Oracle® Enterprise Manager

System Monitoring Plug-in Installation Guide for Sybase Adaptive Server Enterprise (ASE)

Release 12.1.0.2.0

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This document provides a brief description about the Oracle System Monitoring Plug-in for Sybase Adaptive Server Enterprise, details on the versions the plug-in supports, prerequisites for installing the plug-in, and step-by-step instructions on how to install, verify, and validate the plug-in.

Description

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

- Monitor Sybase Adaptive Server instances.
- Gather configuration data and track configuration changes for Sybase Adaptive Server instances.
- Raise alerts and violations based on thresholds set on monitored metrics and configuration data.
- Provide rich out-of-box reports based on the gathered data.
- Support monitoring by a remote Agent. Local Agent is an agent running on the same host as the Sybase Adaptive Server. Remote Agent is an agent running on a host that is different from the host where Sybase Adaptive Server is running.

Versions Supported

This plug-in supports the following versions of products:

- Enterprise Manager 12*c* Cloud Control Release 1 (12.1.0.1.0) or higher
- Version 12.5.4 to 15.5 or higher of Express (XE), Enterprise (EE), and Developer (DE) editions of Sybase Adaptive Server

> **Note:** The system monitoring plug-in for Sybase Adaptive Server is not certified for monitoring Sybase Adaptive Server Clusters. For more information, refer to the known issues described in the *Oracle Enterprise Manager System Monitoring Plug-in Troubleshooting Guide*.

Prerequisites

The following prerequisites must be met before you can deploy the plug-in:

- Sybase Adaptive Server Enterprise version 12.5.4 to 15.5 or higher is installed.
- The following components of Oracle Enterprise Manager Cloud Control are installed and running:
  - Oracle Enterprise Manager Cloud Control 12.1.0.1.0 or higher
  - Oracle Management Agent 12.1.0.1.0 or higher (any platform supported by this release of agent)

    You can install the agent on the same computer as Sybase Adaptive Server (referred to as local agent monitoring), or you can install the agent on a different computer from Sybase Adaptive Server (referred to as remote agent monitoring).
- The MDA tables must be installed before they can be queried. The MDA tables only exist on 12.5.0.3 and higher. To install MDA tables, do the following:
  1. Ensure that the configuration parameter enable cis is set to 1. If not, restart ASE. Run the following command:

     ```
     sp_configure 'enable cis', 1
     go
     ```

  2. Add 'loopback' server name alias (assuming @@servername is also defined in the interfaces file). This step is no longer required in 15.0 ESD#2 or later.

     ```
     use master
     go
     sp_addserver loopback, null, @@servername
     go
     ```

  3. Test this configuration. This step is no longer required in 15.0 ESD#2 or later.

     ```
     set cis_rpc_handling on
     go
     ```

     Alternatively, run the following command and then disconnect and reconnect your session:

     ```
     sp_configure 'cis rpc handling', 1
     exec loopback...sp_who  -- note: 3 dots!
     go
     ```

  4. Install the MDA tables. Do not run this script with 'sqsh' as it will cause errors. 'sqsh' sees a '$' as the start of a sqsh variable, and this distorts the native RPC names, since these start with a '$' as well. Instead, either use 'isql' as below, or run 'sqsh' with the '-Lexpand=0' option to disable sqsh variable expansion feature. For ASE 15.0.2 and higher, this script is included in the installmaster.

     ```
     isql -U sa -P yourpassword -S YOURSERVER \
          -i $SYBASE/$SYBASE_ASE/scripts/installmontables
     ```

5. Assign mon_role to logins allowed MDA access. This also applies to the 'sa' login.

   ```
   use master
   go
   grant role mon_role to sa
   go
   ```

6. Test basic MDA configuration as follows. You may need to disconnect and reconnect to activate mon_role when you grant this role to the login you are currently using.

   ```
   select * from master..monState
   go
   ```

7. Enable all configuration parameters. These are all dynamic (except the per object statistics active parameter). For all 'pipe' tables, the number of messages is set to 100 here, but you can choose a larger size.

   ```
   sp_configure "enable monitoring", 1
   go
   sp_configure "sql text pipe active", 1
   go
   sp_configure "sql text pipe max messages", 100
   go
   sp_configure "plan text pipe active", 1
   go
   sp_configure "plan text pipe max messages", 100
   go
   sp_configure "statement pipe active", 1
   go
   sp_configure "statement pipe max messages", 100
   go
   sp_configure "errorlog pipe active", 1
   go
   sp_configure "errorlog pipe max messages", 100
   go
   sp_configure "deadlock pipe active", 1
   go
   sp_configure "deadlock pipe max messages", 100
   go
   sp_configure "wait event timing", 1
   go
   sp_configure "process wait events", 1
   go
   sp_configure "object lockwait timing", 1
   go
   sp_configure "SQL batch capture", 1
   go
   sp_configure "statement statistics active", 1
   go
   sp_configure "per object statistics active", 1
   go
   ```

8. For ASE 15.0.2, also run the following command:

   ```
   sp_configure "enable stmt cache monitoring", 1
   go
   ```

9. Set the following static parameter to a higher value (the setting is in bytes per user connection) if you're expecting a lot of (or long) SQL batches:

```
sp_configure "max SQL text monitored", 2048
go
```

Note: Enabling the following configuration parameters will result in >5% performance overhead:

```
sp_configure "sql text pipe active", 1
sp_configure "sql text pipe max messages", 100
sp_configure "max SQL text monitored", 2048
sp_configure "plan text pipe active", 1
sp_configure "plan text pipe max messages", 100
sp_configure "statement pipe active", 1
sp_configure "statement pipe max messages", 100
sp_configure "statement statistics active", 1
sp_configure "per object statistics active", 1
```

- As part of JDBC URL, either IP Address or host name can be provided. Ensure that the host name can be resolved consistently on the network. Standard TCP tools such as "nslookup" and "traceroute" can be used to verify the host name. Validate using the following commands on Management Agent where plug-in is deployed:

  - `nslookup <hostname>`

    This returns the IP address and fully qualified host name.

  - `nslookup <IP>`

    This returns the IP address and fully qualified host name.

- The plug-in may sometimes depend on the cache size of the TemDB.
- If the monitoring user does not have permission on all databases in Sybase ASE target, provide permission to query SYSSEGMENTS table to monitoring user or else create guest user account in each database.

Configuring Sybase Adaptive Server for Monitoring

To monitor the Sybase Adaptive Server target using Enterprise Manager, the Sybase Adaptive Server user must have the role mon_role. In addition to mon_role permissions, the monitoring user must also have Select permissions to access the following sys tables:

- syslisteners
- sysloginroles
- syssrvroles

The following commands will grant Select permission to the monitoring user:

```
grant select on syslisteners to public
go
grant select on sysloginroles to public
go
grant select on syssrvroles (name, srid) to public
```

```
go
```

The above steps will give Select permission to all existing users in the database. To grant Select permission to only the monitoring user, referred to as monuser below, run the following commands. To execute these commands, the user must have sa_role permissions.

1. Create a group.

   ```
   sp_addgroup OracleEMGroup
   go
   ```

2. Add the user monuser to the group.

   ```
   sp_adduser monuser, null, OracleEMGroup
   go
   ```

3. Grant Select permission on the tables to OracleEMGroup.

   ```
   grant select on syslisteners to OracleEMGroup
   go
   grant select on sysloginroles to OracleEMGroup
   go
   grant select on syssrvroles (name, srid) to OracleEMGroup
   go
   ```

Configure the Management Agent to Deploy the Plug-In

To configure the Agent, you must first ensure that the user starting the Agent service belongs to the Local Administrators Group. Also, you must set the preferred credentials on all Agents where you want to deploy the plug-in. To do so, follow the instructions given in the following sections.

Assigning Advanced Privileges to User

(For Microsoft Windows ONLY) To assign advanced privileges in a Microsoft Windows environment, do the following:

1. Locally on the Microsoft Windows node hosting the Agent, check that the user starting the Agent service belongs to the Local Administrators Group. If not, add it.
2. Open the Local Security Settings Windows Tool and give the following Advanced Privileges to the user starting the Agent service:
   - Act as part of the operating system
   - Adjust memory quotas for a process
   - Logon as batch job
   - Replace a process level token
3. Restart the Agent service if it is running.
4. Set the Preferred Credentials for the Host and the Agent in Cloud Control. For more information, see "Setting up the JDBC Driver".
   - The OS user set in the Preferred Credentials must belong to the Local Administrators Group.
   - This OS user must have the following Advanced Privileges:

- Act as part of the operating system
- Adjust memory quotas for a process
- Logon as batch job
- Replace a process level token

Setting and Validating Preferred Credentials

To set the preferred credentials on all Agents where you want to deploy the plug-in, do the following:

1. In Enterprise Manager Cloud Control, from the **Setup** menu, select **Security**, then **Preferred Credentials**.

   The Preferred Credentials page appears, showing a table of targets.

2. Select Host target type from the table and then click **Managed Preferred Credentials**.

   The Host Preferred Credentials page appears.

3. In the Host Preferred Credentials page, in the Target Credentials section, select the host that is running the Management Agent where the plug-in has to be deployed, and click **Set**.
4. In the Select Named Credential dialog box, Select Credential as **New** and specify the user name and password and click **Test and Save**. If your test runs successfully, 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.
   - From the Enterprise menu, select **Job** and then **Activity**.
   - In the Job Activity page, from the Create Job list, select **OS Command**, and click **Go**.
   - Fill up the details required in the following pages, and click **Submit** to run the job. If the job runs successfully, 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_mngr.htm`

Setting up the JDBC Driver

Following are the steps to set up jConnect for the Sybase Adaptive Server plugin:

1. Download the jConnect JDBC driver version 6.0 from www.sybase.com.
2. If it does not already exist, create the directory `$ORACLE_HOME/plugins/dependencies/oracle.em.ssad/jdbcdriver/`.
3. Copy the JDBC driver file (jConn3.jar) into the directory `$ORACLE_HOME/plugins/dependencies/oracle.em.ssad/jdbcdriver/`.

TCP/IP Port Information

The following sections provide information you require to enable the TCP/IP port and to find the TCP/IP port for a particular Sybase Adaptive Server instance.

Enabling TCP/IP Port

For all editions of Sybase Adaptive Server

1. From the **Sybase Adaptive Server Configuration Manager,** select **Sybase Adaptive Server Network Configuration** in the left panel and navigate to the Sybase Adaptive Server instance.

   The right panel displays all protocols for the specified Sybase Adaptive Server instance and their status.

2. Ensure that TCP/IP is enabled.
3. (If TCP/IP is disabled), right-click **TCP/IP** and select **Properties.** The TCP/IP Properties dialog box appears.
4. In the Protocol tab, select **enabled,** and click **Apply.**
5. Restart the Sybase Adaptive Server instance.

Finding TCP/IP Port

To find the TCP/IP port number for a particular Sybase Adaptive Server instance, run the following query:

```
Select address_info from syslisteners
```

The above query returns the host address followed by the port number.

Adding Instances for Monitoring

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

1. From the **Setup** menu, select **Add Target** and then **Add Targets Manually**.
2. In the Add Targets Manually page, select **Add Non-Host Targets by Specifying Target Monitoring Properties**, select **Target Type** as **Sybase Adaptive Server Enterprise**, select a **Monitoring Agent** and click **Add Manually**.
3. In the Add Sybase Adaptive Server page (Figure 1), provide the following information for the properties:

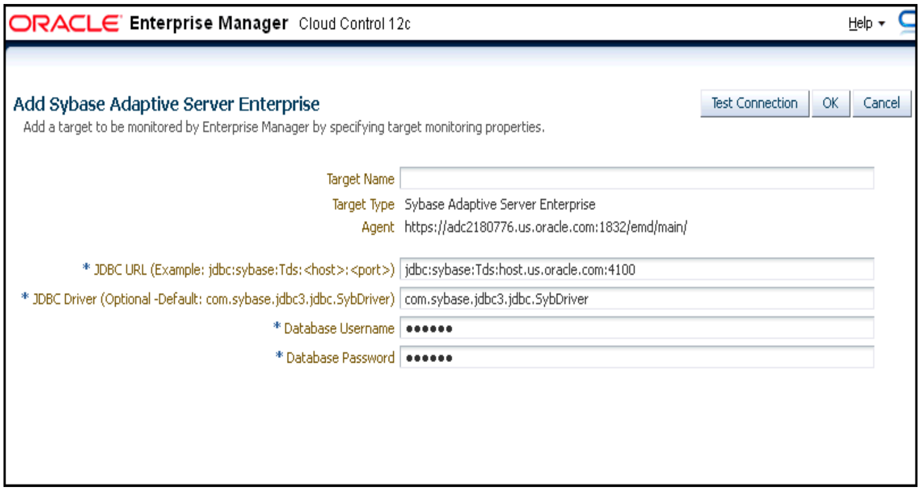
   - **Target Name** — Unique target name across all the Cloud Control targets, such as SybaseServer_Hostname. This is the display name in Cloud Control. It represents this Sybase Adaptive Server target across all user interfaces within Cloud Control.
   - **JDBC URL** — Provide the URL in the format jdbc:sybase:Tds:<system>:<tcp/ip port>

     For example, jdbc:sybase:Tds:stmpi2.idc.oracle.com:5000

- **JDBC Driver** — Optional parameter. Provide this value in the format com.sybase.jdbc3.jdbc.SybDriver
- **Database Username** — Valid user for the database in mon_role.
- **Database Password** — Corresponding password for the database user

4. Click Test Connection to make sure the parameters you entered are correct.

Figure 1 Add Sybase Adaptive Server Enterprise Plug-in Page



Add Sybase Adaptive Server Enterprise

Add a target to be monitored by Enterprise Manager by specifying target monitoring properties.

Target Name

Target Type Sybase Adaptive Server Enterprise

Agent https://adc2180776.us.oracle.com:1832/emd/main/

* JDBC URL (Example: jdbc:sybase:Tds:<host>:<port>) jdbc:sybase:Tds:host.us.oracle.com:4100

* JDBC Driver (Optional -Default: com.sybase.jdbc3.jdbc.SybDriver) com.sybase.jdbc3.jdbc.SybDriver

* Database Username ●●●●●●

* Database Password ●●●●●●

After you deploy and configure the plug-in to monitor one or more targets in the environment, you can customize the monitoring settings of the plug-in. This alters the collection intervals and threshold settings of the metrics to meet the particular needs of your environment. If you decide to disable one or more metric collections, this could impact the reports that the metric is a part of.

Verifying and Validating the Plug-in

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 Sybase Adaptive Server target link from the All Targets page. The Sybase Adaptive Server home page appears.

   The Sybase Adaptive Server 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 Sybase ASE 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

Troubleshooting the Plug-In

If the following parameters are not enabled for the Sybase Adaptive Server plug-in, metric collection errors may occur:

```
sp_configure "sql text pipe active", 1
sp_configure "sql text pipe max messages", 100
sp_configure "max SQL text monitored", 2048
sp_configure "plan text pipe active", 1
sp_configure "plan text pipe max messages", 100
sp_configure "statement pipe active", 1
sp_configure "statement pipe max messages", 100
sp_configure "statement statistics active", 1
sp_configure "per object statistics active", 1
```

For information about the troubleshooting scenarios that you might encounter while working with the System Monitoring plug-ins, see *Oracle Enterprise Manager System Monitoring Plug-in Troubleshooting Guide*.

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