Oracle® Beehive

Installation Guide

Release 1 (1.5) for Linux x86

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Oracle Beehive Installation Guide, Release 1 (1.5) for Linux x86

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Preface

The *Oracle Beehive Installation Guide for Linux x86* describes how to install and configure Oracle Beehive.

Audience

The *Oracle Beehive Installation Guide for Linux x86* is directed at any administrator whose task is the installation, deployment, configuration, administration, and maintenance of Oracle Beehive.

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Related Documents

For more information, see the following documents in the Oracle Beehive Release 1 documentation library:

- *Oracle Beehive Administrator's Guide*
- *Oracle Beehive Administrator's Reference Guide*
- *Oracle Beehive Application Developer's Guide*
- *Oracle Beehive Concepts*
- *Oracle Beehive Deployment Guide*

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Part I

Oracle Beehive Installation

This part describes how to install and uninstall Oracle Beehive. To upgrade Oracle Beehive, refer to Part II, "Oracle Beehive Upgrade Procedures". To configure Oracle Beehive, refer to Part III, "Oracle Beehive Post-Installation Configuration". To install Oracle Beehive in a high availability environment, refer to Part IV, "Oracle Beehive High Availability Configuration".

This part contains the following modules:

- What You Should Know Before Installing Oracle Beehive
- Oracle Beehive Database Requirements
- Oracle Beehive Install Wizard Checklist
- Oracle Beehive Install Wizard
- Oracle Beekeeper Installation Help
- Provisioning Oracle Beehive
- Provisioning Oracle Beekeeper
- Installing Oracle Beehive in Silent Mode (Non-Interactive)
- Oracle Beehive Install and Config Wizard Command-Line Options
- Oracle Beehive Uninstall Wizard
- Troubleshooting Oracle Beehive Installation

1

What You Should Know Before Installing Oracle Beehive

This module describes the hardware and software prerequisites of Oracle Beehive and available installation scenarios. It covers the following topics:

- Requirements
- Installation Scenarios
- Upgrading Oracle Beehive
- Starting Oracle Beehive Install Wizard
- Post-Installation Procedures
- Cloning Application Tiers and Deployments
- Uninstalling Oracle Beehive

Requirements

This section describes the following Oracle Beehive software and hardware requirements:

- Operating System Certification
- Kernel Version
- Kernel Parameters
- Required Operating System Packages for Linux
- Requirements for 64-Bit Systems
- Increasing Shell Limits on Linux
- Database Requirements
- Oracle Enterprise Manager Grid Control Requirements
- Hardware Requirements
- Host Name Resolution

Operating System Certification

Oracle Beehive supports the following Linux (x86 32-bit) operating system certifications:

- Oracle Enterprise Linux 4

- Oracle Enterprise Linux 5
- Red Hat Enterprise Linux 4 Update 3 and later
- Red Hat Enterprise Linux 5
- SuSE Linux Enterprise 9.0 with Service Pack 2 and later
- SuSE Linux Enterprise 10.0

Kernel Version

The system must be running the following kernel version (or a later version):

- Oracle Enterprise Linux 4 and 5: 2.6.9-34.0.1.0.11.EL
- Red Hat Enterprises Linux 4 and 5: 2.6.9-29.EL
- SuSE Linux Enterprise 9.0: 2.6.5-7.97
- SuSE Linux Enterprise 10.0: 2.6.16.21-0.8

Note: Oracle Beehive also supports both SMP (symmetric multiprocessing) and hugemem kernels. For example, Oracle Beehive also supports Red Hat Enterprises Linux 4 and 5 kernel versions 2.6.9-29.ELsmp and 2.6.9-29.ELhugemem.

Kernel Parameters

Verify that the kernel parameters shown in the following table are set to values greater than or equal to the minimum value shown. If the current value for any parameter is higher than the value listed in this table, then do not change the value of that parameter. The procedure following the table describes how to verify and set the values.

Note: You require root privileges to perform the steps described in this section.

The kernel parameter and shell limit values shown in the following section are minimum values only. For production database systems, Oracle recommends that you tune these values to optimize the performance of the system. Refer to the operating system documentation for more information about tuning kernel parameters.

Table 1–1 Minimum Values and Locations of Kernel Parameters

Parameter	Minimum Value	File
`ip_local_port_range`	Minimum: 22000 Maximum: 65000	`/proc/sys/net/ipv4/ip_local_port_range` This file defines the local port range that is used by TCP and UDP traffic to choose the local port.

To display the current value specified for these kernel parameters, and to change them if necessary, use the following steps:

- Enter the commands shown in the following table to display the current values of the kernel parameters; make a note of these values and identify any values that you must change:

Table 1–2 Commands to Display Kernel Parameters

Parameter	Command
`ip_local_port_range`	`# /sbin/sysctl -a | grep ip_local_port_range` This command displays a range of port numbers.

- If the value of any kernel parameter is different from the minimum value, then complete the following procedure:

1. Using any text editor, create or edit the `/etc/sysctl.conf` file, and add or edit lines similar to the following:

   ```
   net.ipv4.ip_local_port_range = 22000 65000
   ```

   By specifying the values in the `/etc/sysctl.conf` file, they persist when you restart the system. However, on SuSE Linux Enterprise Server systems, enter the following command to ensure that the system reads the `/etc/sysctl.conf` file when it restarts:

   ```
   # /sbin/chkconfig boot.sysctl on
   ```

2. Enter the following command to change the current values of the kernel parameters:

   ```
   # /sbin/sysctl -p
   ```

   Review the output from this command to verify that the values are correct. If the values are incorrect, edit the `/etc/sysctl.conf` file, then enter this command again.

3. Enter the command `/sbin/sysctl -a` to confirm that the values are set correctly.

4. On SuSE Linux systems only, enter the following command to cause the system to read the `/etc/sysctl.conf` file when it restarts:

   ```
   # /sbin/chkconfig boot.sysctl on
   ```

5. On SuSE Linux systems only, you must enter the GID of the *`oinstall`* group as the value for the parameter `/proc/sys/vm/hugetlb_shm_group`. Doing this grants members of *`oinstall`* a group permission to create shared memory segments.

   For example, where the *`oinstall`* group GID is 501:

   ```
   # echo 501 > /proc/sys/vm/hugetlb_shm_group
   ```

   After running this command, use `vi` to add the following text to `/etc/sysctl.conf`, and enable the `boot.sysctl` script to run on system restart:

   ```
   vm.hugetlb_shm_group=501
   ```

   Note: Only one group can be defined as the `vm.hugetlb_shm_group`.

6. After updating the values of kernel parameters in the `/etc/sysctl.conf` file, either restart the computer, or run the command `sysctl -p` to make the changes in the `/etc/sysctl.conf` file available in the active kernel memory.

Required Operating System Packages for Linux

Oracle Beehive requires the following packages. (This list also indicates the minimum version required for each package.)

Notes: These package versions may differ between different Linux distributions.

To determine whether a required package is installed, use the `rpm` command:

```
rpm -q <package name>
```

If a package is not installed, install it from the Linux distribution media or download the required package from your Linux vendor's web site.

- Oracle Enterprise Linux 4 and Red Hat Enterprise Linux 4
  - gcc-3.4.5-2 (GNU Compiler Collection)
  - gcc-c++-3.4.5-2 (C++ support for GCC)
  - openmotif21-2.1.30-11.RHEL4.4 (Open Motif run time libraries and executables)
  - setarch-1.6-1 (Personality setter)
  - pdksh-5.2.14-30.3 (Public domain Korn shell)
  - sysstat-5.0.5-7 (System monitoring commands sar and iostat)
  - gnome-libs-1:1.4.1.2.90-44.1 (GNOME basic libraries)
  - libstdc++-3.4.5-2 (GNU Standard C++ Library)
  - libstdc++-devel-3.4.5-2 (Header files and libraries for C++ development)
  - compat-libstdc++-296-2.96-132.7.2 (Compatibility 2.96-Red Hat standard C++ libraries)
  - compat-db-4.1.25-9 (Berkeley DB database library for Red Hat Linux 7.x compatibility)
  - control-center-2.8.0-12rhel4.2 (GNOME Control Center)
  - glibc-common-2.3.4-2.9 (Common binaries and locale data for glibc)
  - binutils-2.15.92.0.2-18 (GNU Binary Utility Development Utilities)
  - make-1:3.80-5 (GNU make)
  - xscreensaver-4.18-5.rhel4.10 (X Window System screen saver and locker)
  - xorg-x11-deprecated-libs-6.8.2-1.EL.13.25 (Deprecated X Window System shared libraries)
- Oracle Enterprise Linux 5 and Red Hat Enterprise Linux 5

  - gcc 4.1.1-52 (GNU Compiler Collection)
  - gcc-c++ 4.1.1-52 (C++ support for GCC)
  - setarch 2.0-1.1 (Personality setter)
  - ksh 20060214-1.4 (Korn shell)
  - sysstat 7.0.0-3 (System monitoring commands sar and iostat)
  - gdbm 1.8.0-26.2.1 (GNU database routines)
  - libstdc++ 4.1.1-52 (GNU Standard C++ Library)
  - libstdc++-devel 4.1.1-52 (Header files and libraries for C++ development)
  - compat-libstdc++-296 2.96-138 (Compatibility 2.96-Red Hat standard C++ libraries)
  - compat-db 4.2.52-5.1 (Berkeley DB database library for Red Hat Linux 7.x compatibility)
  - control-center 2.16.0-14 (GNOME Control Center)
  - glibc-common 2.5-12 (Common binaries and locale data for glibc)
  - binutils 2.17.50.0.6-2 (GNU Binary Utility Development Utilities)
  - make 3.81-1.1 (GNU make)
- SuSE Linux Enterprise 9.0
  - pdksh-5.2.14-780.1 (Public domain Korn shell)
  - sysstat-5.0.1-35.1 (System monitoring commands sar and iostat)
  - openmotif21-libs 2.1.30MLI4-119.1 (Open Motif run time libraries and executables)
  - libstdc++-3.3.3-43.24 (GNU Standard C++ Library)
  - make-3.80-184.1 (GNU make)
  - binutils-2.15.90.0.1.1-32.5 (GNU Binary Utility Development Utilities)
  - gcc-3.3.3-43.24 (GNU Compiler Collection)
  - gcc-c++-3.3.3-43.24 (C++ support for GCC)
  - gnome-libs-1.4.1.7-671.1 (GNOME basic libraries)
  - gnome-libs-devel-1.4.1.7-671.1 (Libraries and headers for GNOME 1 application development)
  - libstdc++-devel-3.3.3-43.24 (Header files and libraries for C++ development)
  - db1-1.85-85.1 (Berkeley DB database library)
- SuSE Linux Enterprise 10.0
  - ksh-93r-12.9 (Korn shell)
  - sysstat-5.0.1-35.1 (System monitoring commands sar and iostat)
  - openmotif21-libs-2.1.30MLI4-143.2 (Open Motif run time libraries and executables)
  - libstdc++-4.1.0-28.4 (GNU Standard C++ Library)
  - make-3.80-202.1 (GNU make)
  - binutils-2.16.91.0.5-23.4 (GNU Binary Utility Development Utilities)

  - gcc-4.1.0-28.4 (GNU Compiler Collection)
  - gcc-c++-4.1.0-28.4 (C++ support for GCC)
  - libstdc++-devel-4.1.0-28.4 (GNU Standard C++ Library)
  - db1-1.85-101.2 (Berkeley DB database library)

Requirements for 64-Bit Systems

To install and deploy Oracle Beehive on 64-bit systems, perform the following:

- Install Required Packages
- Use 32-Bit Shell Emulation

Install Required Packages

Ensure that the following packages are installed on your system. (This list also indicates the minimum version required for each package.)

Note: On Red Hat Enterprise Linux systems, to install 32-bit packages on a 64-bit system, you may need to use the `--force` option and the `--nodeps` option of the `rpm` utility.

- **Red Hat Enterprise Linux:**
  - binutils-2.15.92.0.2-13.x86_64.rpm
  - compat-db-4.1.25-9.i386.rpm (32-bit)
  - compat-db-4.1.25-9.x86_64.rpm
  - control-center-2.8.0-12.x86_64.rpm
  - gcc-3.4.3-22.1.x86_64.rpm
  - gcc-c++-3.4.3-22.1.x86_64.rpm
  - glibc-2.3.4-2.9.i686.rpm (32-bit)
  - glibc-2.3.4-2.9.x86_64.rpm
  - glibc-common-2.3.4-2.9.x86_64.rpm
  - glibc-devel-2.3.4-2.9.x86_64.rpm
  - gnome-libs-1.4.1.2.90-44.1.x86_64.rpm
  - libstdc++-3.4.3-22.1.i386.rpm (32-bit)
  - libstdc++-3.4.3-22.1.x86_64.rpm
  - libstdc++-devel-3.4.3-22.1.i386.rpm (32-bit)
  - libstdc++-devel-3.4.3-22.1.x86_64.rpm
  - make-3.80-5.x86_64.rpm
  - pdksh-5.2.14-30.x86_64.rpm
  - sysstat-5.0.5-1.x86_64.rpm
  - xscreensaver-4.18-5.rhel4.2.x86_64.rpm
  - setarch-1.6-1.x86_64

  - openmotif21-2.1.30-11.RHEL4.4.i386.rpm (32-bit)
- **SuSE Linux Enterprise 10.0**:
  - glibc-2.3.3-98.28.x86_64.rpm
  - glibc-32bit-9-200407011233.x86_64.rpm
  - glibc-devel-32bit-9-200407011229.x86_64.rpm
  - gcc-3.3.3-43.24.x86_64.rpm
  - gcc-3.2.3-20.x86_64.rpm
  - gcc-c++-3.3.3-43.24.x86_64.rpm
  - libgcc-3.2.3-20.i386.rpm (32-bit)
  - libstdc++-3.3.3-43.24.x86_64.rpm
  - libstdc++-devel-3.3.3-43.24.x86_64.rpm
  - libstdc++-devel-32bit-9-200407011229.x86_64.rpm
  - gnome-libs-1.4.1.7-671.1.x86_64.rpm
  - gnome-libs-devel-1.4.1.7-671.1.x86_64.rpm
  - gnome-libs-32bit-9-200407011229.x86_64.rpm
  - binutils-2.15.90.0.1.1-32.5.x86_64.rpm
  - binutils-32bit-9-200407011229.x86_64.rpm
  - compat-32bit-9-200407011229.x86_64.rpm
  - compat-sles8-1.3-93.3.x86_64.rpm
  - compat-2004.7.1-1.2.x86_64.rpm
  - pdksh-5.2.14-780.1.x86_64.rpm
  - make-3.80-184.1.x86_64.rpm
  - sysstat-5.0.1-35.1.x86_64.rpm
  - perl-32bit-9-200407011229.x86_64.rpm
  - libaio-devel-32bit-9-200407011229.x86_64.rpm
  - XFree86-devel-32bit-9-200407011229.x86_64.rpm
  - linux32-1.0-341.1.x86_64.rpm
  - db-32bit-9-200407011229.x86_64.rpm
  - db1-32bit-9-200407011229.x86_64.rpm
  - compat-32bit-9-200407011229.x86_64.rpm
  - db1-1.85-119.i586.rpm
  - compat-gdbm-1.8.0-7.i586.rpm

Use 32-Bit Shell Emulation

If you plan to deploy Oracle Beehive for Linux on a 64-bit system, you must use 32-bit shell emulation. To do this, use the following command before running the Install Wizard or any other Oracle Beehive commands:

```
linux32 bash
```

Increasing Shell Limits on Linux

Note: In order to install Oracle Beehive, the maximum number of open file descriptors must be at least 4096.

Although the steps in this section increase the value of the maximum number of open file descriptors, ensure that the kernel parameter `fs.file-max` is set to a value equal or higher than the value of `hard nofile` in the `/etc/security/limits.conf` file.

To improve the performance of Oracle Beehive on Linux, increase the following shell limits for the user installing Oracle Beehive:

Table 1–3 Minimum Shell Limits

Shell Limit	Item in limits.conf	Hard Limit
Maximum number of open file descriptors	`nofile`	`65536`
Maximum number of processes available to a single user	`nproc`	`16384`

Follow these steps to increase the shell limits. These steps assume you are using a user named `oracle` to install Oracle Beehive:

1. Add the following lines to the `/etc/security/limits.conf` file:

```
oracle              soft    nproc   2047
oracle              hard    nproc   16384
oracle              soft    nofile  1024
oracle              hard    nofile  65536
```

2. Add or edit the following line in the `/etc/pam.d/login` file, if it does not already exist:

```
session  required  /lib/security/pam_limits.so
```

3. Depending on the `oracle` user's default shell, make the following changes to the default shell start-up file:

   - For the Bourne, Bash, or Korn shell, add the following lines to the `/etc/profile` file (or the file on SuSE Linux systems, `/etc/profile.local`):

```
if [ $USER = "oracle" ]; then
        if [ $SHELL = "/bin/ksh" ]; then
              ulimit -p 16384
              ulimit -n 65536
        else
              ulimit -u 16384 -n 65536
        fi
fi
```

   - For the C shell (csh or tcsh), add the following lines to the `/etc/csh.login` file (or the file on SuSE Linux systems, `/etc/csh.login.local`):

```
if ( $USER == "oracle" ) then
        limit maxproc 16384
        limit descriptors 65536
```

```
endif
```

Database Requirements

Refer to "Oracle Beehive Database Requirements" for information about Oracle Beehive database requirements, creating databases, and configuring database settings.

> **Note:** The installation scenario "Installing Oracle Beehive for Demilitarized Zone (DMZ)" does not require a database. See this section for more information about this scenario.

Oracle Enterprise Manager Grid Control Requirements

If you want to install the Oracle Beehive Provisioning Application, which enables you to install Oracle Beehive from Oracle Enterprise Manager Grid Control, you must have Oracle Enterprise Manager 10*g* Release 4 Grid Control (10.2.0.4) or later.

Hardware Requirements

The following are the minimum hardware requirements for Oracle Beehive:

- Disk Space: 2.6 GB

> **Note:** Installing Oracle Beehive on a Network File System (NFS) file system is currently not supported.

- Swap Space: 2,048 MB
- Memory:
  - Oracle Beehive (refer to "Template Information" for more information about these templates):
    - Basic Server Template: 2 GB
    - Basic Server and Client Template: 3 GB
    - Client Only Template: 2 GB
  - Oracle Beehive for DMZ: 1 GB

> **Notes:** The values for minimum disk space and memory do not include the amounts required for the target database.
>
> Oracle Beehive does not support IPv6 (Internet Protocol version 6). You must disable IPv6 from the server on which you plan to install Oracle Beehive before starting the installation process.

Host Name Resolution

Before installing Oracle Beehive, configure host name resolution and verify that your host name or host names resolve.

1. Verify that the host name has been set by using the `hostname` command:

   ```
   hostname
   ```

   The output of this command should be similar to the following:

```
myhost.mycomputer.com
```

2. Verify that the `/etc/hosts` file contains the fully qualified host name by using the following command:

```
cat /etc/hosts | grep ‘eval hostname‘
```

The output of this command should contain an entry for the fully qualified host name and for localhost. For example:

```
192.168.100.16     myhost.mycompany.com      myhost
127.0.0.1          localhost                 localhost.localdomain
```

If the `/etc/hosts` file does not contain the fully qualified host name, then edit the file and make the required changes in it.

Installation Scenarios

This section describes the possible ways you may install Oracle Beehive. It covers the following topics:

- Installing Oracle Beehive Against an Existing Database
- Installing Oracle Beehive Provisioning Application to Allow Oracle Beehive to Be Provisioned Through Oracle Enterprise Manager Grid Control
- Installing Oracle Beehive for Demilitarized Zone (DMZ)
- Installing Oracle Beekeeper
- Installing Oracle Beehive in Silent Mode
- Installing Oracle Beehive in High Availability Environment
- Installing More Than One Instance

Installing Oracle Beehive Against an Existing Database

This is the standard installation scenario that will give you a fully functioning instance of Oracle Beehive.

This scenario gives you the choice to install and configure Oracle Beehive, or to install Oracle Beehive now and configure it later.

For more information about installing Oracle Beehive against an existing database, refer to "Oracle Beehive (Standard Installation) Sequence of Screens".

Installing Oracle Beehive Integration for Zimbra

Oracle Beehive Integration for Zimbra is a Web-based client for Oracle Beehive. To install this product, select the Basic Server and Client template when installing Oracle Beehive. For more information, refer to "Template Information" in "Oracle Beehive (Standard Installation) Sequence of Screens".

After installing this product, refer to "Configuring Oracle Beehive Integration for Zimbra".

Installing Oracle Beehive Provisioning Application to Allow Oracle Beehive to Be Provisioned Through Oracle Enterprise Manager Grid Control

Oracle Enterprise Manager Grid Control offers a centralized environment with which you can manage the complete Oracle IT infrastructure, including systems running

Oracle and non-Oracle technologies. Oracle Enterprise Manager Grid Control gives you a broad set of administration, configuration management, provisioning, end-to-end monitoring, and security capabilities.

Oracle Beehive Provisioning Application enables you to install and configure Oracle Beehive products in the robust environment of Oracle Enterprise Manager Grid Control.

Oracle Beehive Provisioning Application enables you to upload installable versions of Oracle Beehive products into the central software library of Oracle Enterprise Manager Grid Control. Oracle Beehive Provisioning Application also creates deployment procedures with which you can install and configure Oracle Beehive products on any host through the deployment procedure manager of Oracle Enterprise Manager Grid Control.

You may install Oracle Beehive and Oracle Beehive for DMZ with Oracle Beehive Provisioning Application.

Refer to "Oracle Beehive Provisioning Application Sequence of Screens" and "Provisioning Oracle Beehive" for more information.

Provisioning Oracle Beekeeper with Oracle Beekeeper Provisioning Application

You may install and configure Oracle Beekeeper through the deployment procedure manager of Oracle Enterprise Manager Grid Control with Oracle Beekeeper Provisioning Application.

Refer to "Provisioning Application for Oracle Beekeeper Sequence of Screens" and "Provisioning Oracle Beekeeper" for more information.

Installing Oracle Beehive for Demilitarized Zone (DMZ)

This scenario installs and configures Oracle Beehive into a demilitarized zone (DMZ) that will integrate with the rest of the Oracle Beehive system.

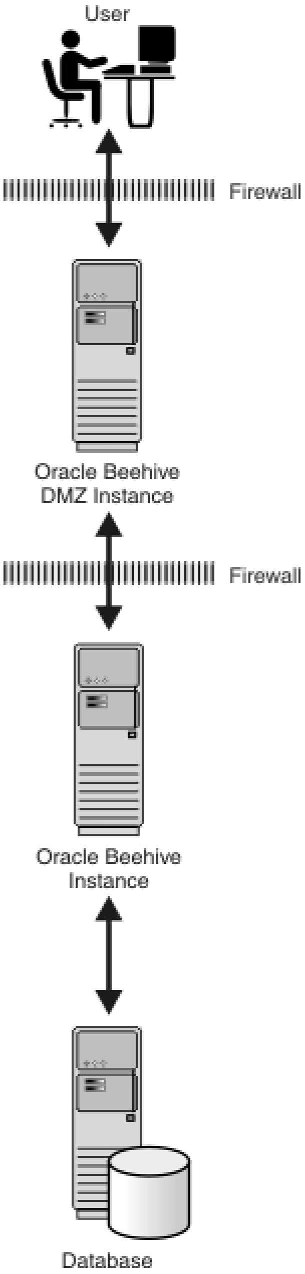
An Oracle Beehive DMZ configuration consists of one or more Oracle Beehive DMZ instances that are isolated from the Internet by a firewall on one side, and from one or more Oracle Beehive non-DMZ instances by a firewall on the other side. The DMZ instances are viewed as semi-secure. They are protected from the open Internet, but are not completely trusted like the non-DMZ instances that are inside the second firewall and part of the company's intranet. Oracle Beehive data is stored only in the non-DMZ instances, and administrative tasks may only be performed on the non-DMZ instances.

Oracle Beehive for DMZ requires an existing (non-DMZ) Oracle Beehive instance.

Oracle Beehive for DMZ does not require a database. However, the administration tool `beectl` will be disabled. Because this installation scenario does not require a database, you only have to specify a target installation location, which the Oracle Beehive Install Wizard will configure as a DMZ.

The following image illustrates an Oracle Beehive DMZ instance integrated in an Oracle Beehive system:

Figure 1–1 Oracle Beehive DMZ Instance Integrated in Oracle Beehive System



For more information about installing Oracle Beehive for a DMZ, refer to "Oracle Beehive for DMZ Sequence of Screens".

Installing Oracle Beekeeper

Oracle Beekeeper is available for Oracle Beehive Release 1 (1.3) and later.

Oracle Beekeeper is a secure, browser-based administration client. It provides Oracle Beehive administrators centralized and role-based access to system configuration and management, user and workspace administration, monitoring, and reporting functions. For more information about installing this product, refer to "Oracle Beekeeper Installation Help".

Run `runInstaller` (UNIX-based operating systems) or `setup.exe` (Microsoft Windows) from the Oracle Beekeeper installation media to start the Install Wizard for this product.

Requirements and Certifications

This version of Oracle Beekeeper is certified for Oracle Beehive Release 1 (1.5) and Web browsers Mozilla Firefox version 2 and Microsoft Internet Explorer version 7.

The following are the minimum hardware requirements for Oracle Beekeeper:

- Disk Space: 750 MB
- Memory: 1GB RAM

Installing Oracle Beekeeper Provisioning Application

Oracle Beekeeper Provisioning Application creates a deployment procedure that enables you to install and configure Oracle Beekeeper on any host through the deployment procedure manager of Oracle Enterprise Manager Grid Control.

Refer to "Provisioning Application for Oracle Beekeeper Sequence of Screens" and "Provisioning Oracle Beekeeper" for more information.

Installing Oracle Beehive in Silent Mode

Silent mode enables you to install Oracle Beehive with minimal interaction. You provide the Oracle Beehive Install Wizard with a response file that contains all the required information to install and configure Oracle Beehive. As a result, you do not have to be present to select, specify, and confirm options in each step of the installation process.

This scenario is appropriate if you want to install Oracle Beehive as a batch process or do not want to use the GUI provided by the Install Wizard.

You may install Oracle Beehive against an existing database or Oracle Beehive Provisioning Application in silent mode.

For more information about installing Oracle Beehive in silent mode, refer to "Installing Oracle Beehive in Silent Mode (Non-Interactive)".

Installing Oracle Beehive in High Availability Environment

Installing Oracle Beehive in a high availability environment involves installing a third-party load balancer, installing multiple Oracle Beehive instances, and configuring the virtual server of each instance.

Note: If your Oracle Beehive deployment will be using WebDAV, your load balancer must be RFC 2518 (*HTTP Extensions for Distributed Authoring -- WEBDAV*) compliant.

For more information, refer to "Installing Oracle Beehive in High Availability Environment".

Installing More Than One Instance

To install more than one instance of Oracle Beehive so that each instance is in its own computer and shares the same database, simply install each instance with the Install

Wizard. When entering the database information for each instance, use the same global service name for the server name.

To install multiple instances of Oracle Beehive with Oracle RAC, refer to the section, "Installing Multiple Oracle Beehive Instances with Oracle RAC".

To configure a load balancer after installing multiple Oracle Beehive instances, refer to "Installing Oracle Beehive in High Availability Environment".

Upgrading Oracle Beehive

Refer to "Upgrading Oracle Beehive Overview" for steps to perform before upgrading your Oracle Beehive deployment to Oracle Beehive Release 1 (1.5), the order in which you should upgrade Oracle Beehive products, and other procedures to perform after upgrading.

Starting Oracle Beehive Install Wizard

All installation scenarios use the Oracle Beehive Install Wizard.

Run `runInstaller` from a user account other than root to start the installation and configuration of Oracle Beehive

Note: For SuSE Linux Enterprise, set the environment variable `LD_LIBRARY_PATH` to `<`*`Oracle Database home`*`>/lib` and start the database before running the Install Wizard.

Note: Oracle Beekeeper is shipped on its own installation media (separate from Oracle Beehive). Run `runInstaller` from this installation media to start the installation and configuration of Oracle Beekeeper.

The Oracle Beehive Install Wizard has several command-line options available. For more information about these options, refer to "Oracle Beehive Install and Config Wizard Command-Line Options".

Note: For all installation scenarios, except "Installing Oracle Beehive in Silent Mode", you may run the Oracle Beehive Install Wizard without any command-line options. For more information about installing Oracle Beehive in silent mode, refer to "Installing Oracle Beehive in Silent Mode (Non-Interactive)".

Post-Installation Procedures

Depending on the installation scenario you have chosen, your security requirements, the standards-based clients you want to use with Oracle Beehive, or any other issue particular to your deployment, perform the appropriate procedures described in "Oracle Beehive Post-Installation Procedures". These procedures include the following:

- Using Oracle Beehive Command-Line Utility
- Performing Post-Installation Procedures on Oracle Beehive Database
- Configuring FTP

- Configuring Oracle Beehive to Listen on Ports Less Than 1024
- Configuring DMZ Instances
- Integrating and Synchronizing LDAP with Oracle Beehive
- Configuring SSL
- Configuring TLS
- Configuring SSL for LDAP Integration
- Enabling AJPS
- Configuring Oracle Beehive E-mail
- Configuring XMPP
- Configuring Notifications to Use SMS
- Configuring Oracle Secure Enterprise Search
- Configuring Oracle Single Sign-On
- Configuring External Oracle BPEL Process Manager with Oracle Beehive
- Installing Oracle Beehive Extensions for Outlook
- Installing Oracle Beehive Extensions for Explorer
- Installing Oracle Beehive Conferencing Client
- Configuring Oracle Beehive Integration for Zimbra
- Configuring Remote Voice Conferencing Media Server for Oracle Beehive Conferencing
- Cloning Oracle Beehive
- Performing Oracle Beekeeper Post-Installation Procedures

Cloning Application Tiers and Deployments

Cloning is the process of copying an existing installation to a different location while preserving its configuration.

You may clone an application tier, which involves preparing a "gold" image of a patched Oracle home. With this clone, you may create a new application tier with all patches applied to it in a single step. This is in contrast to separately installing, configuring, and applying any patches to Oracle Beehive.

You may also clone a deployment, which involves creating an installation that is a copy of a production, test, or development installation.

Refer to "Cloning Oracle Beehive Application Tiers and Sites" for more information.

Uninstalling Oracle Beehive

You may uninstall the following products with the Oracle Beehive Uninstall Wizard:

- Oracle Beehive Release 1
- Oracle Beehive Provisioning Application
- Oracle Beehive for DMZ

Start the Oracle Beehive Uninstall Wizard by running the Oracle Beehive Install Wizard and clicking the **Uninstall** button. Alternatively, run the Oracle Beehive

Config Wizard (or Oracle Beehive Install Wizard) with the `-uninstall` command-line option.

For more information about Oracle Beehive Install Wizard or Oracle Beehive Config Wizard, refer to "Oracle Beehive Install and Config Wizard Command-Line Options".

For more information about uninstalling Oracle Beehive, refer to "Oracle Beehive Uninstall Wizard".

You may uninstall Oracle Beehive in silent mode. For more information, refer to the section "Uninstalling Oracle Beehive in Silent Mode" in "Installing Oracle Beehive in Silent Mode (Non-Interactive)".

Note: The Oracle Beehive Uninstall Wizard cannot remove the Oracle Beehive schema of a site-cloned application tier. Refer to "Manually Deleting Oracle Beehive Tablespaces and Datafiles" in "Oracle Beehive Uninstall Wizard" to manually remove the schema.

2

Oracle Beehive Database Requirements

This section describes Oracle Beehive database requirements, creating databases, and configuring database settings. It covers the following topics:

- General Requirements
- Patches
- Initialization Parameters
- Logging Settings
- Creating a Database
- Using Oracle Real Application Clusters Database
- Customizing Oracle Beehive Tablespaces Layout
- Using Raw Storage
- Post-Installation Procedures for Oracle Beehive Databases

> **Note:** The installation scenario "Installing Oracle Beehive for Demilitarized Zone (DMZ)" described in "What You Should Know Before Installing Oracle Beehive" does not require a database. Refer to this section for more information about this scenario.

General Requirements

Oracle Beehive requires an existing database with the following characteristics:

- Uses one of the follwing databases installed on any supported operating system:
  - Oracle Database 10*g* Release 2 (10.2.0.1) Enterprise Edition with Oracle Database 10*g* Release 2 (10.2.0.4) Patch Set 3
  - Oracle Database 11g Release 1 (11.1.0.6) Enterprise Edition
  - Oracle Database 11g Release 1 (11.1.0.7) Enterprise Edition

  Ensure that you have applied all the patches listed in the section "Patches".
- Uses character set AL32UTF8 (Unicode)
- Contains the following standard database components:
  - Oracle XML DB
  - Oracle *inter*Media (Oracle Multimedia in Oracle Database 11g)
  - Oracle Text

  - Partitioning
- Contains Rules Manager and Expression Filter (Rules Manager and Expression Filter are installed automatically with Oracle Database 10*g* Enterprise Edition.)

Patches

Microsoft Windows

For Microsoft Windows (32-bit and 64-bit versions), install the latest patch bundle for Oracle Database 10*g* Release 2 (10.2.0.4), Oracle Database 11g Release 1 (11.1.0.6), or Oracle Database 11g Release 1 (11.1.0.7) Enterprise Edition.

Operating Systems Other Than Microsoft Windows

Install the following patches for Oracle Database 10*g* Release 2 (10.2.0.4):

- 6369463: WRONG RESULTS WHEN USING ORA_ROWSCN PSEUDOCOLUMN
- 4033868: COLLECT FUNCTION LEAVES TEMPORARY SYS TYPES BEHIND
- 6653934: XF11.1SSHR - TRC - KDRWRIC
- 6725634: STBH SYNONYMS ARE INVALIDATED WHEN A TABLE PARTITION IS DROPPED
- 6897966: JOBS AREN'T STARTED SERVICE NAME IS CASE SENSITIVE
- 6923450: ORA-07445 [KOTGTSCH] - AFTER UPGRADE TO 10.2.0.4
- 6145687: BETA4:VERY STRANGE SYSTEM CHANGE NUMBER
- 6782437: QUERY WITH MULTIPLE SUBQUERIES PERFORMING POORLY AFTER 10G UPGRADE
- 6083201: MERGE STATEMENT WITH XML TYPE FAILS WITH ORA-7445 [FCLOSE()+29]
- 6144426: STARSQL LNX ORA-04030 WHEN TRYING TO ALLOCATE 1332 BYTES (KXS-HEAP-C,QKKELE)
- 7694979: ORA-00904: RAISED FOR COMPLEX ADTS RESIDING IN DIFF. SCHEMAS
- 8214576: JOBS AREN'T STARTED: SERVICE NAME IS CASE SENSITIVE

Install the following patches for Oracle Database 11*g* Release 1 (11.1.0.6):

- 6168363: UTL_RECOMP.RECOMP_SERIAL(..) DUMPS WITH ORA 7445 [PHF_COPY_TO_DIANA()+1329]
- 6708565: EXFSYS.DBMS_RLMGR FAILS WITH ORA-38500
- 6750049: LIBNNZ10.SO DLOPEN FAILED WHEN TRYING TO START ONS (NODEAPPS)
- 6526468: VIRTUAL BYTES OF ORACLE.EXE GROWS WHEN INSERT/DELETE REPEATED WITH ONE SESSION

Install the following patches for Oracle Database 11*g* Release 1 (11.1.0.7):

- 6782437: QUERY WITH MULTIPLE SUBQUERIES PERFORMING POORLY AFTER 10G UPGRADE
- 7273988: TST&PERF:QUERY PLAN IS VERY BAD IN RDBMS_MAIN_LINUX_080623

- 6750049: LIBNNZ10.SO DLOPEN FAILED WHEN TRYING TO START ONS (NODEAPPS)
- 6083201: MERGE STATEMENT WITH XML TYPE FAILS WITH ORA-7445 [FCLOSE()+29]
- 6977167: ORA-04092: CANNOT ROLLBACK IN A TRIGGER RECEIVED REQUIRING INSTANCE BOUNCE
- 7694979: ORA-00904: RAISED FOR COMPLEX ADTS RESIDING IN DIFF. SCHEMAS
- 7378322: ORA 600 - 6704 GENERATED FOR A JOIN QUERY ON A HASH PARTITIONED TABLE
- 8221425: ORA-04031: UNABLE TO ALLOCATE 912 BYTES OF SHARED MEMORY
- 7643188: SQL VERSION COUNT REPORTED IN AWR DOES NOT MATCH SQLSTATS FOR 1 SQL ID
- 7156912: ORACLE TEXT INDEXING HANGS ON A HTML DOCUMENT WITH LONG COMMENTS
- 8487273: MERGE LABEL REQUEST ON TOP OF 11.1.0.7 FOR BUGS 8214576 7258928

Initialization Parameters

The database requires some initialization parameters to have a minimum value as specified in the following table:

Table 2–1 Minimum Values of Oracle Database Initialization Parameters

Property	Value
compatible	10.2.0.0.0 **Notes**: Do not modify this parameter if it is already set to a higher value. Ensure that the value of this parameter is in the form `x.x.x.x.x` (for example, `11.1.0.7.0`). If this format isn't used, you may encounter a validation error stating that the compatible parameter is not of the proper minimum version.

Table 2–1 (Cont.) Minimum Values of Oracle Database Initialization Parameters

Property	Value
db_block_size	Either this parameter must be set to 8192, or one of the following parameters have to be set: - db_8k_cache_size - db_16k_cache_size - db_32k_cache_size The db_cache_size parameter specifies in bytes of the cache of standard block size buffers. Oracle Beehive will use this value for the block size of its tablespaces. If any of the db_*n*k_cachce_size parameters are set, then Oracle Beehive will use the lowest value that is equal or greater than 8192. Refer to "Specifying Database Block Sizes" in "Oracle Database Administrator's Guide" for more information.
java_pool_size	50M (52428800)
job_queue_processes	10
processes	150
sga_max_size	1G
sga_target	500M
streams_pool_size	100M If your SGA (System Global Area) of the database is large (more than 3G), then set this parameter to 200M.
undo_retention	3600

Note: You may have to increase the values of processes and sessions if you are using Oracle RAC.

To see all parameters (in alphabetical order) along with their current values, use the following SQL*Plus command:

```
SQL> SHOW PARAMETERS
```

You may display parameters that contain a specified string. For example, to display all parameters having `COMPATIBLE` in their names, use the following command:

```
SQL> SHOW PARAMETERS COMPATIBLE
```

Set initialization parameters with the `ALTER SYSTEM` command. For example, to set the `COMPATIBLE` parameter with the value `11.1.0.7.0`, use the following command:

```
SQL> ALTER SYSTEM SET COMPATIBLE = ’11.1.0.7.0’ SCOPE = SPFILE;
```

Note: After setting initialization parameters, restart the database.

Logging Settings

The archive log mode of the database must be `ARCHIVELOG`, which enables the archiving of the redo logs. Oracle Beehive uses Change Data Capture (CDC), which requires that the archive log mode be turned on. Use the following command to determine the database's archive log mode:

```
SQL> SELECT LOG_MODE FROM SYS.V$DATABASE;
```

To set the archive log mode to `ARCHIVELOG`, use the following commands:

```
SQL> shutdown immediate
SQL> startup mount exclusive
SQL> alter database archivelog;
SQL> alter database open;
```

Note: By default, Change Data Capture is in asynchronous HotLog mode. In this mode, change data capture is performed asynchronously on the same database.

For more information about modes of Change Data Capture, refer to "Change Sources and Modes of Change Data Capture" in Chapter 16, "Change Data Capture" in *Oracle Database Data Warehousing Guide*.

Creating a Database

You may use Database Configuration Assistant (DBCA) to create and configure a database. For more information about this tool, refer to "Using DBCA to Create and Configure a Database" in Chapter 2, "Installing Oracle and Building the Database" in *Oracle Database 2 Day DBA*.

Tip: When creating a database for Oracle Beehive with DBCA, you may choose any template. With DBCA, you may also turn on the archive log mode (by selecting the option **Enable Archiving**), set the character set to AL32UTF8, and set initialization parameters listed in "Initialization Parameters".

Using Oracle Real Application Clusters Database

Refer to "Configuring and Installing Oracle Beehive for Oracle RAC" for pre-installation and post-installation steps required for Oracle Beehive deployments that use Oracle Real Application Clusters (RAC) databases.

Customizing Oracle Beehive Tablespaces Layout

You may customize the layout of Oracle Beehive tablespaces with the script `<`*`Oracle home`*`>/beehive/db/framework/beehive_custom_ts.sql`. You may change tablespace names, initial size of the datafile, block size, and datafile autoextend options.

By default, Oracle Beehive uses eleven tablespaces. The `beehive_custom_ts.sql` script maps each tablespace to a placeholder. The Oracle Beehive Install Wizard uses these placeholders (instead of the real tablespace name) for configuration.

For example, in the `beehive_custom_ts.sql` script, the tablespace `BEE_DATA` is mapped to the placeholder `ts_data`:

```
REM Tables containing transactional data
```

```
DEFINE ts_data            = BEE_DATA
DEFINE ts_data_path       = ''
DEFINE ts_data_sz         = 512M
DEFINE ts_data_bsz        = 8192
DEFINE ts_data_ae         = ON
DEFINE ts_data_ae_nx      = 128M
```

You must specify the mapping between the placeholders, such as `ts_data` and `ts_index`, and the corresponding tablespaces. If one tablespace is to be shared across multiple placeholders, adjust the tablespace size accordingly.

This script creates a special view named `bee_tablespaces`, which then is used by the install scripts. You may drop the view after a successful installation. Since the tablespace mapping information can be reused for subsequent product reinstallations, the installation script does not drop it.

The script also produces an output file with the actual CREATE TABLESPACE commands. The output file name is `create_beehive_tablespaces.sql`

After making your changes to the script, run it with SYS privileges.

Minimum Tablespace Sizes

By default, Oracle Beehive tablespaces are created with autoexend enabled. If you prefer to manage the size of the Oracle Beehive tablespaces yourself, the total size of all Oracle Beehive tablespaces should be at least 15 Gb.

Using Raw Storage

If you want to use a database that uses raw storage, customize the script `<Oracle home>/beehive/db/framework/beehive_custom_ts.sql`. Refer to "Customizing Oracle Beehive Tablespaces Layout" for more information about this script.

To use a raw device (which you have created and properly configured) for a particular tablespace, specify the full path of its datafile in the appropriate variable. For example, if you want to use a raw device for the `BEE_DATA` tablespace, specify the full path of its datafile in the `ts_data_path` variable.

By default, Oracle Beehive uses eleven tablespaces. The `beehive_custom_ts.sql` script maps each tablespace to a placeholder. The Oracle Beehive Install Wizard uses these placeholders (instead of the real tablespace name) for configuration.

To use a raw device (which you have created and properly configured) for a particular tablespace, specify the full path of its datafile in the appropriate variable. For example, if you want to use a raw device for the `BEE_DATA` tablespace, specify the full path of its datafile in the `ts_data_path` variable.

In addition, set the variable `APPEND_FILE_NAME` to `N`.

After making your changes to the script, run it with SYS privileges.

Post-Installation Procedures for Oracle Beehive Databases

After you have successfully installed Oracle Beehive, refer to "Oracle Beehive Database Post-Installation Procedures" for tuning recommendations to perform on your Oracle Beehive database.

3

Oracle Beehive Install Wizard Checklist

This module lists the information the Oracle Beehive Install Wizard requests during the installation process for the following products:

- Oracle Beehive (Standard Installation)
- Oracle Beehive Provisioning Application
- Oracle Beehive for DMZ
- Oracle Beekeeper
- Provisioning Application for Oracle Beekeeper

Oracle Beehive (Standard Installation)

- New Inventory Location: Oracle inventory directory path.

  The Oracle Beehive Install Wizard will ask you for the Oracle inventory directory path if Oracle Beehive is the first Oracle product you are installing on your system.

- Specify Home Location: Full path of the location where you want to install Oracle Beehive.
- Prerequisite Checks: Refer to "Requirements" in "Oracle Beehive Install Wizard Checklist" for Oracle Beehive software and hardware requirements.
- Database Information: Refer to "Oracle Beehive Database Requirements" for database requirements.
  - Host and Port
  - Service Name
  - Admin User Name
  - Admin User Password
- Template Information
  - Select Template: Templates include options to install Oracle Beehive Integration for Zimbra.
  - Memory to Allocate
- Enterprise Definition Information or Existing Enterprise Information
  - Enterprise
  - Organization
  - Site

  - Site Key
  - Instance Name
- Schema Password or Existing Schema Password
- beeadmin Password

Oracle Beehive Provisioning Application

- New Inventory Location: Oracle inventory directory path.

  The Oracle Beehive Install Wizard will ask you for the Oracle inventory directory path if this is the first Oracle product you are installing on your system.
- Specify Home Location: Full path of the location where you want to install Oracle Beehive Provisioning Application.
- Repository Database Administrator Password
- Software Library Location

Oracle Beehive for DMZ

- New Inventory Location: Oracle inventory directory path.

  The Oracle Beehive Install Wizard will ask you for the Oracle inventory directory path if this is the first Oracle product you are installing on your system.
- Specify Home Location: Full path of the location where you want to install Oracle Beehive for DMZ.
- Prerequisite Checks: Refer to "Requirements" in "Oracle Beehive Install Wizard Checklist" for Oracle Beehive software and hardware requirements.

Oracle Beekeeper

- New Inventory Location: Oracle inventory directory path.

  The Oracle Beehive Install Wizard will ask you for the Oracle inventory directory path if this is the first Oracle product you are installing on your system.
- Specify Home Location: Full path of the location where you want to install Oracle Beekeeper.
- Prerequisite Checks: Refer to "Requirements and Certifications" in "What You Should Know Before Installing Oracle Beehive" for Oracle Beekeeper requirements and certifications.
- Database Information: : Refer to "Oracle Beehive Database Requirements" for database requirements.
  - Host and Port
  - Service Name
  - Schema User Password
- Site Key Information

Provisioning Application for Oracle Beekeeper

- New Inventory Location: Oracle inventory directory path.

- Specify Home Location: Full path of the location where you want to install Provisioning Application for Oracle Beekeeper.
- Repository Database Administrator Password
- Software Library Location

4

Oracle Beehive Install Wizard

The following sections describe the Oracle Beehive Install Wizard screens that appear during installation of Oracle Beehive:

- Product Selection Sequence of Screens
- Oracle Beehive (Standard Installation) Sequence of Screens
- Oracle Beehive Provisioning Application Sequence of Screens
- Oracle Beehive for DMZ Sequence of Screens

Note: To install Oracle Beekeeper, run `runInstaller` (UNIX-based operating systems) or `setup.exe` (Microsoft Windows) from the Oracle Beekeeper installation media.

Product Selection Sequence of Screens

The following screens appear before product selection:

- Welcome
- New Inventory Location
- Select Product Type

Once you select a product type, you will proceed to one of the following sequence of screens:

- Oracle Beehive (Standard Installation) Sequence of Screens
- Oracle Beehive Provisioning Application Sequence of Screens
- Oracle Beehive for DMZ Sequence of Screens

Welcome

This screen welcomes you to the Oracle Install Wizard. It will guide you through the installation and configuration of Oracle Beehive Release 1.

The following describes the buttons that appear on most of the installation screens:

- Click **Help** to view the online help.
- Click **Save** to save the inputs you have entered to a file that you can use later as a response file. You can use this response file to continue the installation at a later time or perform a silent (non-interactive) installation.

Refer to the module "Installing Oracle Beehive in Silent Mode (Non-Interactive)" in *Oracle Beehive Installation Guide* for detailed information about installing Oracle Beehive with a response file.

- Click **Back** to go back to the previous step.
- Click **Next** to go to the next step.
- Click **Install** to start the installation of the product.

  This button is available only on the **Summary** screen.
- Click **Uninstall** to uninstall a previously installed Oracle Beehive product
- Click **Cancel** to exit from the Oracle Install Wizard at any time during the installation.

> **Tip:** Press **F1** to open the online help section for the field where your cursor focus is on the installation screen.

New Inventory Location

If Oracle Beehive Release 1 is the first Oracle product you are installing on a computer, then this screen is displayed.

On this screen, you specify in the **Inventory Directory Path** field the location of an inventory directory (the `oraInventory` directory). The Oracle Beehive Install Wizard will use this inventory directory to keep track of all Oracle products installed on the computer.

> **Notes:** The following notes are about the inventory directory:
>
> - If an Oracle product was installed previously on the computer, then the Oracle Beehive Install Wizard uses the existing inventory directory. To ensure that you have write permissions on that directory, run the Oracle Beehive Install Wizard as the same operating system user who installed the existing Oracle product.
> - The inventory directory location should be different from the directory path in which you are going to install Oracle Beehive Release 1.
> - The Oracle Beehive Install Wizard (as well as other installation programs from other Oracle products) will store its log files in the directory *`<inventory directory path>`*`/logs`.
>
>   However, if this is the first Oracle product you are installing on your computer, the Install Wizard will store its log files in a temporary directory, such as `/tmp` on Linux and UNIX-based operating systems. When you exit the Install Wizard, the Install Wizard will move these log files to *`<inventory directory path>`*`/logs`.

On **Linux and UNIX-based platforms,** specify in the **Operating System Group** field the operating system group that has the `write` permission to the target inventory directory location.

Select Product Type

Choose how you want to install Oracle Beehive from one of the following options:

- Complete installation by using the Oracle Beehive Release 1 option

- Plug-in installation by using the Provisioning Application for Oracle Beehive Release 1 option
- Installation for a demilitarized zone by using the Oracle Beehive Release 1 for DMZ option

The sequence of the following screens depend on the option that you select on this screen.

Oracle Beehive Release 1

Use this option to perform a complete installation of Oracle Beehive Release 1 on the specified host.

> **Note:** One of the prerequisites for selection the Oracle Beehive Release 1 option is that you must have an existing instance of Oracle Database. This database is not installed by this procedure.
>
> Refer to the module "Oracle Beehive Database Requirements" in the Oracle Beehive Installation Guide of your operating system for database requirements for Oracle Beehive Release 1.

See "Oracle Beehive (Standard Installation) Sequence of Screens" to continue installing Oracle Beehive Release 1.

Provisioning Application for Oracle Beehive Release 1

Use this option to install the Provisioning Application. This will allow you to install and configure Oracle Beehive Release 1 instances from Oracle Enterprise Manager Grid Control.

The prerequisite for installing this plug-in is that you must have a preinstalled instance of Oracle Enterprise Manager 10*g* Grid Control Release 4 (10.2.0.4) or later.

See "Oracle Beehive Provisioning Application Sequence of Screens" to continue installing Oracle Beehive Release 1 Provisioning Application.

Oracle Beehive Release 1 for DMZ

Use this option to install Oracle Beehive Release 1 and configure the installation location as a demilitarized zone (DMZ).

This option uses a local, file-based configuration and does not require an existing database. In addition, the administration tool `beectl` will be disabled for this instance.

See "Oracle Beehive for DMZ Sequence of Screens" to continue installing Oracle Beehive Release 1 for DMZ.

Oracle Beehive (Standard Installation) Sequence of Screens

The following screens appear during the installation of Oracle Beehive Release 1 (standard installation):

- Specify Home Location
- Prerequisite Checks
- Select Installation Type

- Database Information
- Template Information
- Enterprise Definition Information
- Existing Enterprise Information
- Schema Password
- Existing Schema Password
- beeadmin Password
- Installation Summary
- Progress Indicator
- Configuration Assistants
- End of Installation

Other Oracle Install Wizard Sequence of Screens

If you are installing Oracle Beehive Provisioning Application, refer to "Oracle Beehive Provisioning Application Sequence of Screens".

If you are installing Oracle Beehive for DMZ, refer to "Oracle Beehive for DMZ Sequence of Screens".

Specify Home Location

Enter the full path of the location where you want to install the product. Do not leave the **Location** field blank.

> **Note:** If you selected the **Provisioning Application for Oracle Beehive Release 1** option on the Select Product Type screen, ensure that you specify the Oracle home for your Oracle Enterprise Manager Grid Control instance. This is a prerequisite for installing the provisioning plug-in.
>
> For more information on prerequisites for installing the provisioning plug-in, refer to "Provisioning Application for Oracle Beehive Release 1". Refer to the module "What You Should Know Before Installing Oracle Beehive" in *Oracle Beehive Installation Guide* for information on prerequisites for installing Oracle Beehive Release 1.

Specifying Oracle Home Directory

Specify the directory where you want to install Oracle Beehive. You must specify a new Oracle home directory for each new installation of Oracle Beehive.

See the following guidelines for specifying the Oracle home directory on different platforms:

- Specifying Oracle Home Directory on Linux and UNIX-Based Systems
- Specifying Oracle Home Directory on Windows Systems

Specifying Oracle Home Directory on Linux and UNIX-Based Systems

On Linux and UNIX-based systems, the Oracle Beehive Install Wizard suggests a path similar to the following for the Oracle home directory:

`/home_directory/oracle/product/version_number/identifier_n`

- `home_directory` is the home directory of the user running the Oracle Beehive Install Wizard
- `version_number` is the version number of the product being installed
- `identifier` identifies the product installed in this Oracle home directory
- `n` is a number that ensures that this path is unique

> **Note:** You must have write permissions in the directory that you specify, if it exists, or you must have permissions to create it.

You may also click **Browse** to choose a directory to install your product. This location is the destination directory in which the product will be installed.

Specifying Oracle Home Directory on Windows Systems

On Windows systems, the Oracle Beehive Install Wizard suggests a path similar to the following for the Oracle home directory:

`X:\oracle\product\version_number\identifier_n`

- `X` is the default drive
- `version_number` is the version number of the product being installed
- `identifier` identifies the product installed in this Oracle home directory
- `n` is a number that ensures that this path is unique

If the directory specified does not exist, the Oracle Beehive Install Wizard creates it. Unless you want to install the software on a different drive with sufficient free space, you can accept the default value.

You may also click **Browse** to choose a directory to install your product. This location is the destination directory in which the product will be installed.

Prerequisite Checks

This screen displays the prerequisite checks that the Oracle Beehive Install Wizard runs. It verifies that the host (where you are installing Oracle Beehive Release 1) meets all minimum requirements for installing and configuring the product type that you selected on the Select Product Type screen.

Some of the platform-independent checks that the Oracle Beehive Install Wizard performs include:

- Operating system certification (or version)
- Operating system patches and packages
- Security kernel parameters
- Memory
- Swap space
- Disk space
- In Microsoft Windows, ensuring that the Window user for Oracle Beehive installation has administrative privileges.

If an automatic check fails, fix it and click **Retry**.

Notes: If the disk space check fails and after clicking **Retry** (after fixing the low disk space issue) the check states "Not Executed," exit the Oracle Beehive Install Wizard and start it again.

In Microsoft Windows, The Windows user indicated in the **Browse and Select: File or Directory** screen must belong to the "Log on as a batch job" policy of the agent machine.To add a user to this policy, click **Start**, **Programs**, **Administrative Tools**, and then **Local Security Policy**. In **Local Security Settings**, expand **Local Policies**, expand **Local Policies**, and then click **User Rights Assignment**. Double-click the policy **Log on as a batch job**. Click **Add User or Group** to add the user.

Tip: For details on why a check failed, select the check box against it and see the details in the description box at the bottom of the screen.

Select Installation Type

Specify the type of installation you want to perform. You can choose from:

- Install and Configure
- Install Only

Install and Configure

Select this option if you want to install and automatically start the configuration of the product.

If you select this option, the Oracle Beehive Release 1 instance is functional with minimal configuration after the installation is completed.

Install Only

Select this option to only install the product. This will only copy files to your system. Until you configure Oracle Beehive, you will not be able to perform any tasks with it nor start any Oracle Beehive managed component.

To configure the product after installation, you must run the Configuration wizard as follows:

1. Navigate to the following directory:
   - **On Linux and UNIX-based platforms**: `$ORACLE_HOME/beehive/oobwiz`
   - **On Microsoft Windows**: `%ORACLE_HOME%\beehive\oobwiz`
2. Run the `configWizard` script as follows:
   - **On Linux and UNIX-based platforms**, enter the following command:

     ```
     ./configWizard
     ```

   - **On Microsoft Windows**, run the `configWizard.bat` script.

Database Information

Specify the following details of an existing Oracle Database instance that will be used by this installation:

- Host and Port
- Service Name
- Admin User Name
- Admin User Password

Notes: The database that you specify on this screen must use the `Unicode Standard UTF-8 AL32UTF8` character set.

To determine the character set of an existing database, perform the following steps:

1. Log in to the SQL*Plus console of the target Oracle database.
2. Run the following query:

```
select value from nls_database_parameters where parameter='NLS_
CHARACTERSET';
```

If the character set of the Oracle database is not Unicode Standard UTF-8 AL32UTF8, then you must create a new Oracle database. You may use Database Configuration Assistant (DBCA) to do this.

Refer to the module "Oracle Beehive Database Requirements" in the Oracle Beehive Installation Guide of your operating system for database requirements for Oracle Beehive Release 1.

Host and Port

Host

Specify the fully qualified domain name (FQDN) of the host where the target database is running.

For example, if the host name is `foo`, its domain is `abc.com`, and the database listener port is `1521`, then enter the following:

```
foo.abc.com:1521
```

The default port on which the database listener listens for connection requests is 1521.

To determine this port number, run the command `<Database home>/bin/lsnrctl status`. (Ensure that the environment variable ORACLE_HOME is set to the directory in which Oracle Database is installed and ORACLE_SID is set to the system identifier of your database.)

Service Name

Enter the service name for the Oracle Database. This is the same as the global database name, and must be unique across all databases.

A database is identified by its *global database name*. The global database name is comprised of two parts:

```
database_name.database_domain
```

For example:

```
sales.us.yourcompany.com
```

Note: The global database name may not contain a hyphen (-), and it may not start with a digit. It may contain only alphanumeric characters and the underscore (_).

Admin User Name

Specify the administrative user name (that can perform database administration tasks) for the database instance. Typically, this user is the `SYS` account.

For more information about the `SYS` account, refer to *Oracle Database Administrator's Guide*.

Admin User Password

Enter the password for the Oracle database administrative user account that you specified in the **Admin User Name** field.

After clicking **Next**, the Oracle Beehive Install Wizard verifies the connection to the Oracle Database Server, initialization parameters, and other requirements. If an error occurs, then you must correct the problem before the installation process can continue.

Template Information

Specify the template and memory to allocate for this Oracle Beehive installation:

Note: If you exit from the Oracle Beehive Install Wizard before successfully installing it (because of failed configuration assistants, for example), when you start the Oracle Beehive Install Wizard again, it will ask you to enter information that you did not provide previously.

However, ensure that you select the same template that you chose during the previous installation attempt. The Oracle Beehive Install Wizard will not automatically choose this template for you.

Select Template

Select from one of the following templates:

- **Basic Server Template**: This is the default template. It will install and configure Oracle Beehive Release 1 against an existing database. The computer on which you are installing Oracle Beehive Release 1 must have at least 2 GB of RAM.
- **Basic Server and Client Template**: This template will install and configure Oracle Beehive Release 1, including Oracle Beehive Integration for Zimbra and Oracle Beehive Workspace Client on the same computer. To use this template, your computer must have at least 3 GB of RAM.
- **Client Only Template**: This template will only configure Oracle Beehive Integration for Zimbra and Oracle Beehive Workspace Client on your computer. An Oracle Beehive schema must already be installed in an existing database, you must have at least one Oracle Beehive application tier already installed, and your computer must have at least 2 GB of RAM.

Note: The Basic Server and Client and Client Only templates replace the option to install Oracle Beehive Integration for Zimbra in previous releases of Oracle Beehive.

Memory to Allocate

Specify the amount of RAM in GB to allocate for this Oracle Beehive installation. The amount you specify must be a whole number. The minimum amount depends on the template that you selected. In particular, the minimum amount for the Basic Server and Client templates is 2 GB and the minimum for the Basic Service and Client template is 3 GB. The maximum amount depends on the amount of RAM in your computer. For example, if you chose the Basic Server template and have 6 GB of RAM, you may specify 2, 3, 4, 5, or 6 GB of memory to allocate.

Enterprise Definition Information

Specify the following enterprise site information that identifies this installation of Oracle Beehive Release 1:

- Enterprise
- Organization
- Site
- Site Key
- Confirm Site Key
- Instance Name

Enterprise

Specify the name for the new enterprise you want to create. An enterprise is the top-level container for all users and objects. An enterprise may contain any number of organizations and workspaces.

The enterprise name is typically a company name, such as `Oracle`.

The enterprise name may only contain only letters, numbers, spaces, the period (.), the hyphen (-) and the underscore (_). The name cannot be greater than 127 bytes. The name cannot consist of only one or two periods (`.` or `..`).

In Oracle Beehive Release 1, an Oracle Beehive deployment may have only one enterprise.

Organization

Specify the name of the organization to be created and added to the enterprise you specified previously. An organization is a logical grouping of users, groups, workspaces, and resources at a level lower than the enterprise level. Later, you may add any number of organizations to the enterprise you specified previously.

The organization is typically a sub-level or department under the enterprise, such as `Sales` or `Accounting`.

The enterprise name may only contain only letters, numbers, spaces, the period (.), the hyphen (-) and the underscore (_). The name cannot be greater than 127 bytes. The name cannot consist of only one or two periods (`.` or `..`).

Site

Specify the name of the site. A site consists of all Oracle Beehive services and service instances and the database they use.

A site is typically a reference to a physical location, such as `Headquarters` or `Montreal`.

The site name may only contain ASCII letters (`a-z`, `A-Z`), numbers, and the underscore (_). The name cannot be greater than 19 characters.

In Oracle Beehive Release 1, an Oracle Beehive deployment may have only one site.

Site Key

If you are installing your first Oracle Beehive application tier, specify the site key for this site. If you install any additional Oracle Beehive application tiers, you will be prompted for this site key. The site key must have the following characteristics:

- Be between 8 and 30 characters long.
- Only contain characters from the database character set (AL32UTF8).
- Only contain ASCII letters and numbers (`a-z`, `A-Z`, and `0-9`) or the underscore (_); the site key cannot contain any other punctuation mark character.
- Contain at least one upper case character, one lower case character, and one numeric character.
- Begin with an alphabetic character; the site key cannot begin with a number or the underscore (_).

Confirm Site Key

Confirm the site key that you specified in the previous field.

Instance Name

Specify the name of the instance for this Oracle Beehive installation. The instance name is used during server configuration.

The full name of an Oracle Beehive instance consists of the instance, host, and domain names. For example, if you name your instance `myinstance1`, your host is `myhost`, and your domain is `example.com`, the full name of your instance will be `myinstance1.myhost.example.com`.

The instance name may only contain ASCII letters (`a-z`, `A-Z`), numbers, and the underscore (_). The name cannot be greater than 63 characters. The name cannot be `tempinst`.

> **Notes:** Only enter the instance name; do not specify the host and domain name. Oracle Beehive will append the host and domain name to the instance name. For example, you would specify `myinstance1`, not `myinstance1.myhost.example.com`.
>
> All Oracle Beehive Release 1 instances must have a unique name.

Existing Enterprise Information

> **Note:** This screen will only appear if you are installing Oracle Beehive Release 1 against a database that is already configured for an existing Oracle Beehive instance.
>
> The Oracle Beehive Install Wizard will use the enterprise and site of the existing Oracle Beehive instance; the enterprise and site name displayed on this screen are those of this Oracle Beehive instance.

Specify the following information:

- **Enterprise**: Select an enterprise to which this Oracle Beehive installation will belong.
- **Site**: The site to which the selected enterprise belongs will be displayed.
- **Site Key**: Specify the site key of the indicated site.
- **Instance**: Specify a name for this Oracle Beehive installation that will distinguish it from others in the selected enterprise. This name has have the following characteristics:
  - Not empty
  - Contain no spaces
  - Contain only valid ASCII characters
  - Not longer than 63 characters
  - Unique among other Oracle products configured in the same computer

Schema Password

Specify and confirm the password for the new database schema that will be created and used by the instance of Oracle Beehive Release 1.

Password Restrictions

The schema password must have the following characteristics:

- Be between 5 and 30 characters long.
- Only contain alpha-numeric characters (`a-z`, `A-Z`, and `0-9`) or the underscore (_); the password cannot contain any other punctuation mark character.
- Contain at least one alphabetic character and at least one numeric character
- Begin with an alphabetic character; the password cannot begin with a number or the underscore (_).

Password Recommendations

- Passwords should not be simple or obvious words, such as welcome, account, database, or user.
- Passwords should not be the same as the user name.
- Passwords should not be Oracle reserved words such as ACCESS, AUTHORIZATION, UID, or VARCHAR,

Existing Schema Password

Enter the password for the Oracle database schema that the Oracle Beehive Install Wizard has detected. This schema is used by the Oracle Beehive Release 1 instance.

After clicking **Next**, the Oracle Beehive Install Wizard verifies the schema password. If an error occurs, then you must correct the password before the installation process can continue.

beeadmin Password

Specify and confirm the password for the `beeadmin` user. The `oc4jadmin` and `bpeladmin` users will have the same password.

The `oc4jadmin` user will be exposed if you set up monitoring with Oracle Enterprise Manager Grid Control.

Use the `bpeladmin` user to log in to Oracle BPEL Process Manager. Do not use Oracle BPEL Console to deploy or modify workflows.

Note: This screen will not appear if you are installing Oracle Beehive against a database that is already configured for an existing Oracle Beehive instance.

Password Restrictions

The password of the `beeadmin` user must have the following characteristics:

- Be between 8 and 30 characters long.
- Only contain alpha-numeric characters (`a-z`, `A-Z`, and `0-9`) or the underscore (_); the password cannot contain any other punctuation mark character.
- Contain at least one uppercase and one lowercase alphabetic character.
- Contain at least one numeric character.
- Begin with an alphabetic character; the password cannot begin with a number or the underscore (_).

Note: When entering your password, check that the state of your Caps Lock key is what you want it to be. Passwords are case-sensitive.

Password Recommendations

- Passwords should not be simple or obvious words, such as welcome, account, database, or user.
- Passwords should not be the same as the user name.
- Passwords should not be Oracle reserved words such as ACCESS, AUTHORIZATION, UID, or VARCHAR,

Installation Summary

The Installation Summary screen presents a summary of the options you have selected so far. Depending on the installation, the information may include the following:

- **Space Requirements:** The disk space required to install the product. The space requirement appears in a different color if the disk space available is less than what is required.

Notes: The space requirements shown on this screen do not include the space required in the target database.

The space requirements shown on this screen also might differ slightly from the actual space the component occupies on the installation disk. This is because of the differences in the disk configurations. For example, the space required on one hard drive might differ from the space required on another hard drive that uses different block size or that is managed by a different file system.

- **Product Type:** A predefined component set that automatically selects which components and dependency groups to install. To change the product type, go back to the Select Product Type screen.
- **Install Type:** The option to only install Oracle Beehive Release 1 or to install and configure Oracle Beehive Release 1. To change the install type, go to the Select Installation Type screen.
- **Inventory Location:** The location of the `oraInventory` directory where all the installation information about your product will be stored. To change this location, go back to the New Inventory Location screen.
- **Interview Details:** The details of your inputs for the other screens, such as:
  - **Home Details:** The location of the Oracle home where you want to install your product. To change the Oracle home, go back to the Specify Home Location screen.
  - **Database Information:** The host name, port, service name, administrator user name, and password of the existing Oracle Database instance that will be used by this installation. To change the details, go back to the Database Information screen.
  - **Template Information:** The template and memory to allocate for this installation. To change the details, go back to the Template Information screen.
  - **Enterprise Definition Information:** The detailed enterprise site information that identifies this installation. To change the details, go back to the Enterprise Definition Information screen.
  - **Schema Password:** The masked password for the Oracle database schema that the Oracle Beehive Install Wizard detects and is used by this Oracle Beehive instance.
  - **beeadmin Password**: The masked password for the `beeadmin` user, which is the administrative user for Oracle Beehive Release 1 instances. To change the details, go back to the beeadmin Password screen.

When you have reviewed your inputs, click **Install** to continue.

Progress Indicator

Use this screen to monitor the progress of your installation. Click **Show Details** to see the details in the description box that appears.

Configuration Assistants

This screen displays the configuration assistants that the Oracle Beehive Install Wizard runs to configure the product type that you selected on the Select Product Type screen.

The Oracle Beehive Install Wizard performs the following configuration assistants:

- Pre-configuration Actions
- Oracle Beehive Initialization Assistant
- Oracle Beehive Database Configuration Assistant - SOA schemas
- Base Platform Support Configuration Assistant
- Disabling OC4J Home Instance
- Oracle Beehive Database Configuration Assistant - Beehive schemas

- Oracle Beehive Framework Core Configuration Assistant

If any configuration is flagged as Failed, then you must manually run the assistant to configure it. You do so by selecting the check box against it and clicking **Retry.**

You may also use the Oracle Beehive Config Wizard to complete all pending and failed configuration assistants at a later time. The full path of the command is `<Oracle home>/beehive/oobwiz/configWizard`.

For more information about the Oracle Beehive Config Wizard, refer to the module "Oracle Beehive Install and Config Wizard Command-Line Options" in *Oracle Beehive Installation Guide*.

> **Tip:** For details on why a configuration failed, select the check box against it and see the details in the description box at the bottom of the screen. Also, review the log files in `<Oracle inventory directory>/logs` whose names start with `installActions` or `oraInstall`.

End of Installation

Click **Finish** to complete the installation process and close the Oracle Beehive Install Wizard.

Oracle Beehive Provisioning Application Sequence of Screens

The following screens appear during the installation of Oracle Beehive Release 1 Provisioning Application:

- Specify Home Location
- Repository Database Administrator Password
- Software Library Location
- Installation Summary
- Progress Indicator
- Configuration Assistants
- End of Installation

Other Oracle Beehive Install Wizard Sequence of Screens

If you are installing Oracle Beehive (standard installation), refer to "Oracle Beehive (Standard Installation) Sequence of Screens"

If you are installing Oracle Beehive for DMZ, refer to "Oracle Beehive for DMZ Sequence of Screens".

Specify Home Location

In the **Location** field, specify the full path of Oracle Management Service Oracle home in which you want to install Oracle Beehive Provisioning Application.

Oracle Management Service is part of Oracle Enterprise Manager Grid Control.

You may not leave the **Location** field blank.

Typically, the name of this directory is `oms10g`.

Repository Database Administrator Password

In the **SYS Password** field, specify the password for the `SYS` account of the repository database that Oracle Management Service uses.

This repository database will be used by Oracle Beehive Provisioning Application to store required information.

The screen displays the details of the Oracle Enterprise Manager Grid Control database that is used as the repository for the Oracle Beehive Release 1 provisioning plug-in that you are installing. It displays the following information:

- Host name where the Oracle database is installed
- Port on which it listens to the incoming requests
- System identifier (SID) that defines the name of the Oracle database instance

The Oracle Beehive Install Wizard verifies the password. If you specified an incorrect password, an error occurs. In this case, you must correct the password before the installation process can continue.

Software Library Location

This screen will only appear if a software library has not been configured for Oracle Enterprise Manager Grid Control.

Specify an absolute, non-empty directory path on the Oracle Management Service host that will be used as the software library location, for example, `/app/oracle/gc_soft_library` on Linux and UNIX-based systems and `C:\app\oracle\gc_soft_library` on Microsoft Windows. Oracle Enterprise Manager Grid Control uses the software library as a repository to store certified software images, such as Oracle Beehive.

Installation Summary

The Installation Summary screen presents a summary of the options you have selected so far. Depending on the installation, the information may include the following interview details:

- **Home Detail**: The location of the Oracle home where you want to install your product. To change the Oracle home, go back to the Specify Home Location screen.
- **Repository Administrator Password:** The masked password for the `SYS` user, which is the administrative user for the database that this Oracle Beehive Release 1 instance uses as a repository.
- **Software Library Location**: The directory path on the Oracle Management Service host that will be used as the software library location by Oracle Enterprise Manager Grid Control.

When you have reviewed your inputs, click **Install** to continue.

Progress Indicator

Use this screen to monitor the progress of your installation. Click **Show Details** to see the details in the description box that appears.

Configuration Assistants

This screen displays the configuration assistants that the Oracle Beehive Install Wizard runs to configure Oracle Beehive Provisioning Application.

The Oracle Beehive Install Wizard performs the following configuration assistants:

- Configuring Software Library (appears only if the Install Wizard prompted you for a software library location)
- Packaging Product Home Zip
- Repository Upgrade
- OMS Redeployment
- Deploy Provision Application
- Start Oracle Management Server

If any configuration is flagged as Failed, then you must manually run the assistant to configure it. You do so by selecting the check box against it and clicking **Retry.**

> **Tip:** For details on why a configuration failed, select the check box against it and see the details in the description box at the bottom of the screen. Also, review the log files in `<`*`Oracle inventory directory`*`>/logs` whose names start with `installActions`.

End of Installation

The End of Installation screen indicates if the installation of Oracle Beehive Provisioning Application was successful.

Click **Finish** to complete the installation process and close the Oracle Beehive Install Wizard.

Refer to "Provisioning Oracle Beehive" to install Oracle Beehive with Oracle Beehive Provisioning Application.

Oracle Beehive for DMZ Sequence of Screens

The following screens appear during the installation of Oracle Beehive Release 1 for DMZ:

- Specify Home Location
- Prerequisite Checks
- Installation Summary
- Progress Indicator
- Configuration Assistants
- End of Installation

Other Oracle Beehive Install Wizard Sequence of Screens

If you are installing Oracle Beehive (standard installation), refer to "Oracle Beehive (Standard Installation) Sequence of Screens"

If you are installing Oracle Beehive Provisioning Application, refer to "Oracle Beehive Provisioning Application Sequence of Screens".

Specify Home Location

Enter the complete path for the location where you want to install Oracle Beehive Release 1 and configure as a DMZ.

Prerequisite Checks

This screen displays the prerequisite checks that the Oracle Beehive Install Wizard runs. It verifies that the host (where you are installing Oracle Beehive Release 1 for DMZ) meets all minimum requirements for installing and configuring the product type that you selected on the Select Product Type screen.

Some of the platform-independent checks that the Oracle Beehive Install Wizard performs include:

- Operating system certification (or version)
- Operating system patches and packages
- Security kernel parameters
- Memory
- Swap space
- Disk space

> **Tip:** For details on why a check failed, select the check box against it and see the details in the description box at the bottom of the screen.

Installation Summary

The Installation Summary screen presents a summary of the options you have selected so far. The information includes the following:

- **Space Requirements:** The disk space required to install the product. The space requirement appears in a different color if the disk space available is less than what is required.

> **Note:** The space requirements shown on this screen might differ slightly from the actual space the component occupies on the installation disk. This is because of the differences in the disk configurations. For example, the space required on one hard drive might differ from the space required on another hard drive that uses different block size or that is managed by a different file system.

- **Inventory Location:** The location of the `oraInventory` directory where all the installation information about your product will be stored. To change this location, go back to the New Inventory Location screen.
- **Interview Details:** The details of your inputs for the other screens:
  - **Home Details:** The location of the Oracle home where you want to install Oracle Beehive Release 1 for DMZ. To change the Oracle home, go back to the jSpecify Home Location screen.

Progress Indicator

Use this screen to monitor the progress of your installation. Click **Show Details** to see the details in the description box that appears.

Configuration Assistants

This screen displays the configuration assistants that the Oracle Beehive Install Wizard runs to configure Oracle Beehive Release 1 for DMZ.

The Oracle Beehive Install Wizard performs the following configuration assistants:

- Oracle Beehive for DMZ Product Preparation
- Oracle Beehive for DMZ Initialization
- Disabling OC4J Instances
- BTI (Oracle Beehive Transport Infrastructure) Configuration

If any configuration is flagged as Failed, then you must manually run the assistant to configure it. You do so by selecting the check box against it and clicking **Retry.**

You may also use the Oracle Beehive Config Wizard to complete all pending and failed configuration assistants at a later time. The full path of the command is `<Oracle home>/beehive/oobwiz/configWizard`.

For more information about the Oracle Beehive Config Wizard, refer to the module "Oracle Beehive Install and Config Wizard Command-Line Options" in *Oracle Beehive Installation Guide*.

> **Tip:** For details on why a configuration failed, select the check box against it and see the details in the description box at the bottom of the screen. Also, review the log files in `<Oracle inventory directory>/logs` whose names start with `installActions`.

End of Installation

The End of Installation screen indicates if the installation of Oracle Beehive Release 1 for DMZ was successful.

Click **Finish** to complete the installation process and close the Oracle Beehive Install Wizard.

Refer to "Configuring Oracle Beehive Demilitarized Zone Instances" to configure the Oracle Beehive DMZ instance you have just installed.

5

Oracle Beekeeper Installation Help

Run `runInstaller` (UNIX-based operating systems) or `setup.exe` (Microsoft Windows) from the Oracle Beekeeper installation media to start the Install Wizard for this product.

Refer to "Starting the Oracle Beekeeper Uninstall Wizard" to uninstall Oracle Beekeeper.

Note: Oracle Beekeeper version 1.5 is only supported by Oracle Beehive Release 1 (1.5).

Product Selection Sequence of Screens

The following screens appear before product selection:

- Welcome
- New Inventory Location
- Select Product Type

Once you select a product type, you will proceed to one of the following sequence of screens:

- Oracle Beekeeper Sequence of Screens
- Provisioning Application for Oracle Beekeeper Sequence of Screens

Welcome

This screen welcomes you to the Oracle Install Wizard. It will guide you through the installation and configuration of Oracle Beekeeper.

The following describes the buttons that appear on most of the installation screens:

- Click **Help** to view the online help.
- Click **Save** to save the inputs you have entered to a file that you can use later as a response file. You can use this response file to continue the installation at a later time.
- Click **Back** to go back to the previous step.
- Click **Next** to go to the next step.
- Click **Install** to start the installation of the product.

  This button is available only on the **Summary** screen.

- Click **Uninstall** to uninstall a previously installed Oracle Beekeeper product

Note: To uninstall Provisioning Application for Oracle Beekeeper, use Oracle Universal Installer from Oracle Management Service. Refer to "Uninstalling Provisioning Application for Oracle Beekeeper" for more information.

- Click **Cancel** to exit from the Oracle Install Wizard at any time during the installation.

Tip: Press **F1** to open the online help section for the field where your cursor focus is on the installation screen.

New Inventory Location

If Oracle Beekeeper is the first Oracle product you are installing on a computer, then this screen is displayed.

On this screen, you specify in the **Inventory Directory Path** field the location of an inventory directory (the `oraInventory` directory). The Install Wizard will use this inventory directory to keep track of all Oracle products installed on the computer.

Notes: The following notes are about the inventory directory:

- If an Oracle product was installed previously on the computer, then the Install Wizard uses the existing inventory directory. To ensure that you have write permissions on that directory, run the Install Wizard as the same operating system user who installed the existing Oracle product.
- The inventory directory location should be different from the directory path in which you are going to install Oracle Beekeeper.
- The Install Wizard (as well as other installation programs from other Oracle products) will store its log files in the directory *`<inventory directory path>`*`/logs`.

  However, if this is the first Oracle product you are installing on your computer, the Install Wizard will store its log files in a temporary directory, such as `/tmp` on Linux and UNIX-based operating systems. When you exit the Install Wizard, the Install Wizard will move these log files to *`<inventory directory path>`*`/logs`.

On **Linux and UNIX-based platforms,** specify in the **Operating System Group** field the operating system group that has the `write` permission to the target inventory directory location.

Select Product Type

Select which Oracle Beekeeper product you want to install:

- **Oracle Beekeeper**: This option installs Oracle Beekeeper on the computer from which you are running the Install Wizard.
- **Provisioning Application for Oracle Beekeeper**: This will allow you to install and configure Oracle Beekeeper from Oracle Enterprise Manager Grid Control.

The prerequisite for installing this plug-in is that you must have a preinstalled instance of Oracle Enterprise Manager 10*g* Grid Control Release 4 (10.2.0.4) or later.

See "Provisioning Application for Oracle Beekeeper Sequence of Screens" to continue installing Provisioning Application for Oracle Beekeeper.

Oracle Beekeeper Sequence of Screens

The following screens appear during the installation of Oracle Beekeeper:

- Specify Home Location
- Prerequisite Checks
- Database Information
- Site Key Information
- Installation Summary
- Installation Process
- Configuration Assistants
- End of Installation

Specify Home Location

Enter the full path of the location where you want to install the product. Do not leave the **Location** field blank. The location you provide must not already be present in the Oracle inventory and must be empty.

Note: You may not install Oracle Beekeeper into an existing Oracle home.

Prerequisite Checks

This screen displays the prerequisite checks that the Install Wizard runs. It verifies that the host (where you are installing Oracle Beekeeper) meets all minimum requirements.

Some of the platform-independent checks that the Oracle Beekeeper Install Wizard performs include:

- Operating system certification (or version)
- Operating system patches and packages
- Security kernel parameters
- Memory
- Swap space
- Disk space
- In Microsoft Windows, ensuring that the Window user for Oracle Beekeeper installation has administrative privileges.

If an automatic check fails, fix it and click **Retry**.

Notes: If the disk space check fails and after clicking **Retry** (after fixing the low disk space issue) the check states "Not Executed," exit the Install Wizard and start it again.

In Microsoft Windows, The Windows user indicated in the **Browse and Select: File or Directory** screen must belong to the "Log on as a batch job" policy of the agent machine.

To add a user to this policy, click **Start**, **Programs**, **Administrative Tools**, and then **Local Security Policy**. In **Local Security Settings**, expand **Local Policies**, expand **Local Policies**, and then click **User Rights Assignment**. Double-click the policy **Log on as a batch job**. Click **Add User or Group** to add the user.

Tip: For details on why a check failed, select the check box against it and see the details in the description box at the bottom of the screen.

Database Information

Specify the following details of an existing Oracle Beehive database that will be used by this installation:

- Host and Port
- Service Name
- Schema User Password

Host and Port

Specify the fully qualified domain name (FQDN) of the host where the target database is running.

For example, if the host name is `foo`, its domain is `abc.com`, and the database listener port is `1521`, then enter the following:

```
foo.abc.com:1521
```

The default port on which the database listener listens for connection requests is 1521.

To determine this port number, run the command `<Database home>/bin/lsnrctl status`. (Ensure that the environment variable ORACLE_HOME is set to the directory in which Oracle Database is installed and ORACLE_SID is set to the system identifier of your database.)

Service Name

Enter the service name for the Oracle database. This is the same as the global database name, and must be unique across all databases.

A database is identified by its *global database name*. The global database name is comprised of two parts:

```
database_name.database_domain
```

For example:

```
sales.us.yourcompany.com
```

Schema User Password

Enter the password for the Oracle Beehive database schema that is stored in the database whose information you have specified in this screen.

After clicking **Next**, the Install Wizard verifies the connection to the Oracle Database Server, initialization parameters, and other requirements. If an error occurs, then you must correct the problem before the installation process can continue.

Site Key Information

Enter the site key that you specified when you installed your first Oracle Beehive application tier.

Installation Summary

The Installation Summary screen presents a summary of the options you have specified so far:

- **Space Requirements:** The disk space required to install the product. The space requirement appears in a different color if the disk space available is less than what is required.

> **Notes:** The space requirements shown on this screen do not include the space required in the target database.
>
> The space requirements shown on this screen also might differ slightly from the actual space the component occupies on the installation disk. This is because of the differences in the disk configurations. For example, the space required on one hard drive might differ from the space required on another hard drive that uses different block size or that is managed by a different file system.

- **Inventory Location:** The location of the `oraInventory` directory where all the installation information about your product will be stored.
- **Product:** The name of the product you are installing, Oracle Beekeeper.
- **Interview Details:** The details of your inputs for the other screens, such as:
  - **Home Details:** The location of the Oracle home where you are installing the product.
  - **Database Information:** The host name, port, service name, and masked schema user password of the existing Oracle Beehive database that will be used by this installation process.
  - **Site Key**: The masked site key that you entered.

When you have reviewed your inputs, click **Install** to continue.

Installation Process

Use this screen to monitor the installation process. Click **Show Details** to see the details in the description box that appears

Configuration Assistants

This screen displays the configuration assistants that the Install Wizard runs to install Oracle Beekeeper.

End of Installation

This screen indicates if the installation of Oracle Beekeeper was successful.

Provisioning Application for Oracle Beekeeper Sequence of Screens

The following screens appear during the installation of Oracle Beekeeper Provisioning Application:

- Specify Home Location
- Repository Database Administrator Password
- Software Library Location
- Installation Summary
- Progress Indicator
- Configuration Assistants
- End of Installation

Specify Home Location

In the **Location** field, specify the full path of Oracle Management Service Oracle home in which you want to install Oracle Beekeeper Provisioning Application.

Oracle Management Service is part of Oracle Enterprise Manager Grid Control.

You may not leave the **Location** field blank.

Typically, the name of this directory is `oms10g`.

Repository Database Administrator Password

In the **SYS Password** field, specify the password for the `SYS` account of the repository database that Oracle Management Service uses.

This repository database will be used by Oracle Beekeeper Provisioning Application to store required information.

The screen displays the details of the Oracle Enterprise Manager Grid Control database that is used as the repository for the Oracle Beekeeper provisioning plug-in that you are installing. It displays the following information:

- Host name where the Oracle database is installed
- Port on which it listens to the incoming requests
- System identifier (SID) that defines the name of the Oracle database instance

The Oracle Beekeeper Install Wizard verifies the password. If you specified an incorrect password, an error occurs. In this case, you must correct the password before the installation process can continue.

Software Library Location

This screen will only appear if a software library has not been configured for Oracle Enterprise Manager Grid Control.

Specify an absolute, non-empty directory path on the Oracle Management Service host that will be used as the software library location, for example, `/app/oracle/gc_soft_library` on Linux and UNIX-based systems and `C:\app\oracle\gc_soft_library` on Microsoft Windows. Oracle Enterprise Manager Grid Control uses the software library as a repository to store certified software images, such as Oracle Beehive.

Installation Summary

The Installation Summary screen presents a summary of the options you have selected so far. Depending on the installation, the information may include the following interview details:

- **Home Detail**: The location of the Oracle home where you want to install your product. To change the Oracle home, go back to the Specify Home Location screen.
- **Repository Administrator Password:** The masked password for the `SYS` account of the repository database that Oracle Management Service uses.
- **Software Library Location**: The directory path on the Oracle Management Service host that will be used as the software library location by Oracle Enterprise Manager Grid Control.

When you have reviewed your inputs, click **Install** to continue.

Progress Indicator

Use this screen to monitor the progress of your installation. Click **Show Details** to see the details in the description box that appears.

Configuration Assistants

This screen displays the configuration assistants that the Oracle Beekeeper Install Wizard runs to configure Oracle Beekeeper Provisioning Application.

The Oracle Beekeeper Install Wizard performs the following configuration assistants:

- Configuring Software Library (appears only if the Install Wizard prompted you for a software library location)
- Packaging Product Home Zip
- Repository Upgrade
- OMS Redeployment
- Deploy Provision Application
- Start Oracle Management Server

If any configuration is flagged as Failed, then you must manually run the assistant to configure it. You do so by selecting the check box against it and clicking **Retry.**

Tip: For details on why a configuration failed, select the check box against it and see the details in the description box at the bottom of the screen. Also, review the log files in *`<Oracle inventory directory>`*`/logs` whose names start with `installActions`.

End of Installation

The End of Installation screen indicates if the installation of Oracle Beekeeper Provisioning Application was successful.

Click **Finish** to complete the installation process and close the Oracle Beekeeper Install Wizard.

Refer to "Provisioning Oracle Beekeeper" to install Oracle Beekeeper with Oracle Beekeeper Provisioning Application.

Starting the Oracle Beekeeper Uninstall Wizard

Start the Oracle Beekeeper Uninstall Wizard by running the Oracle Beekeeper Install Wizard and clicking the **Uninstall** button. Alternatively, run the Oracle Beekeeper Config Wizard (or Oracle Beekeeper Install Wizard) with the `-uninstall` command-line option.

Note: To uninstall Provisioning Application for Oracle Beekeeper, use Oracle Universal Installer from Oracle Management Service. Refer to "Uninstalling Provisioning Application for Oracle Beekeeper" for more information.

Oracle Beekeeper Uninstall Wizard Sequence of Screens

The following screens appear during the uninstallation of Oracle Beekeeper:

- Select Oracle Home to Uninstall: This screen will not appear if you started Oracle Beekeeper Uninstall Wizard with Oracle Beekeeper Config Wizard.
- Start Uninstallation
- End of Uninstallation

Select Oracle Home to Uninstall

This screen lists all the Oracle Beekeeper instances you have installed and their respective Oracle homes.

Select the Oracle Beekeeper home you want to uninstall.

This screen will not appear if you started the uninstall process by running the Config Wizard. In this case, the Config Wizard will uninstall the current Oracle home.

Start Uninstallation

This screen will list actions that the Oracle Beekeeper Uninstall Wizard must perform to uninstall your chosen Oracle Beekeeper instance.

Note: If you started the uninstall process with the Config Wizard, the "Delete Oracle Home" action will not be displayed. This action will be performed after you have exited the Config Wizard graphical user interface.

Click **Start Uninstall** to proceed with the uninstallation of your chosen Oracle Beekeeper instance.

Note: On Microsoft Windows, if you receive an error message from the Oracle Beekeeper Uninstall Wizard that it was unable to delete the Oracle home folder, delete it manually, then restart your computer.

End of Uninstallation

This screen indicates that the uninstallation of the chosen Oracle Beekeeper instance is successful.

Uninstalling Provisioning Application for Oracle Beekeeper

Uninstall Provisioning Application for Oracle Beekeeper with the Oracle Universal Installer:

1. Run Oracle Universal Installer from the Oracle Management Service home:
   - **Linux and UNIX-based operating systems**: `<Oracle Management Service home>/oui/bin/runInstaller`
   - **Microsoft Windows**: `<Oracle Management Service home>\oui\bin\setup.exe`
2. Click **Deinstall Products**.
3. In the **Oracle Homes** tree, expand the `<OMS_HOME>` node to view all installed components. Select the provisioning application for Oracle Beekeeper and click the **Remove** button.

6

Provisioning Oracle Beehive

The deployment procedures for Oracle Beehive and Oracle Beehive for DMZ enable you to provision and deploy Oracle Beehive and Oracle Beehive for DMZ, respectively, from Oracle Enterprise Manager Grid Control. The Provisioning Advisor Framework is used for this purpose.

The following topics are covered:

- Introduction to Oracle Beehive Deployment Procedure
- Running Oracle Beehive Deployment Procedure
- Running Oracle Beehive for DMZ Deployment Procedure
- Uploading Oracle Beehive Shiphome to Oracle Enterprise Manager Grid Control

Introduction to Oracle Beehive Deployment Procedure

The Oracle Beehive and Oracle Beehive for DMZ deployment procedures consist of the following components:

- Provisioning Advisor Framework
- Software Library
- Job System

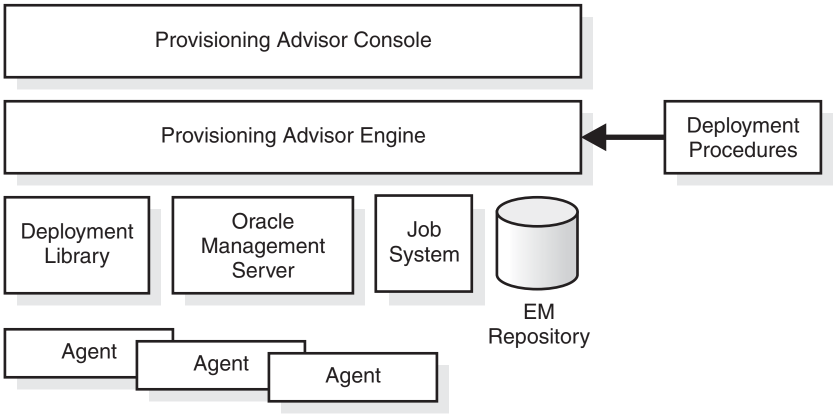
Provisioning Advisor Framework

Provisioning Advisor Framework (PAF) provides a seamless process to integrate tasks that are associated with an application. The framework automates, orchestrates, and tracks the tasks of various applications, such as installers, upgrade assistants, and custom scripts.

PAF is built on top of the Enterprise Manager Grid Control structure. This structure comprises of Oracle Management Server (OMS), Job System, Oracle Enterprise Manager (EM) Repository, Agent and the Software Library. PAF uses an XML file called the Deployment Procedure (DP) as an input from an application. The different tasks of the application are broken down and listed in the Deployment Procedure. Each individual task is referred to as a step. A step could be further classified based on the task it performs. The step could be a manual step that requires user interaction or could be a host command step that runs a command on a specified list of targets. A group of step is referred to as a Phase. This feature enables the execution of a group of steps either in parallel or serially on the target nodes. A Deployment Procedure Engine maintains the state of the procedure while executing the phases and steps in the supplied DP.

The following figure illustrates the Provisioning Advisor Framework architecture:

Figure 6–1 Provisioning Advisor Framework Architecture



Software Library

The Software Library is an infrastructure entity for storing and retrieving files and packages. This provides a common repository for storing software binaries, scripts and other files that are used by provisioning, cloning, and other applications.

Job System

Enterprise Manager Job System is a repository-based system that enables you to schedule and execute jobs on target computers. The Job System supports preconfigured job types, such as OS Commands and File Transfer. The Job System also enables the applications to create job types.

Running Oracle Beehive Deployment Procedure

Follow these steps to provision and deploy Oracle Beehive:

1. Select the **Deployments** tab.
2. Click **Deployment Procedures** (from the Deployment Procedure Manager section).
3. Select **Oracle Beehive Release 1 (*version number*) Deployment Application**.
4. Click **Schedule Deployment...**.

The Oracle Beehive deployment procedure will present you with the following pages in which you will enter required parameters for Oracle Beehive installation:

1. Targets and Templates
2. Upload
3. Install Inputs Page
4. Credentials/Schedule Page
5. Summary Page

Notes: The parameters are similar to the installation procedure described in "Oracle Beehive (Standard Installation) Sequence of Screens" in "Oracle Beehive Install Wizard" in the Oracle Beehive Installation Guide of your operating system.

For Oracle Enterprise Manager Grid Control Release 4 (10.2.0.4) **only**, ensure that the information you input in the following pages contain only ASCII characters.

Targets and Templates

Select the targets on which you want to install Oracle Beehive. You may select more than one target, add a target to the list, and remove a target from the list.

The list displays each target's **Host Name**, **Platform** ,and **Available Memory (MB)**. For each target you select, you must specify a template (**Select Template**) and the amount of memory to allocate (**Allocate Memory (GB)**):

Select Template

Select from one of the following templates:

- **Basic Server Template**: This is the default template. It will install and configure Oracle Beehive Release 1 against an existing database. The computer on which you are installing Oracle Beehive Release 1 must have at least 2 GB of RAM.
- **Basic Server and Client Template**: This template will install and configure Oracle Beehive Release 1 and Oracle Beehive Integration for Zimbra on the same computer. To use this template, your computer must have at least 3 GB of RAM.
- **Client Only Template**: This template is only available if you have at least one Oracle Beehive application tier already installed. It will only configure Oracle Beehive Integration for Zimbra on your computer. An Oracle Beehive schema must already be installed in an existing database, and your computer must have at least 2 GB of RAM.

Note: The Basic Server and Client and Client Only templates replace the option to install Oracle Beehive Integration for Zimbra in previous releases of Oracle Beehive.

Memory to Allocate

Specify the amount of RAM in GB to allocate for this Oracle Beehive installation. The amount you specify must be a whole number. The minimum amount depends on the template that you selected. In particular, the minimum amount for the Basic Server and Client templates is 2 GB and the minimum for the Basic Service and Client template is 3 GB. The maximum amount depends on the amount of RAM in your computer. For example, if you chose the Basic Server template and have 6 GB of RAM, you may specify 2, 3, 4, 5, or 6 GB of memory to allocate.

Upload

If you have not already uploaded a zipped installable version of Oracle Beehive to Oracle Beehive Enterprise Manager Grid Control Software Library, this page will prompt you to do so.

Linux and UNIX-Based Operating Systems

Upload the zipped installable version of Oracle Beehive from `<Oracle Beehive installation media directory>/install/beehive_home.zip`.

Microsoft Windows

Upload the zipped installable version of Oracle Beehive from `<Oracle Beehive installation media directory>\install\beehive_home.zip`.

Install Inputs Page

The following describes the parameters for the **Install Inputs** page.

Notes: **Linux and UNIX-based operating systems**: If you enter non-ASCII data in any of the fields that are part of the Oracle Beehive deployment procedure, such as Enterprise, Organization, and Site, ensure that the target host (that you selected previously) uses a locale with UTF8 encoding, for example, `fr_FR.utf8` or `zh_TW.utf8`.

You may specify the locale on the target host with the `LCC_ALL` and `LANG` environment variables.

Microsoft Windows: If the operating system of your target host is Microsoft Windows, the Oracle Beehive deployment procedure does not support non-ASCII data.

- Install Input
    - **Oracle home**: Specify the directory where you want to install Oracle Beehive. You must specify a new Oracle home directory for each new installation of Oracle Beehive.
- Database Details: Specify the following details of an existing Oracle Database instance that will be used by this installation. Refer to the module "Oracle Beehive Database Requirements" in the Oracle Beehive Installation Guide of your operating system for database requirements for Oracle Beehive Release 1.

Oracle RAC Notes: If you are specifying details for an Oracle Real Application Cluster (Oracle RAC) database, ensure that you have entered the following information correctly; the Oracle Beehive deployment procedure will not verify it by trying to connect to each database host. Instead, the Oracle Beehive deployment procedure constructs the connect descriptor with the database information you provide, then verifies if the connect descriptor can reach the database.

If you are installing Oracle Beehive in a high availability environment (you are installing multiple instances of Oracle Beehive) with the deployment procedure and you are using an Oracle RAC database, you may only use test certificates; you may not use self-signed certificates in this situation.

- **Hostname and Port**: Specify the fully qualified domain name (FQDN) of the host where the target database is running followed by the database listener port.

For example, if the host name is `foo`, its domain is `abc.com`, and the database listener port is `1521`, then you must enter the following:

```
foo.abc.com:1521
```

Note: In case of an Oracle RAC database, use the following format:

```
virtual_host1:virtual_port1^virtual_host2:virtual_port2^ ...
```

  - **Service Name**: Enter the service name for the Oracle Database. This is the same as the global database name, and must be unique across all databases. This is also the same as the Service Name the Oracle Beehive Install Wizard asks you when you choose to install Oracle Beehive against an existing database.

    In the Oracle Beehive Installation Guide of your operating system, refer to "Installing Oracle Beehive Against an Existing Database" for more information. Refer to "Database Information" in "Oracle Beehive Install Wizard" for more information about the service name.
  - **Username**: Specify the administrative user name (that can perform database administration tasks) for the database instance. Typically, this user is the `SYS` account.
  - **Password**: Enter the password for the Oracle database administrative user account that you specified in the **Username** field.
- Enterprise Information
  - **Enterprise**: Specify the name for the new enterprise you want to create. An enterprise is the top-level container for all users and objects. An enterprise may contain any number of organizations and workspaces.

    The enterprise name is typically a company name, such as `Oracle`.

    In Oracle Beehive Release 1, an Oracle Beehive deployment may have only one enterprise.
  - **Organization**: Specify the name of the organization to be created and added to the enterprise you specified previously. An organization is a logical grouping of users, groups, workspaces, and resources at a level lower than the enterprise level. Later, you may add any number of organizations to the enterprise you specified previously.

    The organization is typically a sub-level or department under the enterprise, such as `Sales` or `Accounting`.
  - **Site**: Specify the name of the site. A site consists of all Oracle Beehive services and service instances and the database they use.

    A site is typically a reference to a physical location, such as `Headquarters` or `Montreal`.

    In Oracle Beehive Release 1, an Oracle Beehive deployment may have only one site.
  - **Site Key**: If you are installing your first Oracle Beehive application tier, specify the site key for this site. If you install any additional Oracle Beehive application tiers, you will be prompted for this site key.
  - **Confirm Site Key**: Confirm the site key that you specified in the previous field.

  - **Instance**: Specify the name of the instance for this Oracle Beehive installation. The instance name is used during server configuration.

    The full name of an Oracle Beehive instance consists of the instance, host, and domain names. For example, if you name your instance `myinstance1`, your host is `myhost`, and your domain is `example.com`, the full name of your instance will be `myinstance1.myhost.example.com`.

    Note: Only enter the instance name; do not specify the host and domain name. Oracle Beehive will append the host and domain name to the instance name. For example, you would specify `myinstance1`, not `myinstance1.myhost.example.com`.

    All Oracle Beehive Release 1 instances must have a unique name.

- beeadmin Credentials
  - **Password**: Specify and confirm the password for the `beeadmin` user. The `oc4jadmin` and `bpeladmin` users will have the same password.
  - **Confirm Password**: Re-enter the password you entered in the previous field.
- Oracle Beehive Schema Information
  - **Password**: Use this screen to specify and confirm the password for the new database schema that will be created and used by the Oracle Beehive instance.
  - **Confirm Password**: Re-enter the password you entered in the previous field.

Credentials/Schedule Page

The following describes the parameters for the **Credentials/Schedule** page:

- **Oracle Home Credentials**: The user credentials you will specify on this page must already exist on the target nodes. Also, ensure that the specified user is a part of the `osinstall` group.

  Note: Ensure that you have entered the following user credentials correctly; the deployment procedure will not verify them.

  - **Specify Credentials for**: Specify the Oracle homes that the deployment procedure will access with the credentials (username and password) that you will specify in the following fields.
    - **Username**, **Password**, and **Confirm Password**: Specify the username and the password of the user that can access the Oracle homes you specified in **Specify Credentials for**.
- Schedule
  - **One Time (Immediately)**: Starts the installation immediately
  - **One Time (Later)**: Starts the installation at the specified time. If you do not want the procedure to start immediately, select this option and use the **Time Zone**, **Start Date**, and **Start Time** to schedule the procedure. If you change the date or time to a time in the future, the procedure will start on the specified date and time.
  - Grace Period

  - **Indefinite**: Use this option if you want the Oracle Management Service to continue to attempt to start the patching job for an infinite amount of time.
  - **End After** *n* **Hours** *m* **Minutes**: In addition, you can specify the **End After** option of **Grace Period** to allow the Oracle Management Service to continue to attempt to start the job up to the specified time. This is useful, if the Oracle Management Agent is down and the Oracle Management Service is unable to start the patching job, because if the patching job is not started within the allotted time frame, the Oracle Management Service marks the patching job as skipped.

Summary Page

Review the installation parameters in the **Summary** page and click **Finish** to start the installation of Oracle Beehive.

Running Oracle Beehive for DMZ Deployment Procedure

Follow these steps to provision and deploy Oracle Beehive for DMZ:

1. Select the **Deployments** tab.
2. Click **Deployment Procedures** (from the Deployment Procedure Manager section).
3. Select **Oracle Beehive Release 1 for DMZ (***version number***) Deployment Application**.
4. Click Schedule **Deployment...**.

The Oracle Beehive for DMZ deployment procedure will present you with the following pages in which you will enter required parameters for installation:

1. Targets
2. Upload
3. Install Inputs Page
4. Credentials/Schedule Page
5. Summary Page

> **Notes:** The parameters are similar to the installation procedure described in "Oracle Beehive for DMZ Sequence of Screens" in "Oracle Beehive Install Wizard" in the Oracle Beehive Installation Guide of your operating system.
>
> For Oracle Enterprise Manager Grid Control Release 4 (10.2.0.4) **only**, ensure that the information you input in the following pages contain only ASCII characters.

Targets

Select the targets on which you want to install Oracle Beehive for DMZ. You may select more than one target, add a target to the list, and remove a target from the list.

The list displays each target's **Host Name**, **Version**, **Platform**, **Agent Version**, and **Status**.

Upload

If you have not already uploaded a zipped installable version of Oracle Beehive to Oracle Beehive Enterprise Manager Grid Control Software Library, this page will prompt you to do so.

Linux and UNIX-Based Operating Systems

Upload the zipped installable version of Oracle Beehive from `<`*`Oracle Beehive installation media directory`*`>/install/beehive_home.zip`.

Microsoft Windows

Upload the zipped installable version of Oracle Beehive from `<`*`Oracle Beehive installation media directory`*`>\install\beehive_home.zip`.

> **Note:** When you install the Oracle Beehive deployment procedure, a zipped installable version of Oracle Beehive is automatically uploaded to Oracle Enterprise Manager Grid Control Software Library. However, it will only upload a version of Oracle Beehive for the same operating system as the one you used to install the deployment procedure.
>
> Consequently, if you want to install Oracle Beehive for DMZ for an operating system different than the one already in the software library, you will first have to upload a zipped installable version of Oracle Beehive for that operating system.

Install Inputs Page

The following describes the parameters for the **Install Inputs** page:

- Install Input
  - **Oracle home**: Specify the directory where you want to install Oracle Beehive for DMZ. You must specify a new Oracle home directory for each new installation of Oracle Beehive for DMZ.

Credentials/Schedule Page

The following describes the parameters for the **Credentials/Schedule** page:

- **Oracle Home Credentials**: The user credentials you will specify on this page must already exist on the target nodes. Also, ensure that the specified user is a part of the `osinstall` group.

  > **Note:** Ensure that you have entered the following user credentials correctly; the deployment procedure will not verify them.

  - **Specify Credentials for**: Specify the Oracle homes that the deployment procedure will access with the credentials (username and password) that you will specify in the following fields.
    - **Username**, **Password**, and **Confirm Password**: Specify the username and the password of the user that can access the Oracle homes you specified in **Specify Credentials for**.
- Schedule

- **One Time (Immediately)**: Starts the installation immediately
- **One Time (Later)**: Starts the installation at the specified time. If you do not want the procedure to start immediately, select this option and use the **Time Zone**, **Start Date**, and **Start Time** to schedule the procedure. If you change the date or time to a time in the future, the procedure will start on the specified date and time.
- Grace Period
  - **Indefinite**: Use this option if you want the Oracle Management Service to continue to attempt to start the patching job for an infinite amount of time.
  - **End After** *n* **Hours** *m* **Minutes**: In addition, you can specify the **End After** option of **Grace Period** to allow the Oracle Management Service to continue to attempt to start the job up to the specified time. This is useful, if the Oracle Management Agent is down and the Oracle Management Service is unable to start the patching job, because if the patching job is not started within the allotted time frame, the Oracle Management Service marks the patching job as skipped.

Summary Page

Review the installation parameters in the **Summary** page and click **Finish** to start the installation of Oracle Beehive for DMZ.

Uploading Oracle Beehive Shiphome to Oracle Enterprise Manager Grid Control

You may upload a new shiphome (an installable version of Oracle Beehive) to the central software library of Oracle Enterprise Manager Grid Control. Oracle Beehive Provisioning Application uses this shiphome to install Oracle Beehive.

To upload a new shiphome to the central library of Oracle Enterprise Manager Grid Control, follow these steps:

1. Click the **Deployments** tab. Click **Provisioning** in the menu bar. You will see a list of software you may provision through Oracle Enterprise Manager Grid Control.
2. In the TreeTable, expand the **Components** entry until you see **Oracle Beehive Release 1 Shiphome**. More than one shiphome entry may be available if you have installed Oracle Beehive Provisioning Application for more than one operating system. Select the shiphome you want to replace with a new shiphome. Click **Edit**.

   Caution: Do not click **Delete**.

3. In the **Edit Component** page, select **Update from Agent Machine**. Specify the zip file that contains the new shiphome:
   - **Linux and UNIX-Based operating systems**: `<Oracle Beehive installation media>/install/beehive_home.zip`
   - **Microsoft Windows**: `<Oracle Beehive installation media>\install\beehive_home.zip`

   Click **Finish**.

Note: When you install the Oracle Beehive deployment procedure, a zipped installable version of Oracle Beehive is automatically uploaded to Oracle Enterprise Manager Grid Control Software Library. However, it will only upload a version of Oracle Beehive for the same operating system you used to install the deployment procedure.

Consequently, if you want to install Oracle Beehive for an operating system different than the one already in the software library, you will first have to upload a zipped installable version of Oracle Beehive for that operating system.

7

Installing Oracle Beehive in Silent Mode (Non-Interactive)

This module describes how to install Oracle Beehive in silent mode, which allows minimal input from the user. This process involves creating a *response file*, which is an XML file that contains values required by the Oracle Beehive Install Wizard.

Use this process if you want to install Oracle Beehive with a batch process or do not want to use the GUI provided by the Oracle Beehive Install Wizard.

This module covers the following silent mode processes:

- Installing and Configuring Oracle Beehive in Silent Mode, Running Install Wizard
- Installing and Configuring Oracle Beehive in Silent Mode, Running Install Wizard and Config Wizard
- Installing Oracle Beehive Provisioning Application in Silent Mode
- Installing Oracle Beehive for DMZ in Silent Mode
- Verifying Oracle Beehive Installation
- Recovering from Failed Oracle Beehive Configuration
- Upgrading Oracle Beehive in Silent Mode
- Uninstalling Oracle Beehive in Silent Mode

Installing and Configuring Oracle Beehive in Silent Mode, Running Install Wizard

This process installs and configures Oracle Beehive by running the Oracle Beehive Install Wizard only once. It consists of the following steps:

1. Verify that Oracle Database is installed and running
2. Create a response file
3. Start the installation and configuration in silent mode
4. Verify the installation

Step 1 Verify that Oracle Database is installed and running

To verify that Oracle Database is running, connect to it and run a query as follows:

1. Ensure that the environment variables `ORACLE_HOME` is set to the home directory of Oracle Database and `ORACLE_SID` is set to the SID of the database you want to configure with this installation of Oracle Beehive.

2. Run the following commands to check the version of Oracle Database and verify that it is running (*<Database home>* is where you installed Oracle Database):

```
<Database home>/bin/sqlplus '/ as sysdba'

SQL> select version from v$instance;

VERSION
-----------------
11.1.0.7.0

SQL> exit;
```

3. Verify that the listener is listening to a service with the same name as ORACLE_SID:

```
<Database home>/bin/lsnrctl status
```

> **Note:** Refer to "Oracle Beehive Database Requirements" for more information about minimum database requirements.

Step 2 Create a response file

A response file is an XML file that contain values required for installation and configuration.

To create a response file, edit the response file according to the comments in it. Use one of the following methods to create a response file:

- Use the existing response file, `response/beehive_response_template.xml` in the installation media.
- Generate this response file in your home directory with the following command (from the installation media):

```
runInstaller -generateResponseTemplate
```

> **Tip:** Create a fully configured response file by running the Oracle Beehive Install Wizard (not in silent mode) until you reach the Installation Summary screen. Click **Save**. The Oracle Beehive Install Wizard saves the inputs you entered and options you selected in a response file.
>
> Note that the Oracle Beehive Install Wizard **will not save** the passwords you entered in the response file. You must edit this response file and add the required passwords.

Step 3 Start the installation and configuration in silent mode

Run the following command (from the installation media) to start the installation and configuration of Oracle Beehive in silent mode:

```
runInstaller -responseFile full_path_of_response_file -silent
```

After the installation and configuration are completed, Oracle Beehive servlet URLs are displayed. You will also find this information in a log file with a name similar to `<Oracle inventory>/logs/installActions*.log` (where *`<Oracle inventory>`* is the Oracle inventory directory).

If there is no Oracle inventory directory (the directory that stores information about the Oracle products in your computer) or this is the first installation of an Oracle product in the computer, you will be asked to run the *`<Oracle inventory>`*`/orainstRoot.sh` script as the root user.

Step 4 Verify the installation

Run the administration tool `beectl` as described in "Verifying Oracle Beehive Installation".

Installing and Configuring Oracle Beehive in Silent Mode, Running Install Wizard and Config Wizard

This process consists of two phases: an installation-only (or software-only) phase that installs Oracle Beehive by running the Oracle Beehive Install Wizard and a configuration-only phase that configures Oracle Beehive by running the Oracle Beehive Config Wizard.

This process consists of the following steps:

1. Verify that Oracle Database installed and running
2. Create a response file
3. Start the installation-only phase in silent mode
4. Start the configuration-only phase in silent mode
5. Verify the installation

Step 1 Verify that Oracle Database installed and running

This step is the same as *** 'Verify that Oracle Database is installed and running' on page 1 *** in "Installing and Configuring Oracle Beehive in Silent Mode, Running Install Wizard".

Step 2 Create a response file

This step is the same as *** 'Create a response file' on page 2 *** in "Installing and Configuring Oracle Beehive in Silent Mode, Running Install Wizard", except you only need to specify the values `homeLocation` and `softwareOnly`. (For the configuration-only phase, Step 4, you will need to specify all the other values.) The following is an excerpt from a response file that has these two values specified:

```
**********************************************************************
  Oracle Home Information
**********************************************************************
-->
<object class="oracle.ocs.install.wizard.framework.beans.HomeInfoBean">
  <!--
  # This string property holds the oracle home location.
  # Specify an absolute path here.
  # The path should not contain special characters
  -->
  <void property="homeLocation">
    <string>/my_oracle_home</string>
  </void>

</object>

<!--
**********************************************************************
  Install Type Information
**********************************************************************
```

```
-->
<object class=
  "oracle.ocs.install.wizard.product.main.domain.InstallTypeInfoBean">
  <!--
  # This boolean property holds the type of install.
  # Specify true to install just the software only or
  # specify false to install and configure.
  # Defaults to false if not specified.
  -->
  <void property="softwareOnly">
    <boolean>true</boolean>
  </void>

</object>
```

Step 3 Start the installation-only phase in silent mode

Run the following commands (from the installation media) to start the installation-only phase in silent mode:

```
runInstaller -responseFile full_path_of_response_file -silent
```

Step 4 Start the configuration-only phase in silent mode

Wait until the installation-only phase is finished and successful. Ensure that you have specified all required values in the response file. Run the following commands to start the configuration-only phase (*`<Oracle home>`* is where you installed Oracle Beehive):

```
cd <Oracle home>/beehive/oobwiz
./configWizard -responseFile full_path_of_response_file -silent
```

Log files with names similar to *`<Oracle home>`*`/beehive/oobwiz/logs/configActions*.log` contain information about this configuration-only phase.

If there is no Oracle inventory directory (the directory that stores information about the Oracle products in your computer) or this is the first installation of an Oracle product in the computer, you will be asked to run the *`<Oracle inventory>`*`/orainstRoot.sh` script as the root user.

Step 5 Verify the installation

Run the administration tool `beectl` as described in "Verifying Oracle Beehive Installation".

Installing Oracle Beehive Provisioning Application in Silent Mode

You may install Oracle Beehive Provisioning Application in silent mode.

The process is similar to "Installing and Configuring Oracle Beehive in Silent Mode, Running Install Wizard" except that you do not verify that a database is running and you use the response file (from the installation media) `response/provplugin_response_template.xml`. You can also generate this response file with the command `runInstaller -generateResponseTemplate`. The response file will be in your home directory.

Installing Oracle Beehive for DMZ in Silent Mode

You may install Oracle Beehive for DMZ in silent mode.

The process is similar to "Installing and Configuring Oracle Beehive in Silent Mode, Running Install Wizard" except that you use the response file (from the installation media) `response/dmz_response_template.xml`. You can also generate this response file with the command (from the installation media) `runInstaller -generateResponseTemplate`. The response file will be in your home directory.

Verifying Oracle Beehive Installation

Run the `beectl status` command:

```
<Oracle home>/beehive/bin/beectl status
```

If Oracle Beehive is installed and configured successfully, you should see output similar to the following:

```
---------------------------------------------+----------------+-----------------
Component identifier                         | Component type | Status
---------------------------------------------+----------------+-----------------
BTI_instance1.example.com                    | Bti            | RUNNING
---------------------------------------------+----------------+-----------------
BEEMGMT_instance1.example.com                | ManagedOc4j    | RUNNING
---------------------------------------------+----------------+-----------------
BEEAPP_instance1.example.com                 | ManagedOc4j    | RUNNING
---------------------------------------------+----------------+-----------------
oc4j_soa_instance1.example.com               | ManagedOc4j    | RUNNING
---------------------------------------------+----------------+-----------------
BEECORE_instance1.example.com                | ManagedOc4j    | RUNNING
---------------------------------------------+----------------+-----------------
ohs_instance1.example.com                    | HttpServer     | RUNNING
---------------------------------------------+----------------+-----------------
```

If some of these components have not been started, review the log files in the following directories:

- `<Oracle inventory>/logs`
- `<Oracle home>/beehive/logs`

Recovering from Failed Oracle Beehive Configuration

If Oracle Beehive configuration failed, run the `configWizard` command. This command will automatically detect that Oracle Beehive configuration was not successful. It will then run only the configuration tools that failed or were aborted.

Upgrading Oracle Beehive in Silent Mode

Note: You may only upgrade an Oracle Beehive Release 1 (1.4.3) deployment to Oracle Beehive Release 1 (1.5). You must upgrade an Oracle Beehive Release 1 (1.4.1) deployment to Oracle Beehive Release 1 (1.4.3) before upgrading it to Oracle Beehive Release 1 (1.5).

You may upgrade the following Oracle Beehive products in silent mode:

- Oracle Beehive
- Oracle Beehive Provisioning Application. (You may not upgrade any version of Oracle Beehive Provisioning Application earlier than 1.2.1.0.0.)

- Oracle Beehive for DMZ
- Oracle Beekeeper

The upgrade process to upgrade any of these Oracle Beehive products is the same as "Installing and Configuring Oracle Beehive in Silent Mode, Running Install Wizard" except that you create a response file from a different template depending on the product you are upgrading. The following lists the names of the response file templates to use for each Oracle Beehive product to upgrade:

- Oracle Beehive Release 1: `beehive_upgrade_response_template.xml`
- Oracle Beehive Provisioning Application: `provplugin_upgrade_repsonse_template.xml`
- Oracle Beehive for DMZ: `dmz_upgrade_response_template.xml`
- Oracle Beekeeper: `beekeeper_upgrade_response_template.xml`

Uninstalling Oracle Beehive in Silent Mode

You may uninstall Oracle Beehive in silent mode.

The process is similar to "Installing and Configuring Oracle Beehive in Silent Mode, Running Install Wizard" except for the following:

- You do not need to verify that a database is running.
- Use the response file (from the installation media) `/response/beehive_uninstall_response_template.xml`. You can also generate this response file with the command `runInstaller -generateResponseTemplate`. The response file will be in your home directory.
- Run the following command (from the installation media):

  ```
  runInstaller -uninstall
    -responseFile full_path_of_uninstall_response_file -silent
  ```

  You may also run the following command:

  ```
  <Oracle home>/beehive/oobwiz/configWizard -uninstall
    -responseFile full_path_of_uninstall_response_file -silent
  ```

8

Provisioning Oracle Beekeeper

The deployment procedure for Oracle Beekeeper enables you to install Oracle Beekeeper from Oracle Enterprise Manager Grid Control. The Provisioning Advisor Framework is used for this purpose.

The following topics are covered:

- Introduction to Oracle Beekeeper Deployment Procedure
- Running Oracle Beekeeper Deployment Procedure
- Uploading Oracle Beekeeper Shiphome to Oracle Enterprise Manager Grid Control

Introduction to Oracle Beekeeper Deployment Procedure

The Oracle Beekeeper deployment procedure consists of the following components:

- Provisioning Advisor Framework
- Software Library
- Job System

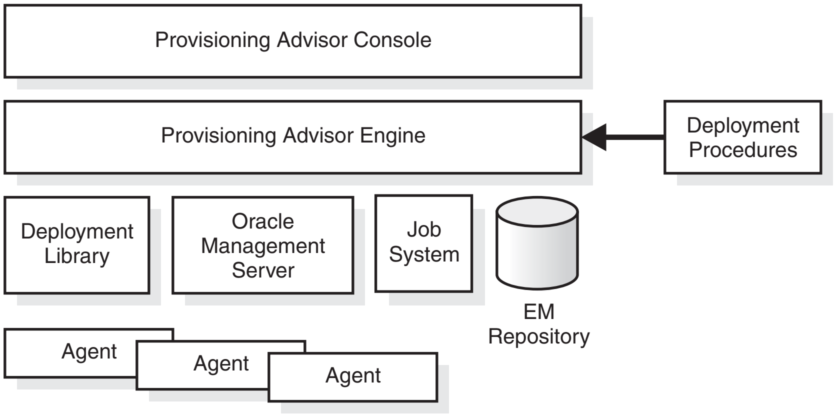
Provisioning Advisor Framework

Provisioning Advisor Framework (PAF) provides a seamless process to integrate tasks that are associated with an application. The framework automates, orchestrates, and tracks the tasks of various applications, such as installers, upgrade assistants, and custom scripts.

PAF is built on top of the Enterprise Manager Grid Control structure. This structure comprises of Oracle Management Server (OMS), Job System, Oracle Enterprise Manager (EM) Repository, Agent and the Software Library. PAF uses an XML file called the Deployment Procedure (DP) as an input from an application. The different tasks of the application are broken down and listed in the Deployment Procedure. Each individual task is referred to as a step. A step could be further classified based on the task it performs. The step could be a manual step that requires user interaction or could be a host command step that runs a command on a specified list of targets. A group of step is referred to as a Phase. This feature enables the execution of a group of steps either in parallel or serially on the target nodes. A Deployment Procedure Engine maintains the state of the procedure while executing the phases and steps in the supplied DP.

The following figure illustrates the Provisioning Advisor Framework architecture:

Figure 8–1 Provisioning Advisor Framework Architecture



Software Library

The Software Library is an infrastructure entity for storing and retrieving files and packages. This provides a common repository for storing software binaries, scripts and other files that are used by provisioning, cloning, and other applications.

Job System

Enterprise Manager Job System is a repository-based system that enables you to schedule and execute jobs on target computers. The Job System supports preconfigured job types, such as OS Commands and File Transfer. The Job System also enables the applications to create job types.

Running Oracle Beekeeper Deployment Procedure

Follow these steps to provision and deploy Oracle Beekeeper:

1. Select the **Deployments** tab.
2. Click **Deployment Procedures** (from the Deployment Procedure Manager section).
3. Select **Oracle Beekeeper Release 1 (*version number*) Deployment Procedure**.
4. Click Schedule **Deployment...**.

The Oracle Beekeeper deployment procedure will present you with the following pages in which you will enter required parameters for installation:

1. Targets
2. Upload
3. Install Inputs Page
4. Credentials/Schedule Page
5. Summary Page

Notes: The parameters are similar to the installation procedure described in "Oracle Beekeeper Installation Help" in the Oracle Beehive Installation Guide of your operating system.

For Oracle Enterprise Manager Grid Control Release 4 (10.2.0.4) **only**, ensure that the information you input in the following pages contain only ASCII characters.

Targets

Select the targets on which you want to install Oracle Beekeeper. You may select more than one target, add a target to the list, and remove a target from the list.

The list displays each target's **Host Name**, **Version**, **Platform**, **Agent Version**, and **Status**.

Upload

If Oracle Enterprise Manager Grid Control Software Library does not contain a zipped installable version of Oracle Beekeeper, this page will prompt you to upload one to the software library.

Linux and UNIX-Based Operating Systems

Upload the zipped installable version of Oracle Beekeeper from `<Oracle Beekeeper installation media directory>/install/beehive_home.zip`.

Microsoft Windows

Upload the zipped installable version of Oracle Beekeeper from `<Oracle Beekeeper installation media directory>\install\beehive_home.zip`.

Install Inputs Page

The following describes the parameters for the **Install Inputs** page:

- Install Input
  - **Oracle home**: Specify the directory where you want to install Oracle Beekeeper. You must specify a new Oracle home directory for each new installation of Oracle Beekeeper.
- Database Details: Specify the following details of an existing Oracle Database instance that will be used by this installation. Refer to the module "Oracle Beehive Database Requirements" in the Oracle Beehive Installation Guide of your operating system for database requirements for Oracle Beehive Release 1.

Oracle RAC Notes: If you are specifying details for an Oracle Real Application Cluster (Oracle RAC) database, ensure that you have entered the following information correctly; the deployment procedure will not verify it by trying to connect to each database host. Instead, the deployment procedure constructs the connect descriptor with the database information you provide, then verifies if the connect descriptor can reach the database.

  - **Hostname and Port**: Specify the fully qualified domain name (FQDN) of the host where the target database is running followed by the database listener port.

    For example, if the host name is `foo`, its domain is `abc.com`, and the database listener port is `1521`, then you must enter the following:

    ```
    foo.abc.com:1521
    ```

    Note: In case of an Oracle RAC database, use the following format:

    ```
    virtual_host1:virtual_port1^virtual_host2:virtual_port2^ ...
    ```

  - **Service Name**: Enter the service name for the Oracle Database. This is the same as the global database name, and must be unique across all databases. This is also the same as the Service Name the Oracle Beehive Install Wizard asks you when you choose to install Oracle Beehive against an existing database.

    In the Oracle Beehive Installation Guide of your operating system, refer to "Installing Oracle Beehive Against an Existing Database" for more information. Refer to "Database Information" in "Oracle Beehive Install Wizard" for more information about the service name.

  - **Schema User Password**: Enter the password for the Oracle Beehive database schema that is stored in the database whose information you have specified in this screen.

- **Site Key**: Enter the site key that you specified when you installed your first Oracle Beehive application tier.

Credentials/Schedule Page

The following describes the parameters for the **Credentials/Schedule** page:

- **Oracle Home Credentials**: The user credentials you will specify on this page must already exist on the target nodes. Also, ensure that the specified user is a part of the `osinstall` group.

  Note: Ensure that you have entered the following user credentials correctly; the deployment procedure will not verify them.

  - **Specify Credentials for**: Specify the Oracle homes that the deployment procedure will access with the credentials (username and password) that you will specify in the following fields.

    - **Username**, **Password**, and **Confirm Password**: Specify the username and the password of the user that can access the Oracle homes you specified in **Specify Credentials for**.

- Schedule

  - **One Time (Immediately)**: Starts the installation immediately

  - **One Time (Later)**: Starts the installation at the specified time. If you do not want the procedure to start immediately, select this option and use the **Time Zone**, **Start Date**, and **Start Time** to schedule the procedure. If you change the date or time to a time in the future, the procedure will start on the specified date and time.

- Grace Period
    - **Indefinite**: Use this option if you want the Oracle Management Service to continue to attempt to start the patching job for an infinite amount of time.
    - **End After** *n* **Hours** *m* **Minutes**: In addition, you can specify the **End After** option of **Grace Period** to allow the Oracle Management Service to continue to attempt to start the job up to the specified time. This is useful, if the Oracle Management Agent is down and the Oracle Management Service is unable to start the patching job, because if the patching job is not started within the allotted time frame, the Oracle Management Service marks the patching job as skipped.

Summary Page

Review the installation parameters in the **Summary** page and click **Finish** to start the installation of Oracle Beekeeper.

Uploading Oracle Beekeeper Shiphome to Oracle Enterprise Manager Grid Control

You may upload a new shiphome (an installable version of Oracle Beekeeper) to the central software library of Oracle Enterprise Manager Grid Control. Oracle Beekeeper Provisioning Application uses this shiphome to install Oracle Beekeeper.

To upload a new shiphome to the central library of Oracle Enterprise Manager Grid Control, follow these steps:

1. Click the **Deployments** tab. Click **Provisioning** in the menu bar. You will see a list of software you may provision through Oracle Enterprise Manager Grid Control.
2. In the TreeTable, expand the **Components** entry until you see **Oracle Beekeeper Shiphome**. More than one shiphome entry may be available if you have installed Oracle Beekeeper Provisioning Application for more than one operating system. Select the shiphome you want to replace with a new shiphome. Click **Edit**.

   Caution: Do not click **Delete**.

3. In the **Edit Component** page, select **Update from Agent Machine**. Specify the zip file that contains the new shiphome:
    - **Linux and UNIX-Based operating systems**: `<Oracle Beekeeper installation media>/install/beehive_home.zip`
    - **Microsoft Windows**: `<Oracle Beekeeper installation media>\install\beehive_home.zip`

   Click **Finish**.

Note: When you install the Oracle Beekeeper deployment procedure, a zipped installable version of Oracle Beekeeper is automatically uploaded to Oracle Enterprise Manager Grid Control Software Library. However, it will only upload a version of Oracle Beekeeper for the same operating system you used to install the deployment procedure.

Consequently, if you want to install Oracle Beekeeper for an operating system different than the one already in the software library, you will first have to upload a zipped installable version of Oracle Beekeeper for that operating system.

9

Oracle Beehive Install and Config Wizard Command-Line Options

This module describes command-line options for the Oracle Beehive Install Wizard and Config Wizard.

Oracle Beehive Install Wizard

Starts the installation wizard, which in turn can start the configuration wizard.

Usage

```
runInstaller [-option name]
```

Options

The following table describes the Oracle Beehive Install Wizard command-line options.

Table 9–1 runInstaller Options

Option	Description
-debug	Turns on all levels of logging.
-entryPoint *entry_point*	Specifies the product-specific prerequisite set that will be run. For Oracle Beehive, this is oracle.bee_allProducts.
-force	Allows silent mode installation into a non-empty directory. Valid for install time use only.
-generateResponseTemplate	Generates response files (for Oracle Beehive installation, Oracle Beehive Provisioning Application, and Oracle Beehive uninstallation) in the user's home directory.
-help	Outputs help about runInstaller command-line arguments.

Table 9–1 (Cont.) runInstaller Options

Option	Description
-invPtrLoc *absolute_path_to_oraInst.loc_file*	**UNIX-based systems only**: Specifies the location of an `oraInst.loc` file other than the default (which is `/etc/oraInst.loc`). **For Solaris operating system (SPARC 64-Bit)**: Specifies the location of an `oraInst.loc` file other than the default (which is `/var/opt/oracle/oraInst.loc`). The `oraInst.loc` file contains the following lines: `inventory_loc=`*`inventory_directory_path`* `inst_group=`*`INVGROUP`* *`INVGROUP`* is the UNIX OS group that has write access to the inventory directory.
-logLevel *level*	Filters messages that have a lesser priority level than *level*. Valid levels are severe, warning, info, config, fine, finer, and finest.
-noConfig	Installs the software only; does not perform any configuration; valid for install time use only.
-noSplash	Suppresses the Install Wizard splash screen.
-nowait	**Windows only**: Does not prompt the user for exit confirmation. This option is useful if you call the Install Wizard from a batch file and do not want the Y/N confirmation prompt at the end of execution.
-prereq_config_loc *location*	Specifies the fully qualified path to the prereq directory that contains the prerequisite.properties file.
-prereqcheck	Runs the prerequisite checker only.
-record	Records the user's response from the installation wizard to a response file. Specify the name of the file to be created with the -responseFile option.
-responseFile *path*	Specifies the response file and path to use.
-silent	Installs Oracle Beehive in silent mode operation. You must also specify a response file with the -responseFile option.
-target_loc *directory*	Checks available disk space in *directory*.
-uninstall	Launches the wizard in uninstall mode only if any product homes are detected in the install inventory. Silent uninstallation can be performed by additionally using the options -silent and -responseFile *uninstall_responsefile*. **Windows only**: This option will work only from `setup.exe` on the installation media.
-version	Outputs the version of the framework of the Install Wizard.
-waitforcompletion	Causes the installer process to execute in the foreground; it will not return until execution completes. This option is useful if you call the Install Wizard from a shell script or batch file and want to use the value that the Config Wizard returns when it exits.

Oracle Beehive Config Wizard

Starts the configuration wizard. The full path of the command is `<Oracle home>/beehive/oobwiz/configWizard`.

Usage

```
configWizard [-option name]
```

Options

The following table describes the configWizard command options:

Table 9–2 configWizard Options

Option	Description
-entryPoint *entry_point*	Specifies the product-specific prerequisite set that will be run. For Oracle Beehive, this is oracle.bee_allProducts.
-force	Allows silent mode installation into a non-empty directory. Valid for install time use only.
-generateResponseTemplate	Generates response files in user's home directory.
-help	Outputs help about configWizard command-line arguments.
-invPrtLoc *absolute_path_to_oraInst.loc_file*	**UNIX-based systems only**: Specifies the location of an `oraInst.loc` file other than the default (which is `/etc/oraInst.loc`). **For Solaris operating system (SPARC 64-Bit)**: Specifies the location of an `oraInst.loc` file other than the default (which is `/var/opt/oracle/oraInst.loc`). The `oraInst.loc` file contains the following lines: `inventory_loc=`*`inventory_directory_path`* `inst_group=`*`INVGROUP`* *`INVGROUP`* is the UNIX OS group that has write access to the inventory directory.
-logLevel *level*	Filters log messages that have a lesser priority level than *level*. Valid levels are: severe, warning, info, config, fine, finer, finest.
-noConfig	Installs the software only; does not perform any configuration; valid for install time use only.
-noSplash	Suppresses the Config Wizard splash screen.
-nowait	**Windows only**: Does not prompt the user for exit confirmation. This option is useful if you call the Config Wizard from a batch file and do not want the Y/N confirmation prompt at the end of execution.
-prereq_config_loc *location*	Specifies the fully qualified path to the prereq directory that contains the prerequisite.properties file.
-prereqcheck	Runs only the prerequisite checker.

Table 9–2 (Cont.) configWizard Options

Option	Description
-record	Records the user's response from the installation wizard to a response file. Specify the name of the file to be created with the -responseFile option.
-reponseFile *path*	Specifies the response file and path to use.
-silent	Configures Oracle Beehive in silent mode operation. You must also specify a response file with the -responseFile option.
-target_loc *directory*	Checks available disk space in *directory*.
-uninstall	Launches the wizard in uninstall mode only if any product homes are detected in the install inventory. Silent uninstallation can be performed by additionally using the options -silent and -responseFile *uninstall_responsefile*. **Windows only**: You cannot perform uninstallations with the configWizard. This includes silent uninstallations. To uninstall Oracle Beehive, run `setup.exe -uninstall` from the installation media.
-version	Outputs the version of the framework of the Config Wizard.
-waitforcompletion	Causes the wizard to execute in the foreground; it will not return until execution completes. This option is useful if you call the Config Wizard from a shell script or batch file and want to use the value that the Config Wizard returns when it exits.

10

Oracle Beehive Uninstall Wizard

You may uninstall the following products with the Oracle Beehive Uninstall Wizard:

- Oracle Beehive Release 1
- Oracle Beehive Provisioning Application
- Oracle Beehive for DMZ

The following topics about uninstalling Oracle Beehive are covered:

- Starting the Oracle Beehive Install Wizard
- Oracle Beehive Uninstall Wizard Sequence of Screens
- Uninstalling Provisioning Application for Oracle Beehive or Oracle Beekeeper
- Uninstalling Multiple Instances
- Manually Deleting Oracle Beehive Tablespaces and Datafiles

Starting the Oracle Beehive Install Wizard

Start the Oracle Beehive Uninstall Wizard by running the Oracle Beehive Install Wizard and clicking the **Uninstall** button. Alternatively, run the Oracle Beehive Config Wizard (or Oracle Beehive Install Wizard) with the `-uninstall` command-line option.

Oracle Beehive Uninstall Wizard Sequence of Screens

The following screens appear during the uninstallation of Oracle Beehive:

- Select Oracle Home to Uninstall: This screen will not appear if you start Oracle Beehive Uninstall Wizard with Oracle Beehive Config Wizard.
- Option to Remove Database Schema: This screen will only appear if you are uninstalling Oracle Beehive Release 1 and it is the last one configured in your database.
- Start Uninstallation
- End of Uninstallation

Select Oracle Home to Uninstall

This screen lists all the Oracle Beehive products you have installed and their respective Oracle homes.

Select the Oracle Beehive home you want to uninstall.

This screen will not appear if you started the uninstall process by running the Config Wizard. In this case, the Config Wizard will uninstall the current Oracle Beehive home.

Option to Remove Database Schema

You will see this screen if you are uninstalling Oracle Beehive Release 1 and it is the last instance configured in your database.

Choose from one of the following options:

Remove Oracle Beehive Instance Only

This option will only deconfigure the Oracle Beehive instance.

Remove Oracle Beehive and Schema

This option will deconfigure the Oracle Beehive instance and remove the Oracle Beehive schema from the database. If you choose this option, you must provide the following information:

- **Admin User Name**: Specify the administrative user name (that can perform database administration tasks) for the database instance. Typically, this user is the `SYS` account.
- **Admin User Password**: Enter the password for the Oracle database administrative user account that you specified in the **Admin User Name** field.

Start Uninstallation

This screen will list actions that the Oracle Beehive Uninstall Wizard must perform to uninstall your chosen Oracle Beehive product.

Note: If you started the uninstall process with the Config Wizard, the "Delete Oracle Home" action will not be displayed. This action will be performed after you have exited the Config Wizard graphical user interface.

Click **Start Uninstall** to proceed with the uninstallation of your chosen Oracle Beehive product.

Note: On Microsoft Windows, if you receive an error message from the Oracle Beehive Uninstall Wizard that it was unable to delete the Oracle home folder, delete it manually, then restart your computer.

End of Uninstallation

This screen indicates that the uninstallation of the chosen Oracle Beehive product is successful.

Uninstalling Provisioning Application for Oracle Beehive or Oracle Beekeeper

Uninstall Oracle Beehive Provisioning Application or Oracle Beekeeper Provisioning Application with the Oracle Beehive Universal Installer:

1. Run the Oracle Beehive Universal Installer from the Oracle Management Service home:

   ```
   <Oracle Management Service home>/oui/bin/runInstaller
   ```

2. Click **Deinstall Products**.
3. In the **Oracle Homes** tree, expand the `<OMS_HOME>` node to view all installed components. Select the provisioning application you want to remove and click the **Remove** button.

> **Notes:** You cannot uninstall the provisioning application with the Oracle Beehive or Oracle Beekeeper Uninstall Wizard.
>
> The Uninstall Wizard will not uninstall any changes made to the Oracle Enterprise Manager Grid Control repository database.

Uninstalling Multiple Instances

If you wish to uninstall multiple instances of Oracle Beehive (which share the same database), uninstall each instance one at a time; do not run the Uninstall Wizard of each instance at the same time.

If you have multiple instances that share the same database, and you run the Uninstall Wizard of each instance at the same time, each Uninstall Wizard will assume that the instance it is uninstalling is not the last one to be uninstalled. As a result, the Oracle Beehive schema will not be removed from the database.

Manually Deleting Oracle Beehive Tablespaces and Datafiles

To manually delete Oracle Beehive tablespaces and datafiles, run the following SQL*Plus commands as a user with SYSDBA privileges. Ensure that the environment variable ORACLE_SID is set to the SID of the database that contains the Oracle Beehive tablespaces and datafiles.

> **Note:** You may need to manually delete Oracle Beehive database users. Run the SQL command `DROP USER <user name> CASCADE` for the following users:
>
> - `BEE_DATA`
> - `BEE_CDCPUB`
> - `BEE_CODE`
> - `ORABPEL`
> - `ORAWSM`
> - `ORAESB`

1. `SQL> SET LINE 1000 PAGES 0`

   This command sets the line size to a large number and suppresses other formatting information so that the next command can output additional SQL*Plus commands without any line breaks.

2. `SQL> SELECT 'DROP TABLESPACE ' || tablespace_name || ' INCLUDING CONTENTS AND DATAFILES;' FROM dba_tablespaces WHERE tablespace_name LIKE 'BEE%';`

   This command outputs a list of tablespace DROP commands. Review each command before running them.

The following is an example of running these two commands, then running each of the generated tablespace DROP commands:

```
SQL> SET LINE 1000 PAGES 0
SQL> SELECT 'DROP TABLESPACE ' || tablespace_name || ' INCLUDING CONTENTS AND
  DATAFILES;' FROM dba_tablespaces WHERE tablespace_name LIKE 'BEE%';
DROP TABLESPACE BEE_ARCHIVE INCLUDING CONTENTS AND DATAFILES;
DROP TABLESPACE BEE_AUDIT INCLUDING CONTENTS AND DATAFILES;
DROP TABLESPACE BEE_DATA INCLUDING CONTENTS AND DATAFILES;
DROP TABLESPACE BEE_INDEX INCLUDING CONTENTS AND DATAFILES;
DROP TABLESPACE BEE_INTERFACE INCLUDING CONTENTS AND DATAFILES;
DROP TABLESPACE BEE_LOBS INCLUDING CONTENTS AND DATAFILES;
DROP TABLESPACE BEE_QUEUES INCLUDING CONTENTS AND DATAFILES;
DROP TABLESPACE BEE_SEARCH_DATA INCLUDING CONTENTS AND DATAFILES;
DROP TABLESPACE BEE_SEARCH_INDEX INCLUDING CONTENTS AND DATAFILES;
DROP TABLESPACE BEE_SEARCH_LOBS INCLUDING CONTENTS AND DATAFILES;
DROP TABLESPACE BEE_SEED INCLUDING CONTENTS AND DATAFILES;

11 rows selected.

SQL> DROP TABLESPACE BEE_ARCHIVE INCLUDING CONTENTS AND DATAFILES;

Tablespace dropped.

SQL> DROP TABLESPACE BEE_AUDIT INCLUDING CONTENTS AND DATAFILES;

Tablespace dropped.

SQL> DROP TABLESPACE BEE_DATA INCLUDING CONTENTS AND DATAFILES;

Tablespace dropped.

SQL> DROP TABLESPACE BEE_INDEX INCLUDING CONTENTS AND DATAFILES;

Tablespace dropped.

SQL> DROP TABLESPACE BEE_INTERFACE INCLUDING CONTENTS AND DATAFILES;

Tablespace dropped.

SQL> DROP TABLESPACE BEE_LOBS INCLUDING CONTENTS AND DATAFILES;

Tablespace dropped.

SQL> DROP TABLESPACE BEE_QUEUES INCLUDING CONTENTS AND DATAFILES;

Tablespace dropped.

SQL> DROP TABLESPACE BEE_SEARCH_DATA INCLUDING CONTENTS AND DATAFILES;

Tablespace dropped.

SQL> DROP TABLESPACE BEE_SEARCH_INDEX INCLUDING CONTENTS AND DATAFILES;
```

```
Tablespace dropped.

SQL> DROP TABLESPACE BEE_SEARCH_LOBS INCLUDING CONTENTS AND DATAFILES;

Tablespace dropped.

SQL> DROP TABLESPACE BEE_SEED INCLUDING CONTENTS AND DATAFILES;

Tablespace dropped.
```

Manually Deleting Customized Oracle Beehive Customized Tablespaces and Datafiles

If you have customized the Oracle Beehive tablespace layouts, run the following SQL*Plus commands as a user with SYSDBA privileges:

1. `SQL>` **`SET LINE 1000 PAGES 0`**

   This command sets the line size to a large number and suppresses other formatting information so that the next command can output additional SQL*Plus commands without any line breaks.

2. `SQL>` **`SELECT 'DROP TABLESPACE "' || ts_name || '" INCLUDING CONTENTS AND DATAFILES;' AS "Drop tablespace commands" FROM sys.bee_tablespaces;`**

   This command generates a list of tablespace DROP commands. Review each command before running them.

3. `SQL>` **`DROP VIEW sys.bee_tablespaces;`**

   This command drops the view that contains the customized tablespaces.

11

Troubleshooting Oracle Beehive Installation

Unable to Perform FTP Operations

Check the log files of BEEAPP, BEECORE, and BEEMGMT. If you see an exception thrown by oracle.ocs.omb.transport.exception.TimedOutException, ensure the port defined by ServerPort in the BTI component is accessible.

This may occur if you have two Oracle Beehive instances, and you block this port (through your firewall) between these instances.

ORA-12850: Could not allocate slaves on all specified instances, ORA-00018: Maximum number of sessions exceeded

If you receive the error "Failed to access configuration repository (database). Internal error message: java.sql.SQLException: Connection Unavailable" when running a `beectl` command and in your database alert log see the errors ORA-12850: Could not allocate slaves on all specified instances and ORA-00018: Maximum number of sessions exceeded, increase the processes initialization parameter in your database. Refer to "Initialization Parameters" in "Oracle Beehive Database Requirements" for information on changing initialization parameters in your database.

Oracle Beehive Install Wizard Fails Because Apache HTTP Server Unable to Start

Oracle Beehive Install Wizard may fail because of an error similar to the following:

```
<ORACLE_HOME>/Apache/Apache/bin/apachectl startssl: execing httpd
Syntax error on line 233 of <ORACLE_HOME>/Apache/Apache/conf/httpd.conf:
Cannot load <ORACLE_HOME>/Apache/Apache/libexec/mod_auth_dbm.so into server:
<ORACLE_HOME>/Apache/Apache/libexec/mod_auth_dbm.so: undefined symbol: dbm_fetch
```

The undefined symbol error may result from the symbolic link `/usr/lib/libdb.so.2` pointing to a different file or an incorrect version of the shared library.

Before starting the Install Wizard, create (or recreate) the following symbolic link as the root user:

```
ln -s /usr/lib/libgdbm.so.2.0.0 /usr/lib/libdb.so.2
```

Exporting Configuration Data

You may export the entire system model configuration data into an XML file for any given configuration version with the `beectl export_configuration_data` command.

You may provide your Oracle support representative the output from this command. This will help your representative investigate any problems with your Oracle Beehive deployment faster. You may also use the output of from this command to compare the configuration between different Oracle Beehive deployments, such as between a test and a production deployment.

Note that secure values do not appear in the output for security reasons.

HTTP Server mod_oc4j Continues Trying to Route to OC4J after Being Disconnected

If you suddenly shutdown an application tier, you may receive the following error messages in your Oracle HTTP Server error log file (typically named `error_log`):

```
[Thu Sep  4 12:59:07 2008] [error] [client 140.87.120.38]
[ecid:1220558336:144.25.34.13:3454:0:2430,0] mod_oc4j: request to OC4J
myhost.example.com:12503 failed: Connect failed (errno=113)

...

[Thu Sep  4 13:02:40 2008] [error] [client 140.87.120.38]
[ecid:1220558560:144.25.34.13:3802:0:2395,0] mod_oc4j: request to OC4J
myhost.oracle.com:12503 failed: Connect failed (errno=111)
```

In this situation, the `mod_oc4j` module has not been notified that the application tier it is trying to connect to has been shutdown. Consequently, it will repeatedly attempt to connect to the application tier until it fails a certain number of times , which is specified by the `mod_oc4j` parameter `MaxErrors`.

The default value for `MaxErrors` is 100. You may change the value of this parameter to a lower value (such as 1) by following these steps:

1. Edit the file *`<Oracle home>`*`/beehive/conf/scripts/httpd.conf.tmp` and add the line `Oc4jSet MaxErrors 1` in the `<IfModule mod_oc4j.c>` section:

   ```
   <IfModule mod_oc4j.c>
     Oc4jSet MaxErrors 1
   </IfModule>
   ```

2. Run the following command to regenerate the file *`<Oracle home>`*`/Apache/Apache/conf/mod_oc4j.conf` (which contains the `mod_oc4j` parameter):

   ```
   beectl modify_local_configuration_files  --restart_needed false
   ```

3. Run the following command to restart Oracle HTTP Server:

   ```
   <Oracle home>/opmn/bin/opmnctl restartproc process-type=HTTP_Server
   ```

Refer to **Oracle*MetaLink*** Note 468325.1 "HTTP Server mod_oc4j Continues Trying To Route To OC4J After Node Is Disconnected" for more information.

Part II

Oracle Beehive Upgrade Procedures

This part describes how to upgrade your Oracle Beehive deployment to Oracle Beehive Release 1 (1.5). To install Oracle Beehive, refer to Part I, "Oracle Beehive Installation". To configure Oracle Beehive, refer to Part III, "Oracle Beehive Post-Installation Configuration". To install Oracle Beehive in a high availability environment, refer to Part IV, "Oracle Beehive High Availability Configuration"

This part contains the following modules:

- Upgrading Oracle Beehive Overview
- Upgrading Oracle Beehive Release 1 (1.4.3)
- Upgrading Oracle Beekeeper Version 1.4.3
-

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Upgrading Oracle Beehive Overview

This module describes steps to perform before upgrading your Oracle Beehive deployment to Oracle Beehive Release 1 (1.5), the order in which you should upgrade Oracle Beehive products, and other procedures to perform after upgrading.

Note: You may only upgrade an Oracle Beehive Release 1 (1.4.3) deployment to Oracle Beehive Release 1 (1.5). You must upgrade an Oracle Beehive Release 1 (1.4.1) deployment to Oracle Beehive Release 1 (1.4.3) before upgrading it to Oracle Beehive Release 1 (1.5).

This section covers the following topics:

- Before Upgrading
- Upgrade Sequence
- Upgrading Multiple Oracle Beehive Application Tiers
- Upgrading Oracle Beekeeper Version 1.4.3 to Version 1.5
- After Upgrading

Before Upgrading

Perform or ensure the following before upgrading Oracle Beehive Release 1 (1.4.3) to Oracle Beehive Release 1 (1.5):

- Upgrade Database to Supported Version
- Ensure Passwords for ORAWSM and BEE_CODE Schemas Are the Same
- Adjust XmppTimerKeepAliveTime Configuration Parameter
- Analyze Application Tiers
- Rollback Oracle Application Server Critical Patch Update
- Ensure tnsnames.ora File Exists
- Export Configuration Data
- Prepare System for Partitioning of Time Management Database Tables
- Prepare Oracle Beehive Integration for Zimbra for Upgrade
- Configure Zero Downtime Upgrade
- Shutdown All Oracle Beehive Instances

Upgrade Database to Supported Version

If your Oracle Beehive deployment uses an Oracle Database version earlier than 10.2.0.4, then upgrade it to a version that Oracle Beehive Release 1 (1.5) supports. Refer to "Oracle Beehive Database Requirements" for more information.

Ensure Passwords for ORAWSM and BEE_CODE Schemas Are the Same

Ensure that the password for the ORAWSM schema is the same as the one for the BEE_CODE schema. If not, change the ORAWSM password before proceeding with the upgrade.

Adjust XmppTimerKeepAliveTime Configuration Parameter

Ensure the value of the configuration parameter XmppTimerKeepAliveTime is 10 or less. Run the following command to obtain the value of XmppTimerKeepAliveTime:

```
beectl list_properties --component _xmppservice --name XmppTimerKeepAliveTime

------------------------+--------------------------------------------------
Property name           | Property value
------------------------+--------------------------------------------------
XmppTimerKeepAliveTime  | 5
------------------------+--------------------------------------------------
```

If the value of XmppTimerKeepAliveTime is greater than 10, set it to 5 (the default value) with the `beectl modify_property` command. Afterwards, run the command `beectl activate_configuration` to commit changes to the configuration.

Analyze Application Tiers

Note: You do not have to perform this step in the following situations:

- You have installed (but not upgraded to) Oracle Beehive Release 1 (1.4)
- You have installed Oracle Beehive Release 1 (1.2) or Release 1 (1.3) and have never cloned any application tiers or sites
- You have cloned an application tier or site only after upgrading to Oracle Beehive Release 1 (1.4)

Before upgrading Oracle Beehive Release 1 (1.4.3) to Oracle Beehive Release 1 (1.5), analyze each of your Oracle Beehive application tiers by running the command `beectl clone_preparation` on each of them. For more information about running this command, refer to "Step 4: Call beectl clone_preparation Command" in "Cloning Oracle Beehive Application Tiers and Sites". This command creates a text file that contains the names of files in the source Oracle home to be copied for cloning to the target location. You will not need this file to upgrade Oracle Beehive. However, if the `beectl clone_preparation` command fails for a particular application tier, you will not be able to upgrade it. You must uninstall any application tier where the `beectl clone_preparation` command fails before upgrading your Oracle Beehive deployment.

Rollback Oracle Application Server Critical Patch Update

If you applied an Oracle Application Server Critical Patch Update (CPU) patch to any of your Oracle Beehive Release 1 (1.4.3) application tiers, follow the steps described in **Oracle*MetaLink*** Note 735631.1, "Symbol Referencing Error on nzospRandNum When AS Patchset Applies Patch 4601861 (CPU Patch Previously Applied)." These steps involve rolling back previously applied CPU patches and applying the latest CPU patch for the new patchset version.

Ensure tnsnames.ora File Exists

If you are upgrading an Oracle Beehive Release 1 (1.4.3) application tier that has been upgraded from an Oracle Beehive Release 1 (1.3.1) application tier or earlier, ensure the file `<Oracle Beehive home>/network/admin/tnsnames.ora` exists before upgrading your Oracle Beehive Release 1 (1.4.3) application tier.

The `tnsnames.ora` file must contain an entry that specifies the TNS (Transport Network Substrate) identifier of BEEDB and the connection information of the database used by your Oracle Beehive deployment.

The following is an example of this entry (line breaks have been inserted for clarity):

```
BEEDB =
  (DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=mydb.example.com)
    (PORT=1521)))(CONNECT_DATA=(SERVICE_NAME=myservice.example.com)))
```

Use one of the following methods to obtain the TNS identifier of BEEDB:

- Run the command `beectl list_bootstrap_configuration` and look for the ConnectString property (the --format option is optional):

  ```
  beectl list_bootstrap_configuration --format xml

  <?xml version="1.1" encoding="UTF-8"?>
  <beectl-output resultset="table">
     <row>
        <column name="Property Name">ConnectString</column>
        <column name="Property Value">
          (DESCRIPTION=(ADDRESS_LIST=
            (ADDRESS=(PROTOCOL=TCP)
              (HOST=mydb.example.com)(PORT=1521)))
              (CONNECT_DATA=(SERVICE_NAME=beedb.example.com)))
        </column>
     </row>
  ```

- Run the command `beectl list_properties --component _CURRENT_SITE:Database` and look for the ConnectDescriptor property (the --format option is optional):

  ```
  beectl list_properties --component _CURRENT_SITE:Database --format xml

  ...
  <row>
    <column name="Property name">ConnectDescriptor</column>
    <column name="Property value">
      (DESCRIPTION=(ADDRESS_LIST=
        (ADDRESS=(PROTOCOL=TCP)
          (HOST=mydb.example.com)(PORT=1521)))
          (CONNECT_DATA=(SERVICE_NAME=beedb.example.com)))
    </column>
  </row>
  ```

Export Configuration Data

Before upgrading Oracle Beehive Release 1 (1.4.3) to Oracle Beehive Release 1 (1.5), export configuration data of your Oracle Beehive Release 1 (1.4.3) deployment that you want to preserve for future reference. In particular, you may want to preserve the configuration data of your Oracle Beehive deployment before you upgrade it.

Use the `beectl export_configuration_data` command to export configuration data.

Although the upgrade process does not remove or delete configuration data, it does not upgrade it to the new configuration data structure that Oracle Beehive Release 1 (1.5) uses. Consequently, you cannot access configuration data of previous versions of Oracle Beehive with the `beectl` command; contact your Oracle representative if you require access to this data.

Prepare System for Partitioning of Time Management Database Tables

In Oracle Beehive Release 1 (1.5), some Time Management Oracle Database tables have been partitioned. When you upgrade from Oracle Beehive Release 1 (1.4.3) to Oracle Beehive Release 1 (1.5), the upgrade process will partition this tables.

To estimate the time the upgrade process will take to partition the Time Management tables, determine the total number of invitations and assignments by running the queries described in "Determine Number of Invitations" and "Determine Number of Assignments". Partitioning the tables will take about 60 minutes for every million invitations and assignments.

Before upgrading from Oracle Beehive Release 1 (1.4.3) to Oracle Beehive Release 1 (1.5), you must perform the following steps to avoid any potential issues during the partitioning process:

1. Ensure that there is enough disk space for the partitioning process. During this process, the size of the Time Management tables will temporarily double. As a simple guideline, determine the current amount of space used by the tables and indexes whose names begin with `TM_`. This is the minimum amount of free space required to partition the Time Management tables. However, since other phases of the upgrade process may require additional space, ensure that you also have enough space for these phases.
2. Determine the number of invitations in your database as described in "Determine Number of Invitations". Do this just before you upgrade Oracle Beehive while Oracle Beehive is down. If your database contains more than 900,000 invitations, perform the following steps. If not, ignore the following steps and proceed with the rest of the upgrade.
   1. Install the Oracle Beehive Release 1 (1.5) binaries but do not perform the upgrade by running the Install Wizard with the `-noConfig` option:

      ```
      runInstaller -noConfig
      ```

      Refer to "Starting Oracle Beehive Install Wizard" for more information.
   2. Open the following script in a text editor:

      ```
      <Oracle Beehive home>/beehive/tmp/patch/7387847/db/tm_partition_chki.sql
      ```

      Locate the following line:

      ```
      :cont := CASE WHEN l_count <= 1000000 THEN 'tm_partition.sql' ELSE '^^skip'
      END;
      ```

Change the value `1000000` to twice the number of invitations in your database. For example, suppose the query described in "Determine Number of Invitations" returned the following:

```
  COUNT(*)
----------
   30000000
```

You would modify `tm_partition_chki.sql` as follows:

```
:cont := CASE WHEN l_count <= 60000000 THEN 'tm_partition.sql' ELSE
'^^skip' END;
```

Save the changes you made to the script.

c. Upgrade Oracle Beehive by running the Config Wizard, `<Oracle Beehive home>/beehive/oobwiz/configWizard`. Ensure that you have performed the steps described in the section "Before Upgrading" and are following the upgrade sequence as described in "Upgrade Sequence". For more information about the Config Wizard, refer to the section "Oracle Beehive Config Wizard" in "Oracle Beehive Install and Config Wizard Command-Line Options".

Determine Number of Invitations

In SQL*Plus as the `bee_data` user, run the following query to determine the number of invitations:

```
SQL> CONNECT BEE_DATA
Enter password: ********
Connected.
SQL> SELECT COUNT(*) FROM TM_INVS;
```

Determine Number of Assignments

In SQL*Plus as the `bee_data` user, run the following query to determine the number of assignments:

```
SQL> CONNECT BEE_DATA
Enter password: ********
Connected.
SQL> SELECT COUNT(*) FROM TM_ASSIGNMENTS;
```

Prepare Oracle Beehive Integration for Zimbra for Upgrade

Depending on which version and where you installed Oracle Beehive Integration for Zimbra, follow the steps in these sections:

- Upgrading Oracle Beehive Release 1 (1.4.3) with Oracle Beehive Integration for Zimbra Version 1.4.3 Registered in Same Oracle Inventory Location
- Upgrading Previously Upgraded Oracle Beehive Integration for Zimbra Instance

Upgrading Oracle Beehive Release 1 (1.4.3) with Oracle Beehive Integration for Zimbra Version 1.4.3 Registered in Same Oracle Inventory Location

If your Oracle Beehive Release 1 (1.4.3) instance and Oracle Beehive Integration for Zimbra version 1.4.3 instance reside in the same computer and are registered in the same Oracle inventory location, follow these steps before upgrading Oracle Beehive and Oracle Beekeeper to version 1.5.1. (Note that these steps still apply if you previously upgraded your Oracle Beehive or Oracle Beehive Integration for Zimbra instances to version 1.4.3):

1. Backup the file *<Oracle Beehive Integration for Zimbra home>*`/beehive/oobwiz/configWizard.properties`.
2. Edit the file *<Oracle Beehive Integration for Zimbra home>*`/beehive/oobwiz/configWizard.properties` as follows:

   Find the following line:

   ```
   InstallType=Client
   ```

   Change this line to the following:

   ```
   InstallType=
   ```

3. Perform any other required tasks before upgrading Oracle Beehive as described in this module, then upgrade Oracle Beehive to version 1.5.1.
4. After upgrading Oracle Beehive to version 1.5.1 but before upgrading Oracle Beehive Integration for Zimbra to version 1.5.1, copy the version of `configWizard.properties` you backed up to *<Oracle Beehive Integration for Zimbra home>*`/beehive/oobwiz`.

   Alternatively, edit the file *<Oracle Beehive Integration for Zimbra home>*`/beehive/oobwiz/configWizard.properties` and change the line `InstallType=` to `InstallType=Client`.

5. Upgrade Oracle Beehive Integration for Zimbra to version 1.5.1.

Upgrading Previously Upgraded Oracle Beehive Integration for Zimbra Instance

If you are upgrading Oracle Beehive Integration for Zimbra version 1.4.3 to version 1.5.1, and you previously upgraded it from version 1.3.1 or 1.4.1, perform the following steps before upgrading it to version 1.5.1:

1. Backup the contents of the directory *<Oracle Beehive Integration for Zimbra home>*`/inventory/contentsXML/configXML`.
2. Retrieve a list of all the XML files that begin with `Beehive` from the directory *<Oracle Beehive Integration for Zimbra home>*`/inventory/contentsXML/configXML`:

   ```
   ls -l Beehive*

   BeehiveAggregate.<version number>.xml
   BeehiveConfig.<version number>.xml
   BeehiveDeconfig.<version number>.xml
   ```

   From this list, delete all files **except** those whose *<version number>* is `1_5_1_0_0`.

   For example, the folder `configXML` may contain the following files on your system:

   ```
   ls -l Beehive*

   BeehiveAggregate.1_4_1_0_0.xml
   BeehiveAggregate.1_4_3_0_0.xml
   BeehiveAggregate.1_5_1_0_0.xml
   BeehiveConfig.1_4_1_0_0.xml
   BeehiveConfig.1_4_3_0_0.xml
   BeehiveConfig.1_5_1_0_0.xml
   BeehiveDeconfig.1_4_1_0_0.xml
   BeehiveDeconfig.1_4_3_0_0.xml
   ```

```
BeehiveDeconfig.1_5_1_0_0.xml
```

After deleting the files that **do not** contain the version number `1_5_1_0_0`, the folder `configXML` should contain the following files:

```
ls -l Beehive*

BeehiveAggregate.1_5_1_0_0.xml
BeehiveConfig.1_5_1_0_0.xml
BeehiveDeconfig.1_5_1_0_0.xml
```

3. Edit the file `<`*`Oracle Beehive Integration for Zimbra home`*`>/beehive/install/beeStart.pl` and comment out the line that launches the `owsmInstallProperties` subroutine.

   Search for the following lines in the file `beeStart.pl`:

   ```
   # prepare owsm properties file
   &owsmInstallProperties();
   ```

   Add the number sign (#) to the beginning of the line `&owsmInstallProperties();`:

   ```
   # prepare owsm properties file
   # &owsmInstallProperties();
   ```

Configure Zero Downtime Upgrade

Oracle Beehive Release 1 (1.5.1.1.0) Patch comes with Zero Downtime Upgrade (ZDU), which minimizes the amount of downtime required for upgrading or applying patches to Oracle Beehive.

After installing the Oracle Beehive Release 1 (1.5.1.1.0) Patch and before upgrading or applying a newer patch to Oracle Beehive, perform the following steps:

- Configure Oracle Data Pump
- Disable Document Crawling for Search
- Disable User Directory Services Synchronization

Configure Oracle Data Pump

Part of the upgrade or patching process involves updating code objects, which are stored in its own code schema in the Oracle Beehive database. The ZDU process first clones the code schema, then updates the cloned schema. This allows users in a multi-application tier environment to continue using Oracle Beehive during the upgrade or patching process; updated application tiers would use the cloned, updated code schema while those tiers that have not been updated would use the original code schema.

The code schema cloning process uses Oracle Data Pump technology, which enables very high-speed movement of data and metadata from one database to another. You must configure Oracle Data Pump before upgrading or patching Oracle Beehive.

During the upgrade or patching process, Oracle Beehive uses two database directory objects named BEEHIVE_DATA_PUMP and BEEHIVE_DATA_PUMP_LOG, which Oracle Beehive uses as the Oracle Data Pump data directory and log file directory, respectively. Depending on whether your Oracle Beehive deployment uses Oracle RAC nodes or not, either perform "Defining Oracle Data Pump Directories for Non-Oracle RAC Deployments" or "Defining Oracle Data Pump Directories for Oracle

RAC Deployments". Afterwards, perform "Backing up and Deleting Oracle Data Pump Log Files".

Defining Oracle Data Pump Directories for Non-Oracle RAC Deployments If your Oracle Beehive deployment does not use Oracle RAC, follow these steps to define the Oracle Data Pump directories BEEHIVE_DATA_PUMP and BEEHIVE_DATA_PUMP_LOG:

1. Create two directories on the computer that is hosting your database, one that will store Oracle Data Pump data and another Oracle Data Pump log files. Use regular file system commands, like `mkdir`, to create these directories.

   ASM Note: If your database is using Oracle Automatic Storage Management (ASM), you must create the data directory in a new or existing disk group. Use the ASMCMD command-line utility as follows:

   ```
   ASMCMD> mkdir +DISKGROUP1/beehive_data_pump_directory
   ```

   `DISKGROUP1` is either an existing or new disk group. *`beehive_data_pump_directory`* is the name of the data directory you are creating.

   You must not create the log file directory in ASM; it must be a regular directory in the file system of the computer that is hosting your database.

   Refer to "ASM Command-Line Utility" in *Oracle Database Storage Administrator's Guide* for more information about ASMCMD.

   ---

2. Run the following SQL*Plus commands from the computer hosting your database or from any Oracle RAC node as a DBA user or a user with the `CREATE ANY DIRECTORY` privilege:

   ```
   SQL> CREATE OR REPLACE DIRECTORY BEEHIVE_DATA_PUMP AS '<Oracle Data Pump data
   directory>';
   SQL> GRANT READ, WRITE ON DIRECTORY beehive_data_pump TO bee_code;
   SQL> GRANT READ, WRITE ON DIRECTORY beehive_data_pump TO bee_data;
   SQL> CREATE OR REPLACE DIRECTORY BEEHIVE_DATA_PUMP_LOG AS '<Oracle Data Pump
   log directory>';
   SQL> GRANT READ, WRITE ON DIRECTORY beehive_data_pump_log TO bee_code;
   SQL> GRANT READ, WRITE ON DIRECTORY beehive_data_pump_log TO bee_data;
   ```

   `bee_code` and `bee_data` are the names of the Oracle Beehive code schema and data schema, respectively. To retrieve the names of these schemas, run the command `beectl list_schemas`.

   Refer to "CREATE DIRECTORY" in *Oracle Database SQL Language Reference* for more information.

Defining Oracle Data Pump Directories for Oracle RAC Deployments If your Oracle Beehive deployment uses Oracle RAC, then ensure that all your Oracle RAC nodes can access both Oracle Data Pump directories. Follow one of the followings steps to create and specify these directories:

- Follow the steps as described in "Defining Oracle Data Pump Directories for Non-Oracle RAC Deployments".
  - If you are using ASM, then ensure that all your Oracle RAC nodes can access BEEHIVE_DATA_PUMP_LOG.

Use regular file system commands, like `mkdir`, to create the same directory (you must use the same directory path) on the local disk of each Oracle RAC node.

- If you are not using ASM, the Oracle Beehive patch requires the connect string of the database instance that is hosted on the computer that contains the Oracle Data Pump directories. In this connect string, use the `INSTANCE_NAME` parameter to specify which database instance contains the Oracle Data Pump directories. For example, the following specifies the database instance `afserv1` on node host1.example.com:

```
(DESCRIPTION=
  (ADDRESS_LIST=
    (ADDRESS=(PROTOCOL=TCP)(HOST=host1.example.com)(PORT=1521)))
    (CONNECT_DATA=
      (SERVER=DEDICATED)
      (SERVICE_NAME=afserv1.example.com)
      (INSTANCE_NAME=afserv1))
```

  Refer to the documentation of the Oracle Beehive patch for directions on how to specify the connect string. Refer to "Local Naming Parameters (tnsnames.ora)" in *Oracle Database Net Services Reference* and "Understanding the Oracle Real Application Clusters Installed Configuration" in *Oracle Real Application Clusters Installation Guide* for more information about the `INSTANCE_NAME` parameter.

- Create the Oracle Data Pump directories in a Direct Network File System (NFS), then perform step 2 as described in "Defining Oracle Data Pump Directories for Non-Oracle RAC Deployments". Refer to "Configuring Direct NFS Storage for Data Files" in the chapter "Configuring Oracle Real Application Clusters Storage" in *Oracle Clusterware Installation Guide* for more information.

Backing up and Deleting Oracle Data Pump Log Files If you previously upgraded or patched Oracle Beehive, backup and delete Oracle Data Pump data and log files.

ASM Note: If your Oracle Beehive deployment uses Oracle Database 10*g* with Oracle Automatic Storage Management (ASM), and you previously created a clone of your deployment, old dump files (from the Data Pump Export utility) are not deleted automatically. You must delete them manually before installing a patch.

Use the ASMCMD command-line utility as follows:

```
ASMCMD> rm +DISKGROUP1/beehive_data_pump_directory/dump_file.dmp
```

`DISKGROUP1` is an existing disk group. *`beehive_data_pump_directory`* is the name of your ASM data directory. *`dump_file.dmp`* is the name of your dump file.

Refer to "ASM Command-Line Utility" in *Oracle Database Storage Administrator's Guide* for more information about ASMCMD.

These steps are not required if you are using Oracle Database 11*g*.

Disable Document Crawling for Search

This is a recommended but not mandatory step.

From any application tier, run the following command, preferably several hours before you upgrade Oracle Beehive to allow any existing jobs to completely stop:

```
beectl modify_property --component _SearchService --name CrawlDocumentsEnabled
--value false --activate_configuration
```

Disable User Directory Services Synchronization

This is a recommended but not mandatory step.

From any application tier, run the following command to disable User Directory Services (UDS) synchronization:

```
beectl modify_property --component OID_Profile --name ProfileState --value DISABLE
--activate_configuration
```

Shutdown All Oracle Beehive Instances

Shutdown all your Oracle Beehive application tiers by following these steps for each application tier:

1. Ensure that all Oracle Beehive processes are running with the following command:

   ```
   beectl start --all
   ```

2. Run the following command repeatedly until the output indicates that all Oracle Beehive processes are running:

   ```
   beectl status
   ```

3. Stop the application tier with the following command:

   ```
   beectl stop --all
   ```

Note: Ensuring that all Oracle Beehive processes are running before shutting down the application tier ensures that any processes managed by OPMN remain stopped during upgrade.

If a computer goes down while OPMN is running, upon restart, OPMN will attempt to automatically restart all processes that were running at the time the system went down.

Consequently, upgrading an Oracle Beehive application tier that was shutdown unexpectedly (for example, by rebooting the computer without first shutting down Oracle Beehive) may fail. When the upgrade process starts OPMN, OPMN will attempt to restart any of processes that were running, which in turn will cause the upgrade process to fail.

Upgrade Sequence

To upgrade an Oracle Beehive Release 1 deployment, upgrade the following Oracle Beehive products in the indicated order:

1. Oracle Beehive Release 1. Refer to "Oracle Beehive Upgrade Process Sequence of Screens".

Note: You must shutdown all Oracle Beehive application tiers as described in "Shutdown All Oracle Beehive Instances" before upgrading them.

Ensure that the upgrade process has started your newly upgraded Oracle Beehive application tiers before proceeding to upgrade other Oracle Beehive products.

Refer to "Upgrading Multiple Oracle Beehive Application Tiers" if you are upgrading more than one Oracle Beehive application tier.

---

2. User directory data. Follow the steps described in "Upgrading User Directory Data".
3. Any standalone Oracle Beehive Integration for Zimbra, Oracle Beehive Provisioning Application, or Oracle Collaboration Coexistence Gateway (Windows only).
4. Any Oracle Beehive for DMZ instances. Refer to "Oracle Beehive for DMZ Upgrade Process Sequence of Screens".

Note: You must shutdown all Oracle Beehive for DMZ instances before upgrading them.

Ensure that the upgrade process has started your newly upgraded Oracle Beehive DMZ instances before proceeding to upgrade other Oracle Beehive products.

---

5. Any Oracle Beekeeper Release instances. Refer to "Upgrading Oracle Beekeeper Version 1.4.3".

Note: Before upgrading Oracle Beekeeper, refer to the section "Upgrading Oracle Beekeeper Version 1.4.3 to Version 1.5".

Refer to "Upgrading Oracle Beehive Release 1 (1.4.3)" for information about upgrading Oracle Beehive products.

Refer to "Upgrading Oracle Beehive in Silent Mode" in "Installing Oracle Beehive in Silent Mode (Non-Interactive)" for more information about upgrading Oracle Beehive products in silent mode.

Upgrading Multiple Oracle Beehive Application Tiers

Follow these steps to upgrade multiple Oracle Beehive application tiers:

1. Shutdown all your Oracle Beehive application tiers as described in "Shutdown All Oracle Beehive Instances".
2. Upgrade an Oracle Beehive application tier.
3. Wait until the upgrade process is complete.
4. Run the SQL scripts described in "Upgrading User Directory Data".

5. Upgrade a subsequent Oracle Beehive application tier. Do not start upgrading this tier until the previous tier's upgrade process is complete. You do not have to shutdown any upgraded application tiers.
6. Repeat step 5 until all application tiers are upgraded.

Upgrading Oracle Beekeeper Version 1.4.3 to Version 1.5

To upgrade Oracle Beekeeper version 1.4.3 to version 1.5, follow these steps:

1. If you have configured Oracle Beekeeper for SSL access, follow these steps. Otherwise, proceed to the next step.

   These steps involve reconfiguring Oracle Beekeeper for SSL with the `default-web-site.xml` file:

   a. Copy `<Oracle Beekeeper home>/j2ee/home/config/secure-web-site.xml` as `<Oracle Beekeeper home>/j2ee/home/config/default-web-site.xml` (replacing `secure-web-site.xml` with `default-web-site.xml`.)

   b. Edit the file `<Oracle Beekeeper home>/j2ee/home/config/server.xml` and replace `secure-web-site.xml` with `default-web-site.xml`.

   c. Restart Oracle Beekeeper with the following commands and verify that SSL is working properly:

   ```
   <Oracle Beekeeper home>/opmn/bin/opmnctl stopall
   <Oracle Beekeeper home>/opmn/bin/opmnctl startall
   ```

2. Determine if Oracle Beekeeper is using the database or your LDAP server for authentication. Open the file `<Oracle Beekeeper home>/j2ee/home/applications/javasso/jps-config.xml`. Search for the element `<jpsContexts>`. The value of the `default` attribute may be either `ldap` or `db`:

   - If it is `db`, then no further action is required; do not proceed with the following steps. Upgrade Oracle Beekeeper version 1.4.3 to Oracle Beekeeper 1.5; refer to "Upgrading Oracle Beekeeper Version 1.4.3".
   - If it is `ldap`, then perform steps 3-6.

3. Save a copy of the following files:

   - `<Oracle Beekeeper version 1.4.3 home>/j2ee/home/application-deployments/`**`javasso`**`/jps-config.xml`
   - `<Oracle Beekeeper version 1.4.3 home>/j2ee/home/application-deployments/`**`beehivecontrol`**`/jps-config.xml`

4. Upgrade Oracle Beekeeper version 1.4.3 to version 1.5; refer to "Upgrading Oracle Beekeeper Version 1.4.3".

5. To configure LDAP-based authentication for your upgraded Oracle Beekeeper version 1.5 instance, modify the following files with the data contained in the files you saved in step 3:

   - `<Oracle Beekeeper version 1.5 home>/j2ee/home/application-deployments/`**`javasso`**`/jps-config.xml`

  - `<Oracle Beekeeper version 1.5 home>/j2ee/home/application-deployments/`**`beekeeper`**`/jps-config.xml`

  Refer to the section "Configuring Oracle Beekeeper for LDAP-Based Authentication" in "Oracle Beekeeper Post-Installation Procedures" for more information about which attribute values you must modify in these files to configure LDAP-based authentication.

6. Restart the Oracle Beekeeper unmanaged OC4J instance with the following commands:

```
<Oracle Beekeeper home>/opmn/bin/opmnctl stopall
<Oracle Beekeeper home>/opmn/bin/opmnctl startall
```

After Upgrading

Depending on your Oracle Beehive deployment, follow the steps described in these sections after you have upgraded Oracle Beehive:

- Upgrading User Directory Data
- Applying Deployment Template after Upgrade
- Running Perl Script post_upgrade_db_actions.pl
- Applying Deployment Template after Upgrade
- Gathering Statistics About BEE_DATA and BEE_CODE Schemas After Upgrading
- Upgrading Voicemail Configuration
- Changing Permissions of hasbind
- Re-enabling Document Crawling and UDS Synchronization

Upgrading User Directory Data

After upgrading Oracle Beehive Release 1 (1.4.3) to Oracle Beehive Release 1 (1.5), upgrade user directory data by running the following scripts as the `BEE_CODE` user in the specified order. You do not need to shut down Oracle Beehive to run these scripts:

1. `<Oracle Beehive home>/beehive/tmp/patch/7387847/db/update_display_names.sql`
2. `<Oracle Beehive home>/beehive/tmp/patch/7387847/db/update_default_email_address.sql`
3. `<Oracle Beehive home>/beehive/tmp/patch/7387847/db/delete_dangling_contacts.sql`

Applying Deployment Template after Upgrade

It is highly recommended that you apply a deployment template to your upgraded Oracle Beehive Release 1 (1.5) deployment provided that it is not already applied; the upgrade process does not automatically do this for you. Note that a new Oracle Beehive Release 1 (1.5) installation already has a deployment template associated with it.

A deployment template is an XML file that represents the formally defined structure of an Oracle Beehive application tier and its components such as OC4J instances, services, Oracle Beehive Transport Infrastructure (BTI), and the HTTP server.

If your upgraded Oracle Beehive Release 1 (1.4) deployment does not have a deployment template associated with it, those `beectl` commands that change the deployment structure (such as those that add and delete OC4J and service instances) will succeed. However, you will receive a message indicating that you should apply a deployment template.

In addition, future upgrades (for example, from Oracle Beehive Release 1 (1.5) to Oracle Beehive Release 1 (1.6)) will fail if your deployment does not have a deployment template associated with it.

Follow these steps to apply a deployment template to an Oracle Beehive deployment:

1. Retrieve a list of available deployment templates with the command `beectl list_deployment_templates`. This command will output the identifier of each deployment template and a short description.
2. Select an appropriate deployment template and apply it with the `beectl modify_deployment_structure`. The following example applies the deployment template `SERVER_AND_CLIENT` to the local Oracle Beehive application tier:

   ```
   modify_deployment_structure --primary_template SERVER_AND_CLIENT
   ```

   > **Note:** Any customizations to the deployment structure (such as extra OC4J or service instances) or start/stop parameters (such as the maximum heap size of an OC4J instance) will be lost when you apply a deployment template with the command `beectl modify_deployment_structure`. The deployment template specified by this command will overwrite any customizations in your Oracle Beehive deployment.

Running Perl Script post_upgrade_db_actions.pl

Run the script `<`*`Oracle Beehive home`*`>/beehive/db/post_upgrade_db_actions.pl` only if the following conditions are true:

- You are applying a patch to Oracle Beehive Release 1 (1.5.1.1.0) or later
- The patch you are applying involves schema cloning.

Run the script `post_upgrade_db_actions.pl` as follows:

```
perl post_upgrade_db_actions.pl <BEE_DATA> <OLD_BEE_CODE> <NEW_BEE_CODE> <BEE_
CODE_PASSWORD> <CONNECT_STRING>
```

- *`<BEE_DATA>`*: Name of the Oracle Beehive data schema
- *`<OLD_BEE_CODE>`*: Name of the old Oracle Beehive code schema
- *`<NEW_BEE_CODE>`*: Name of the cloned and upgraded Oracle Beehive code schema
- *`<BEE_CODE_PASSWORD>`*: Password for the Oracle Beehive schemas (all Oracle Beehive schemas have the same password)
- *`<CONNECT_STRING>`*: Oracle Beehive database connect string

To retrieve the names of these schemas, run the following command:

```
beectl list_schemas
  --schema_type <schema type>
  --status <schema status>
  --sort_by <sort condition>
```

- *`<schema type>`*: Type of schema to retrieve; it may have one of the following values:
  - `1`: Code schema
  - `2`: Data schema
  - `3`: Search-related Change Data Capture publisher (CDCPUB) schema
- *`<schema status>`*: Status of the schema. For purposes of running the script `post_upgrade_db_actions.pl`, you use only statuses `4`, `5`, and `6`:
  - `1`: Created; the code schema has been newly created
  - `2`: Upgrade ready; the code schema has been cloned and is ready to be upgraded
  - `3`: Activation ready; the code schema has been upgraded and is ready to be activated
  - `4`: Active; the schema is active
  - `5`: Legacy; the original schema that was cloned is set to this status. During a multi-application tier upgrade, application tiers that have not been upgraded will use this schema.
  - `6`: Deactivated; when all application tiers have been upgraded, the original schema is set to this status
  - `7`: Deinstalled; the schema has been deinstalled

Running `beectl list_schemas` without any options lists all schemas.

Examples

The following examples show you how to retrieve the names of schemas required for the `post_upgrade_db_actions.pl` script.

- The following example lists all data schemas:

```
beectl list_schemas --schema_type 2

schema_name: BEE_DATA schema_id: 131 version_id: 1.5.1.0.0
schema_type: 2 status: 4 creation_time: 2009-05-02 11:29:54.0
activation_time: 2009-05-02 11:29:54.0 description: BEE_DATA schema
```

- The following example lists all code schemas:

```
beectl list_schemas --schema_type 1

schema_name: BEE_CODE schema_id: 132 version_id: 1.5.1.1.0
schema_type: 1 status: 6 creation_time: 2009-05-02 11:29:54.0
activation_time: 2009-05-02 11:29:54.0 legacy_time: 2009-05-04
09:30:07.0 deactivation_time: 2009-05-04 10:14:57.0 description: BEE_CODE
schema

schema_name: BEE_CODE_05042009 schema_id: 134 version_id: 1.5.1.1.0
schema_type: 1 status: 6 creation_time: 2009-05-04 09:00:30.0
activationready_time: 2009-05-04 09:29:20.0 upgradeready_time:
2009-05-04 09:28:43.0 activation_time: 2009-05-04 09:30:07.0
legacy_time: 2009-05-04 13:11:42.0 deactivation_time: 2009-05-11 12:06:02.0
description: insert description here

schema_name: BEE_CODE_05042009_1 schema_id: 135 version_id: 1.5.1.1.0
```

```
schema_type: 1 status: 4 creation_time: 2009-05-04
12:26:03.0 activationready_time: 2009-05-04 12:52:50.0
activation_time: 2009-05-04 13:11:42.0 description: insert description here

schema_name: BEE_CODE_05112009 schema_id: 136 version_id: 1.5.1.1.0
schema_type: 1 status: 2 creation_time: 2009-05-11 12:13:43.0
upgradeready_time: 2009-05-11 12:48:14.0 description: insert description here
```

- The following example lists the active code schema. At the end of an upgrade involving schema cloning, the active code schema should be the cloned schema:

  ```
  beectl list_schemas --schema_type 1 --status 4

  schema_name: BEE_CODE_05042009_1 schema_id: 135 version_id: 1.5.1.1.0
  schema_type: 1 status: 4 creation_time: 2009-05-04
  12:26:03.0 activationready_time: 2009-05-04 12:52:50.0
  activation_time: 2009-05-04 13:11:42.0 description: insert description here
  ```

- The following example lists all code schemas that are marked "LEGACY" and the sorts them by the time they were marked this status. The newest schema in this list is the old code schema:

  ```
  beectl list_schemas --schema_type 1 --status 5 --sort_by LEGACY_TIME
  ```

- The following example lists call deactivated code schemas. After running the `post_upgrade_db_actions.pl` script, the old code schema will be marked as deactivated.

  ```
  beectl list_schemas --schema_type 1 --status 6
  ```

Applying Deployment Template after Upgrade

It is highly recommended that you apply a deployment template to your upgraded Oracle Beehive Release 1 (1.5) deployment provided that it is not already applied; the upgrade process does not automatically do this for you. Note that a new Oracle Beehive Release 1 (1.5) installation already has a deployment template associated with it.

A deployment template is an XML file that represents the formally defined structure of an Oracle Beehive application tier and its components such as OC4J instances, services, Oracle Beehive Transport Infrastructure (BTI), and the HTTP server.

If your upgraded Oracle Beehive Release 1 (1.4) deployment does not have a deployment template associated with it, those `beectl` commands that change the deployment structure (such as those that add and delete OC4J and service instances) will succeed. However, you will receive a message indicating that you should apply a deployment template.

In addition, future upgrades (for example, from Oracle Beehive Release 1 (1.5) to Oracle Beehive Release 1 (1.6)) will fail if your deployment does not have a deployment template associated with it.

Follow these steps to apply a deployment template to an Oracle Beehive deployment:

1. Retrieve a list of available deployment templates with the command `beectl list_deployment_templates`. This command will output the identifier of each deployment template and a short description.
2. Select an appropriate deployment template and apply it with the `beectl modify_deployment_structure`. The following example applies the

deployment template `SERVER_AND_CLIENT` to the local Oracle Beehive application tier:

```
modify_deployment_structure --primary_template SERVER_AND_CLIENT
```

Note: Any customizations to the deployment structure (such as extra OC4J or service instances) or start/stop parameters (such as the maximum heap size of an OC4J instance) will be lost when you apply a deployment template with the command `beectl modify_deployment_structure`. The deployment template specified by this command will overwrite any customizations in your Oracle Beehive deployment.

Gathering Statistics About BEE_DATA and BEE_CODE Schemas After Upgrading

After upgrading to Oracle Beehive Release 1 (1.5) and before your users access your upgrade Oracle Beehive deployment, you must gather statistics about the BEE_DATA and BEE_CODE schemas. Otherwise, you may experience serious performance degradation or service interruptions.

Run the following SQL*Plus commands as the SYS user to gather statistics about the Oracle Beehive data and code schemas:

```
SQL> exec DBMS_STATS.GATHER_SCHEMA_STATS('BEE_DATA');
SQL> exec DBMS_STATS.GATHER_SCHEMA_STATS('<CLONED_CODE_SCHEMA>');
```

`BEE_DATA` is the name of the Oracle Beehive data schema. *`<CLONED_CODE_SCHEMA>`* is the name of the code schema of your upgraded Oracle Beehive instance. To retrieve the name of the code schema for your upgraded Oracle Beehive instance, run the `beectl list_schemas` command as follows:

```
beectl list_schemas --schema_type 1 --schema_status 4

schema_name: BEE_CODE_05042009_1 schema_id: 135 version_id: 1.5.1.1.0
schema_type: 1 status: 4 creation_time: 2009-05-04
12:26:03.0 activationready_time: 2009-05-04 12:52:50.0
activation_time: 2009-05-04 13:11:42.0 description: insert description here
```

Refer to "Running Perl Script post_upgrade_db_actions.pl" for more information about the `beectl list_schemas` command.

Refer to "Gathering Statistics with DBMS_STATS Procedures" in the chapter "Managing Optimized Statistics" in *Oracle Database Performance Tuning Guide* for more information.

Upgrading Voicemail Configuration

After you have upgraded Oracle Beehive from an earlier version to version 1.4, you must re-create your voicemail facilities using the new method, and remove facilities that you created in earlier version with the `beectl add_config_object` command.

You can list facilities and groups created using the earlier method by using the following command (from the operating system shell, so you can make use of the `grep` utility):

```
beectl list_components | grep -i voice
```

Locate all the voice components defined with a voicemail DNIS alias. Then, check which group is associated to each voicemail DNIS by using the `beectl list_properties` command:

```
beectl list_properties --component <voicemail DNIS>
```

Run this command for each identified component, and make a note of the group associated with each voicemail DNIS.

Once you have this information, you can assign the groups and phone numbers using the new facility configuration method, by using the new `beectl add_voice_facility` command. The following example demonstrates briefly how to use the command:

```
beectl add_voice_facility
  --group_collabid <GROUP_COLLAB_ID>
  --include "18885551111|18885552???"
  --exclude "188855529??"
```

See Also: For complete information on creating voicemail facilities in Oracle Beehive Release 1 (1.4) and later, see "Managing Oracle Beehive Voicemail and Fax" in the *Oracle Beehive Administrator's Guide*.

The `--include` statement associates phone number 18885551111 and phone number range 18885552000-18885552999.

The `--exclude` statement associates the phone number range 18885552900-18885552999 **not** to be included in the broader include range.

The value of `--group_collabid` is a the CollabID of a group. You can find this value for any group by using the `beectl list_groups` command with the global option `--entity_format id`:

```
beectl list_groups --group <group identifier> --show ALL --entity_format id
```

Use this command with the group that was defined for voicemail. If you followed the upgrade procedure described earlier to gather all the information, then the value for the *<GROUP_COLLAB_ID>* was listed when you used the `beectl list_properties` command.

Changing Permissions of hasbind

If you have changed the permissions of hasbind as described in the section "Changing Other Ports" in "Upgrading Oracle Beehive Overview", then you must change the permissions of hasbind again after you have upgraded Oracle Beehive.

Re-enabling Document Crawling and UDS Synchronization

If you disabled document crawling for search as described in "Disable Document Crawling for Search", run the following command from any application tier to enable it:

```
beectl modify_property --component SearchService --name CrawlDocumentsEnabled
--value True
```

If you disabled UDS synchronization as described in "Disable User Directory Services Synchronization", run the following command from any application tier to enable it:

```
beectl modify_property --component OID_Profile --name ProfileState --value ENABLE
```

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Upgrading Oracle Beehive Release 1 (1.4.3)

These steps describe how to upgrade the following products:

- Oracle Beehive Release 1 (1.4.3) to Release 1 (1.5)
- Oracle Beehive Provisioning Application version 1.4.3 to Oracle Beehive Provisioning Application version 1.5
- Oracle Beehive for DMZ version 1.4.3 to version 1.5
- Oracle Beehive Integration for Zimbra version 1.4.3 to 1.5

> **Note:** Upgrade Oracle Beehive and any other Oracle Beehive application tiers before upgrading any other Oracle Beehive products.
>
> To upgrade an Oracle Beehive Release 1 (1.4.3) deployment to Release 1 (1.5), upgrade the following Oracle Beehive products in the indicated order:
>
> 1. Oracle Beehive Release 1 (1.4.3) application tiers to Release 1 (1.5) and Oracle Beehive Integration for Zimbra version 1.4.3 instances to 1.5.
>
>   You must shutdown all Oracle Beehive Release 1 (1.4.3) application tiers before upgrading them.
>
>   Ensure that the upgrade process has started your newly upgraded Oracle Beehive application tiers before proceeding to upgrade other Oracle Beehive products.
>
>   Refer to "Upgrading Multiple Oracle Beehive Application Tiers" if you are upgrading more than one Oracle Beehive application tier.
> 2. Any Oracle Beehive Provisioning Application or Oracle Collaboration Coexistence Gateway (Microsoft Windows only) Release 1 (1.4.3) instances to Release 1 (1.5)
> 3. Any Oracle Beehive Release 1 (1.4.3) DMZ instances to Release 1 (1.5)
>
>   You must shutdown all Oracle Beehive Release 1 (1.4.3) DMZ instances before upgrading them.
>
>   Ensure that the upgrade process has started your newly upgraded Oracle Beehive DMZ instances before proceeding to upgrade other Oracle Beehive products.
> 4. Any Oracle Beekeeper Release 1 (1.4.3) instances to Release 1 (1.5)

1. Start the Oracle Beehive Install Wizard.
2. In the **Select Product Type** screen, select the Oracle Beehive product you want to upgrade.

3. After the **Select Installation Type** screen, the Oracle Beehive Installation Wizard will automatically detect if you have any existing Oracle Beehive products on the computer from which you started the Oracle Beehive Install Wizard.

   If the Install Wizard detects any existing Oracle Beehive products that can be upgraded, you will see the screen **Upgrade Existing Home**. Depending on the product you want to upgrade, refer to one of the following sections:

   - Oracle Beehive Upgrade Process Sequence of Screens
   - Oracle Beehive Provisioning Application Upgrade Process Sequence of Screens
   - Oracle Beehive for DMZ Upgrade Process Sequence of Screens
   - If you are upgrading Oracle Beehive Integration for Zimbra, refer to Oracle Beehive Upgrade Process Sequence of Screens

   Note: After upgrading your deployment to Oracle Beehive Release 1 (1.5), apply a deployment template to it. Refer to "Applying Deployment Template after Upgrade" for more information.

Oracle Beehive Upgrade Process Sequence of Screens

If the Oracle Beehive Wizard detects any existing Oracle Beehive Release 1 (1.4.3) instances on the computer from which you started the wizard, the following screens will appear:

- Upgrade Existing Home
- Specify Home Location to Upgrade
- Site Key Information
- Running Instances
- Database Information for Upgrade
- Upgrade Summary
- Upgrade Process
- Configuration Assistants

Note: You must shutdown all Oracle Beehive Release 1 (1.4.3) application tiers before upgrading them.

Ensure that the upgrade process has started your newly upgraded Oracle Beehive application tiers before proceeding to upgrade other Oracle Beehive products.

Refer to "Upgrading Multiple Oracle Beehive Application Tiers" if you are upgrading more than one Oracle Beehive application tier.

Upgrade Existing Home

Specify if you want to upgrade the product you selected in **Select Product Type**.

If the installer detected any existing Oracle Beehive Release 1 (1.4.3) instances, specify **Yes** to upgrade one of those instances to Oracle Beehive Release 1 (1.5).

If you specify **No**, the Install Wizard will proceed to perform a standard installation of Oracle Beehive Release 1 (1.5).

Specify Home Location to Upgrade

Select from the drop down box the complete path of the Oracle Beehive instance you want to upgrade.

The drop down box will only contain Oracle Beehive home paths with the following characteristics:

- Contains an instance of Oracle Beehive Release 1 (1.4.3) or Oracle Beehive Integration for Zimbra version 1.4.3
- Is registered in the central Oracle Universal Installer inventory of the computer from which you started the Install Wizard.

Site Key Information

Oracle Beehive Release 1 (1.5) requires that every site has a site key. If you are upgrading your first Oracle Beehive application tier, you will be prompted to enter a site key. The site key must have the following characteristics:

- Be between 8 and 30 characters long.
- Only contain characters from the database character set (AL32UTF8).
- Only contain ASCII letters and numbers (`a-z`, `A-Z`, and `0-9`) or the underscore (_); the site key cannot contain any other punctuation mark character.
- Contain at least one upper case character, one lower case character, and one numeric character.
- Begin with an alphabetic character; the site key cannot begin with a number or the underscore (_).

Running Instances

Shut down all instances listed in the table. Once you have shut the instances down, click the **Rescan** button to verify that all managed instances are down.

You must manually verify that all unmanaged instances (listed in red) are shutdown. Unmanaged instances include Oracle Beekeeper instances and Oracle Beehive DMZ instances. Currently, Oracle Beehive cannot determine whether an unmanaged instance has been fully shutdown (regardless of whether the instance is on the same machine as the pending upgrade or not). Once you have shutdown all unmanaged instances, select **Unmanaged Instances Verified** to continue the upgrade.

Database Information for Upgrade

Specify the password of the SYS schema for the database with the specified service name.

Upgrade Summary

The Upgrade Summary screen presents a summary of the options you have specified so far:

- **Space Requirements:** The disk space required to upgrade the product. The space requirement appears in a different color if the disk space available is less than what is required.

> **Notes:** The space requirements shown on this screen do not include the space required in the target database.
>
> The space requirements shown on this screen also might differ slightly from the actual space the component occupies on the installation disk. This is because of the differences in the disk configurations. For example, the space required on one hard drive might differ from the space required on another hard drive that uses different block size or that is managed by a different file system.

- **Inventory Location:** The location of the `oraInventory` directory where all the installation information about your product will be stored.
- **Product:** The name of the product you are upgrading, Oracle Beehive Release 1
- **Interview Details:** The details of your inputs for the other screens, such as:
  - **Home Details:** The location of the Oracle home that you are upgrading.
  - **Running Instances:** Oracle Beehive instances that are still running. You must shutdown and then verify that all Oracle Beehive instances are down before proceeding with the upgrade.
  - **Database Information for Upgrade:** The masked password of the SYS schema of the existing Oracle Database instance that will be used by this upgrade process.
  - **Site Key**: The masked site key that you specified. This is only requested if you are upgrading your first Oracle Beehive application tier.

When you have reviewed your inputs, click **Upgrade** to continue.

Upgrade Process

Use this screen to monitor the upgrade process. Click **Show Details** to see the details in the description box that appears.

Configuration Assistants

This screen displays the configuration assistants that the Oracle Beehive Install Wizard runs to upgrade Oracle Beehive.

The Oracle Beehive Install Wizard performs the following configuration assistants:

- Upgrade Pre-Configuration
- Upgrading Central Inventory
- Enabling Home Instance
- Configuring OPMN Memory Parameters (this is performed only if the Oracle home being upgrade is a standalone Oracle Beehive Integration for Zimbra home)
- Base Platform Configuration
- Stopping OPMN

- Upgrading SOA Schemas (this is performed only for the first Oracle Beehive application tier being upgraded)
- Installing Application Server 10.1.3.4.0 Patchset
- Preparing OWSM Upgrade
- Disabling Beehive and Home Instances
- Starting OPMN
- Performing OWSM Upgrade
- Performing BPEL Upgrade
- Performing ESB Upgrade
- Stopping OPMN
- Running OPMN Log Configuration Assistant
- Finalizing Application Server 10.1.3.4.0 Updates
- Upgrading Beehive Schemas
- Upgrading Beehive Midtier
- Performing Post-Upgrade Actions

End of Upgrade

This screen indicates if the upgrade of Oracle Beehive is successful.

Oracle Beehive Provisioning Application Upgrade Process Sequence of Screens

If the Oracle Beehive Wizard detects that Oracle Beehive Provisioning Application version 1.4.3 is installed on the computer from which you started the wizard, the following screens will appear:

- Upgrade Existing Home
- Specify Home Location to Upgrade
- Database Information for Upgrade
- Upgrade Summary
- Upgrade Process
- Configuration Assistants
- End of Upgrade

Upgrade Existing Home

Specify if you want to upgrade the product you selected in **Select Product Type**.

If the installer detected that Oracle Beehive Provisioning Application version 1.4.3 is installed in your computer, specify **Yes** to upgrade it to version 1.5.

If you specify **No**, the Install Wizard will proceed to install Oracle Beehive Provisioning Application version 1.5 in a new Oracle home.

Specify Home Location to Upgrade

Select from the drop down box the complete path of the Oracle Beehive product you want to upgrade.

The drop down box will only contain Oracle Beehive home paths with the following characteristics:

- Contains Oracle Beehive Provisioning Application version 1.4.3
- Is registered in the central Oracle Universal Installer inventory of the computer from which you started the Install Wizard.

Database Information for Upgrade

Specify the password of the SYS schema for the database with the specified service name.

Upgrade Summary

The Upgrade Summary screen presents a summary of the options you have specified so far:

- **Space Requirements:** The disk space required to upgrade the product. The space requirement appears in a different color if the disk space available is less than what is required.

  Notes: The space requirements shown on this screen do not include the space required in the target database.

  The space requirements shown on this screen also might differ slightly from the actual space the component occupies on the installation disk. This is because of the differences in the disk configurations. For example, the space required on one hard drive might differ from the space required on another hard drive that uses different block size or that is managed by a different file system.

- **Inventory Location:** The location of the `oraInventory` directory where all the installation information about your product will be stored.
- **Product:** The name of the product you are upgrading, Oracle Beehive Provisioning Application
- **Interview Details:** The details of your inputs for the other screens, such as:
  - **Home Details:** The location of the Oracle home that you are upgrading.

When you have reviewed your inputs, click **Upgrade** to continue.

Upgrade Process

Use this screen to monitor the upgrade process. Click **Show Details** to see the details in the description box that appears.

Configuration Assistants

This screen displays the configuration assistants that the Oracle Beehive Install Wizard runs to upgrade Oracle Beehive.

End of Upgrade

This screen indicates if the upgrade of Oracle Beehive Provisioning Application is successful.

> **Note:** After upgrading Oracle Beehive Provisioning Application to version 1.5, a component named after the version number to which you upgraded will be added to the Oracle Enterprise Manager Grid Control software library.

Oracle Beehive for DMZ Upgrade Process Sequence of Screens

If the Oracle Beehive Wizard detects that Oracle Beehive for DMZ version 1.4.3 is installed on the computer from which you started the wizard, the following screens will appear:

- Upgrade Existing Home
- Specify Home Location to Upgrade
- Upgrade Summary
- Upgrade Process
- Configuration Assistants
- End of Upgrade

> **Note:** You must shutdown all Oracle Beehive Release 1 (1.4.3) DMZ instances before upgrading them.
>
> Ensure that the upgrade process has started your newly upgraded Oracle Beehive DMZ instances before proceeding to upgrade other Oracle Beehive products.

Upgrade Existing Home

Specify if you want to upgrade the product you selected in **Select Product Type**.

If the installer detected that Oracle Beehive for DMZ version 1.4.3 is installed in your computer, specify **Yes** to upgrade it to version 1.5.

If you specify **No**, the Install Wizard will proceed to install Oracle Beehive for DMZ version 1.5 in a new Oracle home.

Specify Home Location to Upgrade

Select from the drop down box the complete path of the Oracle Beehive product you want to upgrade.

The drop down box will only contain Oracle Beehive home paths with the following characteristics:

- Contains Oracle Beehive for DMZ version 1.4.3
- Is registered in the central Oracle Universal Installer inventory of the computer from which you started the Install Wizard.

Upgrade Summary

The Upgrade Summary screen presents a summary of the options you have specified so far:

- **Space Requirements:** The disk space required to upgrade the product. The space requirement appears in a different color if the disk space available is less than what is required.

> **Notes:** The space requirements shown on this screen do not include the space required in the target database.
>
> The space requirements shown on this screen also might differ slightly from the actual space the component occupies on the installation disk. This is because of the differences in the disk configurations. For example, the space required on one hard drive might differ from the space required on another hard drive that uses different block size or that is managed by a different file system.

- **Inventory Location:** The location of the `oraInventory` directory where all the installation information about your product will be stored.
- **Product:** The name of the product you are upgrading, Oracle Beehive for DMZ
- **Interview Details:** The details of your inputs for the other screens, such as:
  - **Home Details:** The location of the Oracle home that you are upgrading.

When you have reviewed your inputs, click **Upgrade** to continue.

Upgrade Process

Use this screen to monitor the upgrade process. Click **Show Details** to see the details in the description box that appears.

Configuration Assistants

This screen displays the configuration assistants that the Oracle Beehive Install Wizard runs to upgrade Oracle Beehive for DMZ.

End of Upgrade

This screen indicates if the upgrade of Oracle Beehive for DMZ is successful.

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Upgrading Oracle Beekeeper Version 1.4.3

These steps describe how to upgrade Oracle Beekeeper version 1.4.3 to Oracle Beekeeper version 1.5.

Start the Oracle Beekeeper Install Wizard. If the Install Wizard detects that Oracle Beekeeper version 1.4.3 is installed in your computer, Oracle Beehive, you will see the screen **Upgrade Existing Home**. Refer to "Oracle Beekeeper Upgrade Process Sequence of Screens" for a summary of the upgrade process.

Oracle Beekeeper Upgrade Process Sequence of Screens

If the Oracle Beekeeper Install Wizard detects that Oracle Beekeeper version 1.4.3 is installed on the computer from which you started the wizard, the following screens will appear:

- Upgrade Existing Home
- Location to Upgrade
- Prerequisite Checks
- Database Information for Upgrade
- Upgrade Summary
- Upgrade Process
- Configuration Assistants
- End of Upgrade

Upgrade Existing Home

Specify if you want to upgrade the product you selected in **Select Product Type**.

If the Install Wizard detected that Oracle Beekeeper version 1.4.3 is installed in your computer, specify **Yes** to upgrade it to Oracle Beekeeper version 1.5.

If you specify **No**, the Install Wizard will proceed to install Oracle Beekeeper version 1.5 in a new Oracle home.

Location to Upgrade

Select from the drop down box the complete path of the Oracle Beehive product you want to upgrade.

The drop down box will only contain Oracle Beehive home paths with the following characteristics:

- Contains Oracle Beekeeper version 1.4.3
- Is registered in the central Oracle Universal Installer inventory of the computer from which you started the Install Wizard

Prerequisite Checks

This screen displays the prerequisite checks that the Install Wizard runs. It verifies that the host (where you are upgrading to Oracle Beekeeper) meets all minimum requirements.

Some of the platform-independent checks that the Install Wizard performs include:

- Operating system certification (or version)
- Operating system patches and packages
- Security kernel parameters
- Memory
- Swap space
- Disk space
- In Microsoft Windows, ensuring that the Window user for Oracle Beehive installation has administrative privileges.

If an automatic check fails, fix it and click **Retry**.

Notes: If the disk space check fails and after clicking **Retry** (after fixing the low disk space issue) the check states "Not Executed," exit the Install Wizard and start it again.

In Microsoft Windows, The Windows user indicated in the **Browse and Select: File or Directory** screen must belong to the "Log on as a batch job" policy of the agent machine.

To add a user to this policy, click **Start**, **Programs**, **Administrative Tools**, and then **Local Security Policy**. In **Local Security Settings**, expand **Local Policies**, expand **Local Policies**, and then click **User Rights Assignment**. Double-click the policy **Log on as a batch job**. Click **Add User or Group** to add the user.

Tip: For details on why a check failed, select the check box against it and see the details in the description box at the bottom of the screen.

Database Information for Upgrade

Specify the password of the BEE_CODE schema for the database with the specified service name.

Upgrade Summary

The Upgrade Summary screen presents a summary of the options you have specified so far:

- **Space Requirements:** The disk space required to upgrade the product. The space requirement appears in a different color if the disk space available is less than what is required.

Notes: The space requirements shown on this screen do not include the space required in the target database.

The space requirements shown on this screen also might differ slightly from the actual space the component occupies on the installation disk. This is because of the differences in the disk configurations. For example, the space required on one hard drive might differ from the space required on another hard drive that uses different block size or that is managed by a different file system.

- **Inventory Location:** The location of the `oraInventory` directory where all the installation information about your product will be stored.
- **Product:** The name of the product you are upgrading, Oracle Beekeeper
- **Interview Details:** The details of your inputs for the other screens, such as:
  - **Home Details:** The location of the Oracle home that you are upgrading.

When you have reviewed your inputs, click **Upgrade** to continue.

Upgrade Process

Use this screen to monitor the upgrade process. Click **Show Details** to see the details in the description box that appears.

Configuration Assistants

This screen displays the configuration assistants that the Oracle Beehive Install Wizard runs to upgrade Oracle Beekeeper.

The Oracle Beehive Install Wizard performs the following configuration assistants:

- Oracle Beekeeper Initialization
- Installing Application Server 10.1.3.4.0 Patchset
- Upgrading Required Applications
- Deconfiguring Oracle Beekeeper Instance
- Oracle Beekeeper Service Creation
- Starting OC4J Instance
- Oracle Beekeeper Application Deployment
- Configuring OC4J Application Settings
- Stopping OC4J Instance
- Starting OC4J Instance
- Performing Post-Upgrade Actions

End of Upgrade

This screen indicates if the upgrade of Oracle Beekeeper is successful.

Part III

Oracle Beehive Post-Installation Configuration

This part describes how to configure Oracle Beehive. In particular, it describes how to configure security-related issues, install Oracle Beehive Extensions for Outlook, and create Oracle Beehive clones ideal for testing changes to an Oracle Beehive instance before applying them to a production modules.

This part contains the following chapters:

- Oracle Beehive Post-Installation Procedures
- Oracle Beehive Database Post-Installation Procedures
- Configuring FTP
- Configuring Oracle Beehive Demilitarized Zone Instances
- Integrating and Synchronizing LDAP with Oracle Beehive
- Configuring SSL
- Configuring TLS with Oracle Wallet
- Configuring SSL for LDAP Integration
- Enabling AJPS
- Configuring E-Mail with SSL
- Configuring XMPP
- Configuring Oracle Secure Enterprise Search
- Configuring Single Sign-On with Oracle Beehive
- Configuring External Oracle BPEL Process Manager with Oracle Beehive
- Installing Oracle Beehive Extensions for Outlook
- Installing Oracle Beehive Extensions for Explorer
- Installing Oracle Beehive Conferencing Client
- Configuring Oracle Beehive Integration for Zimbra
- Cloning Oracle Beehive Application Tiers and Sites
- Oracle Beekeeper Post-Installation Procedures

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Oracle Beehive Post-Installation Procedures

Depending on the installation scenario you have chosen, your security requirements, the standards-based clients you want to use with Oracle Beehive, or any other issue particular to your deployment, perform one or more of the following procedures:

- Using Oracle Beehive Command-Line Utility
- Performing Post-Installation Procedures on Oracle Beehive Database
- Configuring FTP
- Configuring Oracle Beehive to Listen on Ports Less Than 1024
- Configuring DMZ Instances
- Integrating and Synchronizing LDAP with Oracle Beehive
- Configuring SSL
- Configuring TLS
- Configuring SSL for LDAP Integration
- Enabling AJPS
- Configuring Oracle Beehive E-mail
- Configuring XMPP
- Configuring Notifications to Use SMS
- Configuring Oracle Secure Enterprise Search
- Configuring Oracle Single Sign-On
- Configuring External Oracle BPEL Process Manager with Oracle Beehive
- Installing Oracle Beehive Extensions for Outlook
- Installing Oracle Beehive Extensions for Explorer
- Installing Oracle Beehive Conferencing Client
- Configuring Oracle Beehive Integration for Zimbra
- Configuring Remote Voice Conferencing Media Server for Oracle Beehive Conferencing
- Cloning Oracle Beehive
- Performing Oracle Beekeeper Post-Installation Procedures

Using Oracle Beehive Command-Line Utility

Many of the following post-installation procedures use the Oracle Beehive command-line utility `beectl`. For more information about `beectl`, refer to "Oracle Beehive Command-Line Utility" in *Oracle Beehive Administrator's Reference Guide*.

Performing Post-Installation Procedures on Oracle Beehive Database

After successfully installing Oracle Beehive, refer to "Oracle Beehive Database Post-Installation Procedures" for tuning recommendations to perform on your Oracle Beehive database.

Configuring FTP

Follow the steps described in "Configuring FTP" to enable and configure FTP connections to your Oracle Beehive instances.

Configuring Oracle Beehive to Listen on Ports Less Than 1024

Follow one of these series of steps to change a port number to which Oracle Beehive listens to a privileged port number (less than 1024):

- Changing HTTP Port
- Changing Other Ports
- Enabling BPEL Workflows to Use New Port Number

Changing HTTP Port

Follow these steps to change the HTTP port to 80 or HTTPS port to 443 (or any other port less than 1024):

1. As the root user, change the owner of `.apachectl` to the `root` user, set its user ID to `root`, and give all users permission to execute it::

```
chown root <Oracle home>/Apache/Apache/bin/.apachectl
chmod a+x <Oracle home>/Apache/Apache/bin/.apachectl
chmod a+s <Oracle home>/Apache/Apache/bin/.apachectl
```

> **Tip:** Alternatively, instead of changing to the root user, you may use the `sudo` command instead:
>
> ```
> sudo chown root <Oracle home>/Apache/Apache/bin/.apachectl
> sudo chmod a+x <Oracle home>/Apache/Apache/bin/.apachectl
> sudo chmod a+s <Oracle home>/Apache/Apache/bin/.apachectl
> ```

2. Determine the name of the listening component and property name of the port you want to change. Run the `beectl list_ports` command to list all available ports (the --format option is optional):

```
beectl list_ports --format xml

...
   <row>
      <column name="Protocol">HTTP</column>
      <column name="Listening Port">7777</column>
      <column name="Virtual Port">7777</column>
```

```
      <column name="Defining Component">ohs_site1.example.com</column>
      <column name="Property Name">HttpListenPort</column>
      <column name="Listening Component">ohs_site1.example.com</column>
   </row>
   <row>
      <column name="Protocol">HTTPS</column>
      <column name="Listening Port">4443</column>
      <column name="Virtual Port">4443</column>
      <column name="Defining Component">ohs_site1.example.com</column>
      <column name="Property Name">HttpSslListenPort</column>
      <column name="Listening Component">ohs_site1.example.com</column>
   </row>
```

In the previous example, the HTTP (and HTTPS) listening component is `ohs_site1.example.com`. The property name of the HTTP port is `HttpListenPort`, and the property name of the HTTPS port is `HttpSslListenPort`.

3. Change the listening port with the `beectl modify_property` command with the appropriate listening component and property name. The following example changes the HTTP port to 80:

```
beectl modify_property
  --component ohs_site1.example.com --name HttpListenPort --value 80
```

4. Change the HTTP (or HTTPS) port number in the _VIRTUAL_SERVER component. The following example changes the HTTP port number. (Use the property name HttpSslPort to change the HTTPS port number):

```
beectl modify_property --component _VIRTUAL_SERVER --name HttpPort --value 80
```

5. Activate configuration and commit changes:

```
beectl activate_configuration
beectl modify_local_configuration_files
```

Note: The `beectl modify_local_configuration_files` command will ask you to run this command on all your other instances. **Do not run this command on all your other instances at this time.** For each instance, perform steps 1 to 3 before running the `beectl modify_local_configuration_files` command.

Changing Other Ports

Follow these steps to change ports of Oracle Beehive-specific protocols such as BTP/BTPS, IMAP/IMAPS and SMTP.

Note: If you are changing e-mail port numbers, refer to "Configuring E-Mail with SSL" for additional information about changing the ports that SMTP and IMAP listen to.

1. As the `root` user, change the owner of `hasbind` to the `root` user, set its user ID to `root`, and give all users permission to execute it:

```
chown root <Oracle home>/beehive/bin/hasbind
chmod a+x <Oracle home>/beehive/bin/hasbind
chmod a+s <Oracle home>/beehive/bin/hasbind
```

Note: For `hasbind` to work, ensure that `root` only has write permission to the `/etc` directory, while all other users and groups have only read permission.

---

2. As the `root` user, create a text file named `/etc/cap.ora` (that contains the following, where *`instuser`* is the user who installed Oracle Beehive:

   ```
   +user instuser: bind port 80
   ```

   Ensure the owner and user ID of `cap.ora` is `root`, give `root` read and write access to it, and all other users only read access:

   ```
   chown root /etc/cap.ora
   chmod 644 /etc/cap.ora
   ```

3. If you have configured your Oracle Beehive deployment with Oracle Beehive DMZ instances, perform the following steps on all your DMZ instances:

   a. As the root user, change the owner of `hasbind` to the root user, set its user ID to root, and give all users permission to execute it:

      ```
      chown root <DMZ home>/beehive/bin/hasbind
      chmod a+x <DMZ home>/beehive/bin/hasbind
      chmod a+s <DMZ home>/beehive/bin/hasbind
      ```

      Note: For `hasbind` to work, ensure that root only has write permission to the `/etc` directory, while all other users and groups have only read permission.

   b. As the root user, create a text file named `/etc/cap.ora` as described in Step 2 of this section.

   c. Restart your Oracle Beehive DMZ instance.

4. Determine the name of the listening component and property name of the port you want to change. Run the `beectl list_ports` command to list all available ports (the --format option is optional):

   ```
   beectl list_ports --format xml

   ...
      <row>
         <column name="Protocol">BTP</column>
         <column name="Listening Port">21401</column>
         <column name="Virtual Port">21401</column>
         <column name="Defining Component">SitewideBtiConfiguration</column>
         <column name="Property Name">ClientPort</column>
         <column name="Listening Component">BTI_site1.example.com</column>
      </row>
      <row>
         <column name="Protocol">BTPS</column>
         <column name="Listening Port">21451</column>
         <column name="Virtual Port">21451</column>
         <column name="Defining Component">SitewideBtiConfiguration</column>
         <column name="Property Name">SecureClientPort</column>
         <column name="Listening Component">BTI_site1.example.com</column>
      </row>
   ```

   In the previous example, the BTP (and BTPS) listening component is `BTI_site1.example.com`. The property name of the BTP port is `ClientPort`, and the property name of the BTPS port is `SecureClientPort`.

5. Change the listening port with the `beectl modify_property` command with the appropriate listening component and property name. The following example changes the BTP port:

   ```
   beectl modify_property
     --component BTI_site1.example.com --name ClientPort --value <new port number>
   ```

6. Change the appropriate property in the _VIRTUAL_SERVER component to the new port number. The following example changes the BTI port to the new port number (to list the properties of _VIRTUAL_SERVER, run the command `beectl list_properties --component _VIRTUAL_SERVER`):

   ```
   beectl modify_property
     --component _VIRTUAL_SERVER
     --name BtiClientPort
     --value <new port number>
   ```

7. Activate configuration and commit changes:

   ```
   beectl activate_configuration
   beectl modify_local_configuration_files
   ```

> **Note:** The `beectl modify_local_configuration_files` command will ask you to run this command on all your other instances. **Do not run this command on all your other instances at this time.** For each instance, perform steps 1 to 3 before running the `beectl modify_local_configuration_files` command.

Enabling BPEL Workflows to Use New Port Number

If you changed the HTTP port number that Oracle Beehive listens to, follow these directions to enable BPEL workflows to use this new port number:

1. Modify the value element of the following properties in the file `<Oracle home>/bpel/system/config/collaxa-config.xml` to reflect the new HTTP port number:

   - clusterName
   - soapCallbackUrl
   - soapServerUrl

   The following is an example:

   ```
   <property id="clusterName">
     <name>Cluster Id</name>
     <value>www.example.com:80</value>
   </property>

    <property id="soapCallbackUrl">
      <name>BPEL soap callback URL</name>
      <value>http://www.example.com:80</value>
    </property>

    <property id="soapServerUrl">
      <name>BPEL soap server URL</name>
      <value>http://www.example.com:80</value>
    </property>
   ```

2. Restart the `oc4j_soa` component:

```
beectl restart --component oc4j_soa_instance1.example.com
```

Retrieve the component identifier of `oc4j_soa` with the `beectl status` command.

3. Re-deploy the SerialWorkflow and ParallelVoteWorkflow sample workflows by copying the jar files from `<Oracle home>/beehive/seed/workflows` into `<Oracle home>/bpel/domains/default/deploy`. Since the BPEL Process Manager is in auto-deploy mode, it will redeploy these processes after a few minutes.

Configuring DMZ Instances

Refer to "Configuring Oracle Beehive Demilitarized Zone Instances" for instructions on how to configure DMZ instances and Oracle Wallet with DMZ instances.

Integrating and Synchronizing LDAP with Oracle Beehive

Oracle Beehive user data may be mastered in Oracle Beehive User Directory Service (UDS) or in an external LDAP-based directory, such as Oracle Internet Directory. "Mastered" means that a master source is used as the point of reference to determine the correct value for any user account attribute, and this source is used for making any changes to any account details.

After you have installed and configured Oracle Beehive, you may synchronize your external LDAP-based directory with UDS so that you may continue to manage your users and groups through your LDAP server. For more information, refer to "Integrating and Synchronizing LDAP with Oracle Beehive".

Configuring SSL

Refer to "Configuring SSL" for information about configuring SSL with Oracle Beehive and DMZ instances.

If you do not want to use SSL with your Oracle Beehive deployment, follow the steps described in "Installing Non-SSL Oracle Beehive Site".

Configuring TLS

Some services, such as XMPP, require a Transport Layer Security (TLS) encrypted communication channel. Use Oracle Wallet to provide this.

To configure Oracle Beehive with Oracle Wallet so that clients may access it with a TLS connection, refer to "Configuring TLS with Oracle Wallet".

Configuring SSL for LDAP Integration

After configuring LDAP and Oracle Wallet with Oracle Beehive, you may configure Oracle Beehive authentication with Certificate Authority verification. For more information, refer to "Configuring SSL for LDAP Integration".

Enabling AJPS

To enable secure Apache JServ Protocol (AJPS), which is used instead of HTTP for communication between Oracle HTTP Server and OC4J, refer to "Enabling AJPS".

Configuring Oracle Beehive E-mail

The default installation of Oracle Beehive includes a basic configuration of e-mail services. This configuration does not include any filtering, dispatch rules, relay configuration, attachment blocking, or other common settings. For detailed configuration options and procedures, refer to "Managing Oracle Beehive E-Mail" in *Oracle Beehive Administrator's Guide*.

To secure Oracle Beehive e-mail with SSL, refer to "Configuring E-Mail with SSL". This involves configuring Oracle Beehive and your e-mail client.

Configuring XMPP

Extensible Messaging and Presence Protocol (XMPP) is an open XML technology for presence and real-time communication. For users to authenticate against Oracle Beehive's XMPP Service, you must perform the steps described in "Configuring XMPP" to configure it.

Configuring Notifications to Use SMS

Oracle Beehive can send users notifications as email messages, instant messages, or as mobile messages in the form of SMS. SMS notifications are only possible if the Oracle Beehive SMS delivery channel is enabled and configured to point to an SMS Aggregator.

For more information, refer to the section "Configuring Notifications to use SMS" in "Managing Oracle Beehive Subscriptions and Notifications" in *Oracle Beehive Administrator's Guide*.

Configuring Oracle Secure Enterprise Search

Oracle Secure Enterprise Search 10*g* is a stand-alone enterprise search solution. It incorporates best-in-class indexing crawling and security capabilities to create a reliable and comprehensive search solution for any organization. Refer to "Configuring Oracle Secure Enterprise Search".

Configuring Oracle Single Sign-On

You may register Oracle Beehive as a partner application with Oracle Single Sign-On, which means that you may delegate the authentication function to the single sign-on server. Refer to "Configuring Single Sign-On with Oracle Beehive".

Configuring External Oracle BPEL Process Manager with Oracle Beehive

If you have an existing instance of Oracle BPEL Process Manager, you may configure Oracle Beehive to use it instead of the one that is included with Oracle Beehive. Refer to "Configuring External Oracle BPEL Process Manager with Oracle Beehive".

Installing Oracle Beehive Extensions for Outlook

Oracle Beehive Extensions for Outlook extends the functionality of Microsoft Outlook by providing Outlook users with unified access to Oracle Beehive-based collaborative features and data in a familiar environment.

Oracle Beehive Extensions for Outlook requires installation on the computers of individual users. For information about installing Oracle Beehive Extensions for Outlook, refer to "Installing Oracle Beehive Extensions for Outlook".

Installing Oracle Beehive Extensions for Explorer

Oracle Beehive Extensions for Explorer is an extension to Microsoft Windows Explorer that provides Oracle Beehive users direct access to their workspaces and workspace content, such as folders and documents. Oracle Beehive Extensions for Explorer also facilitates seamless team collaboration. For example, users can launch Oracle Beehive conferences directly from Windows Explorer, where they can share and discuss workspace content in real time.

Oracle Beehive Extensions for Explorer requires installation on the computers of individual users. For information about installing Oracle Beehive Extensions for Explorer, refer to "Installing Oracle Beehive Extensions for Explorer".

Installing Oracle Beehive Conferencing Client

The Oracle Beehive Conferencing client enables Oracle Beehive users to conduct Web-based meetings and presentations.

The Oracle Beehive Conferencing client requires installation on the computers of individual users. For information about installing the Oracle Beehive Conferencing client, refer to "Installing Oracle Beehive Conferencing Client".

Configuring Oracle Beehive Integration for Zimbra

Oracle Beehive Integration for Zimbra is available for Oracle Beehive Release 1 (1.3) and later.

Oracle Beehive Integration for Zimbra is installed in an Oracle home separate from Oracle Beehive. As a result, Oracle Beehive Integration for Zimbra acts like an application tier and should be configured as such.

If you have not configured TLS or SSL for your Oracle Beehive deployment, you do not need to perform any post-installation steps.

If you have configured TLS or SSL for your Oracle Beehive deployment, follow the steps described in "Configuring Oracle Beehive Integration for Zimbra" (these steps are similar to "Configuring SSL with Self-Signed Certificates During Installation of Oracle Beehive").

Configuring Remote Voice Conferencing Media Server for Oracle Beehive Conferencing

Oracle Beehive comes with the Voice Conferencing Media Server, which provides the voice conferencing functionality for Oracle Beehive Conferencing. To improve the performance of the Oracle Beehive server and the general quality of voice conferences, Oracle recommends that you install the Voice Conferencing Media Server in its own dedicated computer and then configure your Oracle Beehive instance to use that Voice Conferencing Media Server remotely.

The Voice Conferencing Media Server is only available for Oracle Beehive for Linux x86. Consequently, you must configure Oracle Beehive for Solaris Operating System

(SPARC 64-Bit) or for Microsoft Windows to use a remote Voice Conferencing Media Server from an Oracle Beehive for Linux x86 instance.

The following steps describe how to configure Oracle Beehive to use a Voice Conferencing Media Server remotely from another Oracle Beehive instance:

1. Install Oracle Beehive for Linux x86; use the same database as the one your current Oracle Beehive instance uses.
2. From your current Oracle Beehive instance, in the `_ConferenceService` component, set the `OwcUseRemoteMediaSessions` to `true`:

   ```
   beectl modify_property --component _ConferenceService
     --name OwcUseRemoteMediaSessions
     --value true
   ```

3. Activate the configuration:

   ```
   beectl activate_configuration
   ```

4. Restart the BEEAPP component in both your current Oracle Beehive instance and the instance that you just installed for its Voice Conferencing Media Server:

   ```
   beectl status

   ----------------------------------------------+--------
   Component identifier           | Component type | Status
   ----------------------------------------------+--------
   BTI_instance1.example.com      | BTI            | RUNNING
   ----------------------------------------------+--------
   BEEAPP_instance1.example.com   | OC4J           | RUNNING
   ----------------------------------------------+--------
   BEEMGMT_instance1.example.com  | OC4J           | RUNNING
   ----------------------------------------------+--------
   BEECORE_instance1.example.com  | OC4J           | RUNNING
   ----------------------------------------------+--------
   oc4j_soa_instance1.example.com | OC4J           | RUNNING
   ----------------------------------------------+--------
   ohs_instance1.example.com      | HTTP_Server    | RUNNING
   ------------------------------+----------------+--------

   beectl restart --component BEEAPP_instance1.example.com
   ```

Cloning Oracle Beehive

Cloning is the process of copying an existing installation to a different location while preserving its configuration. For more information, refer to "Cloning Oracle Beehive Application Tiers and Sites".

Performing Oracle Beekeeper Post-Installation Procedures

Oracle Beekeeper is available for Oracle Beehive Release 1 (1.3) and later.

If you have installed Oracle Beekeeper, perform one or more of the procedures described in "Oracle Beekeeper Post-Installation Procedures", depending on your security requirements or any other issue particular to your deployment.

16

Oracle Beehive Database Post-Installation Procedures

After successfully installing Oracle Beehive, perform the following tuning recommendations on your Oracle Beehive database:

- Set the `disable_on_error` parameter to `N` in the `DBMS_APPLY_ADM` package so that errors are skipped (execute these PL/SQL block as the `SYS` user):

```
BEGIN
  dbms_apply_adm.set_parameter (
    apply_name => 'CDC$A_SEARCH_CHANGE_SET',
    parameter => 'disable_on_error',
    value => 'N'
  );
END;
/

BEGIN
  dbms_apply_adm.start_apply(apply_name => 'CDC$A_SEARCH_CHANGE_SET');
END;
/
```

- Configure the `DBMS_CAPTURE_ADM` package as follows (execute these PL/SQL blocks as the `SYS` user):

```
BEGIN
  dbms_capture_adm.set_parameter (
    'CDC$C_SEARCH_CHANGE_SET',
    '_checkpoint_frequency',
    '1000'
  );
END;
/

BEGIN
  dbms_capture_adm.alter_capture (
    'CDC$C_SEARCH_CHANGE_SET',
    checkpoint_retention_time => 14
  );
END;
/
```

17

Configuring FTP

This module describes how to perform the following tasks:

- Enabling Active Mode FTP
- Opening Ports Required by Oracle Beehive for FTP
- Configuring Passive Mode FTP
- Setting other FTP Parameters

Enabling Active Mode FTP

By default, active mode FTP (FTP in PORT mode) connections to your Oracle Beehive instances are disabled. Follow these steps to enable them:

1. Set the `ActiveModeEnabled` property in the `_FtpService` property to `true`:

   ```
   list_properties --component _FtpService

   -----------------------+---------------------
   Property name          | Property value
   -----------------------+---------------------
   ActiveModeEnabled      | false
   -----------------------+---------------------
   Alias                  | _FtpService

   ...

   beectl modify_property
     --component _FtpService
     --name ActiveModeEnabled
     --value true
   ```

2. Activate changes:

   ```
   beectl activate_configuration
   ```

> **Note:** If the `beectl activate_configuration` command asks you to run the `beectl modify_local_configuration_files` command, then run this command. It will then ask you do run the command on all your other instances. Run this command on all your instances.

Opening Ports Required by Oracle Beehive for FTP

If your Oracle Beehive instance is behind a firewall, ensure that the following ports are open in your firewall to enable FTP connections:

Table 17–1 Ports Required Open

Default Port Number	Property Name	Description
2121	Port	The FTP server listens at this port to accept new connections from clients
2120	DefaultDataPort	Port used by the FTP server in PORT (ACTIVE) mode to make active connections (outbound connections) to clients
12121	DataConnectionPort	In PASSIVE mode, the FTP server listens on a range of ports starting from DataConnectionPort to create new data connections, which will be used for data transfer operations. The property MaxDCPortCount indicates the number of ports in the range. For example, if the value of DataConnectionPort is 12121 and MaxDCPortCount is 10, then ensure that all the ports from 12121 to 12130 (inclusively) are open in your firewall.

You may change the value of these ports as well as the value of MaxDCPortCount.

To retrieve a list of all available ports, call the `beectl list_ports` command (the --format option is optional):

```
beectl list_ports --format xml

...
   <row>
      <column name="Protocol">FTP</column>
      <column name="Listening Port">2121</column>
      <column name="Virtual Port">2121</column>
      <column name="Defining Component">_FtpService</column>
      <column name="Property Name">Port</column>
      <column name="Listening Component">
        BTI_instance1.example.com</column>
   </row>
   <row>
      <column name="Protocol"></column>
      <column name="Listening Port">2120</column>
      <column name="Virtual Port"></column>
      <column name="Defining Component">_FtpService</column>
      <column name="Property Name">DefaultDataPort</column>
      <column name="Listening Component">
        BTI_instance1.example.com</column>
   </row>
   <row>
      <column name="Protocol"></column>
      <column name="Listening Port">12121</column>
      <column name="Virtual Port"></column>
      <column name="Defining Component">_FtpService</column>
      <column name="Property Name">DataConnectionPort</column>
      <column name="Listening Component">
        BTI_instance1.example.com</column>
   </row>
...
```

To retrieve a list of all the properties for the FTP service, call the `beectl list_properties` command:

```
beectl list_properties --component _FtpService
```

```
---------------------------+----------------------------------------------------
Property name              | Property value
---------------------------+----------------------------------------------------
Alias                      | _FtpService
---------------------------+----------------------------------------------------
ChannelSecurity            | PLAIN_AND_TLS
---------------------------+----------------------------------------------------
DMSInstrumentation         | false
---------------------------+----------------------------------------------------
DataConnectionPort         | 12121
---------------------------+----------------------------------------------------
DefaultCommandCharacterset | UTF-8
---------------------------+----------------------------------------------------
DefaultDataPort            | 2120
---------------------------+----------------------------------------------------
FtpServerEnabled           | true
---------------------------+----------------------------------------------------
InternalIP                 | DEFAULT
---------------------------+----------------------------------------------------
LightweightThreadCount     |
---------------------------+----------------------------------------------------
ListeningPoint             | DEFAULT
---------------------------+----------------------------------------------------
MaxDCPortCount             | 200
---------------------------+----------------------------------------------------
Port                       | 2121
---------------------------+----------------------------------------------------
ServiceApplication         | svcapp_ftp
---------------------------+----------------------------------------------------
ServiceInstances           | instance_ftp_BEEAPP_site1.example.com
---------------------------+----------------------------------------------------
SessionTimeout             | 900000
---------------------------+----------------------------------------------------
Site                       | _CURRENT_SITE
---------------------------+----------------------------------------------------
Status                     | ENABLED
---------------------------+----------------------------------------------------
UploadBufferSize           | 260096
---------------------------+----------------------------------------------------
```

To change a property (such as the Port property), call the `beectl modify_property` command on all of your instances:

```
beectl modify_property
  --component _FtpService
  --name Port
  --value <new port value>
```

To save the your changes and activate them, call the following command:

```
beectl activate_configuration
```

Note: If the `beectl activate_configuration` command asks you to run the `beectl modify_local_configuration_files` command, then run this command. It will then ask you do run the command on all your other instances. Run this command on all your instances.

Configuring Passive Mode FTP

You can configure the Oracle Beehive FTP service so that the IP address it sends as a PASV response depends on where the client initiated the passive mode FTP connection, either from within your network (your intranet) or outside your enterprise (the Internet).

This involves configuring two network interface groups: an internal one and an external one. A network interface group is the point of interconnection between BTI Oracle Beehive Transport Interface) and a private or public network. A network interface group is mapped to a list of network interfaces.

Consequently, you may configure an internal network interface group and associate it with an IP address of your load balancer that is facing your intranet, and an external network interface group with another load balancer facing the Internet. If the FTP service accepts a client's passive mode FTP connection, the service will send the IP address of the appropriate load balancer, depending on where the client's FRP request originated (internally or externally).

Follow these steps to configure an internal and external network group and the FTP services so that it recognizes these groups:

1. Specify the internal and external network groups with the following commands. This command assumes that `140.87.24.44` is the IP address of your Internet-facing load balancer and `127.0.0.1` the IP address of your intranet-facing load balancer:

   ```
   ./beectl list_components --type BtiRedirector

   ----------------+---------------------------------------------------------
   Component type  | Component identifier
   ----------------+---------------------------------------------------------
   BtiRedirector   | BTI_redirector_site1.example.com
   ----------------+--------------------------------------------------------

   beectl modify_property
     --name AdditionalExecArgs
     --value ESCAPE:-interface-groups
     --value "EXTERNAL=140.87.26.44;INTERNAL=127.0.0.1"
     --component BTI_redirectory_site1.example.com
   ```

2. Ensure that the BTI redirector is running with your new configuration with the `ps` command:

   ```
   ps -Afw | grep redir
   00:00:00 /my_oracle_home/beehive/bin/redirector -log-dir
   /my_oracle_home/beehive/logs/bti -log-level all -xsl-dir
   /my_oracle_home/beehive/xsl -ipc-path
   /tmp/BTI-f871faff-90d3-4d5f-a94d-b13124072092 -server-port 21300 -bp-id-base
   131072 -interface-groups EXTERNAL=140.87.26.44;INTERNAL=127.0.0.1
   -bti-process 0 -bti-marker @@f871faff-90d3-4d5f-a94d-b13124072092
   -btimon-port 3042 -btimon-token 1000000000000002
   ```

3. Depending on your deployment, set one or more of the following parameters in the FTP service:

Table 17–2 FTP Parameters

Parameter	Description
DataconnectionPort	Starting port number from which the FTP server accepts data connections in passive mode.
MaxDcPortCount	Maximum number of data ports used for passive mode listening.
ListeningPoint	Controls the response of the PASV command. Valid values for this parameter are INTERNAL, EXTERNAL, DEFAULT, and INTERNAL_AND_EXTERNAL. If ListeningPoint is set to DEFAULT, then the IP address of the application tier on which the FTP service is running is sent as the PASV response. If both ListeningPoint is set to INTERNAL and you configured a network interface group named "INTERNAL", then the IP address specified in the InternalIp address is sent as the PASV response. Otherwise, the IP address of the application tier on which the FTP service is running is sent. If both ListeningPoint is set to EXTERNAL and you configured a network interface group named "EXTERNAL", then the IP address specified in your virtual server is sent. Otherwise, the IP address of the application tier on which the FTP service is running is sent. Refer to "Installing Oracle Beehive in High Availability Environment" to configure the virtual server. If ListeningPoint is set to INTERNAL_AND_INTERNAL, the FTP service will behave as if ListeningPoint were set to both INTERNAL and EXTERNAL.
InternalIp	The IP address sent as the PASV response if ListeningPoint is set to INTERNAL (or INTERNAL_AND_EXTERNAL) and a network interface group named "INTERNAL" exists.

4. Save the your changes and activate them, call the following command:

```
beectl activate_configuration
```

5. Redeploy the FTP service with the following commands:

> **Note:** If you change any of the FTP service parameters described in these steps (DataconnectionPort, MaxDcPortCount, ListeningPoint, or InternalIp) you must redeploy the FTP service (or restart the BEEAPP component) afterwards.

```
beectl list_components --type FtpServiceInstance

---------------------+-----------------------------------------------------
Component type       | Component identifier
---------------------+-----------------------------------------------------
FtpServiceInstance   | instance_ftp_BEEAPP_site1.example.com
---------------------+-----------------------------------------------------

1 Record(s) displayed.
```

```
beectl upgrade_service_instance
  --service_instance_id instance_ftp_BEEAPP_site1.example.com
```

Setting other FTP Parameters

You must redeploy the FTP service (or restart the BEEAPP component) if you change one of the following FTP service parameters:

- DataconnectionPort
- MaxDcPortCount
- SessionTimeout: Amount of time between activity before the connection times out; default is 900 seconds or 15 minutes. Unit of measure is milliseconds.
- Port
- ListeningPoint
- InternalIp

18

Configuring Oracle Beehive Demilitarized Zone Instances

This module describes how to configure Oracle Beehive DMZ instances. It involves the following steps:

- Step A: Configuring Oracle Wallet with Oracle Beehive DMZ Instances
- Step B: Configuring Oracle Beehive DMZ Instances

If you want to manually uninstall a DMZ instance, have made an error while configuring your DMZ instances, or would like to completely rollback any DMZ configuration steps without uninstalling your DMZ instances, refer to "Manually Deleting DMZ Instances".

Note: If you want to configure your DMZ instances with SSL, follow the directions described in "Configuring SSL with Oracle Beehive DMZ Instances" in "Configuring SSL" These steps involve configuring your entire Oracle Beehive deployment for SSL.

Step A: Configuring Oracle Wallet with Oracle Beehive DMZ Instances

Follow these steps on all DMZ instances. Refer to "Configuring TLS with Oracle Wallet" for more information about Oracle Wallet.

1. Set the ORACLE_HOME environment variable to the Oracle home of the DMZ instance.
2. Enable auto login mode for the default wallet with the following command. The default password for the default wallet is `welcome`:

```
<Oracle home of DMZ instance>/bin/orapki wallet create
  -wallet <Oracle home of DMZ instance>/Apache/Apache/conf/ssl.wlt/default
  -auto_login
  -pwd welcome
```

Note: Alternatively, you may create a new wallet with auto login mode enabled. Use the same command except specify a different directory that does not contain a wallet. You may specify any password when creating a new wallet.

---

3. Edit the file *<Oracle home of DMZ instance>*`/beehive/conf/bti.properties` and change the value of WalletDir to the wallet directory you configured in the previous step:

   ```
   WalletDir=
     <Oracle home of DMZ instance>/Apache/Apache/conf/ssl.wlt/default
   ```

4. Edit the file *<Oracle home of DMZ instance>*`/opmn/conf/opmn.xml` and change the value of wallet-file to the wallet directory you configured in Step 2:

   ```
   <notification-server interface="ipv4">
     <!-- ... -->
     <ssl enabled="true"
       wallet-file="<Oracle home of DMZ instance>
                    /Apache/Apache/conf/ssl.wlt/default"/>
   ```

5. Restart the DMZ instance:

   ```
   opmnctl stopall
   opmnctl startall
   ```

Step B: Configuring Oracle Beehive DMZ Instances

1. If you have not already done so, configure Oracle Wallet with your Oracle Beehive DMZ instance. Refer to "Step A: Configuring Oracle Wallet with Oracle Beehive DMZ Instances".

2. If you have configured your Oracle Beehive DMZ instances for SSL, then ignore this step.

   By default, Oracle Beehive DMZ instances are configured to receive secure ONS notifications. If you specifically do not want to use SSL, you must configure ONS to receive non-SSL notifications.

   To do this, edit the file *<Oracle home of DMZ instance>*`/opmn/conf/opmn.xml` as follows in all Oracle Beehive DMZ instances. In the <ssl> element, set the enable attribute to false:

   ```
   <ssl enabled="false"
     wallet-file="$ORACLE_HOME/opmn/conf/ssl.wlt/default"/>
   ```

3. Update the file *<Oracle home of DMZ instance>*`/opmn/conf/opmn.xml` as follows in all Oracle Beehive DMZ instances to add the topology definition for all Oracle Beehive (non-DMZ) application tiers that are part of this configuration:

   ```
   <notification-server>
     <!-- ... -->
     <topology>
       <nodes list="
         <Application tier 1 host name>:<OPMN remote port of application tier 1>,
         <Application tier 2 host name>:<OPMN remote port of application tier 2>,
         ...
       "/>
     </topology>
   </notification-server>
   ```

   For example, if you have two Oracle Beehive application tiers with host names `example1.com` and `example2.com` and OPMN remote port numbers 6200 and 6300, respectively, add the following topology definition to the `opmn.xml` file in your DMZ instances:

   ```
   <notification-server>
   ```

```
  <!-- ... -->
  <topology>
    <nodes list="example1.com:6200,example2.com:6300"/>
  </topology>
</notification-server>
```

> **Tip:** Retrieve the OPMN port of an Oracle Beehive application tier from the file *`<Oracle Beehive home>`*`/opmn/conf/opmn.xml` (of a non-DMZ application tier). The OPMN port is specified by the `remote` attribute of the `port` element in the `notification-server` element.

4. Restart each DMZ instance whose `opmn.xml` file you changed with the *`<Oracle home of DMZ instance>`*`/opmn/bin/opmnctl` command:

   ```
   opmnctl stopall
   opmnctl startall
   ```

5. From every DMZ instance, retrieve the following values from the specified files:
   - *`<Oracle home of DMZ instance>`*`/opmn/conf/opmn.xml`:
     - opmn_request_port
     - opmn_remote_port
   - *`<Oracle home of DMZ instance>`*`/beehive/conf/bti.properties`
     - bti_server_port
     - bti_unique_id (PersistentId)
     - NumberOfClientWorkers
6. Open the following ports in your firewall:
   - OPMN ports between your DMZ instances and non-DMZ instances
   - AJP ports between your intranet and your DMZ instances: This is required for connectivity between Oracle HTTP Server (OHS) and OC4J. By default, Oracle Beehive OC4J instances listens on port numbers in the range 12501-12600. Oracle Beehive OC4J instances will try to listen on the lowest port number in this range.

     Consequently, you only have to open the range of ports 12501-12504. Ensure that no other applications on Oracle Beehive servers occupy this range. As long as these ports are not occupied, Oracle Beehive OC4J instances will listen on this range of ports.
   - If you have installed Oracle Beehive Integration for Zimbra, open two additional ports (12505-12506).

Notes: You do not need to open any OPMN ports between your DMZ instances and any Oracle RAC database host(s).

The AJP port number range is defined in the AjpPortMinValue and AjpPortMaxValue parameters in each of Oracle Beehive's managed OC4J components:

```
beectl list_components --type ManagedOc4j

---------------+--------------------------------------------------
Component type | Component identifier
---------------+--------------------------------------------------
ManagedOc4j    | BEEAPP_site.example.com
---------------+--------------------------------------------------
...

beectl list_properties --component BEEAPP_site.example.com

--------------------------+---------------------------------------
Property name             | Property value
--------------------------+---------------------------------------
AdminPassword             | [Protected Value]
--------------------------+---------------------------------------
AdminUsername             | oc4jadmin
--------------------------+---------------------------------------
AjpPortMaxValue           | 12600
--------------------------+---------------------------------------
AjpPortMinValue           | 12501
--------------------------+---------------------------------------
...
```

You may open a range of ports other than 12501-12504 (or 12501-12506 if you have installed Oracle Beehive Integration for Zimbra); however, you must make the necessary changes in the Oracle Beehive configuration.

---

7. On any Oracle Beehive non-DMZ instance, **but not on a DMZ instance**, run the following commands:

   a. Add the first DMZ instance to the non-DMZ instance by calling the `beectl add_dmz_home_instance` command on a non-DMZ instance:

   ```
   beectl add_dmz_home_instance
     --hostname <Host name of first DMZ instance>
     --oracle_home <Oracle home of DMZ instance>
     --opmn_request_port <OPMN request port of first DMZ instance>
     --opmn_remote_port <OPMN remote port of first DMZ instance>
     --bti_server_port <BTI server port of first DMZ instance>
     --bti_unique_id <BTI unique ID of first DMZ instance>
     --no_of_client_workers <NumberOfClientWorkers from bti.properties>
   ```

   b. After the successful completion of the `beectl add_dmz_home_instance` command, immediately run the command `beectl activate_configuration` on the same non-DMZ instance. Do not execute any other other `beectl` commands on any other non-DMZ instance.

   c. Repeat steps a and b for each of your other DMZ instances.

8. Run the following command on all the other non-DMZ instances:

```
beectl modify_local_configuration_files --log_level FINEST
```

Troubleshooting DMZ Configuration

If you receive an HTTP 404 error when accessing and HTTP resource from a DMZ instance, verify that you have properly configured your DMZ instances. Do this by running the command *`<Oracle home>`*`/opmn/bin/opmnctl @cluster status` from any Oracle Beehive instance. If you have properly configured your DMZ instances, then this command will display all your application tiers in your site.

Manually Deleting DMZ Instances

Follow these steps to manually delete a DMZ instance.

Notes: If you have made an error while configuring your DMZ instances or you would like to completely rollback any DMZ configuration steps without uninstalling your DMZ instances, then perform steps 2 and 3.

If you use the Install Wizard to uninstall DMZ instances, steps 2 and 3 are unnecessary.

---

1. For each DMZ instance you want to delete, run the following command:

   ```
   beectl delete_dmz_home_instance --id <DMZ instance identifier>
   ```

2. For each DMZ instance you want to delete, edit the file *`<Oracle home of DMZ instance>`*`/opmn/conf/opmn.xml` and delete the topology information. The topology information is contained in the `<topology>` element. Delete this element. It will look similar to the following:

   ```
   <notification-server>
     <!-- ... -->
     <topology>
       <nodes list="
         <Application tier 1 host name>:<OPMN remote port of application tier 1>,
         <Application tier 2 host name>:<OPMN remote port of application tier 2>,
         ...
       "/>
     </topology>
   </notification-server>
   ```

3. Restart each DMZ instance whose `opmn.xml` file you edited with the following commands:

   ```
   <Oracle home of DMZ instance>/opmn/bin/opmnctl stopall
   <Oracle home of DMZ instance>/opmn/bin/opmnctl startall
   ```

19

Integrating and Synchronizing LDAP with Oracle Beehive

Oracle Beehive user data may be mastered by the Oracle Beehive User Directory Service (UDS) or an external LDAP-based directory. "Mastered" means that a master source is used as the point of reference to determine the correct value for any user account attribute, and this source is used for making any changes to any account details.

This module describes how to integrate and synchronize UDS with an external LDAP-based directory, such as Oracle Internet Directory, so that all user data is mastered by the LDAP-based directory.

If UDS is synchronized with an external LDAP server, it will contact the LDAP server at regular intervals for all records that were changed. UDS will update its records accordingly. You may change the frequency that UDS contacts the LDAP server.

If you make a change in UDS, it will not update the LDAP server with which it is synchronized.

> **Note:** It is not necessary to master all user account attributes in an LDAP server; some attributes may be mastered in LDAP and others in UDS. However, all users that need to authenticate or login must be mastered in the same place.

The process of synchronizing an LDAP server with UDS involves creating the following files:

- **LDAP mapping profile**: This is an XML file that contains LDAP server settings and specifies how to convert entries in your LDAP server to Oracle Beehive users and groups. This involves specifying attribute mappings between those defined in your LDAP server and those used by Oracle Beehive.
- **User file**: This is an XML file that represents all the users you want to synchronize in a format specified by Oracle Beehive. To create this, you use the LDAP mapping profile you created and the `beectl download_ldap_user_data` command.

This module covers the following topics:

- How Synchronization Works
- Requirements
- Synchronizing LDAP with Oracle Beehive User Directory Service
- Configuring Authentication Service to Use LDAP Server

- Configuring Digest Authentication
- Oracle Internet Directory Considerations
- Changing LDAP Administrator's Password
- Active Directory Considerations
- Troubleshooting General LDAP Synchronization Issues

How Synchronization Works

An LDAP server maintains a change log in which it stores incremental changes made to directory objects. It stores these changes sequentially based on the change log number.

UDS contacts the LDAP server at regular intervals (whose duration is determined by the LDAP mapping profile) and requests the latest change log number and all records that were changed since the last stored change log number.

> **Note:** If any change is made to the LDAP server that alters the change log number, such as restoring the LDAP server from a backup or switching to a cloned instance, you must export all users and groups from LDAP and import them into UDS again as described in "Step 3: Loading Users and Groups".

Because any LDAP server may be synchronized with UDS, you must provide UDS with an LDAP mapping profile. This file specifies how to convert entries in your LDAP server to Oracle Beehive users and groups and which entries to synchronize.

Requirements

Oracle Beehive Release 1 supports Oracle Internet Directory, Microsoft Active Directory, IBM Tivoli Directory Server, Sun Directory Server, and OpenLDAP Directory.

OpenLDAP Directory Requirements

Ensure that you have configured OpenLDAP Directory as follows to synchronize it with Oracle Beehive:

- Do not use the option `lastmod off` in your `slapd.conf` configuration file. Either omit the option or use `lastmod on` instead.
- Ensure that all OpenLDAP users have the following attributes set to a value other than null: `entryUUID`, `modifiersName`, and `ModifyTimestamp`.

  Verify that these attributes are set with the `ldapsearch` command:

  ```
  ldapsearch -h <hostname> -p <port> -b "<user base>" <attribute names>
  ```

  For example, if the host and port of your OpenLDAP Directory is `myldap.example.com:8888`, and the base DN of your users is `cn=Users,dc=example,dc=bee`, then call the following command:

  ```
  ldapsearch -h myldap.example.com -p 8888 -b "cn=Users,dc-example,dc=bee"
  entryUUID modifiersName ModifyTimestamp
  ```

Synchronizing LDAP with Oracle Beehive User Directory Service

Synchronizing LDAP with UDS consists of the following steps:

- Step 1: Creating an LDAP Mapping Profile
- Step 2: Enabling Synchronization
- Step 3: Loading Users and Groups

Notes: You will need the user name and password of a user of your LDAP server who has access to the following:

- Attributes in the Directory Information Tree (DIT)
- Change logs

This user does not need write access to your LDAP server.

The steps in this module will use the user `cn=orcladmin`.

These steps use Oracle Internet Directory as the LDAP server to synchronize. For information specific to Active Directory, refer to the section "Active Directory Considerations".

This section also covers these topics:

- Controlling How Often UDS Contacts the LDAP Server
- Retrieving Information About the LDAP Server

Step 1: Creating an LDAP Mapping Profile

The LDAP mapping profile is an XML file that tells UDS the following information:

- Which LDAP entries should be synchronized
- How to treat entries with specific attributes or domain names (DNs) (for example, whether to map them as `ENTERPRISE_USER`, `EXTENDED_ENTERPRISE_USER`, or `EXTERNAL_PERSON`)
- How to map the attributes of each user type to Oracle Beehive attributes.

Creating the LDAP mapping profile consists of the following steps:

- Step A: Creating an LDAP Mapping Profile from a Template
- Step B: Renaming the Profile
- Step C: Specifying LDAP Server Settings
- Step D: Providing Mapping Details for Each User Type and Static Group
- Step E: Providing Scope and Membership Mapping Information
- Step F: Providing Attribute Mapping for Each User Type and Static Group
- Step G: Adding Profile to Oracle Beehive

Step A: Creating an LDAP Mapping Profile from a Template

Navigate to the directory `<Oracle home>/beehive/templates/uds`. It contains LDAP mapping profile templates for the following LDAP servers. These templates must be edited and customized depending on how your LDAP directory is configured and structured:

Table 19–1 LDAP Mapping Profile Templates

File Name	Directory Type
`adprofile_template.xml`	Microsoft Active Directory
`ibmprofile_template.xml`	IBM Tivoli Directory Server
`oidprofile_template.xml`	Oracle Internet Directory
`sunprofile_template.xml`	Sun Directory Server
`openldap_profile_template.xml`	OpenLDAP Directory

Depending on your LDAP server, copy one of these files to another location, such as your home directory. Edit this file to create your LDAP mapping profile.

These steps use `oidprofile_template.xml`.

Step B: Renaming the Profile

Rename the profile in the `<profile_name>` tag. The following is an excerpt from an LDAP mapping profile:

```
<profile>
  <profile_name>my_profile</profile_name>
  <!-- ... -->
</profile>
```

Step C: Specifying LDAP Server Settings

Enter the LDAP server's host and port, administrator's user name and password (which must be obfuscated), and the users and groups base search. The following is an excerpt from an LDAP mapping profile:

```
<ldap_server>
  <host>www.ldapserver.com</host>
  <port>389</port>
  <!-- <ssl_port>636</ssl_port> -->
  <connection_timeout>
    120
    <!-- This is the default value, in seconds -->
  </connection_timeout>
  <ldap_user_name>cn=orcladmin</ldap_user_name>
  <!-- obfuscated password -->
  <ldap_user_password>
    fCgF4UPWg+Vm7IkSBSY07NOSkJ2XXTYRwGynrIM0mx/CHQF4W58Mab0izRX6Bxb6
  </ldap_user_password>
  <user_search_base>dc=oracle,dc=com</user_search_base>
  <group_search_base>
    cn=groups,dc=us,dc=oracle,dc=com
  </group_search_base>
  <primary_authentication_attribute>uid</primary_authentication_attribute>
  <!-- The primary authentication attribute is required only
       for DEFAULT profile -->
  <digest_authentication>
    <!-- Corresponds to the DigestAuthentication
         property of the component _CURRENT_SITE:LdapServer.
         This property can have multiple digest_authentication_attribute
         values -->
    <digest_authentication_attribute>
      <!-- An attribute from the user object (in the LDAP directory)
```

```
          that is required for digest authentication -->
    </digest_authentication_attribute>
  </digest_authentication>
</ldap_server>
```

In this excerpt, only users under `dc=oracle,dc=com` will be mapped to Oracle Beehive users. Similarly, only groups under `cn=groups,dc=us,dc=oracle,dc=com` will be mapped to Oracle Beehive groups.

The `<connection_timeout>` element is used by UDS to establish a connection to an external directory. If UDS cannot establish a connection within the number of seconds specified in this element, it aborts the connection attempt. The default value is 120 seconds. This element is available for Oracle Beehive Release 1 (1.3) and later.

For more information about the DigestAuthentication property, refer to "Configuring Digest Authentication".

Notes: The LDAP user specified in `<ldap_user_name>` must have access to the change logs. If you later update the profile with a different LDAP user, then UDS will be synchronized with the state of the LDAP server corresponding to the latest change log number.

To obfuscate the LDAP administrator's password, use the `beectl obfuscate` command:

```
beectl obfuscate --expiration_time_in_minutes 0
Enter value for password:
Confirm value of password:
Successfully obfuscated the string.
fCgF4UPWg+Vm7IkSBSY07NOSkJ2XXTYRwGynrIM0mx/CHQF4W58Mab0izRX6Bxb6
```

Other `beectl` commands require obfuscated passwords. Use the same command to obfuscate them.

If your LDAP server is Microsoft Active Directory, the user specified in `<ldap_user_name>` must have the following privileges:

- Membership to the Domain Admins group
- Viewing rights to the deleted objects container in Microsoft Active Directory. For more information, refer to "How to let non-administrators view the Active Directory deleted objects container in Windows Server 2003 and in Windows 2000 Server" at `http://support.microsoft.com/kb/892806`.

Step D: Providing Mapping Details for Each User Type and Static Group

Provide the mapping details for each user type and static group. The following is an excerpt from an LDAP mapping profile:

```
<user_type_map>
  <user_type_map_entry>
    <source_field_type>DN</source_field_type>
    <source_field_value>
      cn=users,dc=partners,dc=oracle,dc=com
    </source_field_value>
    <user_type>EXTENDED_ENTERPRISE_USER</user_type>
  </user_type_map_entry>
  <user_type_map_entry>
    <source_field_type>DN</source_field_type>
    <source_field_value>
```

```
      cn=users,dc=us,dc=oracle,dc=com
    </source_field_value>
    <user_type>ENTERPRISE_USER</user_type>
  </user_type_map_entry>
</user_type_map>

<group_type_map>
  <group_type_map_entry>
    <source_field_type>DN</source_field_type>
    <source_field_value>
      cn=groups,dc=us,dc=oracle,dc=com
    </source_field_value>
    <group_type>STATIC_GROUP</group_type>
  </group_type_map_entry>
</group_type_map>
```

This excerpt maps the following entries:

- A user that is under the DN specified in `<user_search_base>` (in this example, it is `dc=oracle,dc=com`) and whose DN contains `cn=users,dc=partners,dc=oracle,dc=com` will be mapped to `EXTENDED_ENTERPRISE_USER`.
- An entry that is under the DN specified in `<user_search_base>` and whose DN contains `cn=users,dc=us,dc=oracle,dc=com` will be mapped to `ENTERPRISE_USER`.

Note: Users of type `EXTENDED_ENTERPRISE_USER` must be specified before users of type `ENTERPRISE_USER`.

Once the users have been created in Oracle Beehive, they cannot be converted or updated to another type of user. For example, a user of type `ENTERPRISE_USER` cannot be converted to a user of type `EXTENDED_ENTERPRISE_USER` (and the other way around). Similarly, an `EXTERNAL_PERSON` cannot be converted to an `ENTERPRISE_USER` or `EXTENDED_ENTERPRISE_USER`.

Exclusion and Inclusion Consider the following example:

```
<user_type_map>
  <user_type_map_entry>
    <source_field_name>UserStatus</source_field_name>
    <source_field_type>ATTRIBUTE</source_field_type>
    <source_field_value>true</source_field_value>
    <user_type>ENTERPRISE_USER</user_type>
  </user_type_map_entry>
</user_type_map>
```

In this example, a user (created in your LDAP directory) whose `UserStatus` attribute is set to `true` will be mapped to `ENTERPRISE_USER`.

However, if UserStatus is changed to any value other than `true` or nullified, then UDS synchronization will set the user's status as `DISABLED` in Oracle Beehive because the user no longer satisfies the condition specified in this `<user_type_map>`.

If `UserStatus` is changed back to `true`, then UDS synchronization will set the user's status as `ENABLED` in Oracle Beehive.

If a user in LDAP is deleted, UDS synchronization will set the user's status as `MARKED_FOR_DELETE` in Oracle Beehive.

Note: The attribute specified in `<source_field_name>` (in the previous example, this would be `UserStatus`) must be of a string data type in your LDAP directory. UDS synchronization does not support any other LDAP data types. In addition, the values specified in `<source_field_name>` and `<source_field_value>` must exactly match an attribute and corresponding value (respectively) in your LDAP directory.

Step E: Providing Scope and Membership Mapping Information

Provide community mapping information. Enter this information in an `<scope_type_map>` element. Users specified in a `<scope_type_map>` will be added to, or *scoped* within, the community (organization or enterprise) specified in the same element. A user may only be scoped within a single community.

You may optionally specify a `<membership_type_map>` element. Users specified in this element will be scoped within the community (organization or enterprise) specified by `<scope_type_map>`. In addition, users will become a member of the community specified in the `<membership_type_map>` element. A user may be a member of zero or more communities.

The following is an excerpt from an LDAP mapping profile.

```
<scope_type_map>

  <scope_type_map_entry>
    <source_field_type>DN</source_field_type>
    <source_field_value>dc=us,dc=example,dc=com</source_field_value>
    <scope>
      <name>Entr1</name>
      <identifier>enpr=Oracle</identifier>
    </scope>
    <membership_type_map>
      <membership_type_map_entry>
        <source_field_type>DN</source_field_type>
        <source_field_value>
          dc=external,dc=us,dc=example,dc=com</source_field_value>
        <name>My_Organization</name>
        <identifier>orgn=My_Organization,enpr=My_Enterprise</identifier>
      </membership_type_map_entry>
    </membership_type_map>
  </scope_type_map_entry>
  <scope_type_map_entry>

</scope_type_map>
```

This excerpt maps the following entries:

- A user that is under the DN `dc=us,dc=oracle,dc=com` will be scoped within the enterprise `My_Enterprise`.
- A user that is under the DN `dc=external,dc=us,dc=example,dc=com` will be scoped within the same enterprise (`My_Enterprise`). The same user will be a member of the organization `My_Organization`.

Tips: To retrieve the identifier for an enterprise, call the following `beectl` command:

```
beectl list_enterprises
-----------------------------------------------
| Enterprise Name      | Identifier           |
-----------------------------------------------
| MyEnterprise         | enpr=My_Enterprise   |
-----------------------------------------------
```

To retrieve the identifier for an organization, call the following `beectl` command:

```
beectl list_organizations --scope enpr=My_Enterprose

Organization name:    My_Organization
Description:          Unknown
Identifier:           orgn=My_Organization,enpr=My_Enterprise
...
```

Step F: Providing Attribute Mapping for Each User Type and Static Group

Provide the attribute mapping for each user type and static group. The following is an excerpt from an LDAP mapping profile:

```
<directory_attribute_map>
  <directory_attribute_map_entry>
    <source_object>ENTERPRISE_USER</source_object>
    <AttributeMap>
      <Field>
        <source_attribute>givenname</source_attribute>
        <target_attribute>GIVENNAME</target_attribute>
        <target_attribute_type>ATTRIBUTE</target_attribute_type>
      </Field>
      <Field>
        <source_attribute>sn</source_attribute>
        <target_attribute>FAMILYNAME</target_attribute>
        <target_attribute_type>ATTRIBUTE</target_attribute_type>
      </Field>
    </AttributeMap>
  </directory_attribute_map_entry>

  <directory_attribute_map_entry>
    <source_object>EXTENDED_ENTERPRISE_USER</source_object>
    <AttributeMap>
      <Field>
        <source_attribute>givenname</source_attribute>
        <target_attribute>GIVENNAME</target_attribute>
        <target_attribute_type>ATTRIBUTE</target_attribute_type>
      </Field>
      <Field>
        <source_attribute>sn</source_attribute>
        <target_attribute>FAMILYNAME</target_attribute>
        <target_attribute_type>ATTRIBUTE</target_attribute_type>
      </Field>
    </AttributeMap>
  </directory_attribute_map_entry>

  <directory_attribute_map_entry>
    <source_object>STATIC_GROUP</source_object>
    <AttributeMap>
```

```
      <Field>
        <source_attribute>displayname</source_attribute>
        <target_attribute>NAME</target_attribute>
        <target_attribute_type>ATTRIBUTE</target_attribute_type>
      </Field>
    </AttributeMap>
  </directory_attribute_map_entry>
</directory_attribute_map>
```

In this excerpt, for each `ENTERPRISE_USER`, the `givenname` LDAP attribute will be mapped to the `GIVENNAME` attribute in Oracle Beehive. Similarly, for each `STATIC_GROUP`, the `displayname` LDAP attribute will be mapped to the `NAME` attribute in Oracle Beehive.

Mapping Postal Addresses You may use the ORAPOSTAL user account address field scheme to map the postal address attributes of the users in your LDAP directory.

The ORAPOSTAL scheme contains the following fields:

- `l1`: Address line 1
- `l2`: Address line 2
- `box`: Post box number
- `cy`: City
- `st`: State
- `code`: Postal code
- `c`: Country

Map your LDAP postal address attributes to these fields. The following excerpt demonstrates how to map to the fields of the ORAPOSTAL scheme:

```
<Field>
  <source_attribute>l1=street?cy=l?st=st?code=postalcode?c=c</source_attribute>
  <target_attribute>BUSINESS</target_attribute>
  <target_extended_attribute>ORAPOSTAL</target_extended_attribute>
  <target_attribute_type>ADDRESS</target_attribute_type>
</Field>
```

In this excerpt, LDAP postal address attributes will be mapped to ORAPOSTAL fields as follows:

- `street` maps to `l1`
- `l` maps to `cy`
- `st` maps to `st`
- `postalcode` maps to `code`
- `c` maps to `c`

The entire postal address will be mapped to an address user account field (as specified by `<target_attribute_type>`) of type business (as specified by `<target_attribute>`).

Mapping Active Directory Proxy Addresses An Active Directory user's entry contains an attribute named `proxyAddresses` that holds all the e-mail addresses of a particular user.

The following is an example of a `proxyAddresses` attribute:

```
proxyAddresses: smtp:rholmes@example.com ;
SMTP:Robert.Holmes@example.com ; MBX:0 ; X400:c=US ; p=Example ;
s=Holmes ; g=Robert ; RFAX: Holmes, Robert @
```

Consider the following example:

```
<Field>
  <source_attribute>proxyAddresses</source_attribute>
  <target_attribute>PROXY</target_attribute>
  <target_extended_attribute>MAILTO</target_extended_attribute>
  <target_attribute_type>ADDRESS</target_attribute_type>
  <source_special_handling>PROXY</source_special_handling>
</Field>
```

If the `<source_special_handling>` element is omitted, UDS synchronization will map the Active Directory `proxyAddresses` value of a user to the Oracle Beehive address type `PROXY` with the scheme `MAILTO`. This creates the following:

```
proxy1:mailto:smtp:rholmes@example.com
proxy2:mailto:smtp:robert.holmes@example.com
...
proxy8:mailto:RFAX: Holmes, Robert
```

If the `<source_special_handling>` element is included, Oracle Beehive will only synchronize values that start with `smtp:` and remove the text `smtp:`. As a result, the actual values in Oracle Beehive become the following:

```
proxy1:mailto:rholmes@example.com
proxy2:mailto:robert.holmes@example.com
```

Consequently, the `<source_special_handling>` element properly formats Active Directory e-mail addresses for Oracle Beehive and ignores values that start with `MBX`, `RFAX`, and other protocols not used by Oracle Beehive. This kind of mapping enables you to incorporate your legacy e-mail addresses into Oracle Beehive by synchronizing it with Active Directory's method of inbound mail lookup resolution.

Mapping external_inbox Attribute You may synchronize the value of the UDS attribute `external_inbox` with an arbitrary attribute in your LDAP directory. If the value of `external_inbox` is true, then that user's e-mail messages will be routed somewhere other than his or her Personal Workspace Inbox.

Suppose you have created the attribute `orclBeehiveUserStatus` in your LDAP directory. You have configured `orclBeehiveUserStatus` to have a value of either `external-inbox` or `local-inbox`. You want `external_inbox` to be `true` if `orclBeehiveUserStatus` has a value of `external-inbox` and `external_inbox` to be `false` if `orclBeehiveUserStatus` has a value of `local-inbox` or `smtp`. You would use the following XML excerpt to represent this mapping:

```
<Field>
  <source_attribute>orclBeehiveUserStatus</source_attribute>
  <target_attribute>is_external_inbox</target_attribute>
  <target_attribute_type>ATTRIBUTE</target_attribute_type>
  <source_target_value_mapping>
    <value_mapping>
      <source_field_value>external-inbox</source_field_value>
      <target_field_value>true</target_field_value>
    </value_mapping>

    <value_mapping>
      <source_field_value>local-inbox</source_field_value>
      <target_field_value>false</target_field_value>
    </value_mapping>

  </source_target_value_mapping>
</Field>
```

If `is_external_inbox` is false for a particular user, any e-mail message addressed to that user that originates from Oracle Beehive's inbound virtual mail server (VMS) will be delivered to that user's inbox. Conversely, if `is_external_inbox` is true, then any e-mail messages addressed to that user will be redirected to Oracle Beehive's outbound VMS. Refer to "Managing Oracle Beehive E-mail" in *Oracle Beehive Administrator's Guide* for more information about Oracle Beehive VMSes. Refer to "Managing and Provisioning Oracle Beehive Users" for more information about `is_external_inbox` and other user properties.

Step G: Adding Profile to Oracle Beehive

A default directory profile is the one used by both authentication and UDS. This profile stores and reads LDAP server information from the site. For non-default directory profiles, the LdapServer object is stored within the profile itself.

For a default directory profile, the value of the `<profile_flag>` element (found in the `<profile>` element) is `DEFAULT`. For a non-default profile, the value is `NON_DEFAULT`.

Follow these steps to add a non-default directory profile:

1. Add the profile with the following `beectl` command:

   ```
   beectl add_directory_profile --file oidprofile_template.xml
   ```

   The utility may return an error similar to the following:

   ```
   Failed to add directory profiles. See the log file.
   ```

   The log file is `<`*`Oracle home`*`>/beehive/logs/oc4j/BEEMGMT/log.txt`.

2. Activate the configuration:

   ```
   beectl activate_configuration
   ```

To add a default directory profile, follow these steps:

1. Add the profile with the following `beectl` command:

   ```
   beectl add_directory_profile --file oidprofile_template.xml
   ```

2. Modify the `AuthStoreType` property of the Authentication Service to `ldap` with the `beectl modify_property` command. Refer to "Configuring Authentication Service to Use LDAP Server" for more information. (This is required so that the `beectl modify_local_configuration_files` works properly after you call `beectl add_directory_profile` to add the default profile.)

3. Activate the configuration and commit changes:

   ```
   beectl activate_configuration
   beectl modify_local_configuration_files
   ```

Modifying Directory Profile To modify a directory profile, follow these general steps:

1. Make changes to the existing LDAP mapping profile, then modify the directory profile with the command `beectl modify_directory_profile --file` *`<file name of modified LDAP mapping profile>`*.

Alternatively, you may modify the directory profile through Oracle Beekeeper or with the `beectl modify_property` command.

2. Activate the modified profile with the command `beectl activate_configuration`.
3. Run the command `beectl validate_directory_entry` to validate all your users and groups already synchronized with UDS:

```
beectl validate_directory_entry --all --profile exampleProfile --delete
```

After modifying the directory profile, you do not have to restart the LDAP server.

Notes: You may not delete a profile with which you have already loaded users and groups from your LDAP server to UDS.

Do not change the name of the profile; Oracle Beehive will treat a renamed profile as a new profile.

Changing Directory Profile to Default Profile or Non-Default Profile Follow these steps to change a directory profile to a default or non-default profile:

Changing Default Profile to Non-Default Profile

1. Download the existing LDAP mapping profile with the `beectl list_directory_profiles` command. The following example downloads the existing LDAP profile and saves it in the file `existing_profile.xml`:

```
beectl list_directory_profiles --file existing_profile.xml
```

These steps will use `existing_profile.xml` as the file name of your existing LDAP mapping profile.

2. Edit the file `existing_profile.xml` and change the value of `<profile_flag>` from `DEFAULT` to `NON_DEFAULT`.
3. Upload the LDAP mapping profile with the `beectl modify_directory_profile` command:

```
beectl modify_directory_profile --file existing_profile.xml
```

4. Modify the `AuthStoreType` property of the Authentication Service from `ldap` to `db` with the `beectl modify_property` command:

```
beectl modify_property --component _AuthenticationService --name AuthStoreType
--value db
```

5. Activate the configuration and commit changes:

```
beectl activate_configuration
beectl modify_local_configuration_files
```

Changing Non-Default Profile to Default

1. Download the existing LDAP mapping profile with the `beectl list_directory_profiles` command. The following example downloads the existing LDAP profile and saves it in the file `existing_profile.xml`:

```
beectl list_directory_profiles --file existing_profile.xml
```

These steps will use `existing_profile.xml` as the file name of your existing LDAP mapping profile.

2. Edit the file `existing_profile.xml` and change the value of `<profile_flag>` from `NON_DEFAULT` to `DEFAULT`.
3. Upload the LDAP mapping profile with the `beectl modify_directory_profile` command:

   ```
   beectl modify_directory_profile --file existing_profile.xml
   ```

4. Modify the `AuthStoreType` property of the Authentication Service from `db` to `ldap` with the `beectl modify_property` command:

   ```
   beectl modify_property --component _AuthenticationService --name AuthStoreType
   --value ldap
   ```

5. Activate the configuration:

   ```
   beectl activate_configuration
   ```

Directory Profile Validation When you add a directory profile, Oracle Beehive validates the following in the XML file:

1. LDAP credentials
2. `<poll_interval>`, `<profile_flag>`, and `<directory_type>`
3. The existence of `<user_search_base>` and `<group_search_base>` in your LDAP server
4. For `<scope_type_map>` and `<membership_type_map>`, the following are validated:
   a. `<source_field_type>` (either `DN` or `ATTRIBUTE`)
   b. `<source_field_value>`: If `<source_file_type>` is DN (if `<source_field_type>` is `ATTRIBUTE`, then this validation is skipped)
   c. Values defined in `<identifier>` are validated for their existence; if you have specified an invalid enterprise or organization identifier, then an appropriate error message is returned
5. For `<user_type_map>`, the following are validated:
   a. `<source_field_type>` (either `DN` or `ATTRIBUTE`)
   b. `<source_field_value>`: If `<source_file_type>` is `DN` (if `<source_field_type>` is `ATTRIBUTE`, then this validation is skipped)
   c. `<user_type>` (either `ENTERPRISE_USER`, `EXTENDED_ENTERPRISE_USER`, or `EXTERNAL_PERSON`)
6. For `<group_type_map>` the following are validated:
   a. `<source_field_type>` (either `DN` or `ATTRIBUTE`)
   b. `<source_field_value>`: If `<source_file_type>` is DN (if `<source_field_type>` is `ATTRIBUTE`, then this validation is skipped)
   c. `<group_type>` (only valid value is `STATIC_GROUP`)
7. For `<directory_attribute_map>` the following are validated:
   a. `<target_attribute>`: If `<source_object>` is `ENTERPRISE_USER` or `EXTENDED_ENTERPRISE_USER`, attribute mappings for the `PRINCIPAL` and `FAMILYNAME` target attributes must exist. If `<source_object>` is `STATIC_GROUP`, attribute mappings for the `NAME` target attribute must exist. If

`<source_object>` is `EXTERNAL_PERSON`, attribute mappings for the `FAMILYNAME` target attribute must exist.

b. `<target_attribute_type>`

c. `<target_extended_attribute>`

Step 2: Enabling Synchronization

Enable the synchronization profile with the following commands: These commands enable a profile named `oidldapdirectoryprofile`:

```
beectl list_properties --component oidldapdirectoryprofile
beectl modify_property --component oidldapdirectoryprofile
                       --name ProfileState --value ENABLE
beectl activate_configuration
```

Note: Your users will not be able to login yet, even though they are provisioned. Your users will able to login once you have completed the step described in "Configuring Authentication Service to Use LDAP Server".

Step 3: Loading Users and Groups

The following steps describe how to load all users and groups from the LDAP server to UDS:

1. Generate an XML file from the LDAP server based on the mapping profile you loaded into Oracle Beehive in the previous step. The following command will create a file named `UsersFromLDAP.xml` in your home directory based on the profile named `oidldapdirectoryprofile`:

```
beectl download_ldap_user_data
  --file UsersFromLDAP.xml
  --profile oidldapdirectoryprofile
```

Note: You do not need administrator privileges to the LDAP server in order to extract data from it. Therefore a normal user may run the `beectl download_ldap_user_data` command.

However, LDAP directories may impose a search limit for non-administrator users.

For example, if your OID server has 500 records, OID may impose a search limit of 200 records for non-administrator users. If you are a normal user, the `beectl download_ldap_user_data` command will return only 200 records. As a result, you will not be able to synchronize all your users.

Check your LDAP server documentation for maximum returned result limitations and how to manage them.

---

2. In a text editor, open the file you generated (`UsersFromLDAP.xml`), and check for the following:

   - `primary_principal` is mapped to the attribute your LDAP server is configured for authentication, for example, `sAMAccountName` for Active

Directory or `uid` (by default) for Oracle Internet Directory, otherwise authentication will fail

- Enterprise and organization identifiers are correct for your Oracle Beehive deployment and all the organizations already exist in Oracle Beehive
- The element `familyname` is defined and contains a value for each user

---

Notes: If you receive many errors or inconsistencies in the generated XML file, delete it, correct the LDAP mapping profile, and recreate the generated XML file.

---

3. Add the users in the generated XML file to Oracle Beehive with the `beectl add_user` command:

```
beectl add_user --file UsersFromLDAP.xml
  --ldapbootstrap
```

4. Make sure that the users were added successfully with the `beectl list_users` command:

```
beectl list_users
```

Controlling How Often UDS Contacts the LDAP Server

By default, UDS contacts the LDAP server's change log every 30 seconds for updates. You may change this interval in either of the following ways:

- In your LDAP mapping profile, change the value in the `<poll_interval>` tag.

  The following is an excerpt from an LDAP mapping profile with an interval set to 15 seconds:

```
<profile>
  <profile_name>oidldapdirectoryprofile</profile_name>
  <poll_interval>15</poll_interval>
  <profile_state>DISABLE</profile_state>
  <profile_flag>DEFAULT</profile_flag>
  <directory_type>ORACLE_INTERNET_DIRECTORY</directory_type>
  <ldap_server>
  <!-- ... -->
</profile>
```

  If you make any changes to your LDAP mapping profile, use the command `modify_directory_profile` to update the existing profile.

Notes: The value of the `<profile_flag>` element may be `DEFAULT` or `NON_DEFAULT`.

A DEFAULT profile is the one used by both authentication and UDS. This profile stores and reads LDAP server information from the site.

For NON_DEFAULT profiles, the LdapServer object is stored within the profile itself.

When adding a default profile, modify the `AuthStoreType` property of the Authentication Service to `ldap` with the `beectl modify_property` command. Refer to "Configuring Authentication Service to Use LDAP Server" and "Changing Directory Profile to Default Profile or Non-Default Profile" for more information. (This is required so that the `beectl modify_local_configuration_files` works properly after you call `beectl add_directory_profile` to add the default profile.)

- Use the `beectl modify_property` command. The following commands set the value of the property `PollInterval` to 15 seconds:

```
beectl list_properties --component oidldapdirectoryprofile
beectl modify_property
  --component oidldapdirectoryprofile
  --name PollInterval
  --value 15
beectl activate_configuration
```

Note: If the LDAP server's change log is cleaned up or purged more frequently than the UDS update frequency, data might be lost.

Retrieving Information About the LDAP Server

When you create a profile, Oracle Beehive creates an `LdapServer` configuration object. Use the `beectl list_properties` to get information about it:

```
beectl list_properties --component _CURRENT_SITE:LdapServer
----------------------------------------------------------------------
| Property Name                      | Property Value                 |
----------------------------------------------------------------------
| LdapServerHostName                 | ldapserver.com                 |
| LdapServerPort                     | 389                            |
| LdapServerSslPort                  | 636                            |
| SslEnabled                         | false                          |
| LdapServerUser                     | cn=orcladmin                   |
| LdapServerPassword                 | [Protected Value]              |
| SSLMode                            | 0                              |
| UserSearchBase                     | cn=users,dc=us,dc=oracle,dc=com |
| UserSearchBaseForSync              |                                |
| GroupSearchBase                    | cn=groups,dc=us,dc=oracle,dc=com |
| UserObjectClass                    |                                |
| GroupObjectClass                   |                                |
| PrimaryAuthenticationAttribute     | uid                            |
| PrimaryAuthenticationCredential    | not applicable                 |
| ProtocolAuthenticationAttribute    | not applicable                 |
| ProtocolAuthenticationCredential   | not applicable                 |
| VoiceAuthenticationAttribute       | not applicable                 |
| VoiceAuthenticationCredential      | not applicable                 |
| DirectoryType                     | ORACLE_INTERNET_DIRECTORY          |
| Alias                             | OracleInternetDirectory            |
-----------------------------------------------------------------------
```

Notes: You may have multiple `LdapServer` objects in an Oracle Beehive deployment if you have configured more than one LDAP mapping profile. The Authentication Service uses the `LdapServer` object set at the site level, which is created by the UDS mapping profile.

The site level `LdapServer` object may not have all required properties for authentication.

The following table describes the properties of the `LdapServer` object:

Table 19–2 LdapServer Properties

Property Name	Required	Description
LdapServerHostName	Required	LDAP server host name
LdapServerPort	Required	LDAP server port for non-SSL connections
LdapServerSslPort	Required	LDAP server port for SSL connections
SslEnabled	Required	If set to true, only SSL connections are used
LdapServerUser	Required	LDAP server user with bind and search privileges. This user must be able to look up attributes for all LDAP users provisioned to use Oracle Beehive
LdapServerPassword	Required	Password for LdapServerUser
SSLMode	Not used	Ignore this property
UserSearchBase	Required	User search base dn. The search scope is always subtree (recursive search).
GroupSearchBase	Required	Group search base dn. Search Scope is always subtree (recursive search).
UserObjectClass	Optional	Name of the user object class in the directory. This attribute is used to construct a search filter for the users. If this value is not specified, a default value is used, described in "Default UserObjectClass and GroupObjectClass Values".
GroupObjectClass	Optional	Name of the group object class in the directory. This attribute is used to construct a search filter for the groups. If this value is not specified, a default value is used, described in "Default UserObjectClass and GroupObjectClass Values".
PrimaryAuthenticationAttribute	Required	The name of the attribute the LDAP server uses to authenticate a user. For example, set this to `uid` for Oracle Internet Directory, or `sAMAccountName` for Active Directory.

Table 19–2 (Cont.) LdapServer Properties

Property Name	Required	Description
PrimaryAuthenticationCredential	Not used	Ignore this property
ProtocolAuthenticationAttribute	Not used	Ignore this property
ProtocolAuthenticationCredential	Not used	Ignore this property
VoiceAuthenticationAttribute	Not used	Ignore this property
VoiceAuthenticationCredential	Not used	Ignore this property

DirectoryType	Required	Indicates which specific LDAP directory is being configured. Valid values are the following:
		`ORACLE_INTERNET_DIRECTORY`
		`MICROSOFT_ACTIVE_DIRECTORY`
		`IBM_TIVOLI_DIRECTORY`
		`SUN_ONE_DIRECTORY`
		`OPENLDAP_DIRECTORY`

Alias	Optional	Alias for this LdapServer configuration object. Use this alias to refer to this LdapServer configuration object from `beectl`.

Default and Custom Object Classes for Users and Groups

UDS uses the values specified in the properties UserObjectClass and GroupObjectClass to determine whether an entity in your LDAP directory is a user or a group, respectively. The default schema of your LDAP directory uses a particular object class for users and another for groups. Oracle Beehive automatically sets UserObjectClass and GroupObjectClass to the name of the default object class used by the users and groups of your LDAP directory. Refer to "Default UserObjectClass and GroupObjectClass Values" for these default values.

However, if you are using a custom schema in your LDAP directory and have defined your users and groups with object classes other than the default ones for your directory, follow the steps described in "Specifying Non-Default User and Group Object Classes"

Default UserObjectClass and GroupObjectClass Values Depending on the LDAP directory type, the values of `UserObjectClass` and `GroupObjectClass` are set to one of the values specified in the following table, if those properties have not been explicitly set:

Table 19–3 Default UserObjectClass and GroupObjectClass Values

Directory/Property	UserObjectClass	GroupObjectClass
IBM_TIVOLI_DIRECTORY	inetOrgPerson	groupOfNames
MICROSOFT_ACTIVE_DIRECTORY	user	group
ORACLE_INTERNET_DIRECTORY	orclUserV2	orclGroup
SUN_ONE_DIRECTORY	inetOrgPerson	groupOfUniqueNames
OPENLDAP_DIRECTORY	inetOrgPerson	groupOfNames

Specifying Non-Default User and Group Object Classes Modify your LDAP mapping profile as described in "Modifying Directory Profile". In your LDAP mapping profile, include the elements `<user_objectclass>` and `<group_objectclass>` in the `<ldapserver>` section of your LDAP mapping profile.

For example, if the schema of your LDAP directory defines its users with the object class `BeehivePerson` and its groups with `BeehiveGroup`, you would modify your LDAP mapping profile as follows:

```
<ldap_server>
  <!-- ... -->
  <user_objectclass>BeehivePerson</user_objectclass>
  <group_objectclass>BeehiveGroup</group_objectclass>
</ldap_server>
```

Configuring Authentication Service to Use LDAP Server

The following steps describe how to configure the Authentication Service so that it uses your LDAP server. These steps assume that you have already enabled a synchronization profile for your LDAP server.

> **Notes:** If you are using Active Directory as your LDAP server, refer to "Active Directory Considerations" before proceeding with these steps.
>
> Before configuring the Authentication Service to use Active Directory, you must ensure that host names returned in an LDAP referral by Active Directory can be resolved by the Domain Name System (DNS) on the host on which you installed Oracle Beehive.
>
> If you installed Oracle Beehive Integration for Zimbra in a separate Oracle home other than Oracle Beehive, then after configuring the Authentication Service to use your LDAP server, run the `beectl modify_local_configuration_files` command on both your Oracle Beehive Integration for Zimbra and Oracle Beehive homes.

1. Modify the `AuthStoreType` property of the Authentication Service to `ldap` with the `beectl modify_property` command:

   ```
   beectl list_components --type AuthenticationService
   -------------------------------------------------
   | Component Type        | Component Identifier   |
   -------------------------------------------------
   | AuthenticationService | _AuthenticationService |
   -------------------------------------------------

   beectl modify_property --component _AuthenticationService
                          --name AuthStoreType --value ldap

   beectl activate_configuration

   beectl modify_local_configuration_files
   ```

   > **Note:** The `beectl modify_local_configuration_files` command will ask you to run this command on all your other instances. **Do not run this command on all your other instances at this time.** For each instance, make your desired changes to the `AuthStoreType` property and run `beectl activate_configuration` before running the `beectl modify_local_configuration_files` command.

2. To test the Authentication Service, log in with any user:

```
beectl login
  --authuser newuser
  --authpassword <Password of newuser, obfuscated. To use non-obfuscated
  passwords, run beectl in shell mode>
User newuser is successfully authenticated and logged in.
```

   To test connectivity with the LDAP server use either the commands `ldapbind` or `ldapsearch`. Refer to the documentation of your LDAP server for more information about these commands.

3. Grant administration privileges to another LDAP user or group in your system.

Note: Once you have changed `AuthStoreType` to `ldap`, you will not be able to login with the `beeadmin` account to administer your Oracle Beehive deployment.

Therefore, you should assign administration privileges to another LDAP user or group or assign the appropriate privileges to particular users or groups depending on the security policy of your site.

For more information about the `beeadmin` account, refer to the section "About Special and System-Reserved Accounts" in "Managing and Provisioning Oracle Beehive Users" in *Oracle Beehive Administrator's Guide*.

Configuring Digest Authentication

Digest authentication is an authentication method that involves using some known secrets (or passwords) from both the client and server to calculate a hash value. This hash value is transmitted instead of the actual secret (or password). One of the major benefits of digest authentication is that the password is not exposed while being transmitted.

To use digest authentication with a particular LDAP directory, the directory must be able to do one of the following:

- Store the user password in clear text or reversible encrypted form
- Store an A1 hash value of the password. An A1 hash value is an intermediate value used for the calculation of the authentication methods HTTP digest and SASL digest-MD5. The A1 hash value is created from a user's password, principal name (userid) and realm.

Configuring digest authentication, using an LDAP directory as the authentication repository, involves the following steps:

-
- Step B: Determine Digest Mechanism Depending on LDAP Directory
- Step C: Configure Oracle Beehive

For OpenLDAP Directory, refer to "Configuring Digest Authentication for OpenLDAP Directory".

Step A: Configure SSL for Oracle Beehive and LDAP Directory

Digest authentication requires that your Oracle Beehive instance and the corresponding LDAP server to be configured in SSL mode. Refer to "Configuring SSL" to configure your Oracle Beehive instance for SSL. Refer to the documentation of your LDAP directory to configure it in SSL mode.

Step B: Determine Digest Mechanism Depending on LDAP Directory

Determine the digest mechanism Oracle Beehive will use by referring to the following table. The digest mechanism used depends on the availability of a clear-text user password, reversible encrypted password, or a secure A1 hash value of the password. You may have to configure your LDAP directory to use certain digest mechanisms.

In the following table, each cell in the **Digest Mechanism** column specifies a digest mechanism and a list of password formats; the specified digest mechanism requires that your LDAP server is configured to store only **one** of these password formats.

Table 19–4 Supported Digest Authentication Mechanisms

Digest Mechanism	Active Directory	IBM Tivoli Directory	Oracle Internet Directory	Sun One Directory
SASL CRAM-MD5 ▪ Plain text ▪ Reversible encryption	Not supported; Active directory does not allow any passwords to be read; the password attribute is write-only	Supported	Supported	Supported
SASL Digest-MD5 ▪ Plain text ▪ Reversible encryption ▪ A1 hash value	Supported; extend the schema to store the A1 hash value	Supported	Supported	Supported; extend the schema to store the A1 hash value
HTTP Digest ▪ Plain text ▪ Reversible encryption ▪ A1 hash value	Supported; extend the schema to store the A1 hash value	Supported	Supported	Supported; extend the schema to store the A1 hash value
SyncML v1.0 Digest ▪ Plain text ▪ Reversible encryption	Not supported; Active directory does not allow any passwords to be read; the password attribute is write-only	Supported	Supported	Supported
Sync ML v1.1 Digest ▪ Plain text ▪ Reversible encryption	Not supported; Active directory does not allow any passwords to be read; the password attribute is write-only	Supported	Supported	Supported

Step C: Configure Oracle Beehive

These steps assume that you have already configured Oracle Beehive to authenticate with an LDAP directory.

1. Set the properties `UseSecureHash` and `AuthenticationRealm` in the `AuthenticationService` component:
   - `UseSecureHash`: Set this property to `true` to use the A1 hash value. Set this property to `false` to use the plain or reversible encrypted password. This depends on which digest authentication method you are going to use. Refer to Table 19–4, " Supported Digest Authentication Mechanisms".

- `AuthenticationRealm`: Default authentication realm. This value is returned to clients when digest authentication is initiated. For example, HTTP and SASL digest authentication requires that the realm value to be sent with the authentication challenge.

The following `beectl` commands set `UseSecureHash` to `true` and `AuthenticationRealm` to `myrealm@example.com`:

```
beectl modify_property
  --component _AuthenticationService
  --name UseSecureHash
  --value true

beectl modify_property
  --component _AuthenticationService
  --name AuthenticationRealm
  --value myrealm@example.com
```

2. Set the `DigestAuthenticationAttribute` property in the `LdapServer` configuration object. Refer to "Retrieving Information About the LDAP Server" for more information about this object.

   The `DigestAuthentication` property specifies which attributes from the user object (in the LDAP directory) are required for the digest authentication. This property can have multiple values. The format of the property value is *`<Mechanism Type>`*`:`*`<Attribute Name>`*. The following table lists the possible values for *`<Mechanism Type>`* and the type of attribute with which it is associated:

Table 19–5 Valid Digest Mechanism Type Values

***<Mechanism Type>* Value**	**Type of Attribute to Specify**
DEFAULT	Attribute name for reversible encrypted or plain password
SASL.DIGEST_MD5	Attribute name for SASL digest authentication
HTTP.DIGEST	Attribute name for HTTP digest authentication

For example, suppose you are using Oracle Internet Directory as your LDAP server. Oracle Internet Directory stores the user password in reversible encrypted format in the attribute `orclrevpwd`. If you have also specified that Oracle Internet Directory stores the A1 hash value in the attribute `authpassword;beehive`, set `DigestAuthenticationAttribute` as follows:

```
beectl modify_property
  --component <ID of LdapServer object>
  --name DigestAuthenticationAttribute
  --value DEFAULT:orclrevpwd
  --value SASL.DIGEST_MD5:authpassword;beehive
  --value HTTP.DIGEST:authpassword;beehive
```

> **Note:** To compute and set the A1 hash value, refer to the documentation of your LDAP server. You may also use a third-party tool to create this value or create this value yourself by using the information in RFC 2617, *HTTP Authentication: Basic and Digest Access Authentication*.

3. Activate the configuration and commit changes.

```
beectl activate_configuration
beectl modify_local_configuration_files
```

Configuring Digest Authentication for OpenLDAP Directory

If you are using OpenLDAP Directory, follow these steps to configure digest authentication:

1. Ensure your directory type is `OPENLDAP_DIRECTORY`, your Oracle Beehive instance is configured for SSL, and OpenLDAP Directory is in SSL mode.
2. Add the value `OPENLDAP_DIRECTORY:oracle.ocs.csi.authentication.handlers.impl.jaas.callback.impl.OcsLdapPasswordAccessor` to the list of values in the `PwdAccessorPlugin` property of the `_AuthenticationService` component:

   ```
   beectl append_value
     --component _AuthenticationService
     --name PwdAccessorPlugin
     --value OPENLDAP_DIRECTORY:oracle.ocs.csi.authentication.handlers.
             impl.jaas.callback.impl.OcsLdapPasswordAccessor
   ```

3. Ensure that you are storing user passwords as clear text (plain) in OpenLDAP. Simply use the `ldapmodify` command to add or modify a user's password.
4. Activate the configuration and commit changes.

   ```
   beectl activate_configuration
   beectl modify_local_configuration_files
   ```

Changing LDAP Administrator's Password

To change the administrator's password of an LDAP server synchronized with Oracle Beehive, follow these steps:

1. Stop Oracle Beehive with the `beectl stop --all` command.
2. Change the password of the LDAP administrator in your LDAP server.
3. Start Oracle Beehive with the `beectl start` command.
4. Change the password for the LDAP administrator in Oracle Beehive with the following command (obfuscate the password with the `beectl obfuscate` command.)

   ```
   beectl modify_secure_property
     --component <LdapServer of the profile>
     --name LdapServerPassword
     --value <Password of LDAP administrator, obfuscated>
     --obfuscated
   ```

5. Run the `beectl modify_local_configuration_files` command.

Oracle Internet Directory Considerations

This section covers the following topics:

- Synchronizing with Directory Replication Group
- Migrating Oracle Internet Directory from One Server to Another

- Troubleshooting Synchronization between Oracle Beehive and Oracle Internet Directory

Synchronizing with Directory Replication Group

A directory replication group (DRG) consists of the directory servers that participate in the replication of a given naming context. If you have synchronized Oracle Beehive with an Oracle Internet Directory server that belongs to a multimaster DRG, then ensure that the attribute `orclDIPRepository` is set to `true`.

This ensures changes made to any server in the multimaster DRG are synchronized with Oracle Beehive.

For more information about directory replication groups, refer to Chapter 29, "Oracle Internet Directory Replication Concepts" in *Oracle Internet Directory Replication Concepts*.

Migrating Oracle Internet Directory from One Server to Another

If you migrate an Oracle Internet Directory server (that is `synchronized` with Oracle Beehive) to another Oracle Internet Directory server, modify the LdapServer property in the `_CURRENT_SITE` component with the name of the new Oracle Internet Directory server:

```
beectl list_properties --component _CURRENT_SITE

...

| EventListenerDatabase      |                                        |
| SearchDatabase             |                                        |
| BusinessDatabase           |                                        |
| VirusScanEngineCluster     |                                        |
| SiteId                     | 17378                                  |
| LdapServer                 | OLD_OID_server_example.com             |
| LanguagePack               | byte array of size 656902              |
| ClusteringEnabled          | true                                   |
| DiagnosabilityProperties   | 1f90e-7b46-427c-a6ef-636bcbb88f89 |
| DebugProperties            | 19804e92-9028-49b3-af36-be4ac4abb4f5 |
| BtiGlobalConfiguration     |                                        |
| Name                       | R1                                     |

beectl modify_property --component _CURRENT_SITE
  --name LdapServer
  --value <new Oracle Internet Directory server>
beectl modify_change_number
  --profile <name of your LDAP profile>
  --number <Changelog number of your new Oracle Internet Directory server>
beectl activate_configuration
beectl modify_local_configuration_files
```

Troubleshooting Synchronization between Oracle Beehive and Oracle Internet Directory

- Check the files `oidldapd.log` and `oidrepld.log` from Oracle Internet Directory.
- To retrieve change log information, the Oracle Directory Integration Server Control tool (`odisrv`) must be up and running. Refer to Chapter 2, "odisrv" in *Oracle Identity Management User Reference*.

- Make sure that the `orcldiprepository` parameter is set to true. Refer to Chapter 9, "Oracle Identity Management Attribute Reference in *Oracle Identity Management User Reference*.
- Make sure that the value of `changeid` from the `bee_data.uds_sync_profile` table is updated with the `chg_no` value from `ods.ods_chg_log` (which is a table from the Oracle Internet Directory schema). For more information about this table, see the section "LDAP-Based Replication" in Chapter 29, "Oracle Internet Directory Replication Concepts" in *Oracle Internet Directory Administrator's Guide*.

  Note: Take the `chg_no` value from Oracle Internet Directory used with the cloned system and not the information from the LDAP server used by the production system.
- In Oracle Internet Directory, ensure that the attributes `krbaPrincipalName` and `orclUserApplnProvStatus` exist, otherwise create them. The `bulkload` bulk management tool might fail if these aren't defined.

  For more information about Oracle Internet Directory attributes, refer to Chapter 9, "Oracle Identity Management Attribute Reference in *Oracle Identity Management User Reference*.

  For more information about `orclUserApplnProvStatus`, refer to the section "Provisioning Status in Oracle Internet Directory" in Chapter 12, "Oracle Directory Integration Platform Service Concepts" in *Oracle Identity Management Integration Guide*.

  For more information about bulkload, refer to the section "bulkload" in Chapter 9, "Using Bulk Tools" in *Oracle Internet Directory Administrator's Guide*.
- For more information about troubleshooting Oracle Internet Database, refer to Appendix J, "Troubleshooting Oracle Internet Directory" in *Oracle Internet Directory Administrator's Guide*.

Active Directory Considerations

This section covers the following topics:

- Active Directory Administrator's Account
- LDAP Referrals

Active Directory Administrator's Account

Ensure that the user that you specified as the Active Directory administrator is not used by other applications. This may affect Oracle Beehive authentication.

In particular, if you notice a significant number of invalid credential errors in your Active Directory log files, ensure that the Active Directory administrator's account is not locked out or disabled.

LDAP Referrals

During authentication, the Oracle Beehive Authentication Service may request Active Directory to perform an operation, such as a search. When Active Directory has referrals enabled, instead of the search results, Active Directory may respond with an LDAP referral. This referral may point to an Active Directory instance on another host.

Ensure that the host names returned in the referral can be resolved by the Domain Name System (DNS) on the host on which you installed Oracle Beehive.

For more information about LDAP referrals, refer to the Active Directory documentation.

Troubleshooting General LDAP Synchronization Issues

Call the command `beectl validate_directory_entry` to reconcile any LDAP directory entries that are not synchronized with Oracle Beehive.

Note: To retrieve the LDAP DN of a user, use the `ldapsearch` command or other similar utility from your LDAP directory. You cannot use `beectl validate_directory_entry` to retrieve the DN of a synchronized user. In particular, if you change the DN of a synchronized user, you must use the new DN to validate that user with `beectl validate_directory_entry`. Oracle Beehive does not synchronize a user's DN.

Oracle Beehive uniquely identifies users (and all other entities) by their BODN (Beehive Object Distinguished Name), which has no relation to a user's LDAP DN. When you run the command `beectl list_users`, a user's BODN is specified by "User Identifier."

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Configuring SSL

This module describes various ways to configure Oracle Beehive with SSL. It covers the following topics:

- SSL Checklist
- Configuring SSL with Oracle Beehive
- Configuring SSL with Oracle Beehive DMZ Instances
- Procedures Related to Configuring SSL

Notes: Refer to "Configuring Oracle Beekeeper for SSL Access" to configure SSL for Oracle Beekeeper.

If you do not want to use SSL with your Oracle Beehive deployment, follow the steps described in "Installing Non-SSL Oracle Beehive Site".

If you have a load balancer supports SSL termination or offloading, you may offload SSL processing to your load balancer so that your Oracle Beehive instances do not have to decrypt SSL-encrypted data, thereby reducing the load of your Oracle Beehive instances. Refer to "Configuring SSL Termination at Load Balancer" in "Installing Oracle Beehive in High Availability Environment" for more information.

SSL Checklist

After following the steps described in this module, ensure the following for all your application tiers:

- A properly configured Oracle wallet resides in `<Oracle home>/Apache/Apache/conf/ssl.wlt/default` for each application tier.
- For each Oracle Beehive instance, the property `WalletDir` is set to the properly configured Oracle wallet. In addition, the property `WalletDir` refer to the same location for each application tier.
- Each Oracle Beehive instance's wallet contains a valid certificate.
- The file `<Oracle home of DMZ instance>/beehive/conf/bti.properties` is configured properly for each Oracle Beehive DMZ instance.
- The file `<Oracle home>/opmn/conf/opmn.xml` is configured properly for each application tier.

Configuring SSL with Oracle Beehive

This section covers the following procedures:

- Configuring SSL with Test Certificates for Oracle Beehive
- Configuring SSL with Self-Signed Certificates During Installation of Oracle Beehive
- Configuring SSL with Self-Signed Certificates After Installation of Oracle Beehive

Configuring SSL with Test Certificates for Oracle Beehive

The following steps describe how to configure SSL with test certificates during or after the installation of one or more Oracle Beehive instances:

1. Install your first Oracle Beehive instance, if you have not already done so.
2. By default, an Oracle wallet with test certificates for OPMN is created in Oracle Beehive. This Oracle wallet is located in `<Oracle Beehive home>/opmn/conf/ssl.wlt/default`.

   Copy the contents of `<Oracle Beehive home>/opmn/conf/ssl.wlt/default` to the `<Database home>/opmn/conf/ssl.wlt/default` directory. This will overwrite the Oracle wallet files in this directory.

   If you are using Oracle RAC, copy the contents of `<Oracle Beehive home>/opmn/conf/ssl.wlt/default` to the `<Database home>/opmn/conf/ssl.wlt/default` directory on each Oracle RAC node.
3. Configure TLS on your first Oracle Beehive instance. Refer to "Configuring TLS with Oracle Wallet".
4. Perform the post-install steps for configuring Oracle RAC except step 7 (Register for ONS Notification). Refer to "Post-Install Steps" in "Configuring and Installing Oracle Beehive for Oracle RAC"
5. Configure the virtual server of your Oracle Beehive instance with a load balancer. Refer to "Configuring High Availability Environment with Load Balancer" in "Installing Oracle Beehive in High Availability Environment".
6. If you have more than one Oracle Beehive instance, configure TLS on all your other Oracle Beehive instances. Refer to "Configuring TLS on Multiple Instances" in "Configuring TLS with Oracle Wallet".
7. Enable ORMIS on all your Oracle Beehive instances. Refer to "Enabling ORMIS with Password-Protected Oracle Wallet" in "Configuring TLS with Oracle Wallet".
8. Enable AJPS on all your Oracle Beehive instances. Refer to "Enabling AJPS".

Note: After configuring SSL with test (self-signed) certificates for an Oracle Beehive environment with multiple instances, you may receive an alert message similar to the following:

You have received an invalid certificate.... Your certificate contains the same serial number as another certificate issued by the certificate authority. Please get a new certificate containing a unique serial number.

In this scenario, create a self-signed certificate for each Oracle Beehive instance with a unique serial number. If you are using OpenSSL to create self-signed certificates, use the -set_serial option:

```
openssl x509 -req -in certreq.csr -CA cacert.crt -CAkey cakey.pem
  -CAcreateserial -set_serial 01 -days 365 > server.crt
```

For more information about creating self-signed certificates with OpenSSL (and then importing them into Oracle Wallet), refer to "Creating Self-Signed Certificate and Importing it into Wallet".

Configuring SSL with Self-Signed Certificates During Installation of Oracle Beehive

The following steps describe how to configure SSL with self-signed certificates during the installation of one or more Oracle Beehive instances:

1. Remove all test certificates using Oracle Wallet Manager from the wallet you created for Oracle Database in Step 1, if any. The order of removal should be (1) user certificate, (2) certificate request, and (3) trusted certificate.
2. For the wallet of Oracle Database you created in Step 1, create a self-signed server certificate for each Oracle RAC node using a root certificate (from a certificate authority). Import these self-signed server certificates as well as the root certificate to the wallet for Oracle Database. Refer to "Creating Self-Signed Certificate and Importing it into Wallet".
3. Install your first Oracle Beehive instance.
4. Configure TLS on your first Oracle Beehive instance. Refer to "Configuring TLS with Oracle Wallet".
5. Remove the test certificates using Oracle Wallet Manager from the wallets in Oracle Beehive. The order of removal should be (1) user certificate, (2) certificate request, and (3) trusted certificate. These wallets should be located in `<`*`Oracle Beehive home`*`>/opmn/conf/ssl.wlt/default` and `<`*`Oracle Beehive home`*`>/Apache/Apache/conf/ssl.wlt/default`.
6. For the wallet located in `<`*`Oracle Beehive home`*`>/opmn/conf/ssl.wlt/default`, create a self-signed server certificate for the Oracle Beehive server using a root certificate (from a certificate authority). Import this self-signed server certificate as well as the root certificate to this wallet. Refer to "Creating Self-Signed Certificate and Importing it into Wallet".

   Repeat this step for the wallet located in `<`*`Oracle Beehive home`*`>/Apache/Apache/conf/ssl.wlt/default`.
7. Perform the post-install steps for configuring Oracle RAC except Step 7 (Register for ONS Notification).
8. Configure the virtual server of each Oracle Beehive instances with a load balancer. Refer to "Configuring High Availability Environment with Load Balancer" in "Installing Oracle Beehive in High Availability Environment".

9. Install an additional Oracle Beehive instance (software only install). In the following steps, this instance will be referred to as the second instance.
10. Replace `orapki` and Oracle Wallet Manager (`owm`) binaries of the second instance with those from the first instance. Create new wallets located in `<Oracle Beehive new instance home>/opmn/conf/ssl.wlt/default` and `<Oracle Beehive new instance home>/Apache/Apache/conf/ssl.wlt/default`. Refer to "Configuring TLS with Oracle Wallet".
11. Remove test certificates using Oracle Wallet Manager from the wallets in `<Oracle Beehive new instance home>/opmn/conf/ssl.wlt/default` and `<Oracle Beehive new instance home>/Apache/Apache/conf/ssl.wlt/default`, if any. The order of removal should be (1) user certificate, (2) certificate request, and (3) trusted certificate.
12. Repeat Step 8 for the second instance.
13. Run the Config Wizard for the second instance and complete the configuration.
14. Configure TLS on all Oracle Beehive instances.
15. If you want to install another Oracle Beehive instance, repeat Steps 11 to 15.
16. Enable ORMIS on all Oracle Beehive instances. Refer to "Enabling ORMIS with Password-Protected Oracle Wallet" in "Configuring TLS with Oracle Wallet"
17. Enable AJPS on all Oracle Beehive instances. Refer to "Enabling AJPS".

Configuring SSL with Self-Signed Certificates After Installation of Oracle Beehive

The following steps describe how to configure SSL with self-signed certificates after the installation of one or more Oracle Beehive instances:

1. Remove all test certificates using Oracle Wallet Manager from the wallet you created for Oracle Database in Step 1, if any. The order of removal should be (1) user certificate, (2) certificate request, and (3) trusted certificate.
2. For the wallet of Oracle Database you created in Step 1, create a self-signed server certificate for each Oracle RAC node using a root certificate (from a certificate authority). Import these self-signed server certificates as well as the root certificate to the wallet for Oracle Database. Refer to "Creating Self-Signed Certificate and Importing it into Wallet".
3. Choose one of your Oracle Beehive instances on which to perform Steps 4 to 7 (you will repeat these steps on your other instances later). Configure TLS on the Oracle Beehive instance. Refer to "Configuring TLS with Oracle Wallet".
4. Remove the test certificates from the wallets of the Oracle Beehive instance. The order of removal should be (1) user certificate, (2) certificate request, and (3) trusted certificate. These wallets should be located in `<Oracle Beehive home>/opmn/conf/ssl.wlt/default` and `<Oracle Beehive home>/Apache/Apache/conf/ssl.wlt/default`.
5. For the wallet located in `<Oracle Beehive home>/opmn/conf/ssl.wlt/default`, create a self-signed server certificate for Oracle Beehive using a root certificate (from a certificate authority). Import this self-signed server certificate as well as the root certificate to this wallet. Refer to "Creating Self-Signed Certificate and Importing it into Wallet".

Repeat this step for the wallet located in *`<Oracle Beehive home>`*`/Apache/Apache/conf/ssl.wlt/default`.

6. If you have multiple Oracle Beehive instances, repeat Steps 4 to 7 for each of your instances.
7. Enable ORMIS on all Oracle Beehive instances. Refer to "Enabling ORMIS with Password-Protected Oracle Wallet" in "Configuring TLS with Oracle Wallet"
8. Enable AJPS on all Oracle Beehive instances. Refer to "Enabling AJPS".

Configuring SSL with Oracle Beehive DMZ Instances

This section covers the following procedures:

- Configuring SSL with Test Certificates After Installation of DMZ Instances
- Configuring SSL with Self-Signed Certificates After Installation of DMZ Instances

Configuring SSL with Test Certificates After Installation of DMZ Instances

The following steps describe how to configure SSL with test certificates during the installation of one or more Oracle Beehive instances:

1. Install your DMZ instance.
2. Configure Oracle Wallet for the DMZ instance. For more information, refer to "Step A: Configuring Oracle Wallet with Oracle Beehive DMZ Instances" in "Configuring Oracle Beehive Demilitarized Zone Instances". This step involves creating an Oracle Wallet for your DMZ instance and editing the file *`<Oracle home of DMZ instance>`*`/opmn/conf/opmn.xml` so that it refers to the new Oracle Wallet.
3. Follow the steps described in "Step B: Configuring Oracle Beehive DMZ Instances" in "Configuring Oracle Beehive Demilitarized Zone Instances"
4. Configure the virtual server of your Oracle Beehive DMZ instances with a load balancer. For more information, refer to "Configuring High Availability Environment with DMZ Instances and Load Balancer" in "Installing Oracle Beehive in High Availability Environment".

Configuring SSL with Self-Signed Certificates After Installation of DMZ Instances

The following steps describe how to configure SSL with self-signed certificates after the installation of one or more Oracle Beehive DMZ instances:

1. Install your DMZ instance.
2. Configure Oracle Wallet for the DMZ instance. For more information, refer to "Step A: Configuring Oracle Wallet with Oracle Beehive DMZ Instances" in "Configuring Oracle Beehive Demilitarized Zone Instances". This step involves creating an Oracle Wallet for your DMZ instance and editing the file *`<Oracle home of DMZ instance>`*`/opmn/conf/opmn.xml` so that it refers to the new Oracle Wallet.
3. For the wallet located in *`<Oracle Beehive DMZ home>`*`/opmn/conf/ssl.wlt/default`, create a self-signed server certificate for the Oracle Beehive DMZ instance using a root certificate (from a certificate authority). Import this self-signed server certificate as well as the root certificate to this wallet. For more information, refer to "Creating Self-Signed Certificate and Importing it into Wallet"

Repeat this step for the wallet located in *<Oracle Beehive DMZ home>*`/Apache/Apache/conf/ssl.wlt/default`.

4. Follow the steps described in "Step B: Configuring Oracle Beehive DMZ Instances" in "Configuring Oracle Beehive Demilitarized Zone Instances"
5. Configure the virtual server of your Oracle Beehive DMZ instances with a load balancer. For more information, refer to "Configuring High Availability Environment with DMZ Instances and Load Balancer" in "Installing Oracle Beehive in High Availability Environment".

Procedures Related to Configuring SSL

This section covers the following procedures related to configuring SSL:

- Creating Self-Signed Certificate and Importing it into Wallet
- Creating CA-Signed Certificate and Importing it into Wallet

Creating Self-Signed Certificate and Importing it into Wallet

The following steps create a self-signed server certificate and imports it into an Oracle Wallet. You may also create a certificate signed by a certificate authority (CA) and import that into an Oracle Wallet. Refer to "Creating CA-Signed Certificate and Importing it into Wallet" for more information.

You will be performing these steps for the wallet you created in the following procedures:

- "Configuring TLS with Oracle Wallet" (which creates a wallet for Oracle Beehive)
- "Step A: Configuring Oracle Wallet with Oracle Beehive DMZ Instances" (which creates a wallet for an Oracle Beehive DMZ instance)

1. Create your own certificate authority. This step uses OpenSSL. For more information about OpenSSL, refer to `http://www.openssl.org/`.

   On Linux and other UNIX-based operating systems, the command `openssl` is typically located in `/usr/bin`.

   ```
   openssl req -new -x509 -keyout cakey.pem -out cacert.crt -days 365
   ```

   This command generates two files named `cakey.pem` and `cacert.crt`.

2. Create and export a certificate request with Oracle Wallet Manager:

   a. Run Oracle Wallet manager, *<Oracle Beehive home>*`/bin/owm`. (Use *<Database home>*`/bin/owm` instead if you have not installed any Oracle Beehive instances.)

   b. Open the wallet (to which you want to add the certificate).

   c. Create a certificate request. Click the **Operations** tab. Click **Add Certificate Request**. Fill out the form. The **Common Name** should be the name of the server for which you are creating the certificate (such as the name of the Oracle RAC node). Click **OK**.

   d. Save the wallet.

   e. Click the **Operation** tab. Click **Export Certificate Request**. Enter the path and file name of the certificate request. These steps assume that the name of this file is `certreq.csr`. (Keep Oracle Wallet Manager open; you will use it in Step 4.)

3. From a command prompt, generate a server certificate with the following command:

   ```
   openssl x509 -req -in certreq.csr -CA cacert.crt -CAkey cakey.pem
     -CAcreateserial -days 365 > server.crt
   ```

   This command generates two files, `cacert.crt` and `server.crt` (which is the server certificate).

4. In Oracle Wallet Manager, click the **Operations** tab. Click **Import Trusted Certificate**. Select the file `cacert.crt`. Click **OK**.
5. Click **Import User Certificate**. Select the file `server.crt`. Click **OK**.
6. Repeat Steps 2 to 5 (except Step 1; you can use the same `cakey.pem` and `cacert.crt` files for other servers) for each server for which you want to create a certificate. (In particular, you would repeat these steps for each Oracle RAC node.)

Using Oracle Wallet to Create Self-Signed Certificate

Alternatively, you may use Oracle Wallet to create a self-signed certificate.

Add a self-signed certificate to the wallet with the following command:

```
orapki wallet add
  -wallet <Oracle home>/Apache/Apache/conf/ssl.wlt/default/
  -dn CN=user
  -keysize 2048
  -self_signed
  -validity 365
```

`CN=user` is the distinguished name of an arbitrary user who will be the certificate owner.

Creating CA-Signed Certificate and Importing it into Wallet

Alternatively, you may create a certificate signed by a certificate authority (CA), and import that into the Oracle Beehive wallet:

1. Add a certificate request to the Oracle Beehive wallet:

   ```
   orapki wallet add
     -wallet <Oracle home>/Apache/Apache/conf/ssl.wlt/default/
     -dn CN=user
     -keysize 2048
     -validity 365
   ```

   The directory *`<Oracle home>`*`/Apache/Apache/conf/ssl.wlt/default/` is the Oracle Beehive default wallet directory. `CN=user` is the distinguished name of an arbitrary user who will be the certificate owner.

2. Export the certificate request to a file:

   ```
   orapki wallet export
     -wallet <Oracle home>/Apache/Apache/conf/ssl.wlt/default/
     -dn CN=user
     -request certificate_request.txt
   ```

   The file `certificate_request.txt` is the exported certificate request.

3. With your certificate authority (CA) and your certificate request (`certificate_request.txt`), create a signed user certificate. In addition, export the trusted certificate from your CA. These steps use the file `user_certificate.txt` as the

signed user certificate and the file `trusted_certificate.txt` as the trusted certificate exported from your CA.

You may use Oracle Wallet as a CA for testing purposes by following these steps.

a. Create an auto-login wallet to act as a certificate authority. These steps assume that this wallet is stored in `/private/ca_wallet`. Create a signed certificate from the request for test purposes:

```
orapki cert create
  -wallet /private/ca_wallet
  -request certificate_request.txt
  -cert user_certificate.txt
  -validity 365
```

The file `user_certificate.txt` is the signed user certificate.

b. Export the trusted certificate from the CA wallet:

```
orapki wallet export
  -wallet /private/ca_wallet
  -dn CN=ca_user
  -cert trusted_certificate.txt
```

The file `trusted_certificate.txt` is the exported (test) trusted certificate from the CA wallet.

4. Add the trusted certificate from the CA to the Oracle Beehive wallet:

```
orapki wallet add
  -wallet <Oracle home>/Apache/Apache/conf/ssl.wlt/default/
  -trusted_cert
  -cert trusted_certificate.txt
```

5. Add the user certificate to the Oracle Beehive wallet:

```
orapki wallet add
  -wallet <Oracle home>/Apache/Apache/conf/ssl.wlt/default/
  -user_cert user_certificate.txt
```

Installing Non-SSL Oracle Beehive Site

The following steps describe how to install a non-SSL Oracle Beehive site in which none of its tiers communicate using SSL:

> **Note:** Because Oracle Beehive DMZ instances have SSL enabled by default, the following steps will not work for DMZ instances unless you configure them to receive non-SSL notifications as described in "Step B: Configuring Oracle Beehive DMZ Instances" in "Configuring Oracle Beehive Demilitarized Zone Instances".

1. Install your first Oracle Beehive application tier. Note that this application tier, by default, will have SSL disabled for Oracle Notification Service (ONS), which is used by OPMN of this application tier to communicate with other OPMNs in the site. In the next step, you will disable SSL (if necessary).

2. Ensure that the value of `NotificationServerSslEnabled` in the `_current_site:OpmnCluster` component in the first Oracle Beehive application tier is false:

```
beectl list_properties
  --component _current_site:OpmnCluster
  --name NotificationServerSslEnabled
```

If `NotificationServerSslEnabled` is true, then set it to false:

```
beectl modify_property
  --component _current_site:OpmnCluster
  --name NotificationServerSslEnabled
  --value false
  --activate_configuration
```

3. In the first Oracle Beehive application tier, set the value of `HttpServerSslEnabled` in the `_current_site:HttpServerCluster` component to false, then run `beectl modify_local_configuration_files`:

```
beectl modify_property
  --component _current_site:HttpServerCluster
  --name HttpServerSslEnabled
  --value false
  --activate_configuration

beectl modify_local_configuration_files
```

4. Install any additional Oracle Beehive application tiers. You do not need to perform any additional steps for these application tiers.

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Configuring TLS with Oracle Wallet

This module describes how to configure TLS (Transport Layer Security) with Oracle Wallet.

A wallet is a password-protected container that stores authentication and signing credentials, including private keys, certificates, and trusted certificates, all of which are used by SSL for strong authentication.

Oracle Wallet provides a TLS encrypted communication channel that some services support or require, such as XMPP, FTPS, and the Workflow Service. The following steps configure Oracle Beehive to use Oracle Wallet so that clients may access Oracle Beehive with a TLS connection.

- Step 1: Enabling Auto Login Mode for Default Wallet
- Step 2: Configuring Oracle Beehive Instance to Use Oracle Wallet

Refer to the section "Changing Oracle Wallet Password" to change the password of your Oracle Wallet.

Refer to the section "Configuring TLS on Multiple Instances" if you have more than one Oracle Beehive instance.

Refer to the section "Enabling ORMIS with Password-Protected Oracle Wallet" if you want to enable Oracle Remote Method Invocation over SSL.

Step 1: Enabling Auto Login Mode for Default Wallet

1. Ensure that the environment variable ORACLE_HOME is set to the home directory of Oracle Beehive.
2. Enable auto login mode for the default wallet with the following command. The default password for the default wallet is `welcome`:

```
<Oracle home>/bin/orapki wallet create
  -wallet <Oracle home>/Apache/Apache/conf/ssl.wlt/default/
  -auto_login -pwd welcome
```

Note: Alternatively, you may create a new wallet with auto login mode enabled. Use the same command except specify a different directory that does not contain a wallet. You may specify any password when creating a new wallet.

Step 2: Configuring Oracle Beehive Instance to Use Oracle Wallet

The following steps describe how to configure your Oracle Beehive instance to use Oracle Wallet.

1. Run the following `beectl` command:

   ```
   beectl modify_property
     --component beehive_instance_<instance>.<host name>
     --name WalletDir
     --value <Oracle home>/Apache/Apache/conf/ssl.wlt/default
   ```

   `<instance>` is the instance name you specified when you installed Oracle Beehive. To retrieve the full instance name, run the command `beectl list_components --type BeehiveInstance`.

   `<Oracle home>``/Apache/Apache/conf/ssl.wlt/default` is the location of the auto login wallet you configured or created previously.

2. Activate the configuration and restart by running the following `beectl` command:

   ```
   beectl activate_configuration
   ```

> **Notes:** If the `beectl activate_configuration` command asks you to run the `beectl modify_local_configuration_files` command, run this command.
>
> The `beectl modify_local_configuration_files` will ask you to run this command on all your other instances. **Do not run this command on all your other instances at this time.** For each instance, you must perform steps 1 and 2 before running the `beectl modify_local_configuration_files` command.

Changing Oracle Wallet Password

Refer to "Changing the Password" in Chapter 11, "Managing Wallets and Certificates" in *Oracle Application Server Administrator's Guide*. This involves using Oracle Wallet Manager. Run *`<Oracle home>`*`/bin/owm` to run Oracle Wallet Manager.

Configuring TLS on Multiple Instances

For each instance, run all the steps required to configure TLS with Oracle Wallet.

Enabling ORMIS with Password-Protected Oracle Wallet

ORMIS is ORMI over SSL or Oracle Remote Method Invocation over Secure Socket Layer. For more information about ORMIS, refer to "Using ORMI/SSL (ORMIS) in OC4J" in Chapter 6, "Using Remote Method Invocation" in *Oracle Containers for J2EE Services Guide*.

By default, Oracle Beehive is ORMIS enabled using an anonymous cipher suite.

This section covers the following topics:

- Disable ORMIS
- Enable ORMIS with Default SSL
- Enable ORMIS with Password Protection

Disable ORMIS

1. Modify the property _CURRENT_SITE:ManagedOc4jCluster:OrmisEnabled to false and activate the configuration:

```
beectl modify_property
  --component _CURRENT_SITE:ManagedOc4jCluster
  --name OrmisEnabled
  --value false
```

2. Activate the configuration:

```
beectl activate_configuration
```

3. Run the command `beectl modify_local_configuration_files`. This command may restart your application tier:

```
beectl modify_local_configuration_files
```

Enable ORMIS with Default SSL

1. Modify the property _CURRENT_SITE:ManagedOc4jCluster to true and activate the configuration:

```
beectl modify_property
  --component _CURRENT_SITE:ManagedOc4jCluster
  --name OrmisEnabled
  --value true
```

2. Activate the configuration:

```
beectl activate_configuration
```

3. Run the command `beectl modify_local_configuration_files`. This command may restart your application tier:

```
beectl modify_local_configuration_files
```

Enable ORMIS with Password Protection

1. Create a wallet as described in this module.
2. Modify the property _CURRENT_SITE:ManagedOc4jCluster to true:

```
beectl modify_property
  --component _CURRENT_SITE:ManagedOc4jCluster
  --name OrmisEnabled
  --value true
```

3. Modify the property WalletDir of your Oracle Beehive instance to the path of your Oracle Wallet directory you just created with the following `beectl` commands:

```
beectl list_components --type BeehiveInstance
-------------------------------------------------------
| Component type      | Component identifier         |
-------------------------------------------------------
| BeehiveInstance     | beehive_instance_example.com |
...

beectl modify_property
  --component beehive_instance_example.com
  --name WalletDir
  --value <Your wallet directory>
```

```
Successfully stored the property for component id
09386579-b66c-41d7-96e6-88f44673ec55.
```

4. Set the wallet password:

```
beectl modify_secure_property
  --component <Component ID or alias of your Oracle Beehive instance; for
             example, the previous step used beehive_instance_example.com>
  --name WalletPassword
```

   This command will prompt you for the wallet password.

5. Activate the configuration:

```
beectl activate_configuration
```

6. Run the command `beectl modify_local_configuration_files`. This command may restart your application tier:

```
beectl modify_local_configuration_files
```

22

Configuring SSL for LDAP Integration

This module describes how to configure Oracle Beehive LDAP-based authentication with certificate authority (CA) verification. It covers the following topics:

- Requirements
- Configure SSL for LDAP Verification
- Configure Apache HTTP Server for WebDAV Folders

Requirements

Complete these tasks before configuring SSL for LDAP integration:

1. Configure your LDAP server for SSL so that your directory server authenticates itself to the client. If you are using Oracle Internet Directory as your LDAP server, choose SSL Server Authentication as your SSL authentication method. For more information, refer to Section 17.4.2, "Configure Oracle Internet Directory for SSL" in Chapter 17, "Secure Sockets Layer (SSL) and the Directory" in *Oracle Internet Directory Administrator's Guide*.

2. Request a certificate from your CA for your Oracle Beehive instance. When the CA sends the signed user certificate and its associated trusted certificate, import them into a wallet configured for your Oracle Beehive instance. Enable auto login for the wallet.

   To configure an Oracle Beehive instance to use a wallet, refer to "Configuring TLS with Oracle Wallet". Refer to the following sections in *Oracle Application Server Administrator's Guide* for more information about certificates, importing certificates into Oracle Wallet, and enabling auto login:

   - Section 10.5, "Certificates and Oracle Wallets" in Chapter 10, "Overview of Secure Sockets Layer (SSL) in Oracle Application Server"
   - Section 11.1.3, "How to Create a Complete Wallet: Process Overview" and Section 11.1.4.14, "Using Auto Login" in Chapter 11, "Managing Wallets and Certificates"

   You may use Oracle Application Server Certificate Authority as your CA. For more information, refer to *Oracle Application Server Certificate Authority Administrator's Guide*.

3. Configure LDAP with Oracle Beehive as described in "Integrating and Synchronizing LDAP with Oracle Beehive".

Configure SSL for LDAP Verification

Follow these steps to specify that your LDAP server is SSL-enabled and the location of your wallet that contains your CA certificates.

1. Get the value of `LdapServer` of your LDAP directory. This example assumes that you are using Oracle Internet Directory as your directory:

```
beectl list_properties --component oidldapdirectoryprofile
---------------------------------------------------------------------------
| Property name          | Property value                                 |
---------------------------------------------------------------------------
| LdapServer             | oidldapdirectoryprofile_example.com            |
| PollInterval           | 15                                             |
| DirectoryAttributeMap  | c1bd400e-8dbe-4cf1-97c5-89b725c02f7b           |
| ProfileState           | DISABLE                                        |
| DefaultFlag            | DEFAULT                                        |
| ProfileMode            | SYNC                                           |
| EnterpriseMap          | dd33e82e-6842-4b24-8bf7-9a7b968ac9f1           |
| UserTypeMap            | fca1999e-7b1d-4c05-9e19-b71e52ed9c25           |
| GroupTypeMap           | 35571103-caaf-4d7a-8601-90e81a5be389           |
| Alias                  | oidldapdirectoryprofile                        |
---------------------------------------------------------------------------
```

2. In the `LdapServer` object, set the value of `SslEnabled` to `true`:

```
beectl modify_property
  --component oidldapdirectoryprofile_example.com
  --name SslEnabled
  --value true
Changes to configuration repository are not activated.
Successfully stored the property for component id
9d2cc036-01a3-4ee6-94c8-c90311624070.
```

3. Get the name of your Oracle Beehive instance:

```
beectl list_components --type BeehiveInstance
-------------------------------------------------------
| Component type       | Component identifier         |
-------------------------------------------------------
| BeehiveInstance      | beehive_instance_example.com |
```

4. In your Oracle Beehive instance, set the value of `WalletDir` to the location of the wallet that contains your CA certificates:

```
beectl modify_property
  --component beehive_instance_example.com
  --name WalletDir
  --value <Your wallet directory>
Successfully stored the property for component id
09386579-b66c-41d7-96e6-88f44673ec55.
```

5. Run the following commands to activate your changes:

```
beectl activate_configuration
beectl modify_local_configuration_files
```

6. Restart `BEECORE`:

```
beectl restart --component BEECORE_example.com
```

Configure Apache HTTP Server for WebDAV Folders

After you have configured Oracle Beehive authentication with CA verification, users may get the following request every time they perform an operation on a WebDAV folder: "Choose a digital certificate. The website you want to view requests identification. Please choose a certificate."

Follow these steps to eliminate this request:

1. Run the following beectl commands:

```
beectl list_components --type HttpServer

-----------------+------------------------------------------------------------
Component type   | Component identifier
-----------------+------------------------------------------------------------
HttpServer       | ohs_site1.example.com
-----------------+------------------------------------------------------------

beectl modify_property
  --component ohs_site.example.com
  --name DocRootLimitExcept
  --value GET POST OPTIONS
```

2. Run the following commands to activate your changes:

```
beectl activate_configuration
beectl modify_local_configuration_files
```

With this change, when the WebDAV folder issues the OPTIONS HTTP access method on the document root, Apache HTTP Server will return 200 status and not issue the request for a client certificate.

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Enabling AJPS

This module describes how to enable (and disable) secure Apache JServ Protocol (AJPS), so that it could be used instead of HTTP for communication between Oracle HTTP Server and OC4J.

By default, AJPS is not enabled when you install Oracle Beehive.

This module covers the following topics:

- Enabling AJPS
- Disabling AJPS

Enabling AJPS

These steps involve creating wallets and certificates. Because both of these are specific to an Oracle Beehive instances, you must perform the following steps on every Oracle Beehive instance:

1. Create a keystore with an RSA private/public key pair using the `keytool` utility.

   Note: A keystore stores certificates, including the certificates of all trusted parties, for use by an application. Through its keystore, an entity such as OC4J (for example) can authenticate other parties, as well as authenticate itself to other parties. (Oracle HTTP Server uses a wallet for the same purpose.

   In Java, a keystore is a java.security.KeyStore instance that you can create and manipulate using the `keytool` utility that is provided with the Sun Microsystems JDK. The underlying physical manifestation of this object is a file.

   For more information about the keytool utility, refer to `http://java.sun.com/j2se/1.5.0/docs/tooldocs/solaris/keytool.html`.

   For additional information, refer to "Using Keys and Certificates with OC4J and Oracle HTTP Server" and "Using SSL with Standalone OC4J" in Chapter 15, "SSL Communication with OC4J" in *Oracle Containers for J2EE Security Guide*.

   The following example generates a keystore in a file named `mykeystore.jks`, which has a password of `123456`, using the RSA key pair generation algorithm:

   ```
   <Oracle home>/jdk/bin/keytool -genkey -keyalg RSA
     -keystore mykeystore.jks -storepass 123456
   ```

In this utility:

- The `keystore` option sets the filename where the keys are stored.
- The `storepass` option sets the password for protecting the keystore. You can optionally omit this from the command line and be prompted for a password instead.

The `keytool` utility prompts you for additional information, as follows:

```
What is your first and last name?
  [Unknown]:  Test User
What is the name of your organizational unit?
  [Unknown]:  Support
What is the name of your organization?
  [Unknown]:  Oracle
What is the name of your City or Locality?
  [Unknown]:  Redwood Shores
What is the name of your State or Province?
  [Unknown]:  CA
What is the two-letter country code for this unit?
  [Unknown]:  US
Is <CN=Test User, OU=Support, O=Oracle, L=Redwood Shores, ST=CA, C=US> correct?
  [no]:  yes

Enter key password for <mykey>
        (RETURN if same as keystore password):
```

Note: Always press `RETURN` for the key password. The keystore password must be the same as the key entry password.

The `mykeystore.jks` file is created in the current directory. The default alias of the key is `mykey`.

2. Export the certificate from the keystore you just created to a file with the `keytool` utility. The following example exports the certificate into a file named `/home/user/cert.txt`:

```
<Oracle home>/jdk/bin/keytool -export -file /home/user/cert.txt
  -keystore mykeystore.jks -storepass 123456
```

Ensure you specify the same password you used to create the keystore.

3. Import the certificate file into Oracle Wallet.

   a. If you have not already done so, create a wallet and configure it for Oracle Beehive by following the steps described in "Configuring TLS with Oracle Wallet".

   b. Use Oracle Wallet Manager to import the certificate. Select **Menu**, **Operations**, **Import Trusted Certificate**. Save the wallet.

4. Modify the KeystoreFile property of your Oracle Beehive instance:

```
beectl modify_property
  --component <Oracle Beehive instance identifier>
  --name KeystoreFile
  --value <full path name of the keystore file>
```

For example, if the identifier of your Oracle Beehive instance is `beehive_instance_instance1.example.com` and the full path name of your keystore file is `/home/user/mykeystore.jks`, then run the following command:

```
beectl modify_property
  --component beehive_instance_instance1.example.com
  --name KeystoreFile
  --value /home/user/mykeystore.jks
```

To retrieve the identifier of your Oracle Beehive instance, call the following command, where `example.com` is the host name of your Oracle Beehive instance:

```
beectl list_properties --component example.com

-------------------+---------------------------------------------------------
Property name      | Property value
-------------------+---------------------------------------------------------
PrimaryHostName    | example.com
-------------------+---------------------------------------------------------
Site               | _CURRENT_SITE
-------------------+---------------------------------------------------------
AlternateHostNames |
-------------------+---------------------------------------------------------
BeehiveInstances   | beehive_instance_instance1.example.com
-------------------+---------------------------------------------------------
Alias              | example.com
-------------------+---------------------------------------------------------
```

5. Modify the KeystoreFilePassword property (the command will prompt you for the password):

```
beectl modify_secure_property
  --component <Oracle Beehive instance identifier>
  --name KeystoreFilePassword
  --value
```

6. Modify the AjpsEnabled property of the ManagedOc4jCluster object if it is false:

```
beectl modify_property
  --component _CURRENT_SITE:ManagedOc4jCluster
  --name AjpsEnabled
  --value true
```

7. Modify the AjpsEnabled property of the HttpServerCluster object if it is false:

```
beectl modify_property
  --component _CURRENT_SITE:HttpServerCluster
  --name HttpServerSslEnabled
  --value true
```

8. Commit configuration changes by calling the following `beectl` command:

```
beectl activate_configuration
```

Note: If the `beectl activate_configuration` command asks you to run the `beectl modify_local_configuration_files` command, run this command. The command may restart your application tier.

Disabling AJPS

1. Set the AjpsEnabled property of the ManagedOc4jCluster object to false (this example also commits configuration changes):

```
beectl modify_property
  --component _CURRENT_SITE:ManagedOc4jCluster
  --name AjpsEnabled
  --value false
  --activate_configuration true
```

2. Modify local files (the following command may restart the application tier):

```
beectl modify_local_configuration_files
```

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Configuring E-Mail with SSL

You may add and configure multiple sending SMTP and receiving IMAP endpoints. As a result, you may configure Oracle Beehive e-mail so that SMTP and IMAP both listen on multiple ports; in particular, you may have SMTP and IMAP ports secured with Secure Socket Layer (SSL), and other ports with SSL not enabled.

The following topics are covered in this module:

- Securing E-Mail with SSL
- Enabling Both Non-SSL and SSL Ports
- Adding an Endpoint to SMTP
- Modifying an Endpoint in SMTP
- Modifying or Adding an Endpoint in IMAP
- Creating and Configuring an Endpoint
- Configuring E-Mail Client

Notes: The steps in this module involve changing the property AssumeSingleEndpoint to false in SMTPProperty and IMAPProperty, properties that store e-mail ports and endpoints.

If AssumeSingleEndpoint is true, then it will use the port number defined in SMTPProperty or IMAPProperty.

SMTPProperty and IMAPProperty contain a property named EndpointPropertiesList that contains a list of endpoints. If AssumeSingleEndpoint is false, then the port number defined in SMTPProperty or IMAPProperty will be ignored. Instead, the port numbers defined in the endpoints contained in EndpointPropertiesList will be used.

If you use the command `beectl modify_port` to change an e-mail port, the command assumes you want to use only one e-mail port. As a result, the command sets AssumeSingleEndpoint to true and modifies the port number defined in SMTPProperty or IMAPProperty.

Securing E-Mail with SSL

To secure Oracle Beehive e-mail with SSL, follow these steps:

1. Modify the endpoint in SMTP so that it uses an SSL-enabled port. Follow the directions in "Modifying an Endpoint in SMTP".

2. Modify the endpoint in IMAP so that it uses an SSL-enabled port. Follow the directions in "Modifying an Endpoint in SMTP" except use the property IMAPProperty in place of SMTP property.

> **Note:** You may call the command `beectl activate_configuration` after modifying the endpoints in SMTP and IMAP, instead of calling it twice (once after modifying SMTP and again after modifying IMAP.)

Enabling Both Non-SSL and SSL Ports

1. Add or modify the endpoints in SMTP so that there are two endpoints: one endpoint that has an SSL-secured port, and one endpoint that has a non-SSL port. To add an endpoint to SMTP, refer to "Adding an Endpoint to SMTP". To modify an endpoint in SMTP, refer to "Modifying an Endpoint in SMTP".
2. Add or modify the endpoints in IMAP so that there are two endpoints: one endpoint that has an SSL-secured port, and one endpoint that has a non-SSL port. To add or modify an endpoint in IMAP, refer to "Modifying or Adding an Endpoint in IMAP".

> **Note:** You may call the command `beectl activate_configuration` after making all your modifications in SMTP and IMAP instead of calling the command every time you make a change to either SMTP or IMAP.

Modifying an Endpoint in SMTP

1. If you want to modify the endpoint so that its port is SSL-enabled, follow the directions described in "Configuring TLS with Oracle Wallet" (if you have not already done so.)
2. Set AssumeSingleEndpoint to `false` in SMTPProperty by calling the following `beectl` commands.

> **Note:** Setting AssumeSingleEndpoint to false in SMTPProperty disables the non-SSL port specified in SMTPProperty. (In the following example, the non-SSL port number is 25.) Instead, the configuration specified in the property EndpointPropertiesList (of SMTPProperty) is used.
>
> The property EndpointPropertiesList contains endpoint objects. Each endpoint specifies a port that SMTPProperty uses (if AssumeSingleEndpoint is false). For each endpoint object, you may also specify whether the port is SSL-enabled or not.

```
beectl list_properties --component _EmailService:SMTPProperties

-------------------------+-----------------------------------------------------
Property name            | Property value
-------------------------+-----------------------------------------------------
Alias                    |
-------------------------+-----------------------------------------------------
AssumeSingleEndpoint     | true
```

```
------------------------+---------------------------------------------------
...
beectl modify_property --component _EmailService:SMTPProperties
  --name AssumeSingleEndpoint
  --value false
Changes to configuration repository are not activated.
Successfully stored the property for component id
  bf429057-98d4-4990-928d-a90dd6466832.
```

3. Choose an endpoint to modify from EndpointProperties list. Set EndpointScheme to `MX:\*:`*`<port number>`* or `MXS:\*:`*`<port number>`*, where *`<port number>`* is any port number not being used. Use `MX` if you do not want the port to be SSL-enabled, `MXS` otherwise. The following example sets EndpointScheme to `MXS:\*:2226`:

```
beectl list_properties --component _EmailService:SMTPProperties

...
| EndpointPropertiesList | 4aa9767b-5110-4392-8717-a3c57724986b , |
|                        | f477dfe5-400d-41a2-b2a5-394ebba67293   |
...
beectl list_properties --component 4aa9767b-5110-4392-8717-a3c57724986b

...
| EndpointScheme       | MX:*:25              |
...

beectl modify_property --component 4aa9767b-5110-4392-8717-a3c57724986b
  --name EndpointScheme
  --value MXS:\*:2226
Changes to configuration repository are not activated.
Successfully stored the property for component id
  4aa9767b-5110-4392-8717-a3c57724986b.
```

4. Commit configuration changes by calling the following `beectl` commands:

```
beectl activate_configuration
```

Notes: If the `beectl activate_configuration` command asks you to run the `beectl modify_local_configuration_files` command, run this command.

The `beectl modify_local_configuration_files` command will ask you to run this command on all your other instances.

Adding an Endpoint to SMTP

1. If you want to add an endpoint with an SSL-enabled port, follow the directions described in "Configuring TLS with Oracle Wallet".
2. Set AssumeSingleEndpoint to `false` in SMTPProperty by calling the following `beectl` commands.

Note: Setting AssumeSingleEndpoint to false in SMTPProperty disables the non-SSL port specified in SMTPProperty. (In the following example, the non-SSL port number is 25.) Instead, the configuration specified in the property EndpointPropertiesList (of SMTPProperty) is used.

The property EndpointPropertiesList contains endpoint objects. Each endpoint specifies a port that SMTPProperty uses (if AssumeSingleEndpoint is false). For each endpoint object, you may also specify whether the port is SSL-enabled or not.

```
beectl modify_property --component _EmailService:SMTPProperties
  --name AssumeSingleEndpoint
  --value false
Changes to configuration repository are not activated.
Successfully stored the property for component id
  bf429057-98d4-4990-928d-a90dd6466832.
```

3. Create and configure a new endpoint object as described in "Creating and Configuring an Endpoint". You will need the object ID of this endpoint object for the next step.

4. Add the new endpoint to the EndpointPropertiesList of SMTPProperties. Specify the new endpoint's object ID in the `--component` option:

```
beectl append_value --component bf429057-98d4-4990-928d-a90dd6466832
  --name EndpointPropertiesList
  --value f477dfe5-400d-41a2-b2a5-394ebba67293
Changes to configuration repository are not activated.
Successfully appended the value(s) to property EndpointPropertiesList.

beectl list_properties --component bf429057-98d4-4990-928d-a90dd6466832
--------------------------------------------------------------------
| Property Name           | Property Value                         |
--------------------------------------------------------------------
| Port                    | 25                                     |
| *AssumeSingleEndpoint   | false                                  |
| *EndpointPropertiesList | 4aa9767b-5110-4392-8717-a3c57724986b , |
|                         | f477dfe5-400d-41a2-b2a5-394ebba67293   |
...
NOTE:- * indicates that property value is changed and change is not yet
activated.
```

5. Commit configuration changes by calling the following `beectl` commands:

```
beectl activate_configuration
```

Notes: If the `beectl activate_configuration` command asks you to run the `beectl modify_local_configuration_files` command, run this command.

The `beectl modify_local_configuration_files` command will ask you to run this command on all your other instances.

Modifying or Adding an Endpoint in IMAP

Perform the steps described in or "Modifying an Endpoint in SMTP" or "Adding an Endpoint to SMTP" except use the property IMAPProperty in place of SMTPProperty.

Creating and Configuring an Endpoint

1. Create a new endpoint object with the `beectl add_configuration_object` command. This command will return the endpoint object's ID. use this ID to configure the endpoint and view its properties:

```
beectl add_configuration_object
  --type 'oracle.ocs.management.model.EmailService.EndpointProperties'
Successfully created configuration object of type
  oracle.ocs.management.model.EmailService.EndpointProperties. This object
  can be referenced by the object-id displayed below.
Changes to configuration repository are not activated.
CONFIG_OBJECT_ID=f477dfe5-400d-41a2-b2a5-394ebba67293
```

> **Note:** Use single quotes (`'`) instead of double quotes (`"`) for the `--type` option. Some command line shells may interpret strings enclosed in double quotes as variables.

2. Modify the values of the new endpoint object: The following example sets the property EndpointName to `My New Endpoint`, and EndpointScheme to `MX:\*:2227`, where 2227 is a random port that is not being used.

> **Note:** To secure this endpoint with SSL, set EndpointScheme to `MXS:\*:`*`<port number>`*. Use `MX` instead of `MXS` if you do not want it SSL-secured.
>
> For example, if you want your endpoint to listen on port 2227 and secure it with SSL, you would set EndpointScheme to `MXS:\*:2227`

```
beectl list_properties --component f477dfe5-400d-41a2-b2a5-394ebba67293
-----------------------------------------------
| Property Name         | Property Value       |
-----------------------------------------------
| EndpointName          | default              |
| EndpointScheme        | default              |
| Alias                 |                      |
-----------------------------------------------

beectl modify_property --component f477dfe5-400d-41a2-b2a5-394ebba67293
  --name EndpointName --value "My New Endpoint"
Changes to configuration repository are not activated.
Successfully stored the property for component id
  f477dfe5-400d-41a2-b2a5-394ebba67293.

beectl modify_property  --component f477dfe5-400d-41a2-b2a5-394ebba67293
  --name EndpointScheme --value MX:\*:2227
Changes to configuration repository are not activated.
Successfully stored the property for component id
  f477dfe5-400d-41a2-b2a5-394ebba67293.
```

```
beectl list_properties --component f477dfe5-400d-41a2-b2a5-394ebba67293
----------------------------------------------
| Property Name        | Property Value       |
----------------------------------------------
| EndpointName         | My New Endpoint      |
| EndpointScheme       | MX:*:2227            |
| Alias                |                      |
----------------------------------------------
```

Configuring E-Mail Client

In your e-mail client, configure your Oracle Beehive e-mail account so that the SMTP and IMAP servers use SSL and the new port numbers you specified. If you are using Outlook Express, follow these steps:

1. From the menu bar, click **Tools**, then **Accounts...**.
2. In the **Internet Accounts** window, select your Oracle Beehive e-mail account and click **Properties**.
3. Click the **Advanced** tab.

   For **Outgoing mail (SMTP)**, enter the port number of your SSL-enabled SMTP endpoint. For example, if the EndpointScheme of your SSL-enabled SMTP endpoint is MXS:*:2226, you would enter `2226`. Select the check box **This server requires a secure connection (SSL)**.

   For **Incoming Mail (IMAP)**, enter the port number of your SSL-enabled IMAP endpoint. `5144.` For example, if the EndpointScheme of your SSL-enabled IMAP endpoint is MXS:*:5144, you would enter `5144`. Select the check box **This server requires a secure connection (SSL)**.

   Click **OK**.

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Configuring XMPP

Extensible Messaging and Presence Protocol (XMPP) is an open XML technology for presence and real-time communication. For users to authenticate against Oracle Beehive's XMPP Service, you must perform the following steps to configure it:

1. Follow the steps described in "Configuring TLS with Oracle Wallet"; XMPP Service requires a TLS connection.
2. Set the DomainName property of XMPP Service. By default, the value of DomainName is `example.com`. Change it to the name of your domain. Call the following `beectl` commands.

   These commands assume the name of your domain is `mydomain.com` and the component identifier of BEEAPP is `BEEAPP_mysite.mydomain.com`:

   ```
   beectl list_properties --component _XmppService --name DomainName

   -----------------+--------------------------------------------------------------
   Property name    | Property value
   -----------------+--------------------------------------------------------------
   DomainName       | example.com
   -----------------+--------------------------------------------------------------

   beectl modify_property
     --component _XmppService
     --name DomianName
     --value mydomain.com

   Changes to configuration repository are not activated.
   Successfully stored the property for component id
   a471ba52-b384-4b31-afe2-45ea8c38a658.

   beectl activate_configuration

   Proposed configuration is saved successfully and activated now.
   ```

26

Configuring Oracle Secure Enterprise Search

Oracle Secure Enterprise Search 10*g* is a stand-alone enterprise search solution. It incorporates best-in-class indexing crawling and security capabilities to create a reliable and comprehensive search solution for any organization.

Follow these steps to configure Oracle Secure Enterprise Search 10*g* so that Oracle Beehive uses it as its search engine:

Step A: Configure Oracle Beehive

1. Create a special user account that has administrator rights to the content managed by Oracle Beehive. The command will prompt your for a password. Enter any valid password; you will need this password later:

```
beectl add_trusted_identity
  --is_service false
  --service_name sessearch
  --type SES
  --name BeehiveSesTrustedEntity
  --password
```

2. Configure the host and port number of your Oracle Beehive instance:

```
beectl modify_property
  --component _SesEndptService
  --name Host
  --value <Host name of your Oracle Beehive instance>

beectl modify_property
  --component _SesEndptService
  --name Port
  --value <Oracle Beehive HTTP listening port>

beectl modify_property
  --component _SesEndptService
  --name SesEndptServiceEnabled
  --value true
```

   To determine the HTTP listening port, run the `beectl list_ports` command and search for the property name HttpListenPort.

3. Activate and commit changes:

```
beectl activate_configuration
beectl modify_local_configuration_files
```

Step B: Configure Oracle Secure Enterprise Search

1. Login to the oracle Secure Enterprise Search administrator page. The URL typically has the form `http://`*`<Oracle SES host name>`*`:`*`<HTTP listening port>`*`/search/admin`.
2. Click the **Sources** tab. From the **Source type** drop-down list, select **Federated**. Click the **Create** button.
3. Enter the following values to define the source:
    - **Source Name**: Enter any name to identity your source
    - **Web Services URL**: `http://`*`<Oracle Beehive host name>`*`:`*`<Oracle Beehive HTTP listening port>`*`/ses-endpt/OracleSearch`
    - **Remote Entity Name**: `BeehiveSesTrustedEntity`
    - **Remote Entity Password**: Enter the password for the BeehiveSesTrustedEntity user you created previously.
    - **Search User Attribute**: You do not have to enter a value for this field unless Oracle Secure Enterprise Search is using a different authentication attribute than Oracle Beehive.

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Configuring Single Sign-On with Oracle Beehive

This module describes how to register Oracle Beehive as a partner application with Oracle Single Sign-On (OSSO), which means that you may delegate the authentication function to the single sign-on server. For more information, refer to Chapter 4, "Configuring and Administering Partner Applications in *Oracle Application Server Single Sign-On Administrator's Guide*.

1. Oracle Single Sign-On requires Oracle Internet Directory. Consequently, integrate Oracle Internet Directory with Oracle Beehive as described in the module "Integrating and Synchronizing LDAP with Oracle Beehive".
2. In the `_AuthenticationService` component, set the property `SsoType` to `osso`, then activate the configuration:

```
beectl modify_property
  --component _AuthenticationService
  --name SsoType
  --value osso

beectl activate_configuration
```

3. Run the OSSO registration tool, `<OSSO home>/sso/bin/ssoreg.sh` to register Oracle Beehive with the OSSO server:

```
ssoreg.sh
  -oracle_home_path /private/oracle/appserver
  -site_name example.com>
  -config_mod_osso TRUE
  -mod_osso_url http://example.com:7777
  -remote_midtier
  -config_file
    /private/oracle/appserver/Apache/Apache/conf/osso/osso.example.conf
```

   - **oracle_home_path**: Specify the installation directory of the Oracle product that comes with Oracle Single Sign-On (in this example, OSSO is installed in `/private/oracle/appserver/sso`.
   - **site_name**: Specify the host name (including domain) of your Oracle Beehive instance.
   - **config_mod_osso**: Specify `TRUE` so that a configuration file is generated.
   - **mod_osso_url**: Specify the effective URL of your Oracle Beehive instance. Use the following format:

```
http[s]://<Oracle Beehive HTTP host>.<domain>:<port>
```

For example:

```
https://application.mydomain.com:4443
```

Omit the port number if the HTTP server is listening on the default HTTP port of 80 or the default HTTPS port of 4443. To determine the HTTP or HTTPS listening port, run the `beectl list_ports` command.

- **remote_midtier**: You must specify this option because Oracle Beehive is installed in a different home than OSSO.
- **config_file**: The specified configuration file will be created.

4. Copy the configuration file you created in the previous step (`osso.example.com`) to `<Oracle Beehive home>/Apache/Apache/conf/osso`. Rename the file to `osso.conf`.
5. In the `_AuthenticationService` component, set the property `OssoConfigFile` to `<Oracle Beehive home>/Apache/Apache/conf/osso/osso.conf`, activate the configuration, then commit changes:

```
beectl modify_property
  --component _AuthenticationService
  --name OssoConfigFile
  --value <Oracle Beehive home>/Apache/Apache/conf/osso/osso.conf

beectl activate_configuration
beectl modify_local_configuration_files
```

6. Restart the HTTP server:

```
beectl list_components --type HttpServer

-----------------+------------------------------------------------------------
Component type   | Component identifier
-----------------+------------------------------------------------------------
HttpServer       | ohs_site1.example.com
-----------------+------------------------------------------------------------

beectl restart --component ohs_site1.example.com
```

28

Configuring External Oracle BPEL Process Manager with Oracle Beehive

If you have an existing instance of Oracle BPEL Process Manager, you may configure Oracle Beehive to use it instead of the one that is included with Oracle Beehive.

> **Note:** It is recommended that you configure an external Oracle BPEL process manager immediately after installing Oracle Beehive.
>
> It is not recommended that you switch from using the Oracle BPEL Process Manager that comes installed with Oracle Beehive to an external one in an Oracle Beehive currently in production.

Configuring an external Oracle BPEL Process Manager involves the following steps:

- Step A: Configure Oracle Beehive
- Step B: Configure External Oracle BPEL Process Manager

After performing these steps, refer to "Deploying Custom Workflows with External Oracle BPEL Process Manager" to deploy custom workflows.

Step A: Configure Oracle Beehive

1. Create an external Oracle BPEL Process Manager component to represent your Oracle BPEL Process Manager. Use the `beectl add_external_bpel_pm` command:

```
beectl add_external_bpel_pm
  --oc4j_instance_name oc4j_soa
  --oc4j_admin_password my_obfuscated_OC4J_admin_password
  --domain default
  --domain_password my_obfuscated_domain_password
  --bpel_application_name orabpel
  --bpel_admin_password my_obfuscated_BPEL_password
  --host_name example.com
  --opmn_port 6003

Successfully created a BpelCluster with following identifier.
BPEL_CLUSTER_ID=ec542d17-0a13-4974-b6a4-f61526d09215
Successfully created a ExternalBpelProcessManager with the following id.
EXT_BPEL_PROCESS_MANAGER_ID=cb5d934a-fe61-44e0-906a-bf2d0b1c80e1
Workflow service exists with the id 79af98cb-81d1-4318-9f22-84d36e268e86
Changes to configuration repository are not activated.
```

This command will create a BpelCluster component. Note the IDs of this component for the next step.

The following table describes the properties of this command:

Table 28–1 beectl add_external_bpel_pm Properties

Property	Description
oc4j_instance_name	Name of the OC4J instance in which your Oracle BPEL Process Manager is deployed. Typically, this is `oc4j_soa`.
oc4j_admin_password	Administrator's password of OC4J in which your Oracle BPEL Process Manager is deployed. Use `beectl obfuscate` to obfuscate the password.
domain	If you have not created any additional domains in your Oracle BPEL Process Manager, typically, the name of the default domain is `default`. Refer to Chapter 19, "BPEL Process Deployment and Domain Management" in *Oracle BPEL Process Manager Developer's Guide*.
domain_password	The password to access the specified domain. By default, this is the same as the OC4J administrator's password. Use `beectl obfuscate` to obfuscate the password.
bpel_application_name	Name used by OC4J to refer to the Oracle BPEL Process Manager Web application. Typically, this is `orabpel`. Refer to the OC4J configuration files of the OC4J instance in which your Oracle BPEL process is deployed to determine this name.
bpel_admin_password	Oracle BPEL Process Manager administrator's password. Use `beectl obfuscate` to obfuscate the password.
host_name	The name of the server in which Oracle BPEL Process is running.
opmn_port	OPMN request port number of the Oracle BPEL server. This is typically `6003`. If you installed Oracle Application Sever SOA Suite, this port number is defined by the property `opmn.requestport` in `<`*`Installation directory`*`>/bpel/utilities/and-orabpel.properties`.

2. Set the property BpelCluster in the component _WorkflowService with the BpelCluster component you just created in the previous step:

```
beectl modify_property
  --component _WorkflowService
  --name BpelCluster
  --value ec542d17-0a13-4974-b6a4-f61526d09215
```

3. Activate the configuration and commit changes:

```
beectl activate_configuration
beectl modify_local_configuration_files
```

Step B: Configure External Oracle BPEL Process Manager

1. Create a synonym in the ORABPEL repository for the Oracle Beehive Workflow PL/SQL schema. Typically, ORABPEL and the Oracle Beehive schema are located in the same database instance. If this is the case, run the following SQL*Plus command:

```
CREATE OR REPLACE SYNONYM ORABPEL.BEE_CODE_WF_BPEL_PKG FOR
BEE_CODE.WF_BPEL_PKG
```

If ORABPEL and the Oracle Beehive schema are in different database instances, use a database link. Refer to "CREATE DATABASE LINK" in *Oracle Database SQL Language Reference* for more information.

2. Follow these steps to deploy Oracle Beehive Identify Provider.

> **Note:** If you have configured your Oracle BPEL Process Manager for a particular LDAP directory, and you have synchronized Oracle Beehive to work with the same LDAP directory (as described in "Integrating and Synchronizing LDAP with Oracle Beehive"), do not perform the steps described here.

   a. Extract the contents of `<`*`Oracle Beehive home`*`>/beehive/seed/bpel/isprovider.jar` into the `<`*`Oracle BPEL Process Manager home`*`>/bpel/system/classes` directory. The command `jar` is the Java archive tool:

   ```
   cd <Oracle BPEL Process Manager home>/bpel/system/classes
   jar xvf <Oracle Beehive home>/beehive/seed/bpel/isprovider.jar
   ```

   b. Create a backup of the file `<`*`Oracle BPEL Process Manager home`*`>/bpel/system/config/is_config.xml`. Replace this file with `<`*`Oracle Beehive home`*`>/beehive/seed/bpel/is_config.xml`

   After performing these steps, any identity services you have configured for your Oracle BPEL Process Manager will no longer work.

   If you want Oracle Beehive Identity Provider and another identity service you have already configured to co-exist in your Oracle BPEL Process Manager, you may merge the details of your identity service configuration and those of Oracle Beehive Identity Provider in the same `is_config.xml` file. Refer to "Configuring the Identity Service" in Chapter 2, "Service Configuration" in *Oracle BPEL Process Manager Administrator's Guide*.

3. Deploy Oracle Beehive workflows. The Workflow service deploys two BPEL processes, ParallelVoteWorkflow and SerialWorkflow, when you install Oracle Beehive. These BPEL process suitcases (or archives) are located in `<`*`Oracle Beehive home`*`>/beehive/seed/workflows`. Deploy these processes with the Oracle BPEL Admin Console or auto-deploy mode of Oracle BPEL Process Manager. To use auto-deploy mode, copy the BPEL process jar files into `<`*`Oracle BPEL Process Manager home`*`>/bpel/domains/default/deploy`.

Deploying Custom Workflows with External Oracle BPEL Process Manager

To deploy a custom workflow with an external Oracle BPEL Process Manager, you must both register it in Oracle Beehive and deploy it through your Oracle BPEL Process Manager:

1. Use the `beectl add_workflow_schema` command to register your custom workflow:

```
beectl add_workflow_schema
  --file <Absolute path of the suitcase (the jar file) of your BPEL process>
```

2. Manually deploy the custom workflow suitcase into your Oracle BPEL Process Manager with the Oracle BPEL Admin Console or auto-deploy mode.

29

Installing Oracle Beehive Extensions for Outlook

This module describes how to install and configure Oracle Beehive Oracle Beehive Extensions for Outlook.

Oracle recommends that you install and deploy Oracle Beehive Extensions for Outlook using Oracle Beehive's Device Management Service (DMS). This installation method is recommended for almost all desktops with standard environments and administrative privileges. A desktop based, non-DMS installation, deployment, and configuration method is available for custom environments and lockdown systems with limited administrative privileges. Locked down users may also install Oracle Beehive Extensions for Outlook using an Active Directory group policy.

The following topics are covered:

- System Requirements
- Device Management Service (DMS) Based Installation
- Desktop Based Installation (Non-DMS Process)
- Installing Oracle Beehive Extensions for Outlook Using Active Directory
- Using Oracle Beehive Extensions for Outlook as Profile Migration Tool

System Requirements

This section describes the software and hardware requirements for Oracle Beehive Extensions for Outlook.

Operating System

- Microsoft Windows Vista: Home, Business, or Ultimate
- Microsoft Windows 2003 Server
- Microsoft Windows XP: Home or Professional

Notes: You need administrative privileges to install Oracle Beehive Extensions for Outlook on Windows XP, Windows 2003 Server, and Windows Vista.

You must install Windows XP Service Pack 2 on Windows XP computers if you intend to use non-English locales with Oracle Beehive Extensions for Outlook. Attempting to run Oracle Beehive Extensions for Outlook with a non-English locale on a computer with Windows XP Service Pack 1 (or earlier) may result in the computer failing to operate normally.

Disk Space

- 200 MB minimum
- Hard disk usage varies according to configuration. Custom installation options may require more or less hard disk space. The amount of online data the user accesses may also affect the disk space requirement.

RAM

Refer to the RAM requirements of your Microsoft Outlook client.

Microsoft Outlook

- Microsoft Outlook 2007 (with Service Pack 2)
- Microsoft Outlook 2003 (with Service Pack 3)
- Microsoft Outlook 2002 (with Service Pack 3)
- Microsoft Outlook 2000 (with Service Pack 3)

Notes: Oracle certifies and recommends the latest service pack version for Microsoft Outlook. However, other service packs may also work with Oracle Beehive Extensions for Outlook.

You must install a native language version or Multilingual User Interface Pack (MUI) for non-English version localization.

Device Management Service (DMS) Based Installation

Oracle recommends that you install and deploy Oracle Beehive Extensions for Outlook using Oracle Beehive's Device Management Service (DMS). This installation method is recommended for almost all desktops with standard environments and administrative privileges. It is designed for centralized installation, configuration, management of auto-updates, and deployment.

This section covers the following topics:

- Installing Oracle Beehive Extensions for Outlook Using Remote Downloader
- Updating and Configuring Oracle Beehive Extensions for Outlook Through DMS
- Uninstalling and Downgrading Oracle Beehive Extensions for Outlook (DMS Process)

Installing Oracle Beehive Extensions for Outlook Using Remote Downloader

You may install Oracle Beehive Extensions for Outlook by distributing a remote downloader to end users. The remote downloader enables end users to download and install the provisioned Oracle Beehive Extensions for Outlook application from the Device Management Service (DMS) repository. By default, the DMS contains a pre-seeded Oracle Beehive Extensions for Outlook application that is provisioned for all end users.

For more information on how to provision applications for specific users or groups of users, refer to "Managing the Device Management Service" in *Oracle Beehive Administrator's Guide*. You may do this in silent mode. Refer to "Installing Oracle Beehive Extensions for Outlook Using Remote Downloader Using Silent Mode" for more information.

Obtaining Remote Downloader

Obtain the Oracle Beehive Extensions for Outlook remote downloader, `outlook_extensions_downloader.exe` in the directory `<Oracle Beehive home>/beehive/bootstrap/obio/downloader`.

You may also obtain the remote downloader from Oracle Beehive Central, a Web-based client that provides users a central location to download supported clients and set their preferences for Oracle Beehive functionality.

Pre-Seeding Server Name in Remote Downloader

The remote downloader prompts the end user to provide a server name, account name, and password to initiate download and installation. If you want to pre-seed a server name to prevent end users from having to specify a server name on their own, rename the remote downloader to `<fully qualified server name>.exe`. For example, if your server name is `faulkner.oracle.com`, your remote downloader name would be `faulkner.oracle.com.exe`.

Pre-Seeding Port Number and Secure Connection

You may pre-seed the port number that Oracle Beehive Extensions for Outlook uses to connect to the server, as well as whether a secure connection should be used, by using commas to delimit the additional information.

For example, if your remote downloader name is `faulkner.oracle.com.exe` and you want to pre-seed the port number and secure connection in the downloader, rename the file to `faulkner.oracle.com,5223,SSL.exe`, where `5223` is your port number and `SSL` means that you want to use a secure connection.

If you want to use a non-secure connection, replace `SSL` with the string `NOSSL` in the file name. For example, to use a non-secure connection, rename the file to `faulkner.oracle.com,5223,NOSSL.exe`.

Note: You may only pre-seed port number and connection type when using the direct connection method for Oracle Beehive Extensions for Outlook.

Installing Oracle Beehive Extensions for Outlook Using Remote Downloader Using Silent Mode

You may also use the Oracle Beehive Extensions for Outlook downloader to provide a full, non-interactive deployment option. To do so, use the silent switch, `/s`.

Specify the required connection parameters through the command line or in an initialization file.

Specifying Connection Parameters Through Command Line The following is an example of specifying connection parameters through the command line (line breaks have been added for clarity):

```
outlook_extensions_downloader.exe
  /server example.com
  /user OracleBeehiveUserName
  /pass Welcome1
  /direct port=5224 secure=true
  /https port=443 secure=true
  /s
```

The following table describes the Oracle Beehive Extensions for Outlook downloader's command line options:

Table 29–1 Oracle Beehive Extensions for Outlook Downloader Options

Option	Description
`/server`	Oracle Beehive server address
`/user`	Oracle Beehive user account
`/password`	User's password

`/direct port=`*`<port number>`*
`secure=`*`<true/false>`*
	Specifies the following for direct connection:
	- `port`: Valid port number to be used to establish a direct connection
	- `secure`: Boolean value; if `true`, then use a secure connection

`/https port=`*`<port number>`*
`secure=`*`<true/false>`*
	Specifies the following for HTTPS connection:
	- `port`: Valid port number to be used to establish an HTTPS connection
	- `secure`: Boolean value; if `true`, then use a secure connection

`/create_profile`	Available in Oracle Beehive Release 1 (1.5.1.2) or later. Determines if an Oracle Beehive Extensions for Outlook profile should be created on the user's computer during installation. This parameter may be assigned one of the following values: - `0`: Do not create a profile - `1`: Always create a profile (either for a new install or an upgrade) - `2`: Only create a profile for a new install (default value) - `3`: Only create a profile if there is no profile with the exact name that exists on the user's computer (either for a new install or upgrade)

Table 29–1 (Cont.) Oracle Beehive Extensions for Outlook Downloader Options

Option	Description
`/profile_name`	Available in Oracle Beehive Release 1 (1.5.1.2) or later. Changes the name of the profile created during installation of Oracle Beehive Extensions for Explorer. The default profile name is `Beehive`.
`/repair`	Available in Oracle Beehive Release 1 (1.5.1.2) or later. Downloads and reinstalls the MSI package from the DMS if the installed version on the user's computer is the same version as the MSI package. If `/create_profile` option has a value of `1` or `3`, then the `/repair` option is used even if it is not specified.
`/s`	Use silent mode

Specifying Connection Parameters in Initialization File Specify the full path of the initialization file you want to use as follows. In this example, `C:\testSilentDownloader.ini` is the full path of the initialization file:

```
outlook_extensions_downloader.exe /s C:\testSilentDownloader.ini
```

If you use the silent switch with a `UI=1` parameter, the connection dialog will be presented in which all the controls are disabled and only the password field is enabled:

```
outlook_extensions_downloader.exe /s UI=1 C:\testSilentDownloader.ini
```

The downloader will return a value of `1` or `0`, which indicates whether the operations performed by it failed (`1`) or were successful (`0`). You may use this returned value in a script to determine whether or not the remote downloader was successful.

Use the following template to create a silent initialization file:

Example 29–1 Template for Silent Initialization File

```
[OBIO]
Server=
User=
Password=
Direct_Port=
Direct_Secure=
HTTPS_PORT=
HTTPS_Secure=
Proxy_Type=
Proxy=
```

The following table describes the silent initialization file's parameters:

Table 29–2 Initialization FIle Parameters

Initialization File Parameter	Description
`Server`	Oracle Beehive server address
`User`	Oracle Beehive user account

Table 29–2 (Cont.) Initialization FIle Parameters

Initialization File Parameter	Description
`Password`	User's password
`Direct_Port`	Valid port number to be used to establish a direct connection
`Direct_Secure`	Boolean value; specifies whether to use a direct connection (TRUE) or not (FALSE)
`HTTPS_PORT`	Valid port number to be used to establish an HTTPS connection
`HTTPS_Secure`	Boolean value; specifies whether to use an HTTPS connection (TRUE) or not (FALSE)
`Proxy_Type`	Specifies the proxy type. It may have a value of 0, 1, or 2: - 0: Automatic proxy setting - 1: Use Web browser's proxy settings - 2: Manual proxy configuration as specified in the Proxy parameter
`Proxy`	Manual proxy configuration (for example, `myproxy.us.oracle.com:1234`)

Updating and Configuring Oracle Beehive Extensions for Outlook Through DMS

You may update the version of Oracle Beehive Extensions for Outlook in the DMS repository. Afterwards, if Oracle Beehive Extensions for Outlook is running on an end user's computer, it will automatically prompt the end user to download and install updates from the DMS repository.

In addition, end users may also manually search for updates by selecting **About Oracle Beehive Extensions for Outlook** from the **Help** menu and clicking **Check for Updates**.

You may also apply customized configuration settings to end users' computers from the DMS.

The following topics are covered in this section:

- Updating Oracle Beehive Extensions for Outlook in DMS Repository
- Updating Language Pack for Oracle Beehive Extensions for Outlook
- Applying Configuration Settings from DMS

Updating Oracle Beehive Extensions for Outlook in DMS Repository

Follow these steps to update the version of Oracle Beehive Extensions for Outlook in the DMS repository:

1. Make sure the application package for the updated version of Oracle Beehive Extensions for Outlook is accessible to the Oracle Beehive server.
2. Upload the updated version of Oracle Beehive Extensions for Outlook to the DMS repository by running the following command:

```
beectl upload_client_application
  --file <Path to Oracle Beehive Extensions for Outlook zip file>
```

Note: This command will upload the new version of the Oracle Beehive Extensions for Outlook application to the DMS repository and will make it available for those who are already provisioned to it.

If you have not provisioned Oracle Beehive Extensions for Outlook, run the provisioning commands (such as `beectl add_client_application_provisioning`). Refer to "Managing the Device Management Service" in Oracle Beehive Administrator's Guide for more information.

If Oracle Beehive Extensions for Outlook is running on an end user's computer, it will automatically prompt the end user to download and install updates from the DMS repository. End users may also manually search for updates by selecting **About Oracle Beehive Extensions for Outlook** from the **Help** menu and clicking **Check for Updates**.

Updating Language Pack for Oracle Beehive Extensions for Outlook

You may localize the user interface of Oracle Beehive Extensions for Outlook to match Microsoft Outlook languages by updating the language pack with the one found at `<Oracle Beehive home>/beehive/bootstrap/obio/languagepack`. The following languages are currently supported in the language pack:

- French
- German
- Italian
- Spanish
- Brazilian Portuguese
- Japanese
- Korean
- Simplified Chinese
- Traditional Chinese

To update the language pack for Oracle Beehive Extensions for Outlook, upload it to the DMS repository using the `beectl upload_client_application` command. By default, the language pack is uploaded and provisioned to all users. Follow these steps to update the language pack:

1. Make sure the language pack for Oracle Beehive Extensions for Outlook is accessible to the Oracle Beehive server.
2. Upload the language pack for Oracle Beehive Extensions for Outlook to the DMS repository by running the following command:

```
beectl upload_client_application
  --file <Path to Oracle Beehive Extensions for Outlook language pack>
```

If Oracle Beehive Extensions for Outlook is running on an end user's computer, it will automatically prompt the end user to download and install updates (including language packs) from the DMS repository. End users also may manually search for updates by selecting **About Oracle Beehive Extensions for Outlook** from the **Help** menu and clicking **Check for Updates**.

Note: The language installed by the Oracle Beehive Extensions for Outlook language pack will automatically match the Outlook language installed by the end user, provided that Oracle Beehive Extensions for Outlook supports the language. If the end user has installed Microsoft Outlook in an unsupported language, Oracle Beehive Extensions for Outlook will default to English.

Applying Configuration Settings from DMS

When deploying Oracle Beehive Extensions for Outlook from DMS, you may apply customized configuration settings to end users' computers. You may associate the configuration settings to a specific version or all versions of the provisioned Oracle Beehive Extensions for Outlook software. Configuration settings associated with all versions are persistent and are always available regardless of the version of Oracle Beehive Extensions for Outlook provisioned to the user. However, configuration settings associated with a specific version are only applied when users are provisioned to that specific version of the software. Note that when settings are applied to the specific version level, if the user is later provisioned to a newer software release, the configurations settings are no longer applied.

This section covers the following topics:

- Associating Configuration Settings to All Versions of Application
- Associating Configuration Settings to Specific Version of Application

Associating Configuration Settings to All Versions of Application

Follow these steps to apply configuration settings at the application level from the DMS:

1. Create an application package. This is a zip file that contains the following two files:
    - `metadata.xml`: This is an XML provisioning file that includes all the setting parameters you want to apply. Refer to Example 29–2, "Sample metadata.xml XML Provisioning File" for an example.
    - `readme.txt`: This is simply a text file. You may place any content you want in this file.
2. Upload the application package into the DMS repository with the following command:

```
beectl upload_client_application --file <path to application package zip file>
```

3. Obtain your enterprise EID by running the following command:

```
beectl list_enterprises --entity_format id
```

4. Obtain your application ID by running the command `beectl list_client_applications` and looking for "Oracle Beehive Extensions for Outlook" in the generated list.
5. Provision the new application by running the following command:

```
beectl add_client_application_provisioning
  --community <enterprise EID obtained in step 4>
  --application <application ID obtained in step 5>
```

Example 29–2 Sample metadata.xml XML Provisioning File

The following is a sample XML provision file. It sets the parameter `FILE:profile.ini:GENERAL:GAL-DOWNLOAD-UDS-ON-DEMAND-CACHING-ONLY` to `FALSE`:

```
<?xml version="1.0" encoding="UTF-8"?>
<application>
<property>
  <name>Application Settings for Oracle Beehive Extensions for Outlook </name>
  <description>
    Oracle Beehive Extensions for Outlook Package Settings
  </description>
  <os>Windows_NT</os>
  <processor>x86</processor>
  <deviceclass>OUTLOOK-WORKSTATION</deviceclass>
  <language>ALL</language>
  <version>1</version>
  <versionnumber>1</versionnumber>
  <patchsetnumber>0</patchsetnumber>
  <vendor>Oracle</vendor>
</property>
<modules>
  <module>
    <name>readme.txt</name>
    <src>.</src>
    <dest>/</dest>
    <contenttype>application/octet-stream</contenttype>
  </module>
</modules>
<configuration>
  <param name="FILE:profile.ini:GENERAL:GAL-DOWNLOAD-UDS-ON-DEMAND-CACHING-ONLY"
value="FALSE"></param>
</configuration>
</application>
```

Associating Configuration Settings to Specific Version of Application

Follow these steps to apply configuration settings at the specific version level from the DMS:

1. Create an XML provisioning file that includes all the setting parameters you want to apply. For more information, refer to "Customizing Installation Settings".
2. Obtain your Oracle Beehive Extensions for Outlook identifier by running the `beectl list_client_applications` command and locating the identifier from the generated list.
3. Obtain your Oracle Beehive Extensions for Outlook version identifier by running the following command:

   ```
   beectl list_client_application_versions --application <identifier>
   ```

   `<identifier>` is the Oracle Beehive Extensions for Outlook identifier you obtained in the previous step.
4. Include the obtained Oracle Beehive Extensions for Outlook version identifier in your XML provisioning file. For more information on `beectl` commands, see the module "Oracle Beehive Command-Line Utility" in the *Oracle Beehive Administrator's Reference Guide*.
5. Upload your XML provisioning file to the server by running the following command:

```
beectl add_client_application_configuration
  --file <path to XML provisioning file>
```

6. Provision end users for the uploaded application configuration object by running the following command:

```
beectl add_client_application_provisioning
  --community <enterprise ID>
  --configuration <application configuration ID>
```

Customizing Installation Settings To customize installation settings, create an XML provisioning file with your customized settings as described in "Creating XML Provisioning File to Customize Installation Settings". Once you have uploaded the provisioning file to DMS, you may apply your customized settings to your end users' computers as described in "Applying Configuration Settings from DMS".

This section describes how to create an XML provisioning file and the configuration settings you may customize. It covers the following topics:

- Creating XML Provisioning File to Customize Installation Settings
- Controlling New Global Address List Settings from DNS
- Modifying Registry Settings
- Modifying INI File Settings
- Enforcing Upgrades

Creating XML Provisioning File to Customize Installation Settings You may control general installation settings by creating an XML provisioning file and adding or modifying `Property` nodes in the `config` section of the file. Each `Property` node should contain two parameters: `name` and `value`.

You may modify the default public properties in your provisioning file by changing the `value` parameter associated with any of the `INSTALL:<X> Property` nodes.

The following is a sample XML provisioning file. To upload a provisioning file to DMS and then apply its settings to end users' computers, refer to "Applying Configuration Settings from DMS".

Example 29–3 Sample XML Provisioning File

```
<?xml version="1.0" encoding="UTF-8"?>
<ClientAppConfig>
<Name>Oracle Beehive Extensions for Outlook-test2</Name>
<Version
  CollabId="6EAB:574C:capv:4672A63200D4B462E040548C17821C2E000000014C0A"/>
  <Config>

    <!--Install Company name-->
    <Property name="INSTALL:COMPANYNAME" value="TestCompany"></Property>

    <!--Install user name -->
    <Property name="INSTALL:USERNAME" value="Edith Wharton"></Property>

    <!--Install directory-->
    <Property
       name="INSTALL:INSTALLDIR"
       value="C:\Program Files\Oracle\myinstall"></Property>
    <!--Allow Downgrade-->
    <Property name="INSTALL:AllowDowngrade" value="TRUE"></Property>

    <!--Install Create Profile-->
    <Property name="INSTALL:CREATE_PROFILE" value="2"></Property>

    <!--Install Profile Name-->
    <Property name="INSTALL:PROFILE_NAME" value="OracleBeehive"></Property>

    <!--Install ForceUpgrade-->
    <Property name="INSTALL:ForceClientVersion:Larger" value="20201"></Property>

    <!--Install Grace Period for ForceUpgrade-->
    <Property name="INSTALL:graceperioddate" value="20080215"></Property>
    <Property name="INSTALL:graceperioditerations" value="3"></Property>

    <!--ini File Modification-->
    <Property
      name="FILE:Beehive.ini:OBIO:APP-AUTOUPDATE-STARTUP"
      value="FALSE"></Property>

    <!--Registry Modification-->
    <!--ADD Section-->
    <!--ADD Key-->
    <Property name="REG:ADD:HKCU\Software\1\2\3:" value=""></Property>
    <!--ADD String Value (remove line breaks from the
        value of the name parameter) -->
    <Property name=
      "REG:ADD:HKLM\Software\Microsoft\Exchange\Client\Extensions:
      Outlook Setup Extension1:String"
      value="4.0;Outxxx.dll;7;00000000000000;0000000;OutXXX"></Property>
    <!--ADD DWORD Value (remove line breaks from the
        value of the name parameter) -->
    <Property name="REG:ADD:HKLM\Software\Microsoft\Exchange\Client\Extensions:
      Outlook Setup Extension2:DWORD" value="50"></Property>
    <!--ADD Binary Value (remove line breaks from the
        value of the name parameter) -->
    <Property name="REG:ADD:HKLM\Software\Microsoft\Exchange\Client\Extensions:
      Outlook Setup Extension3:Binary" value="1234567890ABCDEF"></Property>

    <!--Delete Section-->
    <!--Delete Key-->
    <Property name="REG:DELETE:HKCU\Software\1\2" value=""></Property>
    <!--Delete Value (remove line breaks from the
        value of the name parameter)-->
    <Property name=
      "REG:DELETE:HKLM\Software\Microsoft\Exchange\Client\Extensions:
      Outlook Setup Extension1" value=""></Property>

  </Config>

</ClientAppConfig>
```

The following table describes the public properties you may specify in your XML provisioning file:

Table 29–3 Public Properties

Property	Function
`USERNAME`	Sets the name of the registered Oracle Beehive Extensions for Outlook end user that appears in the **About** box.
`COMPANYNAME`	Sets the name of the registered company that appears in the **About** box.
`INSTALLDIR`	Sets the location of the Oracle Beehive Extensions for Outlook installation.
`CREATE_PROFILE`	Determines if an Oracle Beehive Extensions for Outlook profile should be created on the user's computer during installation. This parameter may be assigned one of the following values: ■ `0`: No profile is created. ■ `1`: Force-add a profile with the specified name. ■ `2`: Create a profile only if the end user is running a fresh install of Oracle Beehive Extensions for Outlook. This is the default value for the parameter. ■ `3`: Create a profile only if no profile with the same name exists on the end user's computer.
`PROFILE_NAME`	Changes the name of the profile created during installation of Oracle Beehive Extensions for Outlook. The default profile name is `Beehive`.

Note: The values you set for the first three parameters in the table only apply when you are installing Oracle Beehive Extensions for Outlook for the first time and do not apply to product upgrades.

Controlling New Global Address List Settings from DNS A new feature has been introduced in Oracle Beehive Extensions for Outlook that controls what is initially downloaded in the Global Address List. By default, the Global Address List of any user with a new or migrated profile initially contains only the logged in user's manager, peers, direct reports, and groups. Additional contacts are downloaded and added to the local Global Address List on an ad-hoc basis whenever the user performs an action that requires a contact lookup against the server (for example, creating or receiving e-mail and creating or receiving meetings). To disable this behavior, the administrator can push the following configuration parameter through the DMS:

- Name: `FILE:profile.ini:GENERAL:GAL-DOWNLOAD-UDS-ON-DEMAND-CACHING-ONLY`
- Value: `FALSE`

Provision this parameter to users by following the steps described in "Applying Configuration Settings from DMS".

Modifying Registry Settings You may modify the registry information on end-user computers by changing the values for certain `Property` nodes in your provisioning file. Modifying registry information enables you to control end user settings from the server side.

WARNING: If you modify the registry incorrectly, serious problems may occur that could require you to reinstall your operating system. Modify the registry at your own risk.

- **Adding Key or Registry Value**: To add a key or registry value, use the following in your provisioning file:

  ```
  <Property
    name="REG:ADD:{HIVE}\{keypath}:{Value Name}:{DataType}"
    value="{Value Data}">
  </Property>
  ```

  - The value for *`{HIVE}`* may be either `HKLM` or `HKCU`, which are the two locations where user registry information may be stored and which correspond to `HKEY_LOCAL_MACHINE` and `HKEY_CURRENT_USER` in the registry.
  - The value for *`{DataType}`* may be `String`, `Binary`, or `Dword`.
  - If you are adding a key, you do not need to provide values for *`{Value Name}`*, *`{DataType}`*, or *`{Value Data}`*.

- **Deleting Key or Registry Value**: To delete a key or registry value, use the following in your provisioning file:

  ```
  <Property name="REG:Delete:{HIVE}\{keypath}:{Value Name}" value=""></Property>
  ```

  If you are deleting a key, do not provide a value for *`{Value Name}`*. Additionally, the key must reside at least two levels under the user hive.

Modifying INI File Settings Modify Oracle Beehive Extensions for Outlook INI settings by including a property with the following structure:

```
<Property
  name="FILE:Beehive.ini:{Section Name}:{Property Name}"
  value="{Value Data}">
</Property>
```

Enforcing Upgrades You may force end users to upgrade to a new version of Oracle Beehive Extensions for Outlook that you have uploaded to the DMS. End users will not be able to use Oracle Beehive Extensions for Outlook until they upgrade.

- **Forcing End Users to Upgrade to New Version of Oracle Beehive Extensions for Outlook**: In your XML provisioning file, add a property with the following structure:

  ```
  <Property>
    name="INSTALL:ForceClientVersion:{comparison operation}"
    value="{build number}">
  </Property>
  ```

  `{build number}` is the Oracle Beehive Extensions for Outlook build number, which will be used for the comparison operation.

- **Allowing End Users to Use Older Version of Oracle Beehive Extensions for Outlook Until Certain Date:**: Optionally, you may allow end users to continue using their old version of Oracle Beehive Extensions for Outlook for a specific period of time or for a fixed number of logins to Oracle Beehive.

In your XML provisioning file, add a property with the following structure:

```
<Property>
  name="INSTALL:graceperioditerations"
  value="{number of logins}">
</Property>
```

`{number of logins}` is the number of times end users are allowed to login to Oracle Beehive Extensions for Outlook before they are forced to upgrade.

Uninstalling and Downgrading Oracle Beehive Extensions for Outlook (DMS Process)

Use the following methods to uninstall or downgrade Oracle Beehive Extensions for Outlook.

Uninstalling Oracle Beehive Extensions for Outlook

End users may remove Oracle Beehive Extensions for Outlook from their computers by selecting **Add/Remove Programs** from the Control Panel, selecting **Oracle Beehive Extensions for Outlook** from the list, and clicking **Remove**.

Downgrading Oracle Beehive Extensions for Outlook

By default, Oracle Beehive Extensions for Outlook will only detect updates if the server version is newer than the currently installed version. If you want to allow end users to install downgraded versions of Oracle Beehive Extensions for Outlook as updates, set the value of the `INSTALL:AllowDowngrade` Property node to `TRUE` in your provisioning file.

Desktop Based Installation (Non-DMS Process)

It is recommended to install Oracle Beehive Extensions for Outlook using Oracle's Device Management Service (DMS). However, custom environments and lockdown systems with limited administrative privileges may require custom or alternative methods of installation, deployment, and configuration that is non-DMS based.

This section covers the following topics:

- Installing Oracle Beehive Extensions for Outlook Using Executable File
- Configuring Profile for Lockdown Systems Using MSI Package
- Configuring Oracle Beehive Extensions for Outlook Using Configuration Wizard
- Upgrading Oracle Beehive Extensions for Outlook Installation
- Uninstalling and Downgrading Oracle Beehive Extensions for Outlook (Non-DMS Process)

Installing Oracle Beehive Extensions for Outlook Using Executable File

You may give end users direct access to the Oracle Beehive Extensions for Outlook installer. End users install the product by double-clicking the installer and following the on-screen instructions.

Retrieve the installer `outlook_extensions_setup.exe` from `<`*`Oracle Beehive home`*`>/beehive/bootstrap/obio/setup`.

Installing Oracle Beehive Extensions for Outlook in Silent Mode

To install Oracle Beehive Extensions for Outlook in silent mode, run the following command:

```
outlook_extensions_setup.exe /s UI=<installer UI option>
```

`<installer UI option>` is one of values in the following table:

Table 29–4 Installer UI Options

Value	Function
`1`	No user interface during install
`2`	Displays only a progress bar during install
`3`	Presents an install screen with different dialog boxes but does not require user input to run
`4`	Runs a fully interactive installer requiring user input

To uninstall Oracle Beehive Extensions for Outlook in silent mode, use the `msiexec.exe` utility and specify the Oracle Beehive Extensions for Outlook MSI product code as follows:

```
msiexec.exe /x {A634A2AF-2495-4F36-B88F-0B24B84A183C} /qn
```

Configuring Profile for Lockdown Systems Using MSI Package

You may create customized Oracle Beehive Extensions for Outlook profiles for locked down users. This involves running the Oracle Beehive Extensions for Outlook MSI installer package and specifying the profile parameters as in the command line as public properties. This method assumes that Oracle Beehive Extensions for Outlook was previously installed by an administrator. It does not reinstall Oracle Beehive Extensions for Outlook; it only recreates the Oracle Beehive Extensions for Outlook profile for the locked down user.

Ideally, run the Oracle Beehive Extensions for Outlook MSI installation package on the lockdown system in the locked down user's Windows login script or add an entry to run it in the runOnce key in the registry.

Run the Oracle Beehive Extensions for Outlook MSI installation package with the following command line options (line breaks have been inserted for clarity):

```
msiexec
  -i {MSI_PRODUCT_CODE}
  REINSTALL=ALL
  REINSTALLMODE=u
  CREATE_PROFILE=3
  PROFILE_NAME=MyProfileName {List of public properties with their values}
  /qn
```

The following is an example of running the MSI package:

```
msiexec -i {A634A2AF-2495-4F36-B88F-0B24B84A183C}
  REINSTALL=ALL
  REINSTALLMODE=u
  CREATE_PROFILE=3
  PROFILE_NAME=MyprofileName
  BEEHIVE_SERVER=staqm05.us.oracle.com
  BEEHIVE_USER=ferasa
  BEEHIVE_PORT_DIRECT=12345
```

```
BEEHIVE_PORT_HTTPS=5533
BEEHIVE_TIMEOUT=40000
BEEHIVE_PROXY_TYPE=0
BEEHIVE_DATA_DIRECT=65536
BEEHIVE_DATA_HTTPS=257
/qn
```

The following table describes the public properties you may specify:

Table 29–5 MSI Package Public Properties

Property	Description
`CREATE_PROFILE`	Determines if an Oracle Beehive Extensions for Outlook profile should be created on the user's computer during installation. This parameter may be assigned one of the following values: ■ `0`: No profile is created ■ `1`: Force-add a profile with the specified name ■ `2`: Default value; create a profile only if the end user is running a fresh install of Oracle Beehive Extensions for Outlook ■ `3`: Create a profile only if no profile with the same name exists on the end user's computer
`PROFILE_NAME`	Changes the name of the profile created during installation of Oracle Beehive Extensions for Outlook. The default profile name is `Beehive`.
`BEEHIVE_SERVER`	Oracle Beehive server address.
`BEEHIVE_USER`	Oracle Beehive user account.
`BEEHIVE_PORT_DIRECT`	Valid port number to be used to establish a direct connection.
`BEEHIVE_PORT_HTTPS`	Valid port number to be used to establish an HTTPS connection.
`BEEHIVE_TIMEOUT`	The Timeout duration before reporting failure to connect. (milliseconds)
`BEEHIVE_PROXY_TYPE`	Specifies the proxy type: ■ `1`: Automatic proxy setting ■ `2`: Manual proxy configuration
`BEEHIVE_DATA_DIRECT`	■ `256`: Disable the direct connection ■ `65536`: Enable the Direct connection/ No SSL ■ `65792`: Enable the Direct connection/ With SSL
`BEEHIVE_DATA_HTTPS`	■ `257`: Disable the secure HTTP connection ■ `65537`: Enable the secure HTTP connection / No secure redirection ■ `65793`: Enable the HTTP connection/ With secure redirection

Configuring Oracle Beehive Extensions for Outlook Using Configuration Wizard

The `obioprofwiz.exe` utility, or configuration wizard, is a standalone application that is useful for both administrators and end users because it integrates the creation and configuration of PRF files and profiles. (A PRF file is a text file that Microsoft Outlook uses to generate a profile.) The configuration wizard reads information from an existing PRF file and creates a new profile or modifies an existing profile with the appropriate settings. Start this utility from the command prompt or Windows

Explorer. Find `obioprofwiz.exe` in `C:\Program Files\Oracle\Outlook Extensions`.

You may perform the following with the configuration wizard:

- Start the configuration wizard in interactive mode
- Start the configuration wizard in silent mode; you may use an existing PRF file with all the required settings to create and configure the first profile for users
- As an administrator, generate the PRF files to save updated settings
- As an administrator, back up Oracle Beehive Extensions for Outlook settings from an existing profile and restore these settings later.
- As an administrator, modify profile settings in the PRF file generated by the configuration wizard.

Refer to "Configuration Wizard Modes" for more detailed information about the different modes of the configuration wizard.

> **Note:** While configuring a profile, it only configures Oracle Beehive Extensions for Outlook settings. You may run only one instance of the configuration wizard at a time. If you try to launch the configuration wizard a second time, the instance previously started will be displayed in the foreground.

Command Syntax

- `obioprofwiz.exe /s` *`<full path to PRF file>`*
- `obioprofwiz /d`
- `obioprofwiz /p`

Options

Table 29–6 Configuration WIzard Command Line Options

Option	Description
`/d`	Specifies that the **Set as Default Profile** option should be selected by default on the final screen of the configuration wizard.
`/p`	Runs the configuration wizard in interactive profile creation mode and creates a PRF file.
`/s` *`<full path to PRF file>`*	Runs the configuration wizard in silent profile creation mode. Specify the full path to the PRF file after this option.

> **Notes:** Although the options in the preceding table are shown as lower-case letters, these command-line options are not case-sensitive.
>
> You may enter a slash (`/`) or a minus sign (`-`) before an option at the command line.

Examples

- Create a profile interactively:

```
obioprofwiz.exe /p
```

- Run the configuration wizard in silent profile creation mode:

```
obioprofwiz.exe /s "C:\Program Files\Oracle\Outlook Extentions\source.prf"
```

- Ensure that the **Set as Default Profile** option is selected in the **Congratulations** screen of the configuration wizard.

```
obioprofwiz.exe /d
```

Configuration Wizard Modes

This section describes the following ways you may run the configuration wizard:

- Interactive Profile Creation and Configuration Mode
- Interactive PRF File Creation Mode
- Silent Profile Creation Mode

Interactive Profile Creation and Configuration Mode The interactive profile creation and configuration mode is the default mode. Use this mode to specify settings and create or modify a profile. Configure an existing profile or create a new profile by using the **Profile Settings** screen of the configuration wizard. However, you may configure only one profile in one session. You may also remove an existing profile on the **Profile Settings** screen.

1. Close Microsoft Outlook before starting the configuration wizard.
2. Launch the wizard by double-clicking the Oracle Beehive Extensions for Outlook configuration wizard, `obioprofwiz.exe`, from the installation directory.
3. From the **Welcome** screen, click **Next**.
4. If you want to create a new profile, select **New** and enter a name for the new profile. If you want to configure an existing profile, select it from the **Profiles** list. Click **Next**.
5. You may view or modify settings for the selected user profile in the **Service Settings** screen. You must fill all non-password fields to proceed to the next screen. To configure advanced settings, such as resetting your local mailbox cache, setting a folder refresh rate for incoming mail, or selecting a refresh option for the Global Address Book, click **More Settings**. Click **Next** to proceed.

   > **Note:** If Microsoft Outlook is open and you are using the same profile while you are configuring profile settings, the fields on the **Service Settings** screen are disabled.

6. When the **Congratulations** screen is displayed, verify that **Set as Default Profile** is selected. The Outlook Address Book service is added to a new profile by default.

Interactive PRF File Creation Mode As an administrator, you may run the `obioprofwiz.exe` utility in interactive PRF file creation mode. In this mode, you may create a PRF file by starting with a blank template or by importing information from an existing profile or PRF file.

By default, the PRF file created is a blank template. For security reasons, password fields are not saved in the resulting PRF file if information is imported from an existing profile. The final PRF file contains user profile information and settings information, which may be used by the configuration wizard or by the `NewProf.exe` utility.

1. Close Microsoft Outlook before starting the configuration wizard.
2. Run the configuration wizard with the `/p` option at the command line. For example:

   ```
   obioprofwiz.exe /p
   ```

3. In the **Source Template in the PRF Configuration Settings** screen, select one of the following options for the PRF file:
   - **Empty PRF File**: If you select this option as the source template, you must manually specify the settings.
   - **Existing PRF File**: If you select this option as the source template, initial settings information is imported from the source PRF file.
   - **MAPI Profile**: If you select this option as the source template, initial settings information is imported from the source profile.

   > **Note:** If you import information from an existing PRF file or MAPI profile, Microsoft Outlook address book information is added to the Service List section of the output PRF file if the existing PRF file or MAPI profile already contains address book information or the Outlook Address Book service, respectively.

4. Enter the name and location of the new PRF file in the **Destination File** field.
5. In the **Profile Options** screen, configure the settings for the General section of the new PRF file. The following table shows the relationship between the fields in the **Profile Options** screen and the parameters in the General section of the PRF file:

Table 29–7 Relationship Between Fields in the Profile Options Screen and Settings in the General Section of the PRF File

Field in Profile Options Screen	Parameter in General Section of PRF File
Profile Name	`ProfileName`
Default Store	`DefaultStore`
Use this profile as the default MAPI profile	`DefaultProfile=Yes/No`
Overwrite existing profile with the same name	`OverwriteProfile=Yes/No`

6. View or modify Oracle Beehive Extensions for Outlook settings for the selected user profile in the **Service Settings** screen. All non-password fields must be filled to proceed to the next screen. Click **Next** to proceed.

   To configure advanced settings, such as resetting your local mailbox cache, setting a folder refresh rate for incoming mail, or selecting a refresh option for the Global Address Book, click **More Settings**. The Oracle Beehive Extensions for Outlook settings information will be saved to the new PRF file.

7. If **View PRF File** is selected when the **Congratulations** screen is displayed, the wizard displays the newly created PRF file. You may then verify the information or modify parameters in the PRF file.

Silent Profile Creation Mode In this mode, you may use an existing PRF file as a template to create a corresponding profile. When installing Oracle Beehive Extensions for Outlook in silent mode, you may start the configuration wizard after the installation is complete. The configuration wizard reads information from an existing PRF file and creates a new profile or modifies an existing profile with the appropriate settings.

> **Note:** Oracle recommends that you use a PRF file generated by the Oracle Beehive Extensions for Outlook configuration wizard. You may configure most of the parameters in the PRF file with the configuration wizard in the interactive PRF file creation mode. If you modify a value manually, then you must verify that the new value falls within the valid range of values. To verify that you are within the valid range of values, consult the PRF file distributed with the installation package.

The Outlook Address Book service is imported into the profile if it is listed in the Service List section. Limited support is also available for some other types of message services.

When Oracle Beehive Extensions for Outlook is configured in silent mode, a log file is created to record success and error information. This log file is stored in a temporary folder on the computer with a path and file name similar to `C:\Documents and Settings\user\Local Settings\Temp\obioConfigWizardLog\obioConfigWizard.log`, where `user` is the login name of the currently logged in Windows user.

> **Notes:** If you are configuring Oracle Beehive Extensions for Outlook in silent mode, then you must check the log file to verify the results. The log file contains a record of errors, as well as successful imports of information into the profile.
>
> The configuration wizard may write some information to the log file in interactive profile creation and configuration mode and interactive PRF file creation mode. Usually, high-level warning messages are displayed on the screen, while low-level technical information is recorded in the log file.

Upgrading Oracle Beehive Extensions for Outlook Installation

When you provision a new version of Oracle Beehive Extensions for Outlook in the DMS repository, end users will be notified about the new update and will be able to download and install it.

If administrators prefer to upgrade to a newer version of Oracle Beehive Extensions for Outlook on end users' systems without relying on the DMS upgrade process (because, for example, the computers they want to upgrade are lockdown systems), then they need to deploy the new version of Oracle Beehive Extensions for Outlook before performing any server updates.

Alternatively, you may remove any Oracle Beehive Extensions for Outlook packages from the DMS repository so that end users are never prompted to upgrade to newer versions. Perform the following steps to remove Oracle Beehive Extensions for Outlook packages:

1. Run the following command:

   ```
   beectl list_client_applications
   ```

2. The previous command should list the following two Oracle Beehive Extensions for Outlook application packages and their identifiers:

   - Oracle Beehive Extensions for Outlook
   - Oracle Beehive Extensions for Outlook Language Pack

   Remove both client applications by running the following command (for each application):

   ```
   beectl delete_client_application
     --application <identifier of client application>
   ```

Uninstalling and Downgrading Oracle Beehive Extensions for Outlook (Non-DMS Process)

Use the following methods to uninstall or downgrade Oracle Beehive Extensions for Outlook.

Uninstalling Oracle Beehive Extensions for Outlook

End users may remove Oracle Beehive Extensions for Outlook from their computers by selecting **Add/Remove Programs** from the Control Panel, selecting Oracle Beehive Extensions for Outlook from the list, and clicking **Remove**.

Downgrading Oracle Beehive Extensions for Outlook

If you want to install downgraded versions of Oracle Beehive Extensions for Outlook on end users' systems, then simply run the installer older Oracle Beehive Extensions for Outlook version.

Installing Oracle Beehive Extensions for Outlook Using Active Directory

If your end users are running systems on Windows 2000, Windows XP, or Windows Vista that are locked down, they may install Oracle Beehive Extensions for Outlook using an Active Directory group policy. To perform an Active Directory installation, the domain administrator must create a package for Oracle Beehive Extensions for Outlook in the Active Directory Administrative Tool and then assign the package to the organization units that contain the intended end users. The software will then be installed on end users’ computers during startup.

This section covers the following topics:

- Creating MSI installation package for Oracle Beehive Extensions for Outlook
- Deploying Oracle Beehive Extensions for Outlook using Active Directory Group Policy
- Verifying that Oracle Beehive Extensions for Outlook Is Available for Installation

Creating MSI installation package for Oracle Beehive Extensions for Outlook

Active Directory only recognizes software packaged in the MSI file format, which contains information about the application setup and installation. Follow these steps to create an MSI installation package for Oracle Beehive Extensions for Outlook:

1. Extract the `outlook_extensions_application.msi` file from the Oracle Beehive Extensions for Outlook package using the `outlook_extensions_setup.exe /export type=client` *<extracted folder path>* command.
2. Extract the `prerequisite.msi` file from the Oracle Beehive Extensions for Outlook package using the `outlook_extensions_setup.exe /export type=system` *<extracted folder path>* command.

Deploying Oracle Beehive Extensions for Outlook using Active Directory Group Policy

Before proceeding, make sure you have extracted the MSI files for Oracle Beehive Extensions for Outlook to an accessible location. Follow these steps to deploy Oracle Beehive Extensions for Outlook using an Active Directory group policy:

1. From the **Start** menu, select **Control Panel**, then **Administrative Tools**.
2. Click **Active Directory Users and Computers**.
3. Create an organization unit that includes all the computers on which you want to install Oracle Beehive Extensions for Outlook. Alternatively, select an existing organization unit.
4. Right-click your chosen organization unit in the **Active Directory Users and Computers** tree.
5. From the **Shortcut** menu, click **Properties**.
6. In the **Properties** dialog box, click the **Group Policy** tab.
7. Click **Edit** if you are modifying an existing group policy, or **Add** if you are creating a group policy.

> **Note:** The following steps will ensure that Oracle Beehive Extensions for Outlook is installed on all computers in your chosen organization unit. It also ensures that all users of a given computer have access to Oracle Beehive Extensions for Outlook.

8. Select and expand the **Computer Configuration** node.
9. Under the **Computer Configuration** node, expand the **Software Settings** folder.
10. Right-click **Software Installation** and select **New**.
11. From the **Shortcut** menu, click **Package**.
12. Enter the path to your extracted **prerequisite.msi** file.
13. Selected **Assigned** and click **OK**.
14. Repeat steps 10-13 for your extracted `outlook_extensions_application.msi` file.

> **Note:** For more information on how to obtain MSI files for Oracle Beehive Extensions for Outlook, see Creating MSI installation package for Oracle Beehive Extensions for Outlook.

15. In the **Properties** dialog box, click **OK**.
16. Exit the **Active Directory Users and Computers** console.

Verifying that Oracle Beehive Extensions for Outlook Is Available for Installation

To verify that Oracle Beehive Extensions for Outlook is available to end users for installation, restart any computer in the domain and make sure that Oracle Beehive Extensions for Outlook installation starts when the computer restarts.

Using Oracle Beehive Extensions for Outlook as Profile Migration Tool

You may also use the Oracle Beehive Extensions for Outlook downloader as a tool to migrate and integrate some configurations settings into an Oracle Beehive Extensions for Outlook profile. This includes the following options:

- Migrating existing personal folder data files (files with a .pst extension) from previous profiles
- Migrating LDAP settings from previous profiles
- Adding new LDAP settings
- Adding new personal folders data file

Use the `/migrate` switch as follows:

```
outlook_extensions_downloader.exe /migrate C:\migrateinifile.ini
```

If you do not provide an initialization file (such as `C:\migrateinifile.ini` in the previous example), you will be presented with an interactive user interface that enables you to choose the personal folders data files and the LDAP settings from previous profiles to migrate.

Use the following template to create a migration initialization file:

Example 29–4 Template for Migration Initialization File

```
[migrate_psts]
Src=
Dest=
CopyFile=

[migrate_ldaps]
Src=
Dest=

[add_pst]
Path=
Dest=

[add_ldap]
Name=
Host=
Port=
Base=
SSL=
Dest=

[migrate_NK2]
Src=
Dest=
```

Table 29–8 Migration Initialization File Parameters

Section Name	Parameter Name	Description
`[migrate_psts]`	`Src`	Migrates existing personal folder data files (files with a `.pst` extension) from the specified profile or profiles. It may have one of the following values: ▪ Name of existing profile ▪ `\OCFO\` (Migrates from all Oracle Connector for Outlook profiles that already exist in the system) ▪ `\ALL\` (Migrates from all profiles that already exist in the system)
	`Dest`	Existing Oracle Beehive Extensions for Outlook profile to which the migrated settings should be added. This may be the Oracle Beehive profile created with the downloader.
	`CopyFile`	One of the following values: ▪ `TRUE` (The migrated PST file will be copied to the offline storage of the destination profile and added to it from the new location) ▪ `FALSE` (The destination profile will only have a link to the existing PST file)
`[migrate_ldaps]`	`Src`	Migrates LDAP settings from the specified profile or profiles. It may have one of the following values: ▪ Name of existing profile ▪ `\OCFO\` (Migrates from all Oracle Connector for Outlook profiles that already exist in the system) ▪ `\ALL\` (Migrates from all profiles that already exist in the system)
	`Dest`	Existing Oracle Beehive Extensions for Outlook profile to which the migrated settings should be added. This may be the Oracle Beehive profile created with the downloader.
`[add_pst]`	`Path`	Adds the settings from a specified PST file. It may have one of the following values: ▪ Absolute path to PST file ▪ Name of a PST file (its location is determined from the offline storage of the destination profile)
	`Dest`	Existing Oracle Beehive Extensions for Outlook profile to which the settings should be added. This may be the Oracle Beehive profile created with the downloader.

Table 29–8 (Cont.) Migration Initialization File Parameters

Section Name	Parameter Name	Description
`[add_ldap]`	`Name`	Display name of LDAP
	`Host`	LDAP host name
	`Port`	LDAP port number
	`Base`	LDAP base distinguished name (DN)
	`SSL`	Boolean value; specifies whether SSL is enabled (`TRUE`) or not (`FALSE`)
	`Dest`	Existing Oracle Beehive Extensions for Outlook profile to which the settings should be added. This may be the Oracle Beehive profile created with the downloader.
`[migrate_NK2]`	`Src`	Migrates nickname cache from specified profile or profiles. It may have one of the following values: ■ Name of existing profile ■ `\OCFO\` (Migrates from all Oracle Connector for Outlook profiles that already exist in the system) ■ `\ALL\` (Migrates from all Oracle Beehive Extensions for Outlook profiles that already exist in the system
	`Dest`	Existing Oracle Beehive Extensions for Outlook to which the migrated settings should be added. This may be the Oracle Beehive profile created with the downloader.

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Installing Oracle Beehive Extensions for Explorer

This module describes how to install Oracle Beehive Extensions for Explorer.

Oracle recommends that you install Oracle Beehive Extensions for Explorer using Oracle Beehive's Device Management Service (DMS). This installation method is recommended for almost all desktops with standard environments and administrative privileges. A desktop based, non-DMS installation method is available for custom environments with limited administrative privileges.

The following topics are covered:

- System Requirements
- Device Management Service (DMS) Based Installation
- Desktop Based Installation (Non-DMS Process)

System Requirements

This section describes the software and hardware requirements for Oracle Beehive Extensions for Explorer.

Operating System

- Microsoft Windows Vista: Home, Business, or Ultimate
- Microsoft Windows 2003 Server
- Microsoft Windows XP: Home or Professional

Notes: You need administrative privileges to install Oracle Beehive Extensions for Explorer on Windows XP, Windows 2003 Server, and Windows Vista.

You must install Windows XP Service Pack 2 on Windows XP computers if you intend to use non-English locales with Oracle Beehive Extensions for Explorer. Attempting to run Oracle Beehive Extensions for Explorer with a non-English locale on a computer with Windows XP Service Pack 1 (or earlier) may result in the computer failing to operate normally.

Disk Space

- 100 MB minimum

- Hard disk usage varies according to configuration. Custom installation options may require more or less hard disk space. The amount of online data the user accesses may also affect the disk space requirement.

Device Management Service (DMS) Based Installation

Oracle recommends that you install and deploy Oracle Beehive Extensions for Explorer using Oracle Beehive's Device Management Service (DMS). This installation method is recommended for almost all desktops with standard environments and administrative privileges. It is designed for centralized installation and management of auto-updates.

This section covers the following topics:

- Installing Oracle Beehive Extensions for Explorer Using Remote Downloader
- Update Oracle Beehive Extensions for Explorer Through DMS
- Uninstalling and Downgrading Oracle Beehive Extensions for Explorer (DMS Process)

Installing Oracle Beehive Extensions for Explorer Using Remote Downloader

You may install Oracle Beehive Extensions for Explorer by distributing a remote downloader to end users. The remote downloader enables end users to download and install the provisioned Oracle Beehive Extensions for Explorer application from the Device Management Service (DMS) repository. By default, the DMS contains a pre-seeded Oracle Beehive Extensions for Explorer application that is provisioned for all end users.

For more information on how to provision applications for specific users or groups of users, refer to "Managing the Device Management Service" in *Oracle Beehive Administrator's Guide*.

Obtaining Remote Downloader

Obtain the Oracle Beehive Extensions for Explorer remote downloader, `explorer_extensions_downloader.exe` in the directory `<Oracle Beehive home>/beehive/bootstrap/obee/downloader`.

You may also obtain the remote downloader from Oracle Beehive Central, a Web-based client that provides users a central location to download supported clients and set their preferences for Oracle Beehive functionality.

Pre-Seeding Server Name in Remote Downloader

The remote downloader prompts the end user to provide a server name, account name, and password to initiate download and installation. If you want to pre-seed a server name to prevent end users from having to specify a server name on their own, rename the remote downloader to `<fully qualified server name>.exe`. For example, if your server name is `faulkner.oracle.com`, your remote downloader name would be `faulkner.oracle.com.exe`.

Pre-Seeding Port Number and Secure Connection

You may pre-seed the port number that Oracle Beehive Extensions for Explorer uses to connect to the server, as well as whether a secure connection should be used, by using commas to delimit the additional information.

For example, if your remote downloader name is `faulkner.oracle.com.exe` and you want to pre-seed the port number and secure connection in the downloader, rename the file to `faulkner.oracle.com,5223,SSL.exe`, where `5223` is your port number and `SSL` means that you want to use a secure connection.

If you want to use a non-secure connection, replace `SSL` with the string `NOSSL` in the file name. For example, to use a non-secure connection, rename the file to `faulkner.oracle.com,5223,NOSSL.exe`.

Note: You may only pre-seed port number and connection type when using the direct connection method for Oracle Beehive Extensions for Explorer.

Installing Oracle Beehive Extensions for Explorer Using Remote Downloader Using Silent Mode

This option is available for Oracle Beehive Release 1 (1.5.1.2) and later.

You may also use the Oracle Beehive Extensions for Explorer downloader to provide a full, non-interactive deployment option. To do so, use the silent switch, `/s`.

Specify the required connection parameters through the command line or in an initialization file.

Specifying Connection Parameters Through Command Line The following is an example of specifying connection parameters through the command line (line breaks have been added for clarity):

```
explorer_extensions_downloader.exe
  /server example.com
  /user OracleBeehiveUserName
  /pass Welcome1
  /direct port=5224 secure=true
  /https port=443 secure=true
  /s
```

The following table describes the Oracle Beehive Extensions for Explorer downloader's command line options::

Table 30–1 Oracle Beehive Extensions for Explorer Downloader Options

Option	Description
`/server`	Oracle Beehive server address
`/user`	Oracle Beehive user account
`/password`	User's password

`/direct port=`*`<port number>`*
`secure=`*`<true/false>`*
	Specifies the following for direct connection:
	- `port`: Valid port number to be used to establish a direct connection
	- `secure`: Boolean value; if `true`, then use a secure connection

`/https port=`*`<port number>`*
`secure=`*`<true/false>`*
	Specifies the following for HTTPS connection:
	- `port`: Valid port number to be used to establish an HTTPS connection
	- `secure`: Boolean value; if `true`, then use a secure connection

Table 30–1 (Cont.) Oracle Beehive Extensions for Explorer Downloader Options

Option	Description
`/create_profile`	Determines if an Oracle Beehive Extensions for Explorer profile should be created on the user's computer during installation. This parameter may be assigned one of the following values: - `0`: Do not create a profile - `1`: Always create a profile (either for a new install or an upgrade) - `2`: Only create a profile for a new install (default value) - `3`: Only create a profile if there is no profile with the exact name that exists on the user's computer (either for a new install or upgrade)
`/profile_name`	Changes the name of the profile created during installation of Oracle Beehive Extensions for Outlook. The default profile name is `Beehive`.
`/repair`	Downloads and reinstalls the MSI package from the DMS if the installed version on the user's computer is the same version as the MSI package. If `/create_profile` option has a value of `1` or `3`, then the `/repair` option is used even if it is not specified.
`/launch_explorer`	Determines if Windows Explorer is launched after Oracle Beehive Extensions for Explorer is installed. This parameter may be assigned one of the following values: - `0`: Do not launch Windows Explorer - `1`: Launch Windows Explorer (default value)
`/s`	Use silent mode

Specifying Connection Parameters in Initialization File Specify the full path of the initialization file you want to use as follows. In this example, `C:\testSilentDownloader.ini` is the full path of the initialization file:

```
explorer_extensions_downloader.exe /s C:\testSilentDownloader.ini
```

If you use the silent switch with a `UI=1` parameter, the connection dialog will be presented in which all the controls are disabled and only the password field is enabled:

```
explorer_extensions_downloader.exe /s UI=1 C:\testSilentDownloader.ini
```

The downloader will return a value of `1` or `0`, which indicates whether the operations performed by it failed (`1`) or were successful (`0`). You may use this returned value in a script to determine whether or not the remote downloader was successful.

Use the following template to create a silent initialization file:

Example 30–1 Template for Silent Initialization File

```
[General]
Account_Name=
Server=
User=
Direct_Port=
Direct_Secure=
Direct_Enable=
HTTPS_PORT=
HTTPS_Secure=
HTTPS_Enable=TRUE
Proxy=
Proxy_Type=0
Proxy_URL=
Use_Existing=
Default=
Remember_Pwd=
Timeout=120000
```

The following table describes the silent initialization file's parameters:

Table 30–2 Initialization FIle Parameters

Initialization File Parameter	Description
`Account_Name`	Changes the name of the profile created during installation of Oracle Beehive Extensions for Outlook. The default profile name is `Beehive`.
`Server`	Oracle Beehive server address
`User`	Oracle Beehive user account
`Direct_Port`	Valid port number to be used to establish a direct connection
`Direct_Secure`	Boolean value; specifies whether to use a direct connection (`TRUE`) or not (`FALSE`)
`Direct_Enable`	Boolean value; specifies whether to enable the direct connection (`TRUE`) or not (`FALSE`)
`HTTPS_PORT`	Valid port number to be used to establish an HTTPS connection
`HTTPS_Secure`	Boolean value; specifies whether to use an HTTPS connection (`TRUE`) or not (`FALSE`)
`Proxy`	Manual proxy configuration (for example, `myproxy.us.oracle.com:1234`)
`Proxy_Type`	Specifies the proxy type. It may have a value of `0`, `1`, or `2`: ▪ `0`: Automatic proxy setting ▪ `1`: Use Web browser's proxy settings ▪ `2`: Manual proxy configuration as specified in the Proxy parameter
`Proxy_URL`	Manual proxy configuration (for example, `myproxy.us.oracle.com:1234`)

Table 30–2 (Cont.) Initialization FIle Parameters

Initialization File Parameter	Description
`Use_Existing`	Boolean value: ■ `TRUE`: Existing account is re-configured based on new settings. Workspace favorites are not reset. No new account is created. ■ `FALSE`: Existing account is not re-configured. New account is created based on new settings. ■ If no value is specified, existing account is not re-configured. No new account is created.
`Default`	
`Timeout`	

Update Oracle Beehive Extensions for Explorer Through DMS

You may update the version of Oracle Beehive Extensions for Explorer in the DMS repository. Afterwards, if Oracle Beehive Extensions for Explorer is running on an end user's computer, it will automatically prompt the end user to download and install updates from the DMS repository.

In addition, end users may also manually search for updates by selecting **About Oracle Beehive Extensions for Explorer** from the **Help** menu and clicking **Check for Updates**.

The following topics are covered in this section:

- Updating Oracle Beehive Extensions for Explorer in DMS Repository
- Updating Language Pack for Oracle Beehive Extensions for Explorer

Updating Oracle Beehive Extensions for Explorer in DMS Repository

Follow these steps to update the version of Oracle Beehive Extensions for Explorer in the DMS repository:

1. Make sure the application package for the updated version of Oracle Beehive Extensions for Explorer is accessible to the Oracle Beehive server.
2. Upload the updated version of Oracle Beehive Extensions for Explorer to the DMS repository by running the following command:

```
beectl upload_client_application
  --file <Path to Oracle Beehive Extensions for Explorer zip file>
```

> **Note:** This command will upload the new version of the Oracle Beehive Extensions for Explorer application to the DMS repository and will make it available for those who are already provisioned to it.
>
> If you have not provisioned Oracle Beehive Extensions for Explorer, run the provisioning commands (such as `beectl add_client_application_provisioning`). Refer to "Managing the Device Management Service" in Oracle Beehive Administrator's Guide for more information.

If Oracle Beehive Extensions for Explorer is running on an end user's computer, it will automatically prompt the end user to download and install updates from the DMS repository. End users may also manually search for updates by selecting **About Oracle Beehive Extensions for Explorer** from the **Help** menu and clicking **Check for Updates**.

Updating Language Pack for Oracle Beehive Extensions for Explorer

You may localize the user interface of Oracle Beehive Extensions for Explorer to match Windows Explorer languages by updating the language pack with the one found at `<Oracle Beehive home>/beehive/bootstrap/obee/languagepack`. The following languages are currently supported in the language pack:

- French
- German
- Italian
- Spanish
- Brazilian Portuguese
- Japanese
- Korean
- Simplified Chinese
- Traditional Chinese

To update the language pack for Oracle Beehive Extensions for Explorer, upload it to the DMS repository using the `beectl upload_client_application` command. By default, the language pack is uploaded and provisioned to all users. Follow these steps to update the language pack:

1. Make sure the language pack for Oracle Beehive Extensions for Explorer is accessible to the Oracle Beehive server.
2. Upload the language pack for Oracle Beehive Extensions for Explorer to the DMS repository by running the following command:

```
beectl upload_client_application
  --file <Path to Oracle Beehive Extensions for Explorer language pack>
```

If Oracle Beehive Extensions for Explorer is running on an end user's computer, it will automatically prompt the end user to download and install updates (including language packs) from the DMS repository. End users also may manually search for updates by selecting **About Oracle Beehive Extensions for Explorer** from the **Help** menu and clicking **Check for Updates**.

> **Note:** The language installed by the Oracle Beehive Extensions for Explorer language pack will automatically match Windows Explorer, provided that Oracle Beehive Extensions for Explorer supports the language. If the end user has Windows Explorer in an unsupported language, Oracle Beehive Extensions for Explorer will default to English.

Uninstalling and Downgrading Oracle Beehive Extensions for Explorer (DMS Process)

Use the following methods to uninstall or downgrade Oracle Beehive Extensions for Explorer.

Uninstalling Oracle Beehive Extensions for Explorer

End users may remove Oracle Beehive Extensions for Explorer from their computers by selecting **Add/Remove Programs** from the Control Panel, selecting **Oracle Beehive Extensions for Explorer** from the list, and clicking **Remove**.

Downgrading Oracle Beehive Extensions for Explorer

By default, Oracle Beehive Extensions for Explorer will only detect updates if the server version is newer than the currently installed version. If you want to allow end users to install downgraded versions of Oracle Beehive Extensions for Explorer as updates, set the value of the `INSTALL:AllowDowngrade` Property node to `TRUE` in your provisioning file.

Configuring Oracle Beehive Extensions for Explorer Using MSI Package

This option is available for Oracle Beehive Release 1 (1.5.1.2) and later.

The following table describes the public properties you may specify:

Table 30–3 MSI Package Public Properties

Property	Description
`CREATE_PROFILE`	Determines if an Oracle Beehive Extensions for Explorer profile should be created on the user's computer during installation. This parameter may be assigned one of the following values: ■ `0`: Do not create a profile ■ `1`: Always create a profile (either for a new install or an upgrade) ■ `2`: Only create a profile for a new install (default value) ■ `3`: Only create a profile if there is no profile with the exact name that exists on the user's computer (either for a new install or upgrade)
`EXISITNG_PROFILE_OPTION`	Boolean value: ■ `TRUE`: Existing account is re-configured based on new settings. Workspace favorites must not be reset. No new account is created. ■ `FALSE`: Existing account must not be re-configured. New account is created based on new settings. ■ If no value is specified, existing account must not be re-configured. No new account is created. If `CREATE_PROFILE=2`, `EXISTING_PROFILE_OPTION` is not used, and the `Use_Existing` option in the configuration file is not used, then the value of this property is `TRUE`.
`PROFILE_NAME`	Changes the name of the profile created during installation of Oracle Beehive Extensions for Outlook. The default profile name is `Beehive`.
`LAUNCH_EXPLORER`	Determines if Windows Explorer is launched after Oracle Beehive Extensions for Explorer is installed. This parameter may be assigned one of the following values: ■ `0`: Do not launch Windows Explorer ■ `1`: Launch Windows Explorer (default value)

Desktop Based Installation (Non-DMS Process)

It is recommended to install Oracle Beehive Extensions for Explorer using Oracle's Device Management Service (DMS). However, custom environments with limited administrative privileges may require a desktop based method of installation that is non-DMS based.

This section covers the following topics:

- Installing Oracle Beehive Extensions for Explorer Using Executable File
- Upgrading Oracle Beehive Extensions for Explorer Installation
- Uninstalling and Downgrading Oracle Beehive Extensions for Explorer (Non-DMS Process)

Installing Oracle Beehive Extensions for Explorer Using Executable File

You may give end users direct access to the Oracle Beehive Extensions for Explorer installer. End users install the product by double-clicking the installer and following the on-screen instructions.

Retrieve the installer `explorer_extensions_setup.exe` from `<`*`Oracle Beehive home`*`>/beehive/bootstrap/obee/setup`.

Upgrading Oracle Beehive Extensions for Explorer Installation

When you provision a new version of Oracle Beehive Extensions for Explorer in the DMS repository, end users will be notified about the new update and will be able to download and install it.

If administrators prefer to upgrade to a newer version of Oracle Beehive Extensions for Explorer on end users' systems without relying on the DMS upgrade process, then they need to deploy the new version of Oracle Beehive Extensions for Explorer before performing any server updates.

Alternatively, you may remove any Oracle Beehive Extensions for Explorer packages from the DMS repository so that end users are never prompted to upgrade to newer versions. Perform the following steps to remove Oracle Beehive Extensions for Explorer packages:

1. Run the following command:

   ```
   beectl list_client_applications
   ```

2. The previous command should list the following two Oracle Beehive Extensions for Explorer application packages and their identifiers:

   - Oracle Beehive Extensions for Explorer
   - Oracle Beehive Extensions for Explorer Language Pack

   Remove both client applications by running the following command (for each application):

   ```
   beectl delete_client_application
     --application <identifier of client application>
   ```

Uninstalling and Downgrading Oracle Beehive Extensions for Explorer (Non-DMS Process)

Use the following methods to uninstall or downgrade Oracle Beehive Extensions for Explorer.

Uninstalling Oracle Beehive Extensions for Explorer

End users may remove Oracle Beehive Extensions for Explorer from their computers by selecting **Add/Remove Programs** from the Control Panel, selecting Oracle Beehive Extensions for Explorer from the list, and clicking **Remove**.

Downgrading Oracle Beehive Extensions for Explorer

If you want to install downgraded versions of Oracle Beehive Extensions for Explorer on end users' systems, then simply run the installer older Oracle Beehive Extensions for Explorer version.

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Installing Oracle Beehive Conferencing Client

This module describes how to install the Oracle Beehive Conferencing client.

Oracle recommends that you install the Oracle Beehive Conferencing client using Oracle Beehive's Device Management Service (DMS). This installation method is recommended for all desktops with standard environments. Currently a desktop based, non-DMS installation method is not available for custom installation.

The following topics are covered:

- System Requirements
- Device Management Service (DMS) Based Installation

System Requirements

This section describes the software and hardware requirements for the Oracle Beehive Conferencing client.

Operating System

- Microsoft Windows Vista: Home, Business, or Ultimate
- Microsoft Windows XP: Home or Professional

Note: Write privileges are required for the destination folder of the installation path of Oracle Beehive Conferencing.

Microsoft Installer framework version 2.0 or above is required. This framework is included in Microsoft Windows XP and later versions of Microsoft Windows.

Disk Space

- 100 MB minimum
- Hard disk usage varies according to configuration. Custom installation options may require more or less hard disk space.

Device Management Service (DMS) Based Installation

Oracle recommends that you install and deploy the Oracle Beehive Conferencing client using Oracle Beehive's Device Management Service (DMS). This installation method is recommended for all desktops with standard environments. It is designed for centralized installation and management of auto-updates.

This section covers the following topics:

- Installing Oracle Beehive Conferencing Client Using Remote Downloader
- Updating Oracle Beehive Conferencing in DMS Repository
- Uninstalling and Downgrading Oracle Beehive Conferencing Client

Installing Oracle Beehive Conferencing Client Using Remote Downloader

You may install the Oracle Beehive Conferencing client by distributing a remote downloader to end users. The remote downloader enables end users to download and install the provisioned Oracle Beehive Conferencing client application from the Device Management Service (DMS) repository. By default, the DMS contains a pre-seeded Oracle Beehive Conferencing client application that is provisioned for all end users.

Obtaining Remote Downloader

Obtain the Oracle Beehive Conferencing client remote downloader, `BeehiveConferencingSetup.exe`, from the directory *`<Oracle Beehive home>`*`/beehive/bootstrap/confclient/downloader`.

You may also obtain the remote downloader from Oracle Beehive Central, a Web-based client that provides users a central location to download supported clients and set their preferences for Oracle Beehive functionality.

DMS Connection Settings

You may specify the address and port of the DMS in the name of the downloader executable or through the command line.

Specifying Connection Parameters in Executable Name The Oracle Beehive Conferencing client downloader requires only the address and port of the DMS to function correctly. The port is always the normal HTTP(s) port that the Oracle Beehive server is using.

To specify DMS settings in the file name of the downloader, rename it using the following form:

```
<downloader name>,<DMS address>,<DMS port>.exe
```

- *`<downloader name>`*: This is the name given to the downloader. You may use any name.
- *`<DMS address>`*: This is the address of the DMS.
- *`<DMS port>`*: This is the port number of the DMS. It is always the normal HTTP(s) port that the Oracle Beehive server is using.

Note that you must use a comma (`,`) to separate DMS settings in the name of the downloader. The following is a valid example of a file name of the downloader:

```
BeehiveConferencingSetup,beehive.oracle.com,443.exe
```

Specifying Connection Parameters Through Command Line You may specify DMS connection settings through the command line. The following table describes the command line options that the Oracle Beehive Conferencing client downloader currently supports:

Table 31–1 Oracle Beehive Conferencing Downloader Options

Option	Description
`/server`	Oracle Beehive server address
`/dm_port`	Specifies the port used by the DMS for communication. **Note**: Specify the normal HTTP(s) port that the Oracle Beehive server is using.

The following is an example of specifying connection parameters through command line options:

```
BeehiveConferencingSetup.exe /server beehive.oracle.com /dm_port 443
```

Additional Command Line Options

The Oracle Beehive Conferencing client downloader version 1.5.1.2 and later supports the following additional command line options:

Table 31–2 Oracle Beehive Conferencing Downloader Options

Option	Description
`/nolaunch`	Stops the downloader from launching Oracle Beehive Conferencing after installation. By default, the application is launched after installation.
`/user`	Specifies the Oracle Beehive user account that is seeded in the Oracle Beehive Conferencing configuration file. **Note**: User names that contain spaces must be enclosed within quotation marks (`""`).

The following are examples of specifying these downloader options:

- `BeehiveConferencingSetup.exe /server beehive.oracle.com /dm_port 443 /user John.Doe@oracle.com`
- `BeehiveConferencingSetup.exe /server beehive.oracle.com /dm_port 443 /nolaunch`
- `BeehiveConferencingSetup,beehive.oracle.com,443.exe /user John.Doe@oracle.com /nolaunch`

Remote Downloader Return Values

The Oracle Beehive Conferencing client downloader returns `0` for a successful installation and a non-zero value to indicate that an error occurred. If the error occurred during the installation phase, the `msiexec.exe` error code is returned.

Updating Oracle Beehive Conferencing in DMS Repository

Follow these steps to update the version of the Oracle Beehive Conferencing client in the DMS repository:

1. Make sure the application package for the updated version of the Oracle Beehive Conferencing client is accessible to the Oracle Beehive server.

2. Upload the updated version of the Oracle Beehive Conferencing client to the DMS repository by running the following command:

```
beectl upload_client_application --file <path to Oracle Beehive Conferencing
zip file>
```

Note: This command uploads the new version of the Oracle Beehive Conferencing client application to the DMS repository and makes it available for those who are already provisioned to it.

If you have not provisioned the Oracle Beehive Conferencing client, run the provisioning commands (such as `beectl add_client_application_provisioning`). Refer to "Managing the Device Management Service" in *Oracle Beehive Administrator's Guide* for more information.

Note: End users may also re-run the remote downloader to install any updated version uploaded to the DMS repository. If the version of the Oracle Beehive Conferencing client in the DMS repository is the same as the one installed in an end user's computer, re-running the remote downloader simply reinstalls the application.

Updating Oracle Beehive Conferencing Through DMS

After you update the version of the Oracle Beehive Conferencing client in the DMS repository, when an end user starts the client, Oracle Beehive will automatically check, download, and install any updates from the DMS repository. Oracle Beehive always checks for a newer version when the Oracle Beehive Conferencing client is started.

Uninstalling and Downgrading Oracle Beehive Conferencing Client

Use the following methods to uninstall or downgrade the Oracle Beehive Conferencing client.

Uninstalling Oracle Beehive Conferencing Client

End users may uninstall the Oracle Beehive Conferencing client from their computers by selecting **Add/Remove Programs** from the **Control Panel**, selecting **Oracle Beehive Conferencing** from the list, and clicking **Remove**.

Downgrading Oracle Beehive Conferencing Client

End users are always forced to upgrade or downgrade the Oracle Beehive Conferencing client depending on the version in the DMS repository.

32

Configuring Oracle Beehive Integration for Zimbra

Oracle Beehive Integration for Zimbra is available for Oracle Beehive Release 1 (1.3) and later.

Oracle Beehive Integration for Zimbra is installed in an Oracle home separate from Oracle Beehive. As a result, Oracle Beehive Integration for Zimbra acts like an application tier and should be configured as such.

If you have not configured TLS or SSL for your Oracle Beehive deployment, you do not need to perform any post-installation steps.

This section covers the following topics:

- Configuring Oracle Beehive Integration for Zimbra for SSL-Enabled Oracle Beehive Deployment
- Changing HTTP Port for Oracle Beehive Integration for Zimbra

Configuring Oracle Beehive Integration for Zimbra for SSL-Enabled Oracle Beehive Deployment

If you have configured TLS or SSL for your Oracle Beehive deployment, follow these steps to configure Oracle Beehive Integration for Zimbra (these steps are similar to "Configuring SSL with Self-Signed Certificates During Installation of Oracle Beehive"):

1. If you have configured SSL for your Oracle Beehive deployment, ensure that all your Oracle Beehive application tiers are configured for SSL, including DMZ instances. Refer to "Configuring SSL".
2. Perform a software only install for Oracle Beehive Integration for Zimbra.
3. Replace `orapki` and Oracle Wallet Manager (`owm`) binaries of Oracle Beehive Integration for Zimbra with those from your Oracle Beehive instance. Create a new wallet located in `<`*`Oracle Beehive Integration for Zimbra home`*`>/Apache/Apache/conf/ssl.wlt/default`. Refer to "Step 1: Enabling Auto Login Mode for Default Wallet" for directions to create a wallet.
4. If you are using self-signed (CA-signed) certificates for your application tier wallets, perform this step.

   Remove the test certificates using Oracle Wallet Manager from the wallets in `<`*`Oracle Beehive Integration for Zimbra home`*`>/opmn/conf/ssl.wlt/default` and `<`*`Oracle Beehive Integration for Zimbra home`*`>/Apache/Apache/conf/ssl.wlt/default`, if any. The order of removal should be (1) user certificate, (2) certificate request, and (3) trusted certificate. Refer to "Creating CA-Signed Certificate and Importing it into Wallet" for information about CA-signed certificates.

5. Run the Config Wizard for Oracle Beehive Integration for Zimbra and complete the configuration.
6. Configure TLS for Oracle Beehive Integration for Zimbra. Perform "Step 2: Configuring Oracle Beehive Instance to Use Oracle Wallet". (Note that you already created an auto-login wallet for Oracle Beehive Integration for Zimbra in a previous step.
7. If you are using self-signed (CA-signed) certificates for your application tier wallets, perform this step.

   Remove the test certificates using Oracle Wallet Manager from the wallets in `<Oracle Beehive Integration for Zimbra home>/Apache/Apache/conf/ssl.wlt/default`, if any.

Note: Oracle Beehive Integration for Zimbra installation will fail if the default test certificates are still in the wallets of your Oracle Beehive instances. Configure TLS on the failed Oracle Beehive Integration for Zimbra home, as described in "Configuring TLS with Oracle Wallet", and click **Retry** from the Install Wizard.

Changing HTTP Port for Oracle Beehive Integration for Zimbra

If Oracle Beehive Integration for Zimbra and your Oracle Beehive instance are on **different** hosts, then use the command `beectl modify_port --protocol HTTP` to change the HTTP port. However, do not use this command if Oracle Beehive Integration for Zimbra and your Oracle Beehive instance are on the same host; this will configure all your Oracle Beehive instances to use the same port, which will create a port conflict.

If Oracle Beehive Integration for Zimbra and your Oracle Beehive instance are on the **same** host, change the HTTP port for Oracle Beehive Integration for Zimbra by changing the HTTP port of your Oracle Beehive instance.

Note: If you want to change the HTTP port number of your Oracle Beehive instance to a value less than 1024, refer to "Changing HTTP Port" in "Oracle Beehive Post-Installation Procedures".

1. Determine the name of the listening component and property name of the port you want to change. Run the `beectl list_ports` command to list all available ports (the --format option is optional):

```
beectl list_ports --format xml

...
   <row>
      <column name="Protocol">HTTP</column>
      <column name="Listening Port">7777</column>
      <column name="Virtual Port">7777</column>
      <column name="Defining Component">ohs_site1.example.com</column>
      <column name="Property Name">HttpListenPort</column>
      <column name="Listening Component">ohs_site1.example.com</column>
   </row>
```

```
<row>
   <column name="Protocol">HTTPS</column>
   <column name="Listening Port">4443</column>
   <column name="Virtual Port">4443</column>
   <column name="Defining Component">ohs_site1.example.com</column>
   <column name="Property Name">HttpSslListenPort</column>
   <column name="Listening Component">ohs_site1.example.com</column>
</row>
```

In the previous example, the HTTP (and HTTPS) listening component is `ohs_site1.example.com`. The property name of the HTTP port is `HttpListenPort`, and the property name of the HTTPS port is `HttpSslListenPort`.

2. Change the listening port with the `beectl modify_property` command with the appropriate listening component and property name. The following example changes the HTTP port to 7779:

```
beectl modify_property
  --component ohs_site1.example.com --name HttpListenPort --value 7779
```

3. Change the HTTP (or HTTPS) port number in the _VIRTUAL_SERVER component. The following example changes the HTTP port number. (Use the property name HttpSslPort to change the HTTPS port number):

```
beectl modify_property --component _VIRTUAL_SERVER --name HttpPort --value 7779
```

4. Activate configuration and commit changes:

```
beectl activate_configuration
beectl modify_local_configuration_files
```

> **Note:** The `beectl modify_local_configuration_files` command will ask you to run this command on all your other instances. **Do not run this command on all your other instances at this time.** For each instance, perform steps 1 to 3 before running the `beectl modify_local_configuration_files` command.

33

Cloning Oracle Beehive Application Tiers and Sites

This module covers the follwing topics:

- Introduction to Cloning
- Preparing Source Application Tier Instance
- Application Tier Cloning
- Site Cloning
- OC4J Instance Cloning
- Oracle Beehive Integration for Zimbra Cloning

This module also covers the following topics about customizing and troubleshooting the cloning process:

- Customizing Files or Directories in a Cloned Image
- Customizing Ports in a Cloned Instance
- Cloning Application Tiers and Sites with Ports Less Than 1024
- Oracle Inventory Location Option of Clone Commands on UNIX-Based Systems
- Cloned Application Tiers Are Not Automatically SSL or AJPS Enabled
- Cloned Application Tiers and LDAP Synchronization
- Replicating LDAP Server for Cloned Instance
- Site Cloning and Multiple Instances
- References to Oracle Application Server Cloning Documentation

Introduction to Cloning

Cloning is the process of copying an existing installation to a different location while preserving its configuration.

Cloning enables you to safely modify an existing Oracle Beehive instance in production, such as installing a new patch or making changes to the database. Clone your existing Oracle Beehive instance and apply your changes to the clone. Once you have verified and certified that your changes work as expected, you may safely apply those changes to your Oracle Beehive instance in production.

A cloned installation behaves the same as the source installation. For example, you can uninstall or patch the cloned instance with the Oracle Beehive Install Wizard. You can also use a cloned installation as the source for another cloning operation.

The cloning process works by copying all files from the source Oracle home to the destination Oracle home. Hence, the cloning process does not copy any files used by the source instance that are located outside the source Oracle home's directory structure. After the files are copied, a set of `beectl` commands are used to update the information in key configuration files.

Note: A wallet (if one has been configured in the source Oracle home) will be copied to the destination Oracle home. However, the clone will deliberately stop referring to the location of the wallet in the cloned application tier. You will have to manually reconfigure the wallet for the cloned application tier.

Do not overwrite the wallet in the cloned application tier.

Oracle Beehive services deployed in the source instance are also copied to the cloned instance and automatically deployed.

This module describes three cloning procedures: "Application Tier Cloning", "Site Cloning" and "OC4J Instance Cloning".

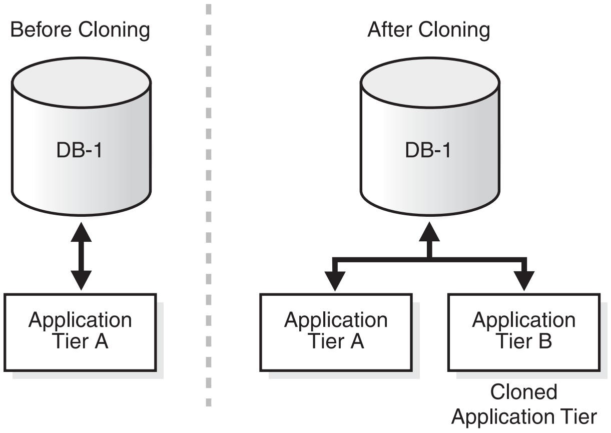
Application Tier Cloning

Application tier cloning involves the following steps:

1. **Preparing the source**: This step involves creating an image of the application tier to clone, calling the `beectl clone_preparation` command, and archiving the required files in the Oracle home in a zip file. The cloned application tier is called the *source instance* or *source image*, and the zip file is called the *clone image*.
2. **Cloning the application tier**: This step involves creating a new application tier. It involves unzipping the clone image and calling the `beectl clone_midtier` command. The new application tier is called the *cloned application tier* or *target application tier*.

The following image illustrates where a cloned application tier is located in relation to the database and the source application tier:

Figure 33–1 Application Tier Cloning



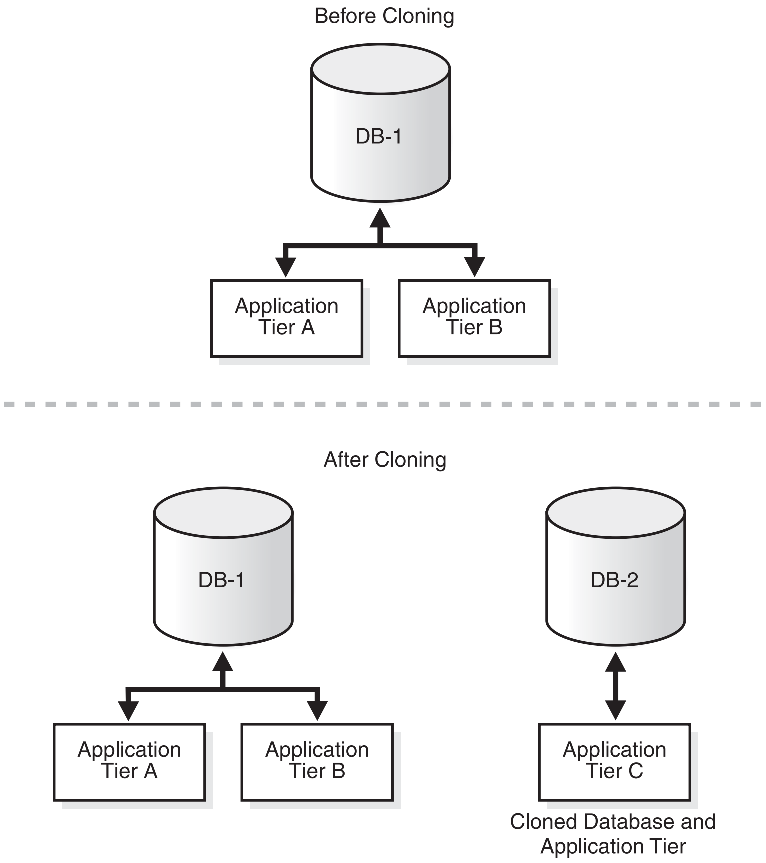
Site Cloning

Site cloning involves the following steps:

1. **Cloning the information in the database**: Oracle Beehive stores its centralized configuration information and business data in Oracle Database. This step involves cloning this data using standard database backup-recovery procedures (such as RMAN and export-import) into a new instance of Oracle Database. This ensures no overlap or sharing between the existing deployment (the cloned instance) and the new site (the new instance).
2. **Preparing the source**: This step is the same as the one described in "Application Tier Cloning".
3. **Cloning the application tier instance in the new site**: This step creates an application tier in the new site. It involves unzipping the image created during the preparing the source step, and calling the `beectl clone_site` command.

The following image illustrates where a cloned site (a cloned application tier and its database) is located in relation to the source database instance and source application tiers:

Figure 33–2 Site Cloning



Note: As Figure 33–2, "Site Cloning" illustrates, site cloning will create a single application tier in the cloned site irrespective of the number of application tiers in the source site.

To create multiple application tiers in the cloned site, follow the procedures for application tier cloning for each application tier.

Note that the cloned application tier will not be SSL enabled if the source application tier was. For more information, refer to "Cloned Application Tiers Are Not Automatically SSL or AJPS Enabled".

OC4J Instance Cloning

OC4J instance cloning enables you to clone Oracle Beehive's managed components. When you clone an Oracle Beehive managed component, a new OC4J instance is created and all the services in the source managed component are deployed in the newly cloned OC4J instance.

Oracle Beehive Integration for Zimbra Cloning

You may clone an instance of Oracle Beehive Integration for Zimbra. Refer to "Oracle Beehive Integration for Zimbra Cloning" for more information.

Preparing Source Application Tier Instance

Follow these steps to create a source image of the application tier you want to clone:

- Step 1: Verify Requirements
- Step 2: Clear or Activate Any Pending Configuration Changes to the Central Configuration Repository
- Step 3: Shut Down All Processes On the Application Tier
- Step 4: Call beectl clone_preparation Command
- Step 5: Zip Files to Create Clone Image

Step 1: Verify Requirements

Ensure that the chipset and the operating system version of the source computer is the same as the destination computer. (The source computer contains the installation of Oracle Beehive you want to clone.)

Windows

You must have administrator privileges to clone an installation of Oracle Beehive.

Step 2: Clear or Activate Any Pending Configuration Changes to the Central Configuration Repository

The cloning commands update the central configuration repository (the database tables of the Oracle Beehive schema).

If you have made any changes to the central configuration repository (for example, by running the `beectl modify_property` command), activate those changes by running `beectl activate_configuration` or clear them by running `beectl clear_proposed_configuration`.

Not activating or clearing any pending configuration changes may hinder the cloning process.

Step 3: Shut Down All Processes On the Application Tier

Call the command `beectl stop --all` to shut down all processes running in the source Oracle home.

Note: Shutting down all processes in the application tier is *not* strictly required but it is advisable. This ensures that none of the files in the Oracle home are in use. You will later archive the Oracle home into a zip file. You may receive warnings or errors from your zip tool if some files are in use.

Step 4: Call beectl clone_preparation Command

The `beectl clone_preparation` command calls the Oracle Application Server `prepare_clone.pl` script, which creates local copies of several files that contain information useful for the cloning process. For example, this command creates a file in the Oracle home that contains the current host name and Oracle home path. The cloning process uses this information to search for and replace various strings in local configuration files on the target application tier.

This command also outputs a list of files (relative to the location of Oracle home) required to be zipped up to create the clone image.

The cloning commands (`beectl clone_midtier` and `beectl clone_site`) will fail if you have not called the `beectl clone_preparation` command previously:

```
beectl clone_preparation --file <fully qualified file name>
```

The following table describes the options for the `beectl clone_preparation` command:

Table 33–1 beectl clone_preparation Options

Option	Mandatory/ Optional	Description
--file	Mandatory	The name of the text file that will be created by the `beectl clone_preparation` command. This text file will contain the names of files in the source Oracle home to be copied for cloning to the target location. All the files in source Oracle home need not be copied because log files, cache data, and other security files specific to the Oracle home will not be useful on the cloned Oracle home and may present a security concern. **Note:** This text file **must not** be located in the Oracle home because you may receive warnings or errors from some zip tools about zipping an open file.

Step 5: Zip Files to Create Clone Image

First, verify that the command `<`*`Oracle home`*`>/beehive/bin/hasbind` is owned by the user who installed your Oracle Beehive instance; change the owner of the command if this is not the case.

Archive and compress the files listed in the file generated by the `beectl clone_preparation` command. Use a file archiver tool that can archive and compress a list of files that total at least 2 Gb in size. Also, make sure that the tool preserves the permissions and timestamps of the files. For example, you may use the tool 7-Zip, which you may download from `http://www.7-zip.org/`.

Use the following command to archive the Oracle Beehive home with the 7-Zip tool:

```
C:\7-zip\7z.exe a C:\clone_beehive.7z @C:\clone_prepare.txt
```

`C:\clone_prepare.txt` is the file generated by the `beectl clone_preparation` command. `C:\clone_beehive.7z` is the name of the file that contains the archived Oracle Beehive home.

WARNING: Only archive and compress those files listed in the file generated by the `beectl clone_preparation` command, not the entire Oracle home you want to clone.

Alternatively, you may use the `tar` and `gzip` commands.

The following example shows how to archive and compress the source on Linux:

```
cd <source Oracle home>
tar -c -T <file created by beectl clone_preparation command> -f - | gzip >
  clone_image.tar.gz
```

Notes: In some Solaris environments, because of `stdout` limitations, the `gzip` command may not be able to create a tar file of the Oracle home properly. In this case, use two commands to archive and compress the Oracle home:

1. Create a tar file:

   ```
   cd $ORACLE_HOME
   tar cf /tmp/clone_beehive.tar -I /tmp/clone_prepare.txt
   ```

2. Compress the tar file with `gzip`:

   ```
   gzip /tmp/clone_beehive.tar
   ```

The `tar` command may issue warnings if the sticky bit is set on some files. You can safely ignore these warnings.

Ensure that the file created by the `tar` command (in the previous example, this would be `clone_image.tar.gz`) is not located in the Oracle home; the `tar` command may fail.

You may receive an error message similar to the following when using this `tar` command:

```
tar: sqljdbc.dll: Cannot stat: No such file or directory
tar: instjdbc.sql: Cannot stat: No such file or directory
tar: sqljdbc.dll: Cannot stat: No such file or directory
tar: instjdbc.sql: Cannot stat: No such file or directory
tar: pool.jar: Cannot stat: No such file or directory
tar: Error exit delayed from previous errors
```

If you encounter this error, shutdown all processes on your Oracle Beehive application tier with the `beectl stop --all` command before creating the clone image again.

Do not use the `jar` utility to archive and compress the Oracle home. This avoids warnings or errors from the zip tool about zipping open files (for example, the *`<Oracle home>`*`/jdk` files).

Application Tier Cloning

Cloning the application tier consists of the following steps:

- Step 1: Unzip Compressed Oracle Home
- Step 2: Set PERL5LIB Environment Variable
- Step 3: Modify Oracle Home Path
- Step 4: Execute beectl clone_midtier Command
- Step 5: Perform Miscellaneous Operations

Step 1: Unzip Compressed Oracle Home

1. Copy the compressed Oracle home from the source computer to the destination computer.
2. Extract the compressed Oracle home into a directory, which will become the new Oracle home at the destination location.

If you are using 7-Zip as your file archiver tool, extract the compressed Oracle home with the following commands:

```
cd C:\new_oracle_home
C:\7-zip\7z.exe x -r C:\clone_beehive.7z
```

If you are using `tar` and `gunzip`, extract the compressed Oracle home with the following commands:

```
mkdir -p <destination Oracle home>
cd <destination Oracle home>
gunzip < <directory containing tar file>/clone_image.tar.gz | tar xf -
```

Notes: Make sure that the tar and gzip/gunzip versions on the source and destination computers are compatible. You may encounter problems unzipping the archive if these versions differ.

The OS (operating system) user doing this **must** have permission to create and update the Oracle inventory. The Oracle inventory is a repository for all Oracle products installed on a host. This is typically a directory named `oraInventory`. The clone operations (described in the sections "Application Tier Cloning" and "Site Cloning") will try to create or update the existing Oracle inventory. If the OS user does not have permission, then cloning will fail, and it is not possible to recover from such failure. You will have to retry the cloning procedure.

To determine with OS group has permission to update the Oracle inventory on Linux, see the file `/etc/oraInst.loc`. For Solaris, see the file `/var/opt/oracle/oraInst.loc`. For example:

```
prompt> cat /etc/oraInst.loc/var/opt/oracle/oraInst.loc
inventory_loc=/private/beehive/oraInventory
inst_group=g900
```

In this example, OS users that belong to group `g900` have permission to update the Oracle inventory, which is located in `/private/beehive/oraInventory`.

Step 2: Set PERL5LIB Environment Variable

You must have Perl 5.8.3 or later installed on your system.

Before running the cloning Perl scripts, set the PERL5LIB environment variable to the path of the Perl directory in the Oracle home. This path must be the first one listed in the variable definition. For example:

```
export PERL5LIB=$ORACLE_HOME/perl/lib/5.8.3/i686-linux-thread-multi:
  $ORACLE_HOME/perl/lib/5.8.3:
  $ORACLE_HOME/perl/lib/site_perl/5.8.3/i686-linux-thread-multi/
```

Step 3: Modify Oracle Home Path

Note: This step applies only to UNIX-based operating systems.

The `beectl` command is a Perl script that has the path to Oracle home embedded in it. Modify this path to the new Oracle home. Execute the following `beectl` command to update the embedded Oracle home path. Note that in this case you must add the Perl executable path to the command:

```
$ORACLE_HOME/perl/bin/perl $ORACLE_HOME/beehive/bin/beectl modify_beectl
  --new_oracle_home <fully qualified path to new Oracle home>
```

The following table describes the options for the `beectl modify_beectl` command:

Table 33–2 beectl modify_beectl Options

Option	Mandatory/ Optional	Description
--new_oracle_home	Mandatory	Path of the new Oracle home. Specify only a fully qualified path without trailing slashes. For example: `/app/oracle`

Step 4: Execute beectl clone_midtier Command

1. Ensure that no executables are running on the target application tier. For example, if `<target application tier Oracle home>/bin/sqlplus` is running, then the cloning process will fail.

   To verify this, run the command `ps -auxwww | grep -i $ORACLE_HOME`, where `$ORACLE_HOME` is the Oracle home of the target application tier.

2. Run the `beectl clone_midtier` command as described in the following section.

beectl clone_midtier Command

The clone_midtier command creates a new application tier and configures it:

```
beectl clone_midtier [options]
```

Note: If cloning fails during this step, you must restart the Oracle Beehive cloning process.

Delete the new Oracle home, and ensure that references to this Oracle home from the Oracle Universal Installer inventory are deleted.

Start the Oracle Beehive cloning process once again, preferably in a different directory Oracle home location.

Note that the `beehive clone_midtier` does not affect the application tier you are trying to clone. Therefore, you do not need to restore this application tier if cloning fails during this step.

The following table describes the options for the `beectl clone_midtier` command:

Table 33–3 beectl clone_midtier Options

Option	Mandatory/ Optional	Description
--ias_instance_name	Mandatory	The instance name for the clone. **Notes**: The instance name should not contain the period (`.`) character nor the host name itself. The instance name must be different from the source instance and any other instances that use the same Oracle Application Server infrastructure or that are part of the same cluster topology.
--host_name	Mandatory	The hostname of the computer on which the clone is being created. This must be the fully qualified hostname (with the domain appended). For example, `hostB.example.com`.
--db_schema_password	Mandatory	Database password for the BEE_CODE schema. The password must be the same as the one used during the installation of the source application tier. This is the password of the Oracle Beehive database schema (typically BEE_CODE). **Note**: If you are not in shell mode, you must obfuscate the database password and add the --obfuscated option to the `beectl clone_midtier` command. To obfuscate a password, use the `beectl obfuscate` command:

```
beectl obfuscate
  --expiration_time_in_minutes 0
Enter value for password:

Successfully obfuscated the string.
```

Option	Mandatory/ Optional	Description
--oui_inv_ptr_loc	Optional **Note:** This option is available only for UNIX-based systems. Do not specify if it does not exist on the computer from which you are running this command; in this case, the Oracle inventory will be created in the user's home directory.	**Note:** This option is available only for UNIX-based systems. Oracle Universal Installer inventory location. For more information, refer to "Oracle Inventory Location Option of Clone Commands on UNIX-Based Systems". The Oracle Beehive cloning process internally uses the Oracle Universal Installer to update the Oracle inventory. The value of this option specifies the Oracle Universal Installer inventory location. For example: `--oui_inv_ptr_loc "/etc/oraInst.loc"` **Note:** This value is platform-dependent. On Linux, it is `/etc/oraInst.loc`.
--oracle_home_name	Optional	Oracle home name. The default value is the value for the --ias_instance_name option.

Table 33–3 (Cont.) beectl clone_midtier Options

Option	Mandatory/ Optional	Description

--do_not_start_at_end	Optional	If true, Oracle Beehive will not start components after cloning. Permitted value is a boolean value.
		Setting this option to true will prevent the cloned site from contacting external resources (such as LDAP, virus scanner, voicemail gateway, or Oracle Collaboration Coexistence Gateway (Windows only) of the source site.
		If you run `beectl clone_site` for the first time from a source site that has an external source enabled, you will receive a warning message similar to the following:
		`WARNING : Processing`
		`UserDirectoryService : _`
		`UserDirectoryService`
		`WARNING : UserDirectoryService is`
		`configured with following ENABLED`
		`directory profiles`
		`WARNING :`
		`WARNING : Directory profile id :`
		`880c0691-0d10-4e07-9da0-6d23ab972105`
		`WARNING : LDAP server id : AUTO_DTE_`
		`LDAP_example.com`
		`WARNING : LDAP server name :`
		`example.com`
		`WARNING : LDAP server port : 389`
		`WARNING :  LDAP server SSL port : 636`
		For this example, you would disable your directory profile before continuing.

--site_key	Mandatory	Site key of the Oracle Beehive application tier you are cloning. This is an alphanumeric string. **Note**: If you are not in shell mode, you must obfuscate the site key and add the --obfuscated option to the `beectl clone_midtier` command. To obfuscate a password, use the `beectl obfuscate` command:

--site_key

```
beectl obfuscate
  --expiration_time_in_minutes 0
Enter value for password:

Successfully obfuscated the string.
```

Step 5: Perform Miscellaneous Operations

Note: This step applies only to UNIX-based platforms.

1. Run the root.sh script in the new Oracle home so that the cloned instance works properly. You must log in as the root user to run the script. The script is located in the cloned instance's Oracle home directory, for example: `$ORACLE_HOME/root.sh`.

2. If this is the first Oracle installation on the host, run the `orainstRoot.sh` script as the root user to register the Oracle inventory directory. The script is located in the `oraInventory` directory.

Site Cloning

Run all the steps described in "Application Tier Cloning", except call the `beectl clone_site` command (instead of `beectl clone_midtier`).

Step 1: Unzip Compressed Oracle Home

This step is the same as "Step 1: Unzip Compressed Oracle Home".

Step 2: Set PERL5LIB Environment Variable

This step is the same as "Step 2: Set PERL5LIB Environment Variable".

Step 3: Modify Oracle Home Path

This step is the same as "Step 3: Modify Oracle Home Path"

Step 4: Execute beectl clone_site Command

Note: If cloning fails during this step, you must restart the Oracle Beehive cloning process.

Delete the new Oracle home, and ensure that references to this Oracle home from the Oracle Universal Installer inventory are deleted.

Start the Oracle Beehive cloning process once again, preferably in a different directory Oracle home location.

1. Ensure that no executables are running on the target application tier. For example, if `<`*`target application tier Oracle home`*`>/bin/sqlplus` is running, then the cloning process will fail.

   To verify this, run the command `ps -auxwww | grep -i $ORACLE_HOME`, where `$ORACLE_HOME` is the Oracle home of the target application tier.

2. Run the `beectl clone_site` command as described in the following section.

beectl clone_site Command

The `beectl clone_site` command creates the first application tier in a site and configures it. This command clears the application tier topology of the old site from the central configuration repository (stored in the database) and creates a new topology for the new site with this as the first and only application tier. It then reconfigures the files on the new Oracle home to work against the new site.

This command is designed and tested so that none of the processes in the new site ever connect to the old site (and vice versa; the old site is ignorant of the new site).

Note: The `beectl clone_site` also performs the following:

- It clears the configuration of Oracle RAC nodes in the central configuration repository. In particular, it clears the properties XaServiceNames and OnsNodeConfiguration in the database configuration object. Because a new database has been created for the new site, the Oracle RAC configuration for the old database will not be needed.
- It deletes the configuration of UnmanagedBeehiveInstance from the central configuration repository. In particular, the DMZ application tiers and their configurations are deleted.
- It deletes the configuration of UnmanagedOc4j from the central configuration repository. In particular, Oracle Beekeeper and its configuration are deleted.

The following table describes the options of the `beectl clone_site` command:

Table 33–4 beectl clone_site Options

Option	Mandatory/ Optional	Description
--ias_instance_name	Mandatory	The instance name for the clone. **Notes**: The instance name should not contain the period (`.`) character nor the host name itself. The instance name must be different from the source instance and any other instances that use the same Oracle Application Server infrastructure or that are part of the same cluster topology.
--host_name	Mandatory	The hostname of the computer on which the clone is being created. This must be the fully qualified hostname (with the domain appended). For example, `hostB.example.com`.
--db_connect_string	Mandatory	Database connect string for the new site. This would be the connect string for the cloned database.
--db_schema_password	Mandatory	Database password for the schema. **Note**: If you are not in shell mode, you must obfuscate the database password and add the --obfuscated option to the `beectl clone_site` command. To obfuscate a password, use the `beectl obfuscate` command:

```
beectl obfuscate
  --expiration_time_in_minutes 0
Enter value for password:

Successfully obfuscated the string.
```

Option	Mandatory/ Optional	Description
--db_schema_name	Optional	New database schema name. Typically, this would be the same schema as the old site, which is usually BEE_CODE.

Table 33–4 (Cont.) beectl clone_site Options

Option	Mandatory/ Optional	Description
--db_rac_node_information	Optional	New values for the host:port of Oracle RAC nodes. The host name should **not** be the VIP hostname. Specify the actual computer name instead. The port should be the ONS remote port, which is also known as the CRS port. This port number is specified in the file `<Oracle RAC database home>/opmn/conf/ons.config`. This option is required to configure ONS properly for Fast Connection Failover, which provides failover for a JDBC connection to a RAC database. This option can be specified more than once and values will form an array in the given order. For example: --db_rac_node_information "hostnode1.example.com:1521" --db_rac_node_information "hostnode2.example.com:1521" --db_rac_node_information "hostnode3.example.com:1525"
--db_xa_service_name	Optional	New values for the service names of Oracle RAC nodes. This option can be specified more than once and values will form an array in the given order. For example: --db_xa_service_name node1_service_name --db_xa_service_name node2_service_name --db_xa_service_name node3_service_name
--retain_rac_node_information	Optional	Retain existing values for db_xa_service_name and db_rac_node_information. This option cannot be specified with --db_xa_service_name and --db_rac_node_information.
--oracle_home_name	Optional	Oracle home name. The default value is the value provided for the --ias_instance_name option.

Table 33–4 (Cont.) beectl clone_site Options

Option	Mandatory/ Optional	Description
--oui_inv_ptr_loc	Optional. **Note:** This option is available only for UNIX-based systems. Do not specify if it does not exist on the computer from which you are running this command; in this case, the Oracle inventory will be created in the user's home directory.	**Note:** This option is available only for UNIX-based systems. Oracle Universal Installer inventory location. For more information, refer to "Oracle Inventory Location Option of Clone Commands on UNIX-Based Systems". The Oracle Beehive cloning process internally uses the Oracle Universal Installer to update the Oracle inventory. The value of this option specifies the Oracle Universal Installer inventory location. For example: `--oui_inv_ptr_loc "/etc/oraInst.loc"` **Note:** This value is platform-dependent. On Linux, it is `/etc/oraInst.loc`.

--do_not_start_at_end	Optional	If true, Oracle Beehive will not start components after cloning. Permitted value is a boolean value.
		Setting this option to true will prevent the cloned site from contacting external resources (such as LDAP, virus scanner, voicemail gateway, or Oracle Collaboration Coexistence Gateway (Windows only) of the source site.
		If you run `beectl clone_site` for the first time from a source site that has an external source enabled, you will receive a warning message similar to the following:
		`WARNING : Processing`
		`UserDirectoryService : _`
		`UserDirectoryService`
		`WARNING : UserDirectoryService is`
		`configured with following ENABLED`
		`directory profiles`
		`WARNING :`
		`WARNING : Directory profile id :`
		`880c0691-0d10-4e07-9da0-6d23ab972105`
		`WARNING : LDAP server id : AUTO_DTE_`
		`LDAP_example.com`
		`WARNING : LDAP server name :`
		`example.com`
		`WARNING : LDAP server port : 389`
		`WARNING :  LDAP server SSL port : 636`
		For this example, you would disable your directory profile before continuing.

--site_name	Optional (Oracle Beehive Release 1 (1.3) and later)	If you specify this option, the site cloning process will clone Oracle Beehive on the target application tier with this new name as the site name of the cloned application tier.

Table 33–4 (Cont.) beectl clone_site Options

Option	Mandatory/ Optional	Description
--ignore_validation_warnings	Optional	If you specify this option, the site cloning process will proceed regardless of warnings about target application tiers referring to external resources. Refer to "Step 5: Prevent Services from Target Application Tiers from Referring to External Resources" for more information about external resources.

--site_key	Mandatory	Site key of the site you are cloning. This is an alphanumeric string.
		Notes:
		■ The site key you specify must be the same as the source site.
		■ If you are not in shell mode, you must obfuscate the site key and add the --obfuscated option to the `beectl clone_midtier` command.
		To obfuscate a password, use the `beectl obfuscate` command:
		`beectl obfuscate --expiration_time_in_minutes 0`
		`Enter value for password:`
		`Successfully obfuscated the string.`

Step 5: Prevent Services from Target Application Tiers from Referring to External Resources

In a typical Oracle Beehive installation, Oracle Beehive services may refer to some external resources such as an LDAP server or a virus scan engine. If you perform a site clone of such an installation, the target application tier may also refer to the same external resources.

After running the command `beectl clone_site`, prevent any Oracle Beehive services of the target application tier from referring to the external resources of the source site. Afterwards, you may configure the target application tier to refer to a new set of external resources.

The `beectl clone_site` command will return warning or error messages if the target application tier refers to any external resources. If you do not receive any warning or error messages, proceed to the next step.

If you do receive any warning or error messages from `beectl clone_site` about external resources, stop any Oracle Beehive service from referring to an external resource by following one or more of these steps:

- Stopping User Directory Service from Referring to LDAP Server
- Stopping Authentication Service from Referring to LDAP Server
- Stopping Virus Scanner Process from Referring to External Virus Scan Engine

---

Notes: Only perform these steps on the target application tier; do not perform these steps on the source site.

These steps are only applicable for cloning a site; do not perform these steps if you are cloning an application tier.

The target application tier may not work as expected during the time between the completion of site cloning process and the modification of Oracle Beehive services to refer to a new set of external resources.

Stopping User Directory Service from Referring to LDAP Server

If you have synchronized User Directory Service (UDS) with an external LDAP server (as described in "Integrating and Synchronizing LDAP with Oracle Beehive"), then disable all the directory profiles from your target application tier:

1. Retrieve a list of all directory profile objects in your target application tier:

   ```
   beectl list_components --type  "UserDirectoryService\$DirectoryProfile"
   ```

2. For each directory profile ID, run the following command:

   ```
   beectl modify_property
     --component <directory profile ID>
     --name ProfileState
     --value DISABLE
     --activate_configuration
   ```

Stopping Authentication Service from Referring to LDAP Server

If you have followed the steps described in "Configuring Authentication Service to Use LDAP Server", change the authentication mode to use the database instead in your target application tier:

1. Retrieve the Authentication Service ID of your target application tier:

   ```
   beectl list_components --type AuthenticationService
   ```

2. Change the property `AuthStoreType` to `db`:

   ```
   beectl modify_property
     --component <Authentication Service ID>
     --name AuthStoreType
     --value db
     --activate_configuration
   ```

Stopping Virus Scanner Process from Referring to External Virus Scan Engine

To stop the virus scanner process from referring to an external virus scan engine, remove the reference of `VirusScannerCluster` from `_CURRENT_SITE` of your target application tier with the following command:

```
beectl  modify_property
  --component _CURRENT_SITE
  --name VirusScanEngineCluster
  --revert_to_default
```

Step 6: Perform Miscellaneous Operations

Perform the steps described in "Step 5: Perform Miscellaneous Operations". Afterwards, ensure that the cloned database has the same name as the original database name. (This is required so that Change Data Capture works properly.) If the cloned database name is different from the original database name, change `GLOBAL_NAME` with the command `ALTER DATABASE RENAME GLOBAL_NAME`. Refer to *Oracle Database SQL Reference* for more information.

OC4J Instance Cloning

OC4J instance cloning enables you to clone Oracle Beehive's managed components, in particular, the OC4J managed components BEEAPP, oc4j_soa, and BEECORE. You may not clone BEEMGMT.

The `beectl clone_oc4j_instance` command clones an Oracle Beehive managed component by creating a new OC4J instance and deploying all the services in the source managed component in the newly cloned OC4J instance. You may only clone Oracle Beehive managed components with this command; you may not clone non-Oracle Beehive OC4J instances.

> **Note:** If you are cloning the BEEAPP managed component, you must backup Oracle Beehive before and after creating the clone.
>
> The BEEAPP clone makes changes to the application tier's configuration files that the `beectl modify_local_configuration_files` command cannot update when restoring Oracle Beehive from a previous backup.

The following table describes the options of the `beectl clone_oc4j_instance` command:

Table 33–5 beectl clone_oc4j_instance Options

Option	Mandatory/ Optional	Description
--source_oc4j_instance_id	Either this option or --source_oc4j_instance_name is required	ID of the managed component to be cloned, for example, `BEEAPP_instance1.example.com`
--source_oc4j_instance_name	Either this option or --source_oc4j_instance_id is required	Prefix of the managed component to be cloned, for example `BEEAPP`, `oc4j_soa`, or `BEECORE`
--target_oc4j_instance_name	Mandatory	Name of the new OC4J instance to be created. The application tier instance name and the host name will be appended to this name to create the ID of the new OC4J instance. For example, if you specify `BEEAPP_CLONE`, its ID will be similar to `BEEAPP_CLONE_instance1.example.com`.
--exclusion_list	Optional	List of services to exclude from the newly created OC4J instance
--working_list	Optional	List of services that will only be deployed on the newly created OC4J instance.

The following example clones `BEEAPP_instance1.example.com`, which creates a new OC4J instance with the ID `BEEAPP_CLONE_instance1.example.com` and deploys all the services in `BEEAPP` in `BEEAPP_CLONE` except for ClientManagementService:

```
beectl clone_oc4j_instance
  --source_oc4j_instance_name BEEAPP
  --target_oc4j_instance_name BEEAPP_SOURCE
  --exclusion_list ClientManagementService
```

Oracle Beehive Integration for Zimbra Cloning

Oracle Beehive Integration for Zimbra is available for Oracle Beehive Release 1 (1.3) and later.

You may clone an instance of Oracle Beehive Integration for Zimbra; follow the steps described in "Application Tier Cloning" and apply them to the Oracle Beehive Integration for Zimbra home.

> **Note:** Site cloning is only possible for a server application tier, such as Oracle Beehive; it is not possible for a client application tier, such as Oracle Beehive Integration for Zimbra.

Customizing Files or Directories in a Cloned Image

The `beectl clone_preparation` command controls which files or directories are packaged in the clone image, which you may customize.

The `beectl clone_preparation` command refers to the file `<`*`Oracle home`*`>/beehive/conf/scripts/exclude_while_cloning.txt` to obtain the list of files and directories that will be excluded from the clone image.

You may customize this file before executing the `beectl clone_preparation` command.

The comments section in this file describes how to customize it.

Customizing Ports in a Cloned Instance

The `beectl clone_midtier` and `clone_site` commands retain the port values from the source application tier configuration. That is, the cloned application tier will listen on the same ports as the source application tier.

You may customize the ports before executing the `beectl clone_midtier` and `clone_site` commands by updating the file `<`*`Oracle home`*`>/beehive/conf/scripts/clone_ports.ini`. The comments section in this file describes how to override port values.

This file is just an overriding mechanism and does not contain the existing ports, in particular, the ports on which source application tier instance is listening. You may call the `beectl list_ports` command on the source application tier instance to view the existing port assignments, which will also be the port assignments for the cloned application tier instance.

Cloning Application Tiers and Sites with Ports Less Than 1024

If the source application tier or site has been configured with ports less than 1024, and you want to retain the same ports in the cloned application tier or site, follow these steps during the cloning process:

1. Perform "Step 5: Zip Files to Create Clone Image" as the `root` user. Certain files, such as `<Oracle home>/beehive/bin/hasbind` and `<Oracle home>/Apache/Apache/bin/.apachectl`, require more permissions to be archived properly.
2. Run the `beectl clone_midtier` or `beectl clone_site` commands with the option `--do_not_start_at_end` to ensure that no Oracle Beehive processes are started after a successful cloning. This will prevent some processes from failing because they still have to be configured for privileged ports (less than 1024).
3. Configure the cloned application tier or site by following the steps described in "Configuring Oracle Beehive to Listen on Ports Less Than 1024".

If you cloned an application tier or a site with ports less than 1024, and you want to reconfigure the ports of the cloned application tier or site to use non-privileged ports (greater than 1024), then follow the steps described in "Customizing Ports in a Cloned Instance".

Oracle Inventory Location Option of Clone Commands on UNIX-Based Systems

Typically, information about Oracle products on a UNIX-based host are stored in a single location, the Oracle inventory. The location of the Oracle inventory is defined in the Oracle inventory location pointer file. For Linux, the Oracle inventory location pointer file is `/etc/oraInst.loc`:

```
prompt>cat /etc/oraInst.loc
inventory_loc=/private/beehive/oraInventory
inst_group=g900
```

- The value for `inventory_loc` must be a valid existing location, or the parent directory of this value must exist. In this example, `/private/beehive` must exist.
- Any user installing Oracle software must belong to the operating system group specified by `inst_group`.

The `beectl clone_midtier` and `clone_site` commands (with the aid of Oracle Application Server scripts) use the Oracle inventory location pointer from its default location (`/etc/oraInst.loc` on Linux) to determine the location of the Oracle inventory. The Oracle inventory is updated with any new Oracle Beehive application tier instance information so that the standard Oracle install and upgrade tools such as Oracle Universal Installer and Opatch will work seamlessly on the cloned application tier instance.

The Oracle inventory location pointer file can be located elsewhere. If this file is not located in the platform default location (`/etc/oraInst.loc` on Linux), then you must specify its location when executing the `beectl clone_midtier` and `clone_site` commands.

Cloned Application Tiers Are Not Automatically SSL or AJPS Enabled

Cloned application tiers are not SSL or AJPS enabled even if the source image is SSL or AJPS enabled.

Enabling SSL and AJPS is a post-install configuration step. Currently, the Oracle Beehive cloning process deliberately does not preserve the SSL and AJPS settings of the source image because the process of enabling them is specific to each application tier and requires administrator input (such as the generation of new certificates).

You must individually enable SSL and AJPS for each of your cloned application tiers. Note that the source application tier is not affected and will remain SSL and AJPS enabled.

For more information about configuring SSL, or more specifically TLS (Transport Layer Security), which is the successor of SSL, and AJPS, refer to the following modules:

- Configuring TLS with Oracle Wallet
- Configuring SSL for LDAP Integration
- Enabling AJPS

Cloning SSL-Enabled Application Tiers

If you have cloned an SSL-enabled application tier with self-signed certificates, then follow these steps to enable SSL for your cloned application tier:

1. Recreate the self-signed certificates on the cloned application tier.
2. Perform "Step 2: Configuring Oracle Beehive Instance to Use Oracle Wallet" in "Configuring TLS with Oracle Wallet".

If you have cloned an SSL-enabled application tier with test certificates, you only need to perform "Step 2: Configuring Oracle Beehive Instance to Use Oracle Wallet" in "Configuring TLS with Oracle Wallet".

Cloned Application Tiers and LDAP Synchronization

If you have cloned an application tier that you have synchronized with an LDAP server, as described in "Integrating and Synchronizing LDAP with Oracle Beehive", the cloned application tier should still be synchronized with the same LDAP server.

However, if you have configured the Domain Name Service (DNS) on the host of the source instance, as described in "Active Directory Considerations", you must perform the same configurations on the host of the cloned instance.

If you wish to synchronize your cloned Oracle Beehive instance with another LDAP server, that LDAP server must be a clone of the source LDAP server. It must have matching GUIDs as the source LDAP server, although not necessarily matching hostname, port, or administrator credentials. Refer to the next section, "Replicating LDAP Server for Cloned Instance" to create a clone of the source LDAP server (these directions are specific to Oracle Internet Directory).

Replicating LDAP Server for Cloned Instance

If you have cloned an application tier that you have synchronized with an LDAP server, the cloned application tier will be synchronized with the same LDAP server.

However, if you wish to synchronize the cloned instance with a replicated LDAP server instead, follow the steps in this section.

These steps only apply to a source instance that is synchronized with Oracle Internet Directory.

1. Install a new instance of an LDAP server for the cloned instance.
   - If you are using Oracle Internet Directory, install it in replicated mode. You may choose any type of replication (LDAP replication or Advanced Replication). However, you probably only need one-way LDAP replication; you probably do not want changes in the cloned LDAP server to be propagated to the source LDAP server.

     For more information about installing Oracle Internet Directory in replicated mode, refer to Chapter 6, "Installing Oracle Internet Directory in Replicated Mode" in *Oracle Application Server Installation Guide for Linux x86*.
   - If you are using Active Directory, create a new domain controller.
2. Add a replica of the supplier (the source LDAP server) to the LDAP server you just created (which is called the consumer). Replicate the nodes specified in the source instance's LDAP mapping profile (in particular, the DNs specified in <user_search_base> and <groups_search_base>).
   - If you are using Oracle Internet Directory, for more information about adding a replica, refer to Chapter 30, "Oracle Internet Directory Replication Installation and Configuration" in *Oracle Internet Directory Administrator's Guide*.
   - If you are using Active Directory, create a new replica of the application directory partition and add it to the domain controller you created in the previous step. (In particular, replicate the application directory partitions identified by <user_search_base> and <groups_search_base> in the source instance's LDAP mapping profile, then add those replicas to the domain controller you created in the previous step.)
3. Ensure that the names of the LDAP mapping profiles of the source and cloned instances are the same.
4. If you are using Oracle Internet Directory, set the attribute orclDIPRepository to true in your consumer.
5. Retrieve the LDAP mapping profile from the source instance with the following command:

   ```
   beectl list_directory_profiles --file <your home directory>/source_profile.xml
   ```

   The LDAP mapping profile will be saved in the file specified by the `--file` option; in this example, this file is *`<your home directory>`*`/source_profile.xml`.
6. Update LDAP mapping profile you just retrieved (*`<your home directory>`*`/source_profile.xml`) with values that correspond to the cloned instance and the replicated LDAP server:
   - Set <profile_state> to DISABLE
   - Update the obfuscated <ldap_user_password>. Call the following command on the cloned instance to get a new obfuscated password for the LDAP administrator's password:

     ```
     beectl obfuscate --expiration_time_in_minutes 0
     ```

- Ensure that the enterprise and organization IDs are correct for the cloned instance.
- Change the SSL and non-SSL port, if required.

7. Delete the existing profile on the cloned instance:

```
beectl delete_directory_profile --profilename "My Profile"
```

   Retrieve the name of the existing profile from the <profile_name> element.

8. Add the LDAP mapping profile you modified in step 6 to the cloned instance:

```
beectl add_directory_profile --file ~/source_profile.xml
```

9. Restart the BEECORE and BEEMGMT processes on the cloned instance:

```
beectl status

----------------------------------------------+--------
Component identifier           | Component type | Status
----------------------------------------------+--------
BTI_instance1.example.com      | BTI            | RUNNING
----------------------------------------------+--------
BEEAPP_instance1.example.com   | OC4J           | RUNNING
----------------------------------------------+--------
BEEMGMT_instance1.example.com  | OC4J           | RUNNING
----------------------------------------------+--------
BEECORE_instance1.example.com  | OC4J           | RUNNING
----------------------------------------------+--------
oc4j_soa_instance1.example.com | OC4J           | RUNNING
----------------------------------------------+--------
ohs_instance1.example.com      | HTTP_Server    | RUNNING
------------------------------+---------------+--------

beectl restart --component BEEMGMT_instance1.example.com
beectl restart --component BEECORE_instance1.example.com
```

10. This step is optional. Temporarily disable LDAP authentication with the following `beectl` commands:

```
beectl modify_property --component _AuthenticationService
  --name AuthStoreType --value db
beectl activate_configuration
beectl modify_local_configuration_files
```

11. Update the BEE_DATA.UDS_SYNC_PROFILE table with the changelog information from the replicated LDAP server:

```
SELECT chg_no FROM ods.ods_chg_log WHERE rownum = 1 ORDER BY chg_no desc;
```

   a. If you are using Oracle Internet Directory, retrieve the change log value from the replicated Oracle Internet Directory by executing the following query on the Oracle Directory Server (ODS) schema:

```
SELECT chg_no FROM ods.ods_chg_log WHERE rownum = 1 ORDER BY chg_no desc;
```

   b. If you are using Active Directory, retrieve the change log value from the domain controller that contains your replicated users and groups with the following command:

```
ldapsearch
  -p <Port of the domain controller>
```

```
-h <Hostname of the domain controller>
-D "<Administrator name of the Active Directory's Windows domain>"
-w "<Administrator Password>"
-b ""
-s base "objectclass=*"
highestCommittedUSN
```

   c. Update the BEE_DATA.UDS_SYNC_PROFILE table:

```
UPDATE bee_data.uds_sync_profile
  SET changeid = <Value retrieved from previous query>;
```

12. Re-enable LDAP synchronization:

```
beectl modify_property --component <Profile name>
  --name ProfileState --value ENABLE
beectl activate_configuration
beectl restart --all
```

13. Re-enable LDAP authentication:

```
beectl modify_property --component _AuthenticationService
  --name AuthStoreType --value ldap
beectl activate_configuration
beectl modify_local_configuration_files
```

Testing Replicated LDAP in Cloned Instance

Perform these tasks to ensure that the replicated Oracle Internet Directory server is working in your cloned instance:

1. Create a new user in your source Oracle Internet Directory instance
2. Check your source Oracle Beehive instance; the new user you created should appear in UDS.
3. Check the ODS_CHG_LOG table from the ODS schema from the replicated Oracle Internet Directory instance. You should see your changes; expect a delay of one hour.
4. Between fifteen to thirty minutes later, you should see a change in the cloned Oracle Beehive instance's UDS.

Troubleshooting Replicated LDAP

- Check the log files from the BEEMGMT and BEECORE processes.
- For more troubleshooting tips, refer to the section "Troubleshooting Synchronization between Oracle Beehive and Oracle Internet Directory" in "Integrating and Synchronizing LDAP with Oracle Beehive".

Site Cloning and Multiple Instances

Oracle Beehive site cloning will result in a single application tier in the cloned site irrespective of the number of application tiers in the source site. To create more application tiers in the cloned site, follow the procedures described in "Application Tier Cloning" in the cloned site. Note that a cloned application tier will not be SSL enabled even if the source image is SSL enabled. Refer to "Cloned Application Tiers Are Not Automatically SSL or AJPS Enabled" for more information.

Note: You cannot clone any Oracle Beehive DMZ or Oracle Beekeeper instances. You must reinstall any Oracle Beehive DMZ or Oracle Beekeeper instance in your cloned site.

References to Oracle Application Server Cloning Documentation

Oracle Beehive cloning scripts internally use Oracle Application Server cloning scripts to clone Oracle Application Server components such as OC4J on which Oracle Beehive is based. Refer to the following sections in Chapter 9, "Cloning Application Server Middle-Tier Instances" in *Oracle Application Server Administrator's Guide*:

- Section 9.4.4, Locating and Viewing Log Files
- Section 9.5, Considerations and Limitations for Cloning

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Oracle Beekeeper Post-Installation Procedures

Oracle Beekeeper is available for Oracle Beehive Release 1 (1.3) and later.

Depending on your security requirements or any other issue particular to your deployment, perform one or more of the following procedures after installing Oracle Beekeeper:

- Configuring Oracle Beekeeper for SSL Access
- Configuring Oracle Beekeeper with Oracle Wallet
- Changing Oracle Beekeeper Port
- Extending Java Single Sign-On Session Timeout
- Configuring Oracle Beekeeper for LDAP-Based Authentication
- Configuring Virtual Host
- Restarting OC4J

Configuring Oracle Beekeeper for SSL Access

1. Create a keystore with the `keytool` command. This command is located in *`<Oracle Beekeeper home>`*`/jdk/bin`. The following example will create a keystore named `server.keystore` in the directory *`<Oracle Beekeeper home>`* with the password `welcome`:

   ```
   keytool -genkey -keyalg "RSA"
     -keystore <Oracle Beekeeper home>/server.keystore
     -storepass welcome -validity 90
   ```

   > **Note:** For more information about the keytool utility, refer to `http://java.sun.com/j2se/1.5.0/docs/tooldocs/solaris/keytool.html`.
   >
   > For additional information, refer to "Using Keys and Certificates with OC4J and Oracle HTTP Server" and "Using SSL with Standalone OC4J" in Chapter 15, "SSL Communication with OC4J" in *Oracle Containers for J2EE Security Guide*.

2. In *`<Oracle Beekeeper home>`*`/j2ee/home/config/default-web-site.xml`, edit the `<web-site>`

element. Set the `port` attribute to any available port number, `secure` to `true`, and `protocol` to `https`:

```
<web-site
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation=
    "http://xmlns.oracle.com/oracleas/schema/11/web-site-11_1.xsd"
  port="4443"
  secure="true"
  protocol="https"
  display-name="Default Web Site"
  schema-major-version="11"
  schema-minor-version="1">
```

Note: You may also add the attribute `virtual-hosts` to the `<web-site>` to use both SSL and virtual hosts. Refer to "Configuring Virtual Host" for more information.

---

3. Add the following element inside the `<web-site>` element:

```
<ssl-config
  keystore="<Oracle Beekeeper home>/server.keystore"
  keystore-password="welcome"/>
```

Set the attribute `keystore` to the full path name of the keystore you created previously. Set the attribute `keystore-password` to the password of the keystore.

4. Restart OC4J as described in "Restarting OC4J".

Configuring Oracle Beekeeper with Oracle Wallet

If you have configured Oracle Beehive for SSL access and you want to add or modify a directory profile, you must specify the location of an Oracle Wallet configured for Oracle Beehive in the UnmanagedOc4J component in which Oracle Beekeeper runs.

Note: For information about directory profiles (or LDAP mapping profiles), refer to "Step 1: Creating an LDAP Mapping Profile" in "Integrating and Synchronizing LDAP with Oracle Beehive".

For more information about configuring Oracle Wallet for Oracle Beehive, refer to "Step 2: Configuring Oracle Beehive Instance to Use Oracle Wallet" in "Configuring TLS with Oracle Wallet".

---

1. Retrieve the component identifier for UnmanagedOc4j with the `beectl list_components` command. You may call this command from any Oracle Beehive application tier:

```
beectl list_components --type UnmanagedOc4j

----------------+----------------------------------------------------------
Component type  | Component identifier
----------------+----------------------------------------------------------
UnmanagedOc4j   | e084c8c8-4a78-4852-8699-480b9bf4f79c
----------------+-----------------------------------------------------------
```

2. Set the WalletDir property in the UnmanagedOc4j component to the location of your Oracle Wallet:

```
beectl modify_property
  --component <UnmanagedOc4J identifier>
  --name WalletDir
  --value <Oracle Wallet directory>
```

3. Activate the configuration:

```
beectl activate_configuration
```

Changing Oracle Beekeeper Port

1. Edit the file *<Oracle Beekeeper home>*`/j2ee/home/config/default-web-site.xml` and modify the `port` attribute in the `<web-site>` element to any available port number:

```
<web-site ... port="7779" ... >
```

2. Restart OC4J as described in "Restarting OC4J".

Changing Oracle Beekeeper RMI Port

1. Edit the file *<Oracle Beekeeper home>*`/j2ee/home/config/rmi.xml` and modify the `port` attribute in the `<rmi-server>` element to any available port number:

```
<rmi-server ... port="23792" ... >
```

2. Restart OC4J as described in "Restarting OC4J".
3. Retrieve the component identifier for UnmanagedOc4j with the `beectl list_components` command. You may call this command from any Oracle Beehive application tier:

```
beectl list_components --type UnmanagedOc4j

----------------+------------------------------------------------------------
Component type  | Component identifier
----------------+------------------------------------------------------------
UnmanagedOc4j   | e084c8c8-4a78-4852-8699-480b9bf4f79c
----------------+-------------------------------------------------------------
```

4. Set the RmiPort property in the UnmanagedOc4j component to the same port number you specified in `rmi.xml`:

```
beectl modify_property
  --component <UnmanagedOc4J identifier>
  --name RmiPort
  --value 23792
```

5. Activate the configuration:

```
beectl activate_configuration
```

Extending Java Single Sign-On Session Timeout

To extend the Java Single Sign-On session timeout for Oracle Beekeeper, add the highlighted text to the file *<Oracle Beekeeper home>*`/j2ee/home/config/jps-config.xml`:

```
<serviceInstance name="idm" provider="idm.provider">
  <description>JSSO Authentication Configuration</description>
  <property name="idm.authentication.name" value="JavaSSO"/>
  <property name="idm.token.asserter.class"
    value="oracle.security.jps.internal.jsso.SSOCookieTokenAsserter"/>
  <property name="idm.token.collector.class"
    value="oracle.security.jps.internal.jsso.SSOCookieTokenCollector"/>
  <property name="idm.token.type" value="COOKIE_TOKEN"/>
  <property name="idm.token.collector.cookie.1" value="ORA_OC4J_SSO"/>
  <property name="custom.sso.url.login" value="/jsso/SSOLogin"/>
  <property name="custom.sso.url.logout" value="/jsso/SSOLogout"/>
  <property name="custom.sso.cred.key" value="JSSO_KEY"/>
  <property name="custom.sso.cred.alias" value="JSSO_ALIAS"/>
  <property name="custom.sso.session.timeout" value="3600"/>
</serviceInstance>
```

After making changes to the `jps-config.xml` file, restart OC4J as described in "Restarting OC4J".

For more information about Java Single Sign-On, refer to Chapter 14, "OC4J Java Single Sign-On" in *Oracle Containers for J2EE Security Guide*.

Configuring Oracle Beekeeper for LDAP-Based Authentication

You may configure Oracle Beekeeper so that it authenticates its users with credentials stored in your LDAP directory. Refer to "Integrating and Synchronizing LDAP with Oracle Beehive" for more information.

1. Edit the file `<Oracle Beekeeper home>/j2ee/home/application-deployments/javasso/jps-config.xml` and update the values that are highlighted in the following excerpt with configuration information that corresponds to your LDAP directory.

   Refer to "Retrieving Information About the LDAP Server" for more information about these properties.

   ```
   <serviceInstance name="beehive.ldap.loginmodule"
     provider="jaas.login.provider">
     <description>Beehive LDAP Login Module</description>
     <property name="loginModuleClassName"
       value="oracle.ocs.csi.authentication.login.modules.OcsLdapLoginModule"/>
     <property name="jaas.login.controlFlag" value="REQUIRED"/>
     <property name="debug" value="true"/>
     <property name="addAllRoles" value="true"/>
     <property name="oracle.security.jaas.ldap.user.object.class"
       value="orclUserV2"/>
     <property name="oracle.security.jaas.ldap.provider.connect.pool"
       value="true"/>
     <property name="oracle.security.jaas.ldap.provider.credential"
       value="!welcome1"/>
     <property name="oracle.security.jaas.ldap.provider.type" value="other"/>
     <property name="oracle.security.jaas.ldap.provider.url"
       value="ldap://ldapserver:389"/>
     <property name="oracle.security.jaas.ldap.role.searchscope" value="subtree"/>
     <property name="oracle.security.jaas.ldap.user.searchscope" value="subtree"/>
     <property name="oracle.security.jaas.ldap.user.searchbase"
       value="cn=Users,dc=us,dc=oracle,dc=com"/>
     <property name="oracle.security.jaas.ldap.role.searchbase"
       value="cn=Users,dc=us,dc=oracle,dc=com"/>
     <property name="oracle.security.jaas.ldap.role.object.class"
   ```

```
    value="orclGroup"/>
  <property name="oracle.security.jaas.ldap.role.name.attribute" value="cn"/>
  <property name="oracle.security.jaas.ldap.provider.user"
    value="cn=orcladmin"/>
  <property name="oracle.security.jaas.ldap.user.name.attribute" value="uid"/>
  <property name="oracle.security.jaas.ldap.membership.searchscope"
    value="direct"/>
  <property name="oracle.security.jaas.ldap.member.attribute"
    value="uniqueMember"/>
  <property name="oracle.security.jaas.ldap.lm.cache_enabled" value="true"/>
  <property name="authenticated.role.name" value="authenticated-role"/>
</serviceInstance>
```

Tips: The property `oracle.security.jaas.ldap.user.object.class` corresponds to the UserObjectClass property. The property `oracle.security.jaas.ldap.role.object.class` corresponds to the GroupObjectClass property. Refer to "Default UserObjectClass and GroupObjectClass Values" for more information.

Obtain values for `jps-config.xml` from the following file:

```
<Oracle Beehive home>/j2ee/
  <any OC4J container>/config/system-jazn-data.xml
```

For example,

```
<Oracle Beehive home>/j2ee/BEEAPP/config/system-jazn-data.xml
```

Look for the `<application>` element that contains the element `<name>beehive-auth-framework-password</name>`.

Prepend the clear-text password (the value of `oracle.security.jaas.ldap.provider.credential` of the administrator's account (the value of `oracle.security.jaas.ldap.provider.user`) with an exclamation point (`!`). The exclamation point will obfuscate the password the next time OC4J is restarted.

2. In the same file (`jps-config.xml`), update the `<jpsContexts>` element with the highlighted value:

   ```
   <jpsContexts default="ldap">
   ```

3. Edit the file `<Oracle Beekeeper home>/j2ee/home/application-deployments/beekeeper/jps-config.xml`) and make the same changes as in step 1.

4. In the same file (`<Oracle Beekeeper home>/j2ee/home/application-deployments/beekeeper/jps-config.xml`), update the `<jpsContexts>` element with the highlighted value:

   ```
   <jpsContexts default="jsso-ldap">
   ```

5. Restart OC4J as described in "Restarting OC4J".

Configuring Virtual Host

You may configure multiple instances of Oracle Beekeeper with a virtual host through a load balancer so that all your Oracle Beekeeper instances will be accessed by a single point of access, the virtual host though a load balancer.

Note: If you have multiple Oracle Beekeeper nodes behind your load balancer's virtual server, then you must configure your load balancer's virtual server so that it uses cookie insert persistence in order to maintain server affinity.

Refer to the documentation of your load balancer for more information about cookie insert persistence.

---

1. Edit the file `<`*`Oracle Beekeeper home`*`>/j2ee/home/config/default-web-site.xml` and specify the host name and port number of your load balancer in the `<frontend>` child element of `<web-site>` as follows:

   ```
   <web-site
     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
     xsi:noNamespaceSchemaLocation=
       "http://xmlns.oracle.com/oracleas/schema/11/web-site-11_1.xsd"
     port="7778"
     secure="false"
     protocol="http"
     display-name="Default Web Site"
     schema-major-version="11"
     schema-minor-version="1">
     <default-web-app application="default" name="defaultWebApp" />
     ...
     <frontend host="beehiveadmin.us.oracle.com" port="80" />
   </web-site>
   ```

   In this example, `beehiveadmin.us.oracle.com` is the host name of the load balancer and `80` is the port number.

2. If you or an administrator uses a Microsoft Windows computer to access Oracle Beekeeper, then on that computer, edit the file `C:\WINDOWS\system32\drivers\etc\hosts` file and map the IP address of the computer that runs Oracle Beehive with the host name of your virtual host.

   For example, if `10.229.175.134` is the host name of the computer that runs Oracle Beekeeper and `beehiveadmin.us.oracle.com` is the host name of your load balancer, then add the following line to your `hosts` file:

   ```
   10.229.175.134       beehiveadmin.us.oracle.com
   ```

3. Restart OC4J as described in "Restarting OC4J".

Restarting OC4J

Restart the Oracle Beekeeper unmanaged OC4J instance with the following commands:

```
<Oracle Beekeeper home>/opmn/bin/opmnctl stopall
<Oracle Beekeeper home>/opmn/bin/opmnctl startall
```

For information about starting and stopping OC4J, refer to the chapter "Starting and Stopping OC4J" in *Oracle Containers for J2EE Configuration and Administrator's Guide*.

Part IV

Oracle Beehive High Availability Configuration

This part describes how to install and configure Oracle Beehive in a high availability environment. It contains the following modules:

- Configuring and Installing Oracle Beehive for Oracle RAC
- Installing Oracle Beehive in High Availability Environment

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Configuring and Installing Oracle Beehive for Oracle RAC

Note: These procedures apply only to Oracle Beehive Release 1 (1.4) and later.

This module describes how to install and configure Oracle Beehive to support deployment on multiple Oracle Real Application Clusters (RAC) nodes. It covers the following topics:

- Naming Conventions
- Pre-Install Steps
- Installation
- Post-Install Steps
- Installing Multiple Oracle Beehive Instances with Oracle RAC
- Enabling Oracle Beehive Affinity Service
- Troubleshooting

Note: You may use Database Configuration Assistant (DBCA) to create Oracle RAC nodes. However, refer to **Oracle*MetaLink*** Note 342419.1 to properly configure the LOCAL_LISTENER initialization parameter.

Naming Conventions

This module uses the following naming conventions:

- Global service name of the Oracle RAC database to be used: `MYDB`
- Number of Oracle RAC nodes: `R`
- SID of first Oracle RAC node: `MyDB1`
- SID of second Oracle RAC node: `MyDB2`
- SID of `R`th Oracle RAC node: `MyDBR`
- Virtual Internet Protocol (VIP) host names and listener port numbers for each Oracle RAC node: `HOST-VIP1:PORT1` to `HOST-VIPR:PORTR`

- Oracle Notification Services (ONS) host names and remote port numbers for each Oracle RAC node: `ONS_HOST1:ONS_PORT1` to `ONS_HOSTR:ONS_PORTR`

> **Note:** The location of the archive redo logs for each Oracle RAC node must be accessible by all nodes in your Oracle RAC database.
>
> Refer to "Managing Archived Redo Logs Using RMAN in Oracle Real Application Clusters" in Chapter 5, "Configuring Recovery Manager And Archiving" in *Oracle Real Application Clusters Administration and Deployment Guide* for more information.

Pre-Install Steps

If your Oracle RAC database uses raw storage, you must manually create the tablespace ORABPEL before running the Oracle Beehive Install Wizard. To do this, run the following command:

```
CREATE TABLESPACE ORABPEL DATAFILE '/dev/raw/raw1' SIZE 100M
  AUTOEXTEND ON NEXT 30M MAXSIZE UNLIMITED;
```

`/dev/raw/raw1` is the name of the data file to create for the ORABPEL tablespace.

Installation

> **Note:** If you want to install Oracle Beehive with Oracle Beehive Provisioning Application and you require SSL Oracle Notification Services (ONS) notification, you must follow the steps described in "Enabling Secure ONS Notification".
>
> For more information about Oracle Beehive Provisioning Application, refer to "Provisioning Oracle Beehive".

Install Oracle Beehive with the Oracle Beehive Install Wizard. Enter the following database information:

- **Host and Port**: `HOST-VIP1:PORT1^HOST-VIP2:PORT2^HOST-VIP3:PORT3`
- **Service Name**: Use the global service name (`MYDB`).

> **Note:** During the installation of Oracle Beehive, ensure the first Oracle RAC node (`MyDB1`) remains up. Otherwise, the install will fail due to bug 5693566 (Web Services Manager Configuration Assistant will fail).

Post-Install Steps

These steps update Oracle Beehive with the Oracle RAC global service name and the multiple database service names:

1. Backup Bootstrap File
2. Update Database System Object
3. Commit Configuration Changes
4. Restart Oracle Beehive

5. Enable Secure ONS Notification
6. Enable Secure ONS Notification

Step 1 Backup Bootstrap File

The file `<Oracle home>/beehive/conf/beehiveconfig.xml` contains the bootstrap database connect information. Make a backup of this file before applying any post-install steps.

Step 2 Update Database System Object

Modify the database system object's configuration to specify the ONS remote ports that are listening on your Oracle RAC nodes. The following example specifies two ONS remote ports with the `ons_entry` option:

```
beectl modify_database
  --database _CURRENT_SITE:Database
  --ons_entry ONS_HOST1:ONS_PORT1
  --ons_entry ONS_HOST2:ONS_PORT2
```

To determine the ONS remote port, run the following command:

```
<Oracle Cluster Ready Services home>/bin/onsctl ping
```

You should see output similar to the following. The ONS remote port is indicated by the highlighted text:

```
Number of onsconfiguration retrieved, numcfg = 2
onscfg[0]
   {node = strasha05.us.oracle.com, port = 6200}
Adding remote host strasha05.us.oracle.com:6200
onscfg[1]
   {node = strasha06.us.oracle.com, port = 6200}
Adding remote host strasha06.us.oracle.com:6200
ons is running ...
```

Step 3 Commit Configuration Changes

Call `beectl activate_configuration` on your Oracle Beehive instance. Afterwards, call `beectl modify_local_configuration_files` on the same Oracle Beehive instance.

Note: The `beectl modify_local_configuration_files` command will ask you to run this command on all your other Oracle Beehive instances. **Do not run this command on all your other instances at this time.**

If you have, or plan to have, more than Oracle Beehive instance, refer to "Installing Multiple Oracle Beehive Instances with Oracle RAC".

Step 4 Restart Oracle Beehive

Restart your Oracle Beehive instance. You may use the `beectl restart --all` command.

Note: You must restart Oracle Beehive (after calling `beectl modify_local_configuration`) if you modify the ONS details in the database system object's configuration (as you have done previously).

Step 5 Enable Secure ONS Notification

If you have not already done so and you require SSL ONS notification, follow the steps described in "Enabling Secure ONS Notification".

Enabling Secure ONS Notification

You may ignore this step if your deployment does not require SSL notification.

Note: You must perform this step if you wish to install Oracle Beehive with Oracle Beehive Provisioning Application. Refer to "Provisioning Oracle Beehive" for more information.

This step involves specifying the Oracle Wallet directory in the `ons.config` file. As a result, Oracle Cluster Ready Services (CRS) will use SSL when communicating with other nodes (other Oracle RAC nodes and Oracle Beehive instances) and require SSL certificate authentication from all Oracle Notification Services (ONS) instances that try to connect to it.

To enable SSL ONS notification, add the following line to all *`<Oracle Cluster Ready Services home>`*`/opmn/conf/ons.config` files of each Oracle RAC node:

```
walletfile=MY_SECURE_WALLET_DIR
```

`MY_SECURE_WALLET_DIR` is your Oracle Wallet directory. Refer to "Configuring TLS with Oracle Wallet" for information about configuring Oracle Wallet.

Installing Multiple Oracle Beehive Instances with Oracle RAC

Oracle Beehive supports the following ways to install multiple instances Oracle Beehive with Oracle RAC:

- Install All Oracle Beehive Instances, then Apply Post-Install Steps
- Install One Oracle Beehive Instance, Apply Post-Install Steps, then Install Additional Instances

Install All Oracle Beehive Instances, then Apply Post-Install Steps

You can install multiple Oracle Beehive instances, then run the post-install steps afterwards on all those instances as described in this module:

1. Install all your Oracle Beehive instances.
2. For one instance, apply all the post-installation steps.
3. For all the other instances, run the following post-installation steps:
   - Step 1, "Backup Bootstrap File"
   - Step 3, "Commit Configuration Changes", except run **only** the `beectl modify_local_configuration_files command`.

Install One Oracle Beehive Instance, Apply Post-Install Steps, then Install Additional Instances

Alternatively, instead of installing multiple Oracle Beehive instances then running the post-install steps on each one, you may install one Oracle Beehive instance, apply the post-install steps on that instance, then install additional Oracle Beehive instances.

Enabling Oracle Beehive Affinity Service

Oracle Beehive Affinity Service enables other Oracle Beehive services to take advantage of the enhanced performance when instances or nodes from your Oracle RAC environment has affinity for any data. Currently, only the event framework, or the Object Event Framework (OEF), and the E-mail Service can take advantage of the Affinity Service.

To enable Oracle Beehive Affinity Service, follow these steps:

1. Create one database service for each Oracle RAC node with the following command:

   ```
   srvctl add service
     -d <database global service name>
     -s <database service name>
     -r <RAC node instance ID>
   ```

   Note: These services should run on only one Oracle RAC node and should not failover to other nodes.

   For example, suppose your database has the global service name `BEEHIVE`, and has four Oracle RAC nodes with IDs `BEEHIVE1`, `BEEHIVE2`, `BEEHIVE3`, and `BEEHIVE4`. Create four database services (named `afserv1`, `afserv2`, `afserv3`, and `afserv4`) with the following commands:

   ```
   srvctl add service -d BEEHIVE -s afserv1 -r BEEHIVE1
   srvctl add service -d BEEHIVE -s afserv2 -r BEEHIVE2
   srvctl add service -d BEEHIVE -s afserv3 -r BEEHIVE3
   srvctl add service -d BEEHIVE -s afserv4 -r BEEHIVE4
   ```

2. Start the database services you just created. For example:

   ```
   srvctl start service -d BEEHIVE -s afserv1
   srvctl start service -d BEEHIVE -s afserv2
   srvctl start service -d BEEHIVE -s afserv3
   srvctl start service -d BEEHIVE -s afserv4
   ```

3. Set the property AffinityServiceNames with the connection descriptors of your newly created database services. For example, to set this property with the four database services created in the previous step, call the following command. The example assumes the domain name is `example.com`. (Line breaks have been inserted in the following example for better readability.)

   ```
   beectl modify_property
     --component _CURRENT_SITE:Database
     --name AffinityServiceNames
     --value "(DESCRIPTION=
         (ADDRESS_LIST=
           (ADDRESS=(PROTOCOL=TCP)(HOST=host1.example.com)(PORT=1521)))
         (CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_NAME=afserv1.example.com)))"
     --value "(DESCRIPTION=
   ```

```
    (ADDRESS_LIST=
      (ADDRESS=(PROTOCOL=TCP)(HOST=host2.example.com)(PORT=1521)))
    (CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_NAME=afserv2.example.com)))"
--value "(DESCRIPTION=
    (ADDRESS_LIST=
      (ADDRESS=(PROTOCOL=TCP)(HOST=host3.example.com)(PORT=1521)))
    (CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_NAME=afserv3.example.com)))"
--value "(DESCRIPTION=
    (ADDRESS_LIST=
      (ADDRESS=(PROTOCOL=TCP)(HOST=host4.example.com)(PORT=1521)))
    (CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_NAME=afserv4.example.com)))"
```

Notes: If the global service name has been created with the domain name (such as example.com), all the database services should use the same domain name even though they have not been created with the domain name.

Alternatively, you may specify the service name instead of the connection descriptor. For example:

```
beectl modify_property
  --component _CURRENT_SITE:Database
  --name AffinityServiceNames
  --value afserv1.example.com
  --value afserv2.example.com
  --value afserv3.example.com
  --value afserv4.example.com
```

If you use service names instead of connection descriptors, Oracle Beehive will use the connection string specified by the property ConnectDescriptor in the _CURRENT_SITE:Database component. For example, you would ensure that the ConnectDescriptor would be set as follows:

```
beectl list_properties --component _CURRENT_SITE:Database
  --format xml

<?xml version="1.1" encoding="UTF-8"?>
<beectl-output resultset="table">
   <row>
      <column name="Property name">AccessSchemas</column>
      <column name="Property value"></column>
   </row>
...
   <row>
      <column name="Property name">ConnectDescriptor</column>
      <column name="Property value">
       (DESCRIPTION=
         (ADDRESS_LIST=
           (LOAD_BALANCE=yes)
           (FAILOVER=on)
           (ADDRESS=(PROTOCOL=TCP)(HOST=host1.example.com)
             (PORT=1521))
           (ADDRESS=(PROTOCOL=TCP)(HOST=host2.example.com)
             (PORT=1521))
           (ADDRESS=(PROTOCOL=TCP)(HOST=host3.example.com)
             (PORT=1521)))
           (ADDRESS=(PROTOCOL=TCP)(HOST=host4.example.com)
             (PORT=1521)))
         (CONNECT_DATA=
           (SERVER=DEDICATED)
           (SERVICE_NAME=beehive.us.oracle.com)))
      </column>
   </row>
```

---

4. Activate the configuration with the following command:

```
beectl activate_configuration
```

The database framework will immediately start using the Affinity Service.

Notes: You must disable SSL ONS notifications. Follow these steps to do so:

1. Set the property NotificationServerSslEnabled to false:

   ```
   beectl modify_property
     --component _CURRENT_SITE:OpmnCluster
     --name NotificationServerSslEnabled
     --value false
   ```

2. Activate the configuration:

   ```
   beectl activate_configuration
   ```

To restart a Oracle RAC node with which you have configured Oracle Beehive Affinity Service, follow these steps:

1. Stop the database service associated with the Oracle RAC node you want to restart.
2. Restart the Oracle RAC node.
3. Start the associated database service.

Troubleshooting

Automated Failover, beectl, and Oracle Beekeeper

If your Oracle RAC database is in the process of performing an automated failover, beectl commands and Oracle Beekeeper instances that are currently running may appear to hang. If this persists for a long period of time, for beectl, terminate the beectl process (with the `kill` command, for example) and then run the beectl command again later. For Oracle Beekeeper, restart the Oracle Beekeeper unmanaged OC4J instance with the following commands:

```
<Oracle Beekeeper home>/opmn/bin/opmnctl stopall
<Oracle Beekeeper home>/opmn/bin/opmnctl startall
```

36

Installing Oracle Beehive in High Availability Environment

Installing Oracle Beehive in a high availability environment involves installing a third-party load balancer or an Oracle Beehive DMZ instance (or both) and configuring the virtual server of each Oracle Beehive (non-DMZ) instance. Configuring the virtual server ensures that there is a single point of access to your Oracle Beehive instances.

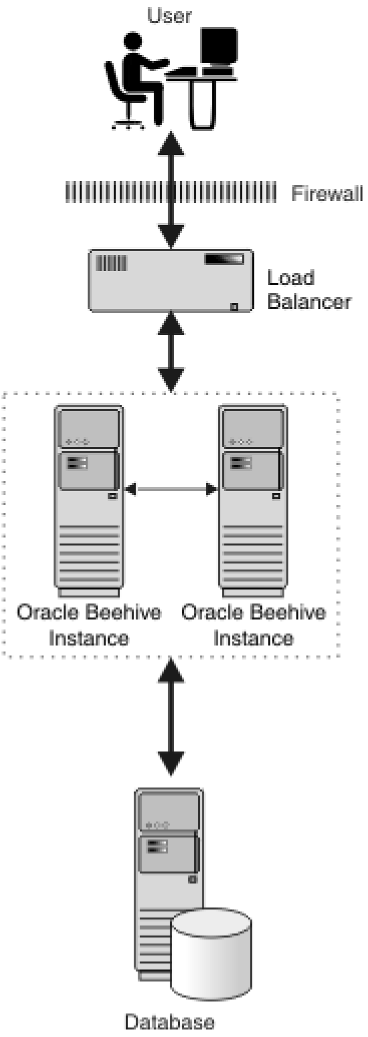
This module covers the following topics:

- Configuring High Availability Environment with Load Balancer
- Configuring High Availability Environment with a DMZ Instance
- Configuring High Availability Environment with DMZ Instances and Load Balancer
- Configuring SSL Termination at Load Balancer

Configuring High Availability Environment with Load Balancer

The following diagram illustrates multiple Oracle Beehive instances and a load balancer in a high availability environment:

Figure 36–1 Multiple Instances in High Availability Environment



Follow these steps to install and configure more than one Oracle Beehive instance with a load balancer:

1. Install an Oracle Beehive instance.
2. Change the ServerName property of the Oracle Beehive virtual server to the load balancer server name. In the following example, `load-balancer.example.com` is the server name of the load balancer:

```
beectl modify_property --component _VIRTUAL_SERVER
  --name ServerName
  --value load-balancer.example.com
```

3. If the HttpPort property value of the Oracle Beehive virtual server and the HTTP port of the load balancer are different, then change the HttpPort property value of the virtual server to the HTTP port of the load balancer. In the following example, the HTTP port of the load balancer is 80:

```
beectl list_properties --component _VIRTUAL_SERVER
----------------------------------------------
| Property Name        | Property Value      |
----------------------------------------------
```

```
| ServerName          | example.com         |
| ImapPort            | 143                 |
| SmtpPort            | 25                  |
| XmppPort            | 5222                |
| IPAddress           |                     |
| HttpPort            | 7777                |
| HttpSslPort         | 4443                |
| HttpSslEnabled      | true                |
| FtpPort             | 2121                |
| BtiClientPort       | 21401               |
| BtiSecureClientPort | 21451               |
| Alias               | _VIRTUAL_SERVER     |
----------------------------------------------

beectl modify_property --component _VIRTUAL_SERVER
  --name HttpPort
  --value 80
```

4. Commit configuration changes:

```
beectl activate_configuration
beectl modify_local_configuration_files
```

> **Note:** The `beectl modify_local_configuration_files` command will ask you to run this command on all your other Oracle Beehive instances. **Do not run this command on all your other instances at this time.**

5. Ensure that the changes you made in steps 2 and 3 appear in the file `<Oracle home>/Apache/Apache/conf/httpd.conf`.
6. Install another Oracle Beehive instance.

   Oracle Beehive will apply these changes to any subsequent Oracle Beehive installation, so you do not have to run `beectl modify_local_configuration_files` on these new instances.

> **Note:** If you are making these changes after installing two or more Oracle Beehive instances, then follow steps 1-5 on the first instance. Afterwards, only run `beectl modify_local_configuration_files` on the other (previously installed) instances.

Configuring High Availability Environment with a DMZ Instance

If you do not have a load balancer, you may use an Oracle Beehive DMZ instance as a load balancer and the single point of access to your Oracle Beehive (non-DMZ) instances. The configuration of this high availability environment is similar to configuring one for a load balancer:

1. Configure one Oracle Beehive DMZ instance as described in "Configuring Oracle Beehive Demilitarized Zone Instances".
2. Perform the steps described in "Configuring High Availability Environment with Load Balancer" for your Oracle Beehive (non-DMZ) instances. This involves configuring the virtual server with the load balancer for each Oracle Beehive instance. However, set the ServerName property to the server name of your Oracle

Beehive DMZ instance and the HttpPort property to the HTTP port of your Oracle Beehive DMZ instance.

Note that if you are performing these steps after you have installed all your Oracle Beehive instances, run `beectl modify_local_configuration_files` only after configuring the virtual server for all your Oracle Beehive instances.

Configuring High Availability Environment with DMZ Instances and Load Balancer

---

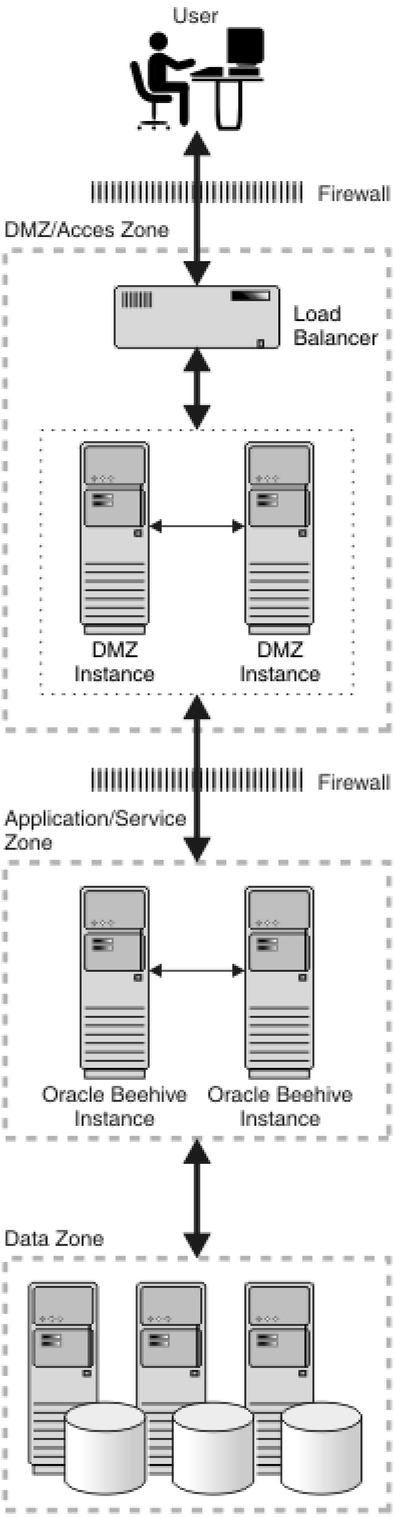
Note: If you are planning to install Oracle Beekeeper in a DMZ-based environment, then install Oracle Beekeeper in an Oracle Beehive application tier in a new Oracle home.

Oracle Beekeeper cannot be accessed from a DMZ instance. It should only be accessed from the computer in which you installed Oracle Beekeeper.

You may have a high availability environment with both a load balancer and DMZ instances. In this case, your Oracle Beehive instances will be load balanced on multiple levels.

The following diagram illustrates multiple DMZ instances and a load balancer in a high availability environment:

Figure 36–2 Multiple DMZ Instances in High Availability Environment



Follow these steps to configure a high availability environment with a load balancer and multiple Oracle Beehive DMZ instances:

1. Perform the steps described in "Configuring High Availability Environment with Load Balancer" for your Oracle Beehive (non-DMZ) instances. This involves

configuring the virtual server with the load balancer for each Oracle Beehive instance.

Note that if you are performing these steps after you have installed all your Oracle Beehive instances, run `beectl modify_local_configuration_files` only after configuring the virtual server for all your Oracle Beehive instances.

2. Edit the following directives in the file *<Oracle Beehive DMZ home>*`/Apache/Apache/conf/httpd.conf`:

```
ServerName <Domain name server (DNS) of the load balancer>
Port <HTTP port of the load balancer>
```

For example, if `load-balancer.example.com` is the load balancer's DNS, and 80 is its HTTP port number, then edit the `httpd.conf` file as follows:

```
ServerName load-balancer.example.com
Port 80
```

3. Perform this step only if you need to configure your DMZ instance with SSL.

Retrieve the location of the file `ssl.conf` from the file *<Oracle home>*`/Apache/Apache/conf/httpd.conf`. Edit the following directives in the `ssl.conf` file:

```
ServerName <Domain name server (DNS) of the load balancer>
Port <HTTPS port of the load balancer>
```

For example, if `load-balancer.example.com` is the load balancer's DNS, and 4443 is its HTTP port number, then edit the `ssl.conf` file as follows:

```
ServerName load-balancer.example.com
Port 4443
```

4. Restart the Oracle Beehive DMZ instance.
5. Repeat steps 1-3 for each of your Oracle Beehive DMZ instances.

Configuring SSL Termination at Load Balancer

If your load balancer supports SSL termination or offloading, you may offload SSL processing to your load balancer so that your Oracle Beehive instances do not have to decrypt SSL-encrypted data, thereby reducing the load of your Oracle Beehive instances.

You may offload SSL processing to your load balancer for any protocol supported by your load balancer, except if you wish to use the ability of BTP clients, such as Oracle Beehive Extensions for Outlook, to tunnel its connections through HTTPS. In that case, you cannot offload SSL for HTTPS to your load balancer, but you could offload any other protocol.

Note: Tunneling is the encapsulation of one protocol with another different protocol. This is useful if you are using a BTP client behind a firewall that does not allow BTP(s) connections. In particular, tunneling allows Oracle Beehive Extensions for Outlook to connect through this firewall; Oracle Beehive Extensions for Outlook can encapsulate its BTP(s) session so that it appears to the firewall to be a regular HTTPS session.

After configuring your load balancer with your Oracle Beehive deployment, follow these steps to configure Oracle Beehive for SSL termination:

1. Set the SslTerminatedByLoadBalancer property of the HttpServerCluster component to true:

   ```
   beectl modify_property
     --component _current_site:HttpServerCluster
     --name SslTerminatedByLoadBalancer
     --value true
     --activate_configuration
   ```

2. Commit changes made to the configuration:

   ```
   beectl modify_local_configuration_files
   ```

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