

Oracle® Enterprise Manager

System Monitoring Plug-in for Oracle TimesTen In-Memory Database Installation Guide

Release 11.2.1

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The Oracle TimesTen In-Memory Database Plug-in extends Oracle Enterprise Manager Grid Control to add support for monitoring TimesTen databases.

The installation guide contains information to review before installing the Oracle TimesTen In-Memory Database Plug-in:

- [Release support](#)
- [Installation prerequisites](#)
- [Setting credentials in Oracle Enterprise Manager](#)
- [Granting the Logon as a batch job privilege on Windows](#)

The installation guide also contains the procedures necessary to install the plug-in, view data about your target instance (your database), and to uninstall the plug-in:

- [Installing the Oracle TimesTen In-Memory Database Plug-in](#)
- [Viewing performance metrics for your TimesTen database](#)
- [Viewing reports for your TimesTen database](#)
- [Uninstalling the Oracle TimesTen In-Memory Database Plug-in](#)

You can also find information about the location of Oracle TimesTen In-Memory Database documentation.

Release support

The Oracle TimesTen In-Memory Database Plug-in supports Oracle TimesTen In-Memory Database Release 7.0.3 and later 7.0 releases.

The plug-in also supports Oracle Enterprise Manager Agent:

- Release 10.2.0.4
- Release 10.2.0.3
- Release 10.2.0.2
- Release 10.2.0.1

Note: Oracle Enterprise Manager Agent Release 10.2.0.4 is recommended. The plug-in does not support Oracle Enterprise Manager DBControl.

Installation prerequisites

Before installing the Oracle TimesTen In-Memory Database Plug-in:

- Install Oracle Enterprise Manager Agent Release 10.2.0.1 or later. Make sure the agent can successfully communicate with your Oracle Enterprise Manager Server and can upload data. For example, `Agent Availability` must be UP, `Last Load Time` should show a recent date/timestamp, and `Last Load Time` should get periodically updated.
- Install Oracle TimesTen In-Memory Database Release 7.0.3 or later.

Note: The Oracle Enterprise Manager Agent must reside on the same machine as the Oracle TimesTen In-Memory Database.

When you install the Oracle TimesTen In-Memory Database Plug-in, you need to know:

- The name of your TimesTen instance
- The DSN
- If you have enabled Access Control on your TimesTen instance:
 - The TimesTen username
 - The password for the TimesTen username

Note: Be sure the TimesTen database specified by the instance and DSN is loaded.

For information on your TimesTen instance, run the `ttStatus` utility.

Setting credentials in Oracle Enterprise Manager

You need to set credentials in Oracle Enterprise Manager for the user that the agent runs as. You can either set default credentials (credentials are the same for all agents) or you can set different credentials for each agent (target credentials). Target credentials override default credentials.

To set credentials:

1. Choose **Preferences** located in the top right of the Oracle Enterprise Manager home page.
2. Choose **Preferred Credentials** located in the top left of Preferences.
3. Click the icon in the **Set Credentials** column in the row for the agent.
You see the Agent Preferred Credentials page. You are ready to enter default and target credentials by entering the operating system username and password for the agent.
4. In the **Host UserName** column, type the username.
5. In the **Host Password** column, type the password.
6. Click **Apply**.

Granting the Logon as a batch job privilege on Windows

You need to set credentials for agents by setting the host username and host password in Oracle Enterprise Manager Grid Control. On Windows, you need to grant to the host username the Logon as a batch job privilege.

For more information on setting credentials, see "[Setting credentials in Oracle Enterprise Manager](#)" on page -2.

To grant the Logon as a batch privilege on Windows

1. Set your control panel to `classic view`.
2. From the desktop, choose **Start > Control Panel > Administrative Tools**.
3. Double click **Local Security Policy**.
4. Choose **Local Policies**.
5. Choose **User Rights Assignment**.
6. Double click **log on as a batch job**.

The log on as a batch job Properties dialog appears.

7. Click **Add User or Group**.

The Select Users or Group dialog appears. You are ready to enter the host username.

8. In **Enter the Object Names to Select**, type the host username.
9. Click **OK**.
10. Click **OK** on **log on as a batch job Properties** dialog.

Installing the Oracle TimesTen In-Memory Database Plug-in

To install the Oracle TimesTen In-Memory Database Plug-in:

- Import the plug-in
- Deploy the plug-in
- Create a target instance of the plug-in on the agent

To import the Oracle TimesTen In-Memory Database Plug-in

To begin the import process, you must first download the Oracle TimesTen In-Memory Database Plug-in from the Oracle Technology Network (OTN) and save the plug-in file (`TimesTen_plugin.jar`) to the machine where your browser is running.

1. Download the Oracle TimesTen In-Memory Database Plug-in and save the file.

You see the filename is saved.

You can now log in to the Oracle Enterprise Manager Grid Control from your browser.

2. Log in to the Oracle Enterprise Manager Grid Control.

You see the Oracle Enterprise Manager Grid Control Login page.

3. In the **Username and Password** columns, type the username and password of the Super Administrator.
4. Press **Return** or click **Login**.

You see the Oracle Enterprise Manager Grid Control home page.
5. Choose **Setup** located in the upper right corner of the Oracle Enterprise Manager Grid Control home page.

The Oracle Enterprise Manager Setup page appears.
6. Choose **Management Plug-ins** located to the left of the page in the Overview of Setup panel section.

The Management Plug-ins page appears.
7. Choose **Import** located in the middle of the Management Plug-ins page.

The Import Management Plug-ins page appears.
8. Click **Browse** to locate the TimesTen_Plugin archive file.

The TimesTen_Plugin archive file is the .jar file you downloaded. The file is located in the file system where your browser resides. For example, if your browser resides on the Windows platform, you can locate the file on your desktop or in one of the folders on your drive.
9. Select the file.

You see the path and filename of your TimesTen plug-in jar file in the text field named Management Plug-in Archive.
10. Click **List Archive**.

The Management Plug-ins for Archive: TimesTen_Plugin.jar table appears at the bottom of the Import Management Plug-ins page. You see `timesten_imdb` in the name column. You see a Select box in the Select column to the left of `timesten_imdb`.
11. Click in the **Select** box located to the left of `timesten_imdb`.

You see a checkmark in the Select box.

You are ready to Import the TimesTen Management Plug-in. Locate the OK button in the bottom right corner of the Management Plug-ins for Archive: TimesTen_Plugin.jar table.
12. Click **OK**.

The process of importing the TimesTen Plug-in begins.

The Setup page appears. You see the informational message: "One Management Plug-in has been successfully imported."

You are now ready to deploy the TimesTen Plug-in to one or more agents.

To deploy the Oracle TimesTen In-Memory Database Plug-in

You must deploy the Oracle TimesTen In-Memory Database Plug-in to one or more agents. After you successfully deploy the plug-in, the agent knows the plug-in exists. You then configure your TimesTen database as one of the targets for the agent and the agent begins the process of monitoring your target.

To deploy the plug-in, make sure you are on the Oracle Enterprise Manager Setup page.

In the bottom half of the page, you see the table describing information about the plug-in. You see column names Select, Name, Version, Deployed Agents, Description, Deployment Requirements, Deploy, Undeploy. In the Name column, you see `timesten_imdb`. In the column Deployed Agents, you see 0 (if you have not previously deployed one or more agents). In the Description column, you see Management Plug-in for Oracle TimesTen In-Memory Database. In the Select column, you see a square box.

1. Click in the **Select** box located to the left of `timesten_imdb`.

You see a checkmark in the Select box. In the row for the Oracle TimesTen In-Memory Database Plug-in, you see the deploy icon in the Deploy column. The icon is in the same row as the plug-in.

2. Click the **deploy** icon in the Deploy column in the row for the Oracle TimesTen In-Memory Database Plug-in.

The Deploy Management Plug-in: Select Targets page appears.

3. Click **Add Agents**.

A dialog appears. You can now search for the known agents.

4. Click **Go**.

You see a selection list of agents.

5. Click in the **Select** box for each agent you wish to deploy the plug-in to.

You see a checkmark in the Select box for each agent you selected. You see the Select button to the right of the selection menu.

6. Click **Select**.

You see the name of the deployment agent or agents. Locate the Next button to the right of text 'Step 1 of 3.'

7. Click **Next**.

You see the Deploy Management Plug-in: Review page. This page briefly describes the deployment process. Locate the Finish button to the right of text 'Step 3 of 3.'

8. Click **Finish**.

The Deploying Management Plug-in window appears. You see 'partially deployed.' Wait until this window is refreshed.

The Setup page appears. You see the informational message: "Deploy operation completed."

You see the number of agents deployed in the Deployed Agents column in the row for the Oracle TimesTen In-Memory Database Plug-in.

You are now ready to create a target instance.

To create a target instance

Create a target instance of the Oracle TimesTen In-Memory Database Plug-in on one or more agents. You can create a target instance for each unique DSN.

1. Choose **Agents** on Setup.

The Agents page appears. You see the agent table. In the Name column, you see the agents you deployed the plug-in to.

2. Click the agent name in the Name column.

The agent name page appears. You are now ready to select the TimesTen In-Memory Database Plug-in.

3. Open select list labeled **Add** and select **TimesTen In-Memory Database**.

4. Click **Go**.

You see the Add TimesTen In-Memory Database page. You are now ready to enter values for the properties.

In the * Name column, you create your target instance name. Define the name as a meaningful identifier. (For example, *hostname_instance_DSN*). The name can be any string including letters, numbers, and special characters.

5. In the * **Name** column, type the target instance name.

You are now ready to enter the TimesTen instance name. Use the `ttStatus` utility if you cannot recall the instance name.

6. In the **TimesTen instance name** column, type the name of your TimesTen instance.

You are now ready to enter the DSN. The DSN is located in your `sys.odbci.ini` file (on Linux/Unix platforms) or in the ODBC Data Source Administrator (on the Windows platform).

7. In the **Data Source Name** column, type the DSN.

8. If you enabled access control, in the **TimesTen user name** column, type the TimesTen username.

9. If you enabled access control, in the **TimesTen password** column, type the TimesTen password.

You are now ready to test your connection to make sure that your target instance is deployed successfully and configured properly.

10. Click **Test Connection**.

You see the information message: "Test Successful." If you do not see the "Test Successful" message, make sure your instance name and DSN are correct and the TimesTen database for the DSN is loaded. If you have enabled access control, make sure your username and password are correct.

11. Click **OK**.

You are now ready to view information about the target instance that you created.

Viewing performance metrics for your TimesTen database

The Oracle TimesTen In-Memory Database Plug-in collects and displays information and performance metrics for your target TimesTen database including:

- Database information
- Instance information
- Performance data
- Performance rates

- Response

The metric information is located on the Oracle Enterprise Manager All Metrics page.

To navigate to the All Metrics page

1. Choose **Targets** on the Oracle Enterprise Manager home page.

You see the Hosts page.

2. Select the host name.

You see the name of your host at the top of the page.

3. Choose **Targets**.

You see your target instance name in the name column and in the same row, in the type column, you see TimesTen In-Memory Database.

4. Click the target instance name located in the name column.

The TimesTen In-Memory Database page appears, showing information about your database. You see several menu options located at the bottom of the page.

5. Choose **All Metrics**.

You see the Oracle Enterprise Manager metrics page, showing the target instance name at the top of the page. You see menu options for database information, instance information, performance data, performance rates, and response. You can now view this information.

To view database information

To view database information for your database, choose **Database Information** on the Oracle Enterprise Manager Metrics page.

The Database Information page appears, showing information about your database:

Database attribute	Description
RAM residence policy	Ram residence policy (always, manual, inUse)
Replication policy	Replication policy (always, manual, norestart)
Replication agent running	1 if running; 0 if not running
Cache agent policy	Cache agent policy (always, manual)
Cache agent running	1 if running; 0 if not running
Time of first connection to database	Time of first connection to the database
Allocated size of permanent data partition - KB	Allocated size in kilobytes of the permanent data partition
Allocated size of temporary data partition - KB	Allocated size in kilobytes of the temporary data partition

For more information on your database settings and attributes, run the `ttStatus` utility. For documentation on the `ttStatus` utility, refer to the *Oracle TimesTen In-Memory Database API Reference Guide*.

To view instance information

To view information about your database instance, choose **Instance Information** on the Oracle Enterprise Manager Metrics page.

The Instance Information page appears, showing information about your TimesTen instance:

Name	Description
Instance name	TimesTen instance name
Daemon port number	Daemon port number
TimesTen version number	5-digit release number
Platform type	Platform type. For example, Linux/86_32
TimesTen server running	1 if running, 0 if not running
TimesTen server PID	TimesTen server process ID
TimesTen server port number	Server port number
TimesTen web server running	1 if running, 0 if not running
TimesTen web server PID	TimesTen web server process ID
TimesTen web server port number	Web server port number

For more information on your TimesTen instance, run the `ttStatus` utility. For documentation on the `ttStatus` utility, refer to the *Oracle TimesTen In-Memory Database API Reference Guide*.

To view performance data

To view performance data for your database, choose **Performance Data** on the Oracle Enterprise Manager Metrics page.

The Performance Data page appears, showing the name of each performance metric and the value for the metric.

For information on the `SYS.MONITOR` system table, refer to the *Oracle TimesTen In-Memory Database SQL Reference Guide*.

Names and values described on the Performance Data page:

Metric	Description
MEMORY - Size of permanent partition currently in use - KB	Size in kilobytes of the portion of the permanent data partition that is currently in use
MEMORY - Highest amount of permanent partition in use - KB	The highest amount (in kilobytes) of permanent data partition memory in use since the first connection to the database
MEMORY - Percent of permanent space in use	The percent of the permanent partition space currently being used
MEMORY - Size of temporary partition currently in use - KB	size in kilobytes of the portion of the temporary data partition that is currently in use

Metric	Description
MEMORY - Highest amount of temporary partition in use - KB	The highest amount (in kilobytes) of temporary data partition memory in use since the first connection to the database
MEMORY - Percent of temporary space in use	The percent of temporary space in use
XACT - Number of transactions committed	Number of durable and nondurable transactions committed
LOCK - Number of deadlocks	The number of deadlocks
LOCK - Number of lock requests denied due to timeouts	The number of lock requests denied due to timeouts
CHKPT - Number of checkpoints completed	Number of checkpoints taken
CHKPT - Bytes written in most recent checkpoint	The number of bytes written in the most recent checkpoint
LOG - Number of log reads not from log buffer	The number of times that a log read could not be satisfied from the in-memory log buffer
LOG - Number of log buffer writes to file system	The number of times TimesTen wrote the contents of the in-memory log buffer to the file system. This column does not count the number of times data was flushed to disk. It only counts writes to the file system-s file buffers.
LOG - Log buffer waits	The number of times a thread was delayed while trying to insert a log record into the log buffer because the log buffer was full. Generally speaking, if this value is increasing, it indicates that the log buffer is too small.
LOG - Last log file number	Number of last log file
REP - Number of xacts replicated from this database	The number of replicated transactions generated on the local store that are being replicated to at least one peer database
REP - Last log file number held by replication	Number of last log file held by replication
WORKLOAD - Total number of connections	The sum of all active connections on the TimesTen database
WORKLOAD - System connections	The sum of the active subdaemon, replication agent and cache agent connections
WORKLOAD - Client/Server connections	The number of active client/server connections on the TimesTen database
WORKLOAD - Direct linked connections	The number of direct linked connections on the TimesTen database
WORKLOAD - Number of commands prepared	Number of commands prepared (compiled)
WORKLOAD - Number of commands re-prepared	Number of commands re-prepared

To view performance rates

To view performance rates for your database, choose **Performance Rates** on the Oracle Enterprise Manager Metrics page.

The Performance Rates page appears, showing the name of each performance metric and the value for the metric.

Performance rates are expressed as a rate (for example, X times per minute). These rates are considered instantaneous rates because the value is the rate in the past minute or the per-minute rate (if you have changed the most recent collection interval to a value other than one minute).

Names and values described on the Performance Rates page:

Metric	Description
XACT - Transactions committed per minute	The number of transactions committed per minute
XACT - Transactions durably committed per minute	The number of durable transactions committed per minute
XACT - Transactions rolled back per minute	The number of transactions rolled back per minute
LOCK - Deadlocks per minute	The number of deadlocks per minute
LOCK - Lock timeouts per minute	The number of lock timeouts per minute
LOCK - Immediate lock grants per minute	The number of nonblocking locks acquired per minute
LOCK - Lock grants after wait per minute	The number of blocking locks acquired per minute
LOG - Log buffer waits per minute	The number of times per minute a thread had to wait because the log buffer was full
LOG - Log reads from file system per minute	The number of times per minute a log read could not be satisfied from the in-memory buffer
LOG - Log flushes to file system per minute	The number of times per minute the log buffer was written to the file system
LOG - Log bytes to disk per minute in MB	The number of megabytes of log that was written to disk per minute
REP - Transactions replicated per minute	The number of transactions replicated to a peer per minute
WORKLOAD - Connects per minute	The number of connections to the database per minute
WORKLOAD - Disconnects per minute	The number of disconnections from the database per minute
WORKLOAD - Number of commands prepared per minute	The number of SQL commands prepared (compiled) per minute
WORKLOAD - Number of commands re-prepared per minute	The number of SQL commands re-prepared (recompiled) per minute
WORKLOAD - Number of queries per minute	Number of queries per minute

To view response information

To view response information, choose **Response** on the Oracle Enterprise Manager Metrics page.

The Response page appears, showing response information for your database including:

- Status (up or down)

- Response time (sec)
 - The time taken for the plug-in to query the TimesTen `SYS.MONITOR` table

Viewing reports for your TimesTen database

Reports are generated from the metric information that has been collected and stored in the Oracle Enterprise Manager repository.

To view reports

1. Choose **Targets** on the Oracle Enterprise Manager home page.

You see the Hosts page.

2. Select the host name.

You see the name of your host at the top of the page.

3. Choose **Targets**.

You see your target instance name in the name column and in the same row, in the type column, you see **TimesTen In-Memory Database**.

4. Click the target instance name located in the name column.

The TimesTen In-Memory Database page appears, showing the target instance name at the top of the page. You see **Reports** below the target instance name.

5. Choose **Reports**.

You see **TimesTen IMDB Activity Reports**.

There is one group of reports containing:

- **Log Activity:** Log buffer waits/minute, log writes/minute
- **Connection Activity:** Connects/minute, disconnects/minute
- **Transaction Activity:** reads/minute, commits/minute, rollbacks/minute, durable commits/minute
- **Checkpoint Activity:** bytes written in last checkpoint, log buffer waits
- **Space Usage:** percent of permanent space in use, percent of temporary space in use

Uninstalling the Oracle TimesTen In-Memory Database Plug-in

To uninstall the Oracle TimesTen In-Memory Database Plug-in:

- Remove all target instances of the plug-in
- Undeploy the plug-in
- Delete the plug-in

You must remove all target instances of the plug-in before you can undeploy the plug-in. For example, if you have three databases (three target instances) and two databases are deployed to one agent and the third database is deployed to a second agent, you must:

- Remove database 1 (the target instance) on agent 1.

- Remove database 2 (the second target instance) on agent 1.
- Remove database 3 (the third target instance) on agent 2.

You then undeploy and delete the plug-in from the Oracle Enterprise Manager Grid Control.

To remove the target instance of the Oracle TimesTen In-Memory Database Plug-in

For each target instance of the plug-in you wish to remove:

1. Choose **Targets** on the navigation bar from the home page.
You see the Hosts page.
2. Choose **All Targets** located below Targets on the Hosts page.
You see the All Targets page that shows you the list of all targets in the Oracle Enterprise Manager Grid Control including hosts, agents, and databases. You see the target instance name in the Name column. In the same row, you see, in the Type column, **TimesTen In-Memory Database**. Also in the same row, you see, in the Select column, an open circle.
3. Click in the **Select** circle.
You see the target instance name selected.
4. Click **Remove** located at either the top or bottom of the select list.
You see the warning message: "You have chosen to remove *target_instance_name* (TimesTen In-Memory Database). Do you wish to proceed?"
5. Click **Yes** located to the right of the warning message.
You see the confirmation message: "*Target_instance_name* (TimesTen In-Memory Database) has been deleted."

Your target instance is removed. Repeat Steps 1-5 to remove additional target instances of the Oracle TimesTen In-Memory Database Plug-in. If all target instances of the Oracle TimesTen In-Memory Database Plug-in are removed, you can undeploy and then delete the Oracle TimesTen In-Memory Plug-in from the Oracle Enterprise Manager Grid Control.

To undeploy the Oracle TimesTen In-Memory Database Plug-in

Undeploy the Oracle TimesTen In-Memory Database Plug-in from the agents and then delete the Oracle TimesTen In-Memory Database Plug-in from the Oracle Enterprise Manager Grid Control.

Make sure you have removed all target instances of the plug-in. For more information on the steps to remove a target instance, see ["To remove the target instance of the Oracle TimesTen In-Memory Database Plug-in"](#) on page -12.

You undeploy the Oracle TimesTen In-Memory Database Plug-in from the Setup Menu.

1. Choose **Setup** from the navigation bar located at the top of the page.
The Oracle Enterprise Manager Setup page appears.
2. Choose **Management Plug-ins** located to the left of the page in the Overview of Setup panel section.

The Management Plug-ins page appears.

You see the table describing information about the Oracle TimesTen In-Memory Database Plug-in. You see column names Select, Name, Version, Deployed Agents, Description, Deployment Requirements, Deploy, Undeploy. In the Name column, you see `timesten_imdb`. In the column Deployed Agents, you see the number of agents deployed for the plug-in. In the Description column, you see Management Plug-in for Oracle TimesTen In-Memory Database. In the Select column, you see a square box.

3. Click in the **Select** box located to the left of `timesten_imdb`.

You see a checkmark in the Select box. In the row for the Oracle TimesTen In-Memory Database Plug-in, you see the undeploy icon in the Undeploy column. The icon is in the same row as the plug-in.

4. Click the **Undeploy** icon in the Undeploy column in the row for the Oracle TimesTen In-Memory Database Plug-in.

The Undeploy Management Plug-in page appears. You see the select table. In each row of the table, you see the names of the deployed agents. In the same row as the name of the deployed agent, you see the Select column. In the Select, you see a square box.

5. Click in the **Select** box located to the left of the deployed agent.

You see a checkmark in the Select box.

6. Repeat Step 5 until you have selected all deployed agents for the Oracle TimesTen In-Memory Database Plug-in.

You see checkmarks in the Select boxes for the deployed agents.

7. Click **OK** located in the top right or bottom right of the table.

The Undeploying Management Plug-in window appears. You see 'partially undeployed.' Wait until this window is refreshed.

The Setup page appears. You see the informational message: "Undeploy operation completed."

You see the number 0 in the Deployed Agents column in the row for the Oracle TimesTen In-Memory Database Plug-in.

The agents are undeployed from the Oracle TimesTen In-Memory Database Plug-in. You can now delete the plug-in from the Oracle Enterprise Manager Grid Control.

To delete the Oracle TimesTen In-Memory Database Plug-in

When you delete the plug-in, you remove the plug-in from the Oracle Enterprise Manager Grid Control.

1. From Management Plug-ins, click the **Select** box in the Select column in the row for the plug-in `timesten_imdb`.
2. Click **Delete** located above the column headers of the Management Plug-ins table.
You see the confirmation message: "Are you sure you want to delete the following Management Plug-ins? TimesTen_imdb:1.1"
3. Click **OK**.

You see the confirmation message: "One Management Plug-in was successfully deleted."

You have successfully deleted the Oracle TimesTen In-Memory Database Plug-in.

Oracle TimesTen In-Memory Database documentation

TimesTen documentation is available on the product distribution media and on the Oracle Technology Network (OTN):

http://www.oracle.com/technology/documentation/timesten_doc.html

For information on the TimesTen utilities including `ttStatus` and `ttIsSql`, refer to the *Oracle TimesTen In-Memory Database API Reference Guide*.

For information on TimesTen installation, refer to the *Oracle TimesTen In-Memory Database Installation Guide*.

For information on the `SYS.MONITOR` system table, refer to the *Oracle TimesTen In-Memory Database SQL Reference Guide*.

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