HP Database and Middleware Automation

for the HP-UX, IBM AIX, Red Hat Enterprise Linux, Solaris, and Windows® operating systems

Software Version: 1.00

(Stratavia Data Palette version 6.0.11)

Installation Guide

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The title page of this document contains the following identifying information:

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The following table indicates changes made to this document since the last released edition.

Document Changes

Chapter	Version	Changes
All	1.00	First edition under HP name. Minor content updates throughout the manual.
Chapter 1 Appendix B	1.00	Revised Repository Database Server Requirements on page 13 to reflect support for Oracle 11g. Also added a new appendix: Using HP DMA with Oracle Server 11.2.0.1 on page 61.

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http://h20230.www2.hp.com/new_access_levels.jsp

Contents

1 Introduction

This introduction to HP Database and Middleware Automation (HP DMA) includes the following information:

About This Guide

This guide describes how to install HP DMA to manage your data center automation needs.

Audience

This guide is intended for system administrators who need to install HP DMA.

Conventions

This guide uses several typographical conventions to help explain how to install HP DMA.

Table 1 Conventions

Convention	Definition
Bold	Words in bold show items to select or click, such as menu items or buttons.
`Courier New`	Files, paths, and commands in Courier New style show items that are file names, path names, or commands.

HP DMA Components

Each of the HP DMA components is separately deployable and runs on a variety of servers.

Web Server

The Web Server is the primary means of interacting with HP DMA. The Web Server is a web-based technology that fully supports all modern browsers and WAP-enabled cell phones. A streamlined interface is available for Apple iPhone and iPod touch. This architecture enables users to immediately start using HP DMA without having to deal with complicated local installations or setups.

Expert Engine

The Expert Engine controls all interactions between all product components.

Repository

The Repository stores all collected information, user settings, system configuration information, and metadata. The Repository uses Oracle as its underlying database platform.

Agent

The Agent runs on each managed server. It is responsible for collecting performance data and running automation routines.

General Installation Information

The HP DMA architecture allows itself to be deployed in a variety of configurations in order to support greater scalability. Following are the minimum system requirements for HP DMA.

HP does not provide the Oracle license necessary to run HP DMA. A suitable Oracle Enterprise license must be provided in order to run HP DMA. Oracle version 10.2.0.4 is certified for use as the HP DMA repository. While other versions of Oracle, 10.2 or greater, may be used with HP DMA, HP cannot guarantee the same degree of performance and reliability as that of the certified version.

To view Expert Engine and Repository version information, see Repository Database Server Requirements on page 13.

DB2 Databases Only:
Some DB2 Workflows use db2_all. Ensure that db2_all is configured properly for the DB2 instance, meaning that the datapal user can run commands as a different user using db2_all. If an HP-UX Agent is collecting against a DB2 database, HP-UX will not be supported if the DB2 database is using the HP-UX default character set, roman8.

Firewalls and Ports

The agents initiate connections with the web server on port 80 or 443 for SSL encryption. The Expert Engine and web server never initiate communication with the agents. So, firewalls must allow connections into the web server machine on port 80 or 443. Ensure that communication is allowed on these ports.

Table 2 HP DMA Communication Ports

HP DMA Components	Port
Expert Engine communicates with the Repository database.	Port 1521
Web browser communicates with the Web Server. This is the default HTTP port.	Port 80

Privileges

To install packages on all UNIX®-type machines you must log on as a user that has root permissions. Windows® requires administrator privileges.

Users to be Created

The `data-palette-base` package creates a datapal user and datapal group. If this user and group are pre-created, the package will use the pre-created user and group rather than creating new ones. Uninstalling the base package will remove the datapal user and group only if they were created by the base package installer. A pre-created datapal user and group will not be removed by the uninstaller.

Security

The Agent and Expert Engine run as the datapal user, never as root. SSL encryption can be enabled for the agent to Web Server connections and the web browser to Web Server connections.

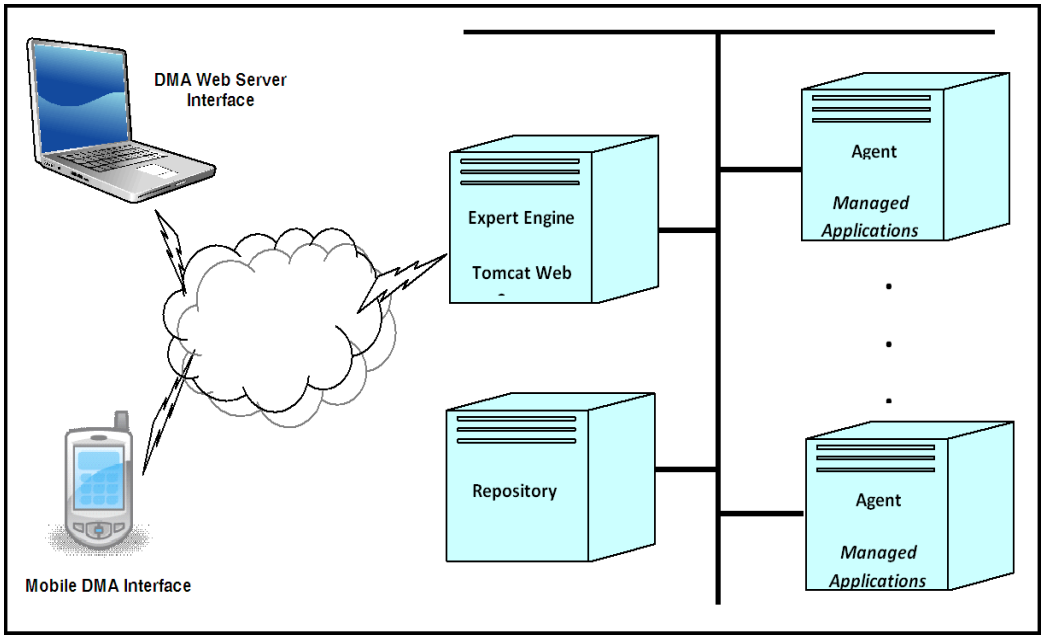
HP DMA Deployment Configuration

Two-Server Deployment System Requirements

The HP DMA architecture allows itself to be deployed in a variety of configurations in order to support greater scalability. We recommend the two server deployment. See One-Server Deployment System Requirements on page 59 for additional deployment configurations.

The two-server HP DMA deployment configuration places the Expert Engine on one server and the Repository on a second server (with agents deployed as necessary) as shown. This is the highest-performing deployment configuration and is recommended for most environments.

Figure 1 Two-Server Deployment



Hardware Requirements

The server that runs the HP DMA Repository component must meet the minimum system specifications to run Oracle Enterprise (see Oracle's web site for more information on minimum system requirements for the Oracle database). In addition, this server must meet these minimum system requirements:

- CPU Requirements

  4 CPU cores. If Intel®, each core must be 2.0 GHz or higher; if SPARC, each CPU must be 1.0 GHz or higher.

- RAM Requirements

  2 GB RAM.

- Disk Requirements

  Fast, high bandwidth I/O is required. Software RAID is not supported. SATA drives are highly discouraged and will result in performance degradation. NFS mounted partitions may be supported under certain circumstances. For more information, contact HP Software Support.

- Storage Requirements

  The minimum storage requirements assuming minimal collected historical information is 2GB. However, in most situations where HP DMA is monitoring one or more applications, the storage requirements are based upon how much information is being collected and maintained in the repository and will be significantly larger than 2GB. As an example, since database applications are the most storage space intensive, here are three formulas for estimating storage needs:

  Oracle Max Storage = [2GB + (1GB * R)] * I

  MS SQL Server Max Storage = [5GB + (1GB * R)] * I

  DB2 Max Storage = [2GB + (1GB * R)] * I

Where

I = number of database server instances being monitored,

R = the amount of time to retain monitored information in the repository,

The Max Storage value above is the maximum, total storage space that will be required on the repository server when monitoring I database instances with R days of historical data retention. For example, if you are monitoring 5 Oracle Instances and 2 MS SQL Server instances and you wish to retain 7 days of historical monitored information for each of these instances, then the storage required on the repository server is the sum of:

Oracle Max Storage = [2GB + (1GB * 7)] * 5 = 45GB

MS SQL Server Max Storage = [5GB + (1GB * 7)] * 2 = 24GB

Repository Database Server Requirements

HP DMA version 1.00 is supported on the following versions of Oracle Server Enterprise Edition:

- 10.2.0.4
- 11.2.0.1
- 11.2.0.2

A suitable Oracle Server Enterprise Edition license must be provided in order to run HP DMA.

There is a known problem in Oracle Server Enterprise Edition version 11.2.0.1 that can affect your HP DMA repository. See Using HP DMA with Oracle Server 11.2.0.1 on page 61 for details.

Operating System Requirements

Table 3 indicates which operating systems are suitable for the Repository server. “Certified” means that particular operating system and version has been certified by HP and will offer optimal performance and reliability; “Yes” means that the particular operating system and version will run the components but the performance and reliability may not be optimal; “No” means that the components will not run under the particular operating system and version.

Table 3 Operating System Requirements

OS	Version	Supported
Solaris	8	Yes
	9	Yes
	10	Certified
AIX	5.1	No
	5.2	No
	5.3	No
HP/UX	11i v1 (RISC)	No
	11i v2 (RISC)	No

Table 3 Operating System Requirements (cont'd)

OS	Version	Supported
Linux	Red Hat Enterprise Linux 4	Certified
	Red Hat Enterprise Linux 5	Certified
	SuSE Linux 9.1	Yes
	SuSE Linux 10	Yes
Windows*	Server 2000	Certified
	Server 2000 Advanced	Yes
	Server 2003 Standard	Certified
	Server 2003 Enterprise	Yes
	Server 2003 Data Center	Yes
	Server 2003 Web	Yes

*The Oracle database system that runs the Repository has known, documented stability issues on Microsoft® Windows.

Expert Engine/Web Server System Requirements

The following requirements apply to the two-server deployment configuration where the Expert Engine and Web Server are on their own dedicated server. See Table 3 on page 13 for system requirements.

Hardware Requirements

- CPU Requirements

  4 CPU cores. If Intel, each core must be 2.0 GHz or higher; if SPARC, each CPU must be 1.0 GHz or higher.

- RAM Requirements

  2 GB RAM.

- Disk Requirements

  Fast, high bandwidth I/O is required (10,000 RPM or better). Software RAID is not supported. SATA drives are highly discouraged and will result in performance degradation. NFS mounted partitions may be supported under certain circumstances. For more information, contact HP Software Support.

- Storage Requirements

  250 MB free space.

Agent Server System Requirements

The HP DMA agent is a light weight application that requires minimal system resources from the server on which it runs.

- Hardware Requirements

  An agent requires 60 MB of RAM to be continuously available and runs on the following operating systems:

- Operating System Requirements

  The following table indicates which operating systems are suitable to run an agent.

Table 4 Agent Server Operating System Requirements

OS	Version	Supported
Solaris	8	Yes
	9	Yes
	10	Yes
AIX	5.1	No
	5.2	Yes
	5.3	Yes
HP/UX	11i v1 (RISC)	Yes
	11i v2 (RISC)	Yes
Linux	Red Hat Enterprise Linux 4	Yes
	Red Hat Enterprise Linux 5	Yes
	SuSE Linux 9.1	Yes
	SuSE Linux 10	Yes
Windows	Server 2000	Yes
	Server 2000 Advanced	Yes
	Server 2003 Standard	Yes
	Server 2003 Enterprise	Yes
	Server 2003 Data Center	Yes
	Server 2003 Web	Yes

Supported Managed Applications

HP DMA offers full monitoring and automation support for the following database systems:

Table 5 Supported Managed Applications

Database	Supported Versions	Notes
Oracle	8.1, 9, 9.2, 10.1, 10.2, 11.1	Oracle no longer supports versions 7, 8 or 9.
Microsoft SQL Server	2000, 2005	
IBM DB2 UDB	8.1, 9, 9.2	IBM no longer supports version 7.

Web Browser Requirements

The following web browsers are certified for use with HP DMA Web Server:

Table 6 Supported Web Browsers

Browser	Version
Microsoft Internet Explorer	7
Microsoft Internet Explorer	8
Mozilla Firefox	3.6
Apple Safari	5
Google™ Chrome	6

The Mobile DMA Interface runs on any WML 1.1 compliant mobile device. A streamlined interface is available for the Apple iPhone and iPod touch.

Installation and Removal Overview

Installation Order for UNIX

It is required that you install the HP DMA components in a specific order. These steps assume that the HP DMA component files have been moved to the host server and are ready to install. The recommended HP DMA component installation order for UNIX is as follows:

1. HP DMA Repository: Ensure that the repository is set up prior to installing any HP DMA component. For more information, see Chapter 2, Repository Software Installation, on page 19 of this guide.
2. HP DMA Base
3. HP DMA Expert Engine
4. Install Web
5. Install Agent(s)

Removal Order for UNIX

It is best practice to remove the HP DMA components in the reverse order of the installation. This is the required order in which you should remove or uninstall the HP DMA components:

1. HP DMA Agent(s) and Base(s) from Agent machines
2. HP DMA Web
3. HP DMA Expert Engine
4. HP DMA Base (included in the Expert Engine installation/uninstallation for Windows)
5. HP DMA Repository

Installation Order for Windows

It is required that you install the HP DMA components in a specific order. These steps assume that the HP DMA component files have been moved to the host server and are ready to install. The recommended HP DMA component installation order for Microsoft Windows is as follows:

1. HP DMA Repository: Ensure that the repository is set up prior to installing any HP DMA component. For more information, see Chapter 2, Repository Software Installation, on page 19 of this guide.
2. HP DMA Expert Engine

For Windows, the Base is installed automatically when you install the Expert Engine.

3. HP DMA Web Server
4. HP DMA Agent(s)

Removal Order for Windows

It is best practice to remove the HP DMA components in the reverse order of the installation. Remove the HP DMA components in the following order:

1. HP DMA Agent(s) and Base(s) from Agent machines

For Windows, the Base on an Agent machine is uninstalled automatically when you remove the Agent.

2. HP DMA Web Server
3. HP DMA Expert Engine
4. HP DMA Repository

2 Repository Software Installation

This chapter includes the following topics:

Installation Instructions for the Repository Software

Creating a Repository Database

To install HP Database and Middleware Automation (HP DMA) on any platform, you must set up the database repository first.

The executables that install and upgrade the Repository are installed from the Expert Engine host machine. The Expert Engine host machine may be the same machine on which your Repository is located, or it may be a different machine, depending on how you configured your setup. When you install or upgrade your Repository, ensure that you know the location of your Expert Engine, so that you can locate the proper installation and upgrade executables.

For the purposes of this document, the `ORACLE_SID` is `RD1`. You can name the `SID` whatever you want. It is recommended to use a three-character `SID`; the `SID` should be no more than eight characters long. The following examples assume a database name of `RD1`. The database must be in `noarchivelog` mode.

---

1. Before you begin installation, check the Oracle Quickstart Install Guide to validate system installation parameters for the particular Operating System upon which you are installing.

   Check operating system specifications and required patches at: **otn.oracle.com**

2. See the appropriate instructions for the operating system:
   - UNIX: See Installing the Embedded Oracle Software on UNIX Operating Systems on page 20.
   - Windows: See Installing the Embedded Oracle Software on Windows Operating Systems on page 23.

Installing the Embedded Oracle Software on UNIX Operating Systems

Embedded Oracle Software Requirements for UNIX Operating Systems

Ensure the following before beginning the installation:

- Home directory `/opt/app/oracle` with at least 4 GB free, preferably 8 GB if possible.
- Login shell `/bin/ksh` preferred or `/bin/bash`.
- The installer must be prepared to run the Oracle-supplied `root.sh` or `rootpre.sh` commands as needed during install.
- Other user-specific parameters (`ulimit`, `maxfiles`, and so forth) as documented by Oracle at: **otn.oracle.com**
- For Linux Operating Systems, ensure that the following packages are installed. Use these commands to verify package installation.
  - Packages:

    ```
    gcc-3.3
    gcc-c++-3.3.3-43
    glibc-2.3.3-98.28
    libaio-0.3.98-18
    libaio-devel-0.3.98-18
    make-3.80
    openmotif-libs-2.2.2-519.1
    ```

  - Commands to verify package installation:

    ```
    rpm -q gcc gcc-c++ glibc libaio libaio-devel make openmotif-libs
    ```

  - Return looks like the following:

    ```
    gcc-3.3.3-43.24
    gcc-c++-3.3.3-43.24
    libaio-0.3.98-18.3
    libaio-devel-0.3.98-18.3
    make-3.80-184.1
    openmotif-libs-2.2.2-519.1
    ```

To install the embedded Oracle software on a UNIX operating system, follow these steps:

1 As `root`, create `oracle` user, `dba` group, `oraInst.loc` file, and the Oracle mountpoints:

```
addgroup dba
mkdir /opt/app
adduser -g dba -d /opt/app/oracle -s /bin/bash -m oracle
passwd oracle
mkdir -p /u01/oradata/RD1 /u02/oradata/RD1
chown oracle:dba /u01/oradata/RD1 /u02/oradata/RD1
```

For Solaris only:

```
cat > /var/opt/oracle/oraInst.loc<<EndCat
inventory_loc=/opt/app/oracle/oraInventory
inst_group=dba
EndCat
```

For All Others:

```
cat > /etc/oraInst.loc <<EndCat
inventory_loc=/opt/app/oracle/oraInventory
inst_group=dba
EndCat
```

2 Run the following commands:

```
su - oracle
cat >> ~oracle/.profile << EOF
export ORACLE_BASE=/opt/app/oracle
export ORACLE_HOME=\$ORACLE_BASE/product/10.1.0/DB1
export PATH=$PATH:\$ORACLE_HOME/bin:$PATH
export LD_LIBRARY_PATH=\$ORACLE_HOME/lib
export ORACLE_SID=RD1
EOF
```

Values may differ depending on the location you set during the installation.

Installing Oracle Software on UNIX Operating Systems

1 Log in as the oracle user.

2 Download the following two response files and the Oracle software from the distribution media, located in the `/Repository` directory, to the local machine:

```
standard.rsp
patchset.rsp
<operating system>/oracle.tar
<operating system>/patchset.tar
```

For ProServe only, go to `\\Usden-dc4/DP_Distro/Oracle` and from this directory, navigate to the desired Operating System directory, and then select the two files for download.

Extract Oracle software using zip, gunzip, etc: `oracle.tar`:
`tar -xvf oracle.tar`

Only extract the `oracle.tar` file. You will extract the other `patchset.tar` file later.

3 Extract Oracle install files using `cpio -idmv <ship.db.lnx32.cpio`

4 Verify that the `standard.rsp` file contains the correct location of the stage and software directories (`FROM_LOCATION=...` & `ORACLE_HOME=`).

5 Pre-create the `ORACLE_HOME` directory and run the installer in silent mode, which will take about 30 minutes:

```
mkdir -p /opt/app/oracle/product/10.1.0/DB1
Disk1/runInstaller -silent -responseFile /.<FullPathRequired>./
standard.rsp
```

The full pathname is required for the response file.
Example: `/opt/app/oracle/local/standard.rsp`

Remove the install software directory:
`rm -fr Disk1`

Extract the `patchset.tar`:
`tar -xvf patchset.tar`

6 Verify that the `patchset.rsp` file contains the correct location of the stage and software directories. This process may take about 30 minutes.
(`FROM_LOCATION=...` & `ORACLE_HOME=`):

```
Disk1/runInstaller -silent -responseFile /.<FullPathRequired>./
patchset.rsp
```

The full pathname is required for the response file. Example:
`/opt/app/oracle/local/patchset.rsp`

7 Run `root.sh` as the root user. `root.sh` is located in `ORACLE_HOME`.

```
/opt/app/oracle/product/10.1.0/DB1/root.sh
```

8 Ensure that the database is registered in the `ORATAB` file:
`RD1:/opt/app/oracle/product/10.1.0/DB1:N`

9 Check `dbhome` in `/usr/local/bin` to ensure that the `ORATAB` file is specified correctly:
`/etc/oratab`
`/var/opt/oracle/oratab`

The `oratab` file is in `/var/opt/oracle` on Solaris and `/etc` on all other UNIX platforms.

Creating the Repository Database for UNIX Operating Systems

The `CreateDB` script must be run on the same server on which the Expert Engine resides.

1 Log in as the newly-created oracle user and create the following admin directories:

```
cd /opt/app/oracle
mkdir -p admin/RD1
cd admin/RD1
mkdir adump bdump cdump udump arch flash_recovery_area pfile
```

2 Copy the `pfile` and `create` files from the `/Repository/<operating system>` directory to the local machine:

- `CreateDB1.sql` into `/opt/app/oracle/admin/RD1/create`
- `CreateDB2.sql` into `/opt/app/oracle/admin/RD1/create`
- `CreateDB3.sql` into `/opt/app/oracle/admin/RD1/create`
- `CreateDefs.sql` into `/opt/app/oracle/admin/RD1/create`
- `PostCreate.sql` into `/opt/app/oracle/admin/RD1/create`
- `initRD1.ora` into `/opt/app/oracle/admin/RD1/pfile`

3 Edit the `initRD1.ora` and the `CreateDefs.sql` making sure that `ORACLE_HOME` and `ORACLE_SID` match your installation specifications (`default RD1`).

4 If not already created, create the directories `/u01/oradata` and `/u02/oradata`. You may substitute `/u01` and `/u02` for any available mountpoints. If only one mountpoint is available, it can be used, but this practice is discouraged. Ensure each mountpoint has a minimum of 35 GB free space. These directories are specified in the `CreateDefs.sql` file and can be changed as needed.

5 Create the database:

```
.oraenv
cd /opt/app/oracle/admin/RD1/create
sqlplus /nolog
SQL> @CreateDB1
SQL> @CreateDB2
SQL> @CreateDB3
SQL> @PostCreate
```

Expect `CreateDB3` to take about one hour to complete.

6 Map the `initSID.ora` file by executing the following command:

```
cd $ORACLE_HOME/dbs
ln -s /opt/app/oracle/admin/<SID>/pfile/init<SID>.ora
```

Configuring the Listener and Tnsnames

1 Copy the `listener.ora` and `tnsnames.ora` files from `/Repository/<operating system>` to the local machine:

- `listener.ora` into `${ORACLE_HOME}/network/admin`
- `tnsnames.ora` into `${ORACLE_HOME}/network/admin`

2 Update the `listener.ora` and `tnsnames.ora` by replacing the SID with your database SID, as well as the hostname with your database machine hostname.

```
lsnrctl start
```

SID (system identifier in Oracle) refers to the instance name of the database on which you are working. SID defaults to RD1.

Installing the Embedded Oracle Software on Windows Operating Systems

Embedded Oracle Software Requirements for Windows Operating Systems

Ensure the following before beginning the installation:

- Local administrator (local administrator preferred over a domain administrator)
- Other machine and user-specific configuration as documented by Oracle for Windows Installation Guide, which is available at: **otn.oracle.com**
- Home directory `C:\Oracle` with at least 4 GB free, preferably 8 GB if possible.

1 Create oracle user as local administrator (local administrator preferred over a domain administrator).

2 Log in as the oracle user.

Installing Oracle Software on Windows Operating Systems

1. Download the following two response files and the Oracle software from the distribution media, located in the `\Repository` directory, to the local machine:

   ```
   standard.rsp
   patchset.rsp
   Windows\oracle.zip
   Windows\patchset.zip
   ```

2. Unzip `oracle.zip`.

> Only extract the `oracle.zip` file. You will extract the other `patchset.zip` file later.

3. Verify that the `standard.rsp` file contains the correct location of the stage and software directories (`FROM_LOCATION=...` & `ORACLE_HOME=`).
4. Pre-create the `ORACLE_HOME` directory and run the installer in silent mode, which will take about 30 minutes:

   ```
   mkdir C:\Oracle\product\10.1.0\DB1
   Disk1\setup.exe -silent responseFile\.<FullPathRequired>.\standard.rsp
   ```

> The full pathname is required for the response file. Example:
> `C:\oracle\local\standard.rsp`

5. Remove the install software directory:
   `del Disk1`
6. Ensure that all database components are stopped using the Control Panel. If this is not done, the patchset will fail, but can be rerun. For information on stopping components, see Stopping a Component for Windows on page 34.
7. Unzip the `patchset.zip`.
8. Verify that the `patchset.rsp` file contains the correct location of the stage and software directories. This process may take about 30 minutes.
   (`FROM_LOCATION=...` & `ORACLE_HOME=`):

   ```
   Disk1\setup.exe -silent -responseFile \.<FullPathRequired>.\patchset.rsp
   ```

> The full pathname is required for the response file. Example:
> `C:\oracle\local\patchset.rsp`

> The name of the above response file (without path) is `patchset.rsp`.

Creating the Repository Database for Windows Operating Systems

The `CreateDB` script must be run on the same server on which the Expert Engine resides.

1. Create the following admin directories:

```
C:\Oracle\admin\RD1
C:\Oracle\admin\RD1\adump
C:\Oracle\admin\RD1\arch
C:\Oracle\admin\RD1\bdump
C:\Oracle\admin\RD1\cdump
C:\Oracle\admin\RD1\create
C:\Oracle\admin\RD1\flash_recovery_area
C:\Oracle\admin\RD1\pfile
C:\Oracle\admin\RD1\udump
```

2. Copy the `pfile` and `create` files from the `\Repository\Windows` directory to the local machine:
   - `CreateDB1.sql` into `C:\Oracle\admin\RD1\create`
   - `CreateDB2.sql` into `C:\Oracle\admin\RD1\create`
   - `CreateDB3.sql` into `C:\Oracle\admin\RD1\create`
   - `CreateDefs.sql` into `C:\Oracle\admin\RD1\create`
   - `PostCreate.sql` into `C:\Oracle\admin\RD1\create`
   - `initRD1.ora` into `%ORACLE_HOME%\database`
3. Edit the `initRD1.ora` and the `CreateDefs.sql` making sure that `ORACLE_HOME` and `ORACLE_SID` match your installation specifications (`default RD1`).
4. Create the directories `C:\oradata` and `D:\oradata`. You can substitute drive `C` and drive `D` for any available mountpoints. If only one mountpoint is available, it can be used, but this practice is discouraged. Ensure each mountpoint has a minimum of 35 GB free space. These directories are specified in the `CreateDefs.sql` file and can be changed as needed.
5. Create the database:

```
oradim -NEW -SID RD1 -startmode auto -spfile -shutmode immediate -timeout
120
cd C:\Oracle\admin\RD1\create
set ORACLE_SID=RD1
sqlplus /nolog
SQL> @CreateDB1
SQL> @CreateDB2
SQL> @CreateDB3
SQL> @PostCreate
```

Expect `SQL> @CreateDB3` to take about one hour to complete.

Configuring the Listener and Tnsnames

1. Copy the `listener.ora` and `tnsnames.ora` files from `\Repository\Windows` to the local machine:
   - `listener.ora` into `C:\Oracle\product\10.1.0\DB1\network\admin`
   - `tnsnames.ora` into `C:\Oracle\product\10.1.0\DB1\network\admin`
2. Update the `listener.ora` and `tnsnames.ora` by replacing the SID with your database SID, as well as the hostname with your database machine hostname.

   ```
   lsnrctl start
   ```

SID (system identifier) in Oracle refers to the instance name of the database on which you are working. SID defaults to RD1.

Installing the Repository

1. Copy all required `install.zip` files from the `Repository` directory.
2. Log in to the Expert Engine machine as the `datapal` user.
   Use this `Repository.zip` file location for each of the upgrades:
   `repository-install-oracle-<version>.zip`
   - For UNIX, use `datapal -t CreateDB`
   - For Windows, use:
     ```
     cd "C:\Program Files\Data Palette"
     jython\jython.bat bin\datapal -t CreateDB
     ```

   Follow the prompts and add the appropriate data. Point the script to the `install.zip` file when prompted. Include the path and the filename with file extension. Repeat this process until the desired repository version is reached.

   An example session is shown here:

   ```
   datapal -t CreateDB
   System user (system):
   System password (manager):
   Schema user (rdr):
   Schema password (rdeq123): rdrpass
   Application user (rd):
   Application password (eq123): rdpass
   Database hostname (localhost):
   Database port (1521):
   Database name (RD1):
   Index datafile directory (optional, /u01/oradata/SID):
   ```

   — For Windows, use `C:\oradata`

   — In this example, the Index datafile directory would be `/u01/oradata/RD1`

   ```
   Data datafile directory (optional, /u02/oradata/SID):
   ```

   — For Windows, use `D:\oradata`

   — In this example, the Data datafile directory would be `/u02/oradata/RD1`

   ```
   Repository zip file location: repository-install-oracle<version>.zip
   ```

If the optional datafile directory parameters are left blank, CreateDB assumes you have pre-created the RDCOMMD, RDCOMMX, RDCOLLD, and RDCOLLX tablespaces. CreateDB will only create and configure these tablespaces if you provide datafile directory values.

3 Now you are ready to install the remaining HP DMA components:

When installing, install in the recommended order. See Installation and Removal Overview on page 16.

- Windows: See Installation Instructions for Windows on page 31.
- Linux: See Installation Instructions for Linux on page 37.
- AIX: See Installation Instructions for AIX on page 39.
- HP-UX: See Installation Instructions for HP-UX on page 43.
- Solaris: See Installation Instructions for Solaris on page 45.

Uninstalling the Repository

If you decide to remove the Repository Database and install a new Repository, it is important to note that all repository data will be lost in the process.

Uninstalling the Repository requires three steps:

1 Shut down the Expert Engine and the Report Server.

- See Stopping a Component for Windows on page 34.
- See Manual Start and Stop Commands on page 41.

2 Remove the HP DMA Repository.

a Log on to the Repository machine as the owner of the Oracle software.

b Run the following commands from SQL*Plus:

```
SQL> connect / as sysdba
SQL> drop user RD cascade;
```

If this user is currently connected to the instance, you will not be able to drop this user. If this command does not drop the user, end the user session and reissue the above command.

```
SQL> drop user RDR cascade;
```

If this user is currently connected to the instance, you will not be able to drop this user. If this command does not drop the user, end the user session and reissue the above command.

```
SQL> drop tablespace RDCOMMD including contents and datafiles;
SQL> drop tablespace RDCOMMX including contents and datafiles;
SQL> drop tablespace RDCOLLD including contents and datafiles;
SQL> drop tablespace RDCOLLX including contents and datafiles;
SQL> quit;
```

You have successfully removed the HP DMA Repository and the necessary tablespaces and datafiles from your system.

3 Remove Oracle from your respective operating system.

- See Uninstalling Oracle for UNIX on page 28.
- See Uninstalling Oracle for Windows on page 28.

Uninstalling Oracle for UNIX

1 Log in as the oracle user.

2 Set the `ORACLE_SID` value to the desired database name.

3 Shut down the database and listener:

```
sqlplus /nolog
SQL> connect /as sysdba
SQL> shutdown abort
SQL> exit
lsnrctl stop
exit
```

4 Log in as the root user:

```
rm -fr /etc/oratab /opt/app/oracle /etc/oraInst.loc
rm -fr /var/opt/oracle/oratab /var/opt/oracle/oraInst.loc
rm -fr /u01/oradata /u02/oradata
cd /usr/local/bin
rm -fr dbhome oraenv coraenv
groupdel dba
userdel oracle
```

You have successfully removed Oracle from your UNIX machine.

Uninstalling Oracle for Windows

1 Log on to the server as `oracle` (the user created to install the oracle database).

2 From the **Start** button, click **All Programs**, **Oracle - Ora1010/Oracle Installation Products/Oracle Installer**.

The Oracle Installer Welcome window appears.

3 Click **Deinstall Products**.

The Inventory window appears.

4 Select the **Ora1010** check box, and then click **Remove**.

The Confirmation window appears.

5 Click **Yes**.

The Inventory window displays the following message: “There are no installed products.”

6 Click **Close**.

The Oracle Installer Welcome window appears.

7 Click **Cancel**.

The Exit window appears.

8 Click **Yes**.

9 Manually remove the software directory `C:\Oracle` and the database file directories `*:\oradata` where `*` is the drive letter used by the database (`C-Z`).

You have successfully removed Oracle from your Windows machine.

3 Windows

This chapter describes the procedures for working with HP Database and Middleware Automation (HP DMA) on the Windows operating system. It includes the following topics:

Installation Instructions for Windows

At this point in the installation, ensure that you have previously installed the Repository software. For more information, see Installation Instructions for the Repository Software on page 19.

If you have previously performed a UNIX installation, expect to see the Base and the Web components bundled in Windows.

Installing the Expert Engine for Windows

The Windows installer is a standard wizard driven interface.

1. Locate and double-click the following exe: `ee-install-<version>.exe` icon.

   The Installation Wizard begins the installation with the HP DMA Expert Engine Setup.
2. The following fields are available on the Expert Engine Setup screen:
   - Service User: The Expert Engine service will run as this user. It can be an Active Directory domain user if it's prefixed with the domain name (for example, DOMAIN_NAME\UserName)
   - Password: The password for the service user entered above. If this is entered incorrectly, the service user will default to LocalSystem.
3. The following fields are available on the Configure Repository screen:
   - Host: IP address of repository location.
   - Port: Repository Oracle listener port. This is typically port 1521.
   - Database: Oracle_SID (Oracle System Identifier), which defaults to RD1.
   - User: User created during the Repository create (CreateDB), which defaults to RD.
   - Password: This is the password for the user that was created during the Repository create (CreateDB), which defaults to eq123.

See Populating the Repository on page 32 for more information.

4 Click **Finish**.

You have completed installing the HP DMA Expert Engine.

Windows Silent Install

The Windows installer supports a command line, or silent install, mode that does not require clicking through the wizard.

```
ee-install-<version>.exe /S
/RepositoryHost=
/RepositoryPort=
/RepositoryDB=
/RepositoryUser=
/RepositoryPassword=
/ServiceUser=
/ServicePassword=
/D="C:\Program Files\Data Palette"
```

Populating the Repository

After you have installed the Expert Engine, you need to create and populate the Repository database.

1 Log in to the Expert Engine machine as the `datapal` user.
Use this `Repository.zip` file location for the installation:
`repository-install-oracle-<version>.zip`

```
cd "C:\Program Files\Data Palette"
jython\jython.bat bin\datapal -t CreateDB
```

Follow the prompts and add the appropriate data. Point the script to the `install.zip` file when prompted. Include the path and the filename with file extension.

An example session is shown here:

Expect `datapal -t CreateDB` to take about 10 minutes to complete.

```
datapal -t CreateDB
System user (system):
System password (manager):
Schema user (rdr):
Schema password (rdeq123):
Application user (rd):
Application password (eq123):
Database hostname (localhost):
```

— Type your hostname or hostname address.

```
Database port (1521):
Database name (RD1):
Index datafile directory (optional, /u01/oradata/SID): C:\oradata\RD1
Data datafile directory (optional, /u02/oradata/SID): D:\oradata\RD1
Repository zip file location:
repository-install-oracle-<version>.zip
```

Wait a few minutes while the database is being populated. You will see “Commit complete” and will be returned to your command prompt once the Repository is fully populated.

Checking Web Browser Compatibility

- Ensure that you have one of the supported web browsers.
- You can visit **http://www.mozilla.com** to download Firefox.
- If you are using Internet Explorer, ensure that you are using version 7 or higher.

Installing an Agent for Windows

Agents need to be installed on each machine you want to monitor, up to the number of licenses you purchased. The Windows installer is a standard wizard driven interface.

1. Locate and double-click the following exe: `collect-install-<version>.exe` icon, located on the desktop.
2. The following fields are available on the Configure Agent screen:
   - Service User: The agent service will run as this user. It can be an Active Directory domain user if it’s prefixed with the domain name (for example, DOMAIN_NAME\UserName).
   - Password: The password for the service user entered above. If this is entered incorrectly, the service user will default to LocalSystem.
   - Expert Engine Host: IP address of server that is hosting the Expert Engine
   - Expert Engine Port: 1124
3. Click **Finish**.
4. **For Oracle Databases Only**: The CreateRDCUser.sql script creates a user through which the agent connects. This SQL script is located in the `/opt/datapalette/collect/bin` directory and must be run in each Oracle database registered in HP DMA.
5. Verify that the Agent is running. See Verifying Agent Installation for Windows on page 48.

Windows Silent Install

The Windows installer supports a command line, or silent install, mode that does not require clicking through the wizard.

```
collect-install-<version>.exe /S
/ExpertEngine=
/ExpertEnginePort=
/ServiceUser=
/ServicePassword=
/D="C:\Program Files\Data Palette"
```

Installing an SQL Server Agent for Windows

1. Run `collect-install-<version>.exe` scripts.
2. Perform one of the following:
   - Create a new SQL server user through SQL Server Studio Manager:
     - Create a new RDC user with SQL Server administrator authority.
     - Set the RDC user password to "non-expiring."
     - To test your connection: Open the Web Server. From the Organizations tab, navigate to the Instance level. On the Instance tab-Connection area, change the User to RDC and type your password. Click **Test Connections**.
   - Execute script, which creates RDC user and sets RDC user password to "non-expiring."
3. Verify that the Agent is running. See Verifying Agent Installation for Windows on page 48.

Starting and Stopping Components

You may need to manually start or stop an HP DMA component.

If you are experiencing problems with the Repository not being available when the Expert Engine or the Report Server attempts to connect, set that component's service Startup Properties to "Manual." This problem may occur at system startup. This setting may be changed from the Services area.

Starting a Component for Windows

1. Click **Start**, **Control Panel**, and then click **Administrative Tools**, **Services**.
2. Select the appropriate services to start by clicking the service you wish to start. A **Start the service** link displays in the left pane of the screen.
3. Click the **Start** hyperlink.

Web Server Only: After you start the Web Server service, open your web browser. In the web browser address bar, type one of the following, depending on which port you are utilizing:

```
Port 8080: http://servername:8080/
Port 80: http://servername/
```

Stopping a Component for Windows

1. Click **Start**, **Control Panel**, and then click **Administrative Tools**, **Services**.
2. Select the appropriate services to stop by clicking the service you wish to stop. A **Stop the service** link displays in the left pane of the screen. Click the **Stop** hyperlink.

Removal Instructions for Windows

Removing HP DMA Components

Removal Order

It is best practice to remove the HP DMA components in the reverse order of the installation. Remove the HP DMA components in the order shown here. See Installation Order for Windows on page 17.

Uninstalling an Agent

1. On the taskbar, click **Start, All Programs, Data Palette, Collector, Uninstall**.

   An Uninstall Wizard launches.
2. Click **Next** one time.
3. Click **Uninstall**.
4. Click **Finish**.
5. **For Oracle Databases Only**: Remove the HP DMA user that was created to monitor the database: `SQL> drop user RDC;`

Uninstalling the Web Server

1. On the taskbar, click **Start, All Programs, Data Palette, Web Server, Uninstall**.

   An Uninstall Wizard launches.
2. Click **Next** one time.
3. Click **Uninstall**.
4. Click **Finish**.

   You have successfully uninstalled the Web Server.

Uninstalling the Expert Engine

1. On the taskbar, click **Start, All Programs, Data Palette, Expert Engine, Uninstall**.

   An Uninstall Wizard launches.
2. Click **Next** one time.
3. Click **Uninstall**.
4. Click **Finish**.

   You have successfully uninstalled the Expert Engine.

Uninstalling the Repository

See Uninstalling the Repository on page 27 for instructions on how to uninstall a Repository for Windows.

Upgrading Instructions for Windows

To upgrade to a more recent version of HP DMA, you must completely uninstall and reinstall all components except the Repository.

See Removal Instructions for Windows on page 35 for instructions on how to remove HP DMA.

If you have already removed HP DMA, see Installation Instructions for Windows on page 31 for instructions on how to install HP DMA.

4 Linux and AIX

This chapter describes the procedures for working with HP Database and Middleware Automation (HP DMA) on the Linux and AIX operating systems. It includes the following topics:

Installation Instructions for Linux

1. Log on to the host Linux server as root or a user with root permission to install HP DMA components and to create users.
2. Change to the directory where the HP DMA component files have been placed.
3. Install each component *in this order* using the following commands:

Where you see `<version>`, use the version number of the product to which you are upgrading. For example: `<version>` = `3.1.5` or `4.0`

```
rpm -i data-palette-base-<version>-1.i386.rpm
rpm -i data-palette-core-<version>-1.i386.rpm
rpm -i data-palette-web-<version>-1.i386.rpm
rpm -i data-palette-nc-<version>-1.i386.rpm
rpm -i data-palette-collect-<version>-1.i386.rpm
```

Once each component is installed the command prompt will be displayed.

4. **For Oracle Databases Only**: The CreateRDCUser.sql script creates a user through which the agent connects. This SQL script is located in the `/opt/datapalette/collect/bin` directory and must be run in each Oracle database registered in HP DMA.
5. You must configure the Expert Engine, Agent, and Reports before you can run the components. Go to Chapter 7, Configuring Components for UNIX, on page 47 of this guide.

Removal Instructions for Linux

1. Log on to the host Linux server as root or a user with root permission to remove HP DMA components.
2. Change to the directory where the HP DMA components have been placed. (optional)
3. Remove each component *in this order* using the following commands:

   `rpm -e data-palette-collect` (if applicable)

   `rpm -e data-palette-nc` (if applicable)

   `rpm -e data-palette-web` (if applicable)

   `rpm -e data-palette-core` (if applicable)

   `rpm -e data-palette-base`

   Once each component is removed the command prompt displays.
4. **For Oracle Databases Only**: Remove the HP DMA user that was created to monitor the database: `SQL> drop user RDC;`

Upgrading Instructions for Linux

1. Log on to the host Linux server as root or a user with root permission to install HP DMA components.
2. Change to the directory where the HP DMA component upgrade files have been placed.
3. Upgrade each component using the following commands:

Where you see `<version>`, use the version number of the product to which you are upgrading. For example: `<version>` = `3.1.5` or `4.0`

```
rpm -U data-palette-base-<version>-1.i386.rpm
rpm -U data-palette-core-<version>-1.i386.rpm
rpm -U data-palette-collect-<version>-1.i386.rpm
rpm -U data-palette-web-<version>-1.i386.rpm
rpm -U data-palette-nc-<version>-1.i386.rpm
```

Once each component is upgraded the command prompt displays.

4. You must configure the Expert Engine, Agent, and Reports before you can run the components. Go to Chapter 7, Configuring Components for UNIX, on page 47 of this guide.

Installation Instructions for AIX

Currently, HP DMA only supports agents on the AIX Operating System. See Agent Server System Requirements on page 14 for additional support information.

1. Log on to the host UNIX server as root or a user with root permission to install HP DMA components and to create users.
2. Change to the directory where the HP DMA component files have been placed.
3. Install each component *in this order* using the following commands:

Where you see `<version>`, use the version number of the product you wish to install. For example: `<version>` = `3.1.5` or `4.0`

```
rpm -i data-palette-base-<version>-1.ppc.rpm
rpm -i data-palette-collect-<version>-1.ppc.rpm
```

4. **For Oracle Databases Only**: The CreateRDCUser.sql script creates a user through which the agent connects. This SQL script is located in the `/opt/datapalette/collect/bin` directory and must be run in each Oracle database registered in HP DMA.
5. You must configure the Expert Engine, Agent, and Reports before you can run the components. Go to Chapter 7, Configuring Components for UNIX, on page 47 of this guide.

Removal Instructions for AIX

1. Log on to the host UNIX server as root or a user with root permission to remove HP DMA components.
2. Remove each component *in this order* using the following commands:

```
rpm -e data-palette-collect
rpm -e data-palette-base
```

3. **For Oracle Databases Only**: Remove the HP DMA user that was created to monitor the database: `SQL> drop user RDC;`

Upgrading Instructions for AIX

1. Log on to the host UNIX server as root or a user with root permission to install HP DMA components.
2. Change to the directory where the HP DMA component upgrade files have been placed.

3 Upgrade each component *in this order* using the following commands:

Where you see `<version>`, use the version number of the product to which you are upgrading. For example: `<version>` = `3.1.5` or `4.0`

```
rpm -U data-palette-base-<version>-1.ppc.rpm
rpm -U data-palette-collect-<version>-1.ppc.rpm
```

Once each component is upgraded the command prompt displays.

4 You must configure the Expert Engine, Agent, and Reports before you can run the components. Go to Chapter 7, Configuring Components for UNIX, on page 47 of this guide.

Starting and Stopping Components for Linux, AIX, Solaris, and HP-UX

There are two types of starts and stops you can perform on your system:

- Automated starts and stops: Automated start and stop commands are built into HP DMA. Automated commands start HP DMA when you boot your system and stop HP DMA when you shut down your system. For more information see Automated Starts and Stops on page 40.
- Manual starts and stops: If HP DMA is already installed but not running, you may want or need to start or stop HP DMA. For example, if you need to start or stop HP DMA but you do not want to reboot your system, these manual commands are useful. See Manual Starts and Stops on page 41.

Automated Starts and Stops

Default Install Location for Automatic Starts and Stops

Table 7 Automated Start and Stop Command Locations

Operating System	Command Location
Linux	`/etc/init.d/<componentname>`
AIX	`/etc/rc.d/init.d/<componentname>`
Solaris	`/etc/init.d/<componentname>`
HP-UX	`/sbin/init.d/<componentname>`

Automated Start and Stop Commands

Table 8 Automated Start and Stop Commands

Component	Start	Stop
Core	`data-palette-core start`	`data-palette-core stop`
Agent	`data-palette-collect start`	`data-palette-collect stop`
Web	`data-palette-web start`	`data-palette-web stop`

Manual Starts and Stops

Default Install Location for Manual Starts and Stops

If you are logged on as a datapal user, the default installation location for the HP DMA start and stop commands is:
`/opt/datapalette/bin/datapal`

Manual Start and Stop Commands

Table 9 Manual Start and Stop Commands

Start/Stop	Expert Engine	Agent	Reports
Start	`datapal -e`	`datapal -c`	`datapal -r`
Stop	`datapal -se`	`datapal -sc`	`datapal -sr`

5 HP-UX

This chapter describes the procedures for working with HP Database and Middleware Automation (HP DMA) on the HP-UX operating system. It includes the following topics:

Installation Instructions for HP-UX

1. Log on to the host HP-UX server as root or a user with root permission to install HP DMA components and create users.
2. Copy the install files onto the machine on which you will be installing HP DMA. For this example, we will use `/tmp`.
3. Uncompress the files you copied:

```
cd /tmp
uncompress data-palette-base-<version>-PA_RISC2.0.depot.Z
uncompress data-palette-collect-<version>-PA_RISC2.0.depot.Z
```

Use `PA_RISC2.0` install depots for RISC-based architecture. Use `IA64N` install depots for Itanium®-based architecture.

4. Install HP DMA Base:

```
swinstall -x mount_all_filesystems=false -s /tmp/
data-palette-base-<version>-PA_RISC2.0.depot data-palette-base
```

   - Within swinstall, set the "Source Depot Path" to the location of the install file. For example, `/tmp/data-palette-base-<version>-PA_RISC2.0.depot.`
   - Repeat the aforementioned steps using the following "Source Depot Path": `/tmp/data-palette-collect-<version>-PA_RISC2.0.depot.`

5. **For Oracle Databases Only**: The CreateRDCUser.sql script creates a user through which the agent connects. This SQL script is located in the `/opt/datapalette/collect/bin` directory and must be run in each Oracle database registered in HP DMA.
6. You must configure the Expert Engine, Agent, and Reports before you can run the components. Go to Chapter 7, Configuring Components for UNIX, on page 47 of this guide.

Removal Instructions for HP-UX

To remove HP DMA from an HP-UX system:

1. Log on to the host HP-UX server as root or a user with root permission to remove HP DMA components.
2. Remove all HP DMA components simultaneously using the swremove command, which starts the swremove utility.

   ```
   swremove -x mount_all_filesystems=false
   ```

3. Select the HP DMA components and remove in the following order.

   ```
   data-palette-collect
   data-palette-base
   ```

`swremove` provides a list of packages from which you can select and then remove.

4. **For Oracle Databases Only**: Remove the HP DMA user that was created to monitor the database: `SQL> drop user RDC;`

Upgrading Instructions for HP-UX

HP-UX upgrades are performed by removing the HP DMA component. Installation of the latest version of each component follows removal.

See Removal Instructions for HP-UX on page 44 for instructions on how to remove HP DMA.

If you have already removed HP DMA, see Installation Instructions for HP-UX on page 43 for instructions on how to install HP DMA.

Starting and Stopping Components for Linux, AIX, Solaris, and HP-UX

See Starting and Stopping Components for Linux, AIX, Solaris, and HP-UX on page 40 for more information.

6 Solaris

This chapter describes the procedures for working with HP Database and Middleware Automation (HP DMA) on the Solaris operating system. It includes the following topics:

Installation Instructions for Solaris

1. Log on to the host Solaris server as root or a user with root permission to install HP DMA components and create users.
2. Unzip each package file by issuing `unzip <filename>`.
3. Install each component using the Solaris installation client by performing the following

   ```
   pkgadd -d /tmp
   ```

   A list of packages is displayed for each HP DMA component.
4. There will be a number on the left side of the package. At the prompt, issue the number of the package to be installed.
5. Install the packages in the following order:

   ```
   data-palette-base
   data-palette-core
   data-palette-web
   data-palette-nc
   data-palette-collect
   ```

Do not use the “all” option as the components may not install in the correct order and dependency violations may exist. For example, you must install `<data-palette-web>` before you install `<data-palette-nc>`.

6. **For Oracle Databases Only**: The CreateRDCUser.sql script creates a user through which the agent connects. This SQL script is located in the `/opt/datapalette/collect/bin` directory and must be run in each Oracle database registered in HP DMA.
7. You must configure the Expert Engine, Agent, and Reports before you can run the components. Go to Chapter 7, Configuring Components for UNIX, on page 47 of this guide.

Removal Instructions for Solaris

1. Log on to the host Solaris server as root or a user with root permission to remove HP DMA components.
2. Remove each component using the Solaris removal client by typing the following commands:

   `pkgrm <package name>`

   - `pkgrm data-palette-collect`
   - `pkgrm data-palette-nc`
   - `pkgrm data-palette-web`
   - `pkgrm data-palette-core`
   - `pkgrm data-palette-base`

   "Removal of <data-palette-package name> was successful" displays.
3. **For Oracle Databases Only**: Remove the HP DMA user that was created to monitor the database: `SQL> drop user RDC;`

Upgrading Instructions for Solaris

Solaris upgrades are performed by removing the HP DMA component. Installation of the latest version of each component follows removal.

See Removal Instructions for Solaris on page 46 for instructions on how to remove HP DMA.

If you have already removed HP DMA, see Installation Instructions for Solaris on page 45 for instructions on how to install HP DMA.

Starting and Stopping Components for Linux, AIX, Solaris, and HP-UX

See Starting and Stopping Components for Linux, AIX, Solaris, and HP-UX on page 40 for more information.

7 Configuration

This chapter includes contains the following topics:

Configuring Components for UNIX

After you install HP Database and Middleware Automation (HP DMA), you need to configure the following HP DMA components for all UNIX operating systems.

- Expert Engine (core)
- Agent
- Reports

Configuring the Expert Engine for UNIX

1. Log in as a datapal user.
2. `cd core/conf`
3. Edit `pool.xml`
   a. Scroll to `<driver.url>` and replace `<localhost>` with the name of the host IP, where the Repository resides.
   b. Replace `<SID>` with the Repository name.

      For example:
      `<driver-url>jdbc:oracle:thin:@//<localhost>:1521/<SID></driver-url>`
   c. Write file and close.

Configuring the Agent for UNIX

1. Log in as a datapal user.
2. `cd collect/conf`
3. Edit `startup.properties`
   a. Scroll to `<expertEngineHost=localhost>` and replace `<localhost>` with the name of the host IP, where the Expert Engine resides.

      For example: `<expertEngineHost=192.168.6.22>`
   b. Write file and close.

4 Verify that the Agent is running. See Verifying Agent Installation for UNIX on page 48.

Configuring the Web Server for UNIX

1 Log in as the datapal user.

2 `cd web/tomcat/conf`

3 Edit `server.xml`

   a Scroll to: `<Connector port="80" protocol="HTTP/1.1"`

   b Replace `<port=”80”>` with `<port=”8080”>`

   c Replace `<SID>` with the Repository name.

   d Save file and close.

Verifying Agent Installation

Verifying Agent Installation for UNIX

1 View the datapal user.

```
id datapal
```

Ensure that you see the `datapal` group and the `dba` group.

2 Start the Agent.

```
datapal -c
```

3 Check for OS process.

```
ps -ef |grep datapal
```

4 Review `agent.log` located in: `/opt/datapalette/collect/log`.

Search for Agent successfully started or Agent initialized.

5 Review Agent view in Web Server. Search the Agent view for the desired Agent to ensure that the Agent’s status is **Online**.

Verifying Agent Installation for Windows

1 Click **Start**, **Control Panel**, and then click **Administrative Tools**, **Services**.

2 Find the **Data Palette Collector** in the Name column and click to select.

3 Ensure that the Status column says **Started**.

8 Troubleshooting

This chapter describes procedures for troubleshooting HP Database and Middleware Automation (HP DMA). It includes the following topics:

Startup

Why doesn't the Expert Engine start? It hangs on "Initializing Hibernate Persistence Layer" in core.log.

The first thing the Expert Engine does during startup is to connect to the Repository using an open source library called Hibernate. If it cannot connect properly to Oracle it hangs on this step. The Oracle listener usually causes this issue. Running `lsnrctl stop` hangs and therefore, the listener does not stop. To stop the listener:

1. As datapal, run `datapal -se` to stop the Expert Engine.
2. Run `ps -fu datapal` to ensure that it is stopped.
3. If it is still running, run a kill command on the Expert Engine process ID.
4. `As oracle, ps -ef | grep lsnr` to locate all listener processes.
5. Run `kill` on each listener process ID.
6. Run `lsnrctl` start to restart the listener.
7. As datapal, run `datapal -e` to restart the Expert Engine.

Terminating Processes and Components

What happens if I cannot shut down an Agent?

You may need to manually shut down an Agent in the following situations. Use the following commands to shut down an Agent:

- This is the standard command used to shut down an Agent; this command tells the Expert Engine that the Agent was stopped in a standard way.

  ```
  datapal -sc
  ```

- For non-Windows or UNIX, to ensure that an agent is shut down, run:

  ```
  ps -fu datapal
  ```

- If an agent is still not shut down, run the following commands:

  ```
  kill -TERM agent_process_id
  kill -HUP agent_process_id
  ```

When you shut down an Agent using `kill -9`, you will receive an Agent Down alert because no signal is sent to the Expert Engine. This command should only be used as a last resort. The other Agent shutdown commands may fail if an Agent is very busy and consuming a lot of CPU; the shutdown command does not get a chance to run inside the Agent.

- As a last resort:

  ```
  kill -9 agent_process_id
  ```

- For Windows: Close all unnecessary programs. Open the Task Manager and shut down the Image Name that is `java.exe` and User Name is `datapal`. If more than one `java.exe` exists, then shut down the one with the least amount of memory.

Upgrading Components

What happens if I upgraded components but forgot the Agent?

To avoid the error shown here, ensure that you upgrade the HP DMA components in the recommended order.

For component versioning information see Uninstalling the Repository on page 27.

```
2007-07-12 11:02:05,953 INFO [main] CollectorImpl.logVersion:163
Hewlett-Packard Agent 3.1.4 2007-06-05 14:55:48
2007-07-12 11:02:06,145 INFO [main] CollectorImpl.initHostName:400
localhost: 10.10.241.27 usmil00sundb05
2007-07-12 11:02:06,187 INFO [main] CollectorImpl.<init>:143
Agent started successfully
2007-07-12 11:02:06,309 ERROR [init] PropogatorWatcher.getPropogator:83
Error connecting to propogator at 10.10.240.243:1124
java.rmi.UnmarshalException: error unmarshalling return; nested exception is:
        java.io.EOFException
```

```
        at sun.rmi.registry.RegistryImpl_Stub.lookup(Unknown Source)
        at
com.extraquest.agent.PropogatorWatcher.lookupPropogator(PropogatorWatcher.jav
a:95)
        at
com.extraquest.agent.PropogatorWatcher.getPropogator(PropogatorWatcher.java:7
9)
        at
com.extraquest.agent.CollectorImpl.getPropogator(CollectorImpl.java:360)
        at
com.extraquest.agent.CollectorImpl.registerCollector(CollectorImpl.java:407)
        at
com.extraquest.agent.CollectorImpl.access$400(CollectorImpl.java:50)
        at
com.extraquest.agent.CollectorImpl$InitThread.run(CollectorImpl.java:514)
Caused by: java.io.EOFException
        at
java.io.ObjectInputStream$BlockDataInputStream.peekByte(ObjectInputStream.jav
a:2498)
        at java.io.ObjectInputStream.readObject0(ObjectInputStream.java:1273)
        at java.io.ObjectInputStream.readObject(ObjectInputStream.java:348)
        ... 7 more
2007-07-12 11:02:06,324 ERROR [init] CollectorImpl.registerCollector:409
Unable to register agent
```

See the following sections for more information:

- Windows: See Upgrading Instructions for Windows on page 36.
- Linux: See Upgrading Instructions for Linux on page 38.
- AIX: Upgrading Instructions for AIX on page 39.
- HP-UX: Upgrading Instructions for HP-UX on page 44.
- Solaris: Upgrading Instructions for Solaris on page 46.

Logging

References to DATAPAL_HOME usually refer to `/opt/datapalette` for UNIX and to `C:\Program Files\Data Palette` for Windows.

The log files under `$DATAPAL_HOME/core/log` and `$DATAPAL_HOME/agent/log` are the most important source of information during troubleshooting. All informational and error messages from the software are written to one of the files listed in this section.

How do I read an exception?

For troubleshooting purposes, you should be able to locate the error in the top two lines of the exception. However, if you need to send the exception to technical support, include the entire log file.

Anatomy of a log message

Every log entry follows a standard format of:

```
TIMESTAMP LEVEL [THREAD NAME] CLASS:LINE#
MESSAGE
```

For example:

```
2007-06-01 10:41:33,780 DEBUG [EventQueueReader]
JDBCExceptionReporter.logExceptions:49
SQL Exception
java.sql.SQLException: No more data to read from socket
...
```

Most of this information will be needed only by technical support or engineering staff. The important information to users is the `LEVEL` and `MESSAGE`.

`LEVEL` can be one of: `DEBUG`, `INFO`, `WARN`, `ERROR`, `FATAL`. During troubleshooting you only care about the `ERROR` level messages.

While `MESSAGE` can be a long stack trace, you only need to check the first two lines and any "`Caused by`" lines. These lines contain the error explanation that may help narrow down the source of the problem.

Using the log files during troubleshooting

The first step in debugging a problem with the software is to search through the log files for error messages.

One way to quickly find errors in all log files is to:

1. `cd core/log`
2. `grep -i exception *`

   This may return more error messages than you care to look through so you can usually narrow it down to just a few log files like `core.log`, `logger.log`, and `hibernate.log`:

   ```
   grep -i exception core.log*
   ```

3. On Windows, open the log file in Notepad and use the **Find** function.

Expert Engine log files

Table 10 Expert Engine Log Files

Log File Name	Description
core.log	This is the default log file for the Expert Engine. Systems without their own dedicated log file send messages here. This often contains helpful error messages related to packet processing.
action.log	The SOP system logs messages to this file. It logs the script code that will be sent to the Agent. The code is logged after parameter replacement has occurred, which helps in debugging script problems.
alert.log	The alerting and escalation system logs to this file. This is rarely used in troubleshooting but can be helpful to find out how the escalation system is behaving.

Table 10 Expert Engine Log Files (cont'd)

Log File Name	Description
propogator.log	The propogator is the connection between the Agent and the Expert Engine, so any error messages relating to the Agent registration and configuration appear here.
pool.log	This contains messages from the database connection pool system connected to the Repository. This rarely has information relevant to troubleshooting.
hibernate.log	This contains all messages from the Hibernate ORM (Object Relational Mapper) technology used to communicate with the Repository database. This frequently contains relevant error messages related to Repository availability.
monitor.log	The data monitor system looks at packets as they stream through the Expert Engine and performs tasks such as firing rules, sending alerts, etc. Errors from the monitors appear in this file.
logger.log	The "logging" system saves packet files to the Repository database. This file contains many important errors related to packet saving and tablespaces running out of space.
core.out	This file contains any messages sent to `stdout` or `stderr` from the Expert Engine. The Expert Engine itself does not write to `stdout` or `stderr` so the only messages appearing in this file are severe errors from the JVM such as `OutOfMemoryError`.
agent.log	This is the only log file to which the Agent writes messages. It contains all messages and errors that the Agent encounters.

Why does "datapal -t Hostname" fail with “Exception in thread ‘main’ java.net.UnknownHostException:”?

Java™ is unable to find an IP address for the server, suggesting the system is improperly configured. Common errors that cause this problem are:

- `/etc/hosts` does not contain: `127.0.0.1 localhost`
- `/etc/hosts` contains more than one line with the same IP address
- `/etc/hosts` contains only the `FQDN`, but `hostname` is the short `nodename`, and the reverse.

Files (on UNIX) that can cause this error may include, but are not limited to, the following:

- `/etc/hosts`
- `/etc/resolv.conf`
- `/etc/nsswitch.conf or /etc/netsvc.conf`
- `/etc/services`

Oracle Errors

What is the “Table or view does not exist” from Oracle collection routines?

The `RDCuser` is not properly set up. Run the `CreateRDCUser.sql` script on the target database server. Note that the `CreateRDCUser.sql` script can be run as many times as necessary. If run properly, it should not generate any errors.

What does an improperly entered Agent property look like?

(First two lines are the error message)

```
An error occurred while running Oracle Alert - Session Waits in Oracle Alerts
(very frequent (2-5 min)) module.
java.sql.SQLException: ORA-00907: miss...
```

For troubleshooting, check incorrect parameter values for list of waits to ignore.

General HP DMA Issues

What is the version of my HP DMA components?

Go to the Agent view in the Web Server, where you can view version information for the Repository, the Expert Engine, and Agents. See Uninstalling the Repository on page 27 for more information.

What does “No code version” mean?

The “No code version” error indicates that you are trying to run an Agent and collect information from an unsupported version of a database. The “no code version” error indicates that the product does not support the version of the `RDBMS` to which the Agent is connected. This usually occurs when trying to monitor an unsupported SQL Server 7 instance.

What does “An error occurred while running Oracle Alert – Alert Log Scraper” mean?

“Alert log scraper” indicates that you are trying to access a file when you do not have permission to read the file or to the file system.

The complete error message usually looks like this:

```
An error occurred while running Oracle Alert - Alert Log Scraper in Oracle
Alerts (frequent (10-15 min)) module.
java.io.FileNotFoundException: /u01/app/oracle/admin/STAT/bdump/
alert_stat.log (The file access permissions do not allow the specified
action.)
```

The important part to notice is the comment about file access permissions. Oracle tells us that the alert log is located at `/u01/app/oracle/admin/STAT/bdump/alert_stat.log` on the file system. However, when the `datapal` user tries to open and read the file, it receives a permissions error because the file system permissions only allow the oracle or DBA group read the file.

Solution

Set the permissions on the file to allow “world read” and the permissions on the parent directories to allow “world read and execute.” This is the command:

```
chmod o+w /u01/app/oracle/admin/STAT/bdump/alert_stat.log
```

IndexOutOfBoundsException

`IndexOutOfBoundsException` refers to a class of errors that may signify a problem in an Oracle JDBC driver. This error may occur sporadically and indicate issues with a third-party component. Ignore this type of error.

Permissions Issues

What does “java.lang.OutOfMemoryError: Java heap space” mean?

When the Agent starts, it sets the maximum amount of memory that the underlying Java Virtual Machine (JVM) can use. The JVM will not consume more than this set, maximum amount. When it reaches the maximum, you start seeing `OutOfMemoryError` and routines begin to fail. The routine that alerts you with this error is rarely the routine that is consuming the most memory.

Solution One

1. Change the `maxMemory` setting in `/opt/datapalette/collect/conf/startup.properties` to something larger than the default of 64 MB. This line looks like this:

   ```
   maxMemory=64m
   ```

   The trailing 'm' is required to indicate MB.

2. Restart the Agent.

Solution Two

1. Schedule Agent modules further apart from each other so they are not running at the same time. The more modules running at once means they are competing for the same amount of maximum memory. They may run fine once they are not competing with other modules for memory.
2. Disable the `Oracle DDl 1-5` modules. The DDL modules are typically the largest consumers of memory.

Testing Ports and Firewalls to ensure they are open

From the Agent machine, log in as the datapal user and run the `telnet` command. Use the IP Address is where the Expert Engine is located. When you run this command and telnet hangs, you will receive a connection error. This error indicates that your firewall is blocking the port. On UNIX, if telnet replies with the escape sequence, then you know you are logged in. On Windows, it clears the screen. If telnet cannot connect to the Expert Engine to which you are attempting to connect, the Agent cannot connect.

```
telnet <IP address> <port>
```

For example, if the Expert Engine is listening on port 1124, the command would be:
`telnet 172.68.24.10 1124`

File permission or missing mountpoint

```
An error occurred while running Oracle Alert - Alert Log Scraper in Oracle
Alerts (frequent (10-15 min)) module. java.io.FileNotFoundException: /u01....
```

This is a configuration problem as datapal cannot read the specified file.

See also "What does "An error occurred while running Oracle Alert – Alert Log Scraper" mean?" on page What does "An error occurred while running Oracle Alert – Alert Log Scraper" mean? on page 55 for more information.

Configuration Issues

What does "I/O Error: SSO Failed: Native SSPI library not loaded." mean?

This error can occur if you are collecting against a new SQL Server instance and receive error tickets that say something similar to:

```
com.extraquest.agent.db.DatabaseConnectException: I/O Error: SSO Failed:
Native SSPI library not loaded. Check the java.library.path system property.
```

This situation can occur when a username or password is not specified for your instance.

Solution

Start the Web Server and open the Server Editor and enter a username and password. You can also test your username and password from the Server Editor.

Agent

The `datapal -c` command reads the `startup.properties` file to start the Agent. Table 11 describes several important agent settings in the `startup.properties` file.

Table 11 Important Settings in the startup.properties File

Property	Description
`maxMemory=64m`	This sets the maximum amount of memory the JVM can request from the operating system. If you receive `OutOfMemoryErrors` you can increase this value to `128m`. The trailing 'm' is the unit of memory; in this case MB.
`opts=-Doracle.jdbc.V8Compatible=true`	The opts setting passes system properties to the JVM on startup. You should never need to modify this setting.
`expertEngineHost=localhost`	The `expertEngineHost` property tells the Agent on which IP address or hostname the Expert Engine is running. The Agent connects to this host on startup.
`port=1124`	The port setting tells the Agent on which port the Expert Engine is listening. The default is 1124.
`shutdownPort=1125`	The `shutdownPort` setting provides the port number the Agent should listen on for shutdown requests from the `datapal -sc` command. This port number can be anything available on the Agent machine. The default is 1125.

Configuration issue

```
An error occurred while running Oracle View DDL in Oracle Text DDL module.
java.sql.SQLException: ORA-06575: Package or function VIEWDDL is in an inva...
```

Solution

This error indicates that the `RDCuser` was not properly created. You can rerun `CreateRDCUser.sql` to correct this configuration issue. Note that the `CreateRDCUser.sql` script can be run as many times as necessary. If run properly, it should not generate any errors.

Configuration problem (command not available or in path) or unsupported OS

```
An error occurred while running Network Information in OS Monitors (frequent)
module. java.lang.IllegalStateException: Script failed with exit code 1: ...
ifconfig: command not found ...
```

Solution

Ensure that `ifconfig` is in the path of the datapal user, and then restart the Agent.

The service did not start due to a logon failure.

This error message may appear when starting the Windows Expert Engine service if the datapal user's password has expired, is too short, or is otherwise locked out of the system.

Solution

Reset the datapal password to something that is complicated enough to satisfy Windows password rules.

What does "Unable to load config for agent with IP/DNS: 10.147.32.173 devdb2" in agent.log mean?

When you see this message in the `agent.log` file, it means the Agent started and is running but it is not collecting anything and needs to be configured. The general cause of this problem is that the Network Interface is not set up properly in the Web Server. Ensure that your interface matches the IP and hostname in the error message. In this case it would be: 10.147.32.173 for IP and `devdb2` for hostname.

Solution

1. Right-click on the `devdb2` object in your OS Environment view.
2. Select **New**, **Network Interface**.
3. Type the DNS Name and IP address exactly as they appear in the error message.
4. Save the Network Interface.

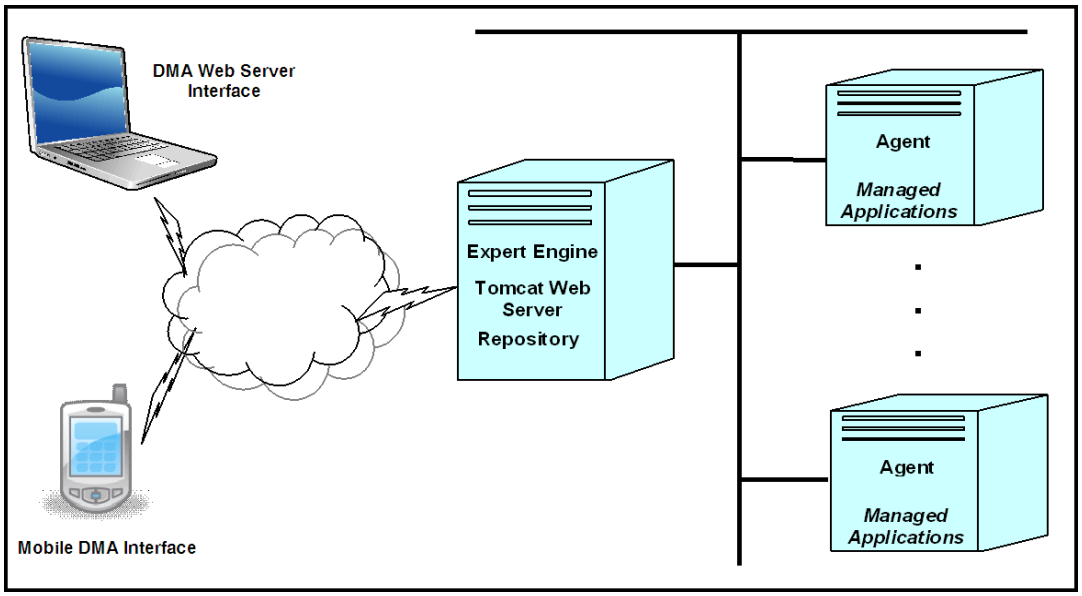
   At this point the Agent will update itself and find its configuration. You will see "Agent initialized" in `agent.log` when it is fully configured and running properly.

   During setup, you can run `datapal -t Hostname` on the Agent machine to find the hostname and IP address to use in the Web Server. This may be faster than waiting for error messages to generate.

A One-Server Deployment System Requirements

The following requirements apply to the one-server deployment configuration in which the Expert Engine, Tomcat, and Repository are all on a single, dedicated server (with agents deployed as necessary). This configuration is not recommended configuration for most environments. This configuration is only recommended for small environments and proof-of-concept demonstrations.

Figure 2 One-Server Deployment



Hardware Requirements

For Repository Database Server Requirements, see Hardware Requirements on page 12.

- CPU Requirements

  4 CPU cores. If Intel, each core must be 2.0 GHz or higher; if SPARC, each CPU must be 1.0 GHz or higher.

- RAM Requirements

  4 GB RAM.

- Disk Requirements

  Fast, high bandwidth I/O is required (10,000 RPM or better). Two physical drives, each having a minimum 120 GB capacity. Software RAID is not supported. SATA drives are highly discouraged and will result in performance degradation. NFS mounted partitions may be supported under certain circumstances. For more information, contact HP Software Support.

- Storage Requirements

  The minimum storage requirements assuming minimal collected historical information is 2GB. However, in most situations where HP DMA is monitoring one or more applications, the storage requirements are based upon how much information is being collected and maintained in the repository and will be significantly larger than 2 GB. As an example, since database applications are the most storage space intensive, here are three formulas for estimating storage needs:

  Oracle Max Storage = [2GB + (1GB * R)] * I

  MS SQL Server Max Storage = [5GB + (1GB * R)] * I

  DB2 Max Storage = [2GB + (1GB * R)] * I

  Where

  I = number of database server instances being monitored,

  R = the amount of time to retain monitored information in the repository,

  The Max Storage value above is the maximum, total storage space that will be required on the repository server when monitoring I database instances with R days of historical data retention. For example, if you are monitoring five Oracle Instances and two MS SQL Server instances and you wish to retain seven days of historical monitored information for each of these instances, then the storage required on the repository server is the sum of:

  Oracle Max Storage = [2GB + (1GB * 7)] * 5 = 45GB

  MS SQL Server Max Storage = [5GB + (1GB * 7)] * 2 = 24GB

B Using HP DMA with Oracle Server 11.2.0.1

There is a known problem in Oracle Server Enterprise Edition version 11.2.0.1 when either the AL32UTF8 or WE8ISO8859P15 database character set is used:

Bug 9762767: ORA-1461 UPDATING CLOBS AGAINST 11.2.0.1 DB WHEN DML CONTAINS SUB-SELECT STMT

For additional information, see:

https://support.oracle.com/CSP/main/article?cmd=show&type=BUG&id=9762767&productFamily=Oracle

Symptom

When used with Oracle Server version 11.2.0.1—and possibly later 11g versions—on a Red Hat Enterprise Linux version 5.5 64-bit platform, HP DMA will appear to operate normally except that you will be unable to import certain solution packs.

If a solution pack fails to import because of this problem, you will see the following messages in the `/opt/datapalette/web/tomcat/logs/localhost.2011-MM-DD.log` file:

```
2011-04-07 14:21:53,664 ERROR [RMI TCP Connection(5)-127.0.0.1]
BasicPersistenceClient.saveOrUpdate:126

Error saving

org.hibernate.exception.GenericJDBCException: could not update:
[com.extraquest.data.action.CodeLibraryItem#14588]

   at
org.hibernate.exception.SQLStateConverter.handledNonSpecificException(SQLStat
eConverter.java:103)

   at
org.hibernate.exception.SQLStateConverter.convert(SQLStateConverter.java:91)

   at
org.hibernate.exception.JDBCExceptionHelper.convert(JDBCExceptionHelper.java:
43)


Caused by: java.sql.SQLException: ORA-24816: Expanded non LONG bind data
supplied after actual LONG or LOB column

   at
oracle.jdbc.driver.DatabaseError.throwSqlException(DatabaseError.java:112)


SEVERE: There was an error importing a solution
pack:upload_24557656_12f31a01455__7ffe_00000000.tmp
```

```
org.hibernate.exception.GenericJDBCException: could not update:
[com.extraquest.data.action.CodeLibraryItem#14588]

   at
org.hibernate.exception.SQLStateConverter.handledNonSpecificException(SQLStat
eConverter.java:103)

   at
org.hibernate.exception.SQLStateConverter.convert(SQLStateConverter.java:91)

   at
org.hibernate.exception.JDBCExceptionHelper.convert(JDBCExceptionHelper.java:
43)

   ……

Caused by: java.sql.SQLException: ORA-24816: Expanded non LONG bind data
supplied after actual LONG or LOB column

   at
oracle.jdbc.driver.DatabaseError.throwSqlException(DatabaseError.java:112)

   at oracle.jdbc.driver.T4CTTIoer.processError(T4CTTIoer.java:331)

   at oracle.jdbc.driver.T4CTTIoer.processError(T4CTTIoer.java:288)


   at oracle.jdbc.driver.T4C8Oall.receive(T4C8Oall.java:745)
```

Solution

To rectify this problem, contact your HP Software Support representative to obtain updated versions of the following solution packs:

- HP Server Automation Database Compliance Solution Pack – Version 9.10
- HP Server Automation Database Provisioning Solution Pack – Version 9.10
- HP Server Automation Application Server Provisioning Solution Pack – Version 9.10

These updated versions (and later versions) are not susceptible to this problem.

We appreciate your feedback!

If an email client is configured on this system, click Send Email

If no email client is available, copy the following information to a new message in a web mail client and send the message to sa-docs@hp.com.

Product name and version: HP Database and Middleware Automation version 1.00

Document title: *Installation Guide: Database and Middleware Automation*

Feedback:


Java
COMPATIBLE