Note: See the *HP CDA Support Matrix* for detailed information about the Web browsers that are supported.

2. At the CDA login page that appears, enter the administrator credentials that you configured earlier during CDA installation in the section entitled “[Enter administrator, system email, and SMTP server configuration parameters](#),” and then click the **Login** button.

Integrate HP CDA with HP CSA

Now that the HP CDA software has been installed, started, and you have logged into the HP CDA user interface, you will integrate HP CDA with HP Cloud Service Automation (HP CSA). HP CSA provides an end-user, self-service portal for the consumption of the various infrastructure and application services created by HP CDA.

1. Click the **Administration** tab in the HP CDA user interface, and then click the **Plugins** link that is in the left side navigation pane of the interface.
2. If necessary, click the “Update” icon that is in the “CSA Plugin” row in the Plugins screen, and follow the instructions provided by your HP support representative to update the plugin.

Note: Contact your HP support representative to determine if an update is available for the plugin.

3. Click the “Add configuration” icon that is in the “CSA Plugin” row in the Plugins screen to invoke the Create Provider screen for HP CSA.
4. Enter the following parameters into the screen, as described. Parameters that are mandatory are followed by a red asterisk (*) in the screen:
 - **Name:** Enter a name for this HP CSA integration. This is the name that will appear in user interface elements such as drop-down lists.
 - **Description:** Enter a description for the HP CSA instance being integrated, if desired, or leave blank.
 - **User Name:** The default user name, `cdaInboundUser`, is created automatically when HP CSA is installed, and therefore, this field must not be changed.
 - **Organization:** The default organization name, `CSA-Provider`, is built into HP CSA, and therefore, this field must not be changed.
 - **Password:** When HP CSA is installed, a default user named `cdaInboundUser` is automatically created in CSA with a default password, which is filled into this field by default. If the `cdaInboundUser` password is changed in HP CSA, then enter that password into this field.
 - **URL:** The HP CSA URL in the format `https://<csa_name>:8444/csa` where `<csa_name>` is the fully qualified domain name of the HP CSA server.
 - **Connection Timeout(s):** Enter the time, in seconds, that the web client will attempt to establish a connection to HP CSA before it times out. A zero (0) indicates that the web client will attempt to establish a connection indefinitely. The default connection timeout is 30 seconds.
 - **Status Update Timeout(s):** Enter the time, in seconds, that HP CSA will wait for HP CDA to return a status update on a requested action before it times out and fails the operation. The default status update timeout is 3600 seconds.

- **Receive Timeout(s):** Enter the time, in seconds, that the web client will wait for a response before it times out. A zero (0) indicates that the web client will wait indefinitely for a response. The default receive timeout is 60 seconds.
5. After entering all of the necessary parameters into the screen, click the **Test Connection** button.
 After clicking the button, a status message will appear above the screen header. While the test is running, the message “Testing Connection to server, Please wait...” will be displayed. After the test completes, one of the following messages will be displayed:
 - “Test Connection failed: <details>”
 - “Test Connection successful”
 6. Perform one of the following actions, as appropriate:
 - If the connection is successful, click the **Save** button to save the HP CSA integration parameters. Integration of HP CSA is now complete.
 - If the connection fails, make sure that all parameters have been entered correctly, the network is functional, and HP CSA is not experiencing any problems that might cause the failure. You can click the “Technical Details” link that appears below the status message to open a window containing JBOSS server log messages from the time the connection failed. The full JBOSS server log can also be viewed on the HP CDA server machine at the following location:
 - *Windows:* \Program Files\Hewlett-Packard\CDA\1.10\jb710\standalone\log\server
 - *Linux:* /opt/hp/cda/1.10/jb710/standalone/log

Integrate the HP CDA service providers

You can now integrate various service providers with HP CDA. This section explains how to integrate each service provider with HP CDA. During integration, you will be entering the information that you noted in Chapter 2, “HP CDA Service Providers.”

Note: HP CDA contains a feature called the Existing Infrastructure provider which allows for the creation of infrastructure templates from compute resources that have been provisioned outside of HP CDA. As the Existing Infrastructure provider is a feature that is included with the HP CDA product, it is automatically integrated via a plugin configuration when HP CDA is installed. Although the Plugins screen in the HP CDA interface allows you to add a plugin configuration for the Existing Infrastructure provider as can be done for the other providers, doing so is not necessary.

Opscode Chef

Note: If Chef will be the deployer for public cloud-based resources, then the Chef server must be set up so that it is also located in the public cloud. If HP CDA is to deploy to “private cloud-based” (internal) resources as well as public cloud-based resources, then a separate Chef server must be set up for each. The Chef server that is located in the public cloud cannot deploy to the private cloud, and vice-versa.

Note: See also Appendix D, “Opscode Chef Best Practices” for important information regarding using Chef Server with HP CDA.

1. Log in to HP CDA as described in the procedure entitled “Log in to the HP CDA User Interface,” if necessary.
2. Click the **Administration** tab in the CDA user interface, and then click the **Plugins** link that is in the left side navigation pane of the interface.

3. If necessary, click the "Update" icon that is in the "Chef Deployer Plugin" row in the Plugins screen, and follow the instructions provided by your HP support representative to update the plugin.

Note: Contact your HP support representative to determine if an update is available for the plugin.

4. Click the "Add configuration" icon that is in the "Chef Deployer Plugin" row in the Plugins screen to invoke the Create Provider screen for the Chef deployer.
5. Enter the following parameters into the screen, as described. Parameters that are mandatory are followed by a red asterisk (*) in the screen:

- **Name:** Enter a name for this Chef deployer integration. This is the name that will appear in user interface elements such as drop-down lists when different deployers can be chosen for a given operation.
- **Description:** Enter a description for the Chef deployer being integrated, if desired, or leave blank.
- **Chef Server hostname:** Enter the fully qualified domain name of the Chef server machine.
- **Chef Server user:** Enter the username of a user having administrative privileges on the Chef server.
- **Chef Server password:** Enter the password of the user.
- **Chef Server SSH port:** Enter the Chef server SSH port number. The default SSH server port is 22.
- **Chef Server SSH timeout (seconds):** The period of time, in seconds, that HP CDA will wait for a response after initiating a SSH connection to the Chef server. A zero (0) indicates that the SSH timeout is indefinite. The default SSH timeout is 0.
- **Chef Server cookbooks directory:** Enter the directory on the Chef server in which Chef cookbooks are stored.
- **Chef Server bootstrap script:** The path to and name of a specific bootstrap script to be used for installing Chef on the target system.
- **Chef Server bootstrap retries number:** -Enter the number of times that Chef will attempt, using the "Bootstrap" command, to bootstrap the provisioned target machine after an unsuccessful attempt before giving up and failing the operation. The default bootstrap retry number is 5.
- **Chef Server bootstrap retries wait (seconds):** Enter the number of seconds that Chef will wait before attempting to bootstrap the provisioned target machine again after an unsuccessful attempt using the "Bootstrap" command. The default bootstrap retry wait time is 60 seconds.
- **Chef Server SSH key directory:** Enter the SSH validation key path on the Chef server. The default SSH key path is /root/.ssh.
- **Chef client SSH port:** Enter the Chef client SSH port number. The default SSH client port is 22.

6. After entering all of the necessary parameters into the screen, click the **Test Connection** button.

After clicking the button, a status message will appear above the screen header. While the test is running, the message "Testing Connection to server, Please wait..." will be displayed. After the test completes, one of the following messages will be displayed:

- "Test Connection failed: <details>"
- "Test Connection successful"

7. Perform one of the following actions, as appropriate:

- If the connection is successful, click the **Save** button to save the Chef deployer integration parameters. Integration of the Chef deployer is now complete.

- If the connection fails, make sure that all parameters have been entered correctly, the network is functional, and the Chef server is not experiencing any problems that might cause the failure. You can click the “Technical Details” link that appears below the status message to open a window containing JBOSS server log messages from the time the connection failed. The full JBOSS server log can also be viewed on the HP CDA server machine at the following location:
 - *Windows:* \Program Files\Hewlett-Packard\CDA\1.10\jb710\standalone\log\server
 - *Linux:* /opt/hp/cda/1.10/jb710/standalone/log

Cloud Connector

1. Log in to HP CDA as described in the procedure entitled “Log in to the HP CDA User Interface,” if necessary.
2. Click the **Administration** tab in the CDA user interface, and then click the **Plugins** link that is in the left side navigation pane of the interface.
3. If necessary, click the “Update” icon that is in the “Cloud Connector Plugin” row in the Plugins screen, and follow the instructions provided by your HP support representative to update the plugin.

Note: Contact your HP support representative to determine if an update is available for the plugin.

4. Click the “Add configuration” icon that is in the “Cloud Connector Plugin” row in the Plugins screen to invoke the Create Provider screen for Cloud Connector.
5. Enter the following parameters into the screen, as described. Parameters that are mandatory are followed by a red asterisk (*) in the screen:
 - **Name:** Enter a name for this Cloud Connector integration. This is the name that will appear in user interface elements such as drop-down lists.
 - **Description:** Enter a description for the Cloud Connector integration being integrated, if desired, or leave blank.
 - **Service Discovery URI:** Enter the base URI for the Eden service. The Eden service is used for authentication and discovery of other Cloud Connector services.
 - **Project:** Enter the name of the *project*, also known as the *tenant*, used for this HP CDA integration.

Note: You can obtain the project, administrator user, and non-privileged user names from the Cloud Administration Dashboard.
 - **Administrator user name:** Enter the name of a user with the `project_admin` role in the Cloud Connector project that is specified for this HP CDA integration.
 - **Administrator user password:** Enter the password for the user with the `project_admin` role.
 - **Non-privileged user name:** Enter the name of a user with the `project_user` role in the Cloud Connector project that is specified for this HP CDA integration.
 - **Non-privileged user password:** Enter the password for the user with the `project_user` role.
 - **Manager URI:** Enter the URI to the Cloud Administration Dashboard.
6. After entering all of the necessary parameters into the screen, click the **Test Connection** button.

After clicking the button, a status message will appear above the screen header. While the test is running, the message “Testing Connection to server, Please wait...” will be displayed. After the test completes, one of the following messages will be displayed:

- “Test Connection failed: <details>”

- “Test Connection successful”
7. Perform one of the following actions, as appropriate:
 - If the connection is successful, click the **Save** button to save the Cloud Connector integration parameters. Integration of Cloud Connector is now complete.
 - If the connection fails, make sure that all parameters have been entered correctly, the network is functional, and Cloud Connector is not experiencing any problems that might cause the failure. You can click the “Technical Details” link that appears below the status message to open a window containing JBOSS server log messages from the time the connection failed. The full JBOSS server log can also be viewed on the HP CDA server machine at the following location:
 - *Windows:* \Program Files\Hewlett-Packard\CDA\1.10\jb710\standalone\log\server
 - *Linux:* /opt/hp/cda/1.10/jb710/standalone/log

HP CloudSystem Matrix

1. Log in to HP CDA as described in the procedure entitled “Log in to the HP CDA User Interface,” if necessary.
2. Click the **Administration** tab in the HP CDA user interface, and then click the **Plugins** link that is in the left side navigation pane of the interface.
3. If necessary, click the “Update” icon that is in the “HP CloudSystem Matrix Plugin” row in the Plugins screen, and follow the instructions provided by your HP support representative to update the plugin.

Note: Contact your HP support representative to determine if an update is available for the plugin.
4. Click the “Add configuration” icon that is in the “HP CloudSystem Matrix Plugin” row in the Plugins screen to invoke the Create Provider screen for HP CloudSystem Matrix.
5. Enter the following parameters into the screen, as described. Parameters that are mandatory are followed by a red asterisk (*) in the screen:
 - **Name:** Enter a name for this HP CloudSystem Matrix integration. This is the name that will appear in user interface elements such as drop-down lists when multiple HP CloudSystem Matrix integrations can be chosen for a given operation.
 - **Description:** Enter a description for the HP CloudSystem Matrix integration, if desired, or leave blank.
 - **User name:** Enter the HP CloudSystem Matrix administrator username.
 - **Password:** Enter the HP CloudSystem Matrix administrator password.
 - **Server:** Enter the URL to the Web interface for the infrastructure orchestration portion of HP CloudSystem Matrix.

Note: The fully qualified domain name of the HP CloudSystem Matrix server should be used in the URL. Do not use the IP address of the server in the URL, and do not include the trailing forward slash in the URL.
 - **Connection Timeout(s):** Enter the time, in seconds, that the web client will attempt to establish a connection to HP CloudSystem Matrix before it times out. A zero (0) indicates that the web client will attempt to establish a connection indefinitely. The default connection timeout is 30 seconds.
 - **Receive Timeout(s):** Enter the time, in seconds, that the web client will wait for a response before it times out. A zero (0) indicates that the web client will wait indefinitely for a response. The default receive timeout is 60 seconds.

6. After entering all of the necessary parameters into the screen, click the **Test Connection** button.

After clicking the button, a status message will appear above the screen header. While the test is running, the message "Testing Connection to server, Please wait..." will be displayed. After the test completes, one of the following messages will be displayed:

- "Test Connection failed: <details>"
- "Test Connection successful"

7. Perform one of the following actions, as appropriate:

- If the connection is successful, click the **Save** button to save the HP CloudSystem Matrix integration parameters. Integration of HP CloudSystem Matrix is now complete.
- If the connection fails, make sure that all parameters have been entered correctly, the network is functional, and HP CloudSystem Matrix is not experiencing any problems that might cause the failure. You can click the "Technical Details" link that appears below the status message to open a window containing JBOSS server log messages from the time the connection failed. The full JBOSS server log can also be viewed on the HP CDA server machine at the following location:
 - *Windows:* \Program Files\Hewlett-Packard\CDA\1.10\jb710\standalone\log\server
 - *Linux:* /opt/hp/cda/1.10/jb710/standalone/log

Concurrent Versions System (CVS)

Note: Before integrating HP CDA with a CVS server, a CVS command-line client based upon CVS version 1.12.13 or higher needs to be installed on the same machine as HP CDA.

If HP CDA is integrated with a CVS server using the following procedure before a CVS command-line client is installed, the client can subsequently be installed, but the HP CDA server will need to be stopped and then restarted after the client installation is complete.

1. Log in to HP CDA as described in the procedure entitled "Log in to the HP CDA User Interface," if necessary.
2. Click the **Administration** tab in the HP CDA user interface, and then click the **Plugins** link that is in the left side navigation pane of the interface.
3. If necessary, click the "Update" icon that is in the "CVS Artifact Provider Plugin" row in the Plugins screen, and follow the instructions provided by your HP support representative to update the plugin.

Note: Contact your HP support representative to determine if an update is available for the plugin.

4. Click the "Add configuration" icon that is in the "CVS Artifact Provider Plugin" row in the Plugins screen to invoke the Create Provider screen for CVS.
5. Enter the following parameters into the screen, as described. Parameters that are mandatory are followed by a red asterisk (*) in the screen:
 - **Name:** Enter a name for this CVS integration. This is the name that will appear in user interface elements such as drop-down lists.
 - **Description:** Enter a description for the CVS instance being integrated, if desired, or leave blank.
 - **CVS Host** Enter the fully qualified domain name of the CVS host machine.
 - **CVS User:** Enter the name of a user who has access the CVS repository identified in the "CVS Repository" field.

Note: The CVS User must either have access to the CVS repository without a password, or the user must have an entry in the .cvspass file, which is in the home directory of the user on the HP CDA machine under which HP CDA is running. The .cvspass file can either be manually edited to include the entry, or the entry can be added to the .cvspass file by running the following command as the user on the HP CDA machine under which HP CDA is running:

```
cvs -d:pserver:<cvsv_user>@<cvsv_host>:<cvsv_repository> login
```

- **CVS Repository:** Enter the path to the CVS repository on the CVS host machine to be used by HP CDA.
 - **Path:** Enter the full path to the CVS client executable on the HP CDA server machine (for example, C:\Program Files\cvs-1-12-13a\cvs.exe)
6. After entering all of the necessary parameters into the screen, click the **Test Connection** button.
- After clicking the button, a status message will appear above the screen header. While the test is running, the message “Testing Connection to server, Please wait...” will be displayed. After the test completes, one of the following messages will be displayed:
- “Test Connection failed: <details>”
 - “Test Connection successful”
7. Perform one of the following actions, as appropriate:
- If the connection is successful, click the **Save** button to save the CVS integration parameters. Integration of CVS is now complete.
 - If the connection fails, make sure that all parameters have been entered correctly, the network is functional, and CVS is not experiencing any problems that might cause the failure. You can click the “Technical Details” link that appears below the status message to open a window containing JBOSS server log messages from the time the connection failed. The full JBOSS server log can also be viewed on the HP CDA server machine at the following location:
 - *Windows:* \Program Files\Hewlett-Packard\CDA\1.10\jb710\standalone\log\server
 - *Linux:* /opt/hp/cda/1.10/jb710/standalone/log

HP Database and Middleware Automation

1. Log in to HP CDA as described in the procedure entitled “Log in to the HP CDA User Interface,” if necessary.
2. Click the **Administration** tab in the CDA user interface, and then click the **Plugins** link that is in the left side navigation pane of the interface.
3. If necessary, click the “Update” icon that is in the “DMA Deployer Plugin” row in the Plugins screen, and follow the instructions provided by your HP support representative to update the plugin.

Note: Contact your HP support representative to determine if an update is available for the plugin.
4. Click the “Add configuration” icon that is in the “DMA Deployer Plugin” row in the Plugins screen to invoke the Create Provider screen for the DMA deployer.
5. Enter the following parameters into the screen, as described. Parameters that are mandatory are followed by a red asterisk (*) in the screen:
 - **Name:** Enter a name for this DMA deployer integration. This is the name that will appear in user interface elements such as drop-down lists when different deployers can be chosen for a given operation.

- **Description:** Enter a description for the DMA deployer being integrated, if desired, or leave blank.
Note: Since HP DMA shares a common infrastructure with HP Server Automation, the parameter entries that you entered for HP SA will be used for the following three similar parameters:
 - **DMA Server Host:** Enter the fully qualified domain name of the SA deployer machine.
 - **DMA User Name:** Enter the username of a user that has SA User credentials.
 - **DMA Password:** Enter the password of the SA User.
6. After entering all of the necessary parameters into the screen, click the **Test Connection** button.
- After clicking the button, a status message will appear above the screen header. While the test is running, the message “Testing Connection to server, Please wait...” will be displayed. After the test completes, one of the following messages will be displayed:
- “Test Connection failed: <details>”
 - “Test Connection successful”
7. Perform one of the following actions, as appropriate:
- If the connection is successful, click the **Save** button to save the DMA deployer integration parameters. Integration of the DMA deployer is now complete.
 - If the connection fails, make sure that all parameters have been entered correctly, the network is functional, and the DMA deployer is not experiencing any problems that might cause the failure. You can click the “Technical Details” link that appears below the status message to open a window containing JBOSS server log messages from the time the connection failed. The full JBOSS server log can also be viewed on the HP CDA server machine at the following location:
 - *Windows:* \Program Files\Hewlett-Packard\CDA\1.10\jb710\standalone\log\server
 - *Linux:* /opt/hp/cda/1.10/jb710/standalone/log

Jenkins

1. Log in to HP CDA as described in the procedure entitled “Log in to the HP CDA User Interface,” if necessary.
2. Click the **Administration** tab in the CDA user interface, and then click the **Plugins** link that is in the left side navigation pane of the interface.
3. If necessary, click the “Update” icon that is in the “Jenkins Artifact Provider Plugin” row in the Plugins screen, and follow the instructions provided by your HP support representative to update the plugin.
Note: Contact your HP support representative to determine if an update is available for the plugin.
4. Click the “Add configuration” icon that is in the “Jenkins Artifact Provider Deployer Plugin” row in the Plugins screen to invoke the Create Provider screen for Jenkins.
5. Enter the following parameters into the screen, as described. Parameters that are mandatory are followed by a red asterisk (*) in the screen:
 - **Name:** Enter a name for this Jenkins integration. This is the name that will appear in user interface elements such as drop-down lists when multiple Jenkins integrations can be chosen for a given operation.
 - **Description:** Enter a description for the Jenkins server being integrated, if desired, or leave blank.
 - **Host:** Enter the URL to the Jenkins Web interface.

- **User:** Enter the Login username of an account having the “admin” role. The field can typically be left blank if Jenkins is being used in a trusted environment and security is not enabled on the Jenkins server.
 - **Password:** Enter the password for the user account, if it is specified.
6. After entering all of the necessary parameters into the screen, click the **Test Connection** button.
- After clicking the button, a status message will appear above the screen header. While the test is running, the message “Testing Connection to server, Please wait...” will be displayed. After the test completes, one of the following messages will be displayed:
- “Test Connection failed: <details>”
 - “Test Connection successful”
7. Perform one of the following actions, as appropriate:
- If the connection is successful, click the **Save** button to save the Jenkins server integration parameters. Integration of the Jenkins server is now complete.
 - If the connection fails, make sure that all parameters have been entered correctly, the network is functional, and the Jenkins server is not experiencing any problems that might cause the failure. You can click the “Technical Details” link that appears below the status message to open a window containing JBOSS server log messages from the time the connection failed. The full JBOSS server log can also be viewed on the HP CDA server machine at the following location:
 - *Windows:* \Program Files\Hewlett-Packard\CDA\1.10\jb710\standalone\log\server
 - *Linux:* /opt/hp/cda/1.10/jb710/standalone/log

HP Operations Orchestration

1. Log in to HP CDA as described in the procedure entitled “Log in to the HP CDA User Interface,” if necessary.
2. Click the **Administration** tab in the CDA user interface, and then click the **Plugins** link that is in the left side navigation pane of the interface.
3. If necessary, click the “Update” icon that is in the “OO Deployer Plugin” row in the Plugins screen, and follow the instructions provided by your HP support representative to update the plugin.

Note: Contact your HP support representative to determine if an update is available for the plugin.
4. Click the “Add configuration” icon that is in the “OO Deployer Plugin” row in the Plugins screen to invoke the Create Provider screen for the OO deployer.
5. Enter the following parameters into the screen, as described. Parameters that are mandatory are followed by a red asterisk (*) in the screen:
 - **Name:** Enter a name for this HP OO deployer integration. This is the name that will appear in user interface elements such as drop-down lists when different deployers can be chosen for a given operation.
 - **Description:** Enter a description for the DMA deployer being integrated, if desired, or leave blank.
 - **OO Host:** Enter the fully qualified domain name of the HP OO server machine.
 - **OO Port:** Enter the HP OO SSH port number. The default SSH port number is 8443.
 - **OO Protocol:** Enter either http or https to denote the protocol used for communications between the web clients and servers for HP CDA and HP OO. The default protocol is https.

- **OO Central Certificate Autotrust:** Choose **yes** to automatically trust a certificate that cannot be tracked back to one of the Certificate Authorities.
 - **OO Basic Auth User Name:** Enter the username of a user that will be used for authenticating with the HP OO server.
 - **OO Basic Auth Password:** Enter the password of the user.
6. After entering all of the necessary parameters into the screen, click the **Test Connection** button.
- After clicking the button, a status message will appear above the screen header. While the test is running, the message “Testing connection to server, Please wait...” will be displayed. After the test completes, one of the following messages will be displayed:
- “Test Connection failed: <details>”
 - “Test Connection successful”
7. Perform one of the following actions, as appropriate:
- If the connection is successful, click the **Save** button to save the OO deployer integration parameters. Integration of the OO deployer is now complete.
 - If the connection fails, make sure that all parameters have been entered correctly, the network is functional, and the HP OO server is not experiencing any problems that might cause the failure. You can click the “Technical Details” link that appears below the status message to open a window containing JBOSS server log messages from the time the connection failed. The full JBOSS server log can also be viewed on the HP CDA server machine at the following location:
 - *Windows:* \Program Files\Hewlett-Packard\CDA\1.10\jb710\standalone\log\server
 - *Linux:* /opt/hp/cda/1.10/jb710/standalone/log

Secure Shell (SSH)

1. Log in to HP CDA as described in the procedure entitled “Log in to the HP CDA User Interface,” if necessary.
2. Click the **Administration** tab in the CDA user interface, and then click the **Plugins** link that is in the left side navigation pane of the interface.
3. If necessary, click the “Update” icon that is in the “SSH Deployer Plugin” row in the Plugins screen, and follow the instructions provided by your HP support representative to update the plugin.

Note: Contact your HP support representative to determine if an update is available for the plugin.
4. Click the “Add configuration” icon that is in the “SSH Deployer Plugin” row in the Plugins screen to invoke the Create Provider screen for the SSH deployer.
5. Enter the following parameters into the screen, as described. Parameters that are mandatory are followed by a red asterisk (*) in the screen:
 - **Name:** Enter a name for this SSH deployer integration. This is the name that will appear in user interface elements such as drop-down lists when different deployers can be chosen for a given operation.
 - **Description:** Enter a description for the SSH deployer being integrated, if desired, or leave blank.
 - **SSH Port:** Enter the SSH port number. The default SSH port is 22.

- **SSH Timeout:** Enter the period of time, in seconds, that the SSH deployer will wait for a response after initiating a SSH connection to the target SSH server. A zero (0) indicates that the SSH timeout is indefinite. The default SSH timeout is 0.
 - **SSH Key:** Choose the name of the key to be used for authentication in this drop-down field.
Note: Refer to the HP CDA administration online help for information on importing and storing key files on the HP CDA server.
 - **Connection Retries:** Enter the number of times that the SSH deployer will attempt to connect with the target SSH server after an unsuccessful attempt before giving up and failing the operation. The default connection retry number is 5.
 - **Number of seconds to wait between connection retries during `registration`:** Enter the number of seconds that the SSH deployer will wait before attempting to connect again to the target SSH server after an unsuccessful attempt. The default connection retry wait time is 60 seconds.
6. click the **Save** button to save the SSH deployer integration parameters. Integration of the SSH deployer is now complete.

HP Server Automation

1. Log in to HP CDA as described in the procedure entitled “Log in to the HP CDA User Interface,” if necessary.
2. Click the **Administration** tab in the CDA user interface, and then click the **Plugins** link that is in the left side navigation pane of the interface.
3. If necessary, click the “Update” icon that is in the “SA Deployer Plugin” row in the Plugins screen, and follow the instructions provided by your HP support representative to update the plugin.
Note: Contact your HP support representative to determine if an update is available for the plugin.
4. Click the “Add configuration” icon that is in the “SA Deployer Plugin” row in the Plugins screen to invoke the Create Provider screen for the SA deployer.
5. Enter the following parameters into the screen, as described. Parameters that are mandatory are followed by a red asterisk (*) in the screen:
 - **Name:** Enter a name for this SA deployer integration. This is the name that will appear in user interface elements such as drop-down lists when different deployers can be chosen for a given operation.
 - **Description:** Enter a description for the SA deployer being integrated, if desired, or leave blank.
 - **SA Host:** Enter the fully qualified domain name of the SA deployer machine.
 - **SA User:** Enter the username of a user that has SA User credentials.
Note: The SA User and the group that the user belongs to must have certain permissions set. Refer to “SA User and Group Permissions” for more information.
 - **SA Password:** Enter the password of the SA User.
 - **SA Registration retry number:** Enter the number of times that HP CDA will wait for a virtual machine with a pre-installed self-registering SA agent to show up as registered with SA. The default retry number is 5.
 - **SA Registration wait between retries (in seconds):** Enter the number of seconds that HP CDA will wait between SA registration retries. The default retry time is 60 seconds.
6. After entering all of the necessary parameters into the screen, click the **Test Connection** button.

After clicking the button, a status message will appear above the screen header. While the test is running, the message "Testing Connection to server, Please wait..." will be displayed. After the test completes, one of the following messages will be displayed:

- "Test Connection failed: <details>"
- "Test Connection successful"

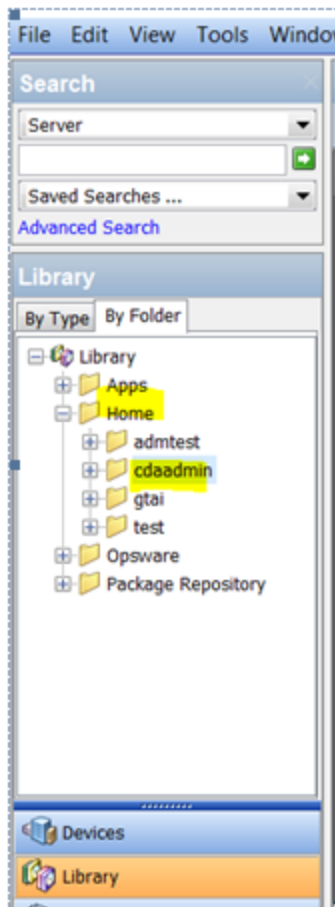
7. Perform one of the following actions, as appropriate:

- If the connection is successful, click the **Save** button to save the SA deployer integration parameters. Integration of the SA deployer is now complete.
- If the connection fails, make sure that all parameters have been entered correctly, the network is functional, and the SA deployer is not experiencing any problems that might cause the failure. You can click the "Technical Details" link that appears below the status message to open a window containing JBOSS server log messages from the time the connection failed. The full JBOSS server log can also be viewed on the HP CDA server machine at the following location:
 - *Windows:* \Program Files\Hewlett-Packard\CDA\1.10\jb710\standalone\log\server
 - *Linux:* /opt/hp/cda/1.10/jb710/standalone/log

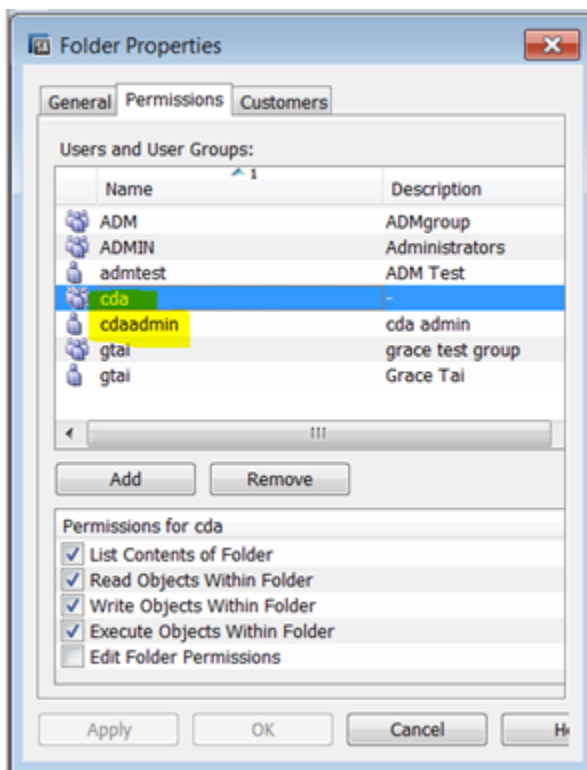
SA User and Group Permissions

The SA User and the group that the user belongs to must have certain permissions set in order for HP CDA to successfully integrate with HP SA. The following procedure explains how to set the necessary permissions.

1. Open the HP Server Automation Web Client and log in as the "admin" user.
2. Grant permissions for the following "Client Features" to the user group to which the user account that HP CDA will use to connect belongs:
 - Audit and Remediation
 - Policy management
 - Package management
 - Servers
 - Unmanaged Servers
 - Scripts
 - Server Modules
 - Application Deployment
 - Database & Middleware Automation
3. Grant permissions for the user group to which SA User belongs under "OGFS Permissions."
4. Grant the following permissions under "Other:"
 - Server and Device Group Permissions
 - Job Permission
5. Open the HP Server Automation Java Client and log in as the "admin" user.
6. Grant permissions in "Folder Properties" to the SA User's folder for the user group as well as the user. For example, for the folder for the user named "cdaadmin," which is under the "Home" folder in the following figure:



Set the permissions for the user group "cda" and the user "cdaadmin" as follows:



Subversion (SVN)

Note: Before integrating HP CDA with a SVN server, a SVN client should be installed on the same machine as HP CDA. If HP CDA is integrated with a SVN server using the following procedure before a SVN client is installed, the client can subsequently be installed, but the HP CDA server will need to be stopped and then restarted after the client installation is complete.

1. Log in to HP CDA as described in the procedure entitled “Log in to the HP CDA User Interface,” if necessary.
2. Click the **Administration** tab in the CDA user interface, and then click the **Plugins** link that is in the left side navigation pane of the interface.
3. If necessary, click the “Update” icon that is in the “SVN Artifact Provider Plugin” row in the Plugins screen, and follow the instructions provided by your HP support representative to update the plugin.

Note: Contact your HP support representative to determine if an update is available for the plugin.

4. Click the “Add configuration” icon that is in the “SVN Artifact Provider Plugin” row in the Plugins screen to invoke the Create Provider screen for SVN.
5. Enter the following parameters into the screen, as described. Parameters that are mandatory are followed by a red asterisk (*) in the screen:
 - **Name:** Enter a name for this SVN integration. This is the name that will appear in user interface elements such as drop-down lists when different SVN integrations can be chosen for a given operation.
 - **Description:** Enter a description for the SVN artifact provider being integrated, if desired, or leave blank.
 - **SVN Repository URL:** Enter the URL of the SVN repository.
 - **User:** Enter the name of a user to be used for authentication if the SVN server has been configured to require authentication for repository read access. If the SVN server does not require repository read access authentication, leave this field blank.
 - **Password:** The password of the user, if repository read access authentication is required.
 - **Path:** Enter the full path to the SVN client executable on the HP CDA server machine (for example, `C:\Program Files\svn\svn.exe`)
6. After entering all of the necessary parameters into the screen, click the **Test Connection** button.

After clicking the button, a status message will appear above the screen header. While the test is running, the message “Testing Connection to server, Please wait...” will be displayed. After the test completes, one of the following messages will be displayed:

- “Test Connection failed: <details>”
 - “Test Connection successful”
7. Perform one of the following actions, as appropriate:
 - If the connection is successful, click the **Save** button to save the SVN integration parameters. Integration of SVN is now complete.
 - If the connection fails, make sure that all parameters have been entered correctly, the network is functional, and SVN is not experiencing any problems that might cause the failure. You can click the “Technical Details” link that appears below the status message to open a window containing JBOSS server log messages from the time the connection failed. The full JBOSS server log can also be viewed on the HP CDA server machine at the following location:

- *Windows:* \Program Files\Hewlett-Packard\CDA\1.10\jb710\standalone\log\server
- *Linux:* /opt/hp/cda/1.10/jb710/standalone/log

4 Uninstalling HP CDA

To uninstall HP CDA, complete the following procedure.

1. Log in to the machine on which HP CDA is installed and change directories to the following directory:
 - *Windows:* `<cda_home_directory>\bin`
 - *Linux:* `<cda_home_directory>/bin`
2. If HP CDA is currently running, execute the following command to stop the HP CDA server.
 - *Windows:* `serverstop.bat`
 - *Linux:* `./serverstop.sh`

A command prompt window should appear containing the following message:

```
{"outcome" => "success"}  
Press any key to continue . . .
```

3. Press any key, and then execute the following command to start the HP CDA setup wizard:
 - *Windows:* `setup.bat`
 - *Linux:* `./setup.sh`
4. Click **Next** in the “Welcome” screen that appears.
5. In the “Scenario Selection” screen, select the **Un-install** radio button and then click **Next**.
6. Click **Next** in the “Complete” screen that appears. The “Setup Progress” bar on the next screen indicates the progress of the uninstallation. When uninstallation finishes successfully, the progress bar shows 100% complete, the message `Done. Click 'Next' to continue` appears in the “Progress Output” box, and the **Next** button on the screen becomes active.
7. When the uninstallation completes as described, click **Next**, and then click **Finish** to close the HP CDA setup wizard.
8. If HP CDA was installed in the default installation directory, delete the CDA directory and its contents.
If you do not delete the CDA directory and its contents, then attempting to subsequently install HP CDA in the default installation directory will not proceed.

A Configuring HP CDA to Run as a Service

Note: The HP CDA installer wizard contains an option to install HP CDA as an operating system service when HP CDA is installed. If that option was not selected during HP CDA installation, the information in this appendix can be used to configure HP CDA to run as a service.

The procedures in this appendix explain how to configure HP CDA to run as a service so that it will continue to run should the administrator log off and then back onto the HP CDA server machine, or will restart if the machine reboots.

This appendix contains the following sections:

- Configuring HP CDA to Run as a Windows Service
- Uninstalling the HP CDA Windows Service
- Configuring HP CDA to Run as a Linux Service
- Uninstalling the HP CDA Linux Service

Configuring HP CDA to Run as a Windows Service

The following procedure requires the use of the “Yet Another Java Service Wrapper” (YAJSW) tool. The YAJSW tool is an open-source application that allows an arbitrary Windows application to start as a Windows service. The license is LGPL.

1. Download latest version of the YAJSW tool from the following URL:
<http://sourceforge.net/projects/yajsw/files/yajsw/>
2. Unpack the downloaded zip file into a directory placed anywhere on the server on which HP CDA is installed.
3. Create the wrapper.conf file:
 - a. Start the HP CDA application normally using the “startserver.bat” script and determine the resulting java process PID number (for example, using the standard Windows Task Manager that has the PID column displayed).
 - b. Start the Windows command prompt window as the local administrator (for example, right-click the **Command Prompt** shortcut or executable and select **Run as administrator**).
Note: All YASJW tool .bat scripts must be run with local administrator privileges.
 - c. Navigate to the <installation_directory>/yajsw/bat directory and execute the `genConfig.bat <CDA application pid>` script.
If the `genConfig.bat` script executed properly, file <installation_directory>/yajsw/conf/wrapper.conf will be generated.
 - d. Stop the HP CDA application using the “stopserver.bat” script.
4. Edit the wrapper.conf file:
 - a. Open the newly generated file <installation_directory>/yajsw/conf/wrapper.conf in a text editor.

- b. Revise the options in the wrapper.conf file that are prefixed with wrapper.ntservice. To set the service display name, description, etc. Those options should appear as follows after they have been edited:

```
# Name of the service
wrapper.ntservice.name=HPCDA

# Display name of the service
wrapper.ntservice.displayname=HP Continuous Delivery Automation

# Description of the service
wrapper.ntservice.description=Provides mechanism to manage HP CDA
application
```

- c. If HP CDA is installed at a path containing space characters, the tool might incorrectly determine command line parameters that are necessary to run HP CDA as a service. In this case, application paths, that are identified by the tool and use the wrapper.conf file via the wrapper.app.parameter.<number> and wrapper.java.additional.<number> parameters, must be carefully revised. If incorrect parameter recognition occurs, the file paths will be improperly separated into two distinct parameters.

For example, command line parameter "-Djboss.home.dir=C:\Program Files\CDA" might appear in the configuration as follows:

```
...
wrapper.app.parameter.6 = -Djboss.home.dir=C:\\Program
wrapper.app.parameter.7 = Files\\CDA
wrapper.app.parameter.8 = -Djboss.bind.address=0.0.0.0
...
```

It will then be necessary to manually correct this configuration (including renumbering of subsequent parameters) as follows:

```
...
wrapper.app.parameter.6 = -Djboss.home.dir=C:\\Program Files\\CDA
wrapper.app.parameter.7 = -Djboss.bind.address=0.0.0.0
...
```

Note: File paths expressed in 8.3 notation don't seem to cause any problems.

- d. Save the wrapper.conf configuration file.
5. Validate the wrapper.conf file:
- a. From a command prompt that has been started under the local administrator, execute the <installation_directory>/yajsw/bat/runConsole.bat script to make sure that HP CDA initializes properly with the edited configuration file.
- b. Log in to HP CDA, and make sure that the Home page on the **Applications** tab appears. If HP CDA fails to start or you cannot log in to HP CDA, return to Step 4 and re-check the generated settings (application paths, user account/password) in the wrapper.conf file. If HP CDA starts and you can log in to it and access the Home page, continue with the next step.

6. Stop HP CDA and then run the script
`<installation_directory>/yajsw/bat/installService.bat` as the local administrator to register the HPCDA service.
7. Manage the HPCDA service:
 - a. Run the Windows `services.msc` management tool.
 - b. In the Services management window, navigate to the HPCDA service.
 - c. Do one of the following, as necessary:
 - If there is a requirement to start the HPCDA service automatically during OS startup and the "Startup Type" option is not set to "Automatic," right-click the service's name, choose **Properties**, set the Startup type to **Automatic (delayed start)** and click **OK**.
 - If there is a requirement to start the HP CDA service manually and the "Startup Type" option is not set to "Manual," right-click the service's name, choose **Properties**, set the Startup type to **Manual** and click **OK**.
 - d. On the **Log On** tab of the "HP Continuous Delivery Automation Properties" dialog box, enter the name and password of the administrator account into the appropriate fields, and click **OK**.
 - e. Right-click the service's name and select **Start** to start the service.

Note: The service status will be indicated as "started" immediately after it is executed, before the HP CDA application becomes initialized and is in full operation. The time when the HPCDA service finishes initialization can only be determined from the application log.
8. Make sure the HPCDA service is running properly using the Sysinternals Process Monitor:
 - a. Download the Sysinternals Process Monitor tool from <http://technet.microsoft.com/en-us/sysinternals/bb896645>.
 - b. Unpack the contents of the downloaded zip archive into a directory and run the '`rocmon.exe`' binary.
 - c. Click **Tools>Process Tree...** to display the tree of all currently running processes.
 - d. Check the option **Only show processes still running at end of current trace** at the top left, and if the HPCDA service is running, the following process hierarchy will be present in the tree:

wininit.exe->services.exe->java.exe->java.exe

Where the last java runtime is executed with command line attributes corresponding to the HP CDA application.

Note: If the HP CDA service had stopped subsequently, un-checking and re-checking the **Only show processes still running at end of current trace** checkbox will force an update of the process tree and the **ssm.exe->cmd.exe->java.exe** hierarchy should not be active.

Uninstalling the HP CDA Windows Service

1. Run the Windows `services.msc` management tool, and stop the HP CDA service.
2. Start the Windows command prompt window as the local administrator.
3. Run the `<installation_directory>/yajsw/bat/uninstallService.bat` script.

4. Refresh the `services.msc` management tool and verify that the HP CDA service no longer appears in the service list and the `HKLM\System\CurrentControlSet\Services\<servicename>` registry key has been deleted from the registry.

Configuring HP CDA to Run as a Linux Service

1. Log in to the Linux server on which HP CDA is installed.
2. Open a terminal session on the server.
3. Change directories to the `/etc` directory by executing the following command:

```
cd /etc
```

4. Switch users to the root user by executing the following command and entering the root user password when prompted:

```
su
```

5. Open the file `rc.local` and add the following line to the end of the file:

```
<cda_home_directory>/bin/serverstart.sh
```

6. Save the `rc.local` file
7. Execute the `rc.local` file:

```
./rc.local
```

Note: The file should be run from the `/etc` directory.

8. Execute the following command to see if the `java` process has started:

```
ps -ef | grep java
```

If the command output returns “`java`,” the `java` process has started. If “`java`” is not returned or any error messages are returned, solve the related problems (for example, `JAVA_HOME` is not set for root).

9. If HP CDA has started, end it, and then reboot the Linux server and check to see if HP CDA has restarted.

Uninstalling the HP CDA Linux Service

1. Log in to the server on which HP CDA is installed and open a terminal session on the server.
2. If the HP CDA service is currently running, change directories to the `/bin` directory, and then execute the following command to stop the service:

```
./servicestop.sh
```

3. Change directories to the `/etc` directory:
4. Switch users to the root user by executing the following command and entering the root user password when prompted:

```
su
```

5. Open the file `rc.local` and delete the following line from the file:

```
<cda_home_directory>/bin/serverstart.sh
```

6. Save the `rc.local` file
7. Execute the `rc.local` file:

```
./rc.local
```

Note: The file should be run from the /etc directory.

8. Execute the following command to ensure that the java process has not started:

```
ps -ef | grep java
```

The command output should not return "java."

9. Reboot the Linux server and check to ensure that HP CDA has not automatically restarted.

B Post-Installation Configuration of LWSSO on a Linux HP CDA Server with No Desktop Environment

This appendix explains how to configure LWSSO on an HP CDA server running Linux when the following conditions exist:

- Initial HP CDA installation and configuration has already been completed.
 - The HP CDA Linux server does not have a desktop environment.
1. Create an LWSSO configuration file with the .xml extension containing only the following lines:

```
<?xml version="1.0" encoding="UTF-8"?>
<configuration>
  <property name="shared.usermanagement.lwssso" value="true"/>
  <property name="shared.usermanagement.authPoint" value="false"/>
  <property name="shared.lwssso.domain" value="<domain>"/>
  <property name="shared.lwssso.scenario" value="basic"/>
  <property name="shared.lwssso.passPhrase" value="<passphrase>"/>
</configuration>
```

Refer to “HP Lightweight SSO integration” for descriptions of the *<domain>* and *<passphrase>* properties.

2. Execute the following command:

```
setup.bat -c -n 'LWSSO Settings' -u <path_and_filename>.xml
```

Where *<path_and_filename>* is the path to and name of the file created in Step 1.

C Configuring HP CDA and HP CSA to Run on the Same Server

If HP CSA is to be integrated with HP CDA, HP highly recommends that HP CDA and HP CSA be installed on separate physical systems. If a particular installation scenario requires that HP CDA and HP CSA be installed on the same physical system, then some modifications to the HP CDA configuration will be necessary.

HP CDA and HP CSA use their own instances of the JBoss Application Server. When running on the same physical system, port conflicts between the two JBoss instances will cause problems. The solution is to specify different, otherwise unused ports for the conflicted ports in HP CDA's JBoss Application Server instance. The following procedure explains how to do this.

1. Execute the following command:

- o *Windows:* `netstat -an | find /i "LISTENING"`
- o *Linux:* `netstat -an | grep LISTEN`

2. Look through the command output to ensure that ports 4448, 9991, and 9998 are not being used.

Note: If any of the above ports are being used, choose alternate unused ports that are numerically close to the above port numbers and use them instead in the following steps.

3. Open the "standalone-full.xml" file that is in the `<cda_home_directory>\jb710\standalone\configuration\ directory` (Windows path shown) and replace 9999, 9990, and 4447 with 9998, 9991, and, 4448 in the following lines, which are located in the `<socket-binding-group>` section of the file:

```
<socket-binding name="management-native" interface="management"
  port="{jboss.management.native.port:9999}"/>
<socket-binding name="management-http" interface="management"
  port="{jboss.management.http.port:9990}"/>
<socket-binding name="remoting" port="4447"/>
```

4. Save and close the "standalone-full.xml" file.

5. Perform one of the following steps:

- If HP CDA and HP CSA are installed on a Windows server, open the "serverstop.bat" file that is in the `<cda_home_directory>\bin\ directory` and add `--controller=localhost:9998` into the following line in the file, as shown:

```
CALL "%JBOSS_HOME%\bin\jboss-cli.bat" --connect command=:shutdown
  --controller=localhost:9998 %*
```

- If HP CDA and HP CSA are installed on a Linux server, open the "serverstop.sh" file that is in the `<cda_home_directory>/bin/ directory` add `--controller=localhost:9998` into the following line in the file, as shown:

```
exec "${JBOSS_HOME}"/bin/jboss-cli.sh --connect command=:shutdown
  --controller=localhost:9998 $*
```

6. Save and close the "serverstop.bat" or "serverstop.sh file, as is applicable.

D Opscode Chef Best Practices

This appendix includes best practices when using Opscode Chef as a deployer with HP CDA. It contains the following sections:

- Chef Installation
- Working with Microsoft Windows targets
- Pre-configuring virtual machines with Chef client-specific files for error-free bootstrapping

Chef Installation

The following are some best practices when installing Chef Server.

Note: If Chef will be the deployer for public cloud-based resources, then the Chef server must be set up so that it is also located in the public cloud. If HP CDA is to deploy to “private cloud-based” (internal) resources as well as public cloud-based resources, then a separate Chef server must be set up for each. The Chef server that is located in the public cloud cannot deploy to the private cloud, and vice-versa.

Setting up the Chef server

HP recommends configuring the Chef Server by following the steps described in the following Opscode Wiki page:

<http://wiki.opscode.com/display/chef/Installing+Chef+Server+using+Chef+Solo>

Installing a particular version of the Chef server

The Opscode Wiki page noted provides details for installing and configuring the latest version of Chef Server. Refer to *HP CDA Support Matrix* for the Opscode Chef version that is supported for HP CDA and use the following two modifications when referring to that procedure in order to install the supported version of Chef Server.

1. When installing Chef-Client on the server (which will be used later to bootstrap install Chef Server), use the following command to configure version 0.10.6.

```
gem install chef -v <version> (for example, gem install chef -v 0.10.6)
```

2. When creating the chef.json file to specify which recipes to run, enter the following content as the content of the file:

Note: The following example shows the content to be entered into the chef.json file when installing Chef Server version 0.10.6.

```
{
  "chef_packages": {
    "chef": {
      "version": "0.10.6"
    }
  },
  "chef_server": {
    "server_url": "http://localhost:4000",
    "webui_enabled": true
  }
}
```

```
    },  
    "run_list": [ "recipe[chef-server::rubygems-install]" ]  
  }  
}
```

Support for Microsoft Windows clients

In order for Chef-Server to support and manage Microsoft Windows clients, you need to install the Knife-Windows client on the chef-server using the following command:

```
gem install knife-windows
```

Working with Microsoft Windows targets

SSH

HP CDA supports bootstrapping a Microsoft Windows target using SSH, which means the target needs to have a SSH server running on it. One of the commercial SSH servers for Microsoft Windows is WinSSHD (<http://www.bitvise.com/winsshd>).

Powershell cookbook

Chef Server requires Powershell cookbook for executing any HP CDA-based deployment steps. Download and update the latest Powershell cookbook on the Chef Server for managing Microsoft Windows clients.

Refer to Download Cookbook section at the following link:

<http://wiki.opscode.com/display/chef/Working+with+Git+and+Cookbooks>

The following link contains Powershell cookbook information:

<http://community.opscode.com/cookbooks/powershell>

Editing the bootstrap script used for Microsoft Windows clients to install a particular version of Opscode chef client

The default bootstrap script for Microsoft Windows targets is present at the following location on Chef-server:

```
/usr/lib/ruby/gems/1.9.1/gems/knife-windows-  
0.5.8/lib/chef/knife/bootstrap/windows-chef-client-msi.erb
```

You can edit the script to force-install a particular version of Chef-client. For example, you can modify the download command in the script to work with version 0.10.6-1 as follows:

```
cscript /nologo C:\chef\wget.vbs /url:http://s3.amazonaws.com/opscode-full-  
stack/windows/chef-client-0.10.6-1.msi /path:%TEMP%\chef-client-0.10.6-1.msi
```

Pre-configuring virtual machines with Chef client-specific files for error-free bootstrapping

The default behavior for bootstrapping new nodes in a Chef environment includes downloading files from the Internet at run-time. If this behavior does not satisfy your needs, you can modify the bootstrapping script templates and your Chef Node VM templates to better suit your requirements. There are many different ways the script templates and VM templates can be modified. One such modification is described in the following sections. The Chef Server will still need SSH access to each client.

Modifying the VM templates

First, the VM templates used to provision new Chef nodes must be modified. Use one of the following procedures, depending on the OS of the client.

LINUX CLIENTS

1. Use the vSphere client to deploy a virtual machine from your existing Linux Chef node VM template. On the Chef Server, open the terminal and execute the following command as a registered Knife API client (for example, the user specified in the Chef deployer plugin configuration) along with any other needed options:

```
knife bootstrap <node fqdn> -x <node root user> -P <node password>
```

Note: Use the command `knife bootstrap --help` to see a list of available command options.

2. Sanitize the node by removing the following files from the “chef” directory on the bootstrapped VM (on Ubuntu Desktop 10.04, for example, the “chef” directory is /etc/chef):
 - client.pem
 - client.rb
 - first-boot.json
 - validation.pem
3. Convert your modified VM back into a template. Use the `knife node delete` and `knife client delete` commands on the Chef Server to remove the VM from the node and client lists. Propagate the new VM template as needed: for example, by updating your IO templates and re-synchronizing those IO templates in HP CDA.

MICROSOFT WINDOWS CLIENTS

1. Use the vSphere client to deploy a virtual machine from your existing Windows Chef node VM template. On the newly deployed VM, download the Chef Client MSI installer you wish to use for installing the Chef client. Place the file in a non-user directory (for example, C:\). Note the full path to the file, including the file name, as this information will be needed later.
2. Convert the modified VM back into a template. Propagate the new VM template as needed: for example, by updating your IO templates and re-synchronizing those IO templates in HP CDA.

Modifying the bootstrapping script templates

Now that you have modified the VM templates, you need to modify the bootstrapping script templates to reflect the new behavior. Use one of the following procedures, depending on the OS of the client.

LINUX BOOTSTRAPPING SCRIPT TEMPLATES

Locate the default Linux bootstrapping script template on the Chef Server. After installing Chef Server 0.10.6 on Ubuntu Desktop 10.04.3, the default Linux bootstrapping script template is the `ubuntu10.04-gems.erb` file in `/usr/lib/ruby/gems/1.9.1/gems/chef-0.10.6/lib/chef/knife/bootstrap`.

1. Open the script template for editing. Remove the logic that performs the download and installation of ruby, rubygems, the Chef gem, and the ohai gem. This logic may include calls to apt-get or another package management system, wget, and gem, as well as other commands.
2. Save the template.

WINDOWS BOOTSTRAPPING SCRIPT TEMPLATES

Locate the default Windows bootstrapping script template on your Chef Server. After installing Knife Windows 0.5.8 on Ubuntu Desktop 10.04.3, the default Windows bootstrapping script template is the

windows-chef-client-msi.erb file in `/usr/lib/ruby/gems/1.9.1/gems/knife-windows-0.5.8/lib/chef/knife/bootstrap`.

1. Open the script template for editing. Remove the logic that performs the download of the MSI, which is a `cscript` call executing the `wget.vbs` script. Change the logic that runs the installer (for example, the call to `msiexec`) to reference the location on the Windows VM template where you placed the MSI.
2. Save the script template.

Tips

If you need to determine which bootstrapping script template is the default, you can look in `bootstrap.rb` in the Chef Server code for Linux or `bootstrap_windows_base.rb` in the Knife Windows code for Windows. Look for `option :distro` and note that the `:default` variable is set to the name of the default bootstrapping script template, minus its `.erb` extension.

If you want to allow both the default bootstrapping process and the modified process described here in your environment, copy the template file to a new file; then modify the copy instead of the original. In the Chef Deployer plugin configuration, enter the full location (including the file name) of the modified template into the "Chef Server bootstrap script" field and select that plugin configuration as the deployer for server groups being provisioned from the VM template. If the Chef Server bootstrap script field in the Chef Deployer plugin configuration is not set, the default bootstrapping script template for the server group's OS type will be used.

E For More Information

HP Continuous Delivery Automation (HP CDA) provides the following information resources available from the HP Software Product Manuals Web site at <http://support.openview.hp.com/selfsolve/manuals>:

- *HP CDA Information Resources List*: list of all HP CDA information resources and publication dates.
- *HP CDA Installation and Configuration Guide*: instructions about how to install and configure HP CDA.
- *HP CDA Release Notes*: list of release contents, installation notes, and any known problems and workarounds.
- *HP CDA Solution and Software Support Matrix*: information about platform support requirements for HP CDA core functions with links to requirements for component products.
- *HP CDA Concepts Guide*: high-level overview of the HP CDA solution.
- *HP CDA User Guide*: information about how to design, deploy, and monitor applications by using HP CDA, and how to administer HP CDA.
- *HP CDA Troubleshooting Guide*: troubleshooting information including basic triage of common problems and use of integration log files.

Note: To check for recent updates or to verify that you are using the most recent edition of a document, go to:

<http://h20230.www2.hp.com/selfsolve/manuals>

This site requires that you register for an HP Passport and sign in. To register for an HP Passport ID, go to:

<http://h20229.www2.hp.com/passport-registration.html>

You can also click the **New users - please register** link on the HP Passport login page. You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.