

HP Database and Middleware Automation

For Red Hat Enterprise Linux

Software Version: 10.10

Troubleshooting Guide

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You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

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

Document Changes

Chapter	Version	Changes
APX Tool Configuration Error	10.10	Added new section of troubleshooting information.

Support

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Introduction

This guide provides information that will help you troubleshoot problems that can arise during the installation and initial configuration of HP Database and Middleware Automation (HP DMA) version 10.10.

This guide also provides information about various [Special Configurations](#) that may be pertinent to your environment.

Audience

This guide is intended for HP DMA administrators who are responsible for installing or upgrading HP DMA.

Related Documents

This document refers to the *HP DMA Installation Guide*.

The following HP Server Automation (SA) documents may also be helpful:

- *HP SA Administration Guide*
- *HP SA Overview and Architecture Guide*
- *HP SA Single-Host Installation Guide*
- *HP SA Simple/Advanced Installation Guide*

All HP DMA and SA documentation is available on the HP Software Product Manuals web site (see [HP Software Documentation](#) on page 47).

Chapter 1

Troubleshooting

Each troubleshooting topic shows you how to diagnose and resolve a particular problem. The topics are grouped according to where in the HP DMA installation process each problem can occur. Pertinent log file snippets are included.

In the following table, the Installation Step column indicates where in the HP DMA installation process each type of problem becomes apparent. The Probable Cause column contains links to topics that show you how to diagnose and resolve a particular problem.

Problem	Installation Step	Probable Cause
Common Baseline Errors	Install the HP DMA Server	Oracle Database User Was Not Created
		Oracle Listener Is Not Running
		Oracle Database Is Not Running
		Error in the Oracle Server or Oracle SID Name
		HP DMA Client Fails to Contact HP DMA Server
		Did Not Run the Baseline Command as Root User
APX Tool Configuration Error	Import the HP DMA APX	Not Pointing to Correct APX Tool Directory
DMA Client Files Policy Error	Install the DMA Client Files Policy	Microsoft Patch Database Is Out of Date
Connector Errors	Configure the Connector	The SA Core Server Is Down
		The JAR Files Are Not at the Required Locations
		Connector Errors
Login Errors	Start HP DMA	The SA Core Server Is Down
		The SA Group Does Not have Login Access
		HP DMA Started Before SA was Running

Problem	Installation Step	Probable Cause
No Servers Available to Add to HP DMA	Add Available Targets	The HP DMA Connector User Does Not Have Required Permissions
		The HP DMA Connector User Cannot Find Any Servers
		The Servers Are Already in Another HP DMA Organization
		The HP DMA User Does Not Have Correct Permissions
		The DMA Client Files Policy Is Not Attached and Remediated

Common Baseline Errors

Most errors that occur when running the `dmaBaselineData` command can be attributed to:

- Not setting up Oracle Database as specified in "Create and Configure the Oracle Database" in the *HP DMA Installation Guide*.
- Not specifying the correct values in the `dmaBaselineData` command.
- Not specifying the correct HP DMA server host name in the `dmaBaselineData` command.
- Not running the `dmaBaselineData` command with the correct permissions (root).

The following topics will help you identify and resolve baseline errors.

For additional information, see "Install the HP DMA Server" in the *HP DMA Installation Guide*.

Oracle Database User Was Not Created

To verify that your HP DMA Oracle Database user was created:

1. Log in to Oracle Database:

```
sqlplus / as sysdba
```

2. Run the following query:

```
select username from dba_users where username like '%DMA%'
```

This command will list any usernames where DMA is part of the name.

If your HP DMA Oracle Database user name is not on the list, have your Oracle Database administrator (DBA) follow the instructions in "Create and Configure the Oracle Database" in the *HP DMA Installation Guide* to add the HP DMA Oracle Database user.

Oracle Listener Is Not Running

To verify that the Oracle Listener is running:

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 will be similar to this:

```
[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 will be similar to this:

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

If the Oracle Listener is not running, have your Oracle DBA start it.

Oracle Database Is Not Running

To verify that Oracle Database is running:

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

```
su - oracle  
ps -ef | grep pmon
```

2. If Oracle Database is running, the output of the `ps` command will be similar to this:

```
[oracle@oraserver ~]$ ps -ef | grep pmon  
oracle      4018      1  0 10:55 ?          00:00:00 ora_pmon_dmademo  
oracle      4109  3956  0 10:55 pts/1      00:00:00 grep pmon
```

If Oracle Database is not running, the output of the `ps` command will be similar to this:

```
[oracle@oraserver ~]$ ps -ef | grep pmon  
oracle      3982  3956  0 10:54 pts/1      00:00:00 grep pmon
```

If Oracle Database is not running, have your Oracle DBA start it.

Error in the Oracle Server or Oracle SID Name

If you specify an incorrect host name for the Oracle Database system, an incorrect Oracle SID name, or any other incorrect database connection parameters in the `dmaBaselineData` command, the command will fail.

For example:

```
$ sh ./dmaBaselineData.sh --create-tables
--create-context --database-username dma --database-password dma
--jdbc-connection-string jdbc:oracle:thin:@badorcl.mycompany.com:1521:
badsid
--dma-hostname dma.mycompany.com
```

This incorrect `dmaBaselineData` command will produce error messages similar to the following:

```
30 Jan 2005 11:28:45,901 INFO  DMABaselineData - Saved context fil
e: /opt/hp/dma/server/tomcat/webapps/dma/WEB-INF/./WEB-INF/././././
./conf/Catalina/localhost/dma.xml
30 Jan 2005 11:28:45,903 INFO  DMABaselineData - Context file has b
een created.
30 Jan 2005 11:28:48,016 INFO  DMABaselineData - Using specified co
ntext for settings (command line overrides ignored) file: /opt/hp/d
ma/server/tomcat/webapps/dma/WEB-INF/./WEB-INF/./././././conf/Catal
ina/localhost/dma.xml
30 Jan 2005 11:28:48,834 ERROR DMABaselineData - Initial SessionFac
tory creation failed.
30 Jan 2005 11:28:48,834 ERROR DMABaselineData - Unable to establis
h connection with database using provided connection info.
java.lang.RuntimeException: Connection cannot be null when 'hiberna
te.dialect' not set
at com.hp.dma.cmdline.DMABaselineData.init(DMABaselineData.java:17
1)
at com.hp.dma.cmdline.DMABaselineData.main(DMABaselineData.java:84
8)
...
```

To solve this problem, specify the correct names for the `dmaBaselineData` command.

HP DMA Client Fails to Contact HP DMA Server

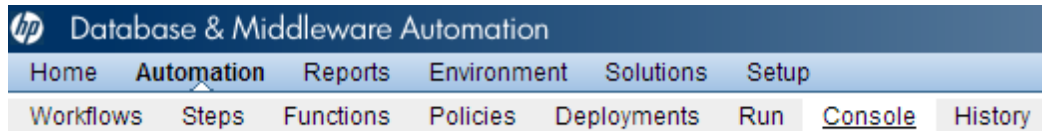
If the target server cannot communicate with the HP DMA server, a workflow will appear to be running when it really is not. There are several possible causes of this problem:

- The HP DMA server name is not resolvable on the target server.
- The HP DMA server is running a different port than the one specified in the `dma.xml` configuration file.

If the HP DMA server host name was not specified correctly when the `dmaBaselineData.sh` command was executed,

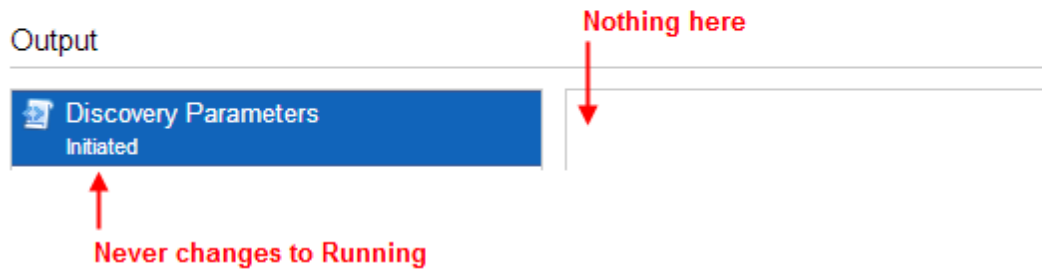
Symptoms

If this happens, the Console page looks like this—note that there are no messages in the step output box when you select the first step, and its status never changes from Initiated to Running.



Console

Status	Workflow	Started	Run by	Server
RUNNING	Discovery	28 Mar 13:20	admin	target1.mycompany.com



The HP DMA log file on the target server will show that the target server cannot communicate with the HP DMA server:

```
2013-03-28 17:39:01,121 - INFO: Logging initiated for execution 'ff8080813db35c1e013db35e30e60000'  
2013-03-28 17:39:01,312 - ERROR: Error with HTTP POST: "Failed to
```

```
reach server: error(111, 'Connection refused')"  
2013-03-28 17:40:01,328 - ERROR: Error with HTTP POST: "Failed to r  
each server: error(111, 'Connection refused')"  
2013-03-28 17:41:01,345 - ERROR: Error with HTTP POST: "Failed to r  
each server: error(111, 'Connection refused')"
```

This log file is located here on the target server:

- **UNIX targets:** `/var/tmp/DMA/<execution_id>/execution_id.log`
- **Windows targets:** `%TMPDIR%\dma\<execution-id>\<execution-id>.log`

Note that that `%TMPDIR%` is evaluated based on the user running the workflow. If you log in as a different user, you may not see this file in your `%TMPDIR%`.

Note: You will see Connection Refused error messages (as shown above) if the specified `dma-hostname` is a valid and resolvable host name. If it is not a resolvable host name, you will see error messages like this one:

```
2013-03-28 17:48:07,026 - ERROR: Error with HTTP POST: "Failed to  
reach server: gaierror(20001, 'getaddrinfo failed')"
```

Tip: This information is also displayed on the Connector Errors tab on the History page.

Solution

You can solve this problem by modifying the `webServiceUrl` parameter in the following file:

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

Perform these steps on the HP DMA server:

1. Stop the DMA service.

```
$ service dma stop
```
2. In the `/opt/hp/dma/server/tomcat/conf/Catalina/localhost/dma.xml` file, check the highlighted value of `webServiceUrl` for the following:
 - The host name is correct
 - The host name is not `localhost`
 - The host name is fully qualified
 - The host name is spelled correctly

```
<?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://dma1.mycompany.com:8443/dma"/>
<Resource auth="container"
  driverClassName="oracle.jdbc.OracleDriver"
  factory="com.hp.dma.util.DmaTomcatContextHandler"
  maxActive="20" maxIdle="5" maxWait="2000" name="jdbc/dma"
  password="{AES}54dd1d97a915c4c3c8d0db986a1218db62008816fb924"
  type="javax.sql.DataSource"
  url="jdbc:oracle:thin:@dma1.mycompany.com:1521:PAI"
  username="dma"/>
</Context>
```

3. Start the DMA service.

```
$ service dma start
```

Note: You must also terminate the HP DMA Client process on the target server (see [Workflow Execution Step on Target](#) on page 52).

Did Not Run the Baseline Command as Root User

You must run the `dmaBaselineData` command as root. If you run `dmaBaselineData` as another user, it will fail.

For example:

```
$ sh ./dmaBaselineData.sh --create-tables
--create-context --database-username dma --database-password dma
--jdbc-connection-string jdbc:oracle:thin:@oraserver.mycompany.com:152
1:dmademo
--dma-hostname dmasever.mycompany.com
```

If you run this correct `dmaBaselineData` command as a user other than root, you will see error messages similar to the following:

```
log4j:ERROR setFile(null,true) call failed.
java.io.FileNotFoundException: /var/log/hp/dma/dma.log (Permission
denied)
    at java.io.FileOutputStream.openAppend(Native Method)
    at java.io.FileOutputStream.<init>(Unknown Source)
    at java.io.FileOutputStream.<init>(Unknown Source)
    at org.apache.log4j.FileAppender.setFile(FileAppender.java:
294)
    at org.apache.log4j.RollingFileAppender.setFile(RollingFile
Appender.java:207)
    at org.apache.log4j.FileAppender.activateOptions(FileAppend
er.java:165)
...
java.io.FileNotFoundException: /opt/hp/dma/server/tomcat/webapps/dm
a/WEB-INF/./WEB-INF/./././././conf/Catalina/localhost/dma.xml (Perm
ission denied)
    at java.io.FileOutputStream.open(Native Method)
    at java.io.FileOutputStream.<init>(Unknown Source)
    at java.io.FileOutputStream.<init>(Unknown Source)
    at com.hp.dma.cmdline.DMABaselineData.saveXMLFile(DMABaseli
neData.java:713)
    at com.hp.dma.cmdline.DMABaselineData.main(DMABaselineData.
java:837)
30 Jan 2005 10:43:43,463 ERROR CmdlineExceptionHandler - Exception
java.lang.Throwable: java.io.FileNotFoundException: /opt/hp/dma/ser
ver/tomcat/webapps/dma/WEB-INF/./WEB-INF/./././././conf/Catalina/lo
calhost/dma.xml (Permission denied)
...
```

To solve this problem, run the `dmaBaselineData` command again as root.

APX Tool Configuration Error

You may receive an error that you do not have a valid APX file or directory when you perform the "Import the HP DMA APX" installation step.

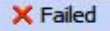
Not Pointing to Correct APX Tool Directory

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

If you have this problem, verify the location of the APX tool and rerun the `apxtool` command (see "Import the HP DMA APX" in the *HP DMA Installation Guide*).

DMA Client Files Policy Error

If you receive a  status when you remediate the DMA Client Files policy on Windows 2012 servers, your Microsoft patch database may be out of date.

Microsoft Patch Database Is Out of Date

It is important to have the latest Windows Patch Utilities on SA Core to support Windows 2012.

Symptoms

If your Windows 2012 servers are successfully managed by SA but failed to have the DMA Client Files policy installed, examine the contents of the Job Status log for Overall Server Status. If they are similar to the following, your Microsoft patch database is out of date.

```
The request to retrieve information from the Agent failed for an
unknown reason, please contact your HP Server Automation
Administrator.Execution error: Traceback (most recent call last):
File ".\base\wayfuncs.py",line 136, in evaluator
File "", line 3058, in ?
...
File ".\nt_hotfix_handler.py", line 539, in installedList
File ".\nt\nt_hotfix_handler.py", line 521, in filterMbsa20ResultBy
InstalledOrRecommended
OpwareError:
...
params: {'handler':'nt_hotfix_handler','results':'AGENT_ERROR_PATC
H_DATABASE_CERTIFICATE_ERROR'}
request: UNKNOWN
tb_change: []
...
```

Solution

Tip: The following steps must be performed by an SA administrator.

You should verify that you are using the current Microsoft links and files. The ones listed here were correct as of the publication of this guide.

Perform the following steps to update the Microsoft Products and install the DMA Client Files policy on Windows 2012 servers:

1. Using the SA Client, navigate to the Administration > Patch Settings > Patch Products page.
2. Update the Windows Update Redistribution Catalog (`wuredist.cab`) with one of the following methods:

- a. Update Products from Vendor:

Click the Update Products from Vendor button, set the URL to <http://update.microsoft.com/redist/wuredist.cab>, and then update.

- b. Update Product List from File:

Download the `wuredist.cab` file manually at <http://update.microsoft.com/redist/wuredist.cab> and then click the Update Product List from File button to update the `wuredist.cab` file that you just downloaded.

3. Update the Security Update Catalog (`wsusscn2.cab`) with one of the following methods:

- a. Update Products from Vendor:

Click the Update Products from Vendor button to update the available products list directly from Microsoft's web site (the default URL).

- b. Update Product List from File:

Download the `wsusscn2.cab` file manually at <http://go.microsoft.com/fwlink/?LinkId=76054> and then click the Update Product List from File button to update the `wsusscn2.cab` file that you just downloaded.

This updates the catalog of available patches.

4. Navigate to the Administration > Patch Settings > Patch Database page.
5. Update the Windows Update Agent standalone installers with one of the following methods:

- a. Import from Vendor:

From the Windows Patch Utilities pane—auto-populated from the Security Update Catalog—select `WindowsUpdateAgent30-x86.exe`, `WindowsUpdateAgent30-x64`, and `WindowsUpdateAgent30-ia64.exe`, and then click Import from Vendor.

- b. Import from File:

Download the installer files manually from:

<http://download.windowsupdate.com/windowsupdate/redist/standalone/7.4.7600.226/WindowsUpdateAgent30-x86.exe>

<http://download.windowsupdate.com/windowsupdate/redirect/standalone/7.4.7600.226/WindowsUpdateAgent30-x64.exe>

<http://download.windowsupdate.com/windowsupdate/redirect/standalone/7.4.7600.226/WindowsUpdateAgent30-ia64.exe>

Click the Import from File button to update the installer files that you just downloaded.

6. Clean up any Windows 2012 servers that indicate that the DMA Client Files policy is installed but are actually in a corrupt state.
7. Install the DMA Client Files policy on the Windows 2012 servers and remediate. For more information, see "Install the DMA Client Files Policy" in the *HP DMA Installation Guide*.

Examine the contents of the Job Status log for the  Succeeded status.

8. To update your repository with the same patching tools, copy the files that were downloaded in steps 3 and 5 to the Windows patching utilities directory on your SA Core (for example: `/root/wintools` or `/root/winutils`).

For more information see the *White Paper: SA 9.14: SA Server Patching Update* and the *SA 9.10 User Guide: Server Patching* that are available on the HP Software Product Manuals web site:

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

Connector Errors

The HP DMA connector enables HP DMA and SA to communicate. Possible errors that can occur when you configure the connector are:

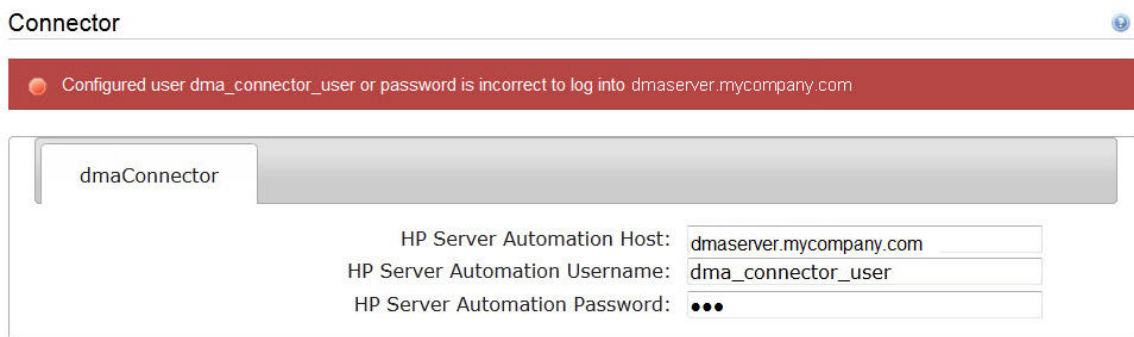
- The SA Core server is down.
- The JAR files are not at the required locations.

The following topics will help you identify and resolve connector errors.

For additional information, see "Configure the Connector" in the *HP DMA Installation Guide*.

The SA Core Server Is Down

You may see the following error when you try to add the connector:



The screenshot shows a window titled "Connector" with a red error banner at the top that reads: "Configured user dma_connector_user or password is incorrect to log into dmaserver.mycompany.com". Below the banner is a tab labeled "dmaConnector". Underneath the tab are three input fields: "HP Server Automation Host:" with the value "dmaserver.mycompany.com", "HP Server Automation Username:" with the value "dma_connector_user", and "HP Server Automation Password:" with masked characters "●●●".

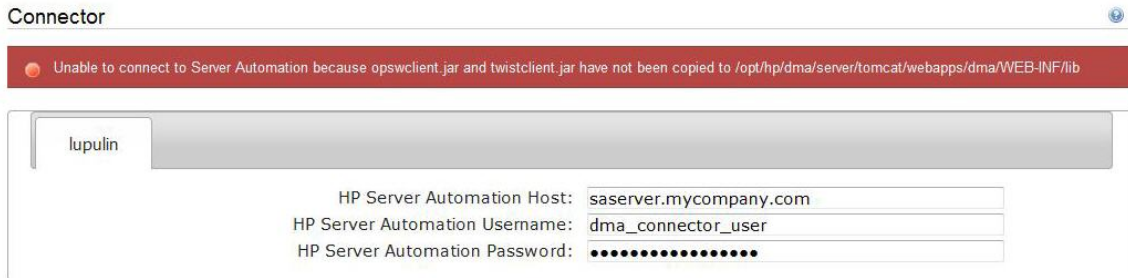
If you experience this error, examine the contents of the `/var/log/hp/dma/dma.log` file. If they are similar to the following, your SA server is down:

```
...
2013-03-14 08:46:47,720 INFO [main] SAConnector$StartExceptionHandler.handle:962
Can't connect to Host saserver.mycompany.com on port 443
2013-03-14 08:46:47,723 INFO [main] BaseExceptionHandler.makeConnectorException:174
Can't connect to Host 'saserver.mycompany.com' on port 443. Ensure HP Server Automation is currently running on 'saserver.mycompany.com' and firewall does not block access to port 443.
org.omg.CORBA.COMM_FAILURE: vmcid: SUN minor code: 201 completed: No
at com.sun.corba.se.impl.logging.ORBUtilSystemException.connectFailure(ORBUtilSystemException.java:2200)
...
```

If your SA server is down, have your SA administrator fix the problem.

The JAR Files Are Not at the Required Locations

You may receive the following message when you try to add the connector:



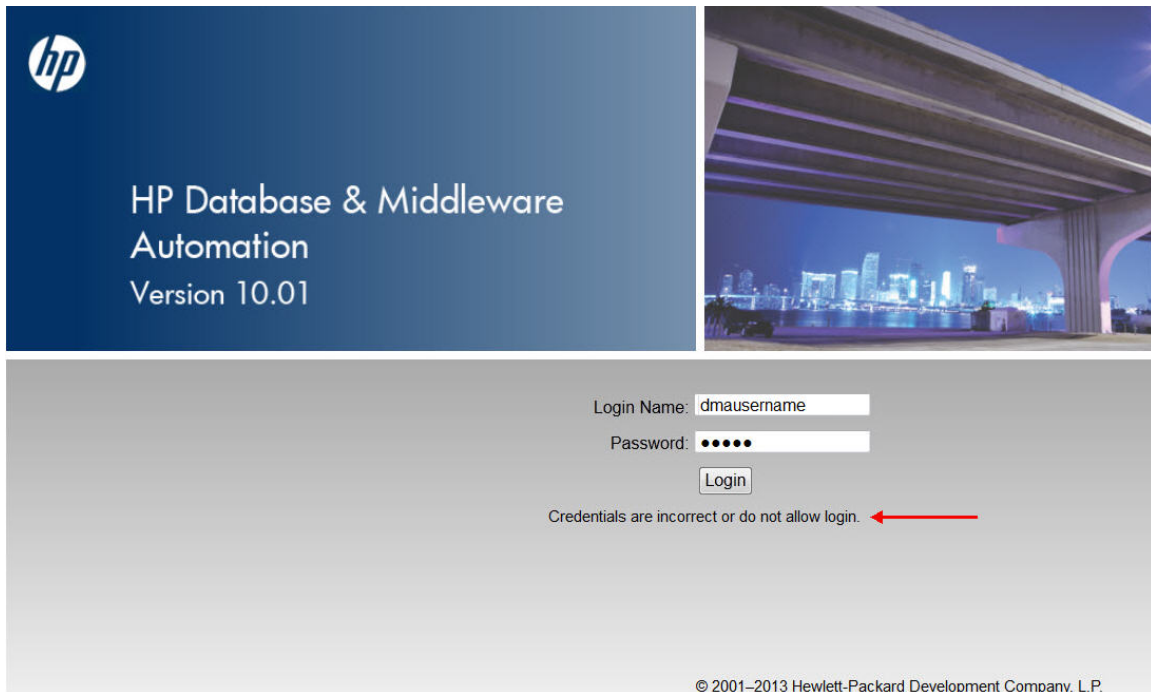
If you receive this error message, examine the contents of the `/var/log/hp/dma/dma.log` file. If the file contents are similar to the following, the `opswclient.jar` and `twistclient.jar` files are not at the required locations:

```
2005-01-30 16:37:54,626 INFO [main] PersistenceService:137 - Setting oracle.net.tns.admin
2005-01-30 16:37:57,037 INFO [main] WorkflowStarter:107 - abortIfNotStarted = true
2005-01-30 16:37:57,489 ERROR [main] StartupListener:114 - Unable to connect to Server Automation because opswclient.jar and twistclient.jar have not been copied to /opt/hp/dma/server/tomcat/webapps/dma/WEB-INF/lib
2005-01-30 16:37:57,489 INFO [main] StartupListener:115 - Failure: java.lang.NoClassDefFoundError: com/opsware/client/TokenFinder
...
2005-01-30 16:37:57,491 ERROR [main] StartupListener:49 - Exception on startup
java.lang.RuntimeException: Unable to start DMA due to Connector failure
```

To fix this problem, run the script command to copy the required JAR files to the correct locations as described in "Install the HP DMA Server" in the *HP DMA Installation Guide*.

Login Errors

If you are unable to log in to HP DMA, you will see the following message:



Assuming that you have a valid username and password, the following situations may cause this problem:

- The SA server is down.
- Your role (SA group) does not have Login Access capability.
- HP DMA started before SA was running.

Use the following information to help you identify and resolve the problem.

The SA Core Server Is Down

If your login fails, examine the contents of the `/var/log/hp/dma/dma.log` file. If they are similar to the following, the SA server is probably down:

```
2005-01-30 17:25:19,182 INFO [http-8443-1] SAConnector:176 - SA Exception transformed into
com.hp.dma.conn.ConnectorException: Error calling HP Server Automation Twister API on
dmaserver.mycompany.com. HP Server Automation may be down or core unreachable.

...

2005-01-30 17:25:19,186 INFO [http-8443-1] LoginAction:158 - User dmausername failed to log in
```

If your SA server is down, have your SA administrator start it.

The SA Group Does Not have Login Access

If your login fails, examine the contents of the `/var/log/hp/dma/dma.log` file. If they are similar to the following, none of the user's roles (SA groups) have Login Access capability:

```
...

2013-03-21 15:58:48,145 INFO [http-8443-6] LoginAction:136 - User joe_user is valid in
connector ff8080813d69ac23013d69ac475a0000 but has no role allowing login
2013-03-21 15:58:48,146 INFO [http-8443-6] LoginAction:158 - User joe_user failed to log in

...
```

If an HP DMA user's role (SA Group) does not have Login Access capability, add that user to a role (SA group) that does have Login Access capability – or register a different role, and grant that role Login Access capability.

See "Set Up the SA Groups and Users" in the *HP DMA Installation Guide* for more information.

HP DMA Started Before SA was Running

If all of the following conditions are true, and you still see the "Credentials are incorrect or do not allow login" error message, it is possible that HP DMA started running before SA was running:

- You are certain that your credentials are correct.
- You are certain that at least one of your HP DMA roles (SA groups) has Login Access capability.
- SA is now running.

The solution to this problem is to simply stop and restart HP DMA:

1. Stop the DMA service.

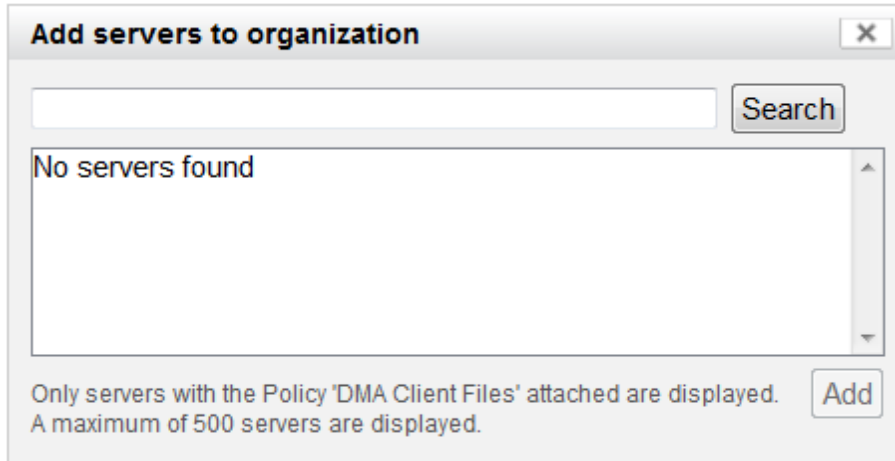
```
$ service dma stop
```

2. Start the DMA service.

```
$ service dma start
```

No Servers Available to Add to HP DMA

If no servers are available in the "Add Available Targets" installation step, you will see the following error when you try to add servers to an organization:



There are several situations that may cause this problem:

- The HP DMA connector user does not have the proper permissions.
- The HP DMA connector user cannot find any servers.
- The servers are already included in another HP DMA organization.
- The HP DMA user who is logged in does not have the correct permissions.
- The DMA Client Files policy is not attached and remediated on any managed servers.

Use the following information to help you identify and resolve the problem.

The HP DMA Connector User Does Not Have Required Permissions

If you experience a "No servers found" error, examine the contents of the `/var/log/hp/dma/dma.log` file. If they are similar to the following, your HP DMA connector user (`dma_connector_user`) does not have the required permissions:

```
...  
2013-03-15 14:43:43,301 ERROR [http-8080-1] DmaPolicyCacher.update:  
183  
DMA Client Files does not exist  
2013-03-15 14:43:43,301 INFO [http-8080-1] DmaPolicyCacher.findServ  
ers:94  
No DMA Client Files  
...
```

If you have this problem, have your SA administrator grant the `dma_connector_user` the following permissions:

- Manage Software Policy (Read)
- List, Read, and Execute permission on the folder containing the DMA Client Files policy (for example: `/DMA_Client`)

For more information, see "Set Up the SA Groups and Users" in the *HP DMA Installation Guide*.

The HP DMA Connector User Cannot Find Any Servers

If you experience a "No servers found" error when the HP DMA connector user (`dma_connector_user`) has the required permissions on the folder containing the DMA Client Files policy (for example: `/DMA_Client`), examine the contents of the `/var/log/hp/dma/dma.log` file. If they are similar to the following, either there are no servers with the DMA Client Files policy attached, or the HP DMA connector user does not have Read permission for the servers:

```
...  
2013-03-15 14:59:57,377 INFO [http-8080-1] DmaPolicyCacher.getDMASoftwarePolicyRef:306  
DMA Software Policy ref is DMA Client Files (SoftwarePolicyRef:1230001)  
...  
2013-03-15 14:59:57,634 INFO [http-8080-1] DmaPolicyCacher.findServers:107  
User can't read any servers or no servers have policy DMA Client Files  
...
```

If you have this problem, have your SA administrator check two possible solutions:

- Attach and remediate the DMA Client Files policy to the servers.
- Grant the `dma_connector_user` Read permission for the servers.

For more information, see "Install the DMA Client Files Policy" and "Set Up the SA Groups and Users" in the *HP DMA Installation Guide*.

The Servers Are Already in Another HP DMA Organization

Servers can only be in one HP DMA organization. If they are already included in another organization, they will not be available for you to add.

If you experience a "No servers found" error, examine the contents of the `/var/log/hp/dma/dma.log` file. If they are similar to the following, all servers that you are able to add are already included in another organization:

```
...  
2013-03-15 15:08:13,655 INFO [http-8080-1] DmaPolicyCacher.findServers:126  
Returning 2  
...
```

If you have this problem, contact your HP DMA administrator to determine which organization the servers should belong to.

The HP DMA User Does Not Have Correct Permissions

Another possible cause of a "No servers found" error is that the HP DMA user who is currently logged in does not have the correct permissions.

To determine whether this is the case:

1. Log in to HP DMA as a different user, preferably one with Administrator capability.
2. Have this user try to add targets (see "Add Available Targets" in the *HP DMA Installation Guide*).

If the HP DMA administrator can see the servers in the Add Servers to Organization dialog, have your SA administrator grant the following permissions to the SA group to which your HP DMA user belongs:

- List, Read, and Execute permission for the `/DMA_APX` folder
- Managed Servers and Groups
- Read access to all managed servers that will be added to HP DMA

For more information, see "Set Up the SA Groups and Users" in the *HP DMA Installation Guide*.

The DMA Client Files Policy Is Not Attached and Remediated

Another possible cause of a "No servers found" error is that the DMA Client Files policy has not been attached and remediated on the servers.

To determine whether this is the case, have your SA administrator check that the DMA Client Files policy is attached and remediated on all servers that need to be available to HP DMA, as described in "Install the DMA Client Files Policy" in the *HP DMA Installation Guide*.

Chapter 2

Special Configurations

This chapter contains information about non-default HP DMA configurations:

[Change the Default Port](#) on the next page

[Use a Proxy Server with HP DMA](#) on page 32

[Run as a Windows Domain User](#) on page 43

[Specify a Renamed Windows Administrator User](#) on page 39

[Change the Number of Active Connections](#) on page 45

Change the Default Port

HP DMA uses port 8443 by default. You can change this to another port if you prefer.

To change the HP DMA port:

1. Stop HP DMA:

```
# service dma stop
```

2. Open the `server.xml` file in a text editor. For example:

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

3. On line 84, change the port from 8443, to the port that you prefer:

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

4. Save your changes to the `server.xml` file.

5. Open the `dma.xml` file in a text editor. For example:

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

6. Change the port number specified in the value of the `webServiceUrl` parameter to the same port that you specified in step 3.

```
<Parameter name="com.hp.dma.core.webServiceUrl"  
  value="https://dma01.mycompany.com:8443/dma"/>
```

7. Save your changes to the `dma.xml` file.

8. Start HP DMA:

```
# service dma start
```

Use a Proxy Server with HP DMA

A proxy server can be used to provide additional security for HP DMA communications. This topic shows you how to use an HP Server Automation (SA) Satellite as a proxy server.

Caution: If the `trustAllCertificates` value in the `dma.xml` file is set to `false` (see "Configure SSL on the HP DMA Server" in the *HP DMA Installation Guide*), you must have a subject alternate name (SAN) as part of your signed certificate:

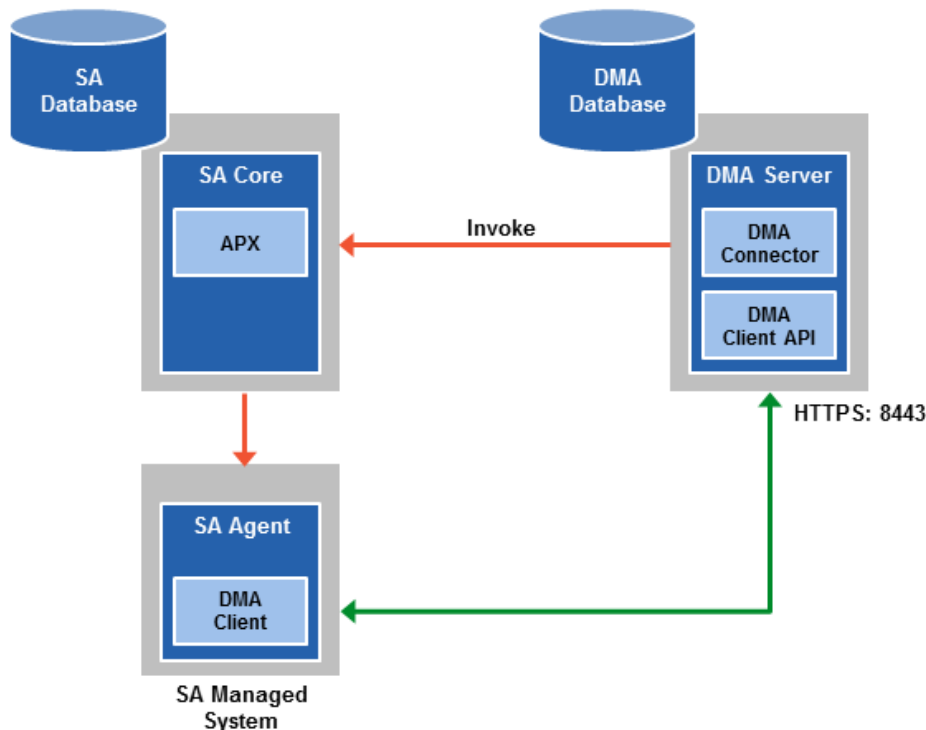
- The SAN must be type IP.
- The SAN value must be the IP address—not the domain name—of the HP DMA server.

Note: The diagrams in this topic show simplified configurations of servers and communication paths. Real-world situations are much more complex with multiple SA Cores mapped to multiple SA Managed Servers. Multiple SA Satellites may also be configured.

Default HP DMA Communications

The following diagram shows how HP DMA communications work by default (without a proxy server):

1. HP DMA invokes SA to run the DMA Client on the target SA managed server.
2. SA communicates with the SA agent on the target server.
3. The SA agent invokes the DMA Client.
4. The DMA Client communicates with the DMA Server using HTTPS on port 8443.

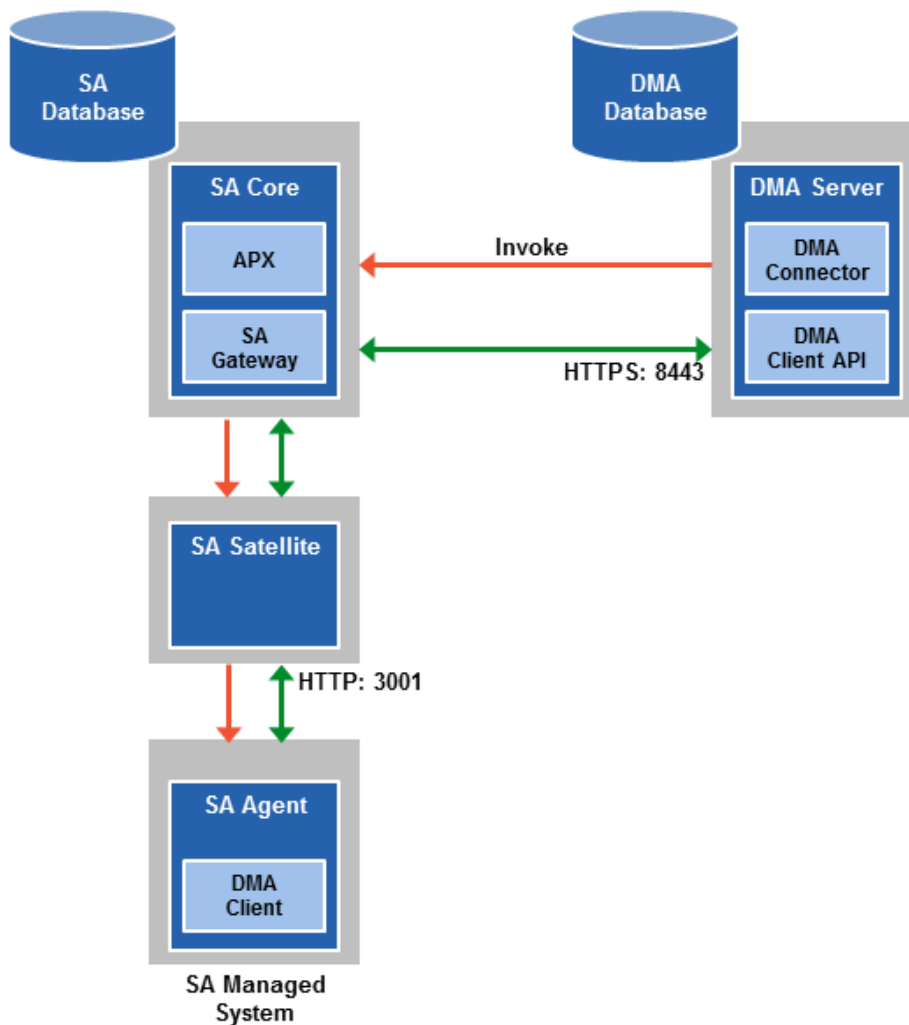


Using an SA Satellite as a Proxy Server

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

1. HP 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 forwards the information to the DMA Server.



How HP DMA Manages Proxy Communication

HP DMA uses two Custom Fields to control proxy communication:

- `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.

- `west_proxy_in_use` tells HP DMA whether a proxy server will be used. Valid values are:

TRUE	Use the proxy specified in the <code>west_proxy_address</code>
FALSE	Do not use a proxy
not set	Do not use a proxy, or defer to the organization or server level
anything else	Implies true

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 HP 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 a proxy for this server	Use the proxy specified for the organization
Organization value is FALSE	Use the proxy specified for the server	Do not use a proxy 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 a proxy for this server	Do not use a proxy for this server

How to Set Up a Proxy Server

To set up a proxy server for HP DMA, you must make two changes to the HP DMA infrastructure:

1. Add a new Egress rule to the SA Gateway configuration to allow forwarding to port 8443 on the DMA Server. This involves updating a configuration file that resides on the SA Core and restarting the SA Gateway.
2. Create and configure the two Custom Fields that instruct HP DMA to route traffic through the proxy server. This procedure is performed in the HP DMA UI.
3. If your SA Satellite environment uses SA realms, specify the `saRealm` connector parameter in the `dma.xml` configuration file.

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 Product Manuals web site:

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

Add a New Egress Rule

On the SA Core, add a new Egress rule to the SA Gateway configuration to allow forwarding to port 8443 on the DMA Server. This procedure must be performed by an SA administrator.

To add the new Egress rule:

1. For every facility that is not a Satellite facility, perform the following steps to add a new `EgressFilter` entry to the gateway configuration file:

- a. Create or edit the gateway configuration file:

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

Here `<facilityName>` is the name given to the facility when it was created. For example: `DATACENTER1`

- b. Add the following line:

```
opswgw.EgressFilter=tcp:<DMAServer>:<DMAPort>:*:*
```

Here `<DMAServer>` is the resolvable host name of your DMA Server and `<DMAPort>` is the port configured for DMA (default is 8443).

- c. Save the file.

2. Restart the SA Gateway by using the following command:

```
/etc/init.d/opsware-sas restart opswgw-cgws
```

Caution: Restarting the SA Gateway will disrupt traffic—be sure to restart it at a safe time.

Add and Configure the HP DMA Custom Fields

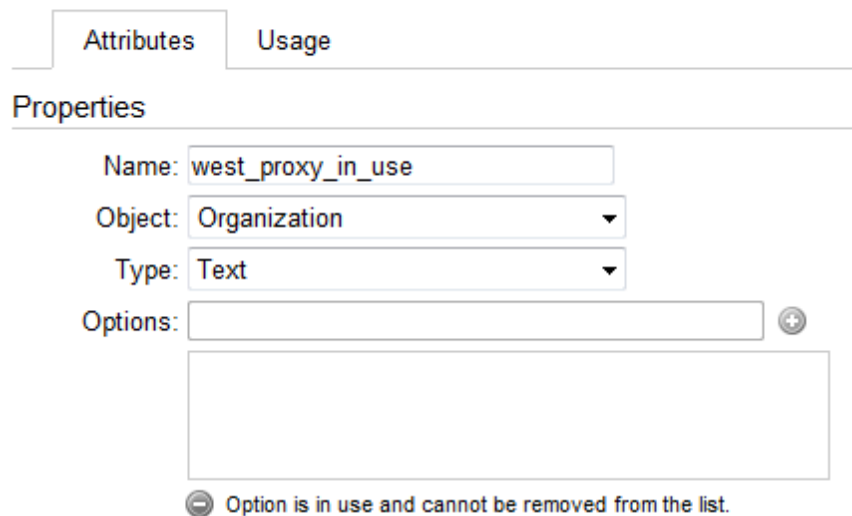
In the HP DMA web UI, create (if necessary) and configure the proxy communication Custom Fields.

You can specify proxy information for both organizations and individual servers. If both are specified, the server level proxy information takes precedence over the organization level proxy information (see [Proxy Precedence](#)).

To create the Custom Fields for proxy communication:

1. Decide whether your proxy is at the organization level or the server level.
2. Perform the following steps to add the `west_proxy_in_use` and `west_proxy_address` Custom Fields to each pertinent organization or server:
 - a. Go to Environment > Dashboard > `<organization_name>`.
 - b. *Optional:* Go to `<server_name>`.
 - c. Go to the Custom Fields tab.
 - d. Click **NEW CUSTOM FIELD**.
 - e. Specify the Custom Field name (`west_proxy_in_use` or `west_proxy_address`).
 - f. Set the Object to Organization or Server, as appropriate.
 - g. Set the Type to Text. For example:

New custom field



Attributes Usage

Properties

Name:

Object:

Type:

Options:

Option is in use and cannot be removed from the list.

- h. Click **Save**.

To specify the Custom Field values:

You can specify the Custom Field values at the organization level, the server level, or both (see [Proxy Precedence](#)).

1. Go to Environment > Dashboard > *<organization_name>*.
2. *Optional:* Go to *<server_name>*.
3. Go to the Custom Fields tab.
4. Set `west_proxy_address` to the full URL of the proxy, including the port, in this format:
`http://<proxy_hostname>:<proxy_port>`

If you have multiple SA Satellites, and you want the target server to determine which SA Satellite to use as a proxy, set `west_proxy_address` to `SA_auto_select`.
5. Set `west_proxy_in_use` to TRUE, FALSE, or blank.
6. Click **Save**.

Example 1: Use a specific proxy server for all servers in an organization

My Organization

Properties Custom Fields Roles

Custom fields [NEW CUSTOM FIELD](#)

west_proxy_address:

west_proxy_in_use:

Example 2: Have the target server determine which SA Satellite to use as a proxy

My Organization

Properties Custom Fields Roles

Custom fields [NEW CUSTOM FIELD](#)

west_proxy_address:

west_proxy_in_use:

Note: You can easily adjust how the proxy server will be used. To stop using the proxy, simply set the value of `west_proxy_in_use` to FALSE. You do not need to delete the `west_proxy_address` value, because the `west_proxy_in_use` value controls whether or not the proxy is used.

Specify the Server Automation Realm

When installed in a Satellite configuration, SA can manage servers with overlapping IP addresses. This situation can occur when servers are behind NAT devices or firewalls. Servers with overlapping IP addresses must reside in different SA realms.

If your environment uses SA realms, you must specify the `saRealm` connector parameter to enable HP DMA to correctly route traffic through the SA Gateway network.

Caution: If you specify the `saRealm` parameter, you must specify the IP address (not the host name) of your HP DMA server in the `webServiceUrl` parameter.

To specify the SA realm:

1. Stop the DMA service: `service dma stop`
2. Open the `/opt/hp/dma/server/tomcat/conf/Catalina/localhost/dma.xml` file in a text editor.

Set the `saRealm` parameter:

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

For example:

```
<Parameter name="com.hp.dma.conn.sa.SAConnector.saRealm" value="SAT1"/>
```

3. Specify the IP address of your HP DMA server in the `webServiceUrl` parameter:

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

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

```
<?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.sa.SAConnector.saRealm" value="SAT1" />
  <Resource auth="container"
    driverClassName="oracle.jdbc.OracleDriver"
    factory="com.hp.dma.util.DmaTomcatContextHandler"
    maxActive="20" maxIdle="5" maxWait="2000" name="jdbc/dma"
    password="{AES}54dd1d97a915c4c3c8d0db986a1218db62008816fb924"
    type="javax.sql.DataSource"
    url="jdbc:oracle:thin:@dma1.mycompany.com:1521:PAI"
    username="dma"/>
</Context>
```

4. Save the `dma.xml` file.
5. Start the DMA service: `service dma start`

Specify a Renamed Windows Administrator User

This topic shows you how to make changes necessary to accommodate Windows targets where the Windows Administrator user has been renamed.

There are two configuration changes required to accommodate these targets. These changes must be performed in the order shown.

Change Required	Where Performed	Number of Times Performed
Update the HP DMA Automation Platform Extension (APX) to allow non-default Windows Administrator user names. See Update the HP DMA APX .	On one SA Slice server	Only once
Create and configure a new HP DMA Custom Field that will be used to specify the Windows Administrator user name at either the organization or server level. See Create and Configure the HP DMA Custom Field .	In HP DMA	Once per relevant organization or server

Instructions for making each of these changes are provided here.

If you do not make these changes, any workflow executed against a Windows target where the Windows Administrator user has been renamed will be aborted, and the following connector error will be reported on the History page:

Step Output	Step Errors	Step Header	Connector Output	Connector Errors *				
<table border="1"><thead><tr><th>Status</th><th>Output</th></tr></thead><tbody><tr><td>Server: target1.mycompany.com Created Time: 16:50:45 Client Exit Code: 1</td><td>Error from remote (3054): Handler pre-check failed Agent/Client system target1.mycompany.com is not responding The West APX execute was not successful</td></tr></tbody></table>					Status	Output	Server: target1.mycompany.com Created Time: 16:50:45 Client Exit Code: 1	Error from remote (3054): Handler pre-check failed Agent/Client system target1.mycompany.com is not responding The West APX execute was not successful
Status	Output							
Server: target1.mycompany.com Created Time: 16:50:45 Client Exit Code: 1	Error from remote (3054): Handler pre-check failed Agent/Client system target1.mycompany.com is not responding The West APX execute was not successful							

Update the HP DMA APX

Perform the following procedure only once on one SA Slice server.

Note: The following steps must be performed by an SA user (<SA_APX_User>) who belongs to a group with the following SA 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.

For more information about the SA permissions, see the HP Server Automation documentation library, which is available on the HP Software Product Manuals web site:

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

To update the HP DMA APX:

1. Log in to Global Shell:

```
ssh -p 2222 <SA_APX_User>@<SA_Slice>
```

2. Enter the password for the <SA_APX_User> when prompted.

3. Export the APX:

```
apxtool export -u com.hp.dma.conn.sa.westapx tmp
```

4. Update the APX permission file:

- a. Open the APX permission file in a text editor. For example:

```
vi tmp/APX-INF/apx.perm
```

- b. Locate the following line in the file:

```
@use_feature(name="runCommandOnServer",  
             login_names="root,Administrator",  
             resource(resource_type="device",  
                     expression=ALL))
```

- c. Add the desired Windows Administrator account names after Administrator, for example:

```
@use_feature(name="runCommandOnServer",  
             login_names="root,Administrator,HPAdmin",  
             resource(resource_type="device",  
                     expression=ALL))
```

Caution: Make sure you edit the existing line instead of adding a new line.

- d. Save the file.

5. Import the updated APX:

```
apxtool import -c tmp
```

Type Y (or y) in response to the two prompts.

6. Exit the Global Shell:

```
rm -rf tmp
```

```
exit
```

Create and Configure the HP DMA Custom Field

The final change required is to create and configure a HP DMA Custom Field called `agent_username_win` that will contain the Windows Administrator user name for each Windows target server.

To create the Custom Field:

1. Go to Environment > Custom Fields.
2. Click the **New Field** button.
3. Specify the Custom Field name `agent_username_win`.
4. From the Object drop-down list, select either Server or Organization.

If each Windows server has a different Windows Administrator user name, you will need to specify this user name for each server. In this case, select Server here.

If many Windows servers in the same organization have the same Windows Administrator user name, it will be more convenient to specify the user name at the organization level. In this case, select Organization here.

You can create both organization and server level Custom Fields for this purpose. If you specify a value for both the organization and the server Custom Field, HP DMA will use the server value.

5. From the Type drop-down list, select Text.
6. Click **Save**.

To configure the Custom Field:

Note: The following steps must be performed by an HP DMA user who has a role with Write permission for the pertinent organizations (or Administrator capability).

For each organization or server where you want to specify the Windows Administrator user name, follow these steps:

1. For an organization, go to Environment > Dashboard > *organization_name*
For a server, go to Environment > Dashboard > *organization_name* > *server_name*
2. Go to the Custom Fields tab.
3. Specify the Windows Administrator user name in the `agent_username_win` Custom Field.
If you do not see this Custom Field, be sure that **Show empty values** is selected.
4. Click **Save**.

Note: If you want HP DMA to run workflows on Windows targets as a specific Windows domain user, also see [Run as a Windows Domain User](#) on the next page.

Run as a Windows Domain User

This topic shows you how to make changes necessary to run workflows on Windows targets as a specific Windows domain user.

Note: If you have a Windows 2012 server as a managed client, that system needs .Net 3.5 installed when you are running with a domain user configuration.

To do this, you must create and configure the following Custom Fields:

`domain_username_win`

`domain_password_win`

If you create and specify valid values for these Custom Fields, all workflows executed against the pertinent targets will run as the Windows domain user that you specify.

The value of `domain_password_win` is encrypted before it is stored .

Note: The specified domain user must:

- Be a member of the Administrators group on the target server.
- Have User Account Control (UAC) disabled on the target server.
- Have login access to the pertinent database or middleware application (for example: SQL Server or IBM WebSphere Application Server) on the target server. This enables HP DMA to discover information about the target environment.

To create the Custom Fields:

1. Go to Environment > Custom Fields.
2. Click the **New Field** button.
3. Specify the Custom Field name: `domain_username_win`.
4. From the Object drop-down list, select either Server or Organization.

If each Windows server requires a different Windows domain user, you will need to specify this user name for each server. In this case, select Server here.

If many Windows servers in the same organization will use the same Windows domain user, it will be more convenient to specify the user name at the organization level. In this case, select Organization here.

You can create both organization and server level Custom Fields for this purpose. If you specify a value for both the organization and the server, HP DMA will use the server value.

5. From the Type drop-down list, select Text.
6. Click **Save**.
7. Repeat steps 2–6 to create the `domain_password_win` Custom Field. In step 5, select Password.

To configure the Custom Fields:

Note: The following steps must be performed by an HP DMA user who has a role with Write permission for the pertinent organizations (or Administrator capability).

For each organization or server where you want to run workflows on Windows targets as a specific Windows domain user, follow these steps:

1. For an organization, go to Environment > Dashboard > *organization_name*
For a server, go to Environment > Dashboard > *organization_name* > *server_name*
2. Go to the Custom Fields tab.
3. Specify the Windows domain user name in the `domain_username_win` Custom Field.

Tip: If you do not see this Custom Field, be sure that **Show empty values** is selected.

4. Specify the Windows domain user password in the `domain_password_win` Custom Field.
5. Click **Save**.

Note: If you have renamed the Windows Administrator account on your Windows target servers, you must also perform the procedures required to [Specify a Renamed Windows Administrator User](#) on page 39.

Change the Number of Active Connections

This topic shows you how to change the number of active database connections that HP DMA uses. This may improve workflow execution speed, depending on how many workflows are running at the same time and the complexity of those workflows.

To change the number of active connections:

1. As root, stop the HP DMA server:

```
$ service dma stop
```

2. Open the following file in a text editor:

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

3. Modify the following parameters:

Parameter Name	Default Value	Suggested New Value
maxActive	20	50
maxWait	2000	3000

The parameter values that will work best are highly dependent on your environment. Several iterations may be required to optimally tune these parameters.

4. Start the HP DMA server again:

```
$ service dma start
```

Chapter 3

Reference Information

This chapter contains the following information:

Topic	Description
HP Software Documentation	Links to additional HP DMA documentation.
HP DMA Baseline Options	The complete list of all the <code>dmaBaselineData.sh</code> options.
About the SA Client	What the SA Client looks like and how to download it from the SA server.
Workflow Execution Step on Target	Information about the WEST program and how to terminate it, if necessary.

HP Software Documentation

The following documents are included in the HP DMA documentation library:

- *HP DMA Installation Guide*
- *HP DMA Troubleshooting Guide* (this document)
- *HP DMA Administrator Guide*
- *HP DMA User Guide*
- *HP DMA Release Notes*
- *HP DMA Solution Pack Support Matrix*
- *HP DMA Solution Pack User Guides*

The latest versions of these documents are available on the HP Software Product Manuals web site:

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

This web site also contains documentation for HP Server Automation.

HP DMA Baseline Options

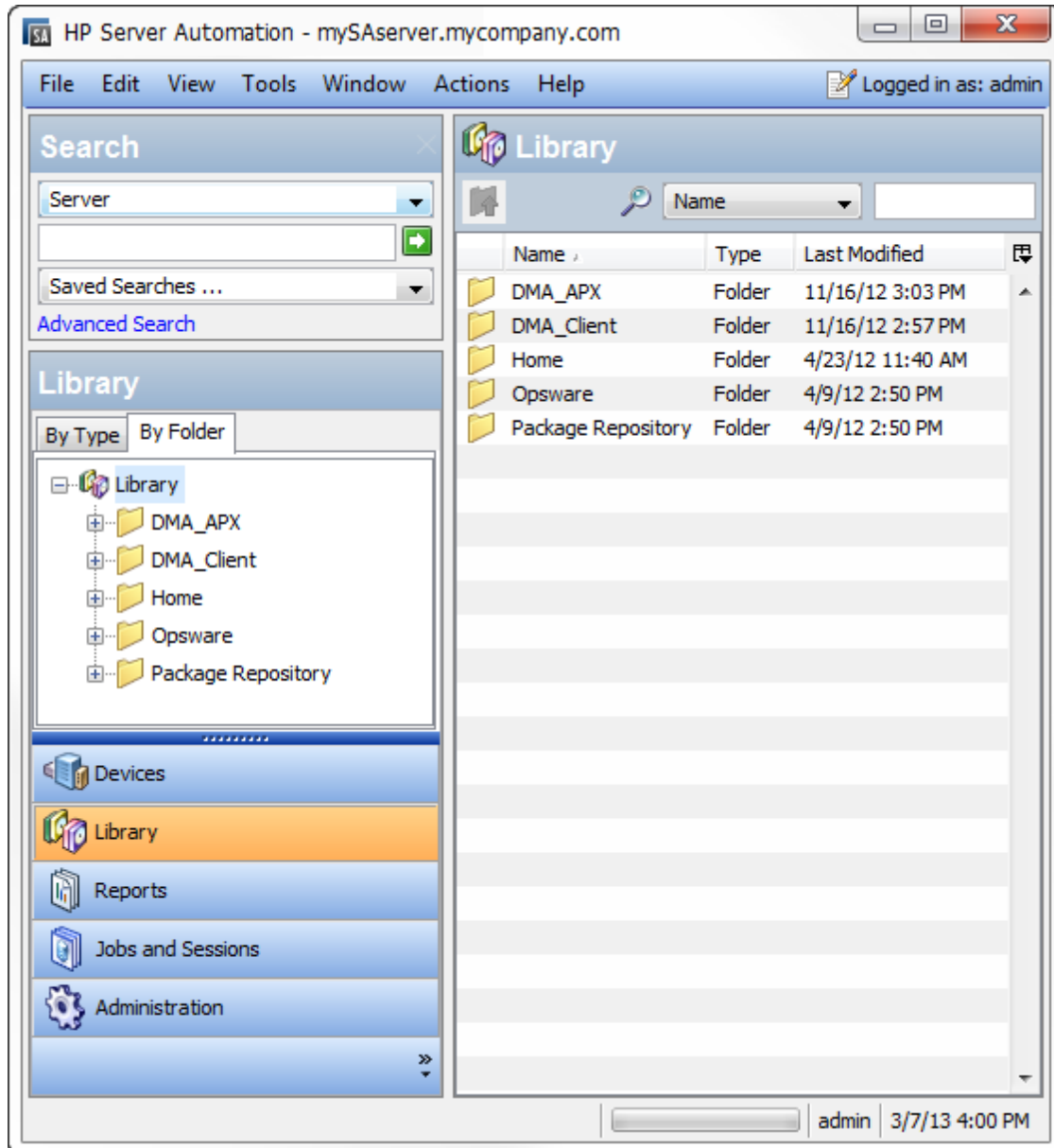
The following table gives a complete list of all the `dmaBaselineData.sh` options:

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

Option	Example Argument Value	Description
-jdbc, --jdbc-connection-string <connectionString>	jdbc: <DBTYPE>:thin:@<HOST>:1521:<SID>	The Java Database Connectivity (JDBC) Connection String used to connect to the database.
-okeys, --overwrite-keys		Overwrite public and private key in the database if they exist Caution: Do not do this unless instructed to by HP 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.
-sapassword, --server-automation-password <sapasswordValue>		The password used to connect to SA.
-sausemame, --server-automation-username <sausemameValue>		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.

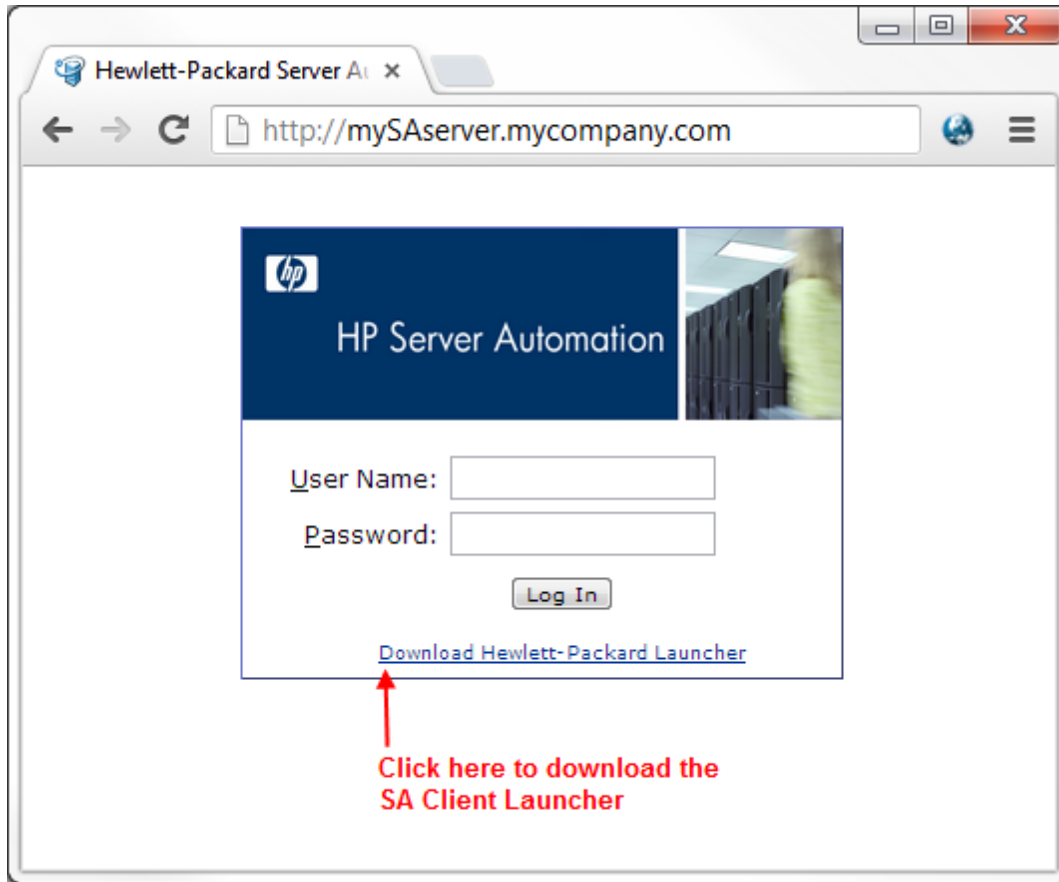
About the SA Client

The SA Client is a powerful Java client for the HP Server Automation System. It provides the look-and-feel of a Microsoft Windows desktop application with the cross-platform flexibility of Java.



If you installed your SA Core on multiple servers, you can access the SA Client from any Core Server hosting a Component Slice bundle.

To access the SA Client for the first time, you must invoke the SA Client Launcher from the SA Web Client Main Page:



Clicking on this link will install the SA Client and the required Java Runtime Environment (JRE) on your local machine. Once it is installed, you can invoke the SA Client from the local machine rather than from the SA Web Client.

Note: The SA Client is a Java application that installs and runs with its own Java Runtime Environment (JRE). The SA Client will not interfere with any other versions of JRE you may have installed on your system. The JDK will not be used (and is not usable) by any other Java application on the target computer, and it will not set itself as the default JDK on the target computer.

For more information about the SA Client, see the HP Server Automation documentation library available on the HP Software Product Manuals web site:

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

Workflow Execution Step on Target

Each HP DMA target uses a program called Workflow Execution Step on Target (WEST) to communicate with the HP DMA server. WEST does the following things:

- Executes workflow steps
- Provides the output (stdout, stderr, return code, and end time) for a specific step's execution

WEST is installed on each target server when you attach and remediate the DMA Client Files software policy on that target .

Under certain circumstances, you may need to manually terminate WEST on a target server. This would be necessary, for example, if the HP DMA server name was specified incorrectly when the `dmaBaselineData` command was executed, and a workflow execution was subsequently attempted (see [HP DMA Client Fails to Contact HP DMA Server](#) on page 13).

To terminate WEST on UNIX targets:

1. Find the process ID for the HP DMA client:

```
ps - ef | grep west
```

2. Kill that process.

To terminate WEST on Windows targets:

1. In the Windows Task Manager, go to the Processes tab.
2. Sort the processes by Image Name.
3. Find the `java.exe` process whose Location is as follows:

```
<install_dir>\HP\DMA\Client\jre1_7\bin
```

By default on Windows Server 2008 R2, for example, this is:

```
C:\Program Files\HP\DMA\Client\jre1_7\bin
```

To determine the Location of a process, right-click the process Image Name, and select **Properties**.

4. Right-click the pertinent `java.exe` process, and select **End Process**.