



# Configure High Availability and Disaster Recovery Solutions with HP DMA

## HP Database and Middleware Automation

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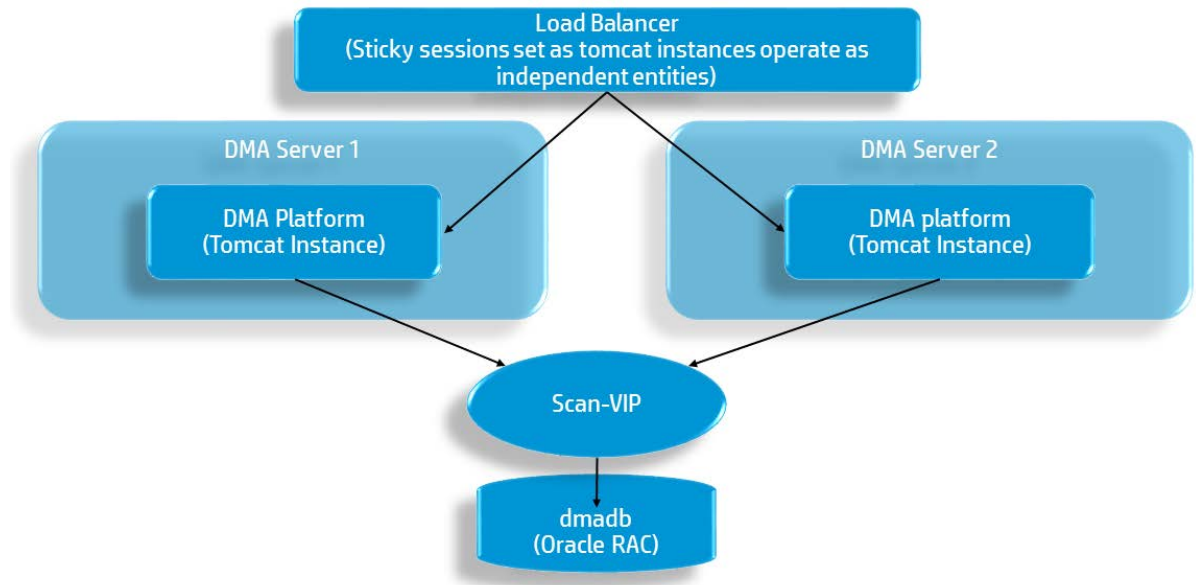
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## Purpose

This paper provides examples of how to configure High Availability (HA) and Disaster Recover (DR) solutions with HP Database and Middleware Automation (HP DMA).

## HP DMA HA Standard Architecture Solution

This example is for HA architecture without DR:



## How to run the Baseline command on Oracle RAC

To set up the Primary active environment, use these examples to modify the HP DMA installation Baseline command:<sup>1</sup>

1. Change your directory:

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

2. Run the Baseline command on the Primary node of Oracle RAC (as one line), for example:

```
sh dmaBaselineData.sh -cc -c -dbu dma -dbpw dma -dbp 1521 -dbs dmadb
-dbh dma-rac1.company.com -dmah dma-rac1.company.com
-jdbccs jdbc:oracle:thin:@scan-vip.company.com:1522/dmadb.servicename
```

3. Run the Baseline command on all other nodes of Oracle RAC cluster (as one line), for example:

```
sh dmaBaselineData.sh -cc -dbu dma -dbpw dma -dbp 1521 -dbs dmadb
-dbh dma-rac(2/3/4...).company.com -dmah dma-rac(2/3/4...).company.com
-jdbccs jdbc:oracle:thin:@scan-vip.company.com:1522/dmadb.servicename
```

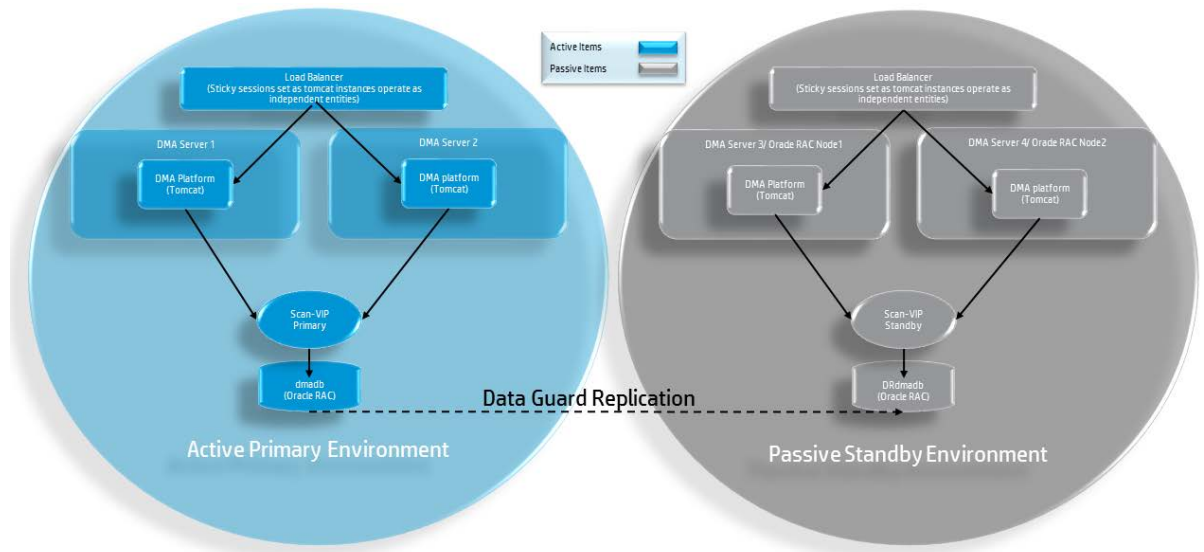
If desired, continue by following the instructions in either of these sections:

- [HP DMA HA and DR Architecture Solution \(Active-Passive\)](#)
- [HP DMA HA and DR Architecture Solution \(Active-Active Tomcat and Active-Passive Database\)](#)

<sup>1</sup> How to use the Baseline command is described in "Install the HP DMA Server" in the *HP DMA Installation Guide*. To obtain the guide and to see the full list of Baseline options, see [Additional Resources](#).

## HP DMA HA and DR Architecture Solution (Active-Passive)

This example is for HA architecture with DR (active-passive).



### How to set up the HP DMA Server on the Standby Environment

After you have set up your primary active environment (see [HP DMA HA Standard Architecture Solution](#)), perform these steps in the Passive Standby Environment (right side of the diagram) to set up the Active-Passive architecture:

**Note:** Do this after you run Baseline commands to set up your Primary active environment. You only need to modify the `dma.xml` files for the Standby environment.<sup>2</sup>

1. Copy the `dma.xml` file from Primary node from Primary environment to the Standby nodes. The file is located here:

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

2. On each node, edit the `webServiceUrl` parameter and the `jdbc/dma` resource in the `dma.xml` file to match the Standby environment, for example:

```
<Parameter name="com.hp.dma.core.webServiceUrl"
value="https://dmaserver(3/4):8443/dma" />
<Resource name="jdbc/dma" auth="container" type="javax.sql.DataSource"
maxActive="20" maxIdle="20" maxWait="20000" username="dma"
password="{AES}80c54c58279cb66cb879d432cd33be4fc53bc95a30d510dffdb55fd1
21be4d44" driverClassName="oracle.jdbc.OracleDriver"
url="jdbc:oracle:thin:@scan-standby-
vip.company.com:1522/DRdmadb.servicename"
factory="com.hp.dma.util.DmaTomcatContextHandler" />
```

### How to handle a Failover for an Active Standby Environment

In the event of a failover, perform the following:

1. Cancel the workflows that were running when the failure occurred by running the following script on any of the Standby HP DMA servers:

```
/opt/hp/dma/server/tomcat/webapps/dma/WEB-INF/cancelWorkflow.sh
```

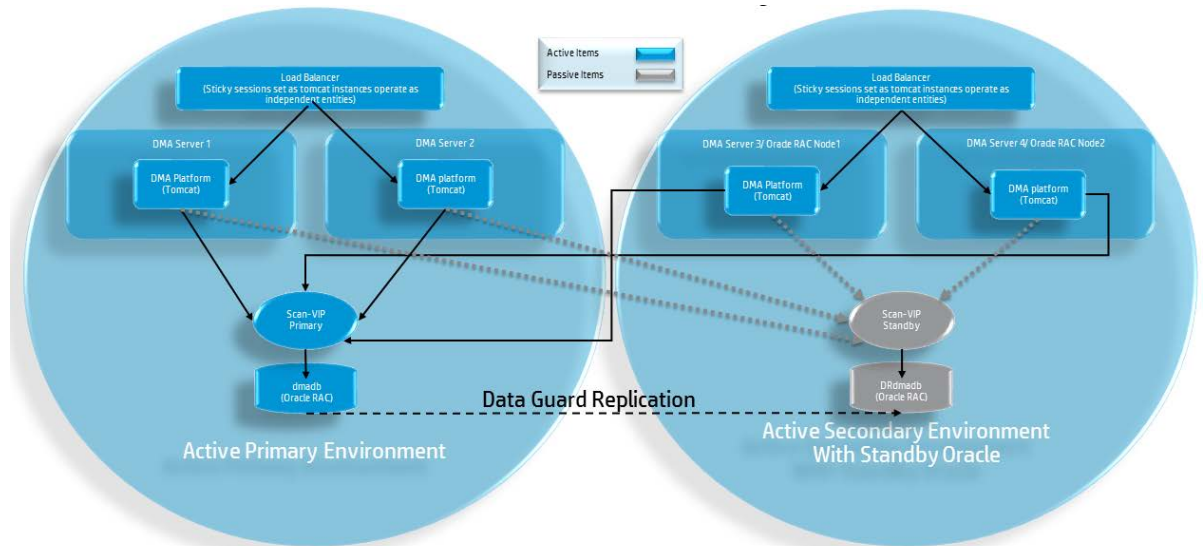
<sup>2</sup> For more information on the `dma.xml` file, see [Additional Resources](#).

**Note:** The `cancelWorkflow` script will identify the workflows that need to be cancelled.

2. Clean up any targets that may have had workflows running against them.
3. Restart the HP DMA Service by running the following command on all Standby HP DMA Servers:  
`service dma restart`
4. Change the SA slice or gateway of the Standby environment:
  - A. Log in to the HP DMA user interface
  - B. Navigate to **Setup > Connector**
  - C. Specify the required connector information

## HP DMA HA and DR Architecture Solution (Active-Active Tomcat and Active-Passive Database)

This example is for HA architecture with DR (Active-Active Tomcat and Active-Passive database).



### How to set up the HP DMA Server on the Standby Environment

After you have set up your primary active environment (see [HP DMA HA Standard Architecture Solution](#)), perform these steps in the Active Secondary Environment with Standby Oracle (right side of the diagram) to set up the Active-Active Tomcat and Active-Passive database architecture:

**Note:** Do this after you run Baseline commands to set up your Primary active environment. You only need to modify the `dma.xml` files.<sup>3</sup>

1. Copy the `dma.xml` file from Primary node from Primary environment to the Standby nodes. The file is located here:

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

<sup>3</sup> For more information on the `dma.xml` file, see [Additional Resources](#).

2. On each node, edit the `webServiceUrl` parameter in the `dma.xml` file to match the Standby environment, for example:

```
<Parameter name="com.hp.dma.core.webServiceUrl"
value="https://dmaserver(3/4):8443/dma" />
```

## How to handle a Failover when the Primary Database is Lost

If the primary DB is lost, perform a Failover Operations Active-Active:

1. Execute the Oracle Failover operation to change Standby to Primary Database.
2. Cancel the workflows that were running when the failure occurred by running the following script on any of the Standby HP DMA servers:

```
/opt/hp/dma/server/tomcat/webapps/dma/WEB-INF/cancelWorkflow.sh
```

---

**Note:** The `cancelWorkflow` script will identify the workflows that need to be cancelled.

---

3. Clean up any targets that had workflows running against them.
4. On all HP DMA Servers, edit the `jdbc/dma` resource in the `dma.xml` file, for example:

```
<Resource name="jdbc/dma" auth="container" type="javax.sql.DataSource"
maxActive="20" maxIdle="20" maxWait="20000" username="dma"
password="{AES}80c54c58279cb66cb879d432cd33be4fc53bc95a30d510dffdb55fd1
21be4d44" driverClassName="oracle.jdbc.OracleDriver"
url="jdbc:oracle:thin:@scan-standby-
vip.company.com:1522/DRdmadb.servicename"
factory="com.hp.dma.util.DmaTomcatContextHandler" />
```

5. Restart the HP DMA Service by running the following command on all HP DMA Servers:

```
service dma restart
```

## Additional Resources

### HP DMA Documentation

The *HP DMA Installation Guide* contains complete instructions for installing HP DMA and additional information about the Baseline command and the `dma.xml` file. It is available on the HP Software Product Manuals web site: <http://h20230.www2.hp.com/selfsolve/manuals>

### HP 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.
-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 HP DMA server.  <b>Note:</b> 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.  <b>Caution:</b> Do not do this unless instructed to by HP Support.

**To learn more about HP Database and Middleware Automation visit**  
**[hp.com/go/dma](http://hp.com/go/dma)**

