

**Oracle® Enterprise Manager**

Third-Party Database Plug-in Troubleshooting Guide

Release 13c

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# Preface

This document provides various troubleshooting scenarios that you might encounter while working with following Oracle Enterprise Manager system monitoring plug-ins:

- Microsoft SQL Server plug-in
- IBM DB2 plug-in
- Sybase Adaptive Server Enterprise (ASE) plug-in

The following chapters cover the troubleshooting and resolution information for maintaining your installed plug-ins:

- Chapter 1, "Troubleshooting Common Issues"
- Chapter 2, "Troubleshooting the Microsoft SQL Server Plug-in"
- Chapter 3, "Troubleshooting the IBM DB2 Database Plug-in"
- Chapter 4, "Troubleshooting the Sybase ASE Plug-in"

## Audience

This document is intended for qualified users of Oracle Enterprise Manager Cloud Control 13c Release 13.1 and later.

## Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

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## Conventions

The following text conventions are used in this document:

<b>Convention</b>	<b>Meaning</b>
<b>boldface</b>	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

## What's Changed

This table provides a brief overview of the document changes for the latest publication of the *Oracle® Enterprise Manager System Monitoring Plug-in Troubleshooting Guide*:

<b>Part Number</b>	<b>Change Summary</b>
E65811-01	Initial release in support of Enterprise Manager Cloud Control 13c.

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# Troubleshooting Common Issues

This chapter provides common troubleshooting scenarios related to all third-party database plug-ins.

The following topics are provided:

- [Third-Party Database Plug-in User's Guides](#)
- [Debugging the Agent](#)
- [JDBC Driver Issues](#)

## 1.1 Third-Party Database Plug-in User's Guides

The user's guides have a lot of important information about the prerequisites and steps required for setting up your target instance for monitoring in Enterprise Manager. If you are having issues with trying to get your plug-in to work with your target instance, review the plug-in user's guide to make sure that you have followed all the steps necessary for making your target instance and the plug-in work together.

- *Microsoft SQL Server Plug-in User's Guide:*  
[http://docs.oracle.com/cd/E24628\\_01/install.121/e35211/toc.htm](http://docs.oracle.com/cd/E24628_01/install.121/e35211/toc.htm)
- *IBM DB2 Database Plug-in User's Guide:*  
[http://docs.oracle.com/cd/E24628\\_01/install.121/e25215/toc.htm](http://docs.oracle.com/cd/E24628_01/install.121/e25215/toc.htm)
- *Sybase Adaptive Server Enterprise (ASE) Plug-in User's Guide:*  
[http://docs.oracle.com/cd/E24628\\_01/install.121/e25214/toc.htm](http://docs.oracle.com/cd/E24628_01/install.121/e25214/toc.htm)

## 1.2 Debugging the Agent

If you have an issue with a target instance which tracks back to the Agent, the two most useful tools will be the *Agent logs* and the *Agent metric browser*. By default, the Agent logs at the **INFO** level; so, to see a more verbose output, you must change the log level to **DEBUG**. The Agent metric browser, which also needs to be enabled, gives you a real-time view of all of the target instances and Agent settings.

The following topics are presented:

- [Setting the Log Level](#)
- [Turning on the Metric Browser](#)
- [Checking Connectivity from the Agent Host](#)
- [Using the Test Connection Button](#)

## 1.2.1 Setting the Log Level

For some issues, the best way to get to the root of the problems is by checking the Agent logs. However, the Agent logs may not have all the information you need by default. It may be necessary to turn on logging at the **DEBUG** level to get the level of detail you need to figure out the problem. To do that, you need to edit the `emd.properties` file:

```
$AGENT_BASE_DIR/agent_inst/sysman/config/emd.properties
```

Look for these entries:

```
Logger.log.filename=gcagent.log  
Logger.log.level=INFO
```

Change the second entry to:

```
Logger.log.level=DEBUG
```

Reload or restart the Agent for the setting to take effect.

You can tell the change has taken if the `gcagent.log` file starts adding statements with the word **DEBUG** in them.

This setting is good for resolving an outstanding issue; however, once the issue has been resolved, you should return your Agent to log at a level of **INFO** to maximize performance.

## 1.2.2 Turning on the Metric Browser

To turn on the metric browser, edit the same `emd.properties` file as above:

```
$AGENT_BASE_DIR/agent_inst/sysman/config/emd.properties
```

Add these two parameters:

```
_enableMetricBrowser=true  
_metricBrowserNoLogin=true
```

Reload or restart the Agent for the settings to take effect. Then, open a browser window and go to the following URL:

```
http://<agent_host>:<agent_port>/emd/browser/main
```

You can use the `EMD_URL` from the `emd.properties` file as a model for the URL as it is mostly the same.

This browser interface allows you direct real-time access to the target instances that the Agent monitors. Click on an instance, and then click on any of the metrics in the target instance to view a real-time collection of that metric by the Agent for that target instance. If you are having a problem with one of the metrics, this interface may tell you why, since it will display on the page any error resulting from collecting the metric.

## 1.2.3 Checking Connectivity from the Agent Host

There are a few simple commands you can execute to tell if the Agent can access the target instance you wish to monitor. Run these commands on your Agent host:

```
ping <target host>  
nslookup <target host>  
telnet <target host> port (success means port is active and not blocked)
```



## 1.2.4 Using the Test Connection Button

Prior to Enterprise Manager Release 12.1.0.3, the **Test Connection** button on the manual discovery page did not work for third-party database plug-ins. This issue has been fixed as part of the 12.1.0.3.0 release. Because a bug prevented the Test Connection button from working, it should not be relied upon in any earlier versions of Enterprise Manager.

For more information about this bug, See Doc ID 1503064.1 in My Oracle Support:

<https://support.oracle.com>

## 1.3 JDBC Driver Issues

The following problem and resolution information addresses JDBC driver issues:

- Failure in loading Classpath: Could not create instance: <JDBC DRIVER>
- Cannot resolve non-optional query descriptor property [PLUGIN\_DEPENDENCIES] (PLUGIN\_DEPENDENCIES)

### 1.3.1 Failure in loading Classpath: Could not create instance: <JDBC DRIVER>

**Possible Cause:** The JDBC Driver Name in target properties and/or the incorrect version of the drivers were used.

**Action:**

1. Specify the correct JDBC Driver Name in target properties.
2. Make sure the correct version of the drivers are present in the appropriate directory.

See Also: [Failure in Loading Classpath: Could Not Create Instance](#) in the [Troubleshooting the IBM DB2 Database Plug-in](#) chapter.

### 1.3.2 Cannot resolve non-optional query descriptor property [PLUGIN\_DEPENDENCIES] (PLUGIN\_DEPENDENCIES)

**Possible Cause:** The `jdbcdriver` directory was not created correctly and/or the drivers were not put in the `jdbcdriver` directory.

**Action:**

1. Make sure the `jdbcdriver` directory was created correctly.
  - For Microsoft SQL Server, the correct directory is:
 

```
$AGENT_BASE_DIR/plugins/oracle.em.smss.agent.plugin_
<version>/dependencies/oracle.em.smss/jdbcdriver
```
  - For IBM DB2 and Sybase ASE, the correct directory is:
 

```
$AGENT_BASE_DIR/plugins/dependencies/<plugin_id>/jdbcdriver
```
2. Make sure the correct version of the drivers are present in that directory.



---

# Troubleshooting the Microsoft SQL Server Plug-in

This chapter provides troubleshooting scenarios related to the Microsoft SQL Server plug-in.

The following topics are provided:

- Diagnostic Tools
- Diagnostic Steps
- Finding TCP/IP Port
- Microsoft URL for WMI Errors
- How To Fix Microsoft SQL Server Plug-in Issues
- General Issues
- Report Elements and Dependent Metrics
- Support References for Microsoft SQL Server Plug-in

## 2.1 Diagnostic Tools

The following diagnostic tools help you troubleshoot and resolve issues that you may encounter while working with the Microsoft SQL Server plug-in:

- WBEMTEST
- CIM Studio
- SQL Server Enterprise Manager

### 2.1.1 WBEMTEST

The WBEMTEST tool is available on Windows OS and is packaged along with the OS.

To launch WBEMTEST:

1. Click **Run**.
2. Enter `WBEMTEST` in the open field.
3. Click **OK**.

To check whether the WMI calls are working correctly for the namespace `root\cimv2` outside of the Enterprise Manager environment:

---

---

**Note:** You must be logged in as a user belonging to the local Administrators Group. Preferably, this should be a domain account.

---

---

1. Launch WBEMTEST locally on the system where SQL Server is installed.
2. Click **Connect**.
3. Enter `root\cimv2` in the `Server\Namespace` text field.
4. Click **Login**.
5. Click **Query** (which is now enabled).
6. Enter the following query and click **Apply**:

```
select * from win32_service
```

To check whether WMI calls are working correctly for the name space `root\default` outside of the Oracle Enterprise Manager environment:

---

---

**Note:** You must be logged in as a user belonging to the local Administrators Group. Preferably, this should be a domain account.

---

---

1. Launch WBEMTEST locally on the system where SQL Server is installed.
2. Click **Connect**.
3. Enter `root\default` in the `Server\Namespace` text field.
4. Click **Execute Method**.
5. Enter `stdRegProv` in the object path.
6. Select `getStringValue` from the **Method** drop-down list.
7. Click **Edit in Parameters**.
8. Select the property `sSubKeyName` and then click **Add Property**.
9. Specify the value. For example:

- For SQL Server default (no-name) instance:  
`SOFTWARE\Microsoft\MSSQLServer\MSSQLServer\CurrentVersion`
- For SQL Server non-default instance:  
`SOFTWARE\Microsoft\MicrosoftSQLServer\`

Where `<DATAROOT>` will have values such as `MSSQL.1`, `MSSQL.2`, etc.

10. Select the property `sSubkeyValue` and then click **Add Property**.
11. Specify the value. For example:  
`CurrentVersion`
12. Click **Save Object**.
13. Click **Execute**. A pop-up window with the message `Successfully Executed` is displayed.
14. Click **Edit Out Parameters** and verify the value of `sValueName`.

### Microsoft SQL Server 2000 Only

To check whether the WMI calls are working correctly for the namespace `root\MicrosoftSQLServer` outside of the Enterprise Manager environment:

---



---

**Note:** You must be logged in as a user belonging to the local Administrators Group. Preferably, this should be a domain account.

---



---

1. Launch `WBEMTEST` locally on the system where SQL Server is installed.
2. Click **Connect**.
3. Enter `root\MicrosoftSQLServer` in the `Server\Namespace` text field.
4. Click **Login**.
5. Click **Query** (which is now enabled).
6. Enter the following query and click **Apply**:

```
select name, clustered, package, versionstring from mssql_sqlserver
```

### 2.1.2 CIM Studio

To use CIM Studio, you require the `Wmitools.exe` executable, which can be downloaded from:

<http://www.microsoft.com/en-us/download/details.aspx?id=24045>

Follow the steps below to use the CIM Studio diagnostic tool:

1. Install WMI CIM Studio.
2. From Windows Start menu, launch WMI CIM Studio (from Start menu, select **Programs, WMI Tools**, and then **WMI CIM Studio**).

The "Connect to namespace" dialog box appears.

3. Specify the required name space, for example `root\CIMV2`.

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**Note:** WMI CIM Studio can be launched using Internet Explorer. Make sure that you have disabled the pop-up blocker.

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4. Click **OK**.
5. In the screen that appears, click the search icon (search for class) in the left pane and enter `win32_service` in the text-field. Click **GO**.  
  
This lists all the classes that contains `win32_service` string. If not, it indicates that there are issues with WMI installation.
6. Select `win32_service` from the search results and click **OK**.
7. Click the **WQL queries** icon in the right pane.
8. In the Query dialog box, enter `select * from win32_service` in the Query text box and click **Execute**.

This lists all services running on the system.

### 2.1.3 SQL Server Enterprise Manager

This tool is included with Microsoft SQL Server. To use the SQL Server Enterprise Manager diagnostic tool:

1. From the Start menu, select **All Programs, SQL Server, Enterprise Manager**, and then **SQL Query Analyzer**.
2. Connect to the database instance.

## 2.2 Diagnostic Steps

To monitor a Microsoft SQL Server target, you need to go through four phases:

**Phase 1:** Import the Plug-in on Enterprise Manager Cloud Control. See also [Phase 1 Checklist](#).

**Phase 2:** Discover the SQL Server targets. See also [Phase 2 Checklist](#).

**Phase 3:** Ensure that various features for monitoring the discovered SQL Server target are available and display the right behavior. See also [Phase 3 Checklist](#).

### 2.2.1 Phase 1 Checklist

Before importing the SQL Server plug-in into Enterprise Manager Cloud Control, go to My Oracle Support and review Certification Note 406906.1 to check which release of the SQL Server Plug-in is certified with which release of:

- Cloud Control OMS/Agent
- Microsoft SQL Server

You can access this note from My Oracle Support:

<https://support.oracle.com/rs?type=doc&id=406906.1>

### 2.2.2 Phase 2 Checklist

Verify the following:

Before discovering SQL Server targets, ensure that you meet all discovery-related pre-requisites. The checklist to follow is:

- Preferred Credentials have been set in Cloud Control for the Agent which monitors the SQL Server instances and for the host on which the Agent is running.
- **(For Release 1 or Release 2 of the Plug-in only)** Verify the exact name of the SQL Server Host and the SQL Server instance from the SQL Server Enterprise Manager.
- Check that TCP/IP is enabled and verify the TCP/IP port. For details, see [Enabling TCP/IP Port \(Microsoft SQL Server 2005 Only\)](#) and [Finding TCP/IP Port](#).
- If the target is remote, necessary configuration for remote connection must be done as a pre-requisite.

### 2.2.3 Phase 3 Checklist

For monitoring of SQL Server targets to occur, ensure that you meet the following conditions:

1. The SQL Server instance has been successfully discovered. To do this:
  - a. In the Enterprise Manager Cloud Control, select **Targets**, then **All Targets**.

- b. In All Targets page, enter `Microsoft SQL Server` in Search, and then press **Return**.
        - c. Verify if SQL Server instance you added is listed.  
Click the SQL Server name for details.
2. Check if the status of the SQL Server Instance is correct. To do this:
  - a. Go to SQL Server Instance Home page.
  - b. Verify the status.  
Ensure that the status is not `Pending`.
3. In the Incident Manager page, ensure the SQL Server instance has no open incidents or problems.
4. In the SQL Server Instance Home page, ensure that in All Metrics section, date and timestamp is displayed in the column Last Upload.

---

**Notes:**

- Wait for the Schedule Interval (this can be 24 hours) to check that a specific metric is collected.
  - Some metrics might not be collected (for example, Backups or Jobs if no backup and no job were ever run for that SQL Server instance).
  - Some metrics might not be collected depending on the release of the Microsoft SQL Server or if some Windows services are not started (for example, the SQL Server Agent)
- 

## 2.3 Finding TCP/IP Port

After enabling the TCP/IP protocol, restart the SQL Server to apply the changes.

From the **SQL Server Configuration Manager**, select **SQL Server 2005 Network Configuration** in the left panel and navigate to the SQL Server instance.

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

In the **IP Addresses** tab, TCP Dynamic Ports row of IP All will give the TCP/IP port of instance.

## 2.4 Microsoft URL for WMI Errors

To get a list of WMI Return Codes, go to the following Microsoft URL:

<http://msdn.microsoft.com/en-us/library/aa394559.aspx>

## 2.5 How To Fix Microsoft SQL Server Plug-in Issues

The following sections help you fix issues that you may encounter while working with the Microsoft SQL Server plug-in. The following topic areas are covered:

- [Downloading the Latest Version of the Plug-in](#)
- [Enabling TCP/IP Port \(Microsoft SQL Server 2005 Only\)](#)
- [Modifying Permissions](#)

## 2.5.1 Downloading the Latest Version of the Plug-in

Download the latest version of the Microsoft SQL Server plug-in from Oracle Enterprise Manager Extensibility Exchange:

<http://apex.oracle.com/pls/apex/f?p=34841:9>

## 2.5.2 Enabling TCP/IP Port (Microsoft SQL Server 2005 Only)

1. From the **SQL Server Configuration Manager**, select **SQL Server 2005 Network Configuration** in the left panel and navigate to the SQL Server instance.

The right panel displays all protocols for the specified SQL 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 SQL Server instance.

## 2.5.3 Modifying Permissions

The following sections only provide steps to modify various permissions. For detailed documentation on any of these procedures, refer to the Microsoft web site.

- [Modifying Windows Management Instrumentation Control Permissions](#)
- [Modifying Registry Permissions](#)
- [Modifying Permissions for Database Authentication](#)
- [Assigning User Rights](#)
- [Modifying DCOM Remote Access Permissions](#)
- [Modifying Access Privileges of SQL Server Services](#)

### 2.5.3.1 Modifying Windows Management Instrumentation Control Permissions

For a secure Windows Management Instrumentation (WMI) namespace access, modify WMI Control Permissions for System or Job Username.

To do this on the SQL Server for the user you are going to use for monitoring and executing jobs, set the write permissions by following these steps:

---

---

**Note:** If you do not have a user, then create one. To do so, from the task bar, go to Start, select **Settings**, and then **Control Panel**. In the Control Panel, double-click **Users and Passwords** and click **Add** in the Users tab.

---

---

1. In the Control Panel, double-click **Administrative Tools** and then **Computer Management**. The Computer Management screen appears.
2. In the left panel, go to Services and Applications and select **WMI Control**.
3. Right-click **WMI Control** and select **Properties**.

The WMI Control Properties dialog box appears.



4. In the Security tab, go to the namespace navigation panel, double-click **Root**, select **CIMV2**, and click **Security**.
5. Click **Add** and select the specified user (or group) from the Select Users, Computers, or Groups dialog box.
6. In the WMI Control Properties dialog box, select the specified user (or group) under Name.
7. In the Permissions section, under Allow, check **Enable Account** and **Remote Enable**. Uncheck the remaining options.

---

---

**Note:** To execute jobs, ensure that you check **Execute Method** in addition to **Enable Account** and **Remote Enable**.

---

---

8. Go to WMI Control Properties dialog box and repeat the steps from 5 to 9 for Microsoft SQL Server (double-click **Root** and select **Microsoft SQL Server**) and Computer Management (double-click **Root**, **Microsoft**, and then select **ComputerManagement**).

**See Also:** WMI Troubleshooting and Tips:

<http://technet.microsoft.com/library/ee692772.aspx#EABAC>

### 2.5.3.2 Modifying Registry Permissions

For a secure registry access, modify WMI and registry permissions for System Username. To do this, follow the procedures given below.

#### WMI Modifications

To do this, on the SQL Server, for the user you are going to use for monitoring and executing jobs, set the write permissions by following these steps:

---

---

**Note:** If you do not have a user, then create one. To do so, from the task bar, go to Start, select **Settings**, and then **Control Panel**. In the Control Panel, double-click **Users and Passwords** and click **Add** in the Users tab.

---

---

1. In the Control Panel, double-click **Administrative Tools** and then **Computer Management**.  
The Computer Management screen appears.
2. In the left panel, go to Services and Applications and select **WMI Control**.
3. Right-click **WMI Control** and select **Properties**.  
The WMI Control Properties dialog box appears.
4. In the Security tab, go to the namespace navigation panel, double-click **Root**, select **DEFAULT**, and click **Security**.
5. Click **Add** and select the specified user (or group) from the Select Users, Computers, or Groups dialog box.
6. In the WMI Control Properties dialog box, select the specified user (or group) under Name.
7. In the Permissions section, under Allow, check **Execute Methods**, **Enable Account**, and **Remote Enable**. Uncheck remaining options.

### Registry Editor Modifications

1. On the SQL Server task bar, go to Start, and click **Run**.
2. Type `regedt32.exe` in the Open field.
3. Click **OK**.  
The Registry Editor appears.
4. In the left panel, navigate down to Microsoft SQL Server by double-clicking **HKEY\_LOCAL\_MACHINE, SOFTWARE, and then Microsoft**.
5. Select **Microsoft SQL Server**, go to the Registry Editor main menu and click **Security** and then **Permissions**. The Permissions for Microsoft dialog box appears.
6. Click **Add** and select the specified user (or group) from the Select Users, Computers, or Groups dialog box.
7. In the Permissions for Microsoft dialog box, select the specified user (or group) under Name.
8. In the Permissions section, under Allow, check **Read**. Uncheck the remaining options.
9. Repeat the steps from step 5 to 8 after selecting **MSSQLServer**, if the SQL Server target to be monitored is the default (no-name) instance.

---

**Note:** If a 32-bit version of SQL Server is installed on a 64-bit system (Xeon or AMD), the key in step 5 above will be:

HKEY\_LOCAL\_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Microsoft SQL Server

Similarly, the key mentioned in step 9 will be (if the SQL Server target to be monitored is the default (no-name) instance):

HKEY\_LOCAL\_MACHINE\SOFTWARE\Wow6432Node\Microsoft\MSSQLServer

---

**See Also:** How to restrict access to the registry from a remote computer:

<http://support.microsoft.com/kb/153183>

### 2.5.3.3 Modifying Permissions for Database Authentication

To do this, on the SQL Server, for the user you are going to use for monitoring and executing jobs, set the write permissions by following these steps:

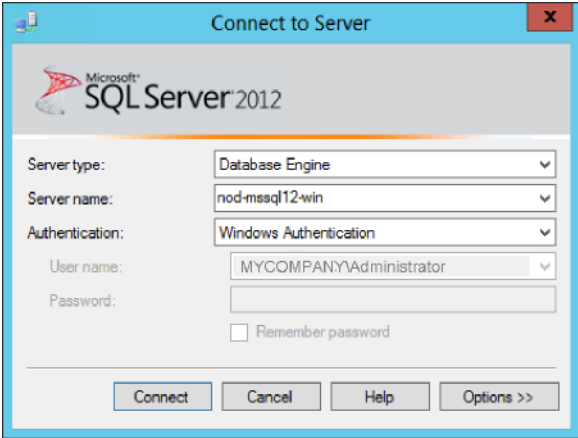
---

**Note:** If you do not have a user, then create one. To do so, from the task bar, go to Start, select **Settings**, and then **Control Panel**. In the Control Panel, double-click **Users and Passwords** and click **Add** in the Users tab.

---

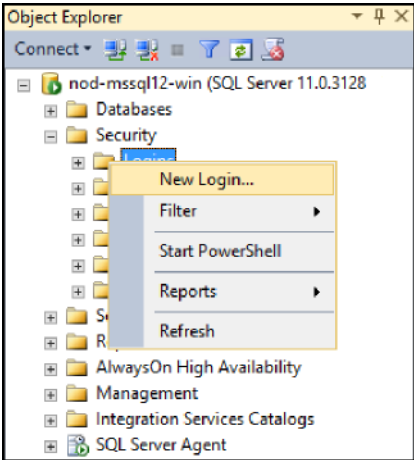
1. Log in to the Microsoft SQL Server Management Studio ([Figure 2-1](#)) with a predefined user account, or if one was not setup for SQL authentication, use **Windows Authentication**.

Figure 2-1 Microsoft SQL Server Login



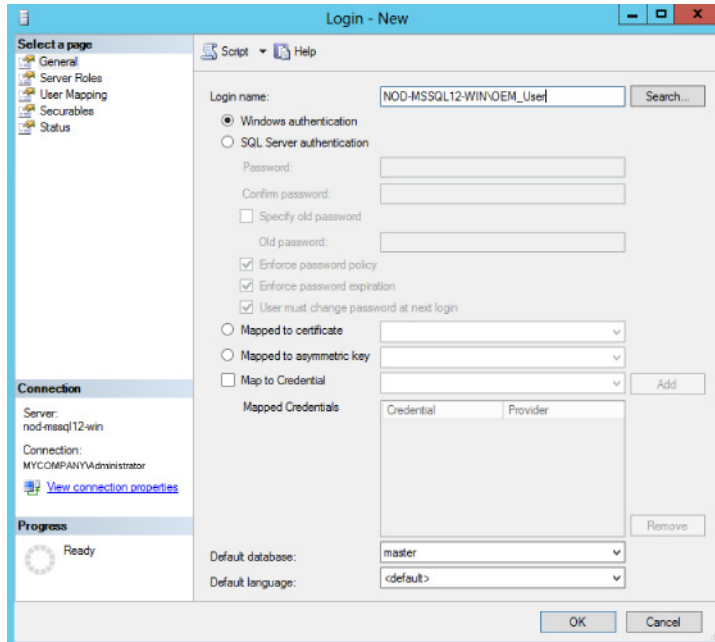
2. Right-click **Logins** and select **New Login...** as shown in Figure 2-2:

Figure 2-2 New Login Menu



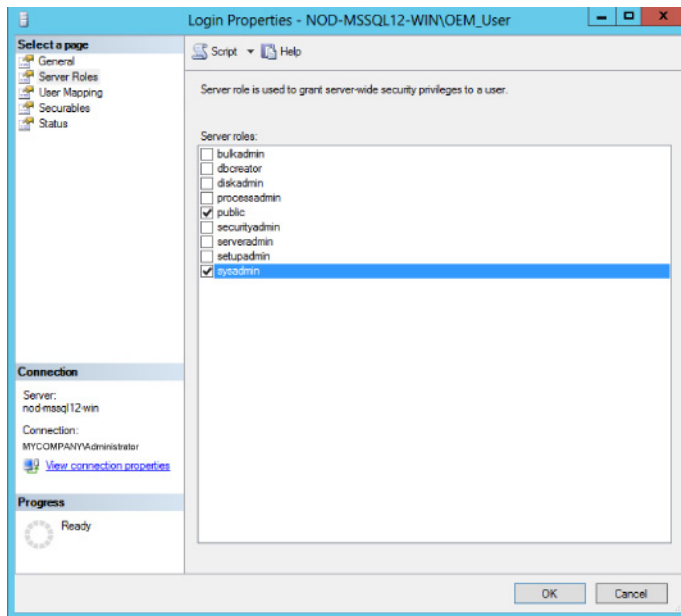
3. Select either **Windows authentication** and select a predefined user, or select **SQL Server authentication** to specify a new user as shown in Figure 2-3:

**Figure 2–3 Create New User**



4. Under the Server Roles page, click the check box for the **sysadmin** server role as shown in Figure 2–4:

**Figure 2–4 Select sysadmin Role**



5. Click **OK**.

**Tip:** The `sp_help_job` help page:

<http://msdn.microsoft.com/en-us/library/aa933458%28SQL.80%29.aspx>

### 2.5.3.4 Assigning User Rights

The OS privileges for the user (set in the Preferred Credentials for the Agent) should meet the requirements documented in "Setting Credentials for the Job System to Work with Enterprise Manager" in the appropriate installation guide listed the [Third-Party Database Plug-in User's Guides](#) section.

### 2.5.3.5 Modifying DCOM Remote Access Permissions

1. Click **Start**, click **Run**, type **DCOMCNFG**, and then click **OK**.
2. In the **Component Services** window, expand **Component Services**, expand **Computers**, and then right-click **My Computer** and click **Properties**.
3. In the **My Computer Properties** window, click the **COM Security** tab.
4. Under **Launch and Activation Permissions**, click **Edit Limits**.
5. In the **Launch Permission** dialog box, follow these steps if your name or group does not appear in the Groups or User Names list:
  - a. In the **Launch Permission** dialog box, click **Add**.
  - b. In the **Select Users, Computers, or Groups** dialog box, add your name and the group in the **Enter the object names to select** field, and then click **OK**.
  - c. In the **Launch Permission** dialog box, select your user and group in the **Group or User Names** field. In the **Allow** column under **Permissions for User**, select **Remote Launch** and select **Remote Activation**, and then click **OK**.

For more information about modifying DCOM settings and securing a remote WMI connection, refer to the following URL:

<http://msdn.microsoft.com/en-us/library/aa393266.aspx>

### 2.5.3.6 Modifying Access Privileges of SQL Server Services

---

**Note:** Execute the following commands only if the Windows box in which SQL Server resides is Windows 2003 SP1 or later.

---

Follow these steps to modify access privileges of SQL Server services:

1. Grant authenticated users the right to remotely access Service Control Manager:
  - a. Click **Start**, click **Run**, type **cmd**, and then click **OK**.
  - b. Type the following command at the command prompt, and then press **Enter**:

```
sc sdset SCMANAGER
D: (A;;CCLCRPRC;;;AU) (A;;CCLCRPWPRC;;;SY) (A;;KA;;;BA) S: (AU;FA;KA;;;WD) (AU;O
IIOFA;GA;;;WD)
```

For more information, see:

<http://support.microsoft.com/kb/907460>

2. Assign Access right to SQL Server Services:
  - a. Click **Start**, click **Run**, type **cmd**, and then click **OK**.
  - b. Type the following command at the command prompt, and then press **Enter**:

```
sc sdshow <SQLServer_service_name>
```

- c. Check the AU (Authenticated Users) access privileges in the output. For example, the default value is:

```
D: (A;;CCLCSWRPWPDTLOCRRC;;;SY) (A;;CCDCLCSWRPWPDTLOCRSDRCWDWO;;;BA) (A;;CCLCSWLOCRRC;;;IU) (A;;CCLCSWLOCRRC;;;SU) (A;;CR;;;AU) (A;;CCLCSWRPWPDTLOCRRC;;;PU) S: (AU;FA;CCDCLCSWRPWPDTLOCRSDRCWDWO;;;WD)
```

The above output lists CR (Control Access) privilege for Authenticated Users (A;;CR;;;AU).

- d. If the privileges for AU (Authenticated Users) are not same as (A;;CCLCSWRPWPDTLOCRRC;;;AU), set it using the following command by replacing (A;;CR;;;AU) with (A;;CCLCSWRPWPDTLOCRRC;;;AU):

```
sc sdset SQLServer_service_name
D: (A;;CCLCSWRPWPDTLOCRRC;;;SY) (A;;CCDCLCSWRPWPDTLOCRSDRCWDWO;;;BA) (A;;CCLCSWLOCRRC;;;IU) (A;;CCLCSWLOCRRC;;;SU) (A;;CCLCSWRPWPDTLOCRRC;;;AU) (A;;CCLCSWRPWPDTLOCRRC;;;PU) S: (AU;FA;CCDCLCSWRPWPDTLOCRSDRCWDWO;;;WD)
```

Repeat steps (a) to (c) for SQLServer Agent service also, by replacing SQLServer\_service\_name in step (a) with the SQLServer\_agent\_service\_name.

For more information, see the following Microsoft documents:

Security Descriptor String Format

ACE Strings

SID Strings

## 2.6 General Issues

The following sections list the general issues and workarounds, if any, that can be used to resolve the issues that you may encounter while working with the Microsoft SQL Server plug-in:

- [The “Add Microsoft SQL Server” Page Explained](#)
- [Monitoring Error Messages](#)
- [General Connection Issues](#)
- [Windows Authentication Issues](#)

### 2.6.1 The “Add Microsoft SQL Server” Page Explained

In Enterprise Manager Cloud Control 12c, the page for adding a target instance for Microsoft SQL Server has changed in Release 12.1.0.3. In previous versions of Enterprise Manager, a bug in the console caused the credentials, which are supposed to be optional, to be required on this page.

[Figure 2–5](#) shows the Add Microsoft SQL Server page.

**Figure 2–5 Add Microsoft SQL Server Page**

**Add Microsoft SQL Server** Test Connection OK Cancel

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

\* Target Name:

Target Type: Microsoft SQL Server

Agent: `https://<mycompany.com>:<port>/emd/main/`

---

**Monitoring Database Host Credentials**

Credential type: DBHostCreds

Target System Username:

Target System Password:

Confirm Target System Password:

---

**Monitoring Database Credentials**

Credential type: DBCredits

Database Username:

Database Password:

Confirm Database Password:

Database Role:

Confirm Database Role:

---

**Properties**

Connect Using Windows Integrated Authentication (Yes/No):

JDBC Driver (Optional):

\* JDBC URL (Example : jdbc:sqlserver://<host>:<port>):

Some issues you may encounter could be because of credentials you were required to enter, but by entering them confuse the plug-in into not working. The following sections describe the credentials fields and whether or not they are required:

- [Monitoring Database Host Credentials](#)
- [Monitoring Database Credentials](#)
- [Using Windows Integrated Authentication](#)

For more information about this issue, see *What to configure as authentication details in SQL Server target discovery?* (Doc ID 1500823.1) in My Oracle Support (<https://support.oracle.com>):

<https://support.oracle.com/rs?type=doc&id=1500823.1>

### 2.6.1.1 Monitoring Database Host Credentials

The Monitoring Database Host Credentials are the host credentials for the machine where your Microsoft SQL Server instance is installed. *Local monitoring* of your SQL Server instance occurs when the Enterprise Manager Agent is on the same machine as the SQL Server. *Remote monitoring* is when the Enterprise Manager Agent monitoring the SQL Server instance is on a different machine. Beginning with Enterprise Manager Cloud Control 12c Release 12.1.0.3, the credentials in this section are optional. However, they are required if you plan on doing remote monitoring of your SQL Server instance.

- If you plan on remote monitoring, enter the valid credentials into this section:
  - Target System Username
  - Target System Password

Figure 2–6 shows an example of the Monitoring Database Host credentials fields.

**Figure 2–6 Monitoring Database Host Credentials**

- If you do not plan on using remote monitoring, then leave these fields blank.

---

**Note:** In Enterprise Manager Cloud Control 12c Release 12.1.0.2 and earlier, Monitoring Database Host credentials are required to add the target instance.

For earlier versions of Enterprise Manager, you will have to enter something in this section (not necessarily valid credentials) and after the target instance is created, go to the Monitoring Configuration page (click **Target**, then **Target Setup**, and finally **Monitoring Configuration** from the menu on the target home page) and remove these entries.

---

The target instance monitoring will not work if you enter credentials in this section and are not doing remote monitoring. You must remove the entries in the Monitoring Configuration page for the target instance to work.

### 2.6.1.2 Monitoring Database Credentials

The Monitoring Database Credentials are the credentials for your Microsoft SQL Server instance. Beginning with Enterprise Manager Cloud Control 12c Release 12.1.0.3, the credentials in this section are optional. However, they are required if the SQL Server instance is not configured for Windows Integrated Authentication (WIA) and you plan on doing SQL authentication when connecting to the SQL Server instance.

---

**Note:** SQL Servers are generally configured with both WIA and SQL authentication. In such cases, you should choose only one type of authentication for Enterprise Manager monitoring purposes. Configuring the Database username and password fields with WIA=YES will cause issues.

---

- If you plan on SQL authentication, enter the valid credentials into this section:
  - Database Username
  - Database Password
  - Database Role

Figure 2–7 shows an example of the Monitoring Database credentials fields.



---



---

**Note:** If the SQL Server instance is configured for Windows Integrated Authentication (WIA), then leave these fields blank.

The target instance monitoring will not work if you enter credentials in this section **and** are using WIA to monitor your SQL Server instance. You must remove the entries in the Monitoring Configuration page for the target instance to work.

---



---

**Figure 2–7 Monitoring Database Credentials**

- If you do not plan on doing SQL authentication, then leave these fields blank.

---



---

**Note:** In Enterprise Manager Cloud Control 12c Release 12.1.0.2 and earlier, Monitoring Database credentials are required to add the target instance.

For earlier versions of Enterprise Manager, you will have to enter something in this section (not necessarily valid credentials) and after the target instance is created, go to the Monitoring Configuration page (click **Target**, then **Target Setup**, and finally **Monitoring Configuration** from the menu on the target home page) and remove these entries.

---



---

### 2.6.1.3 Using Windows Integrated Authentication

If you configure your target instance to use Windows Integrated Authentication (WIA) to connect to the SQL Server, then you must set the WIA target instance property to **Yes** and Database Credentials will not be set.

You also must ensure that your Enterprise Manager Agent is set up correctly for this type of connection. The Agent service in the Windows Server should be owned by the WIA Windows OS named **user** (and not **local system**).

## 2.6.2 Monitoring Error Messages

Table 2–1 describes monitoring issues and provides potential causes and actions.

**Table 2–1 Monitoring Error Messages**

Error Message	Possible Cause	Action
DLL file \$AgentHome\sysman\jdbcdriver\sqljdbc_auth.dll is found missing or was never copied manually. Please copy IA64 version of sqljdbc_auth.dll at the above location and re-try	64-bit version of sqljdbc_auth.dll is either missing or not copied manually in the specified directory.	Download Type 4 Microsoft SQL Server 2005 JDBC Driver version 1.2 and copy the IA64 version of sqljdbc_auth.dll to \$Agent_home\sysman\jdbcdriver directory. The file sqljdbc_auth.dll is available as part of Type 4 Microsoft SQL Server 2005 JDBC Driver version 1.2 (after unzipping, you will find three files with same name, that is, auth\x86\sqljdbc_auth.dll, auth\x64\sqljdbc_auth.dll, and auth\ia64\sqljdbc_auth.dll)
DLL file \$AgentHome\sysman\jdbcdriver\sqljdbc_auth.dll is found missing or was never copied manually. Please copy AMD64 version of sqljdbc_auth.dll at the above location and re-try	64-bit version of sqljdbc_auth.dll is either missing or not copied manually in the specified directory.	Download Type 4 Microsoft SQL Server 2005 JDBC Driver version 1.2 and copy the X64 version of sqljdbc_auth.dll to \$Agent_home\sysman\jdbcdriver directory. The file sqljdbc_auth.dll is available as part of Type 4 Microsoft SQL Server 2005 JDBC Driver version 1.2 (after unzipping, you will find three files with same name, that is, auth\x86\sqljdbc_auth.dll, auth\x64\sqljdbc_auth.dll, and auth\ia64\sqljdbc_auth.dll)
Mirroring Monitoring metric cannot collect until the Database Mirroring Monitor has been launched.	The Mirroring Monitor metric leverages data from the Database Mirroring Tool, and will fail to collect if this tool has not been launched.	Launch Microsoft's Database Mirroring Monitor tool.
Bad arg length for Socket::inet_ntoa, length is 0, should be 4	DNS resolution has failed. This may be due to incorrect host name specified in the JDBC URL field, failed attempts to contact DNS server, or "down" status of the DNS server.	Check ping and nslookup for the host name specified in the JDBC URL field. If these commands fail, then include the IP address in the JDBC URL field, instead of host name, and check the behavior.
Error in adding target - _Wbem_Remote_Determination_DynamicProperty - Couldn't determine the IP address of the SQL Server Host. Possible reasons are - Host Name or IP address provided in the JDBC URL is not correct - Domain Name Server (DNS) is down or Domain Name resolution failed. Please contact your system/network administrator to resolve the DNS configuration.	DNS resolution has failed. This may be due to incorrect host name specified in the JDBC URL field, failed attempts to contact DNS server, or "down" status of the DNS server	Check ping and nslookup of the SQL Server target host machine (provided in the JDBC URL) field from the Enterprise Manager Agent system.
Error: 0x80041010	WMI repository is not up-to-date. As the class is part of root\cimv2 namespace, it should be available as part of default WMI installation.	<p>Perform the following steps:</p> <ol style="list-style-type: none"> <li>1. At command prompt, repeat running the following command twice or thrice in sequence: <pre>wmiadapt /f wmiadapt /resyncperf</pre> </li> <li>2. Restart Windows Management Instrumentation service.</li> </ol> <p>Notes:</p> <ul style="list-style-type: none"> <li>■ This applies only if you use SQL Server plug-in version 3.0.2.0.0 or higher</li> <li>■ When this error is found for a 32-bit version of SQL Server installed on 64-bit system, instead of using the default wmiadapt executable, look for the wmiadapt executable under &lt;WINDOWS_ROOT&gt;\SysWOW64, for example, C:\WINDOWS\SysWOW64. Run this copy of wmiadapt.exe with the options mentioned above</li> </ul>

**Table 2–1 (Cont.) Monitoring Error Messages**

Error Message	Possible Cause	Action
Target is In Broken State: Metric Collection Errors Encountered	This behavior occurs when target, agent, or both and/or target system become slow or heavily loaded and computation of dynamic properties take longer than the default timeout value	<p>Execute the following command:</p> <pre>emctl reload agent dynamicproperties &lt;target name&gt;:&lt;target type&gt;</pre> <p>OR</p> <p>You can alternatively resubmit the target instance properties:</p> <ol style="list-style-type: none"> <li>1. Click on the Monitoring Configuration link (under the Related Links section on the plug-in target home page).</li> <li>2. Re-enter the encrypted properties.</li> <li>3. Click OK.</li> </ol> <p><b>Note:</b> This bug has been fixed for Oracle Enterprise Manager Agent version 10.2.0.3 and higher. You might encounter this issue only for Agent versions lower than 10.2.0.3.</p>
Can't resolve a non-optional query descriptor property [provided_sql_server_name] (ms_sqlserver_servername) in agent logs. And in emagent_perl.trc, ERROR: The hostname/ipaddress specified in JDBC URL is of Oracle Enterprise Manager Agent system. However, System Username 'is' specified. For a SQL Server target on the same box as OEM Agent, System Username should not be specified.	This error occurs when the System Username and Password are specified during discovery (and not removed later on). In the case where the Agent is on the same box as the target instance (local monitoring), the System credentials must not be specified.	<ol style="list-style-type: none"> <li>1. Go to the target instance home page</li> <li>2. Click <b>Target</b>, then <b>Target Setup</b>, and finally <b>Monitoring Configuration</b></li> <li>3. Remove the system credentials and save the new settings</li> </ol> <p>See <i>Metric Collection Error after MSSQL Target Discovery: Can't Resolve A Non-optional Query Descriptor</i> (Doc ID 1503611.1) in My Oracle Support for more information:</p> <p><a href="https://support.oracle.com/rs?type=doc&amp;id=1503611.1">https://support.oracle.com/rs?type=doc&amp;id=1503611.1</a></p>
Metric Collection Error "em_error=There was not enough memory to complete query 'SELECT name,pathname,processid,state FROM win32_service WHERE name='mssql\$2008' AND pathname LIKE '%sqlservr.exe%' "	The WMI service is not functioning properly.	<ol style="list-style-type: none"> <li>1. Execute the following command <b>three</b> times: <pre>wmiadapt /f wmiadapt /resyncperf</pre> </li> <li>2. Restart the Windows Management Information and WMI Performance Adapter services.</li> </ol> <p>See <i>How To Troubleshoot Microsoft SQL Server Plug-In Issues</i> (Doc ID 367797.1) in My Oracle Support for more information:</p> <p><a href="https://support.oracle.com/rs?type=doc&amp;id=367797.1">https://support.oracle.com/rs?type=doc&amp;id=367797.1</a></p>
Target instance remains in pending state after discovery. Agent log error: Execution error: oracle.sysman.emSDK.agent.fetchlet.exception.FetchletException: Failed to connect, No suitable driver found for jdbc:sqlserver://MSSQLHOSTNAME:1433	The JDBC URL is incorrect or the database account used to connect has expired.	<ol style="list-style-type: none"> <li>1. Go to the target instance home page</li> <li>2. Click <b>Target</b>, then <b>Target Setup</b>, and finally <b>Monitoring Configuration</b></li> <li>3. Remove the extra space at the beginning of the JDBC URL</li> </ol> <p>See <i>MSSQL Target Remains In Pending State After Discovery</i> (Doc ID 1527441.1) in My Oracle Support for more information:</p> <p><a href="https://support.oracle.com/rs?type=doc&amp;id=1527441.1">https://support.oracle.com/rs?type=doc&amp;id=1527441.1</a></p>

### 2.6.3 General Connection Issues

This section addresses any issues the plug-in has with connecting to your target instance. These issues typically would show up either when the Test Connection button is pressed on the page for adding a target instance or in the Agent after the instance has already been added.

---

---

**Note:** The Test Connection button should not be used prior to Enterprise Manager Release 12.1.0.3.0. Before that release, a bug prevented the Test Connection button from working for any of the non-Oracle database plug-ins. Add the target instance without attempting to test the connection.

---

---

The following connection areas are presented:

- [General Connection Errors](#)
- [JDBC Connection Errors](#)
- [WMI Connection Errors](#)

### **2.6.3.1 General Connection Errors**

[Table 2–2](#) describes general connection issues.

**Table 2–2 General Connection Issues**

Error Message	Possible Cause	Action
<p>Missing Properties or WMI Error (with error code)</p> <p>This may be any of the following:</p> <ul style="list-style-type: none"> <li>■ Missing Properties: [STDINWBEM_HOST]</li> <li>■ Missing Properties Error [servername_from_jdbc]</li> <li>■ Missing Properties: [version]</li> <li>■ Error 0x80007005</li> <li>■ Error 0x80041003</li> </ul>	<p>This may be seen when the Management Agent encounters an error while computing any of the Dynamic Properties. To verify the behavior of the computation of Dynamic Properties, try <b>Test Connection</b>. You can try the connection from either the Add Target page (if the target is not already added) or the Target Home page (from the from the target instance home page, click <b>Target</b>, then <b>Target Setup</b>, and finally <b>Monitoring Configuration</b>).</p> <p>The reason for the failure in Dynamic Property computation may be because the Management Agent process owner and/or the provided System User Name (if the target is on a remote location that is different from the host where the Management Agent is running) do not have adequate privileges and permissions to monitor these targets.</p>	<p>The Dynamic Property computation error needs to be resolved. Details on how to resolve the issue are mentioned below:</p> <ul style="list-style-type: none"> <li>■ If you tested the connection, then after successful testing of the connection, re-enter the password details. On the refreshed page, the password fields may show some encrypted values but those are incorrect values, as the credentials are not cached. So re-enter the passwords and then click <b>OK</b>.</li> <li>■ To check whether the user has adequate privileges, try out a test connection using WBEMTEST or CIM Studio. Test the connection by executing queries using these tools from the agent machine to the local or remote target machine.</li> </ul> <p>A failure or error message while connecting to the namespaces <code>root\default</code>, <code>root\cimv2</code> and/or <code>root\MicrosoftSQLServer</code> (in the case of SQL Server 2000) helps to find the exact problem.</p> <p>After confirming this, modify the permissions so that you can add targets. For instructions to modify permissions, refer to <a href="#">Modifying Permissions</a>.</p> <p>However, if you do not see any error in the connection (or while running the query) through WBEMTEST for <code>root\cimv2</code> or <code>root\MicrosoftSQLServer</code> (only in the case of SQL Server 2000) namespaces, then check the owner of the Management Agent process and the user that you logged in as and ran the WBEMTEST query. If the above two are not the same, then change the owner of the Management Agent process to the same user that ran the query through WBEMTEST (preferably, this should be a domain account) and check the behavior of the plug-in target or Test Connection.</p> <ul style="list-style-type: none"> <li>■ Check the server name retrieved with JDBC is null. A null value makes the discovery fail.</li> </ul> <p>Refer to the related article on Microsoft Website: <a href="http://support.microsoft.com/kb/303774/">http://support.microsoft.com/kb/303774/</a></p> <p>The article 303774 documents the Microsoft bug 354825 and states how the servername can be NULL and how to fix the issue.</p> <p><b>Note:</b> Contact Microsoft Support before applying the steps provided at the above URL</p>
<p>The host name/ IP address specified in JDBC URL is of Oracle Enterprise Manager Agent system. However, System Username is specified. For a SQL Server target on the same box as OEM Agent, System Username should not be specified.</p>	<p>In case of Local Monitoring scenario, System User is specified in the System User Name field while adding target.</p>	<p>Remove the System User Name from the System User Name field and re-try.</p>
<p>Failed to connect, Network Error. Possible reasons are: Either JDBC URL is wrongly formed or one of its parameters are wrong</p>	<p>Incorrect host name in the JDBC URL</p>	<p>Provide the correct SQL Server hostname in the JDBC URL and re-try.</p>
<p>Failed to connect, Login Failure. Possible reasons are: Encrypted properties are not provided. Provided Database Username or Password or both are not correct. Provided Database User may not exist. Login failed for user 'sa'.</p>	<p>Incorrect credentials (Database Username or Database Password) for the Database user</p>	<p>Provide the correct credentials</p>

**Table 2–2 (Cont.) General Connection Issues**

<b>Error Message</b>	<b>Possible Cause</b>	<b>Action</b>
Failed to connect, The TCP/IP connection to the host has failed. java.net.ConnectException: Connection refused: connect	The following could be one of the causes: <ul style="list-style-type: none"> <li>■ TCP/IP port and/or Hostname may be wrong</li> <li>■ TCP/IP port may not be enabled</li> <li>■ SQL Server is not running</li> </ul>	Check the correct port number for the target. For information about checking the port number, see <a href="#">Enabling TCP/IP Port (Microsoft SQL Server 2005 Only)</a> .
Cannot find the key: SOFTWARE\Microsoft\Microsoft SQL Server\SQLSRVR_2000\MSSQLServer\CurrentVersion\CurrentVersion. Could not connect. Error code = 0x80041003 em_error=Failed while connecting to WMI.	The following could be one of the causes: <ul style="list-style-type: none"> <li>■ System user does not have the privilege to access the particular registry key</li> <li>■ The registry key does not exist.</li> </ul>	Assign Read permission to the registry key(s) as documented. Replace permission entries on all child objects in the Advanced mode.
MSSQL_NumClusterNodes - Error Querying: The user does not have permission to perform this action	Database User specified does not have privilege/role to the SQL Server instance.	Assign sysadmin server role to the Database User as mentioned in the above article.

### 2.6.3.2 JDBC Connection Errors

Table 2–3 describes the JDBC-related connection issues.

**Table 2–3 JDBC Connection Issues**

Error Message	Possible Cause	Action
<p>No Owner for One or More Databases</p> <p>When you do a test connection, you might encounter this error while adding the target.</p>	<p>There is no owner for one or more databases in the SQL Server instance.</p>	<p>Do the following:</p> <p>Ensure that the output of the following are same:</p> <ul style="list-style-type: none"> <li>■ Output of the query <code>select @@servername</code> when ran from Microsoft Query Analyzer tool (after connecting to the database)</li> <li>■ The following registry key from the SQL Server target system <ul style="list-style-type: none"> <li>HKEY_LOCAL_</li> <li>MACHINE\SOFTWARE\Microsoft\Microsoft SQL Server</li> </ul> </li> </ul> <p><b>Note:</b> If 32-bit version of SQL Server is installed on 64-bit system, the registry key to be checked on the SQL Server target system is HKEY_LOCAL_</p> <p>MACHINE\SOFTWARE\Wow6432Node\Microsoft\Microsoft SQL Server.</p> <p>Using Microsoft SQL Query Analyzer:</p> <ol style="list-style-type: none"> <li>1. Check if <code>exec master.dbo.sysdatabases</code> gives the same error.</li> <li>2. See if you find NULL value for the second column for query <code>select name, suser_sname(sid) from master.dbo.sysdatabases</code>.</li> <li>3. Run the following command for all the database for which the second column is found NULL: <ul style="list-style-type: none"> <li>* *Use &lt;database_name&gt;</li> <li>* *exec sp_changedbowner <i>username</i></li> </ul> <p>The <i>username</i> can be the name of any database owner.</p></li> </ol> <ol style="list-style-type: none"> <li>4. Rerun the following query: <pre>select name, suser_sname(sid) from master.dbo.sysdatabases</pre> <p>Now, you should not find the value in the second column NULL.</p></li> </ol> <ol style="list-style-type: none"> <li>5. Run the following query and ensure that the error is rectified: <pre>exec master.dbo.sysdatabases</pre> </li> </ol>
Error While Obtaining Connection	The port number provided is wrong.	Provide the correct port number for the target. See <a href="#">Finding TCP/IP Port</a> for details.
JDBC Connection Fails		<p>If the JDBC connection fails, ensure the following:</p> <ul style="list-style-type: none"> <li>■ The specified user exists in the Manage Logins dialog box for the SQL Server instance.</li> <li>■ The user has the sysadmin fixed server role.</li> <li>■ The SQL Server Authentication method is enabled for the particular instance.</li> <li>■ The query <code>select @@servername, @@servicename</code> is not returning a NULL value for the SQL Server instance.</li> </ul>

**Table 2–3 (Cont.) JDBC Connection Issues**

Error Message	Possible Cause	Action
Metric collection error:" The server principal "<username>" is not able to access the database "<dbname>" under the current security context....."		Provide access to that database for the login user.
Error while obtaining connection.[Microsoft][SQLServer 2000 Driver for JDBC]Error Establishing Socket or Failed to Connect	<p>The reason can be one of these:</p> <ul style="list-style-type: none"> <li>■ Incorrect port with correct host name</li> <li>■ Incorrect host name with correct port</li> <li>■ Incorrect port and host name</li> <li>■ SQL Server is not running</li> <li>■ TCP/IP port is not enabled on SQL Server instance</li> </ul>	Provide the correct port and host name. If the SQL Server is not running, then start it. Ensure that the TCP/IP port is enabled on the SQL Server instance.
<p>The following error is encountered:</p> <pre># _Wbem_Remote_Determination_ DynamicProperty - Missing Properties: [iscluster] # MSSQL_NumClusterNodes - Error Querying: The user does not have permission to perform this action. # _MSSQL_Existence_TestMetric - em_error=em_error= Can't find the key: SOFTWARE\Microsoft\Microsoft SQL Server\SQLSRVR_ 2005\MSSQLServer\ CurrentVersion\CurrentVersion</pre>		<p>Execute the following command from sysadmin user:</p> <pre>GRANT VIEW SERVER STATE TO "login name"</pre>

### 2.6.3.3 WMI Connection Errors

Table 2–4 addresses WMI-related connection issues.



**Table 2–4 WMI Connection Issues**

Error Message	Possible Cause	Action
Metric Collection Error While doing a test connection, you might encounter the following error: Can't get query descriptor or execution descriptor	(Failed to compute wbemremote) - is cluster missing due to wrong URL, wrong credential or wrong sqljdbc.dll file location.	Check the sqljdbc.dll file location, SQL Server status (if status is not Up, start Microsoft SQL Server), URL, and credentials.
WMI Error 0x8004100E	The 0x8004100E error indicates the Namespace specified could not be found error string or SQL Server 2000 and SQL Server 2005 are both installed on the same machine. If it is the latter, this is an unsupported configuration.	In this case, ensure the root\MicrosoftSQLServer namespace is enabled. Otherwise the test connection will fail. <b>Note:</b> This issue applies only to Microsoft SQL Server 2000.
Could Not Connect. Error:0x80041064 You might encounter this error leading to a connection failure with a message explaining the failure to connect to WMI.	For Local Agent Monitoring, System Username and password are provided. For Remote Agent Monitoring, System Username and Password are either incorrect or are fields are left blank.	Remove the System Username and password using the Monitoring Configuration link. Provide System Username and Password using the Monitoring Configuration link.
On non-Win2k computers- em_error=Could not connect. Error code = 0x80070005 em_error=Failed while connecting to WMI Error: On Win2k computers- em_error=Could not connect. Error code = 0x80041003 em_error=Failed while connecting to WMI You might encounter these errors leading to a connection failure, stating Failed while connecting to WMI.	The following may be the possible causes: <ul style="list-style-type: none"> <li>■ WMI Error code '0x80041003' or '0x80070005' is ACCESS_DENIED. System User doesn't have permission to access root\default namespace</li> <li>■ System User does not have the required access to DCOM</li> </ul>	Do the following: <ol style="list-style-type: none"> <li>1. Assign access (Remote Enable) for root\Default namespace and root\cimv2. For detailed steps, see <a href="#">Modifying Permissions</a>.</li> <li>2. Assign "Launch and Activate Permission – Edit Limits" for DCOM. For detailed steps, see <a href="#">Modifying DCOM Remote Access Permissions</a>.</li> </ol>
Error: em_error=Could not connect. Error code = 0x800706ba em_error=Failed while connecting to WMI.	Access denied because RPC Server is Unavailable. This may happen if: <ul style="list-style-type: none"> <li>■ RPC Server is 'really' down. Or,</li> <li>■ Due to Firewall configuration</li> </ul>	Allow Remote Administration Exception in Windows Firewall setting. See the following link for more details: <a href="http://msdn.microsoft.com/en-us/library/aa389286(VS.85).aspx">http://msdn.microsoft.com/en-us/library/aa389286(VS.85).aspx</a>
After Deploying the Plug-in To Management Agents Running on Cluster Nodes, Target-Type "Microsoft SQL Server" Is Not Displayed on the "Virtual Agent Service" Home Page in Enterprise Manager Grid Control	Reload of virtual Management Agent is not performed after the plug-in is deployed to Management Agents running on 'real' nodes.	From the ORACLE_HOME of the 'virtual' Management Agent, reload the Management Agent by running the following command:  emctl reload agent

## 2.6.4 Windows Authentication Issues

Table 2–5 describes general Windows authentication issues.

**Table 2–5 Windows Authentication Issues**

Error Message	Possible Cause	Action
DB Credentials should not be provided for Windows Integrated Security Connections	Database credentials have been provided for Windows Authentication	Remove the DB credentials and retry.
Failed to connect, Login Failure. Possible reasons are: Encrypted properties are not provided. Provided Database Username or Password or both are not correct. Provided Database User may not exist. Login failed for user 'NT AUTHORITY\ANONYMOUS LOGON'.	For remote monitoring scenario, user desires to use Windows Authentication, but System Username is not provided.	Provide the System credentials and retry.
Exception occurred while Logon: Logon failure: the user has not been granted the requested logon type at this computer.	System User specified does not have login privilege on agent system.	Assign 'Log on as Batch Job' to the Target System User on Agent system. To do this, follow these steps: <ol style="list-style-type: none"> <li>1. Open the local security setting by clicking <b>Start</b>, then <b>All Programs</b>, and selecting <b>Administrative Tools</b>.</li> <li>2. Select <b>Local Policies</b> and then click <b>User Right Assignments</b>.</li> <li>3. Add the user in the <b>Log on Batch Job</b> policy.</li> </ol>
Failed to connect, Login Failure. Possible reasons are: Encrypted properties are not provided. Provided Database Username or Password or both are not correct. Provided Database User may not exist. Login failed for user (provided user)	System user does not have login access to Database server.	Provide System User login access to the instance. For detailed steps, see <a href="#">Modifying Permissions for Database Authentication</a> .
Error Querying: The user does not have permission to perform this action.	System User specified does not have the required privilege/role to the Microsoft SQL Server instance.	Assign sysadmin server role to the System User. For detailed steps, see <a href="#">Modifying Permissions for Database Authentication</a> .

## 2.7 Report Elements and Dependent Metrics

Table 2–6 lists the report elements and dependent metrics for Microsoft SQL Server plug-in:

**Table 2–6 Report Elements and Dependent Metrics**

Report Name	Report Elements	Dependent Metrics
Microsoft SQL Server Cache and Buffer	Memory Status	Memory Manager
	Buffer Performance	Buffer Manager
	Buffer Allocation	Buffer Manager
	Cache Performance	Cache Manager
	Memory Allocation	Memory Manager
	Memory Allocation Chart	Memory Manager

**Table 2–6 (Cont.) Report Elements and Dependent Metrics**

<b>Report Name</b>	<b>Report Elements</b>	<b>Dependent Metrics</b>
Microsoft SQL Server Cluster	Cluster Nodes Summary	Windows Cluster Name Windows Cluster Number of Nodes
	SQL Cluster Nodes Summary	SQL Cluster Number of Nodes
	Nodes in Cluster	Windows Cluster Nodes SQL Cluster Nodes Information Cluster Active Resource And Node
	Cluster Resources and Activity	Cluster Active Resource And Node Cluster Resource and Owner Node Name Cluster Resource And Type Cluster Resource And Group Cluster Resources
Microsoft SQL Server Database Configuration	Databases	Database
	Database Settings	Database Setting (Configuration Metric)
Microsoft SQL Server Database Backups and Jobs	Database Backups	SQL Server (Configuration Metric)
	Database Jobs	Database Job
Microsoft SQL Server Space Usage	Database Space Usage	Database
	Top 5 Databases by Space Used (%)	Database
	Database Files	SQL Server (Configuration Metric) Microsoft SQL DatabaseFile
Microsoft SQL Server Alert Log and Alert Events	Error Logs	Registry Setting (Configuration Metric)
	Event Summary (in current log)	SQL Server (Configuration Metric) Event Log Entry
	Server and Agent Errors	SQL Server (Configuration Metric) Event Log Entry
	Server and Agent Warnings	SQL Server (Configuration Metric) Event Log Entry
	Server Alerts	Server Alerts
Microsoft SQL Server Process Info and Locks	Summary	SQL Server Process
	Process States	SQL Server Process
	Process Info	SQL Server (Configuration Metric) SQL Server Process
	Process Locks	Database Lock
	Lock Analysis	Locks
Microsoft SQL Server Memory Statistics	Server Statistics	Memory Statistics
	Buffer Cache Hit Ratio	Memory Statistics
	Cache Hit Ratio	Memory Statistics
	Average Latch Wait Time (ms)	Memory Statistics
	Total Lock Wait Time (ms)	Memory Statistics
Microsoft SQL Server Performance	Host CPU load percentage	Processor
	Top SQL Server Processes by CPU Time	SQL Server Process
	Memory Manager	Memory Manager
	Top Server Processes by Memory Usage	SQL Server Process

**Table 2–6 (Cont.) Report Elements and Dependent Metrics**

Report Name	Report Elements	Dependent Metrics
Microsoft SQL Server Users and Privileges	Logins	Login
	Server roles	SQL Server Role
	Database users	User
	Top 10 User Logins Based on CPU Usage (ms)	User Statistics
Microsoft SQL Server Statistics	Server Statistics	Server Statistics
	Rate of Errors	Server Statistics
	Packet Error Ratio	Server Statistics
	Rate of Reads	Server Statistics
	Rate of Writes	Server Statistics
	Server Statistics	General Statistics
Microsoft SQL Server System Configuration	Instance Information	SQL Server (Configuration Metric)
		Response
		Agent Status
	Registry	SQL Server (Configuration Metric) Registry Setting (Configuration Metric)
Security	Integrated Security Setting	
Server Parameters	Database Parameter	

### 2.7.1 Report Error Messages

The following error messages may appear while attempting to generate a report:

**Error Message:** The data has an insufficient number of columns. This graph requires at least 2 columns of data. The data provided has 1 column.

**Possible Cause:** On charts, if there are insufficient data points available, the chart may display this error message.

**Action:** This error message is incorrect, as it should say the data has an insufficient number of *rows*, not *columns*. The error message will appear when there is an insufficient number of data points available to display.

## 2.8 Support References for Microsoft SQL Server Plug-in

The following support documents are available in My Oracle Support:

<https://support.oracle.com>

- *Test connection fails with DB Credentials are found missing* (Doc ID 1503064.1):  
<https://support.oracle.com/rs?type=doc&id=1503064.1>
- *What to configure as authentication details in SQL Server target discovery?* (Doc ID 1500823.1):  
<https://support.oracle.com/rs?type=doc&id=11500823.1>
- *Metric Collection Error after MSSQL Target Discovery: Can't Resolve A Non-optional Query Descriptor* (Doc ID 1503611.1):  
<https://support.oracle.com/rs?type=doc&id=1503611.1>

- *MSSQL Target Remains In Pending State After Discovery* (Doc ID 1527441.1):  
<https://support.oracle.com/rs?type=doc&id=1527441.1>
- *How To Troubleshoot Microsoft SQL Server Plug-in Issues* (Doc ID 367797.1):  
<https://support.oracle.com/rs?type=doc&id=367797.1>
- *How To Manually Run the Dynamic Properties for discovering Microsoft SQLServer Database* (also details how to manually run each metric on the command line) (Doc ID 878709.1):  
<https://support.oracle.com/rs?type=doc&id=878709.1>



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## Troubleshooting the IBM DB2 Database Plug-in

This chapter provides details to help you identify, diagnose, and resolve issues that you may encounter while working with the IBM DB2 Database plug-in.

The following topics are provided:

- [Finding a TCP/IP Port](#)
- [IBM DB2 Problem Resolution](#)
- [Database Monitoring Metric Collection Error Messages](#)
- [Report Elements and Dependent Metrics](#)
- [Support References for IBM DB2 Plug-in](#)

### 3.1 Finding a TCP/IP Port

The communication port to access the remote IBM DB2 instance can be configured. The default value is **50000**.

To find the port for a particular IBM DB2 instance, perform the instructions for the following platforms:

- [Finding a TCP/IP Port for UNIX Platforms](#)
- [Finding a TCP/IP Port for Microsoft Windows Platforms](#)
- [Finding a TCP/IP Port for z/OS Platforms](#)

#### 3.1.1 Finding a TCP/IP Port for UNIX Platforms

1. Open a command prompt and run the following commands:

```
cd /usr/etc
cat services
```

2. Start of changeScroll through the list of services until you find the connection port number for the database instance of the remote database.

The instance name is usually listed as a comment. If it is not listed, then complete the following steps to find the port:

1. Open a DB2 command prompt, and run the following command to verify that you are on the correct instance. IBM DB2 will report the current instance.

```
get instance
```

2. Run the following command to find the service name for your instance:

```
get dbm cfg | grep SVCE
```

IBM DB2 will report the service name.

For example:

```
TCP/IP Service name (SVCENAME) = db2cdb2inst24
```

3. Use the service name to find the port number in the services file.

For example, enter the following command:

```
grep service_name /etc/services
```

IBM DB2 will return the information.

For example:

```
service_name 50012/tcp # Connection port for DB2 instance instance
```

### 3.1.2 Finding a TCP/IP Port for Microsoft Windows Platforms

1. Open the DB2 Control Center on the remote Windows server.
2. Right-click one of the available instances for the local machine.
3. Click **Setup Communications**.
4. Click **Properties**.

The port number is listed in the Properties window.

### 3.1.3 Finding a TCP/IP Port for z/OS Platforms

1. Connect to the z/OS system.
2. Run the following command:

```
-DISPLAY DDF
```

The TCPPORT value in the results is the port number.

## 3.2 IBM DB2 Problem Resolution

The following sections help you fix issues that you may encounter while working with the IBM DB2 plug-in:

- [Using a Suitable OS User and Assigning Authorities and Privileges](#)
- [Incorrect Credentials Used](#)
- [Failure in Loading Classpath: Could Not Create Instance](#)
- [No Data for Health Indicator Metrics](#)
- [Lock Waits Metric Not Collecting](#)

### 3.2.1 Using a Suitable OS User and Assigning Authorities and Privileges

You might see the following error on the Monitoring Configuration page of Enterprise Manager Cloud Control:

```
oracle.sysman.emSDK.emd.comm.CommException: Connection refused
```

```
Error while executing query, DB2 SQL error:  SQLCODE -443, SQLSTATE: 38553,
```



SQLERRMC: SNAPSHOT\_DBM;SNAPSHOT\_DBM;SQL1092 Reason code or token: USRWOSYSMON

**Possible Cause:** You are not using a user or the user you are using does not have the correct privileges.

**Action:** Use a user that has at least the minimum privileges. For information about creating a suitable operating system user and assigning authorities and privileges to that user, see *Enterprise Manager System Monitoring Plug-in Installation Guide for IBM DB2 Database* available at:

[http://docs.oracle.com/cd/E24628\\_01/install.121/e25215/toc.htm](http://docs.oracle.com/cd/E24628_01/install.121/e25215/toc.htm)

### 3.2.2 Incorrect Credentials Used

You might see the following error:

Failed to contact the target to be added. Following errors were received while testing the connection to the target. Update the properties accordingly, try Test Connection for testing the properties before saving.

**Response** - oracle.sysman.emSDK.emd.fetchlet.FetchletException: Error while obtaining connection.Connection authorization failure occurred. Reason: password invalid.

**Possible Cause:** You are using incorrect credentials.

**Action:** Use the correct credentials.

### 3.2.3 Failure in Loading Classpath: Could Not Create Instance

You might see the following error:

Failure in loading Classpath: Could not create instance: com.ibm.db2.jcc.DB2Driver

**Possible Cause:** You are using a newer version of the JDBC drivers which does not contain the db2jcc\_javax.jar file.

**Action:** You can confirm possible cause this by listing the files in the following directory:

`$AGENT_BASE_DIR/plugins/dependencies/oracle.em.sidb/jdbcdriver`

If you have only the db2jcc.jar and db2jcc\_license\_cu.jar files, then you have version 3.5 drivers or above, which has deprecated the db2jcc\_javax.jar file.

To resolve this issue:

- For UNIX:

```
touch $AGENT_BASE_DIR/plugins/dependencies/oracle.em.sidb/jdbcdriver/db2jcc_
javax.jar
```

- For Microsoft Windows:

- Create an empty text file in the following directory:

```
$AGENT_BASE_DIR/plugins/dependencies/oracle.em.sidb/jdbcdriver/
```

- Rename the file to db2jcc\_javax.jar

See *IBM DB2 Status pending: Could not create instance com.ibm.db2.jcc.DB2Driver* (Document ID: 1528370.1) in My Oracle Support:

<https://support.oracle.com>

### 3.2.4 No Data for Health Indicator Metrics

In some cases, you may not see any data for Health Indicator metrics.

**Possible Cause:** You have not enabled the HEALTH\_MON database manager configuration parameter.

**Action:** For data to be collected for the **Health Indicators** metric, you have to enable the HEALTH\_MON database manager configuration parameter. Once enabled, the table functions (for example, HEALTH\_TBS\_HI, HEALTH\_DB\_HI, and HEALTH\_DBM\_HI) will be populated.

---

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**Note:** Enabling these settings may result in some overheads, such as CPU and memory. Therefore, follow these troubleshooting steps only if you want to view the Health Indicator metrics.

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To enable or disable the HEALTH\_MON by CLP (Command Line Processor), run the following command:

```
db2=> update dbm cfg using HEALTH_MON [on;off]
```

To check if your changes are effective, run the following command:

```
db2=> get dbm cfg
```

The following is the output:

```
.....  
.....  
.....  
Monitor health of instance and databases (HEALTH_MON) = ON  
.....  
.....  
.....
```

For more information, access the IBM Web site.

### 3.2.5 Lock Waits Metric Not Collecting

In one situation you may not see any data for the Lock Waits metric.

**Possible Cause:** Your DB2 database was created in Version 9.7 before Fix Pack 1.

**Action:** Run the db2updv97 command. If your database was created before version 9.7, it is not necessary to run the db2updv97 command (because the catalog update is automatically taken care of by the database migration).

## 3.3 Database Monitoring Metric Collection Error Messages

Table 3–1 shows common error messages and their appropriate resolution you may encounter when collecting database monitoring metrics. See Table 3–2 for a summary of the report elements and dependent metrics for IBM DB2.

**Table 3–1 Database Monitoring Metric Collection Error Messages**

Error Message	Possible Cause	Action
<pre>oracle.sysman.emSDK.emd.fetchlet.FetchletException: Error while executing query. DB2 SQL error: SQLCODE: -204, SQLSTATE: 42704, SQLERRMC: SYSTOOLS.STMG_DBSIZE_INFO</pre>	<p>The table STMG_DBSIZE_INFO is not created.</p>	<p>For data to be collected for the Database Monitoring metric, make a call to the GET_DBSIZE_INFO package so that the STMG_DBSIZE_INFO table gets created and populated with the required data.</p> <p>The GET_DBSIZE_INFO procedure calculates the database size and maximum capacity. The calculated values are returned as procedure output parameters and cached in the SYSTOOLS.STMG_DBSIZE_INFO table. The procedure caches these values because the calculations are costly.</p> <p>The SYSTOOLS.STMG_DBSIZE_INFO table is created automatically the first time the procedure runs. If there are values cached in the SYSTOOLS.STMG_DBSIZE_INFO table and they are current enough, as determined by the snapshot-timestamp and refresh-window values, then these cached values are returned.</p> <p>If the cached values are not current enough, new cached values are calculated, inserted into the SYSTOOLS.STMG_DBSIZE_INFO table and returned, and the snapshot-timestamp value is updated. The last parameter in the GET_DBSIZE_INFO call is refresh window.</p> <p>Default value refresh window (time difference between successive calls) is 30 minutes. If your database is growing at a faster rate, then you can set a lower value.</p> <p>To make a call to GET_DBSIZE_INFO by CLP (Command Line Processor), run the following command:</p> <pre>db2==&gt;CALL GET_DBSIZE_INFO(?, ?, ?, -1)</pre> <p>In this case, the refresh window is 30 minutes. For more information, access the IBM Web site.</p>
<pre>Target - &lt;target_name&gt; Type - IBM DB2 Database Metric - DB2 Diag Log File Monitoring Collection - Timestamp Apr 1, 2009 10:19:59 AM Error Type - Collection Failure Message - Use of uninitialized value in string eq at e:\oracle\agent10g\sysman\admin\scripts\ emx\ibm_db2_database\logmine.pl line 188. The DB2 Database Manager Configuration Parameter DIAGPATH needs to be set</pre>	<p>Following could be the causes of the error:</p> <ul style="list-style-type: none"> <li>■ DIAGPATH is not set</li> <li>■ Database is down</li> </ul>	<p>If DIAGPATH is not set, set the DIAGPATH run from the command line as follows:</p> <pre>db2 update dbm cfg using diagpath &lt;path&gt;</pre> <p>On Windows systems, the path is &lt;db2 installation directory&gt;\&lt;instance name&gt;</p> <p>On Linux or AIX systems, the path is &lt;instancehome&gt;/sqllib/db2dump</p> <p>If the DIAGPATH is already set, metric collection errors will occur if the database is down.</p>

## 3.4 Report Elements and Dependent Metrics

Table 3–2 summarizes the report elements and dependent metrics for IBM DB2.

**Table 3–2 IBM DB2 Report Elements and Dependent Metrics**

Report	Report Element	Metric
IBM DB2 Database Applications CPU Usage	Top 10 Applications Based on Total CPU Usage (ms)	Agent Monitoring
	Top 10 Applications Based on Total Idle Time (ms)	Agent Monitoring

**Table 3–2 (Cont.) IBM DB2 Report Elements and Dependent Metrics**

<b>Report</b>	<b>Report Element</b>	<b>Metric</b>
IBM DB2 Database Applications Lock Performance	Top 10 Applications Based on Average Lock Wait Time (ms)	Agent Monitoring
	Top 10 Applications Based on Number of Locks Held	Agent Monitoring
	Top 10 Applications Based on Number of Lock Timeouts	Agent Monitoring
IBM DB2 Database Applications Row Accesses and Sorts Performance	Top 10 Applications Based on Rows Read	Agent Monitoring
	Top 10 Applications Based on Rows Written	Agent Monitoring
	Top 10 Applications Based on Time Spent in Sorts (ms)	Agent Monitoring
IBM DB2 Database Bufferpool and Non-Buffered IO Statistics	Bufferpool Activity Summary	Database Performance
	Non Buffered IO Activity Summary	Non Buffered IO Performance
	Data Read Rate	Database Performance
	Index Read Rate	Database Performance
	Index and Data Write Rate	Database Performance
	Non Buffered IO	Non Buffered IO Performance
IBM DB2 Database Cache Statistics	Package Cache Summary	Cache Performance
	Catalog Cache Summary	Cache Performance
	Package Cache Hit Ratio	Cache Performance
	Package Cache Overflows	Cache Performance
	Catalog Cache Hit Ratio	Cache Performance
	Catalog Cache Overflows	Cache Performance
	Catalog Cache Heapfull	Cache Performance
IBM DB2 Database Container Health	Container Health Information	Container Health
	Container Health Indicator	Container Health Indicator
IBM DB2 Database DB Disk Storage Statistics	Disk Space Utilization	Database Monitoring
	Disk Space Utilization Summary	Database Monitoring
	Disk Space Utilization Details	Database Monitoring
IBM DB2 Database DB Health	Database Health Information	Database Health
	Database Health Indicator	Database Health Indicator
	Database Collection Health Indicator	Database_health_collection
IBM DB2 Database DB Manager Agents and Connections Statistics	Agent Configuration	DB Manager Configuration: Capacity (Configuration Metric)
	Agent Pool Activity	Agents Connection
	Agents Creation to Assignment Ratio	Agents Connection
	Idle Agents	Agents Connection
	Agents Waiting on Token	Agents Connection
	Remote Connections	Application Connection
	Remote Connections Summary	Application Connection
	Local Connections	Application Connection
Local Connections Summary	Application Connection	

**Table 3–2 (Cont.) IBM DB2 Report Elements and Dependent Metrics**

<b>Report</b>	<b>Report Element</b>	<b>Metric</b>
IBM DB2 Database DB Manager Configuration	DB Manager Capacity	DB Manager Configuration: Capacity (Configuration Metric)
	DB Manager Database Instance	DB Manager Configuration: Database Instance (Configuration Metric)
	DB Manager Log and Recovery	DB Manager Configuration: Logging and Recovery (Configuration Metric)
	DB Manager Partitioned DB Environment	DB Manager Configuration: Partitioned Database Environment (Configuration Metric)
	DB Manager Connections	DB Manager Configuration: Connection (Configuration Metric)
IBM DB2 Database DB Manager Health	Database Manager Health Information	Database Manager Health
	Database Manager Health Indicator	Database Manager Health Indicator
IBM DB2 Database DB Manager Sorts Statistics	Database Manager Sorts Summary	SortHeap Performance
	Post Threshold Sorts and Joins	SortHeap Performance
	Piped Sorts Rejection Rate	SortHeap Performance
IBM DB2 Database Locks Statistics	Locks Summary	Database Monitoring
	Average Lock Wait Time	Database Monitoring
	Locks Held and Waiting	Database Monitoring
	Application Escalations and Timeouts	Database Monitoring
	Deadlocks and Internal Deadlock Rollbacks	Database Monitoring
IBM DB2 Database SQL Statement Performance	Top 10 Statements Based on Rows Read	Agent Monitoring
	Top 10 Statements Based on Rows Written	Agent Monitoring
	Top 10 Statements Based on Average Sort Time (ms)	Agent Monitoring
	Top 10 Statements Based on CPU Usage (ms)	Agent Monitoring
IBM DB2 Database Sort Heap and Hash Join Statistics	Total Sorts and Hash Joins	SortHeap Performance
	Active Sorts	SortHeap Performance
	Active Sorts Summary	SortHeap Performance
	Average Sort Space Used	SortHeap Performance
	Average Sort Time Per Sort	SortHeap Performance
	Sorts Overflow Ratio	SortHeap Performance
	Hash Join Small Overflows and Overflows	SortHeap Performance
	Hash Join Small Overflows to Overflows Ratio	SortHeap Performance
IBM DB2 Database System Configuration	System Configuration	DB2 System (Configuration Metric)
	Product Overview	DB2 Product (Configuration Metric)
	Instances	DB2 Instance (Configuration Metric)
	Partitions	DB2 Partitions (Configuration Metric)
	Registry Settings	Registry Settings (Configuration Metric)

**Table 3–2 (Cont.) IBM DB2 Report Elements and Dependent Metrics**

Report	Report Element	Metric
IBM DB2 Database Tablespace Health	Tablespace Health Information	Tablespace Health
	Tablespace Health Indicator	Tablespace Health Indicator
IBM DB2 Database Tablespace Statistics	Top 5 Tablespaces by Space Available (%)	Tablespace Storage
	Tablespaces Summary	Tablespace Storage

### 3.5 Support References for IBM DB2 Plug-in

The following support documents are available in My Oracle Support:

<https://support.oracle.com>

- *IBM DB2 Status pending: Could not create instance com.ibm.db2.jcc.DB2Driver* (Doc ID 1528370.1):

<https://support.oracle.com/rs?type=doc&id=1528370.1>

## Troubleshooting the Sybase ASE Plug-in

This chapter provides troubleshooting scenarios related to Sybase Adaptive Server Enterprise (ASE) plug-in.

The following topics are provided:

- [General Sybase ASE Error Messages](#)
- [Configuration Parameter Errors](#)
- [Report Element Errors](#)
- [Support References for Sybase ASE Plug-in](#)

### 4.1 General Sybase ASE Error Messages

Table 4–1 shows typical error messages, possible causes, and resolution you may encounter while working with the Sybase ASE plug-in.

**Table 4–1** General Error Messages for Troubleshooting Sybase ASE Plug-in

Error Message	Possible Cause	Action
Failed to connect, JZ006: Caught IOException: java.net.ConnectException: Connection refused	Port number is incorrect.	Specify the correct port number in the JDBC URL.
Failed to connect, JZ00L: Login failed. Examine the SQLWarnings chained to this exception for the reason(s)	The DB user name and password are incorrect.	Specify the correct DB user name and password. If that does not work try adding <code>?charset=iso_1</code> last in the JDBC URL. For example: <code>jdbc:sybase:Tds:&lt;HOST&gt;:&lt;PORT&gt;/?charset=iso_1</code>
JZ006: Caught IOException: java.io.IOException OR JZ0I6: An error occurred converting UNICODE to the charset used by the server OR Error message: java.io.CharConversionException: java.io.UnsupportedEncodingException: hp-roman8	The <code>?charset=iso_1</code> last is not set in the JDBC URL.	Add <code>?charset=iso_1</code> last in the JDBC URL as shown below: <code>jdbc:sybase:Tds:&lt;HOST&gt;:&lt;PORT&gt;/?charset=iso_1</code>
SELECT permission denied on object <Object Name>, database master, owner dbo	The user who is currently monitoring the target does not have the required role and permissions.	Check whether the user has all the required roles and permissions as described in the <i>Configuring Sybase Adaptive Server for Monitoring</i> section of the installation guide. If not, grant the required permissions.

**Table 4–1 (Cont.) General Error Messages for Troubleshooting Sybase ASE Plug-in**

Error Message	Possible Cause	Action
<TABLE NAME> not found. Specify owner.objectname or use sp_help to check whether the object exists (sp_help may produce lots of output)	The <TABLENAME> is not available on the target side. If <TABLENAME> is either master..mon<*> or mon<*>, then the required MDA table is not available.	Check whether the MDA tables are installed. If they are not, install them.
For Segment Usage metric, there is an error when querying: Server user id <USERID> is not a valid user in database '<DATABASE>'	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.
ASEServerName;Failed to connect	Incorrect JDBC URL	Specify the JDBC URL to start with jdbc:sybase:Tds:
Can't resolve a non-optional query descriptor property [ServerName] (ServerName)	The ?charset=iso_1 element is not set in the JDBC URL.	Add ?charset=iso_1 last in the JDBC URL as shown below: jdbc:sybase:Tds:<HOST>:<PORT>/?charset=iso_1
Database reports a metric collection error when it goes down on IBM AIX with this error: Failed to run ps command	There is an OS specific bug in the code which collects the Response metric	Open the response.pl file: \$AGENT_BASE_ DIR/plugins/oracle.em.ssad.agent.plugin_ <version>/scripts/emx/sybase_ase/response.pl  Replace this code: <pre>if (\$? != 0) {     raise_error_and_exit("Failed to run ps command", 9); }</pre> with this code: <pre>if (\$? != 0 &amp;&amp; \$? != 256) {     raise_error_and_exit("Failed to run ps command", 9); }</pre> See Doc ID 1493842.1 in My Oracle Support for details: <a href="https://suppport.oracle.com">https://suppport.oracle.com</a>
Failed to Execute Job  Unable to successfully execute job "Start Up Sybase ASE."  Please set SYBSERVICE Environment Variable to the name of the Sybase ASE Service.	Windows requires the SYBSERVICE environment variable to be set to the name of the Sybase Service.	Set the SYBSERVICE environment variable to the name of the Sybase Service. For example: SYBSQL_NODS16WIN12

## 4.2 Configuration Parameter Errors

You may encounter the following error when performing a query:

Collection of monitoring data for table '<TABLE NAME>' requires that the '<PARAMETER(S)>' configuration option(s) be enabled. To set the necessary configuration, contact a user who has the System Administrator (SA) role

**Possible Cause**— The <PARAMETER> shown in the error message has not been enabled.

**Action**— Enable the <PARAMETER> that is shown in the error message. To understand how configuration parameters can be enabled, refer to the *Prerequisites* section of the installation guide.



Table 4–2 shows the configuration parameters to be enabled for each metric.

**Table 4–2 Configuration Parameters to be Enabled for Metrics**

<b>Metric</b>	<b>Configuration Parameter</b>
Adaptive Server Engines Statistics	enable monitoring
Data Caches statistics	enable monitoring
Procedure Cache statistics	enable monitoring
Open Databases statistics	enable monitoring
Server-wide worker threads statistics	enable monitoring
Network I/O Statistics	enable monitoring
Most recent error messages	enable monitoring, errorlog pipe max messages, errorlog pipe active
Locks Information	enable monitoring
Deadlock Statistics	enable monitoring, deadlock pipe max messages, and deadlock pipe active
Cache Pools Statistics	enable monitoring
Open Objects Statistics	enable monitoring, per object statistics active
Device Data and IO log statistics	enable monitoring
Devices Statistics	enable monitoring
Waiting Events Statistics	enable monitoring, wait event timing
Process Statistics	enable monitoring, wait event timing
Processes activity statistics	enable monitoring, wait event timing, per object statistics active
Processes Network IO activity	enable monitoring
Process Objects Information	enable monitoring, per object statistics active
Waiting Process Statistics	enable monitoring, wait event timing, process wait events
Currently Executing Queries	enable monitoring, wait event timing, per object statistics active, statement statistics active
Currently Executing SQL Text Information	enable monitoring, max SQL text monitored, SQL batch capture
Most recently executed statement statistics	enable monitoring, wait event timing, per object statistics active, statement pipe max messages, statement statistics active
Recently (currently being) executed SQL Text	enable monitoring, max SQL text monitored, SQL batch capture, SQL text pipe max messages, SQL text pipe active

### 4.3 Report Element Errors

In some cases, you may encounter a report element showing `No Data Found` or `No Rows Returned`.

**Possible Cause:** The underlying metric data has not been collected or the data has not been rolled up into hourly views.

**Action:** For the report element (chart or table) that shows this message, first identify the dependent metric and then check whether metric data has been collected for it.

The following shows the report elements and their dependent metrics. Using this table, identify the dependent metric. Once that is done, go to the All Metrics page of the target in Enterprise Manager Cloud Control, and check whether metric data has been collected for that dependent metric. If data has not been collected yet, then check the collection frequency and wait until the collection happens.

Table 4–3 shows the report elements and their dependent metrics.

**Table 4–3 Report Elements and Dependent Metrics**

Report Name	Report Element	Dependent Metrics
Sybase ASE Performance Statistics	CPU Utilization	Adaptive Server Statistics
	IO Utilization	Adaptive Server Statistics
	ASE State Summary	Adaptive Server State
	ASE State Summary...	Adaptive Server State
Sybase ASE Engines Statistics	System CPU (by all Engine's) Utilization	Adaptive Server Engines Statistics
	User CPU (by all Engine's) Utilization	Adaptive Server Engines Statistics
	Top 10 Engines by System CPU Utilization	Adaptive Server Engines Statistics
	Top 10 Engines by User CPU Utilization	Adaptive Server Engines Statistics
Sybase ASE Databases Space Statistics	Top 5 Databases by Data Space Utilization	Database Instances
	Top 5 Databases by Log Space Utilization	Database Instances
	Top 10 Databases by Data Space Utilization	Database Instances
	Top 10 Databases by Log Space Utilization	Database Instances
	Databases Backup Related Summary	Open Databases statistics
Sybase ASE Device IO Statistics	User Data Devices IO Operations Vs Waiting time	Device Data and IO log statistics
	User Log Devices IO Operations Vs Waiting Time	Device Data and IO log statistics
	User Data Devices IO Summary	Device Data and IO log statistics
	User Log Devices IO Summary	Device Data and IO log statistics
	Tempdb Data Devices IO Operations Vs Waiting Time	Device Data and IO log statistics
	Tempdb Log Devices IO Operations Vs Waiting Time	Device Data and IO log statistics
	Tempdb Data Devices IO Summary	Device Data and IO log statistics
	Tempdb Log Devices IO Summary	Device Data and IO log statistics
	Device Reads Rate Vs Writes Rate Vs APF Reads Rate	Devices Statistics
Devices Semaphore Requests Rate Vs Waits Rate Device IO Operations Summary	Devices Statistics	
Sybase ASE Data Cache Statistics	Data Cache Hit Rate History	Data Caches statistics
	Data Cache Hit Rates Summary	Data Caches statistics
	Data Cache Memory Usage	Cached Objects Statistics
	Cached Object Accesses by Processes	Cached Objects Statistics
	Top 10 Big Objects in Data Cache	Cached Objects Statistics
	Top 10 Popular Objects in Data Cache	Cached Objects Statistics
Sybase ASE Procedure Cache Statistics	Procedure Cache Hit Rate History	Procedure Cache statistics
	Procedure Cache Memory Usage History	Procedure Cache statistics
	Top 10 Objects in Procedure Cache by Memory Usage	Cached Procedures Statistics

**Table 4–3 (Cont.) Report Elements and Dependent Metrics**

<b>Report Name</b>	<b>Report Element</b>	<b>Dependent Metrics</b>
Sybase ASE Network IO Monitoring Report	Incoming Traffic History	Network I/O Statistics
	Outgoing Traffic History	Network I/O Statistics
	Incoming Packet Traffic History	Network I/O Statistics
	Outgoing Packet Traffic History	Network I/O Statistics
Sybase ASE Database Log Statistics	Overall Append Log Requests	Open Databases statistics
	Rate Vs Waits Rate	Open Databases statistics
	Tempdb Append Log Requests Rate Vs Waits Rate	Open Databases statistics
	Overall Append Log Waits Percentage	Open Databases statistics
	Tempdb Append Log Waits Percentage	Open Databases statistics
	Databases Log Related Summary	Open Databases statistics
Sybase ASE User Statistics	Attempted Logins History	Adaptive Server Statistics
	Top 5 User SQL Statistics Summary	Recently (currently being) executed SQL Text
	Top 3 Users by CPU Time	Processes activity statistics
	Top 3 Users by DiskIO	Processes activity statistics
	Top 3 Users by CPU Time - Summary	Processes activity statistics
	Top 3 Users by DiskIO Time - Summary	Processes activity statistics
	Top 3 Users by Incoming Network Traffic	Processes Network IO activity
	Top 3 Users by Outgoing Network Traffic	Processes Network IO activity
	Top 3 Users by Incoming Network Traffic - Summary	Processes Network IO activity
Top 3 Users by Outgoing Network Traffic - Summary	Processes Network IO activity	
Sybase ASE Process Statistics	Top 10 Processes by CPU Time	Processes activity statistics
	Top 10 Processes by Waiting Time	Processes activity statistics
	Top 10 Processes by Memory Usage	Processes activity statistics
	Top 10 Processes by User Log Cache(ULC) Writes Top 10 Processes by Transactions Rate	Processes activity statistics
	Top 10 Processes by DiskIO Rate	Processes activity statistics
	Top 10 Processes by Incoming Network Traffic	Processes Network IO activity
	Top 10 Processes by Outgoing Network Traffic	Processes Network IO activity
Sybase ASE SQL Statistics	Top 3 CPU Intensive SQL Commands	Most recently executed statement statistics, Recently (currently being) executed SQL Text
	Top 3 Disco Intensive SQL Commands	Most recently executed statement statistics, Recently (currently being) executed SQL Text
	Top 3 Memory Intensive SQL Commands	Most recently executed statement statistics, Recently (currently being) executed SQL Text
	Top 3 Long Waited SQL Commands	Most recently executed statement statistics, Recently (currently being) executed SQL Text
Sybase ASE Open Objects Statistics	Top 5 Hot Objects by Logical Reads	Open Objects Statistics
	Top 5 Hot Objects by Physical Reads	Open Objects Statistics
	Top 5 Hot Objects by APF Reads	Open Objects Statistics
	Top 5 Hot Objects by APF Reads	Open Objects Statistics
	Top 5 Hot Objects by Physical Writes	Open Objects Statistics

**Table 4–3 (Cont.) Report Elements and Dependent Metrics**

<b>Report Name</b>	<b>Report Element</b>	<b>Dependent Metrics</b>
Sybase ASE Deadlock Statistics	Top 10 Processes by Lock Wait Time	Locks Information
	Deadlock Detail Table	Deadlock Statistics
Sybase ASE Worker Threads Statistics	Attempted Parallel Queries History	Server-wide worker threads statistics
	Altered Plans History	Server-wide worker threads statistics
	Worker Threads Summary	Server-wide worker threads statistics
Sybase ASE Error Statistics	Errors Production Rate (per hr)	Most recent error messages
	Recent Error Messages Summary	Most recent error messages
	Recent Error Messages with Severity 10 to 16	Most recent error messages
	Recent Error Messages with Severity 17 to 18	Most recent error messages
	Recent Error Messages with Severity 19 to 26	Most recent error messages
Sybase ASE Configuration	Sybase ASE Version	Configuration metric with the same name.
	System Listeners	Configuration metric with the same name.
	Information about Databases	Configuration metric with the same name.
	Installed Scripts	Configuration metric with the same name.
	Charsets Information	Configuration metric with the same name.
	Backup/Recovery Configuration Parameters	Configuration metric with the same name.
	Cache Manager Configuration Parameters	Configuration metric with the same name.
	Component Integration Services Configuration Parameters	Configuration metric with the same name.
	Configuration Options Configuration Parameters	Configuration metric with the same name.
	DTM Administration Configuration Parameters	Configuration metric with the same name.
	Diagnostics Configuration	Configuration metric with the same name.
	Disk I/O Configuration Parameters	Configuration metric with the same name.
	Error Log Configuration Parameters	Configuration metric with the same name.
	Extended Stored Procedure Configuration Parameters	Configuration metric with the same name.
	General Information Configuration Parameters	Configuration metric with the same name.
	Java Services Configuration Parameters	Configuration metric with the same name.
	Languages Configuration Parameters	Configuration metric with the same name.
	Lock Manager Configuration Parameters	Configuration metric with the same name.
	Memory Use Configuration Parameters	Configuration metric with the same name.
	Monitoring Configuration Parameters	Configuration metric with the same name.
	Network Communication Configuration Parameters	Configuration metric with the same name.
	O/S Resources Configuration Parameters	Configuration metric with the same name.
	Physical Memory Configuration Parameters	Configuration metric with the same name.
	Physical Resources Configuration Parameters	Configuration metric with the same name.
	Processors Configuration Parameters	Configuration metric with the same name.
	Rep Agent Thread Administration Configuration Parameters	Configuration metric with the same name.
Security Related Configuration Parameters	Configuration metric with the same name.	
SQL Server Administration Configuration Parameters	Configuration metric with the same name.	
Unicode Configuration Parameters	Configuration metric with the same name.	
User Environment Configuration Parameters	Configuration metric with the same name.	

## 4.4 Support References for Sybase ASE Plug-in

The following support documents are available in My Oracle Support:

<https://support.oracle.com>

- *Unable to Add Target OEM Plug-in Sybase Adaptiver with error Server Can't resolve a non-optional query descriptor property [STDINUSERNAME] (USERNAME) (Doc ID 1536823.1):*

<https://support.oracle.com/rs?type=doc&id=1536823.1>

- *Sybase discovery fails with ASEServerName;Failed to connect (Doc ID 1487187.1):*

<https://support.oracle.com/rs?type=doc&id=1487187.1>



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