

Oracle® Enterprise Manager

Oracle GoldenGate System Monitoring Plug-In Installation Guide

Release 12.1.0.1.1

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This document provides a brief description of the Oracle System Monitoring Plug-in for Oracle GoldenGate, details on the releases the plug-in supports, prerequisites for installing the plug-in, and step-by-step instructions on how to configure Oracle GoldenGate for the plug-in.

Oracle GoldenGate Description and Features

The System Monitoring Plug-in for Oracle GoldenGate extends Oracle Enterprise Manager Cloud Control to add support for managing Oracle GoldenGate instances. By deploying the plug-in in your Cloud Control environment, you gain the following management features:

- Monitor Oracle GoldenGate instances.
- Gather configuration data and track configuration changes for Oracle GoldenGate instances.
- Raise alerts and violations based on thresholds set on monitored targets and configuration data.
- Support monitoring by a remote Agent. A Local Agent is an agent running on the same host as the Oracle GoldenGate instance. The Remote Agent is an agent running on a host that is different from the host where the Oracle GoldenGate instance is running.

Platforms Supported

The Oracle GoldenGate plug-in supports monitoring of all platforms where Oracle GoldenGate 11.2 instances can run with the following exceptions: HP NonStop, IBM iSeries, and IBM z/OS.

Versions Supported

The Oracle GoldenGate plug-in supports the following product versions:

- Enterprise Manager Cloud Control 12c Bundle Patch 1 (12.1.0.1) and later
- Oracle GoldenGate 11g Release 2 (11.2.1.0.1) and later

Prerequisites

The following prerequisites must be met before you can use the Oracle GoldenGate plug-in:

Set Environment Variables to Point to the JDK

Perform the following steps to ensure that your environment is ready for monitoring:

Note: If you set the `LD_LIBRARY_PATH` as directed below for monitoring 11.1.1 instances of Oracle GoldenGate, you must remove the setting when monitoring 11.2.1 and later instances.

- For **Windows:**

1. Set the `JAVA_HOME` variable to the location of the JDK installation.
2. Set the `PATH` variable to the `\jre\bin` of the JDK installation location:

```
. . .;%JAVA_HOME%\jre\bin
```
3. Set the `PATH` variable to the location of `jvm.dll` (the `\jre\bin\server` directory of the JDK installation location):

```
. . .;%JAVA_HOME%\jre\bin\server
```

- For **Oracle Solaris or Linux**, set `LD_LIBRARY_PATH` to the location of the `libjvm.so` file.

Note: On 64-bit Solaris SPARC servers, ensure the `LD_LIBRARY_PATH` setting points to the 64-bit library location:

```
$JAVA_HOME/jre/lib/sparcv9/server
```

- For **AIX**, set `LIBPATH` to the location of the shared libraries `ppc64` and `j9vm`. For example, `JAVA_HOME` is set to the JDK installation directory:

```
export LIBPATH  
=$JAVA_HOME/jre/lib/ppc64:$JAVA_HOME/jre/lib/ppc64/j9vm:$LIBPATH
```

- For **HPUX:**

1. Set `SHLIB_PATH` to the location of the `libjvm.sl` for HPUX PA-RISC and to `libjvm.so` for HPUX Itanium.
2. Prior to starting the Oracle GoldenGate Manager, set `LD_PRELOAD` to `libjvm.sl` for HPUX PA-RISC and to `libjvm.so` for HPUX Itanium.

Note: Remove the `LD_PRELOAD` setting after starting the GoldenGate Manager to avoid possible affects on other applications running on the system.

Software Requirements

- The following must be installed and running:
 - Oracle GoldenGate release 11.2.1.0.1 or later

- Oracle Enterprise Manager Cloud Control 12c Bundle Patch 1 (12.1.0.1) or later (*Oracle Management Service* and *Oracle Management Agent*)
- An Oracle Management Agent must be installed on each system hosting an Oracle GoldenGate instance that will be monitored.
- Install any release of Java 1.6 Java Development Kit (JDK) on each system where Oracle GoldenGate is installed.
 - This must be the JDK, not a Java Runtime Environment (JRE).
 - For the Windows x64 platform, you must use the x64 version of JDK or Enterprise Manager will not be able to load the Java agent.

To verify the JDK version, navigate to the Oracle GoldenGate installation directory and run the following command:

```
Shell> java -version
```

If this does not return a 1.6 version of Java, check that the `PATH` environmental variable includes `java.exe` and `java`.

- To configure the Software Library, refer to the *Configuring Software Library* chapter in the *Enterprise Manager Cloud Control Administrator's Guide*:

http://docs.oracle.com/cd/E24628_01/doc.121/e24473/softwarelib.htm#BABHFAIH

Configure Each Oracle GoldenGate Instance

- For each Oracle GoldenGate instance:
 - Enable monitoring by navigating to the Oracle GoldenGate installation directory and editing the `GLOBALS` parameter file.


```
Shell> GGSCI
GGSCI> EDIT PARAMS ./GLOBALS
```

Add the `ENABLEMONITORING` parameter to the `GLOBALS` parameters and save the file. The parameter will be activated when you start the Manager after configuring the Oracle GoldenGate instance.
 - Create the Oracle Wallet to store passwords using the steps listed in [Creating the Oracle Wallet](#).
 - Configure the Oracle GoldenGate instances for monitoring by Oracle Enterprise Manager by following the steps listed in [Configuring Oracle GoldenGate to Run with Oracle Enterprise Manager](#)
 - Follow the steps listed in [Starting the Oracle GoldenGate Instances](#) to:
 - * Create the database used to store monitoring data.
 - * Start the Oracle GoldenGate Agent that will gather monitoring data to pass to the Oracle Management Agent.

Creating the Oracle Wallet

Perform the following steps to create the Oracle Wallet and to add the password that the Oracle Management Agent will use to connect to the Oracle GoldenGate Agent to receive metric values:

1. Navigate to the Oracle GoldenGate installation directory.

2. Run the appropriate `pw_agent_util` script using the runtime argument that specifies you will be using only the Java agent (and not Oracle GoldenGate Monitor Server):

- On Windows, go to the command line and enter:

```
Shell> pw_agent_util.bat -jagentonly
```

- On UNIX, enter the following command:

```
Shell> ./pw_agent_util.sh -jagentonly
```

If a wallet does not exist, then one is created.

3. Next, the utility prompts you to enter the Oracle Enterprise Manager agent password:

Please create a password for Java Agent:

It then prompts you to confirm the password:

Please confirm password for Java Agent:

If a wallet already exists in the `dirwlt` directory, a message is returned and the utility stops. If this happens, run the utility to create the Jagent password by entering one of the following:

- On Windows, go to the command line and enter:

```
Shell> pw_agent_util.bat -updateAgentJMX
```

- On UNIX, enter the following command:

```
Shell> ./pw_agent_util.sh -updateAgentJMX
```

Configuring Oracle GoldenGate to Run with Oracle Enterprise Manager

To configure your Oracle GoldenGate instance to work with the Oracle Enterprise Manager, you set property values for the hosts, ports, and monitoring type.

Follow these steps to configure monitoring for Oracle Enterprise Manager:

1. Navigate to the Oracle GoldenGate installation directory.
2. Edit the `\cfg\Config.properties` file.
3. Set the property that determines the monitoring type to Oracle Enterprise Manager:

```
agent.type.enabled=OEM
```

4. Set the correct Remote Method Invocation (RMI) port for the Oracle Enterprise Manager agent. The default is **5559**.

```
jagent.rmi.port=[port_number]
```

5. Set the property that identifies the host of the Jagent. This should be the host of the Oracle GoldenGate instance. The value may be a name or an IP address.

```
jagent.host=[Oracle_GoldenGate_host_name]
```

6. Set the port of the Jagent. This default for this property is **5555**.

```
jagent.jmx.port=[port_number]
```

7. Set the user name for the connection to the Jagent.

```
jagent.username=[user_name]
```

Starting the Oracle GoldenGate Instances

Use the following steps to start Oracle GoldenGate and the Oracle GoldenGate Agent. For more information on the GGSCI commands used in this section, refer to the *Oracle GoldenGate Monitor Administrator's Guide*.

1. Navigate to the Oracle GoldenGate installation directory.
2. Start a GGSCI session:

```
Shell> GGSCI
```
3. If this is the first start for Oracle GoldenGate since monitoring has been enabled, create the database that will persist monitoring data:

```
GGSCI> CREATE DATASTORE
```

4. If you just added the GLOBALS parameter to enable monitoring, you must stop and restart running Oracle GoldenGate Manager processes to activate the new setting:

```
GGSCI> STOP MANAGER
```

5. Start the Oracle GoldenGate Manager process:

```
GGSCI> START MANAGER
```

6. Start the Oracle GoldenGate Agent:

```
GGSCI> START JAGENT
```

Note: The Oracle Wallet must be successfully created and the password entered before the agent is started.

Configure the Management Agent to Deploy the Plug-in

Follow the steps below to set the preferred credentials on all Agents where you want to deploy the Oracle GoldenGate plug-in:

1. In Enterprise Manager Cloud Control, click **Setup**, then **Security**, and finally **Preferred Credentials**.
2. On the Preferred Credentials page, select the **Host** target type and click Manage Preferred Credentials.
3. In the Host Preferred Credentials page, in the Target Credentials section, for the host that is running the Management Agent where the plug-in has to be deployed, specify the user name and password.
4. After setting the credentials, on the same page, click **Test**. If your test runs successfully, then your credentials are set correctly.
5. Run the OS Command job for the Management Agent where the plug-in has to be deployed:

- Log in to Enterprise Manager Cloud Control.
- Click **Enterprise**, then **Job**, and finally **Activity**.
- In the Job Activity page, from the Create Job list, select **OS Command**, and click **Go**.
- Enter the details required in the following pages, and click **Submit** to run the job. If the job runs successfully, then your credentials are set correctly.

Deploying the Plug-in

See the *Plug-in Manager* chapter in the *Oracle Enterprise Manager Cloud Control Administrator's Guide* for steps to deploy the plug-in:

http://docs.oracle.com/cd/E24628_01/doc.121/e24473/plugin_mgr.htm

Importing the Plug-in Archives Manually

If you have downloaded the plug-in manually, then you will need to import the plug-in into Oracle Enterprise Manager Cloud Control:

1. Download the Oracle GoldenGate plug-in from the downloads page:

<http://www.oracle.com/technetwork/middleware/goldengate/downloads/>

The plug-in is located in the Management Pack for Oracle GoldenGate section.

2. Set up the Enterprise Manager Command Line (EM CLI) utility. From the **Setup** menu, click **Command Line Interface**. Follow the instructions outlined on the Enterprise Manager Command Line Interface Download page.
3. Import the plug-in archive:

```
emcli login -username=<your user ID> -password=<password>
emcli sync
emcli import_update -file=<path to *.opar file you downloaded>
```

4. Once you have imported the plug-in archive, log in to Enterprise Manager Cloud Control and complete the deployment:
 - a. Click **Setup** (in the upper right corner), then **Extensibility**, and finally **Plug-ins**.
 - b. On the Plug-ins page, expand the Middleware folder.
 - c. Select **Oracle GoldenGate**. Click **Deploy on**, then select **Management Servers...** to start the deployment process.
 - d. Enter the **Repository SYS password** and click **Continue**.
A series of prerequisite system checks will begin. As each system check completes, click **Next** to continue to the next check.
 - e. Once the prerequisite checks are complete, click **Next** and then **Deploy**.

Note: Deployment usually takes about 10 minutes to complete. During that time, all connected users will be disconnected from Enterprise Manager. Even though the confirmation page displays, clicking Show Status will display "This webpage is not available" while deployment of the plug-in progresses.

- f. Check the status of plug-in deployment. After 10 minutes, you can check the status through the `emcli` command:

```
emcli login -username=<your user ID> -password=<password>
emcli sync
emcli get_plugin_deployment_status -plugin_id=oracle.fmw.gg
```

Once the plug-in is deployed, an **Oracle GoldenGate** item will appear under **Targets** in Enterprise Manager Cloud Control.

Adding Instances for Monitoring

After successfully deploying the plug-in, follow these steps to add the plug-in target to Enterprise Manager Cloud Control for central monitoring and management:

1. From the **Setup** menu, select **Add Target** and then **Configure Auto Discovery**.
2. Click on the GoldenGate Discovery Module to display the **Configure Target Discovery for Target Types** screen.
3. Highlight the Agent Host Name and click **Edit Parameters** to enter the information needed to connect to the Oracle GoldenGate Agent:
 - JAgent Username - Valid user name for the connection. This name is specified in the `config.properties` file.
 - JAgent Password - Password for the user, which is set during the Oracle Wallet creation.
 - RMI port - The Remote Method Invocation port to use for the connection
4. Click **Ok**.

Verifying and Validating the Plug-in

Before verifying and validating the plug-in, you must promote the GoldenGate target that is found during auto-discovery. Refer to the *Checking for and Promoting Discovered Targets* section in the *Oracle Enterprise Manager Cloud Control Administrator's Guide*:

http://docs.oracle.com/cd/E24628_01/doc.121/e24473/discovery.htm#CBAFHEHC

After waiting a few minutes for the plug-in to start collecting data, use the following steps to verify and validate that Enterprise Manager is properly monitoring the plug-in target:

1. Click the **Oracle GoldenGate** target link from the All Target page. The Oracle GoldenGate Home Page appears.
2. Verify that no metric collection errors are reported by clicking **Monitoring and then Metric Collection Errors** from the Target menu.
3. Ensure that reports can be seen and no errors are reported by clicking **Information Publisher Reports** in the Target menu and viewing reports for the Oracle GoldenGate target type.
4. Ensure that configuration data can be seen by clicking **Configuration** and then **Last Collected** in the Target menu. If configuration data does not immediately appear, click **Refresh** in the Latest Configuration page.

Undeploying the Plug-in

See the *Plug-in Manager* chapter in the *Oracle Enterprise Manager Cloud Control Administrator's Guide* for steps to undeploy the plug-in:

http://docs.oracle.com/cd/E24628_01/doc.121/e24473/plugin_mngr.htm

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