Database and Middleware Automation

Software Version: 10.50

Linux, Solaris, AIX, and HP-UX

Installation Guide

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Hewlett Packard Enterprise

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Contents

Install

A full installation of HPE Database and Middleware Automation 10.50 includes the following components:

Core components

- HPE DMA Server
- HPE DMA Client for SA

Pre-installation tasks

This section describes all the tasks that must be performed before you can install HPE DMA.

Topic	Description
"Installation folder contents" below	Description of the contents of the HPE DMA 10.40.000.000 installation folder.
System Requirements	List of required products, platforms, hardware, and software .
Sizing Recommendations	Information about the minimum recommended CPU count, RAM, and disk space for the HPE DMA server and the HPE DMA database server.
"Obtaining a signed server certificate"	Information about obtaining a server certificate signed by a trusted Certificate Authority.
"Configuring the Oracle database" on page 10	Description of how the Oracle Database needs to be configured before it can be used by HPE DMA 10.50.000.000.
"Configuring the PostgreSQL database" on page 13	Description of how the PostgreSQL Database needs to be configured before it can be used by HPE DMA 10.50.000.000.

Installation folder contents

Download the HPE DMA 10.50.000.000 installation zipped folder, unzip the folder, and extract the contents. The following are the contents of this installation folder:

Folder Name	Description
Top level folder	
readme.txt	Instructions and information about files in the folder.
DMA_10.50.000.000_Open_ Source_ Licenses.zip	License agreements for the Open Source software used by HPE DMA.
DMA_10.50.000.000_Server_and_Client folder	
dma-server-10.50.000.000-0.x86_ 64.rpm	RPM file that installs the HPE DMA 10.50 server.
dma-sa-client-10.50.000.000-0.x86_ 64.rpm	RPM file that installs the HPE DMA 10.50 client, that enables HPE DMA to integrate with HP Server Automation (SA).
Discovery.zip	Solution pack containing workflows that you can use to discover: • Oracle, SQL Server, Sybase, and DB2 databases on target servers. • IBM WebSphere, Oracle Weblogic, and JBoss middleware applications on target servers.
Promote.zip	Solution pack containing workflows that you can use to promote HPE DMA workflows (and related automation items) from a source HPE DMA server to a destination HPE DMA server.
DMA_10.50.000.000_Documentation folder	
buildinfo.txt	Information about how the installation folder was constructed
DMA_10.50.000.000_ Installation_ Guide.pdf	HPE DMA Installation Guide—this document
DMA_10.50.000.000_ Planning_ Guide.pdf	HPE DMA Planning Guide
DMA_10.50.000.000_ Release_ Notes.pdf	HPE DMA Release Notes
DMA_10.50.000.000_ Support_Matrix.pdf	HPE DMA Support Matrix
DMA_10.50.000.000_Open_ Source_ Third_Party_ Licenses.pdf	HPE DMA Open Source and Third-Party Software License Agreements
DMA_10.50.000.000_Database_Solution_Packs folder	
AdvancedDBPatching.zip	Tools that you can use to automate Oracle Database patching CRS or Grid Home, RAC Home, CRS Patchset, Grid Standalone Patch, and Standalone Grid.
AdvancedDBProvisioning.zip	Tools that you can use to automate Oracle Database provisioning, including CRS, ASM, RAC, and Dataguard.
DBCompliance.zip	Tools that you can use to audit your database environment for compliance with a specific security benchmark— for Oracle, MS SQL, Sybase, and DB2 databases.
DBPatching.zip	Tools that you can use to patch database components in an

	efficient, automated way—for Oracle, SQL Server, Sybase, and DB2 databases.
DBProvisioning.zip	Tools that you can use to create and install new databases—for Oracle, SQL Server, Sybase, and DB2 databases.
DBRefresh.zip	Tools that you can use to move the contents of a database. For Oracle databases you can use RMAN or Data Pump. For SQL Server databases you can backup and restore. For Sybase Databases you can dump and load.
DBReleaseManagement.zip	Tools that you can use to update any schema, data, server configuration, or security settings—for Oracle, SQL Server, and Sybase databases.
DMA_10.50.000.000_Middleware_Solution_Packs folder	
ASConfigManagement.zip	Tools that you can use to manage the configuration of application servers, including clusters, data sources, and web servers—for IBM WebSphere—and to configure data sources—for JBoss.
ASPatching.zip	Tools that you can use to automate the process of applying fixes and updates to application servers—for IBM WebSphere and Oracle WebLogic.
ASProvisioning.zip	Tools that you can use to automate the process of installing application servers—for IBM WebSphere, Oracle WebLogic, and JBoss.
ASReleaseManagement.zip	Tools that you can use to automate the process of deploying an application file or a web archive file (.war or .ear) within the application server—for IBM WebSphere and JBoss.
DMA_10.50.000.000_Install folder	
dma_install.sh install-options.txt installhelperscript.sh	Tools that automate the installation of HPE DMA.
readme.txt	Instructions and information about files in the zipped installation folder.
dma_remove.sh remove-options.txt removehelperscript.sh	Tools that automate the removal of HPE DMA.
DMA_Express_10.50_Edition	
DMA_Express_10.50_ Client_Solution_ Pack (also known as DMA Runtime)	Includes all of the HPE DMA Express flows for the DMA Express Client
DMA_Express_10.50_ Database_ Content_Pack	Includes all of the HPE DMA Express flows for databases
DMA_Express_10.50_ Documentation	Includes the HPE DMA Express User Guide and HPE DMA Express Support Matrix
DMA_Express_10.50_ Middleware_ Content_Pack	Includes all of the HPE DMA Express flows for Middleware
DMA_Express_10.50_Util_	Includes a set of utilities for use with HPE DMA Express Edition

Content_ Pack	
DMA_Express_10.50_Open_ Source_ Licenses.zip	Includes all of the HPE DMA Express Open Source license information
readme.txt	Instructions and information about files in the zipped installation folder.

For more information, refer to HPE DMA documentation provided under DMA_Express_10.50.000.000 folder in the installation or access the most recent version from https://softwaresupport.HPE.com.

> **Tip:** Always check to see if there are more recent HPE DMA patches available online. Due to frequent releases, it is possible that the files provided in the HPE DMA 10.50.000.000 installation folder have since been updated.

To obtain the recent HPE DMA patch:

1. Go to the following website: https://softwaresupport.hp.com/
2. Sign in using your HPE Passport credentials.

   Your dashboard experience is based on your SAID.
3. Under My Products, select database and middleware automation.
4. Look under Software Patch to determine whether a more recent patch is available.
5. If there is a more recent patch, select the following:
   Product: Database and Middleware Automation

   Version: Your desired version (or do not specify to view all versions)

   Document Type: Manuals

Refer these documents for your convenience:

- Documentation Library—Provides links to all HPE DMA documents available for the release.
- All Manuals Download—A ZIP file containing all HPE DMA documents available for the release.

Obtaining a signed server certificate

In a production environment, you should always use a server certificate signed by a trusted Certificate Authority (CA) in accordance with your company's security policy.

> **Tip:** Ensure you check your company's security policy for the correct procedure.

To obtain a signed certificate, you must generate a certificate signing request for your HPE DMA server and submit it to your CA. The CA will send you a digitally signed certificate via email. You can then import the signed certificate into the keystore. (See "Configure SSL on the HPE DMA Server" on page 25 for more information.)

Configuring the Oracle database

This section describes how to create and configure the Oracle database used by HPE DMA 10.50.000.000.

Before you configure the database:

- Ensure you have a username and password for this Oracle database.
- Have your database administrator (DBA) create an Oracle Database Enterprise Edition database to be used by HPE DMA. Make sure the Oracle Listener and database are up and running.
- Have your DBA create the Oracle instance and the two tablespaces.
- Ensure the Oracle Database is up and running before installing HPE DMA.
- Make sure the Oracle Listener is up and running.

Steps to Configure the Oracle Database

This section shows you how to configure an Oracle database that will be used by HPE DMA 10.50.000.000.

> **Note:** If you use the automated installation process, you do not need to follow the instructions in this section.

In the following commands, replace the variables (found within <>'s) with values appropriate for your environment:

Variable	Example	Description
<database_username>	dma	Oracle database username
<database_password>	myOraclePassword	Oracle database password
<Oracle_SID>	dma	Oracle Database Instance
<DMA_data_file>	`/u01/app/oracle/oradata/dma/dma_data1.ora`	Fully qualified path to the `hpdma_data` file
<file_size>	100	File size in MB, a number from 1 to 10000
<DMA_indx_file>	`/u01/app/oracle/oradata/dma/dma_indx.ora`	Fully qualified path to the `hpdma_indx` file

On your Oracle Database system, perform the following steps:

1. Connect to the Oracle database and create new table spaces for data file and index file.
   HPE DMA uses the default table space `hpdma_data` and `hpdma_indx` if new table spaces are not created.

   For a full description of all the baseline options, see "HPE DMA baseline options" on page 21.

   > **Tip:** Consult your DBA on the autoextends options.

   - In most cases, run the `sqlplus / as sysdba` command.
   - If you have multiple databases setup with remote authentication configured, run the following command:

   ```
   sqlplus /@<Oracle_SID> as sysdba
   ```

   ```
   create tablespace <data-tablespace_name> datafile '<DMA_data_file>' size <file_size>M autoextend on;
   ```

   ```
   create tablespace <index-tablespace_name> datafile '<DMA_indx_file>' size <file_size>M autoextend on;
   ```

   ```
   exit;
   ```

2. If you do not have an existing user, create the user, and give the user permissions. For example:

   ```
   create user <database_username> identified by <database_password> default tablespace hpdma_data;
   ```

   ```
   grant connect,resource to <database_username>;
   ```

   ```
   grant create public synonym to <database_username>;
   ```

   > **Tip:** If the database password changes in the future, see Oracle Database Password Changed.

   > **Tip:** If you prefer restrictive privileges to the <*database_username*>, you can grant only connect but not the resource.

3. If you are using Oracle 12c or not granted RESOURCE role, execute the following commands:

   ```
   alter user <database_username> quota <file_size>M on <data-tablespace_name>;
   ```

   ```
   alter user <database_username> quota <file_size>M on <index-tablespace_name>;
   ```

   Alternatively, if you prefer to use a <database_role> pertaining to the DMA product, execute the following command:

```
Grant UNLIMITED TABLESPACE to <database_role>
```

4. Start the TNS listener after creating the database.

Configuring the PostgreSQL database

This section describes how to create and configure the PostgreSQL database that will be used by HPE DMA 10.50.000.000.

Before you configure the database:

- Ensure you have a username and password for this PostgreSQL database.
- Have your database administrator (DBA) create a PostgreSQL 9.3.5 database to be used by HPE DMA. Make sure the PostgreSQL service and database are up and running.
- Have your DBA create the PostgreSQL instance and the two tablespaces.
- Ensure the PostgreSQL database is up and running before installing HPE DMA.

Steps to Create and Configure the PostgreSQL Database

This section shows you how to configure a PostgreSQL database that will be used by HPE DMA 10.50.000.000.

In the following commands, replace the variables (found within <>'s) with values appropriate for your environment:

Variable	**Example**	**Description**
<database_username>	dma	PostgreSQL database username
<database_password>	myPostgreSQLPassword	PostgreSQL database password
<database_name>	dma	PostgreSQL Instance
<DMA_data_file>	`/home/data`	Fully qualified path to the `hpdma_data` file
<DMA_indx_file>	`/home/data`	Fully qualified path to the `hpdma_indx` file

On your PostgreSQL system, perform the following steps:

1. Connect to the PostgreSQL database and create the `hpdma_data` and `hpdma_indx` tablespaces.
   - Run the `psql` command to connect to the sql prompt.
   - If you have multiple databases set up with remote authentication configured, run the following command :

   `psql <database name>` as sysdba.

   `CREATE TABLESPACE tablespace_name [OWNER user_name] LOCATION 'directory'`

   Example: `CREATE TABLESPACE hpdma_data [ OWNER postgres ] LOCATION '/home/data'`

Regular installation

To perform the regular installation, perform the following steps in the prescribed order:

Topic	Description
"Installing HPE DMA Server"	Step-by-step instructions about how to install the DMA server.
"Configure SSL on the HPE DMA Server"	Step-by-step instructions about how to configure SSL on the DMA server.
"Installing HPE DMA Client for SA"	Step-by-step instructions about how to install the DMA client.
"Integrate HPE DMA with HPE SA"	Step-by-step instructions about how to integrate DMA with HP Server Automation. These steps should be performed by the SA administrator.
Starting HPE DMA	Directions to start DMA.
Set Up HPE DMA	General information about how to use DMA to set up the connector, roles, capabilities, and targets, and to import a solution pack.

> **Note:** An automated script is available that can speed up the installation process. For information about this script, see "Automated HPE DMA installation".

Installing HPE DMA Server

This section contains the steps to install the HPE DMA server.

> **Note:** If you use the automated installation process, you do not need to follow the instructions in this section. See the "Silent installation" on page 53 section for instructions.

In the following commands, replace the variables (found within <>'s) with the values appropriate for your environment:

Variable	Example	Description
<database_ username>	dma	Oracle Database/PostgreSQL username—must be the same username that you used when you created your Oracle database/PostgreSQL in "Configuring the Oracle database" on page 10 or "Configuring the PostgreSQL database" on page 13
<database_ password>	myOraclePassword	Oracle Database/PostgreSQL password—must be the same password that you used when you created your Oracle/PostgreSQL database in Steps to "Configuring the Oracle database" on page 10 or "Configuring the PostgreSQL database" on page 13
<DMA_server>	dma.mycompany.com	Fully qualified host name of the HPE DMA server. **Note:** Here, the fully qualified host name is not the `localhost`.
<Oracle_SID>	dma	Oracle Database Instance—the same instance that you used when you created your Oracle database in "Configuring the Oracle database" on page 10
<database_name>	dma	PostgreSQL instance—the same instance that you used when you created your PostgreSQL database in "Configuring the PostgreSQL database" on page 13
<Oracle_ Server>/<PostgreS QL server>	oracle.mycompany.com	Fully qualified host name of the Oracle Database/PostgreSQL server—must be the same

		server that you used when you created your Oracle/PostgreSQL database in "Configuring the Oracle database" on page 10 or "Configuring the PostgreSQL database" on page 13 **Note:** Here, the fully qualified host name is not the `localhost`.
<jdbc_string> (Oracle)	`jdbc:oracle:thin:@ oracle.mycompany.com: 1521:dma`	Java Database Connectivity (JDBC) connection string in the following format: `jdbc:oracle:thin:@<Oracle_Server>: 1521:<Oracle_SID>` You can also specify other connection string syntax. Consult your Oracle DBA for the company standard.
<jdbc_string> (PostgreSQL)	`jdbc:postgresql:// postgres.mycompany.com:5432/postgres`	`jdbc:postgresql://<postgres_server_name>:5432/<database_name>`
<SA_Server>	saserver.mycompany.com	Fully qualified host name of the HP Server Automation server.

On your Red Hat Enterprise Linux HPE DMA server (*<DMA_server>*), perform the following tasks:

1. Obtain the `dma-server-10.50.000.000-0.x86_64.rpm` file from the HPE DMA installation folder under the DMA_10.50.000.000_Server_and_Client folder.
2. Run the following commands as root to install the HPE DMA server:

   ```
   $ cd DMA_10.50.000.000_Server_and_Client
   ```

   ```
   $ rpm -ivh dma-server-10.50.000.000-0.x86_64.rpm
   ```

   > **Note:** Run the installation command only one time.

   After the installation is complete, the following message is displayed:

   ```
   Please redeem your licenses (using your SA ID) from HPE Portal, using the <lock ID>. Server will be operational using the default license in place.
   ```

   By default, DMA is installed with the `-instantOn` (trial) license.

   > **Note:** The `-instantOn` (trial) license is valid for 90 days. This is applicable for 10 database

> licenses and 10 middleware licenses.

Save the <`Lock ID`> for your reference, as it is needed to generate your license(s). You can generate the license(s) at HPE Software Licensing website.

> **Note:** The <`Lock ID`> is also available in the Licensing Dashboard at HPE Software Licensing website, after you apply the valid license.

After generating the license, copy the file to **/opt/hp/dma/server/lic/licImport/** folder. You can choose to apply the license while baselining the database in the next step or at a later time. For instructions to apply the license, see the "Applying the license" on page 23 topic.

3. Baseline your database. This will create your schema and put the database into the default state. Run the following command as root. For example:

```
$ cd /opt/hp/dma/server//tomcat/webapps/dma/WEB-INF
```

> **Note:** Replace the arguments in the following command with values appropriate for your environment. For readability, the options are listed on separate lines—you must build the command in a single line. If you cut and paste from this PDF, make sure that the dashes (--) copy correctly.
>
> For a full description of all the baseline options, see "HPE DMA baseline options" on page 21.
>
> This command does not baseline the connector. You will configure the connector later (see Configure the Connector).

Baseline your database for Oracle by performing the following:

```
$ sh ./dmaBaselineData.sh --create-tables
--create-context
--database-username <database_username>
--database-password <database_password>
--jdbc-connection-string <jdbc_string>
--dma-hostname <DMA_server>
--tablespace-data <data-tablespace_name>
--tablespace-indx <index-tablespacefile_name>
```

If you have created a table space data file and an index file other than the default `hpdma_data` data file and `hpdma_indx` index file, use the `--tablespace-data` and `--tablespace-indx` options.

Baseline your database for PostgreSQL by running the following commands:

```
$ sh ./dmaBaselineData.sh --create-tables
--create-context
--database-username <database_username>
--database-password <database_password>
--jdbc-connection-string <jdbc_string>
--dma-hostname <DMA_server>
--database-type postgres
```

4. On the HPE DMA server, run the following command to copy the required JAR files from the SA server to the HPE DMA server. For example (enter as a single line):

   ```
   $ sh /opt/hp/dma/server/tomcat/webapps/dma/WEB-INF/copyJars.sh
    <SA_Server>
   ```

   > **Note:** Run this command every time the SA Core is upgraded.

If you recieve an error that the Oracle Listener is not running, perform the following troubleshooting steps:

1. On the Oracle Database system, run the following commands:

   ```
   su - oracle
   ```

   ```
   ps –ef | grep tns
   ```

2. If the Oracle Listener is running, the output of the `ps` command is similar to the following output:

   ```
   [oracle@oraserver ~]$ ps -ef|grep tns
   oracle    3924     1  0 10:51 ?        00:00:00
   /u01/app/oracle/product/11.2.0/db1/bin/tnslsnr DMALIST -inherit
   oracle    3921  3632  0 10:50 pts/1    00:00:00 grep tns
   ```

   If the Oracle Listener is not running , the output of the `ps` command is similar to the following output:

   ```
   [oracle@oraserver ~]$ ps -ef|grep tns
   oracle    3921  3632  0 10:50 pts/1    00:00:00 grep tns
   ```

For other baseline error troubleshooting information, see the Common baseline errors.

You have completed installing the initial stage—the command line setup—of the HPE DMA server.

In the next stage you will configure SSL on the HPE DMA server.

Starting HPE DMA

The first time you start HPE DMA you must log in as the default initial HPE DMA administrator (`dma_initial_admin`) to configure the operating environment.

1. As root, start the DMA 10.50.000.000 server. For example:

   `$ service dma start`

2. Use a web browser to connect to the HPE DMA server:

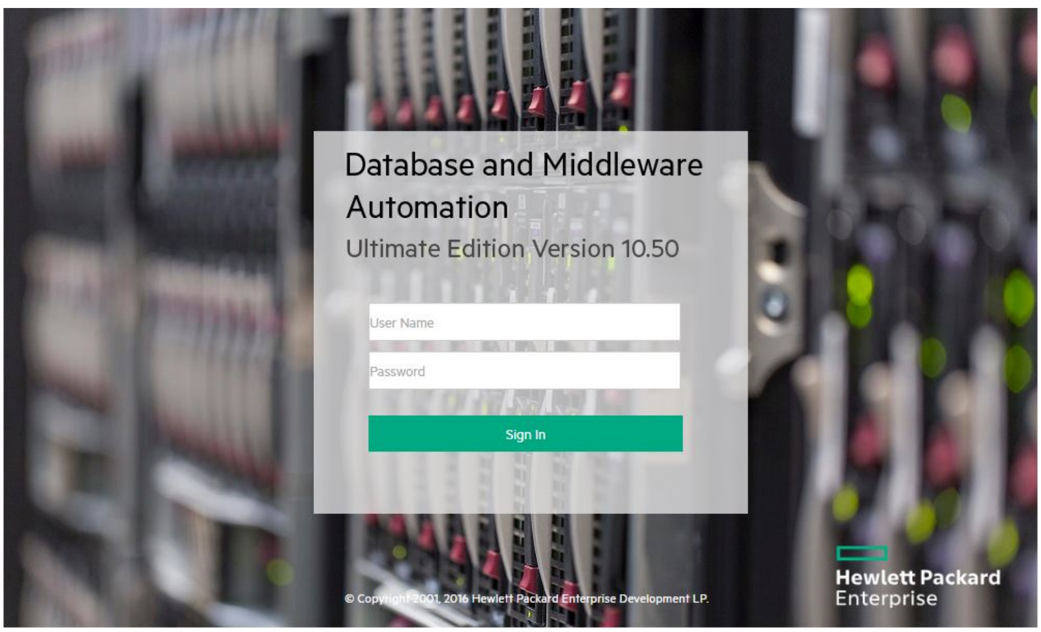
   `https://`*<DMA_Server>*`:8443/dma`

   Here, *<DMA_Server>* is the fully qualified host name of your HPE DMA server.

   > **Note:** If you use the Internet Explorer browser and cannot log in, see Login Errors.

3. Accept the certificates.

   You will see the following page:



4. Enter an initial password for the dma_initial_admin user, retype the password, and then click **Submit**.

5. To log in, enter `dma_initial_admin` for the username, enter the new password for the password, and then click **Login**.

If you enter incorrect credentials 1-4 times	You will receive the message: Credentials are incorrect or do not allow login.

If you enter incorrect credentials 5 times	You will receive the message: Max Number of logins attempted. Locking account.
If you enter incorrect credentials more than 5 times	The account will be locked for one hour and you will receive the message: Account is locked.

Next, perform the initial HPE DMA setup using the HPE DMA user interface. For more information about setting up HPE DMA, see the Setting up HPE DMA section in the *Administration Guide*.

HPE DMA baseline options

The following table gives a complete list of all the `dmaBaselineData.sh` options:

Option	Example Argument Value	Description
-?,--help		Print this usage message.
-c,--create-tables		Create tables for database.
-cc,--create-context		Create a context file with the specified settings.
-context,--deployed-context-file <*dma.xml*>	dma.xml	Fully qualified path to the deployed context file to get database connection settings.
-dbh,--database-hostname <*arg*>	oracle.mycompany.com	The database host name for the Java Database Connectivity (JDBC) connection, that can resolve into either an IPv4 or IPv6 address.
-dbp,--database-port <*arg*>	1521	The database port for the Java Database Connectivity (JDBC) connection.
-dbpw,--database-password <*dbpasswordValue*>	dbpassword	The password used to connect to the database.
-dbs,--database-sid <*arg*>	dma	The database SID for the Java Database Connectivity (JDBC) connection.
-dbts,--database-tablespace <*arg*>	/u01/app/oracle/oradata/dma	The base directory for the database tablespace creation.
-dbtype,--database-type <*arg*>	oracle	(optional) The underlying database type. The default is oracle.
-dbu,--database-username <*dbusernameValue*>		The username used to connect to the database.
-dmah,--dma-hostname <*dmahostnameValue*>	dma.mycompany.com	Set the fully qualified host name of the HPE DMA server, that can resolve into either an IPv4 or IPv6 address. **Note:** If this value is not specified, the default is the server where the script is running.
-e,--erase		Erase existing data and add baseline data. **Caution:** Do not do this unless instructed to by HPE Support.
-lic,--apply-license <arg>		License file that is to be applied

Option	Example Argument Value	Description
-licref,--lic-data-refresh		Refreshes the current licenses consumed/available in dma server
-lockid,--license-lockid <arg>		ID against which license is generated
-jdbccs,--jdbc-connection-string <*connectionString*>	jdbc:<*DBTYPE*>:thin:@<*HOST*>:<*TNS_PORT*>:<*SID*> or jdbc:<*DBTYPE*>:thin:@//<*HOST*>:<*TNS_PORT*>/<*ORACLE_SERVICE_NAME*>	The Java Database Connectivity (JDBC) Connection String used to connect to the database. The default <*TNS_PORT*> is 1521. Other connection string syntax is possible. Consult your Oracle DBA for the company standard.
-okeys,--overwrite-keys		Overwrite public and private key in the database if they exist **Caution:** Do not do this unless instructed to by HPE Support.
-privkey,--private-key-file <*privateKeyFilename*>		File containing the private key.
-pubkey,--public-key-file <*publicKeyFilename*>		File containing the public key.
-sahostname,--server-automation-hostname <*sahostnameValue*>	saserver.mycompany.com	The fully qualified host name of the SA server, that can resolve into either an IPv4 or IPv6 address.
-sapassword,--server-automation-password <*sapasswordValue*>		The password used to connect to SA.
-sausername,--server-automation-username <*sausernameValue*>		The username used to connect to the SA.
-sqlfile,--baseline-sqlfile <*baselineSQLfile*>		The baseline file containing SQL insert statements
-t,--test		Test the underlying database connection.
-tsda,--tablespace-data <*datafile_name*>		The baseline option to specify data file table space name.
-tsin,--tablespace-indx <*indexfile_name*>		The baseline option to specify data index table space name.

Applying the license

To apply the license, run the baseline command with the following options:

`--apply-license <arg>`	Fully qualified path of the license file that is to be applied
`--license-lockid <arg>`	ID against which the license is generated

You must specify the above two license options in the baseline command, after you have created the table space data file and index file.

Installing HPE DMA Client for SA

This section information about installation of the HPE DMA Client for SA on the HPE DMA server.

> **Note:** If you use the automated installation process, you do not need to follow the instructions in this section.

> **Note:** The HPE DMA Client for SA is used to create an HPE DMA software policy in HP Server Automation (SA). This needs to be done once per SA mesh.

On the HPE DMA server, get the `dma-sa-client-10.50.000.000-0.x86_64.rpm` file from the HPE DMA installation zipped folder under the `DMA_10.50.000.000_Server_and_Client` folder, and then run the following commands as root:

```
$ cd DMA_10.50.000.000_Server_and_Client
```

```
$ rpm -ivh dma-sa-client-10.50.000.000-0.x86_64.rpm
```

You have completed installing the HPE DMA Client for SA.

In the next stage you will integrate HPE DMA with HP Server Automation. For information about integrating HPE DMAwith HP Server Automation, see "Integrate HPE DMA with HPE SA" on page 38.

Configure SSL on the HPE DMA Server

To configure SSL on the HPE DMA server, you must complete the following steps:

1. "Generating a Private Key for the Server" on the next page
2. "Generating the Certificate Signing Request to Obtain Signed Server Certificates" on page 27
3. "Importing the SSL Server Certificates" on page 28
4. "Configuring the HPE DMA Server to Use Your Certificate" on page 30
5. "Verifying the SSL Connection" on page 32

For a production environment, you should have the server certificate signed by a trusted Certificate Authority (CA).

> **Note:** For testing purposes—not for a production environment—you may be able to use a self-signed server certificate.

> **Caution:** If you are using an SA gateway infrastructure as a proxy network, you must have a subject alternate name (SAN) as part of your signed certificate:
>
> - The SAN must be type IP.
> - The SAN value must be the IP address—not the domain name—of the HPE DMA server.
>
> For detailed instructions and an example of the `keytool` command that sets up the SAN, see .

> **Tip:** The process of producing a PDF file inserts line breaks in long lines of text, including commands that should be entered on a single line. When you execute the commands shown in this document, be sure to first remove any line breaks that might be present.

About the keytool utility

Many procedures in this section use the `keytool` utility, which is located in the following directory on the HPE DMA server:

```
/opt/hp/dma/server/jre/bin
```

> **Caution:** To follow the procedures in this document as written, add `/opt/hp/dma/server/jre/bin` to your path before executing the `keytool` command.
>
> Run the following command to verify which `keytool` will be used:

```
which keytool
```

Generating a Private Key for the Server

The first step in configuring SSL on the HPE DMA server is to generate a private key for that server. You can do this by using the `keytool` utility that is part of the Java Runtime Environment (JRE).

If the keystore already exists on the server, you can add the key to it. If the keystore does not exist, the `keytool` will create it.

To generate a private key for the server:

1. Log in to the HPE DMA server as the root user.
2. Execute the following command (all on one line):

   /opt/hp/dma/server/jre/bin/keytool -genkeypair -alias <*keyalias*> -keyalg RSA -keysize 2048 -dname "CN=<*DMAserver*>,OU=<*orgunit*>,O=<*org*>,L=<*location*>,S=<*state*>, C=<*country*>" -keypass <*password*> -keystore <*storefile*> -storepass <*password*> -validity <*numberdays*>

   > **Caution:** If you are using an SA gateway infrastructure as a proxy network, you must set up the SAN, see Using a Proxy Server for steps to modify the `keytool` command to set up the SAN.

   The variables used here refer to the following information:

Variable	Description
<keyalias>	Unique alias for the server's private key. This is used to associate the server certificate with its private key. For HPE DMA, set to `tomcat`.
<DMAserver>	Fully qualified host name of the server hosting the HPE DMA server.
<orgunit>	The organizational unit (business unit) that owns this server.
<org>	The organization (company) that owns this server.
<location>	The city in which this server physically resides.
<state>	The state or province in which this server physically resides.
<country>	The country in which this server physically resides.
<password>	The password for both the keystore and this private key.
<storefile>	Keystore file name. For example: /opt/hp/dma/server/.mykeystore
<numberdays>	The number of days that the key will be valid.

For example:

```
/opt/hp/dma/server/jre/bin/keytool -genkeypair -alias tomcat -keyalg RSA
-keysize 1024 -dname "CN=myserver.mycompany.com,OU=IT,O=mycompany,
L=Fort Collins,S=Colorado,C=US" -keypass mypassword
-keystore /opt/hp/dma/server/.mykeystore -storepass mypassword -validity 365
```

> **Note:** You must use the same password for the –keypass and –storepass settings.

3. To verify that the private key was created, execute the following command (all on one line):

   ```
   /opt/hp/dma/server/jre/bin/keytool -list -v -keystore <storeFile>
   -storepass <password>
   ```

Generating the Certificate Signing Request to Obtain Signed Server Certificates

In a production environment, you should always use a server certificate signed by a trusted Certificate Authority (CA) in accordance with your company's security policy.

> **Tip:** Make sure you check your company's security policy for the correct procedure.

If you have not already obtained signed certificates, generate a certificate signing request for your HPE DMA server and submit it to your CA. The CA will send you digitally signed certificates via email. You can then import the signed certificates into the keystore.

To generate the certificate signing request for the private-public key pair:

1. Log in to the HPE DMA server as the root user.
2. Execute the following command (all on one line):

   ```
   /opt/hp/dma/server/jre/bin/keytool -certreq -v -alias <keyalias>
   -keypass <password> -keystore <storefile> -storepass <password>
   ```

   For example:

   ```
   /opt/hp/dma/server/jre/bin/keytool -certreq -v -alias tomcat
   -keypass mypassword -keystore /opt/hp/dma/server/.mykeystore
   -storepass mypassword
   ```

   You certificate request will appear on `stdout`.
3. Submit the certificate signing request (the output of the `keytool –certreq` command) to your CA. The CA will provide instructions for submitting this request.

To receive the certificates from your CA:

In response to your request, the CA will send you a signed server certificate. Your CA may also send you the root certificate and any intermediate certificates required.

> **Note:** The root and intermediate certificates may be bundled in a single file, or they may be delivered as separate files. Your CA will provide instructions for importing the root and any intermediate certificates into the keystore.

If your certificates are delivered in the body of an email message (versus a file), copy the certificates into a file. For example: `myserver.mycompany.com.cer`

> **Caution:** Before you proceed, make a copy of your keystore.

Next, you will import the contents of this file into the keystore.

Importing the SSL Server Certificates

This section provides the information about importing the SSL Server certificates into the keystore.

> **Note:** The order of operations is important–you must import the root certificate and any intermediate certificates before you import your signed server certificate. This will enable you to properly chain your server certificate to the root certificate.
>
> Follow the instructions that your CA provided for importing the root and any intermediate certificates into the keystore.

To import the signed server certificate into your keystore, perform the following tasks:

1. To import the root and intermediate certificates, execute the following command (all on one line) for each of the certificates that your CA provided:

   > **Note:** Your CA may provide any or all of these certificates:
   >
   > - Root certificate
   > - Primary intermediate certificate
   > - Secondary intermediate certificate

   ```
   /opt/hp/dma/server/jre/bin/keytool -import -v -noprompt -trustcacerts
   -alias <keyalias> -file <CAcert> -keystore <storefile> -storepass <password>
   ```

The variables used here refer to the following information:

Variable	Description	Examples

<keyalias>	Unique alias for the server's private key. This is used to associate the server certificate with its private key.	For root certificate:
		`my-root-cert`
		For primary intermediate certificate:
		`my-cert-pri`
		For secondary intermediate certificate:
		`my-cert-sec`

<CAcert>	File that contains the contents of the certificate.	For root certificate:
		`CA-root-cert.cer`
		For primary intermediate certificate:
		`CA-cert-pri.cer`
		For secondary intermediate certificate:
		`CA-cert-sec.cer`

<storefile>	Fully qualified keystore file name.	`/opt/hp/dma/server/.mykeystore`
<password>	The password for both the keystore and the private key.	`mypassword`

2. To import your signed server certificate, execute the following command (all on one line):

```
/opt/hp/dma/server/jre/bin/keytool -import -v -noprompt -alias <keyalias>
-file <my-cert> -keystore <storefile> -storepass <password> -trustcacerts
```

   Here, *<my-cert>* is the file that contains your signed certificate and *<keyalias>* is the same alias as for the private key. For example:

```
/opt/hp/dma/server/jre/bin/keytool -import -v -noprompt -alias my-root-cert
-file myserver.mycompany.com.cer -keypass mypassword
-keystore /opt/hp/dma/server/.mykeystore -storepass mypassword -trustcacerts
```

3. Run the following command to verify the contents of your keystore (all on one line):

```
/opt/hp/dma/server/jre/bin/keytool -list -keystore <storeFile>
-storepass <password>
```

   For example:

```
/opt/hp/dma/server/jre/bin/keytool -list
-keystore /opt/hp/dma/server/.mykeystore -storepass mypassword
```

   You should see the following type of output:

```
Keystore type: JKS
Keystore provider: SUN
Your keystore contains 2 entries
```

```
myrootcert, Aug 15, 2011, trustedCertEntry,
Certificate fingerprint (MD5):
B5:95:C3:7C:61:A2:60:48:43:84:D5:70:29:F1:AC:E9
myserver, Aug 15, 2011, PrivateKeyEntry,
Certificate fingerprint (MD5):
A4:E5:D7:3D:10:12:11:C2:F8:8B:29:E4:9B:97:21:07
```

In this example, only the root certificate was used. If a single intermediate certificate is used, your keystore will contain three entries.

> **Tip:** To view more detailed information, you can use the –v option with this command:

```
/opt/hp/dma/server/jre/bin/keytool -list –v -keystore <storeFile>
-storepass <password>
```

Configuring the HPE DMA Server to Use Your Certificate

After you add your server certificate to the keystore, perform the following steps:

- Edit the <Connector> element in the `server.xml` file for the HPE DMA Web Server
- Change the trustAllCertificates value in the `dma.xml` file to false

To configure the HPE DMA server to use your certificate:

1. As root, stop the HPE DMA Server using the following command:

   ```
   service dma stop
   ```

2. Open the following file in a text editor:

   ```
   /opt/hp/dma/server/tomcat/conf/server.xml
   ```

3. Identify the default SSL Connector element:

   ```
   <Connector port="8443" protocol="HTTP/1.1" SSLEnabled="true"
   maxThreads="150" scheme="https" secure="true" clientAuth="false"
   sslProtocol="TLS" keystoreFile="/opt/hp/dma/server/.mykeystore"/
   ```

4. If commented out, remove the comment delimiters (`<!--` and `-->`) around the SSL Connector element.

5. Specify the following attributes:

```
<Connector port="<SSLport>" protocol="HTTP/1.1" SSLEnabled="true"
scheme="https" secure="true" sslProtocol="TLS" keystoreFile="<storefile>"
keyAlias="<keyalias>" keystorePass="<password>"/>
```

The variables used here represent the following information:

Variable	Description
<keyalias>	Unique alias for the server's private key (see "Generating a Private Key for the Server" on page 26).
<SSLport>	Port that is used for: ◦ SSL communication between the HPE DMA Server and the HPE DMA clients ◦ Accessing the HPE DMA user interface
<storefile>	Keystore file name. For example: /opt/hp/dma/server/.mykeystore
<password>	The password for both the keystore and this private key.

For example:

```
<Connector port="443" protocol="HTTP/1.1" SSLEnabled="true"
scheme="https" secure="true" sslProtocol="TLS"
keystoreFile="/opt/hp/dma/server/.mykeystore"
keyAlias="myserver" keystorePass="mypassword"/>
```

6. Save the `server.xml` file.

7. Open the following file in a text editor:

   `/opt/hp/dma/server/tomcat/conf/Catalina/localhost/dma.xml`

8. Identify the following line:

```
<Parameter name="com.hp.dma.conn.trustAllCertificates" value="true"/>
```

9. Set the value to false.

```
<Parameter name="com.hp.dma.conn.trustAllCertificates" value="false"/>
```

   If the line does not exist, add it.

10. Locate the following line:

```
<Parameter name="com.hp.dma.core.webServiceUrl"
```

```
value="https://<DMAServer>:8443/dma"/>
```

For example:

```
<Parameter name="com.hp.dma.core.webServiceUrl"
value="https://dmaserver.mycompany.com:8443/dma"/>
```

11. Ensure that the *<DMAServer>* specified in the webServiceUrl value matches the *<DMAServer>* configured in the public certificate. They must both be IP addresses or both be host names.

12. If you changed the *<SSLport>* in the `server.xml` file, also change the *<SSLport>* specified in the webServiceUrl value:

```
<Parameter name="com.hp.dma.core.webServiceUrl"
value="https://<DMAServer>:<SSLport>/dma"/>
```

Here, *<SSLport>* must match the *<SSLport>* configured in the `server.xml` file. For example:

```
<Parameter name="com.hp.dma.core.webServiceUrl"
value="https://dmaserver.mycompany.com:443/dma"/>
```

13. Save the `dma.xml` file.

14. As root, start the HPE DMA Server by using the following command:

`service dma start`

Verifying the SSL Connection

To verify your SSL connection, perform the following steps:

1. Log in to your HPE DMA server.
2. HTTPS protocol indicates that the HPE DMA Server is communicating with the HPE DMA Client using SSL.
3. The lock icon ( ) in the address bar indicates that the HPE DMA Server is communicating with the HPE DMA Client using SSL.

   If there is a problem with the website security certificate, you will see a shield icon ( ) with a warning message.
4. For a test, execute an HPE DMA deployment.

5. When it finishes, navigate to the **Automation** > **History** page.
6. Select your deployment and then choose the **Step Output** tab in the bottom pane.
7. Verify that the deployment ended in SUCCESS.
8. Choose the **Connector Output** tab in the bottom pane.
9. Check that the following line is not in the output:

   ```
   Warning: DMA Client is trusting all HTTPS Certificates
   ```

   If it is in the output, go to "Configuring the HPE DMA Server to Use Your Certificate" on page 30, modify the `dma.xml` file, and then execute the deployment again.

You have completed configuring SSL on the HPE DMA server.

In the next section you will install the HPE DMA client for SA.

Upgrade to HPE DMA 10.50

Perform the following tasks to upgrade to HPE DMA 10.50.000.000:

1. Go to the HPE DMA 10.50.000.000 installation folder under the DMA_10.50.000.000_Server_and_Client folder.
2. Run the following command to upgrade the HPE DMA server:

   > **Note:** If you are upgrading multiple HPE DMAservers, run the command on each server.

   > **Note:** If you cut and paste from this PDF, make sure that the dashes (--) copy correctly.

   ```
   $ rpm --upgrade dma-server-10.50.000.000-0.x86_64.rpm
   ```

   > **Note:** The new upload classes are in the server RPM file.

   After the upgrade is complete, the following message is displayed:

   ```
   Please redeem your licenses (using your SA ID) from HPE Portal, using the <lock
   ID>. Server will be operational using the default license in place.
   ```

   By default, DMA is installed with the `-instantOn` (trail) license.

   > **Note:** The `-instantOn` (trial) license is valid for 90 days. This is applicable for 10 database instances and 10 middleware instances.

Save the <Lock ID> for your reference, as it is needed to generate your license(s). You can generate the license(s) at HPE Software Licensing website.

> **Note:** The <Lock ID> is also available in the Licensing Dashboard at HPE Software Licensing website, after you apply the valid license.

After generating the license, copy the file to **/opt/hp/dma/server/lic/licImport/** folder. You can choose to apply the license with the baseline command or later. For instructions to apply the license, see the "Applying the license" on page 23 topic.

3. On one HPE DMA server per SA server, use the baseline command to upgrade your database. Run the following commands as a root user. For example:

```
$ cd /opt/hp/dma/server/tomcat/webapps/dma/WEB-INF
```

> **Note:** When you upgrade HPE DMA you only need to use the baseline `-context` option because the following information is in the context file: <*database_username*>, <*database_password*>, and the JDBC connection string.
>
> For readability, the option is listed on a separate line—you must build the command in a single line.
>
> For a full description of all the baseline options, see "HPE DMA baseline options" on page 21.

> **Caution:** When you run the baseline command exactly as given you will maintain your HPE DMA database. If you use the --erase option you will lose your customized HPE DMA data.

```
$ sh ./dmaBaselineData.sh
-context /opt/hp/dma/server/tomcat/conf/Catalina/localhost/dma.xml
```

> **Note:** You can run this command more than one time or on more than one HPE DMAServers.

> **Note:** If you receive an error, see Troubleshooting.

4. Go to the HPE DMA 10.50.000.000 installation folder under the DMA_10.50.000.000_Server_and_Client folder.

5. On one HPE DMA server per SA server, run the following command to upgrade the HPE DMA Client for SA:

> **Note:** If you cut and paste from this PDF, make sure that the dashes (--) copy correctly.

```
$ rpm --upgrade dma-sa-client-10.50.000.000-0.x86_64.rpm
```

6. Have your SA administrator reinstall the HPE DMA APX on the SA core.

For information about reinstalling the HPE DMA APX, see "Import HPE DMA APX" on page 42.

> **Note:** The `/DMA_APX` folder will not be created since it already exists

7. If you are also updating the SA core, rerun the script command to copy the required JAR files from the SA server to the HPE DMA server. On your HPE DMA server, run the following command (enter as a single line). For example:

   ```
   $ sh /opt/hp/dma/server/tomcat/webapps/dma/WEB-INF/copyJars.sh
   <SA_Server>
   ```

8. Have your SA administrator reinstall the DMA Client Files policy on the SA core.

   To do this, follow the instructions in "Install the DMA Client Files policy" on page 45:

   a. Use the same folder (`/DMA_Client`) as in Step 1.

   b. Repeat steps 2 and 3.

9. Have your SA administrator remediate the DMA Client Files policy on all managed servers using that policy:

   > **Note:** All servers attached to the policy that has changed must be remediated.
   >
   > Make sure that,
   >
   > - all of the managed servers are visible to you.
   > - you have write permission.

   a. Open the policy.

   b. Go to **Server Usage** and select all the servers that have the policy attached to them.

   c. Right-click and choose **Remediate**.

      > **Tip:** If you have multiple servers, you can remediate the servers using groups.

   d. Click **Start Job**.

   > **Tip:** If you do not remediate the policy for a server you will receive an error "Policy must be remediated" when you run a workflow that uses that server as a target.

10. Restart all HPE DMA servers using the following command:

    ```
    $ service dma start
    ```

> **Note:** When you upgrade to HPE DMA 10.50 from an earlier version, HPE DMA is not FIPS complaint. You can enable FIPS after upgrade. For instructions to enable FIPS, see the Enabling

FIPS topic in the *Administration Guide*.

To revert an upgrade from the HPE DMA Server:

> **Caution:** You can only revert an upgrade if you created a backup of your database before you upgraded to version 10.50.000.000.

Perform the following steps to revert the HPE DMA 10.50.000.000 upgrade:

> **Note:** The upgrade is reverted to the version that you had upgraded from. For example, if you had upgraded from HPE DMA10.40.000 to 10.50.000, when you revert the upgrade is reverted to HPE DMA10.40.000.

1. Stop the HPE DMA server, as root:

   ```
   $ service dma stop
   ```

2. Restore the database from the backup.
3. Run the following command to revert to HPE DMA 10.40.000.000. For example:

   > **Note:** If you cut and paste from this PDF, make sure that the dashes (--) copy correctly.

   ```
   $ rpm --upgrade --oldpackage dma-server-10.40.000.000-0.x86_64.rpm
   ```

4. Upload and reinstall the HPE DMA 10.40.000.000 APX.
5. Detach the DMA Client Files policy from all managed servers and then remediate.
6. Delete the DMA Client Files policy and all packages in the `/DMA_Client` folder and then reinstall the policy using the policy install process from HPE DMA 10.40.000.000.
7. Attach the DMA Client Files policy to all desired managed servers and then remediate again.
8. Restart the HPE DMA server:

   ```
   $ service dma start
   ```

After you have upgraded to HPE DMA10.50, you must integrate with HP Server Automation. For information about integrating with HP Server Automation, see "Integrate HPE DMA with HPE SA" on the next page

Integrate HPE DMA with HPE SA

You must integrate HPE DMAwith HPE SA before you can use HPE DMA.

> **Caution:** An SA administrator—someone with SA administrator privileges and access must integrate HPE DMA with HP SA.

HPE DMA uses HP Server Automation (SA) as an agent infrastructure. It integrates with SA to authenticate users, associate users with groups, and determine user privileges. HPE DMA uses SA to acquire knowledge of servers and to send requests to execute workflows on servers.

> **Note:** Any server that will be used as an HPE DMA target needs to be managed by SA. It must also have the DMA Client Files software policy.

This section contains the following topics and should be performed in order:

Topic	Description
"SA integration requirements"	Information about the requirements that must be satisfied before integrating HPE DMA with SA.
"Integrating HPE DMA with HP SA"	Overview of the steps to integrate with SA—to be performed by the SA administrator.
"Import HPE DMA APX"	Detailed instructions for the SA administrator to configure the SA Automation Platform Extension (APX) to be used by HPE DMA.
"Install the DMA Client Files policy"	Detailed instructions for the SA administrator to install and remediate the DMA Client Files policy.
"Set up SA groups and users"	Detailed instructions about the SA groups and SA users that need to be set up by the SA administrator along with their required permissions.

SA integration requirements

You must meet the following requirements before you can integrate HPE DMA with HP Server Automation (SA):

- Make sure that you have met all the general HPE DMA installation requirements in "Pre-installation tasks" on page 5.
- You have already installed and configured the HPE DMA server software. If you have not done so, see "Installing HPE DMA Server" on page 15.
- You have already installed and configured the HPE DMA Client for SA. If you have not done so, see "Installing HPE DMA Client for SA" on page 24.
- The HPE DMA server software and the HPE DMA Client for SA software must be installed on the same system. This system will be referred to as the HPE DMA server in the following instructions.
- Ensure that you have provided appropriate SA permissions to DMA users. The following table lists the SA related permission and policy that needs to be enabled for users or user groups:

SA permissions and policy		**SA User for APX (DMA WF Runner)**	**Connector User for DMA**	**DMA Admin**
Action Permission	Manage Software Policy	NA	Read, Write	Read, Write
	Manage Extension	Read, Write	NA	Read, Write
	Managed Servers and Group	NA	YES	YES
OGFS Permission	Feature -Launch Global Shell to be selected	YES	NA	YES
	Groups - add all relevant groups	YES	NA	YES
Folder Permission	DMA_Client	Read, Write, Execute	Read, Write, Execute	Read, Write, Execute
	DMA_APX	Read, Write, Execute	NA	Read, Write, Execute
Resource Permission	All relevant Customer, facility and Device Group	NA	Read	Read

Support for SA 10.60

Database and Middleware Automation (DMA) Ultimate Edition now supports Server Automation (SA) 10.60.

This section provides information on upgrading and integrating DMA 10.50 with SA 10.60.

1. Stop all DMA and SA services.
2. Install or upgrade SA to 10.60.
3. On the DMA server:
   a. Upgrade JRE to version 1.8.

   b. Delete **twistclient.jar** and **wlclient*.jar** files from
   `/opt/hp/dma/server/tomcat/webapps/dma/WEB-INF/lib/`

   c. Copy the opswclient.jar file from `<SA_install_dir_10.60>/twister/` to
   `/opt/hp/dma/server/tomcat/webapps/dma/WEB-INF/lib/ directory.`

   d. Run the following command to change the ownership of the **opswclient.jar** file:
   `chown hpdma:hpdma opswclient.jar`

   e. Run the following command to copy binaries to the SA server:sh
   `/opt/hp/dma/server/tomcat/webapps/dma/WEB-INF/copy Jars.sh <FQDN of SA Core>`
4. Start all DMA and SA services.

Integrating HPE DMA with HP SA

The SA administrator needs to perform the following general steps:

1. Install the HPE DMA Automation Platform Extension (APX) on the SA server.
2. Install the DMA Client Files policy on the SA server.
3. Attach and remediate the DMA Client Files policy on all SA managed servers that will be used as HPE DMA targets.
4. Set up the SA groups that will have HPE DMA access privileges.
5. Set up the SA user that HPE DMA will use to connect to SA. This user must be permitted to access SA APIs.

In the commands that follow, replace the variables (found within <>'s) with values appropriate for your environment:

Variable	Example	Description
<SA_Server>	saserver.mycompany.com	Fully qualified host name of the HP Server Automation server
<DMA_server>	dma.mycompany.com	Fully qualified host name of the HPE DMA server

Import HPE DMA APX

This topic shows you how to configure the SA Automation Platform Extension (APX) for HPE DMA.

HPE DMA APX can be imported into HP Server Automation Virtual Appliance 10 (SAVA) or HP Server Automation Enterprise Edition (Enterprise SA):

- For SAVA: The HP Live Network connector (LNc) must be used.
- For Enterprise SA: LNc can be used or the APX can be imported manually.

HPE Live Network Connector Overview

Follow the SAVA or Enterprise SA instructions for configuring the HP Live Network connector. The APX is contained in the `content.sa_dma` HPE LN Stream. SAVA uses the "Command-line Web Utilities Launcher" to configure LNc. Enterprise SA uses an installation of HP Live Network connector (LNc).

After the stream is loaded, the following APXs are visible in the `/DMA_APX` folder:

- Update West Apx user on Windows
- westApx

> **Note:** The user who runs the Update West APX must have read, write, and execute permission on the objects within the `/DMA_APX` folder.

SAVA Installation of the HPE DMA APX

> **Note:** This method can only be used for SAVA.

From the SA client, as a user with list and execute permission on the objects in the `/Opsware/Tools/Administrative Extensions` folder, do the following:

1. Go to the **Library** > **By Type** tab, and then select **Extensions** > **Web**.
2. From **Web**, select the **Command-line Web Utilities Launcher**.
3. Select **HPE Live Network Connect** (the default).
4. To write the configuration to SAVA, execute the following command:

```
/opt/opsware/hpln/lnc/bin/live-network-connector write-config
--username=<username> --password=<password> --stream=content.sa_dma
```

Here `<username>` and `<password>` are your HPE Passport user name and password.

> **Note:** Additional configuration can be added to the configuration using the `--add` option in the `live-network-connector` command. See *HP Live Network connector User Guide* for more information.

5. To download and import using the saved configuration, execute the following command:

   ```
   /opt/opsware/hpln/lnc/bin/live-network-connector download-import
   ```

   The default is `download-import`, so after the configuration is set up `download-import` is not required for this HP Live Network connector command.

Enterprise SA Manual Import of the HPE DMA APX

> **Tip:** The following steps must be performed by an SA administrator.
>
> The SA user (<*SA_APX_User*>) who imports the HPE DMA APX must belong to a group with the following privileges:
>
> - SA Global Shell (OGSH) permission to Launch Global Shell.
> - Manage Extensions (Read & Write) permission under Automation Platform Extension.
> - List, Read, and Write permission on the `/DMA_APX` folder.
>
>   If the `/DMA_APX` folder does not exist, this user must have List, Read, and Write permission on the / (root) folder, where the `/DMA_APX` folder will be created.

> **Note:** This method can only be used for Enterprise SA.
>
> If HP Live Network connector is configured for `content.sa_dma`, then you do not need to manually import the HPE DMA APX.

1. Work with the HPE DMA user with root-level access to the HPE DMA server (or the user that installed the RPMs on the HPE DMA server) to do the following:

   On the HPE DMA server, copy the HPE DMA APX to the SA server Global Shell. For example:

   ```
   $ scp -P 2222 /opt/hp/dma/server/client_bits/westapx.zip
   <SA_APX_user>@<SA_Server>:westapx.zip
   ```

```
$ scp -P 2222 /opt/hp/dma/server/client_bits/updateWinAdmin.zip
<SA_APX_user>@<SA_Server>:updateWinAdmin.zip
```

2. Log in to the SA server Global Shell, and install the HPE DMA APX using the defaults, for example:

   ```
   $ ssh -p 2222 <SA_APX_user>@<SA_Server>
   ```

   ```
   $ apxtool import westapx.zip
   ```

   ```
   $ apxtool import updateWinAdmin.zip
   ```

   By default this places the APX in `/DMA_APX`. If you want to place it somewhere else use the `-f` *<folder>* option.

   To skip the prompts, add `-F` to the end of the command or else respond Y to all Y/N prompts.

   > **Note:** This creates the `/DMA_APX` (or <*folder*>) folder.

If you receive an error message similar to the following at the root command prompt, you are not pointing to the correct directory for the APX tool:

```
...

[root@dmaserver ~](4) $ apxtool import westapx.zip
Error: westapx.zip is not a valid APX file or directory.

...
```

If you get this error message, verify the location of the APX tool and rerun the `apxtool` command. See the Importing the HPE DMA APX topic in the *HPE DMA Installation Guide*.

Install the DMA Client Files policy

This topic shows you how to install the DMA Client Files policy on the SA server and then to attach and remediate the DMA Client Files policy on all SA managed servers that will be used as HPE DMA targets.

> **Tip:** The following steps must be performed by an SA administrator.
>
> The SA user (<*SA_Policy_User*>) who installs the policy must belong to a group with the following privileges:
>
> - Manage Software Policy—Read & Write under Policy Management.
> - Manage Package—Read & Write under Package Management.
> - List, Read, Write, and Execute permissions on the folder (`/DMA_Client`) that will contain the HPE DMA packages and policy.

> **Note:** The following instructions assume that the HPE DMA Client for SA is installed on the HPE DMA server.

Perform the following steps to install the DMA Client Files policy on your SA server, <*SA_Server*>:

1. In the SA Client, create a `/DMA_Client` folder.
2. As root on the HPE DMA server, go to the `client_bits` folder and then run the `dma_upload` script using your <*SA_Policy_User*> account. For example:

   ```
   $ cd /opt/hp/dma/server/client_bits
   ```

   ```
   $ sh ./dma_upload.sh -host <SA_Server> -user <SA_Policy_User>
    -password <SA_Policy_Password>
    -keyFile /opt/hp/dma/server/tomcat/webapps/dma/WEB-INF/publicKey
    -folderName /DMA_Client
   ```

   > **Note:** If you omit the password option (-password), you will be prompted for the password.

3. *Optional:* To verify if the policy has been uploaded, perform the following steps in the SA Client:

   Go to **Library** > **By Folder** > `DMA_Client`

   The `DMA_Client` folder should be populated. Verify that the DMA Client Files policy is included.

4. For each server that is used as an HPE DMA target, attach and remediate the DMA Client Files policy.

Set up SA groups and users

This topic shows you how to set up the necessary SA groups and users for HPE DMA.

> **Tip:** An SA administrator must perform the following steps.
>
> Your SA administrator may have a security model that is more finely grained. Follow your SA policies for naming and granting permissions to groups.

HPE DMA User Groups

The following table provides examples of the types of user groups that you will need to use and manage HPE DMA in your environment.

Group Type	Example Name	Capability Required	Description
HPE DMA administrators	DMA Admins	Administrator	Users in this group perform HPE DMA administrative duties.
Users who create HPE DMA workflows	DMA Workflow Creators	Workflow Creator	Users in this group have the ability to create HPE DMA workflows. **Note:** Once a workflow is created, it can be modified using Role Based Access (RBAC) as needed.
Users who run HPE DMA workflows	DMA Workflow Runners	Login Access	Users in this group have the ability to run HPE DMA workflows.

To set up your HPE DMA user groups, perform the following steps:

1. On the SA server that connects to HPE DMA, create each of the groups listed in the table and any additional groups that you need.
2. Grant the following permissions to each group:
   - List, Read, and Execute permission for the `/DMA_APX` folder
   - Managed Servers and Groups
   - READ access to all managed servers that are added to HPE DMA

To add servers to HPE DMA organizations, a user must also have permission to see those servers in SA. This requires either Read permission on the pertinent customer or facility, or Read permission on the device group (or groups) where the servers reside.

> **Note:** Use the SA Client to grant these permissions.

3. Add at least one user to each group.

The next step is to register these groups as HPE DMA roles (see Register HPE DMA Roles) and assign each role the appropriate HPE DMA capability (see Assign HPE DMA Capabilities).

HPE DMA Connector User

An additional SA user, <*dma_connector_user*>, is required to configure the HPE DMA connector to SA (see Configure the Connector).

> **Note:** This user does not need to be a member of any of the SA groups that you just created.
>
> This user will be used by HPE DMA to connect to SA whenever a specific, personalized SA account cannot be used—for example, to verify whether a login is allowed.

To create the HPE DMA connector user:

1. On the SA server that connects to HPE DMA, create a new SA user (for example: dma_connector_user).
2. Grant this new user the following permissions:
   - List, Read, and Execute permission for the `/DMA_Client` folder
   - List permission for all parent folders of the `/DMA_Client` folder
   - Managed Servers and Groups
   - Manage Software Policy (READ)
   - READ access to all managed servers that are added to HPE DMA

     This requires either Read permission on the pertinent customer or facility or Read permission on the device group (or groups) where the servers reside.

This completes the SA installation and integration steps that must be done by the SA administrator.

Next, start HPE DMA.

Use SA Gateway Network as a proxy network

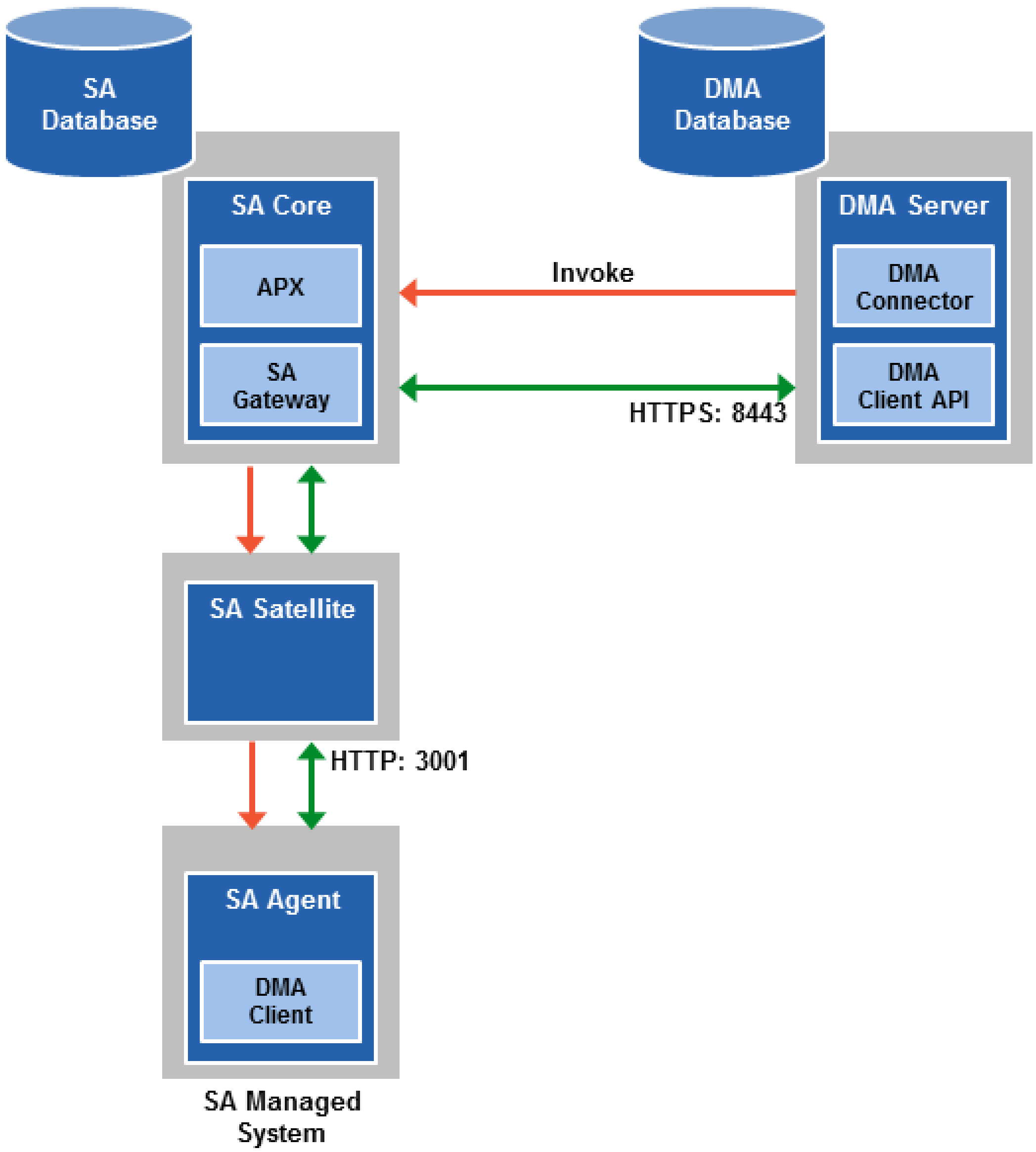
This section describes how to configure HPE Database and Middleware Automation (HPE DMA) and HP Server Automation (SA) to use the SA Gateway Network as a Proxy Network for HPE DMA communication traffic.

The following diagram shows how HPE DMA communications work with an SA Satellite serving as a proxy:

1. HPE DMA invokes SA to run the DMA Client on the target SA Managed Server.
2. SA communicates across the SA Satellite to the SA agent on the target server.
3. The SA agent invokes the DMA Client.
4. The DMA Client communicates using HTTPS via the SA Satellite proxy.

   In this case, the DMA Client uses the same port used by SA on the SA Satellite to forward information to the SA Gateway. The SA Gateway then routes the information to the HPE DMA Server.

> Note: You can configure HPE DMA with a port other than 8443 (8443 is the default).



Prerequisites

Before you perform the steps in this section, ensure your environment meets the following requirements:

- An SA mesh environment (SA 10.x) with one or more SA Cores must exist, with optional Satellites (connect Satellite to SA Core over a Gateway).
- You must have administrative access to all SA Core servers within the mesh and the HPE DMA Server.
- HPE DMA 10.10 (or later) is required.

> Note: An existing HPE DMA Server installation is not required. The steps to using SA Gateway Network as a Proxy Network can be completed during the installation process. For more information, see HPE DMA Installation Guide section “Install the HPE DMA Client for SA”.

Process Overview

Perform the following process to complete the configuration:

1. Add the egress filter to the SA Core Gateway configuration. This is required for the HPE DMA Server to be allowed as a traffic target. (See "Step 1: How to Configure the SA Core Gateway Properties" below.)
2. Add the SA Realm of the SA Core (that the HPE DMA Server is connected to) into the HPE DMA Server context file. (See "Step 2: How to Configure the SA Realm Parameter in the HPE DMA Server" on the next page.)
3. Add and configure the Custom Fields within the HPE DMA Server Environment page. (See "Step 3: How to Add and Configure Custom Fields on the HPE DMA Server" on page 52.)

Instructions for making each of these changes are provided here. For more information about the SA Satellite and SA Gateway, see the HP Server Automation documentation library, which is available on the HP Software Support web site: https://softwaresupport.hp.com

Step 1: How to Configure the SA Core Gateway Properties

You must add an egressfilter rule to the gateway properties of each slice within the SA Core that the HPE DMA Server is connected to:

1. If it does not exist, create the file:

   `/etc/opt/opsware/opswgw-cgws1-<REALM_NAME>/opswgw.custom`

   > **Note:** SA customizations for the SA Core configurations must go in the `opswgw.custom` file. `REALM _NAME` is the name of the realm for the SA Core, and can be found in the `opswgw.properties` file (look for `opswgw.Realm=<REALM_NAME>`).

2. Add the egress filter in the following form to the `opswgw.custom` file:

   ```
   opswgw.EgressFilter=tcp:<HPE DMA Server IP Address>:8443:*:*
   ```

3. Restart the gateway by executing the following command:

   ```
   se4. Repeat steps 1-3 for each slice with the same realm within the SA Core to which the HPE DMA Server is connected.rvice opsware-sas restart opswgw-cgws
   ```

4. Repeat steps 1-3 for each slice with the same realm within the SA Core to which the HPE DMA Server is connected.

5. If all slice Core Gateways have been restarted and if a load balancer gateway is used, then restart the load balancer gateway.

   ```
   service opsware-sas restart opswgw-lgws
   ```

   You must restart the load balancer gateway after all other gateways.

> **Note:** An egress filter rule is only required on each slice within the same realm within the SA Core that the HPE DMA Server is connected to.

Step 2: How to Configure the SA Realm Parameter in the HPE DMA Server

If you have already installed the HPE DMAServer, perform the following:

1. Open the following file for editing:

   `/opt/hp/dma/server/tomcat/conf/Catalina/localhost/dma.xml`

2. Ensure that the webServiceUrl parameter is specified with an IP Address.

3. Add the following parameter line beneath the other parameters already specified:

   ```
   <Parameter name="com.hp.dma.conn.sa.SAConnector.saRealm" value="REALM_NAME"/>
   ```

Here, REALM_NAME is the name of the realm of the SA Core that the HPE DMA Server is connected to.

4. Restart the HPE DMA Server by running the following command:

   ```
   service dma restart
   ```

If you are installing HPE DMA Server, perform the above steps after baselining is completed and before starting the HPE DMA Server.

The `dma.xml` file should now look similar to the following:

```
<?xml version="1.0" encoding="UTF-8"?>
<Context allowLinking="true" disableURLRewriting="true" path="/dma"
privileged="true" swallowOutput="true" workDir="/var/opt/hp/dma/work/dma">
<Valve className="org.apache.catalina.valves.AccessLogValve"
directory="/var/log/hp/dma/" pattern="%h %l %u %t '%r' %s %b %S"
prefix="localhost_access." suffix=".log"/> <Parameter
name="com.hp.dma.core.webServiceUrl" value="https://192.0.2.0:8443/dma"/>
<Parameter name="com.hp.dma.conn.trustAllCertificates" value="false" />
<Parameter name="com.hp.dma.conn.sa.SAConnector.saRealm" value="REALMNAME" />
```

> **Note:** Setting the Realm in the dma.xml file specifies the Realm of the SA Core to which DMA is connected. The client on the target server receives this information when a workflow starts. The DMA client tells the SA agent that the traffic in SA needs to be routed to this Realm so that DMA will receive the communication. The egress filter in the Realm where DMA exists allows the communications in the Realm to leave the SA network and arrive at the DMA server. Because there is no guarantee which slice within the Realm will receive the communication, all slices in the Realm need the egress filter.

> **Note:** For more information, see HPE DMA Installation Guide for version 10.10 (or later), section “Specify the Server Automation Realm.”

Step 3: How to Add and Configure Custom Fields on the HPE DMA Server

Create and configure the two Custom Fields that instruct HPE DMA to route traffic through the proxy server. you can add and configure the custom fields by using the HPE DMAUI or HPE DMA REST API commands. See the Developing Guide.

Configuring HPE DMA Custom Fields for Proxy Communication

HPE DMA uses two Custom Fields to control proxy communication:

- west_proxy_in_use tells HPE DMA if a proxy server is used. Valid values are TRUE and FALSE: Or SA_auto_select versus an actual URL.
- west_proxy_address contains the full URL of the proxy including the proxy port (or the keyword SA_auto_select).

> **Note:** Set the west_proxy_address to SA_auto_select if you want the target server to determine which SA Satellite to use as a proxy.

> **Tip:** It is best practice to only use values of TRUE, FALSE, and field not set. Note that west_ proxy_in_use is not case-sensitive.

These Custom Fields can be defined at both the organization level and the server level. This enables you to use a proxy server for communication with some targets but not others—or use different proxy servers to communicate with different targets.

If the proxy Custom Fields are defined at both the organization level and the server level, the server level proxy information takes precedence over the organization level proxy information.

The following table shows how HPE DMA will communicate if west_proxy_in_use has values at both the organization level and the server level.

Proxy Precedence	Server value is TRUE	Server value is FALSE	Server value is not set
Organization value is TRUE	Use the proxy specified for the server	Do not use the proxy specified for this server	Use the proxy specified for the organization
Organization value is FALSE	Use the proxy specified for the server	Do not use the proxy specified for this server	Do not use a proxy for this server
Organization value is not set	Use the proxy specified for the server	Do not use the proxy specified for this server	Do not use a proxy for this server

Silent installation

You can install and uninstall HPE DMA by the automated installation process. The following table provides the overview of the two processes:

<table>
<tr><th>Automated HPE DMA process</th><th>Description</th></tr>
<tr><td>"Automated HPE DMA installation"</td><td>Installs HPE DMA on a single server when Oracle database is already installed and the SA installation already exists:
Configures the Oracle database for HPE DMA
Installs the HPE DMA Server
Installs the HPE DMA Client for SA
Note: If you want a more complex HPE DMA configuration (for example, high available or disaster recovery), you must install HPE DMA by following the instructions in the section .</td></tr>
<tr><td>"Silent uninstall"</td><td>Uninstalls HPE DMA that was installed using the automated installation:
Optional: Removes the Oracle database that was configured for HPE DMA
Runs the RPM commands to uninstall the HPE DMA Server and SA Client
Deletes the HPE DMA folders
Note: If HPE DMA was installed manually, you need to uninstall HPE DMA by following the instructions in the section .</td></tr>
</table>

The DMA_10.50.000.000_Install folder also contains the following scripts:

<table>
<tr><th>File Name</th><th>Description</th></tr>
<tr><td>dma_install.sh
install-options.txt
installhelperscript.sh</td><td>Scripts that automate the installation of HPE DMA</td></tr>
<tr><td>dma_remove.sh
remove-options.txt
removehelperscript.sh</td><td>Scripts that automate the removal of HPE DMA</td></tr>
</table>

Automated HPE DMA installation

The automated HPE DMA installation allows you to install HPE DMA on a single server in a basic configuration. Oracle database must already be installed and the SA installation must already exist.

Using the automated installation simplifies and speeds up the installation, so that you do not need to key in lengthy commands (for example,configuring the HPE DMA database and running the RPMs).

The automated installation works for the following configuration:

- A single HPE DMA Server.
- The SA Server host address is different than the HPE DMA Server host address.
- The Oracle database that HPE DMA uses can be located on either the HPE DMA Server or the SA Server.

> **Note:** Before you begin to install HPE DMA, read "Requirements" and "Process overview" to ensure that it is appropriate for your environment.

Requirements

Before you use the automated HPE DMA installation process, ensure that you meet the following requirements:

- Thefollowing requirements in the "Pre-installation tasks" section:
  - Supported Products and Platforms—operating system, HP Server Automation, Oracle database.
  - Sizing Recommendations
  - Other Requirements
- Your DBA has created an Oracle database to be used by HPE DMA. The Oracle Listener and database are up and running.

  > **Note:** The automated process will configure the Oracle database for HPE DMA.
- You have downloaded the HPE DMA 10.50.000.000 installation binaries.
- You have credentials to log in as root on the server where you run the script.
- The password for the Oracle root user, in case the HPE DMA database is not on the HPE DMA Server.

Process overview

The automated HPE DMA installation process (`dma_install.sh`) does the following:

Automation step	Replaces manual installation section
Adds the Oracle listener to `listener.ora`, if the entry does not already exist. Adds the HPE DMA tablespaces, creates the HPE DMA user credentials, grants the user the requisite permissions, and then sets the quota to unlimited for the data and index tablespace files.	"Configuring the Oracle database"
Unpacks and installs the HPE DMA Server RPM file from the HPE DMA 10.50.000.000 installation folder. For example: `/<mnt_dir>/DMA_10.50.000.000_Server_and_Client/dma-server-10.50.000.000-0.x86_64.rpm` Creates the baseline using the `dmaBaselineData.sh` script. Copies the required JAR files from the SA Server to the HPE DMA Server using the `copyJars.sh` script.	"Installing HPE DMA Server"
Unpacks and installs the HPE DMA client for SA RPM file from the HPE DMA 10.50.000.000 installation folder. For example: `/<mnt_dir>/DMA_10.50.000.000_Server_and_Client/dma-sa-client-10.50.000.000-0.x86_64.rpm`	"Installing HPE DMA Client for SA"

Performing the automated installation of HPE DMA

Perform the following steps as root user:

1. Download and extract the installation files.
2. Set up the installation parameters:
   a. Open the `install-options.txt` file in a text editor. For example:

      `$ vi <local_dir>/install-options.txt`

   b. Specify values for the parameters:

Parameter	Example	Description
sa	`saserver.mycompany.com`	HP Server Automation host address.
sid	`orcl`	Oracle SID of the HPE DMA database. If SA and HPE DMA share the same database, specify the SA SID.
dma_db_host	`dmaserver.mycompany.com`	The host address where the HPE DMAOracle database is located. May be either the HPE DMA Server host address or the SA Server host address.
datafile	`/u01/app/oracle/oradata/<sid>/dma_data1.ora` If the SID is orcl: `/u01/app/oracle/oradata/orcl/dma_data1.ora`	The fully-qualified Oracle data file. Replace <*sid*> with the SID value.
indxfile	`/u01/app/oracle/oradata/<sid>/dma_indx.ora` If the SID is orcl: `/u01/app/oracle/oradata/orcl/dma_indx.ora`	The fully-qualified Oracle index tablespace file. Replace <*sid*> with the SID value.
dbuser	`dma`	HPE DMA database username to be used after the database is created.
dbpass	`<dma_password>`	HPE DMA database password to be used after the database is created.
filesize	`100M`	Maximum file size of datafile, in MB.

   c. Save your changes to the `install-options.txt` file.

3. Run the script that automates the process to install HPE DMA:

   a. Start the script in the installation folder:

      `$ cd /<mnt_dir>/DMA_10.50.000.000_Install`

      `$ ./dma_install.sh <local_dir>/install-options.txt`

      The script displays log information while running.

      If the HPE DMA database is not on the HPE DMA Server, specify the password for the Oracle root user when prompted.

   b. The following is an example execution:

```
STARTING DMA INSTALLATION
########################################################################
<<<< Loading the options file..  >>>>
<<<< DMA installation starting >>>>
########################################################################
Launching DMA Installation..
+DMA Host               = dmaserver.mycompany.com
+DMA Pack               = ../DMA_10.50_Server_and_Client/dma-server-
10.50-0.x86_64.rpm
+SA Host                = saserver.mycompany.com
+SID                    = orcl
+DB User                = dma
+Data Tablespace Name   = HPDMA_DATA
+Indx Tablespace Name   = HPDMA_INDX
+Data File              = /u01/app/oracle/oradata/orcl/dma_data1.ora
+Index File             = /u01/app/oracle/oradata/orcl/dma_indx.ora
+File Size              = 100M
########################################################################
<<<< Making an entry in listener.ora >>>>
Making listener entry in oracle home :
/u01/app/oracle/product/11.2.0/db_1
SID name already exists!
<<<< User will be created now. >>>>
Tablespaces has been created sucessfully
<<<< Oracle Listener starting now..>>>>
LSNRCTL for Linux: Version 11.2.0.1.0 - Production on 10-NOV-2014
09:28:13
Copyright (c) 1991, 2009, Oracle.  All rights reserved.
TNS-01106: Listener using listener name LISTENER has already been
started
<<<< Unpack dma distribution and install >>>>
Preparing...
##################################################
Performing an installation
```

```
dma-server
##################################################
HPE DMA 10.50.0 Installation completed.
Please read the install documentation at /opt/hp/dma/server/readme.txt
to complete the installation.
<<<< Creating baseline >>>>
10 Nov 2014 09:28:20,843 INFO  DMABaselineData - Saved context file:
opt/hp/dma/server/tomcat/conf/Catalina/localhost/dma.xml
10 Nov 2014 09:28:20,846 INFO  DMABaselineData - Context file has been
created.
10 Nov 2014 09:28:21,675 INFO  DMABaselineData - Using specified context
for settings (command line overrides ignored) file:
/opt/hp/dma/server/tomcat/conf/Catalina/localhost/dma.xml
10 Nov 2014 09:28:36,195 INFO  DMABaselineFile - DMA baseline file is
'/opt/hp/dma/server/db_sql/dma-oracle/dma_baseline.sql'
10 Nov 2014 09:28:36,289 INFO  DMABaselineFile - DMA Download Software
file is '/opt/hp/dma/server/db_sql/dma-oracle/dma_download_software.xml'
10 Nov 2014 09:28:36,565 INFO  DMADownloadSoftwareUpgrader - Download
Software successfully saved during baseline
10 Nov 2014 09:28:36,565 INFO  DMADownloadSoftwareUpgrader - Updated
Download Software step
10 Nov 2014 09:28:36,795 INFO  DMABaselineData - Keys have been
initialized.
10 Nov 2014 09:28:36,819 INFO  DMABaselineData - DMA baselining has
completed.
Downloading wlclient_rmi_addon.jar from saserver.mycompany.com
% Total    % Received % Xferd  Average Speed   Time    Time     Time
Current
Dload  Upload   Total   Spent    Left  Speed
^M  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:-
-:--     0^M100 75282  100 75282    0     0  1498k      0 --:--:-- --:-
-:-- --:--:-- 1598k
Placing wlclient_rmi_addon.jar in
/opt/hp/dma/server/tomcat/webapps/dma/WEB-INF/lib/
Downloading wlclient.jar from saserver.mycompany.com
% Total    % Received % Xferd  Average Speed   Time    Time     Time
Current
Dload  Upload   Total   Spent    Left  Speed
^M  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:-
-:--     0^M100  508k  100  508k    0     0  21.6M      0 --:--:-- --:-
-:-- --:--:-- 23.6M
Placing wlclient.jar in /opt/hp/dma/server/tomcat/webapps/dma/WEB-
INF/lib/
Downloading twistclient.jar from saserver.mycompany.com
% Total    % Received % Xferd  Average Speed   Time    Time     Time
Current
Dload  Upload   Total   Spent    Left  Speed
^M  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:-
```

```
-:--     0^M 29 36.7M   29 10.7M    0     0  36.0M      0  0:00:01 --:-
-:--  0:00:01 36.2M^M100 36.7M  100 36.7M    0     0
68.6M      0 --:--:-- --:--:-- --:--:-- 68.8M
Placing twistclient.jar in /opt/hp/dma/server/tomcat/webapps/dma/WEB-
INF/lib/
Preparing...
##################################################
package dma-sa-client-10.50-0.x86_64 is already installed
<<<< Setting up dma.xml  >>>>
<<<< Going to start/restart DMA service now! >>>>
Removing old working dir of /var/opt/hp/dma/work/dma
Starting HPE DMA Server
Using CATALINA_BASE:   /opt/hp/dma/server/tomcat
Using CATALINA_HOME:   /opt/hp/dma/server/tomcat
Using CATALINA_TMPDIR: /opt/hp/dma/server/tomcat/temp
Using JRE_HOME:        /opt/hp/dma/server/jre
Using CLASSPATH:
/opt/hp/dma/server/tomcat/bin/bootstrap.jar:/opt/hp/dma/server/tomcat/bi
n/tomcat-juli.jar
Tomcat started.
########################################################################
DMA install is complete. Please launch
https://dmaserver.mycompany.com:8443/dma
DMA Installation logs are kept at: /var/log/dma_install_logs
DMA Application logs are available at: /var/log/hp/dma
Installation completed in 27 seconds
########################################################################
```

Verifying the automated installation of HPE DMA

Perform the following steps to verify if the automated installation is complete:

1. Verify that you received a "DMA install is complete" message. If you received a "DMA install was unsuccessful" message, review the installation script log file that is found at `/var/log/dma_install_logs`.
2. Open `https://<dma_server>:8443/dma` in a web browser—to verify that the HPE DMA web interface is available—and then close.
3. Integrate HPE DMA with HP Server Automation. Follow the instructions in the Integrating HPE DMA with HP SA section in the Installation Guide"Integrate HPE DMA with HPE SA" on page 38
4. Configure SSL. Follow the instructions in the Configure SSL on the HPE DMA Server section in the Installation Guide
5. Start the HPE DMA Server. Follow the instructions in the Starting HPE DMA section in the Installation Guide.
6. Set up HPE DMA. Follow the instructions in the Setting up HPE DMA section in the Administration Guide.

You now have HPE DMA up and running.

Silent uninstall

The automated HPE DMA uninstallation allows you to uninstall HPE DMA that was installed using the automated installation. If HPE DMA was installed manually, you need to uninstall HPE DMA by following the instructions in the Uninstalling HPE DMA section in the Installation Guide.

You can choose to uninstall HPE DMA's Oracle database based on an input parameter.

> **Note:** Before you begin to install HPE DMA, read "Requirements" and "What the process does"to ensure that it is appropriate for your environment.

Requirements

Before you use the automated HPE DMA removal process, ensure that you meet the following requirements:

- You have downloaded and extracted the HPE DMA 10.50.000.000 installation folder.
- You have credentials to log in as root on the server where you run the script.
- You have the Oracle user and password for the HPE DMA database.
- You have the password for the Oracle root user, in case the HPE DMA database is not on the HPE DMA Server.

What the process does

The automated HPE DMA uninstallation process (`dma_remove.sh`) does the following:

Automation step	Replaces manual installation section
Removes the Oracle tablespaces and datafiles that HPE DMA created. Runs the RPM commands to uninstall the HPE DMA Server and the SA Client. Deletes the HPE DMA folders. **Note:** The script does not remove the user because Oracle is still active,the Oracle DBA can remove the user after the script has completed. The script does not restart the database so it will not interfere with other users.	"Uninstall"

Performing the automated uninstallation of HPE DMA

Perform the following steps as root user:

1. Set up the uninstallation parameters:

   a. Execute the following command to determine which RPM packages are installed:

   ```
   $ rpm -qa | grep dma
   ```

   b. Open the `remove-options.txt` file in a text editor. For example:

   ```
   $ vi <local_dir>/remove-options.txt
   ```

c. Specify values for the parameters:

Parameter	Example	Description
dmapack	`dma-server-10.50.000.000-0.x86_64.rpm`	The HPE DMA Server RPM filename for the current version of HPE DMA (do not include `.rpm`).
saclient	`dma-sa-client-10.50.000.000-0.x86_64.rpm`	The HPE DMASA Client RPM filename for the current version of HPE DMA (do not include `.rpm`).
sa	`saserver.mycompany.com`	HP Server Automation host address.
sid	`orcl`	Oracle SID of the HPE DMA database. If SA and HPE DMA share the same database, specify the SA SID.
dma_db_host	`dmaserver.mycompany.com`	The host address where the HPE DMAOracle database is located. The value may either be the HPE DMA Server host address or the SA Server host address.
dbuser	`dma`	HPE DMA database username. Only needed if remove_dma_db is set to true.
dbpass	*<dma_password>*	HPE DMA database password. Only needed if remove_dma_db is set to true.
remove_dma_db	false	Determines whether the HPE DMA tables and data will be completely removed. Valid values are true and false. **Tip:** Leaving the HPE DMA tables and data intact can be useful in a development environment.

d. Save the changes you made to the `remove-options.txt` file.

2. Run the script that automates the process to uninstall HPE DMA:

   a. Start the script in the installation folder:

      ```
      $ cd /<mnt_dir>/DMA_10.50.000.000_Install
      ```

      ```
      $ ./dma_remove.sh <local_dir>/remove-options.txt
      ```

      The script displays log information while running.

      When prompted to continue the uninstallation script, respond `yes`.

      If the HPE DMA Oracle database is not on the HPE DMA Server, specify the password for the Oracle root user when prompted..

   b. Example execution:

```
########################################################################
NOTE : THIS WILL UNINSTALL DMA
########################################################################
Do you still want to continue with the uninstallation?(yes/no) <<<<
Loading the options file..  >>>>
###################################################################
Launching DMA UNInstallation..
+DMA Host              = IWFVM02090.hpswlabs.adapps.hp.com
+DMA Pack              = dma-server-10.50-0.x86_64
+SA Host               = IWFVM00597.hpswlabs.adapps.hp.com
+SID                   = orcl
+DB User               = dma
+Data Tablespace Name  = HPDMA_DATA
+Indx Tablespace Name  = HPDMA_INDX
###################################################################
<<<< The DMA DB will be removed now. >>>>
Dropping user
Dropping Tablespace
User and Tablespaces removed sucessfully
<<<< Stopping DMA and removing it now..  >>>>
Stopping HPE DMA Server
Using CATALINA_BASE:   /opt/hp/dma/server/tomcat
Using CATALINA_HOME:   /opt/hp/dma/server/tomcat
Using CATALINA_TMPDIR: /opt/hp/dma/server/tomcat/temp
Using JRE_HOME:        /opt/hp/dma/server/jre
Using CLASSPATH:
/opt/hp/dma/server/tomcat/bin/bootstrap.jar:/opt/hp/dma/server/tomcat/bi
n/tomcat-juli.jar
waiting for processes to exit
waiting for processes to exitShutting down DMA service before
uninstalling DMA.
HPE DMA Server is not running
The Uninstall of this product does not remove files and directories
```

```
created by DMA.
To clean your system of DMA please remove the following folders
/opt/hp/dma/server,
/var/opt/hp/dma/work/dma, and /var/log/hp/dma.
---------------------------------------------
DMA server has been removed successfully..
DMA logs are at: /var/log/dma_install_logs
-------------------- -----------------------
```

Verifying the automated uninstallation of HPE DMA

Perform the following steps to verify if the automated unistallation is complete:

1. Verify that you received the "DMA server has been removed successfully.." message. If not, review the removal script log file that is found at `/var/log/dma_install_logs`.
2. Verify that you cannot open `https://<dma_server>:8443/dma` in a web browser.
3. Follow the instructions to remove HPE DMA from the managed servers:
   - "Uninstall"
   - "Uninstalling HPE DMA from the Managed Servers" on page 67
4. If the script removed the HPE DMA database, your Oracle DBA can now delete the HPE DMA user.
5. Your SA administrator can now clean up the HPE DMA integrations with SA.

You have successfully uninstalled HPE DMA!

Uninstall

This section provides information on how to uninstall HPE DMA from the HPE DMA Server and the HPE DMA managed servers.

> **Note:** An automated script is available that can speed up the uninstallation process if HPE DMA was installed with the automated install process. For information about this script, see "Silent uninstall".

Uninstalling HPE DMA from the HPE DMA Server and SA Client

Perform the following steps to uninstall HPE DMA from the HPE DMA Server:

1. As the root user, stop the HPE DMA service, for example:

   ```
   $ service dma stop
   ```

2. Run the following query to verify the HPE DMA RPM installation:

   ```
   $ rpm -qa | grep dma
   ```

   You can locate the current version of HPE DMA in the results:

   dma-server-*<DMA_Version>*-0.x86_64
   dma-sa-client-*<DMA_Version>*-0.x86_64

   For example: If your current version of HPE DMA is 10.50.000.000, your results will look like this:

   ```
   dma-server-10.50.000.000-0.x86_64.rpm
   dma-sa-client-10.50.000.000-0.x86_64.rpm
   ```

3. Run the following commands, as the root user, to uninstall HPE DMA:

   $ rpm -e dma-server-*<DMA_Version>*-0.x86_64

   $ rpm -e dma-sa-client-*<DMA_Version>*-0.x86_64

   Here, replace <*DMA_Version*> with the HPE DMA version from your query.

4. After uninstalling HPE DMA, to finish cleaning up remove the following folders:

   ```
   /opt/hp/dma/server

   /var/opt/hp/dma/work/dma

   /var/log/hp/dma
   ```

Uninstalling HPE DMA from the Managed Servers

To uninstall HPE DMA from the managed servers (the HPE DMA Client), perform the following steps:

1. In SA, detach the managed server from the DMA Client Files policy and then remediate the target.
2. To completely remove HPE DMA from the target execute the appropriate command:
   - For Linux: `rm -rf /opt/hp/dma/client/`
   - For Windows: `rmdir /S /Q %SYSTEMDRIVE%\Progra~1\HP\DMA\Client`

> **Note:** To completely uninstall HPE DMA, work with your Oracle DBA/PostgreSQL to uninstall the HPE DMA schema and tablespaces from Oracle Database/PostgreSQL and work with your SA administrator to remove the HPE DMA integrations with SA.

Unistalling

Choose your unistallation method:

"Uninstall" on page 65

"Silent uninstall" on page 61

Uninstalling DMA from Managed Servers

To uninstall HPE DMA from the managed servers (the HPE DMA Client):

1. In SA, detach the managed server from the DMA Client Files policy and then remediate the target.
2. To completely remove HPE DMA from the target execute the appropriate command:
   - For Linux: `rm -rf /opt/hp/dma/client/`
   - For Windows: `rmdir /S /Q %SYSTEMDRIVE%\Progra~1\HP\DMA\Client`

> **Note:** To completely uninstall HPE DMA, work with your Oracle DBA/PostgreSQL to uninstall the HPE DMA schema and tablespaces from Oracle Database/PostgreSQL and work with your SA administrator to remove the HPE DMA integrations with SA.

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