

## **Oracle® Enterprise Manager**

for Oracle TimesTen In-Memory Database User's Guide

Release 13.4.1.0.0

**F23674-01**

July 2020

Copyright © 2012, 2020, Oracle and/or its affiliates.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs (including any operating system, integrated software, any programs embedded, installed or activated on delivered hardware, and modifications of such programs) and Oracle computer documentation or other Oracle data delivered to or accessed by U.S. Government end users are "commercial computer software" or "commercial computer software documentation" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, reproduction, duplication, release, display, disclosure, modification, preparation of derivative works, and/or adaptation of i) Oracle programs (including any operating system, integrated software, any programs embedded, installed or activated on delivered hardware, and modifications of such programs), ii) Oracle computer documentation and/or iii) other Oracle data, is subject to the rights and limitations specified in the license contained in the applicable contract. The terms governing the U.S. Government's use of Oracle cloud services are defined by the applicable contract for such services. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Inside are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Epyc, and the AMD logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

---

---

# Contents

<b>Preface .....</b>	<b>ix</b>
Audience.....	ix
Related documents .....	ix
Conventions .....	ix
Documentation Accessibility .....	x
 <b>What's New .....</b>	 <b>xi</b>
New features in release 13.4.1.0.0 .....	xi
New features in release 13.3.1.0.0 .....	xi
New features in release 13.1.1.0.0 .....	xi
 <b>1 Installing the Enterprise Manager Plug-in for TimesTen .....</b>	 <b>1-1</b>
<b>Installation prerequisites.....</b>	<b>1-1</b>
Additional requirements.....	1-2
<b>Installing the Enterprise Manager Plug-in for TimesTen.....</b>	<b>1-3</b>
Download the plug-in .....	1-3
Deploy the plug-in on Oracle Management Service.....	1-6
Deploy the plug-in on the Management Agent.....	1-12
Configure a TimesTen target .....	1-17
Initial automatic discovery configuration .....	1-18
Automatic discovery configuration for a TimesTen instance target .....	1-20
Automatic discovery configuration for a TimesTen database target .....	1-22
Manual configuration for a TimesTen instance target .....	1-25
Manual configuration for a TimesTen database target .....	1-29
<b>Verifying and validating the plug-in .....</b>	<b>1-33</b>
<b>Setting preferred credentials for a target.....</b>	<b>1-35</b>
<b>Changing the monitoring configuration of a TimesTen database target.....</b>	<b>1-39</b>
<b>Upgrading the Enterprise Manager Plug-in for TimesTen .....</b>	<b>1-41</b>
<b>Uninstalling the Enterprise Manager Plug-in for TimesTen.....</b>	<b>1-42</b>
Remove the TimesTen target .....	1-42
Undeploy the plug-in from the Management Agent.....	1-44
Undeploy the plug-in from OMS.....	1-50
Delete the plug-in.....	1-54

## 2 Working with the TimesTen Target Page

Navigating to the TimesTen target page.....	2-1
Overview of the TimesTen instance target page.....	2-2
Overview of the TimesTen database target page.....	2-3
Setting the display time period and auto refresh rate of data on a target page .....	2-5
View data.....	2-5
Auto refresh .....	2-5
Viewing the log of control operations.....	2-6

## 3 Working with Access Control

Overview of access control .....	3-1
Creating a group .....	3-1
Defining roles .....	3-5
Creating users.....	3-14
Granting preferred credentials to users .....	3-18

## 4 Working with the TimesTen Instance Home Page

Viewing the TimesTen instance home page.....	4-1
Analyzing information on the TimesTen instance home page.....	4-1
Instance summary .....	4-2
Daemon status.....	4-2
Server status .....	4-3
Hosted databases .....	4-3

## 5 Working with the TimesTen Database Home Page

Viewing the TimesTen home page.....	5-1
Analyzing information on the TimesTen home page.....	5-1
Status and Summary .....	5-1
Summary .....	5-2
Status.....	5-2
Configuration.....	5-3
Performance Overview and Issues.....	5-3
Performance Overview.....	5-3
Database Usage (%) .....	5-4
Database Connections .....	5-4
Free Space (%).....	5-5
Issues.....	5-5
SQL Execution Time and Monitor .....	5-5
SQL Monitor .....	5-6
SQL Execution Time Histogram .....	5-7

## 6 Working with the Performance Summary Page

Viewing the performance summary page .....	6-1
Analyzing information on the TimesTen performance summary page.....	6-1
Connections .....	6-2

Connects and disconnects .....	6-2
<b>Statements</b> .....	6-2
Write rates .....	6-3
Read rates .....	6-3
Ratio of prepares to executes .....	6-3
Break up of executed statement types.....	6-4
Summary .....	6-4
Detail.....	6-4
<b>Workload</b> .....	6-5
Write workload.....	6-5
Read workload.....	6-5
Prepares and reprepares .....	6-6
<b>Commits and rollbacks</b> .....	6-7
<b>Locks</b> .....	6-7
Locks and deadlocks.....	6-7
Lock grants.....	6-8
Percentage of acquired locks without wait .....	6-8
<b>Transaction Logs</b> .....	6-8
Log holds .....	6-9
Log performance .....	6-9
Log reads and log flushes .....	6-9
Log buffer wait .....	6-10
<b>Checkpoints</b> .....	6-10

## 7 Working with the Transaction Monitor

Viewing the transaction monitor page .....	7-1
Analyzing information on the transaction monitor page.....	7-1
Outstanding locks .....	7-2
Transaction information.....	7-2
Lock detail for transaction .....	7-3
Awaiting locks .....	7-3

## 8 Working with the Client/Server Page

Viewing the client/server page .....	8-1
Analyzing information on the TimesTen client/server page.....	8-1
<b>Server Workload</b> .....	8-2
Write rates .....	8-2
Read rates .....	8-2
Commits and rollbacks.....	8-3
<b>Statements</b> .....	8-3
Write rates .....	8-4
Read rates .....	8-4
<b>Network usage</b> .....	8-4
Network round trips.....	8-5
Bytes sent and received .....	8-5

## 9 Working with the Instance Control Menu

Viewing the instance control menu .....	9-1
Start/stop services .....	9-1
Service .....	9-2
Database .....	9-2
Create blackout .....	9-2
Create brownout .....	9-3
End blackout/brownout .....	9-3

## 10 Working with the Database Control Menu

Viewing the database control menu .....	10-1
Start/stop agents .....	10-1
Ram load/unload and policy settings .....	10-2
Load/unload RAM .....	10-2
RAM policy configuration .....	10-3
Current configuration.....	10-3
Change RAM policy .....	10-3
Create blackout .....	10-3
Create brownout .....	10-4
End blackout/brownout .....	10-4

## 11 Working with the Backup and Restore Page

Viewing the backup and restore page.....	11-1
Analyzing information on the TimesTen backup and restore page .....	11-1
Backup schedule .....	11-2
Create a backup schedule .....	11-2
Incremental .....	11-3
Full.....	11-5
Activate a backup schedule .....	11-6
Deactivate a backup schedule .....	11-7
Request an immediate backup .....	11-9
Delete a backup schedule.....	11-10
Backup history and restore database.....	11-11
Restore the TimesTen database with an available backup .....	11-11
Delete a TimesTen database backup file.....	11-13
Restore history .....	11-14
Review a restore history entry .....	11-14
Delete a restore history entry .....	11-14

## 12 Working with the Cache Synchronization Metrics Page

Viewing the cache synchronization metrics page.....	12-1
Analyzing the cache synchronization metrics page .....	12-1
Cache AWT .....	12-2
Cache AWT .....	12-3
AWT transactions propagated to the Oracle database .....	12-4
AWT transactions committed on Oracle database .....	12-4

AWT batch performance .....	12-4
AWT volume (MB/sec) .....	12-5
<b>Cache parallel AWT</b> .....	12-5
Performance .....	12-5
AWT lag.....	12-6
AWT bytes sent .....	12-6
AWT batch performance.....	12-7
AWT transactions.....	12-7
Tracks .....	12-7
Parallel AWT tracks .....	12-8
Transactions processed on Oracle database.....	12-8
<b>Cache autorefresh</b> .....	12-8
Cache autorefresh.....	12-9
Readonly cache.....	12-9
Updates pending refresh.....	12-10
 <b>13 Working with the Replication Monitor</b>	
Viewing the replication monitor.....	13-1
Analyzing information on the TimesTen replication monitor .....	13-1
Summary .....	13-2
Status.....	13-2
State.....	13-2
Replication peers .....	13-3
Replication log holds.....	13-3
Transmitter thread status .....	13-4
Replication transmitters .....	13-4
Transactions sent in the last hour .....	13-5
Receiver thread status.....	13-5
Replication receivers.....	13-5
Transactions received in the last hour .....	13-6
Tracks.....	13-6
 <b>14 Viewing Metrics</b>	
Navigating to the TimesTen database metrics page.....	14-1
Navigating to the TimesTen instance metrics page.....	14-2
Viewing TimesTen database metrics .....	14-3
Checkpoint history .....	14-4
Checkpoint and transaction log file system usage .....	14-5
Database status .....	14-5
Instance information.....	14-6
Parallel AWT rates .....	14-6
Parallel AWT tracks .....	14-7
Performance data .....	14-7
Performance rates.....	14-18
Readonly cache.....	14-21
Replication peers .....	14-21

Replication status .....	14-21
Replication subscribers.....	14-22
Replication tracks .....	14-22
Replication state .....	14-23
Response .....	14-23
SQL command cache .....	14-23
SQL execution time histogram .....	14-24
Transaction log holds .....	14-24
<b>Viewing TimesTen instance metrics .....</b>	<b>14-24</b>
Hosted databases.....	14-25
Response .....	14-25

## 15 Viewing Target Topology

Viewing the topology page .....	15-1
Changing the view of the topology page.....	15-1
Adding monitoring metrics .....	15-2

## Index



---

---

# Preface

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

## Audience

This document is intended for TimesTen system administrators and users of Enterprise Manager. System administrators can use the Enterprise Manager Plug-in for TimesTen to monitor and configure a TimesTen database.

## Related documents

TimesTen documentation is available at:

<https://docs.oracle.com/database/timesten-18.1>

Oracle Enterprise Manager documentation is available at:

<https://docs.oracle.com/en/enterprise-manager/>

This may be especially useful for Oracle Enterprise Manager features that TimesTen supports but does not attempt to fully document.

## Conventions

TimesTen supports multiple platforms. Unless otherwise indicated, the information in this guide applies to all supported platforms. The term Windows refers to all supported Windows platforms. The term UNIX applies to all supported UNIX platforms. The term Linux is used separately. Refer to the "Platforms" section in *Oracle TimesTen In-Memory Database Release Notes* for specific platform versions supported by TimesTen.

---

---

**Note:** In TimesTen documentation, the term "TimesTen plug-in" refers to the Enterprise Manager Plug-in for Oracle TimesTen In-Memory Database.

---

---

This document uses the following text conventions:

Convention	Meaning
<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.
<i>italic monospace</i>	Italic monospace type indicates a placeholder or a variable in a code example for which you specify or use a particular value. For example:  LIBS = -L <i>timesten_home</i> /install/lib -ltten  Replace <i>timesten_home</i> with the path to the TimesTen instance home directory.
[ ]	Square brackets indicate that an item in a command line is optional.
{ }	Curly braces indicated that you must choose one of the items separated by a vertical bar (   ) in a command line.
	A vertical bar (or pipe) separates alternative arguments.
...	An ellipsis ( . . . ) after an argument indicates that you may use more than one argument on a single command line.
% or \$	The percent sign or dollar sign indicates the UNIX shell prompt, depending on the shell that is used.
#	The number (or pound) sign indicates the UNIX root prompt.

TimesTen documentation uses these variables to identify path, file and user names:

Convention	Meaning
<i>installation_dir</i>	The path that represents the directory where TimesTen is installed.
<i>timesten_home</i>	The path that represents the home directory of a TimesTen instance.
<i>DSN</i>	The data source name.

## 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>.

### Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit

<http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit

<http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

---

---

## What's New

This section summarizes the new features and functionality of the Enterprise Manager Plug-in for Oracle TimesTen In-Memory Database Release 13.4.1.0.0 that are documented in this guide, providing links into the guide for more information.

- [New features in release 13.4.1.0.0](#)
- [New features in release 13.3.1.0.0](#)
- [New features in release 13.1.1.0.0](#)

### **New features in release 13.4.1.0.0**

- Enterprise Manager and Enterprise Manager Plug-in for Oracle TimesTen In-Memory Database now requires Oracle Java Development Kit 8 (or higher).

### **New features in release 13.3.1.0.0**

- This release adds support to instances and databases from TimesTen Classic in Release 18.1 (18.1.2.1.0 or higher).

### **New features in release 13.1.1.0.0**

- You can click on the legend label of a graph to visually enable or disable the respective data from the graph.
- The tooltip for the data of graphs now has a line that goes down to the x-axis of the graph to make it easier to read coordinate values.



---

# Installing the Enterprise Manager Plug-in for TimesTen

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

This chapter focuses on the installation of the TimesTen plug-in.

Topics include:

- [Installation prerequisites](#)
- [Installing the Enterprise Manager Plug-in for TimesTen](#)
- [Verifying and validating the plug-in](#)
- [Setting preferred credentials for a target](#)
- [Changing the monitoring configuration of a TimesTen database target](#)
- [Upgrading the Enterprise Manager Plug-in for TimesTen](#)
- [Uninstalling the Enterprise Manager Plug-in for TimesTen](#)

## Installation prerequisites

Before installing the Enterprise Manager Plug-in for TimesTen:

- Install Oracle Enterprise Manager Cloud Control 13c Release 4 (or higher) for OMS, Enterprise Manager Repository, and Agent. Ensure that the agent can successfully communicate with your Oracle Enterprise Manager Server and can upload data.
- Install Oracle TimesTen In-Memory Database Release 11.2.2 (11.2.2.8.0 or higher) or Release 18.1 (18.1.2.1.0 or higher).

---

**Note:** The Oracle Enterprise Manager Cloud Control Agent and the TimesTen database must reside on the same system.

---

When you configure your TimesTen instance target, you need to know:

- The name of your TimesTen instance

When you configure your TimesTen database target, you need to know:

- The name of your TimesTen instance
- DSN

The DSN must be a system DSN that is described in either your `sys.odbcc.ini` file or the ODBC Data Source Administrator on Microsoft Windows.

- The TimesTen database user name and password
  - The user name and password are required when you configure the TimesTen target.
  - The user you specify when you configure the TimesTen target must have ADMIN privileges. The user cannot be the instance administrator.
- If your TimesTen database uses TimesTen Cache features, you need to know the cache admin/cache manager user name, the Oracle database cache admin password, and the TimesTen database cache manager password.
  - The cache admin/cache manager user name needs to exist on the TimesTen database and the Oracle database.

---

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

---

For information on your TimesTen instance, run the `ttStatus` or `ttVersion` utility. For more information, see "ttStatus" or "ttVersion" in the *Oracle TimesTen In-Memory Database Reference*.

## Additional requirements

Additional requirements or considerations include:

- Use direct linked connections to define your target DSN. Client/Server connections are not supported for your target DSN.
- The Enterprise Manager Plug-in for TimesTen generates temporary files. Each temporary file could require between 10 KB to 30 KB of free space on the Oracle Enterprise Manager Agent file system. If the Oracle Enterprise Manager Agent file system is full, the Oracle Enterprise Manager Agent can no longer monitor the TimesTen database. For information about the system requirements for the Oracle Enterprise Manager Agent, see "CPU, RAM, and Hard Disk Space Requirements for Oracle Management Agent, Enterprise Management Hybrid Cloud Agent, Enterprise Management Hybrid Cloud Gateway Agent" in the *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.
- The operating system user who installs the Oracle Enterprise Manager Agent must belong to the TimesTen users group of the installation being monitored. Also, ensure that the user has read access to `/etc/TimesTen/instance_info`. For more information about the TimesTen users group, see "Understanding the TimesTen users group" in the *Oracle TimesTen In-Memory Database Installation, Migration, and Upgrade Guide*.
- For optimal performance, ensure that TimesTen is on a different system than the Oracle Management Service (OMS) and the Enterprise Manager Repository.
- Ensure that the My Oracle Support credentials are set up using the SYSMAN user. This is required to enable updates (plug-ins) to be downloaded from the My Oracle Support site. For more information, see "Saving Preferred Credentials to Access My Oracle Support" in the *Oracle Enterprise Manager Cloud Control Security Guide*.

- Ensure that the Software Library (also known as the local store) is configured. Updates are downloaded to this local store before being deployed into Oracle Enterprise Manager Cloud Control. For more information, see "Configuring an OMS Shared Filesystem Location" in the *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

## Installing the Enterprise Manager Plug-in for TimesTen

To install the TimesTen plug-in for TimesTen, you must:

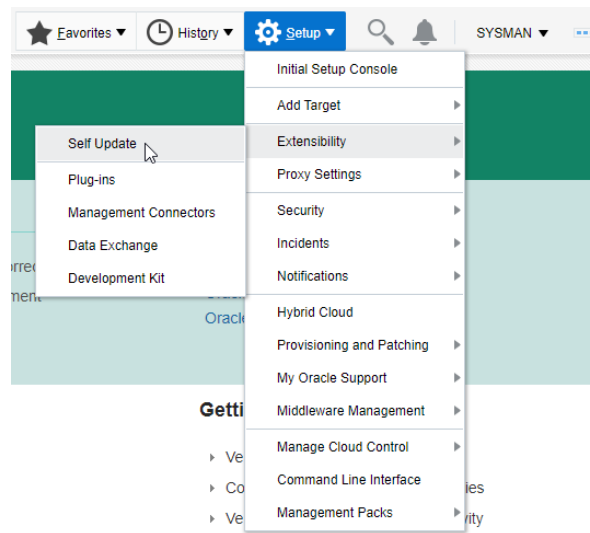
- [Download the plug-in](#)
- [Deploy the plug-in on Oracle Management Service](#)
- [Deploy the plug-in on the Management Agent](#)
- [Configure a TimesTen target](#)

### Download the plug-in

To download the plug-in, ensure that you are on the Oracle Enterprise Manager Cloud Control home page and are logged in as user `SYSMAN`.

1. From the **Setup** menu, select **Extensibility**, then select **Self Update**.

**Figure 1–1 Select Self Update**



The Self Update page displays.

2. Click **Check Updates**.

**Figure 1–2 Click Check Updates**

**Self Update**  
Oracle periodically provides new functionality and updates for existing features in Enterprise Manager. The Self Update home

**Status**

Connection Mode **Online** Last Download Time Oct 11, 2019 11:39 PM PDT  
Most Recent Refresh Time **✓ Oct 10, 2019 11:39:09 PM PDT** Last Download Type Plug-in

Actions ▾ **Open** **Check Updates** **Agent Software**

Type	Available Updates	Downloaded Updates	Applied Updates	Description
Agent Software	0	0	0	Agent software
RI Publisher Reports	0	0	0	RI Publisher R

The Confirmation dialog displays. You should see the informational message: "A job has been submitted successfully to check for new updates from Oracle".

3. Click **OK**.

The Self Update page displays with a Most Recent Refresh Time status indicating the status of the updates.

- If you see a grey check mark next to the Most Recent Refresh Time status, then Enterprise Manager has finished checking for updates. Locate the Plug-in folder.
- If you see a status of Submitted or In Progress... for the Most Recent Refresh Time status, then Enterprise Manager is still checking for updates. Click the refresh button located in the top right of the Oracle Enterprise Manager Cloud Control page to refresh the status of the Most Recent Refresh Time. After you see a grey check mark next to the Most Recent Refresh Time status, locate the Plug-in folder.

4. Click the name **Plug-in**.

**Figure 1–3 Plug-in folder**

**Self Update**  
Oracle periodically provides new functionality and updates for existing features in Enterprise Manager. The Self Update home

**Status**

Connection Mode **Online** Last Download Time Oct 11, 2019 11:39 PM PDT  
Most Recent Refresh Time **✓ Oct 10, 2019 11:39:09 PM PDT** Last Download Type Plug-in

Actions ▾ **Open** **Check Updates** **Agent Software**

Type	Available Updates	Downloaded Updates	Applied Updates	Description
Oracle Virtual Templates and Oracle	0	0	0	Pre-installed a
<b>Plug-in</b>	0	1	9	Plug-in extend
Problem Analysis	0	0	0	Problem Analy
Provisioning Bundle	0	0	0	Provisioning b

**Past Activities: Agent Software**

Actions	Status	OS Platform	Revision
No data to display.			

The Plug-in Updates page displays. In the Plug-in Name column, locate Oracle TimesTen In-Memory Database. Confirm the Status column is equal to Available.

5. In the Plug-in Name column, click **Oracle TimesTen In-Memory Database**.



**Figure 1–4 Plug-in Updates**

**Self Update**  
Self Update > Plug-in

**Plug-in Updates**

Actions ▾ Download Apply Plug-in Search Description 🔍

Status	OS Platform	Plug-in Name	Rev	Version	Vendor	Size(MB)
Applied	Generic Platform	Oracle Beacon	0	13.4.0.0.0	ORACLE	162.708
Applied	Generic Platform	Oracle CSA	0	13.4.0.0.0	ORACLE	2.670
Applied	Generic Platform	Management Services and Repository	0	13.4.0.0.0	ORACLE	1.407
Applied	Generic Platform	Oracle Home	0	13.4.0.0.0	ORACLE	4.202
Available	Generic Platform	Oracle TimesTen In-Memory Database	0	13.4.1.0.0	ORACLE	6.044
Applied	Generic Platform	Systems Infrastructure	0	13.4.1.0.0	ORACLE	173.284
Applied	Generic Platform	Oracle Cloud Framework	0	13.4.1.0.0	ORACLE	8.209
Applied	Generic Platform	Oracle Fusion Middleware	0	13.4.1.0.0	ORACLE	1,164.216
Applied	Generic Platform	Oracle Database	0	13.4.1.0.0	ORACLE	1,776.247

Locate the Download button located under Plug-in Updates at the top of the page.

6. Click **Download**.

**Figure 1–5 Download plug-in**

**Self Update**  
Self Update > Plug-in

**Plug-in Updates**

Actions ▾ Download Apply Plug-in Search Description 🔍

Status	OS Platform	Plug-in Name	Rev	Version	Vendor	Size(MB)
Applied	Generic Platform	Oracle Beacon	0	13.4.0.0.0	ORACLE	162.708
Applied	Generic Platform	Oracle CSA	0	13.4.0.0.0	ORACLE	2.670
Applied	Generic Platform	Management Services and Repository	0	13.4.0.0.0	ORACLE	1.407
Applied	Generic Platform	Oracle Home	0	13.4.0.0.0	ORACLE	4.202
Available	Generic Platform	Oracle TimesTen In-Memory Database	0	13.4.1.0.0	ORACLE	6.044
Applied	Generic Platform	Systems Infrastructure	0	13.4.1.0.0	ORACLE	173.284
Applied	Generic Platform	Oracle Cloud Framework	0	13.4.1.0.0	ORACLE	8.209
Applied	Generic Platform	Oracle Fusion Middleware	0	13.4.1.0.0	ORACLE	1,164.216
Applied	Generic Platform	Oracle Database	0	13.4.1.0.0	ORACLE	1,776.247

The Schedule Download dialog displays indicating that you can download the plug-in either immediately or later. When you choose **Select**, Enterprise Manager downloads the plug-in immediately.

7. Click **Select**.

**Figure 1–6 Schedule Download dialog**

**Schedule Download** ✕

Start ☒ Immediately ☐ Later (UTC-08:00) Los Angeles - Pacific Time (PT)

☐ Notify Once downloaded

**Select** **Cancel**

A confirmation dialog displays indicating that the update (plug-in) is downloading.

8. Click **OK**.

You have successfully downloaded the plug-in. You can verify the plug-in has been downloaded by reviewing the Plug-in Updates page. You should see the Oracle TimesTen In-Memory Database plug-in with a status of Downloaded.

You are now ready to deploy the plug-in on the Oracle Management Service.

## Deploy the plug-in on Oracle Management Service

You must deploy the plug-in on both the Oracle Management Service (OMS) and one or more Management Agents. After you successfully deploy the plug-in, both OMS and the agent know 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.

You must deploy the plug-in on OMS before deploying the plug-in on one or more Management Agents.

---

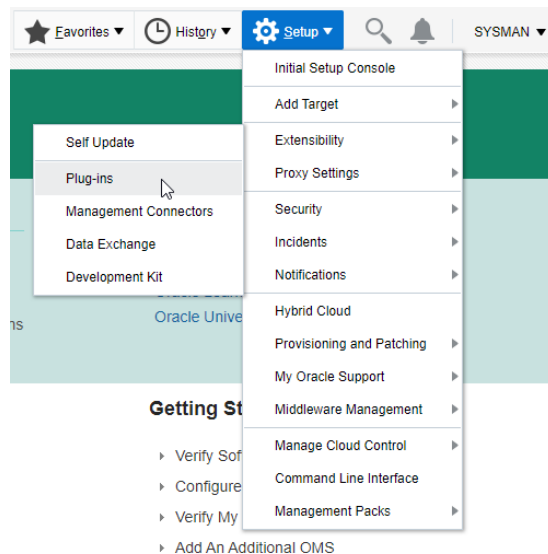
**Note:** If there is a failure when deploying the plug-in, the Management Repository could be in an inconsistent state. It is recommended that you back up the Management Repository before deploying the plug-in.

---

To deploy the plug-in on OMS, ensure that you are on the Oracle Enterprise Manager Cloud Control home page and are logged in as user `SYSMAN`.

1. From the **Setup** menu, select **Extensibility**, then select **Plug-ins**.

**Figure 1–7 Select Extensibility, then Plug-ins**



The Plug-ins page displays and you see the plug-ins that have been downloaded and can be deployed. Locate the Databases folder in the Name column.

2. Expand the Databases folder in the Name column and click **Oracle TimesTen In-Memory Database**.

**Figure 1–8 Select TimesTen In-Memory Database plug-in**

**Plug-ins**  
This page lists the plug-ins available, downloaded, and deployed to the Enterprise Manager system. Use this page to deploy c

Actions ▾ View ▾ Deploy On ▾ Undeploy From ▾ Check Updates Deployment Activities

Name	Version		
	Latest Available	Latest Downloaded	On Management Server
▶ Cloud			
▶ Databases			
▶ Oracle Database	13.4.1.0.0	13.4.1.0.0	13.4.1.0.0
▶ Oracle TimesTen In-Memory Database	13.4.1.0.0	13.4.1.0.0	
▶ Engineered Systems			
▶ Middleware			
▶ Servers, Storage and Network			
▶ Oracle Beacon	13.4.0.0.0	13.4.0.0.0	13.4.0.0.0

You are now ready to deploy the plug-in on OMS. Locate the Deploy On tab at the top of the page.

3. From the **Deploy On** menu, select **Management Servers....**

**Figure 1–9 Deploy on OMS**

**Plug-ins**  
This page lists the plug-ins available, downloaded, and deployed to the Enterprise Manager system. Use this page to deploy c

Actions ▾ View ▾ Deploy On ▾ Undeploy From ▾ Check Updates Deployment Activities

Name	Version		
	Latest Available	Latest Downloaded	On Management Server
▶ Cloud			
▶ Databases			
▶ Oracle Database	13.4.1.0.0	13.4.1.0.0	13.4.1.0.0
▶ Oracle TimesTen In-Memory Database	13.4.1.0.0	13.4.1.0.0	
▶ Engineered Systems			
▶ Middleware			
▶ Servers, Storage and Network			
▶ Oracle Beacon	13.4.0.0.0	13.4.0.0.0	13.4.0.0.0

The Deploy Plug-in on Management Servers: Plug-ins page displays. The plug-in **Oracle TimesTen In-Memory Database** is displayed in the Name column and the Version is auto-filled. Locate the Next button in the top right of the page.

4. Click **Next**.

**Figure 1–10 Click Next**

Progress: Plug-ins Prerequisite Checks Repository Review Confirmation

**Deploy Plug-ins on Management Servers: Plug-ins** Back Step 1 of 5 **Next** Cancel

+ Add... × Remove

Name	Version			Downtime Required	Use Last Successful Prerequisite
	Latest Available	Currently Deployed	To Deploy		
▶ Oracle TimesTen In-Memory Database	13.4.1.0.0	None	13.4.1.0.0 ▾	✓	<input type="checkbox"/>

The Deploy Plug-ins on Management Servers: Prerequisite Checks page displays. The prerequisite checks can take several minutes. In the Prerequisite Status region, you should see a check to the left of the Prerequisite Checks text. To the right of this text, you should see the text "Successfully Completed". Ensure that there are green checks in the Status column of each row in the Deployment Steps: Oracle TimesTen In-Memory Database table. Locate the Next button in the top right of the page.

5. Click Next.

**Figure 1–11 Click Next**

**Deploy Plug-ins on Management Servers: Prerequisite Checks**

Retry Back Step 2 of 5 **Next** Cancel

**Prerequisite Status**

✓ Prerequisite Checks - Successfully Completed Auto Refresh 5 Seconds

Name	Version	Status (%)	Start Time	End Time
Oracle TimesTen In-Memory Database	13.4.1.0.0	100	Oct 11, 2019 2:28:40 PM	Oct 11, 2019 2:30:00 PM

**Deployment Steps: Oracle TimesTen In-Memory Database**

Prerequisite Name	Management Servers
	testhost:7654_Management_Service
Submit job for running prerequisites check	✓ Log File
Initialize	✓ Log File
Install software	✓ Log File
Validate plug-in home	✓ Log File
Perform custom preconfiguration	✓ Log File
Check mandatory patches	✓ Log File
Generate metadata SQL	✓ Log File
Preconfigure Management Repository	✓ Log File
Preregister DLF	✓ Log File

The Deploy Plug-ins on Management Servers: Repository page displays. Consider making a backup of the OMS repository before deploying the plug-in. For more information on backing up the OMS repository, see "Backing Up the OMS" in the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*. Locate the **Have you backed up the repository and configuration of first management server?** check box.

6. Select the **Have you backed up the repository and configuration of first management server?** check box.

**Figure 1–12 Select repository backup confirmation**

Deploy Plug-ins on Management Servers: Repository

**Warning**  
Repository database is running in NOARCHIVELOG mode. It is strongly recommended that ARCHIVELOG mode be enabled before trying plug-in deployment. Refer to Oracle Database documentation.

Oracle recommends that you take a backup of the repository, and export the first management server configuration using the command "emctl exportconfig oms". Otherwise, ensure that appropriate recovery plan is in place prior to deploying the plug-in.

\* ☒ Have you backed up the repository and configuration of first management server?

**SYS Credential**  
Specify repository SYS credentials

Credential ☒ Named ☐ New

There are no named credentials defined.

You are now ready to specify repository SYS credentials. Locate the circle to the left of the **New** credential type.

7. Click in the circle to the left of the text **New**.

**Figure 1–13 Select the new credential type option**

Deploy Plug-ins on Management Servers: Repository

**Warning**  
Repository database is running in NOARCHIVELOG mode. It is strongly recommended that ARCHIVELOG mode be enabled before trying plug-in deployment. Refer to Oracle Database documentation.

Oracle recommends that you take a backup of the repository, and export the first management server configuration using the command "emctl exportconfig oms". Otherwise, ensure that appropriate recovery plan is in place prior to deploying the plug-in.

\* ☒ Have you backed up the repository and configuration of first management server?

**SYS Credential**  
Specify repository SYS credentials

Credential ☒ Named ☐ New

There are no named credentials defined.

The Deploy Plug-Ins on Management Servers: Repository page refreshes. You are now required to enter the repository SYS credentials for your Enterprise Manager repository. The first property is the Username.

8. In the **\*Username** text field, type the user who has access to the Enterprise Manager repository.
9. In the **\*Password** text field, type the password for the user who has access to the Enterprise Manager repository.
10. In the **\*Confirm Password** text field, re-type the password.
11. From the **Role** drop-down list, select SYSDBA.
12. Click in the check box to the left of the text **Save As**.
13. In the **Save As** text field, type the name you want to use for the preferred credentials. The credentials are saved with this name.

Locate the Next button at the top right of the page.

14. Click **Next**.

**Figure 1–14 Review of the deploy on OMS**

The Deploy Plug-ins on Management Servers: Review page displays. In the Management Servers table, verify that the name of the management server is correct. Verify the status is up. In the Plug-ins table, verify that the name of the plug-in is Oracle TimesTen In-Memory Database. Locate the Deploy button at the top right of the page.

15. Click **Deploy**.

**Figure 1–15 Confirmation of the deployment to OMS**

Name	Status
testhost:7654_Management_Service	↑

Name	Version			Downtime Required
	Latest Available	Currently Deployed	To Deploy	
Oracle TimesTen In-Memory D...	13.4.1.0.0	None	13.4.1.0.0	✓

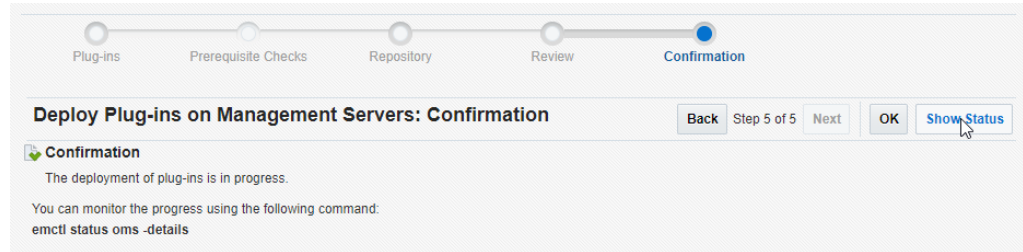
**Note:** The Oracle Enterprise Manager Cloud Control server restarts during the deployment process.

The Deploy Plug-ins on Management Servers: Confirmation page displays with a message indicating the deployment of the plug-in is in progress. The deployment

can take several minutes. You can monitor the deployment status by clicking Show Status or going to the Deployment Activities page.

**16. Click Show Status.**

**Figure 1–16 Click show status**



The Plug-ins Deployment Activities page displays showing the status of recent deployment activities and a detailed status of the TimesTen deployment steps in table format. The second table on this page, Deployment Steps: Oracle TimesTen In-Memory Database, shows the deployment steps for the TimesTen plug-in. The last step located in the last row of this table is named "Start management server". Once this step is completed, ensure that there are green checks in the Status column of each row in the Deployment Steps table. Such checks indicate all steps in the deployment process are completed and are successful. If auto refresh is set to off, you may want to set auto refresh to 15 seconds, so you can see the steps as they are completed. You may need to wait a few minutes before changing the auto refresh setting because the Oracle Enterprise Manager Cloud Control server restarts during this deployment.

**Figure 1–17 Deployment to OMS successful**

Name	Version	Status	Content Type	Destination	Job Name	Start Time
Oracle TimesTen In-Memory Database	13.4.1.0.0	✓	Plug-in	testhost:7654_...	PLUGIN_DEPLO...	Oct 14, 2019 2:54:05 PM

Step	Status	Start Time	End Time	Log File
Submit job for deployment	✓	Oct 14, 2019 2:54:05 PM	Oct 14, 2019 2:54:05 PM	emoms.log
Initialize	✓	Oct 14, 2019 2:54:08 PM	Oct 14, 2019 2:54:22 PM	configplugin_all_2019-10-14_14-54-16.log
Install software	✓	Oct 14, 2019 2:54:22 PM	Oct 14, 2019 2:54:24 PM	install_2019-10-14_14-54-16.log
Validate plug-in home	✓	Oct 14, 2019 2:54:25 PM	Oct 14, 2019 2:54:26 PM	configplugin_all_2019-10-14_14-54-16.log
Perform custom preconfiguration	✓	Oct 14, 2019 2:54:26 PM	Oct 14, 2019 2:54:26 PM	configplugin_all_2019-10-14_14-54-16.log
Check mandatory patches	✓	Oct 14, 2019 2:54:26 PM	Oct 14, 2019 2:54:26 PM	configplugin_all_2019-10-14_14-54-16.log
Generate metadata SQL	✓	Oct 14, 2019 2:54:26 PM	Oct 14, 2019 2:54:26 PM	configplugin_all_2019-10-14_14-54-16.log
Preconfigure Management Repository	✓	Oct 14, 2019 2:54:26 PM	Oct 14, 2019 2:54:26 PM	configplugin_all_2019-10-14_14-54-16.log
Preregister DLF	✓	Oct 14, 2019 2:54:26 PM	Oct 14, 2019 2:54:26 PM	configplugin_all_2019-10-14_14-54-16.log
Stop management server	✓	Oct 14, 2019 2:54:27 PM	Oct 14, 2019 2:55:56 PM	emctl.log
Register DLF	✓	Oct 14, 2019 2:55:57 PM	Oct 14, 2019 2:58:19 PM	configplugin_all_2019-10-14_14-54-16.log
Configure Management Repository	✓	Oct 14, 2019 2:55:57 PM	Oct 14, 2019 2:58:32 PM	configplugin_all_2019-10-14_14-54-16.log
Configure middle tier	✓	Oct 14, 2019 2:55:57 PM	Oct 14, 2019 2:57:12 PM	configplugin_all_2019-10-14_14-54-16.log
OPSS jazn policy migration	✓	Oct 14, 2019 2:57:14 PM	Oct 14, 2019 2:58:30 PM	configplugin_all_2019-10-14_14-54-16.log
Register metadata	✓	Oct 14, 2019 2:58:33 PM	Oct 14, 2019 2:58:41 PM	configplugin_all_2019-10-14_14-54-16.log
Perform custom postconfiguration	✓	Oct 14, 2019 2:58:41 PM	Oct 14, 2019 2:58:42 PM	configplugin_all_2019-10-14_14-54-16.log
Update inventory	✓	Oct 14, 2019 2:58:42 PM	Oct 14, 2019 2:58:43 PM	configplugin_all_2019-10-14_14-54-16.log
Start management server	✓	Oct 14, 2019 2:58:43 PM	Oct 14, 2019 3:07:50 PM	emctl.log

The plug-in is deployed on OMS.



You are now ready to deploy the plug-in on the Management Agent.

## Deploy the plug-in on the Management Agent

You must deploy the plug-in on OMS before deploying the plug-in on one or more Management Agents.

---

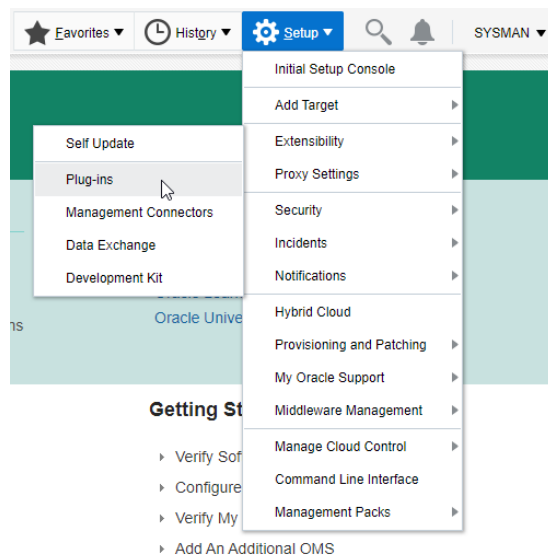
**Note:** The TimesTen database, the plug-in, and the agent monitoring the database must be on the same system.

---

To deploy the plug-in on the Management Agent, ensure that you are on the Oracle Enterprise Manager Cloud Control home page.

1. From the **Setup** menu, select **Extensibility**, then select **Plug-ins**.

**Figure 1–18** Select Extensibility, then Plug-ins



The Plug-ins page displays and you see the plug-ins that have been downloaded and can be deployed. Locate the Databases folder in the Name column.

2. Expand the Databases folder in the Name column and click **Oracle TimesTen In-Memory Database**.



**Figure 1–19 Select Oracle TimesTen In-Memory Database plug-in**

**Plug-ins** Page Refreshed Oct 17, 2019 10:41:37 AM PDT ↻

This page lists the plug-ins available, downloaded, and deployed to the Enterprise Manager system. Use this page to deploy or undeploy plug-ins.

Actions ▾ View ▾ Deploy On ▾ Undeploy From ▾ Check Updates Deployment Activities

Name	Version			Management Agent with Plug-in	Description
	Latest Available	Latest Downloaded	On Management Server		
▶ Cloud					
▶ Databases					
Oracle Database	13.4.1.0.0	13.4.1.0.0	13.4.1.0.0	1	Enterprise Manager for Oracle Database provides comprehensive management for Oracle Database and related targets such as Real Application Cluster, Automatic Storage Management (ASM) etc.
Oracle TimesTen In-Mem	13.4.1.0.0	13.4.1.0.0	13.4.1.0.0	0	Enterprise Manager for Oracle TimesTen In-Memory Database
▶ Engineered Systems					
▶ Middleware					
▶ Servers, Storage and Network					
Oracle Beacon	13.4.0.0.0	13.4.0.0.0	13.4.0.0.0	1	Oracle Beacon plugin is required on the Managed Hosts to support beacon test monitoring capability

You are now ready to deploy the plug-in on the Agent. Locate the **Deploy On** tab at the top of the page.

- From the **Deploy On** menu, select **Management Agent...**

**Figure 1–20 Deploy on Management Agent**

**Plug-ins** Page Refreshed Oct 16, 2019 10:22:38 AM PDT ↻

This page lists the plug-ins available, downloaded, and deployed to the Enterprise Manager system. Use this page to deploy or undeploy plug-ins.

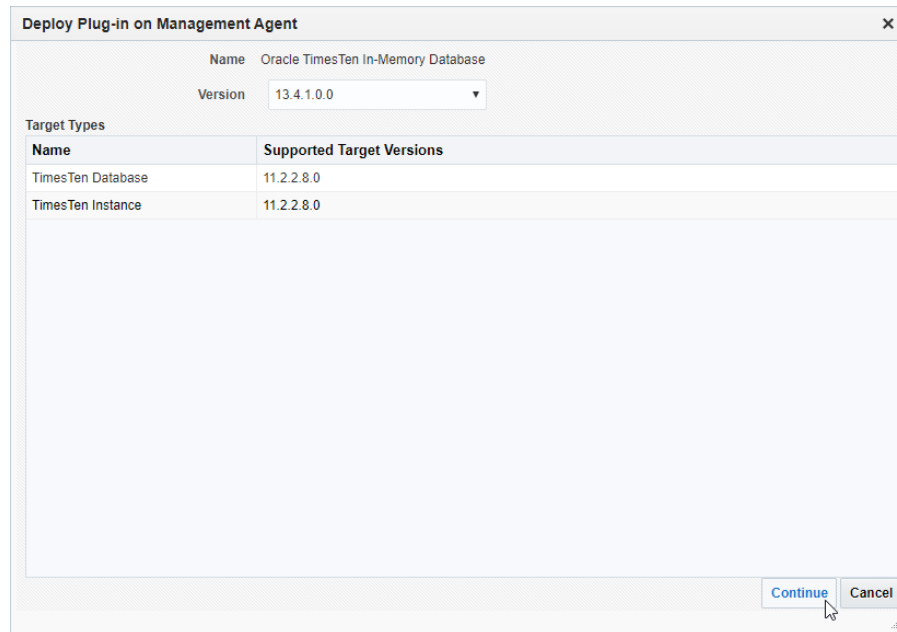
Actions ▾ View ▾ **Deploy On ▾** Undeploy From ▾ Check Updates Deployment Activities

Management Servers...  
 Management Agent...

Name	Version			Management Agent with Plug-in	Description
	Latest Available	Latest Downloaded	On Management Server		
▶ Cloud					
▶ Databases					
Oracle Database	13.4.1.0.0	13.4.1.0.0	13.4.1.0.0	1	Enterprise Manager for Oracle Database provides comprehensive management for Oracle Database and related targets such as Real Application Cluster, Automatic Storage Management (ASM) etc.
Oracle TimesTen In-Mem	13.4.1.0.0	13.4.1.0.0	13.4.1.0.0	0	Enterprise Manager for Oracle TimesTen In-Memory Database
▶ Engineered Systems					
▶ Middleware					
▶ Servers, Storage and Network					
Oracle Beacon	13.4.0.0.0	13.4.0.0.0	13.4.0.0.0	1	Oracle Beacon plugin is required on the Managed Hosts to support beacon test monitoring capability

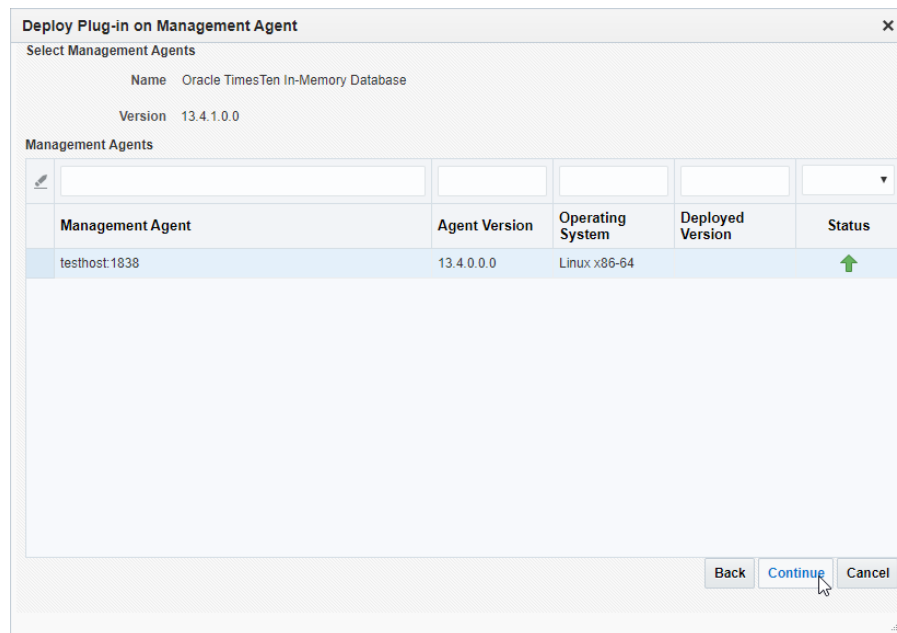
The **Deploy Plug-in on Management Agent General** page displays. The plug-in **Oracle TimesTen In-Memory Database** is displayed in the Name column and the Version is auto-filled. The supported target versions column indicates the minimum version of TimesTen that the agent supports. Locate the **Continue** button below the Target Types table.

- Click **Continue**.

**Figure 1–21 Click Continue**

You can now select the agent where you want to deploy the plug-in. The agent status must be up as indicated by the green up arrow in the Status column of the Management Agents table.

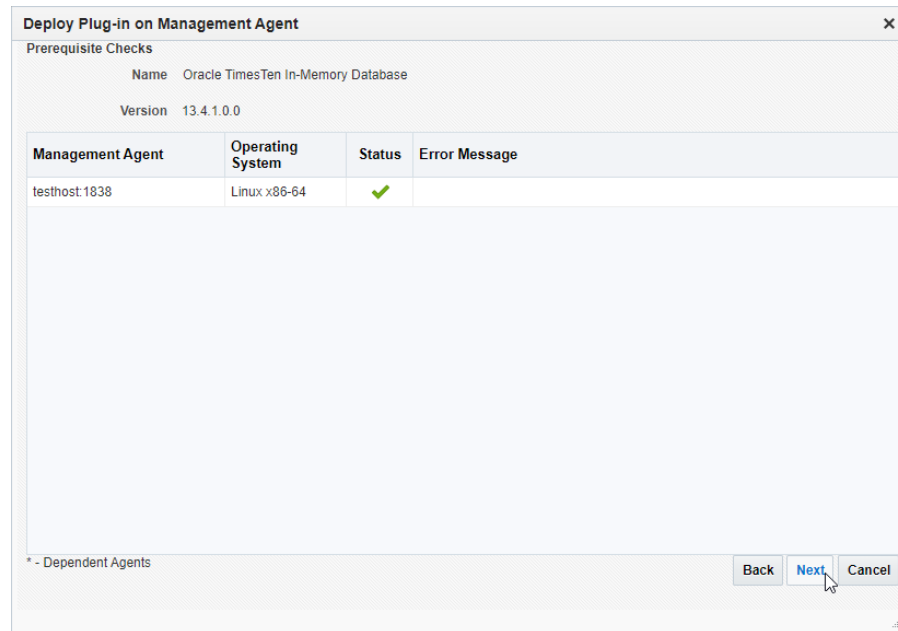
5. In the Management Agents table, locate the row that contains the correct agent as identified by management agent. Click **in this row** and then click **Continue**.

**Figure 1–22 Select agent and click Continue**

The Deploy Plug-in on Management Agent Prerequisite Checks page displays. In the Management Agent table, verify the Status column has a green check and the Error Message column contains the text "No Error."

6. Click **Next**.

**Figure 1–23 Prerequisite checks**

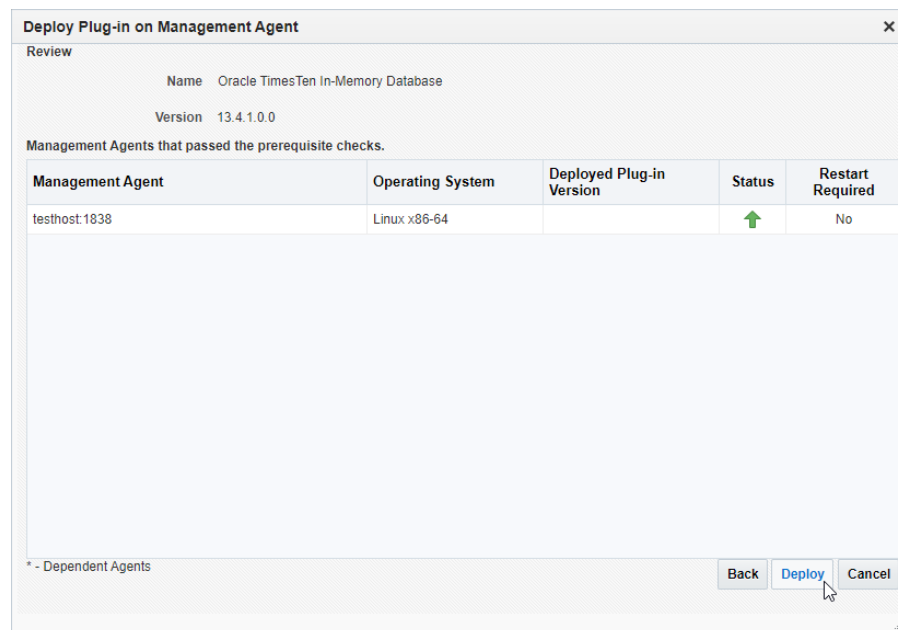


The Deploy Plug-in on Management Agent Review page displays. In the name column, verify the plug-in name is **Oracle TimesTen In-Memory Database** and the version is correct. Ensure that you see the text "Management Agents that passed the prerequisite checks" and ensure that the Management Agent is correct.

You are ready to deploy the plug-in.

7. Click **Deploy**.

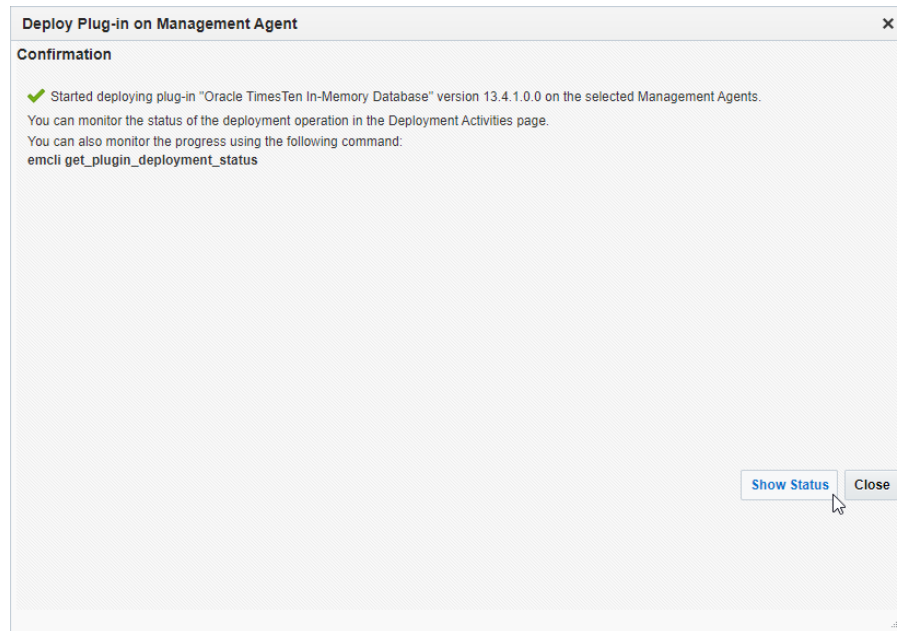
**Figure 1–24 Click Deploy**



The Deploy Plug-in on Management Agent Confirmation page displays with a message indicating the deployment of the plug-in has started on selected agents. The deployment can take several minutes. You may monitor the deployment status by clicking Show Status or going to the Deployment Activities page.

**8. Click Show Status.**

**Figure 1–25 Confirmation dialog**



The Plug-ins Deployment Activities page displays showing the status of recent deployment activities and a detailed status of the TimesTen deployment steps in table format. The second table on this page, Deployment Steps: Oracle TimesTen In-Memory Database, shows the deployment steps for the TimesTen plug-in. The last step located in the last row of this table is named "Update inventory". Once this step is completed, ensure that there are green checks in the Status column of each row in the Deployment Steps table. Such checks indicate all steps in the deployment process are completed and are successful. If auto refresh is set to off, you may want to set auto refresh to 15 seconds, so you can see the steps as they are completed.

**Figure 1–26 Deployment of agent successful**

Name	Version	Status	Content Type	Destination	Job N
Oracle TimesTen In-Memory Database	13.4.1.0.0	✓	Discovery	testhost:1838	PLUGI 10-16
Oracle TimesTen In-Memory Database	13.4.1.0.0	✓	Plug-in	testhost:1838	PLUGI 10-16

Step	Status	Start Time	End Time	Log File
Submit job for deployment	✓	Oct 16, 2019 10:32:39 AM	Oct 16, 2019 10:32:40 AM	
Initialize	✓	Oct 16, 2019 10:32:43 AM	Oct 16, 2019 10:33:12 AM	emoms.log
Validate Environment	✓	Oct 16, 2019 10:33:14 AM	Oct 16, 2019 10:33:14 AM	emoms.log
Install software	✓	Oct 16, 2019 10:33:14 AM	Oct 16, 2019 10:33:16 AM	unzipplugin_orac
Attach Oracle Home to In...	✓	Oct 16, 2019 10:33:18 AM	Oct 16, 2019 10:34:00 AM	attachHome_6
Configure plug-in on Man...	✓	Oct 16, 2019 10:34:00 AM	Oct 16, 2019 10:34:41 AM	agentplugindeplc
Update inventory	✓	Oct 16, 2019 10:34:33 AM	Oct 16, 2019 10:34:41 AM	emoms.log

The plug-in is deployed on the Management Agent and the automatic discovery scripts of the plug-in are deployed on the agent. You can now configure automatic discovery for the TimesTen plug-in, see ["Initial automatic discovery configuration"](#) on page 1-18. Repeat steps 1-8 to deploy the plug-in on additional Management Agents.

You are now ready to configure a TimesTen target.

## Configure a TimesTen target

You must configure a TimesTen target that is monitored by Enterprise Manager Cloud Control. You can configure a TimesTen target for TimesTen instances and each unique TimesTen database with either automatic discovery or manual configuration. When you configure a TimesTen database target, use a Data Manager DSN. Client/server DSNs are not supported. Manual configuration is recommended for advanced users.

---

**Note:** You do not need to configure a TimesTen instance target to configure a TimesTen database target.

---



---

**Note:** Ensure that you are logged in as SYSMAN or a user that has add target privileges through an Enterprise Manager role. For more information, see ["Defining roles"](#) on page 3-5.

---

Follow these instructions before using automatic discovery:

- [Initial automatic discovery configuration](#)

These are the configuration types:

- [Automatic discovery configuration for a TimesTen instance target](#)
- [Automatic discovery configuration for a TimesTen database target](#)
- [Manual configuration for a TimesTen instance target](#)
- [Manual configuration for a TimesTen database target](#)

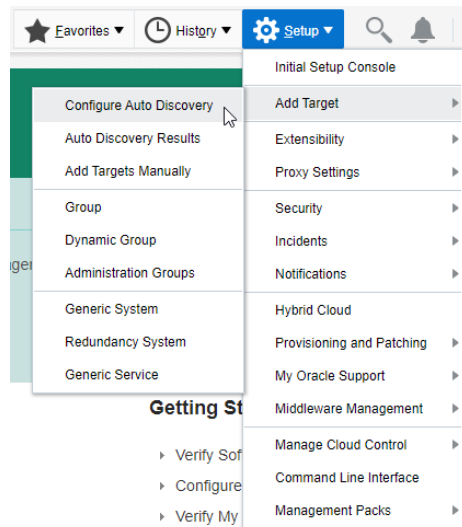
## Initial automatic discovery configuration

You must configure each host for automatic discovery before adding a TimesTen instance target or database target through automatic discovery. You do not need to configure automatic discovery if you are adding targets with manual configuration.

For each host that you want to configure for automatic discovery:

1. From the **Setup** menu, select **Add Target**, then select **Configure Auto Discovery**.

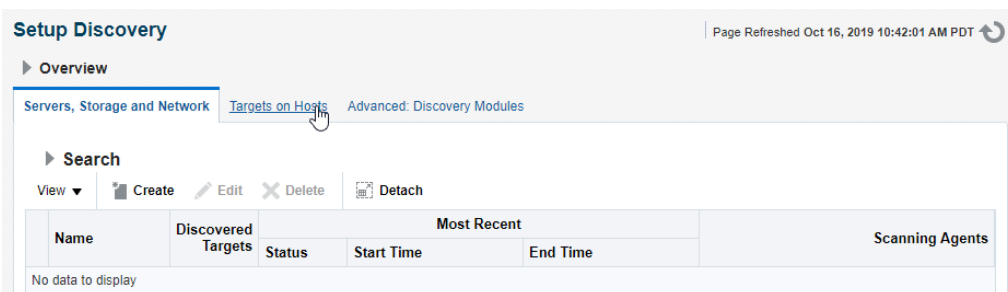
**Figure 1–27 Configure auto discovery**



The Setup Discovery page displays. Locate the Target on Hosts tab in the Instruction region.

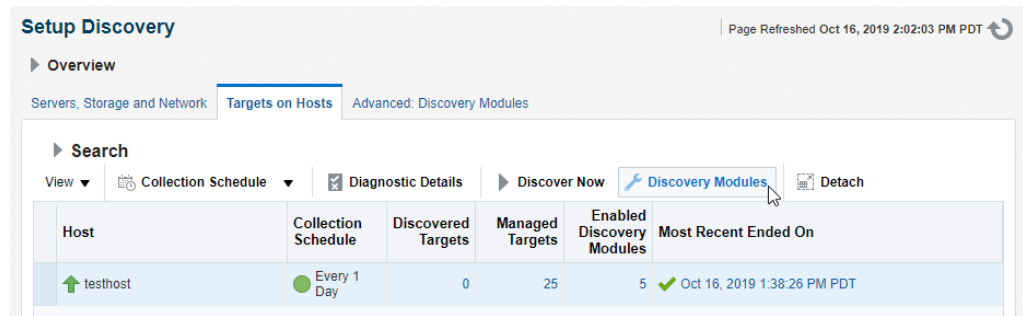
2. Click **Target on Hosts**.

**Figure 1–28 Configure auto discovery on host**



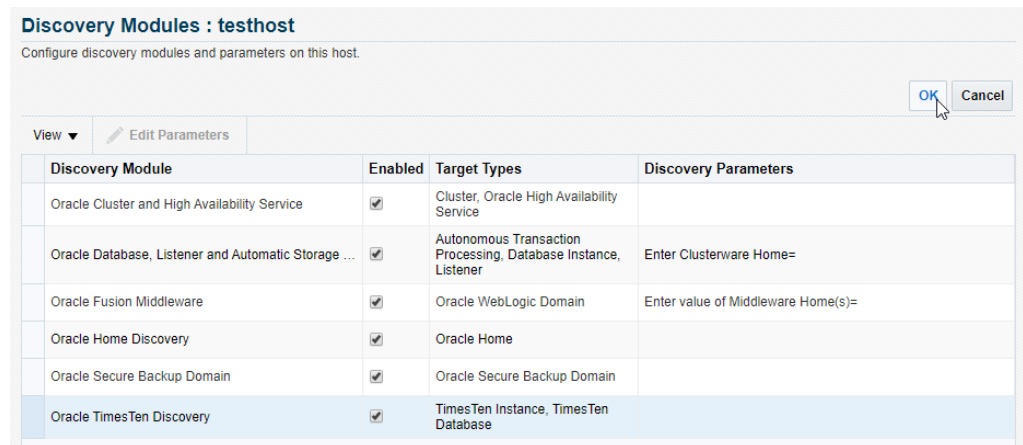
The Setup Discovery page reloads. You can now select the host where the agent is located. The agent status must be up as indicated by the green up arrow in the Agent Host Name column of the Search table.

3. In the Search table, locate the row that contains the correct agent host. Click in **this row** and then click **Discovery Modules**.

**Figure 1–29 Add host**

The Discovery Modules page for your host displays. You can now enable the Oracle TimesTen discovery module.

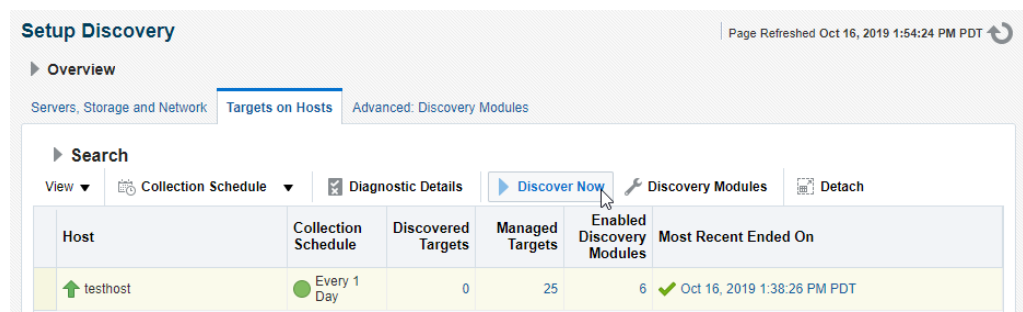
4. In the Discovery Modules table, locate the row that contains the Oracle TimesTen Discovery module. Click in the check box of the Enable column of this row and then click OK.

**Figure 1–30 Select discovery module**

The Setup Discovery page displays. Repeat steps 1-4 to configure additional hosts for automatic discovery.

You are now ready to discover TimesTen targets on your configured hosts.

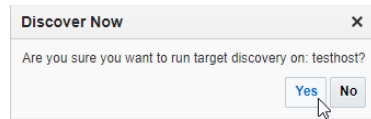
5. In the Search table, locate the row that contains the correct agent host. Click in this row and then click **Discover Now**.

**Figure 1–31 Discover Now**

The Discover Now dialog displays. Locate the Yes button.

6. Click **Yes**.

**Figure 1–32 Run Discovery Now**



The Discover Now - Confirmation dialog displays. The discovery can take several minutes. You should see the informational message: "Discover Now - Completed Successfully". Locate the Close button.

7. Click **Close**.

The Setup Discovery page displays. Enterprise Manager has discovered all the targets on your host. Repeat steps 5-7 to discover targets on additional hosts.

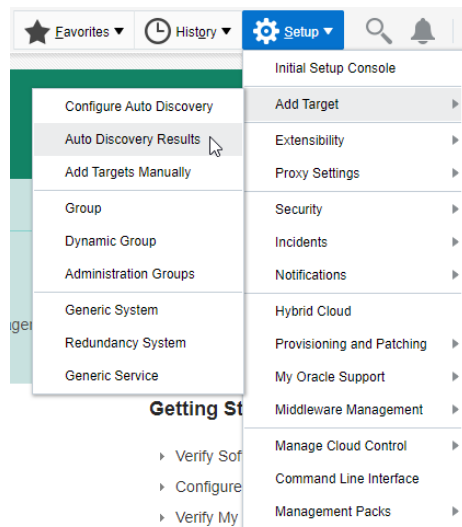
You are now ready to configure TimesTen targets with automatic discovery.

### Automatic discovery configuration for a TimesTen instance target

Ensure that you have followed the steps described in "[Initial automatic discovery configuration](#)" on page 1-18 before you configure a TimesTen instance target with automatic discovery. For each TimesTen instance target you want to configure with automatic discovery:

1. From the **Setup** menu, select **Add Target**, then select **Auto Discovery Results**.

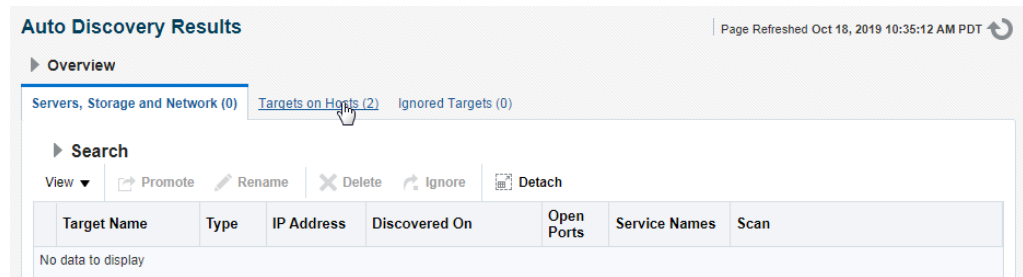
**Figure 1–33 Auto Discovery Results**



The Auto Discovery Results page displays. Locate the Target on Hosts tab in the Instruction region.

2. Click **Target on Hosts**.

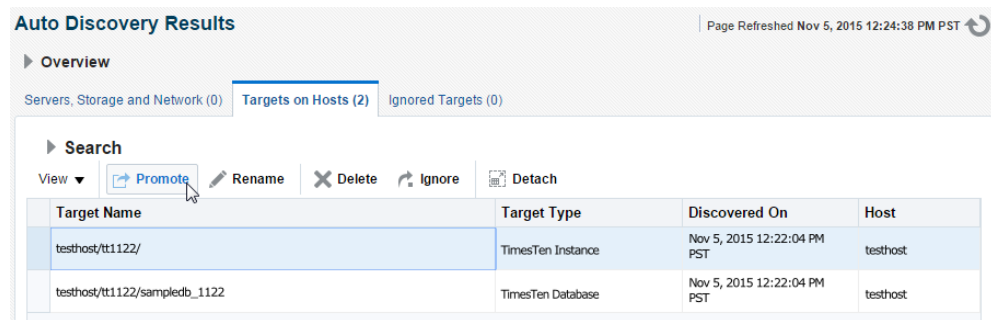


**Figure 1–34 Click target on hosts**

The Auto Discovery Results page reloads. In the Target Type column, locate TimesTen Instance.

3. In the Targets table, locate the row that contains the correct TimesTen instance as identified by the Target Name and Target Type column. Click **in this row** and then click **Promote**.

**Note:** To change the name of a target, select your TimesTen Instance target and click the **Rename** button. Once you promote a target you cannot change the target name.

**Figure 1–35 Promote target**

The Promote Discovered Target page displays. Notice the Target Name, Target Type, and Agent text fields, located below the page title, are auto-filled and cannot be edited. The TimesTen instance name field, located in the Properties region, is auto-filled and is editable.

4. Ensure that the TimesTen instance name is correct and click **Promote**.

**Figure 1–36 Promote discovered target**

**Promote Discovered Target**

Configure properties and promote targets to be managed by Enterprise Manager. All required properties must have values in order to promote targets. 'Promote' will save configured properties and promote the targets. 'Configure Only' will save configured properties without promoting the targets.

[Promote](#) [Configure Only](#) [Cancel](#)

**Target**

Target Name testhost/tt1122

Target Type TimesTen Instance

Host testhost

Agent https://testhost:3872/emd/main/

**Properties**

\* TimesTen instance... tt1122

► **Global Properties**

The Confirmation dialog displays. The target promotion can take several minutes. You should see the informational message: "Promote target - Completed Successfully". Locate the Close button.

5. Click **Close**.

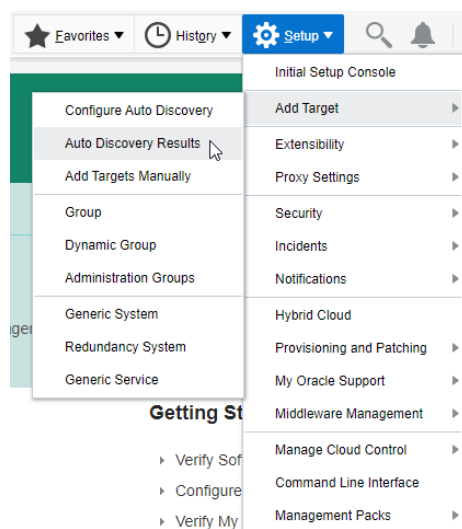
Your TimesTen instance target has been successfully added.

You can now verify and view information about your new target. For more information, see ["Verifying and validating the plug-in"](#) on page 1-33.

### Automatic discovery configuration for a TimesTen database target

Ensure that you have followed the steps described in ["Initial automatic discovery configuration"](#) on page 1-18 before you configure a TimesTen database target with automatic discovery. For each TimesTen database target you want to configure with automatic discovery:

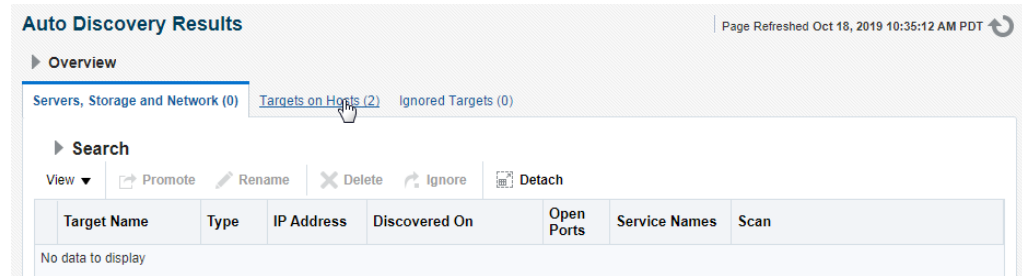
1. From the **Setup** menu, select **Add Target**, then select **Auto Discovery Results**.

**Figure 1–37 Auto Discovery Results**

The Auto Discovery Results page displays. Locate the Target on Hosts tab in the Instruction region.

## 2. Click **Target** on **Hosts**.

**Figure 1–38 Click target on hosts**



The Auto Discovery Results page reloads. In the Target Type column, locate TimesTen Database.

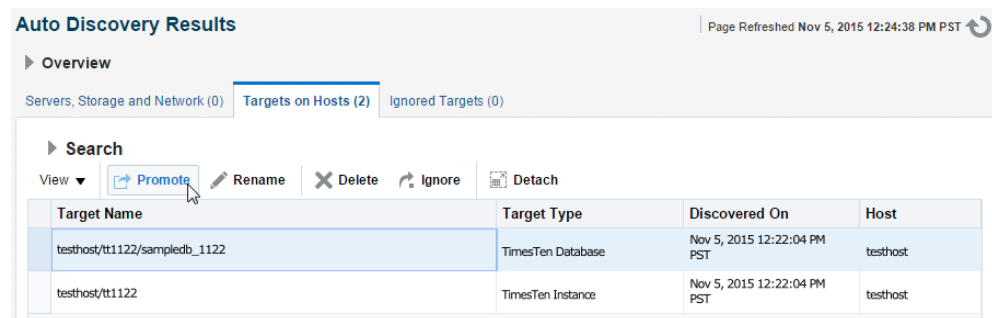
3. In the Targets table, locate the row that contains the correct TimesTen database as identified by the Target Name and Target Type column. Click **in this row** and then click **Promote**.

---

**Note:** To change the name of a target, select your TimesTen Database target and click the **Rename** button. Once you promote a target you cannot change the target name.

---

**Figure 1–39 Promote target**



The Promote Discovered Target page displays. Notice the Target Name, Target Type, Agent text, and Credential Type fields, located below the page title, are auto-filled and cannot be edited. You are now ready to enter the TimesTen monitoring credentials properties.

4. In the **\*TimesTen database user name** text field, type the TimesTen database user who has **ADMIN** privileges. Note: This user cannot be the TimesTen instance administrator.
5. In the **\*TimesTen password** text field, type the password for the TimesTen database user.
6. In the **\*Confirm TimesTen password** text field, re-type the password.

---

---

**Note:** Steps 7-11 are only required if your database uses TimesTen cache features that you want to monitor. If you do not want to monitor TimesTen cache features, skip to step 12. For more information on TimesTen cache, see *Oracle TimesTen Application-Tier Database Cache User's Guide*.

---

---

7. Type the TimesTen cache manager user in the **Cache administration/cache manager user name** text field. Note: This user must exist on the TimesTen database and the Oracle database.
8. Type the Oracle database cache manager user password in the **Oracle database cache administration password** text field.
9. In the **Confirm Oracle database cache administration password** text field, re-type the password.
10. Type the TimesTen cache manager password in the **TimesTen database cache manager password** text field.
11. In the **Confirm TimesTen database cache manager password** text field, re-type the password.
12. The **\*Data Source Name** text field is auto-filled. Ensure that the data source name is correct.
13. The **\*TimesTen instance name** text field is auto-filled. Ensure that the TimesTen instance name is correct.
14. Click **Promote**.

**Figure 1–40 Promote discovered target**

**Promote Discovered Target**

Configure properties and promote targets to be managed by Enterprise Manager. All required properties must have values in order to promote targets. 'Promote' will save configured properties and promote the targets. 'Configure Only' will save configured properties without promoting the targets.

Promote Configure Only Cancel

**Target**

Target Name testhost/tt1122/sampledb\_1122

Target Type TimesTen Database

Host testhost

Agent https://testhost:3872/emd/main/

**TimesTen monitoring credential**

Credential type TimesTen database credential

\* TimesTen database user name appuser

\* TimesTen password \*\*\*\*\*

\* Confirm TimesTen password \*\*\*\*\*

Cache administration/cache manager user name cacheadmin

Oracle database cache administration password \*\*\*\*\*

Confirm Oracle database cache administration password \*\*\*\*\*

TimesTen database cache manager password \*\*\*\*\*

Confirm TimesTen database cache manager password \*\*\*\*\*

**Properties**

\* Data Source Name sampledb\_1122

\* TimesTen instance... tt1122

► Global Properties

The Confirmation dialog displays. The target promotion can take several minutes. You should see the informational message: "Promote target - Completed Successfully". Locate the Close button.

**15. Click Close.**

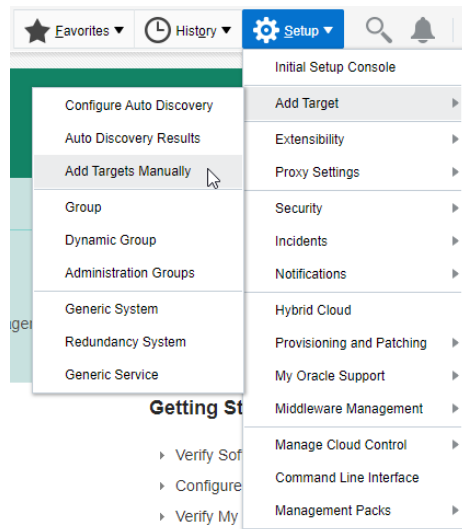
Your TimesTen database target has been successfully added.

You can now verify and view information about your new target. For more information, see ["Verifying and validating the plug-in"](#) on page 1-33.

## Manual configuration for a TimesTen instance target

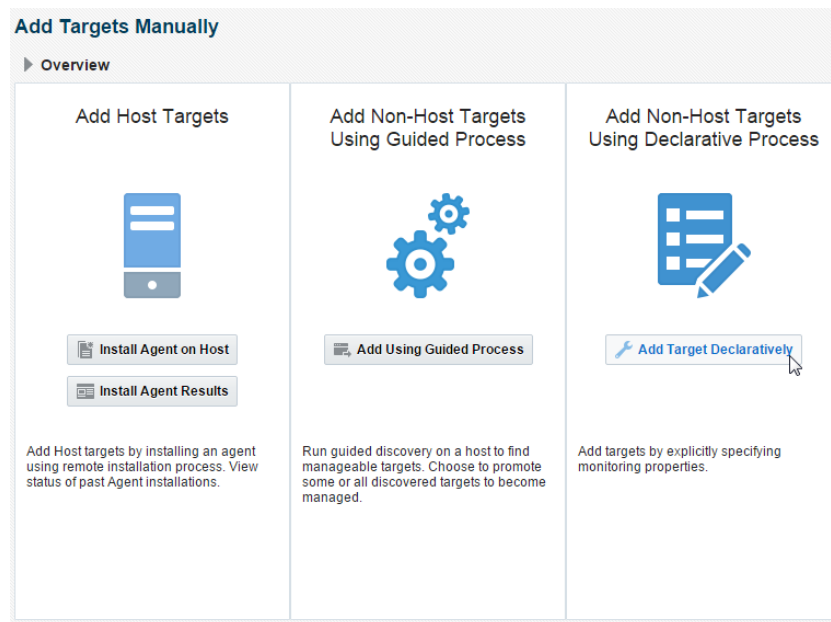
For each TimesTen instance target you want to configure manually:

1. From the **Setup** menu, select **Add Target**, then select **Add Targets Manually**.

**Figure 1–41 Add targets manually**

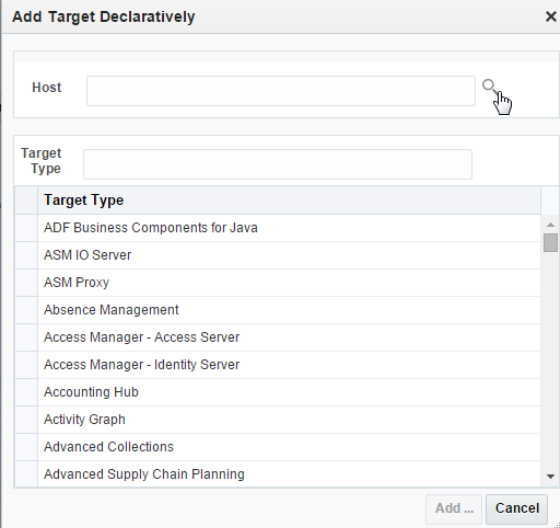
The Add Targets Manually page displays. Locate the Add Targets Declaratively button in the middle right section of the page.

2. Click **Add Targets Declaratively**.

**Figure 1–42 Add target declaratively**

The Add Target Declaratively dialog displays. You are now ready to select the target host.

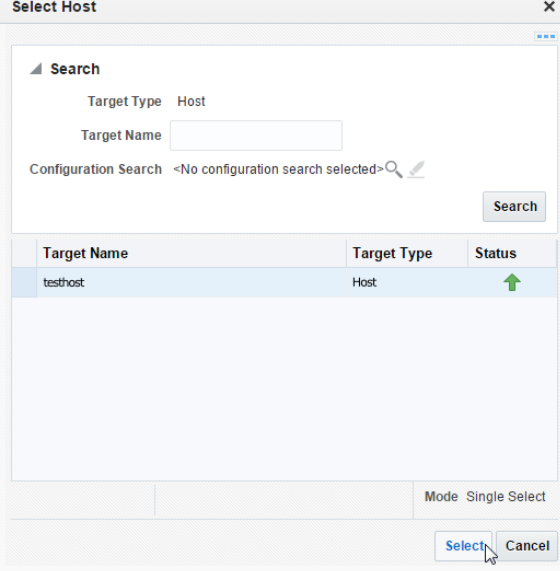
3. Click the **Search** icon located to the right of the Host text field.

**Figure 1–43 Click the search icon**


The dialog box titled "Add Target Declaratively" contains a "Host" text field with a search icon to its right. Below it is a "Target Type" text field. Underneath is a list box titled "Target Type" containing the following items: ADF Business Components for Java, ASM IO Server, ASM Proxy, Absence Management, Access Manager - Access Server, Access Manager - Identity Server, Accounting Hub, Activity Graph, Advanced Collections, and Advanced Supply Chain Planning. At the bottom right are "Add ..." and "Cancel" buttons.

The Select Host dialog displays. You are now ready to select the host of your TimesTen instance target. Locate the Targets table with columns Target Name, Target Type, and Status. Identify the Target Name of your host. Ensure that the Target Type is Host.

4. Click in the row that identifies the **Target Name** of your host and click **Select**.

**Figure 1–44 Select host**


The dialog box titled "Select Host" contains a "Search" section with "Target Type" and "Host" labels, a "Target Name" text field, and a "Configuration Search" field with the text "<No configuration search selected>". A "Search" button is to the right. Below is a table with three columns: Target Name, Target Type, and Status.

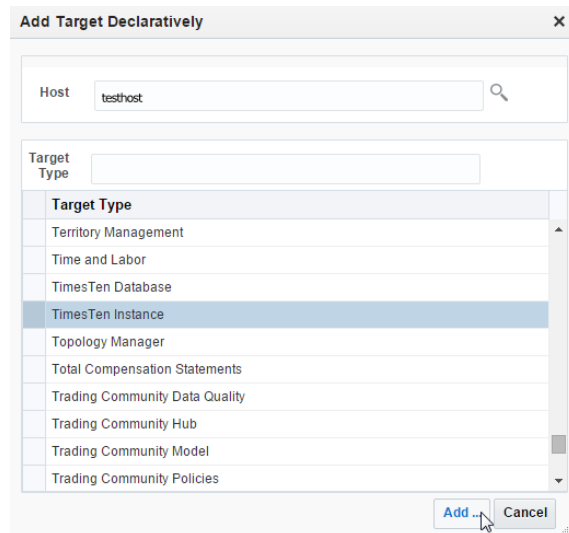
Target Name	Target Type	Status
testhost	Host	↑

At the bottom right, there is a "Mode: Single Select" label and "Select" and "Cancel" buttons.

The Select Host dialog closes and you are returned back to the Add Targets Declaratively dialog. Notice the host you selected is auto-filled in the Host text field.

You are now ready to select the target type. Locate the Target Type table.

5. In the Target Type table, select **TimesTen Instance**. Then, click **Add...**

**Figure 1–45 Click add**

The Add: TimesTen Instance page displays. Prepare to enter the target properties for your instance target. The first property is the target name.

In the Target Name text field, you define the TimesTen instance target name. Select a name that is a meaningful identifier. (For example, *hostname.instance*.)

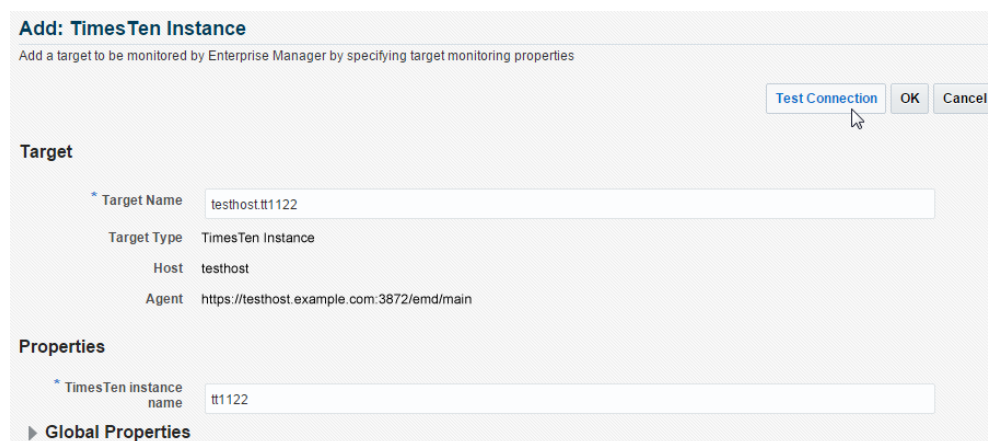
6. In the **\*Target Name** text field, type the TimesTen target name.

Notice the Target Type, Host, and Agent text fields, located below the Target Name text field, are auto-filled. You are now ready to enter the TimesTen instance name.

7. In the **\*TimesTen instance name** text field, type the name of your TimesTen instance. (Use the `ttStatus` utility if you cannot recall the instance name. For more information, see "ttStatus" in the *Oracle TimesTen In-Memory Database Reference*.)

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

8. Click **Test Connection**.

**Figure 1–46 Test connection**

The Confirmation dialog displays. You should see the informational message: "Test Connection succeeded." If you do not see the "Test Connection succeeded" message, ensure that your instance name is correct.



9. In the Test Connection dialog, click **Close**.

The Confirmation dialog closes. Locate the OK button at the top right of the page.

10. Click **OK**.

A second Confirmation dialog displays. You should see the informational message "Add Target - Completed Successfully." The target type (TimesTen Instance), Target name, and Agent are also displayed.

11. Click **Close**.

Your TimesTen instance target has been successfully added.

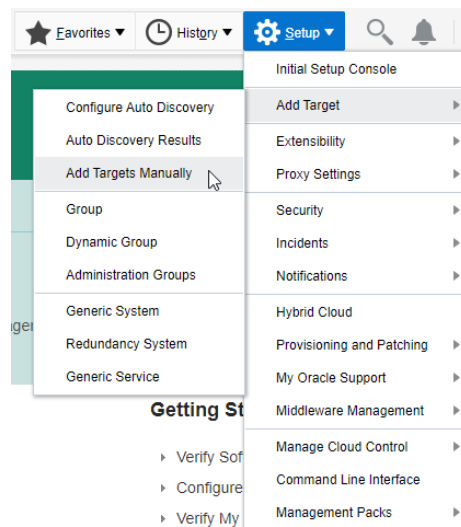
You can now verify and view information about your new target. For more information, see ["Verifying and validating the plug-in"](#) on page 1-33.

## Manual configuration for a TimesTen database target

For each TimesTen database target you want to configure manually:

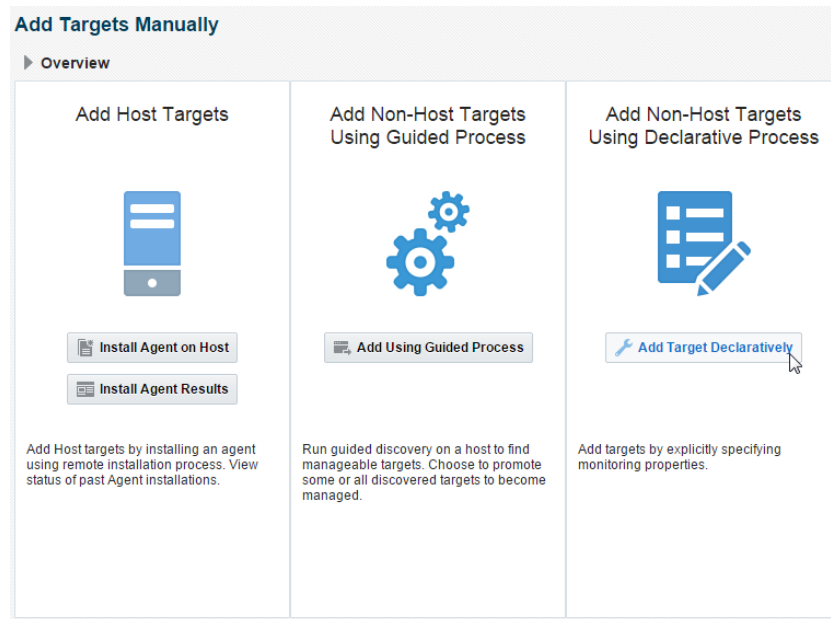
1. From the **Setup** menu, select **Add Target**, then select **Add Targets Manually**.

**Figure 1–47 Add targets manually**



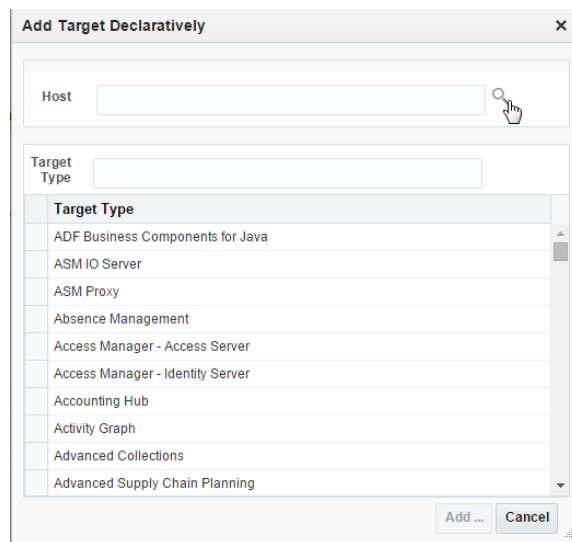
The Add Targets Manually page displays. Locate the Add Targets Declaratively button in the middle right section of the page.

2. Click **Add Targets Declaratively**.

**Figure 1–48 Add target declaratively**

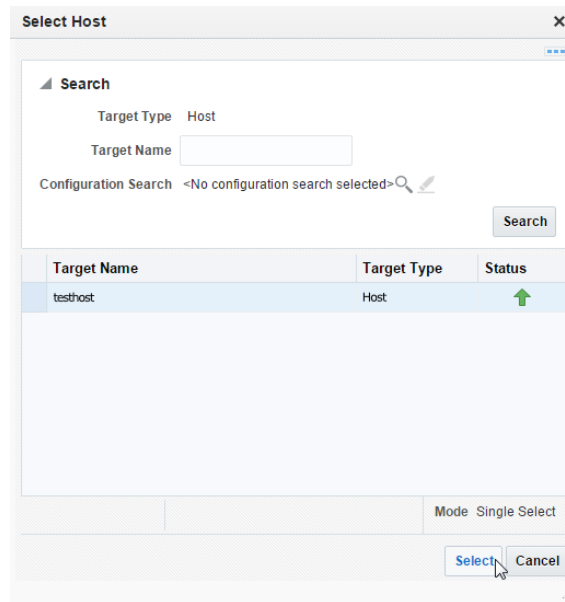
The Add Target Declaratively dialog displays. You are now ready to select the target host.

3. Click the **Search** icon located to the right of the Host field.

**Figure 1–49 Click the search icon**

The Select Host dialog displays. You are now ready to select the host of your TimesTen database target. Locate the Targets table with columns Target Name, Target Type, and Status. Identify the Target Name of your host. Ensure that the Target Type is Host.

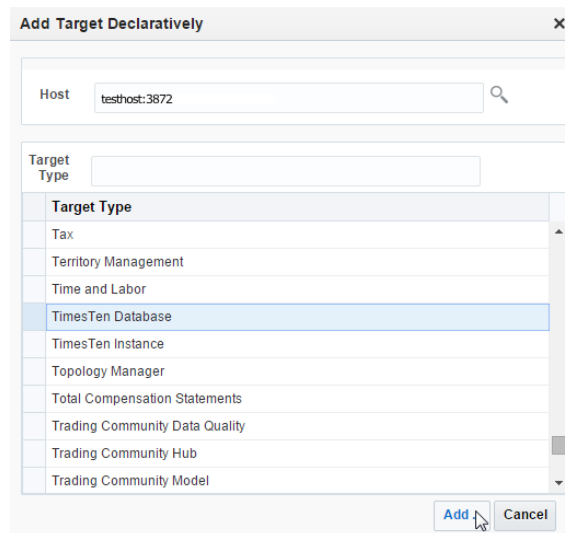
4. Click in the row that identifies the **Target Name** of your host and click **Select**.

**Figure 1–50 Select host**

The Select Host dialog closes and you are returned back to the Add Targets Declaratively dialog. Notice the host you selected is auto-filled in the Host text field.

You are now ready to select the target type. Locate the Target Type table.

5. In the Target Type table, select **TimesTen Database**. Then, click **Add....**

**Figure 1–51 Click add**

The Add: TimesTen Database page displays. Prepare to enter the target properties for your target. The first property is the target name.

In the Target Name text field, you define the TimesTen target name. Select a name that is a meaningful identifier. (For example, *hostname.instance.DSN*.)

6. In the **\*Target Name** text field, type the TimesTen target name.

Notice the Target Type, Host, Agent, and Credential type text fields, located below the Target Name text field, are auto-filled. You are now ready to enter the TimesTen monitoring credentials properties.

7. In the **\*TimesTen database user name** text field, type the TimesTen database user who has `ADMIN` privileges. Note: This user cannot be the TimesTen instance administrator.
8. In the **\*TimesTen password** text field, type the password for the TimesTen database user.
9. In the **\*Confirm TimesTen password** text field, re-type the password. You are now ready to enter the TimesTen properties.

---

**Note:** Steps 10-14 are only required if your database uses TimesTen cache features that you want to monitor. If you do not want to monitor TimesTen cache features, skip to step 15. For more information on TimesTen cache, see *Oracle TimesTen Application-Tier Database Cache User's Guide*.

---

10. Type the TimesTen cache manager user in the **Cache administration/cache manager user name** text field. Note: This user must exist on the TimesTen database and the Oracle database.
11. Type the Oracle database cache manager user password in the **Oracle database cache administration password** text field.
12. In the **Confirm Oracle database cache administration password** text field, re-type the password.
13. Type the TimesTen cache manager password in the **TimesTen database cache manager password** text field.
14. In the **Confirm TimesTen database cache manager password** text field, re-type the password.
15. In the **\*Data Source Name** text field, type the DSN. The DSN must be a system DSN that is described in either your `sys.odbcc.ini` file or the ODBC Data Source Administrator on Microsoft Windows.
16. In the **\*TimesTen instance name** text field, type the name of your TimesTen instance. (Use the `ttStatus` utility if you cannot recall the instance name. For more information, see "ttStatus" in the *Oracle TimesTen In-Memory Database Reference*.)  
  
You are now ready to test your connection to ensure that your target is deployed successfully and configured properly.
17. Click **Test Connection**.

**Figure 1–52 Add TimesTen specific information**

**Add: TimesTen Database**  
Add a target to be monitored by Enterprise Manager by specifying target monitoring properties

Test Connection OK Cancel

**Target**

\* Target Name testhost.tt1122.sampledb\_1122

Target Type TimesTen Database

Host testhost

Agent https://testhost.example.com:3872/emd/main

**TimesTen monitoring credential**

Credential type TimesTen database credential

\* TimesTen database user name appuser

\* TimesTen password .....

\* Confirm TimesTen password .....

Cache administration/cache manager user name cacheadmin

Oracle database cache administration password .....

Confirm Oracle database cache administration password .....

TimesTen database cache manager password .....

Confirm TimesTen database cache manager password .....

**Properties**

\* Data Source Name sampledb\_1122

\* TimesTen instance name tt1122

► **Global Properties**

The Confirmation dialog displays. You should see the informational message: "Test Connection succeeded." If you do not see the "Test Connection succeeded" message, ensure that your instance name and DSN are correct and the TimesTen database for the DSN is loaded into memory.

18. In the Test Connection dialog, click **Close**.

The Confirmation dialog closes. Locate the OK tab at the top right of the page.

19. Click **OK**.

A second Confirmation dialog displays. You should see the informational message "Add Target - Completed Successfully." The target type (TimesTen Database), Target name, and Agent are also displayed.

20. Click **Close**.

Your TimesTen database target has been successfully added.

You can now verify and view information about your new target. For more information, see ["Verifying and validating the plug-in"](#) on page 1-33.

## Verifying and validating the plug-in

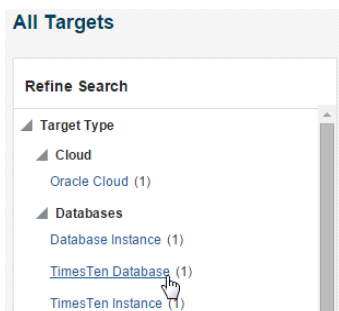
After waiting a few minutes for the plug-in to start collecting data:

1. From the **Targets** menu, select **All Targets** on the Enterprise Manager Cloud Control 13c home page.

The All Targets page displays. Locate the Refine Search panel under **All Targets**.

2. Expand **Target Type**, then **Databases** and click **TimesTen Instance** or **TimesTen Database**.

**Figure 1–53 Select your TimesTen target**



The target table displays. For each row in the table, confirm the column Target Type contains **TimesTen Instance** or **TimesTen Database** and each row of the table contains the name of the target you previously configured. For more information on configuring a TimesTen target, see "[Configure a TimesTen target](#)" on page 1-17.

For each target type row, locate the column Target Status. Verify there is a green up arrow indicating the status is Up.

**Figure 1–54 Verify the TimesTen target is Up.**

Target Name	Target Type	Target Status
testhost.tt1122.sampledb_1122	TimesTen Database	↑

You are now ready to verify there are no metric errors.

3. In the target table, locate the row that contains your TimesTen target. In the column Target Name, click the **Target Name**. (The target name is the name of the TimesTen target you configured).

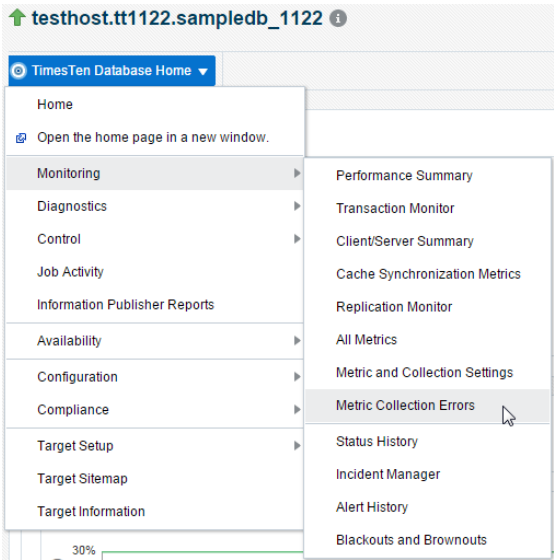
**Figure 1–55 Click the target name**

Target Name	Target Type	Target Status
<a href="#">testhost.tt1122.sampledb_1122</a>	TimesTen Database	↑

The TimesTen target page displays.

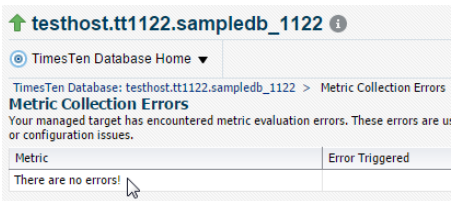
4. From the **TimesTen Database Home** menu, select **Monitoring**, then select **Metric Collection Errors**.

**Figure 1–56 Select Metric Collection Errors**



The Metric Collection Errors page displays a table with metric collection error information. Verify the first column named Metrics contains the text "There are no errors!".

**Figure 1–57 No errors**



You are now ready to set preferred credentials for your target.

## Setting preferred credentials for a target

Set preferred credentials for a TimesTen target to:

- Start and stop the TimesTen daemon of a TimesTen instance.
- Use the transaction monitor of a TimesTen database.
- Create backups of a TimesTen database.
- Start and stop the TimesTen cache agent of a TimesTen database.
- Start and Stop the TimesTen replication agent of a TimesTen database.
- Load and unload a TimesTen database from memory.

For more information on the transaction monitor, see ["Working with the Transaction Monitor"](#) on page 7-1.

To set the preferred credentials for a target:

1. Ensure that you are on the Enterprise Manager Cloud Control home page. From the **Setup** menu, select **Security**, then select **Preferred Credentials**.

The Security Preferred Credentials page displays. Locate TimesTen Instance or TimesTen Database in the Target Type column.

2. Click **TimesTen Instance** or **TimesTen Database**.

**Figure 1–58 Preferred Credentials Page**

**Security** Page Refreshed Nov 6, 2015 12:17:24 PM PST ↻

**Preferred Credentials**

You can use preferred credentials to simplify access to targets that you manage. If a target has preferred credentials set, applications that log in to that target will automatically use the preferred credentials.  
You can set default credentials for each target type. Default credentials are used for any targets that do not have preferred credentials explicitly set.

Target type

**Manage Preferred Credentials**

Target Type ▲▼	Total Targets	Targets with Credentials Set	Default Credentials Set
Oracle HTTP Server	1	0	No
Oracle Home	3	0	No
Oracle Management Service	1	0	No
Oracle WebLogic Domain	1	0	No
Oracle WebLogic Node Manager	1	0	No
Oracle WebLogic Server	2	0	No
Systems Infrastructure Network	1	0	No
<b>TimesTen Database</b>	<b>1</b>	<b>0</b>	<b>No</b>
TimesTen Instance	1	0	No

**My Oracle Support Preferred Credentials**

This is required to connect to My Oracle Support to search knowledge, file service requests and work with patches and updates.

You are now ready to set the preferred credentials for your TimesTen target. Locate the Manage Preferred Credentials button.

3. Click **Manage Preferred Credentials**.

**Figure 1–59 Click Manage Preferred Credentials**

**Security** Page Refreshed Nov 6, 2015 12:17:24 PM PST ↻

**Preferred Credentials**

You can use preferred credentials to simplify access to targets that you manage. If a target has preferred credentials set, applications that log in to that target will automatically use the preferred credentials.  
You can set default credentials for each target type. Default credentials are used for any targets that do not have preferred credentials explicitly set.

Target type

**Manage Preferred Credentials**

Target Type ▲▼	Total Targets	Targets with Credentials Set	Default Credentials Set
Oracle HTTP Server	1	0	No
Oracle Home	3	0	No
Oracle Management Service	1	0	No
Oracle WebLogic Domain	1	0	No
Oracle WebLogic Node Manager	1	0	No
Oracle WebLogic Server	2	0	No
Systems Infrastructure Network	1	0	No
<b>TimesTen Database</b>	<b>1</b>	<b>0</b>	<b>No</b>
TimesTen Instance	1	0	No

**My Oracle Support Preferred Credentials**

This is required to connect to My Oracle Support to search knowledge, file service requests and work with patches and updates.



Depending on your selection, the TimesTen Instance Preferred Credentials or TimesTen Database Preferred Credentials page displays.

4. In the Target Preferred Credentials table, locate the row that contains your TimesTen target. In the column Target Name, click the **Target Name**. (The target name is the name of the TimesTen target you configured.)

**Figure 1–60 Click the target name**

**Security** Page Refreshed Nov 6, 2015 12:30:31 PM PST ↻

Preferred Credentials > TimesTen Database

### TimesTen Database Preferred Credentials

This page lists preferred credential preferences. There are 2 kinds of preferences, User Preferences and Global Preferences. Under "My Preferences" tab, one can set its own preferences for each target instance. One can also set user preferences at default level. Click on "Global Preferences" tab to view/set Global preferences. To get/set "Global Preferences" user needs certain minimum privilege. Check "Global Preferences" tab for those privilege details. To set "User Preferences" user does not require any additional privilege. Preferred credentials are resolved in a specific order. User scoped preferences will always take precedence. First we search at target level, when not found, we search for the target type (default) preferred credential. When not found, we repeat the same lookup in Global preferences scope.

**My Preferences** **Global Preferences**

To set preferred credentials, click "Set" in the appropriate table. Click "Test" to test the credential. Click "View References" to see all references to the credential, or "Clear" to clear the association with the credential.  
Use emcli create\_credential\_set verb to create an additional credential set.

#### Default Preferred Credentials

Default credentials are used for targets that do not have credentials set in the Target Credentials table below.

Set Clear

Credential Set	Target Username	Credential Name	Credential Owner
Host Credentials			

#### Target Preferred Credentials

Target credentials can be specified for each target. If set, target credentials override the default credentials for that target.

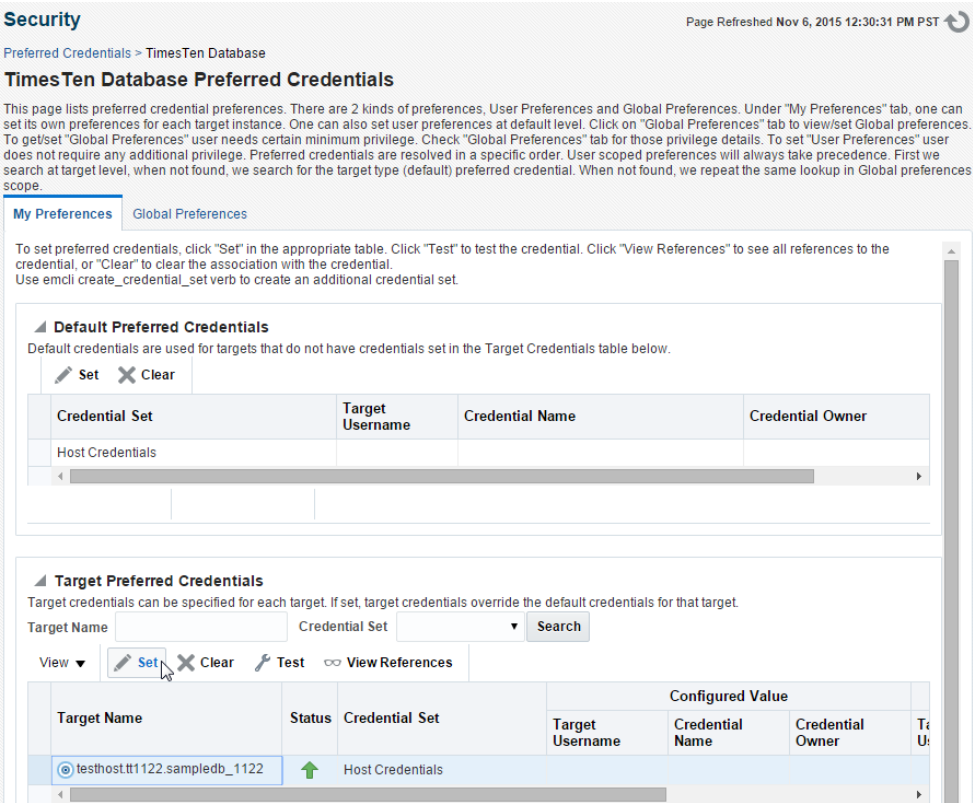
Target Name  Credential Set

View

Target Name	Status	Credential Set	Configured Value			Target Username	Credential Name	Credential Owner	Target Username
testhosttt1122.sampledb_1122		Host Credentials							

5. Click Set.

Figure 1–61 Click set

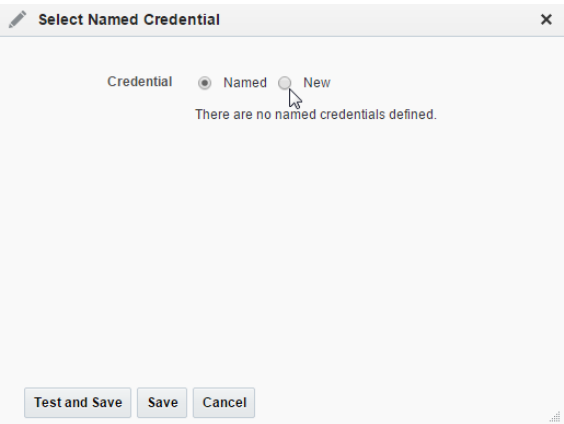


The Select Named Credentials dialog displays.

6. Click in the circle to the left of the text **New**.

**Note:** If you already have a named credential, select it and skip to step 12.

Figure 1–62 Select Named Credential page



The Select Named credential dialog refreshes. You are now required to enter the preferred credentials for your TimesTen target. The first property is the UserName.

7. In the **\*UserName** text field, type the user who has access to the target host. The username must be the operating system username of the TimesTen instance administrator.
8. In the **\*Password** text field, type the password for the user who has access to the target host. The password must be the operating system password of the TimesTen instance administrator.
9. In the **\*Confirm password** text field, re-type the password.
10. Click in the check box to the left of the text **Save As**.
11. In the **Save As** text field, type the name you want to use for the preferred credentials. The credentials are saved with this name.
12. Click **Test and Save**.

**Figure 1–63 Click Test and Save**

The information dialog displays with the text "Named credential association completed successfully".

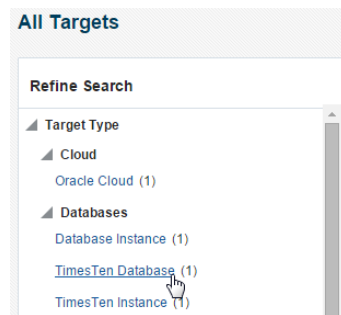
You have successfully associated the credential with your TimesTen target.

## Changing the monitoring configuration of a TimesTen database target

When you configure your TimesTen database target, you specify the TimesTen username and password. If you change the password for this TimesTen user in the TimesTen database, you must update the password in the Enterprise Manager Cloud Control monitoring configuration. For more information on configuring your TimesTen target, see ["Configure a TimesTen target"](#) on page 1-17.

To change the monitoring configuration of your TimesTen database target:

1. Ensure that you are on the Enterprise Manager Cloud Control home page. From the **Targets** menu, select **All Targets** on the Enterprise Manager Cloud Control 13c home page.  
The All Targets page displays. Locate the Refine Search panel under **All Targets**.
2. Expand **Target Type**, then **Databases** and click **TimesTen Instance** or **TimesTen Database**.

**Figure 1–64 Select database target type**

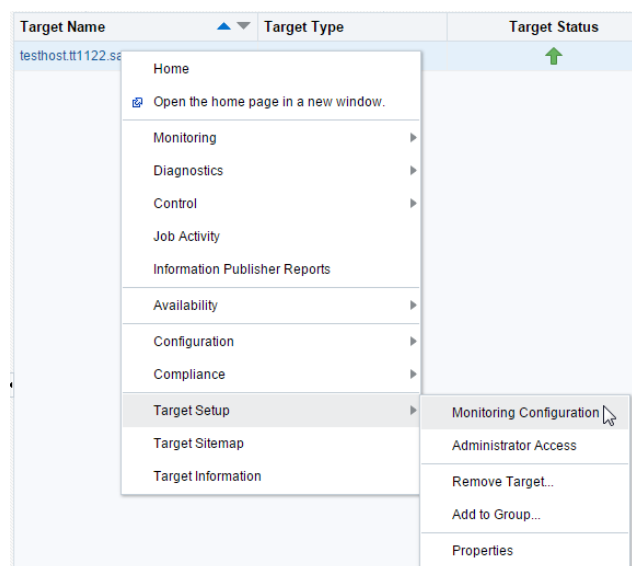
Locate the row that contains the target name.

**Figure 1–65 Locate the TimesTen target**

Target Name	Target Type	Target Status
testhost.tt1122.sampledb_1122	TimesTen Database	↑

You are now ready to update the password.

- Right-click the **Target Name** located in the Target Name column of the row containing the TimesTen target and select **Target Setup**, then **Monitoring Configuration**.

**Figure 1–66 Change the monitoring configuration**

The target monitoring configuration page displays. The Data Source Name, the TimesTen instance name, and the TimesTen username are auto-filled. If you have the TimesTen cache feature configured, the Cache admin password and the Cache admin user name text fields are auto-filled.

- In the **TimesTen password** text field, type the new password. This password must be the same password that exists in the TimesTen database for your TimesTen user. For example, if the TimesTen user name is *appuser*, and in the TimesTen database, you modified the TimesTen password for *appuser* to be *newpassword*, then in the TimesTen password field, type *newpassword*. For more information on changing a

password in the TimesTen database, see "ALTER USER" in the *Oracle TimesTen In-Memory Database SQL Reference*.

5. Click OK.

**Figure 1–67 Click OK**

The image shows a 'Monitoring Configuration' dialog box. It has a title bar with 'Monitoring Configuration' and three buttons: 'OK', 'Cancel', and 'Test Connection'. The 'OK' button is highlighted with a mouse cursor. The dialog contains several input fields with labels and asterisks indicating required fields:

- \* Data Source Name: sampledb\_1122
- Cache administration/cache manager user name: cacheadmin
- \* TimesTen instance name: tt1122
- TimesTen database cache manager password: \*\*\*\*\*
- Oracle database Cache administration password: \*\*\*\*\*
- \* TimesTen password: \*\*\*\*\*
- \* TimesTen user name: appuser

Below the input fields, there is a section titled 'Monitoring' with a paragraph of text: 'Oracle has automatically enabled monitoring for this target's availability and performance, so no further monitoring configuration is necessary. You can edit the metric thresholds from the target's homepage.'

The Saved Successfully dialog displays indicating the settings are saved correctly in the repository.

6. In the Saved Successfully dialog, click OK.

The Saved Successfully dialog closes.

You can verify the new monitoring configuration of your target. For more information on verifying a TimesTen target, see ["Verifying and validating the plug-in"](#) on page 1-33.

## Upgrading the Enterprise Manager Plug-in for TimesTen

Upgrading the plug-in enables you to use the new features of the new plug-in while still keeping all of the metrics that the previous plug-in has collected.

Before upgrading, ensure that you have Oracle Enterprise Manager Cloud Control 13c Release 4 (or higher). For more information on upgrading to Oracle Enterprise Manager Cloud Control 13c, see the *Oracle Enterprise Manager Cloud Control Upgrade Guide*.

---

**Note:** If you perform these operations while performing an upgrade, your Management Agent automatically upgrades to version 13.4.1.0.0:

- Adding new TimesTen targets to Management Agents.
  - Testing connection when modifying the monitoring configuration of an existing TimesTen target. For more information, see ["Changing the monitoring configuration of a TimesTen database target"](#) on page 1-39.
- 

To upgrade the plug-in to version 13.4.1.0.0:

1. Download the 13.4.1.0.0 plug-in. For more information, see ["Download the plug-in"](#) on page 1-3.
2. Deploy the 13.4.1.0.0 plug-in on the Management Server. For more information, see ["Deploy the plug-in on Oracle Management Service"](#) on page 1-6.

3. Deploy the 13.4.1.0.0 plug-in on the Management Agent. For more information, see ["Deploy the plug-in on the Management Agent"](#) on page 1-12. It is recommended to complete this step after with step 2.

You have successfully upgraded the TimesTen plug-in to version 13.4.1.0.0. You do not need to modify any of your TimesTen target settings.

## Uninstalling the Enterprise Manager Plug-in for TimesTen

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

- Remove target 1 on agent 1.
- Remove target 2 on agent 1.
- Remove target 3 on agent 2.

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

To uninstall the Enterprise Manager Plug-in for TimesTen:

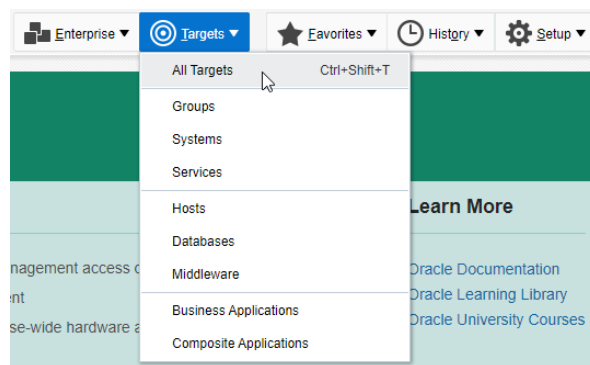
- [Remove the TimesTen target](#)
- [Undeploy the plug-in from the Management Agent](#)
- [Undeploy the plug-in from OMS](#)
- [Delete the plug-in](#)

## Remove the TimesTen target

For each TimesTen target you want to remove:

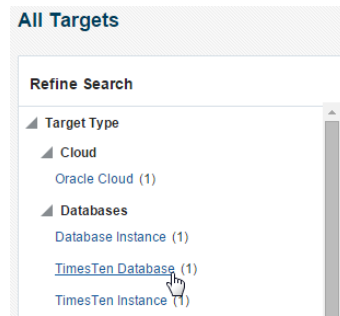
1. From the **Targets** menu, select **All Targets** on the Enterprise Manager Cloud Control home page.

**Figure 1-68 Select All Targets**



The All Targets page displays. Locate the Refine Search panel under the text "All Targets."

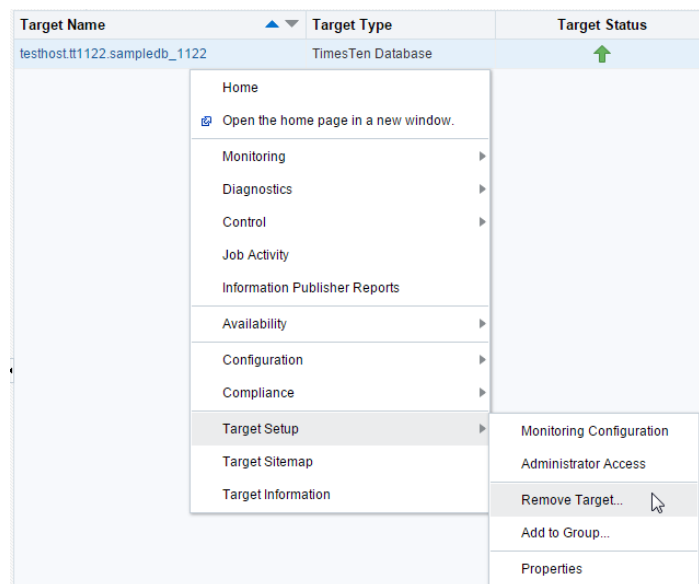
2. Expand **Target Type**, then **Databases** and click **TimesTen Instance** or **TimesTen Database**.

**Figure 1–69 Select TimesTen In Memory Database**

The target table displays. For each row in the table, confirm the column **Target Type** is **TimesTen Instance** or **TimesTen Database**. Also, confirm each row of the table contains the name of the target you previously configured.

Locate the row that contains the target name you want to remove.

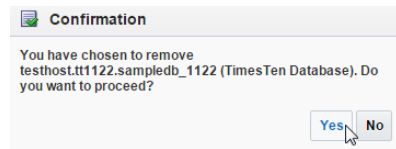
3. Right-click the **Target Name** located in the Target Name column of the row containing the TimesTen target and select **Target Setup**, then **Remove Target...**

**Figure 1–70 Remove target**

The Confirmation dialog displays the text "You have chosen to remove *TimesTen\_target\_name* (TimesTen Instance). Do you want to proceed?" or "You have chosen to remove *TimesTen\_target\_name* (TimesTen Database). Do you want to proceed?"

The *TimesTen\_target\_name* is the name of your TimesTen target. For example, testhost.tt1122.sampledb\_1122.

4. Click **Yes**.

**Figure 1–71 Remove target confirmation dialog**

The Information dialog displays the text "Target *TimesTen\_target\_name* (TimesTen Instance) has been deleted" or "Target *TimesTen\_target\_name* (TimesTen Database) has been deleted" where *TimesTen\_target\_name* is the name of your TimesTen target.

5. Click **OK**.

Verify the row that contained the TimesTen target has been removed from the target table.

Your TimesTen target is removed. Repeat Steps 1-5 to remove additional targets. If all targets are removed, you can undeploy and then delete the plug-in from the Oracle Enterprise Manager Cloud Control.

## Undeploy the plug-in from the Management Agent

You must undeploy the plug-in from all the Management Agents that are monitoring TimesTen targets.

---

---

**Note:** Undeploy the plug-in from the Management Agents before you undeploy the plug-in from the Oracle Management Service (OMS).

---

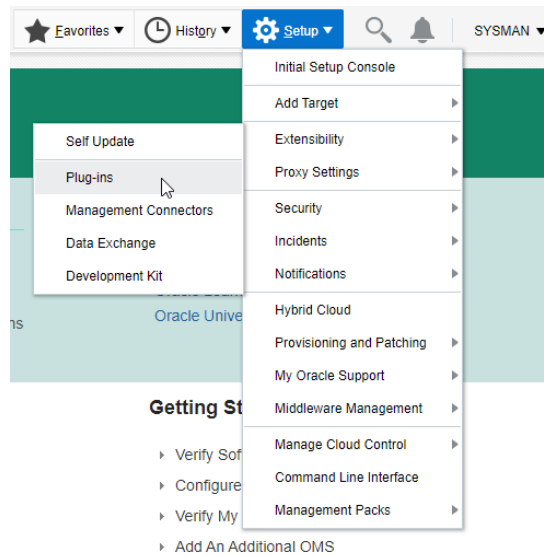
---

Ensure that you have removed all TimesTen targets. For more information on the steps to remove a TimesTen target, see "[Remove the TimesTen target](#)" on page 1-42.

To undeploy the plug-in from the Management Agent, ensure that you are on the Oracle Enterprise Manager Cloud Control home page.

1. From the **Setup** menu, select **Extensibility**, then select **Plug-ins**.



**Figure 1–72 Select Extensibility, then Plug-ins**

The Plug-ins page displays and shows the Plug-ins table. Locate the Databases folder in the **Name** column.

2. Expand the Databases folder in the Name column and click **Oracle TimesTen In-Memory Database**.

**Figure 1–73 Select Oracle TimesTen In-Memory Database plug-in**

**Plug-ins** Page Refreshed Oct 17, 2019 10:23:41 AM PDT ↻

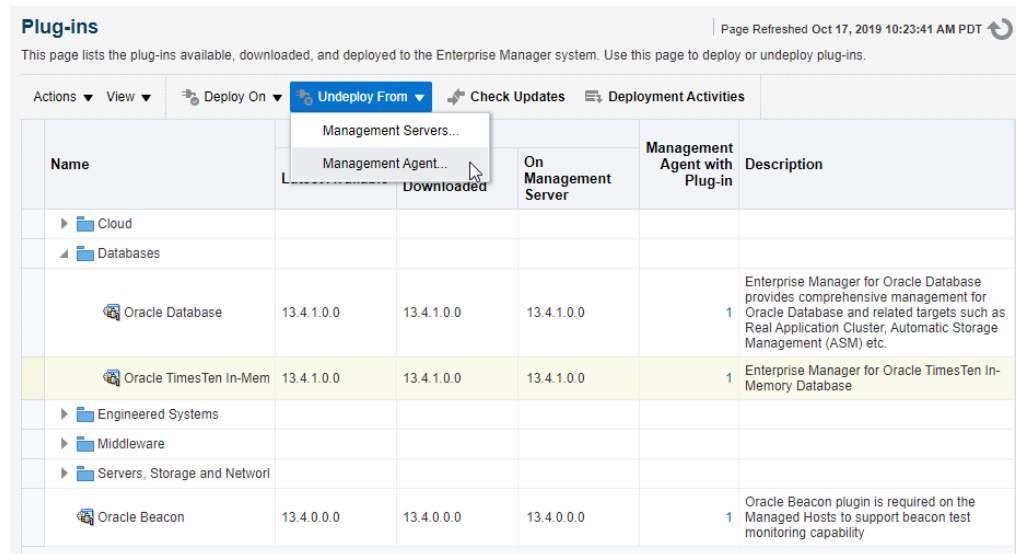
This page lists the plug-ins available, downloaded, and deployed to the Enterprise Manager system. Use this page to deploy or undeploy plug-ins.

Actions ▾ View ▾ Deploy On Undeploy From Check Updates Deployment Activities

Name	Version			Management Agent with Plug-in	Description
	Latest Available	Latest Downloaded	On Management Server		
▶ Cloud					
▲ Databases					
Oracle Database	13.4.1.0.0	13.4.1.0.0	13.4.1.0.0	1	Enterprise Manager for Oracle Database provides comprehensive management for Oracle Database and related targets such as Real Application Cluster, Automatic Storage Management (ASM) etc.
Oracle TimesTen In-Mem	13.4.1.0.0	13.4.1.0.0	13.4.1.0.0	1	Enterprise Manager for Oracle TimesTen In-Memory Database
▶ Engineered Systems					
▶ Middleware					
▶ Servers, Storage and Network					
Oracle Beacon	13.4.0.0.0	13.4.0.0.0	13.4.0.0.0	1	Oracle Beacon plugin is required on the Managed Hosts to support beacon test monitoring capability

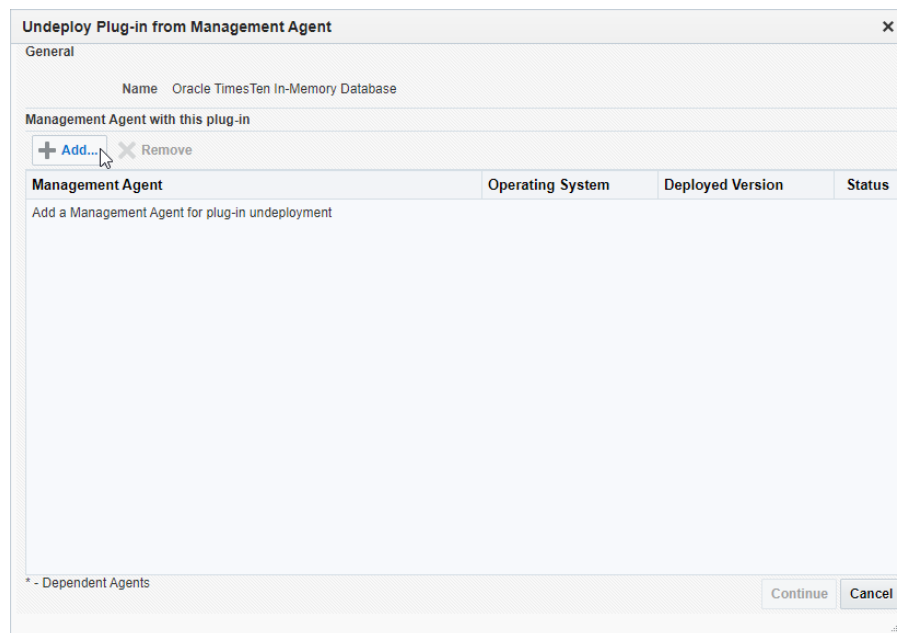
You are now ready to undeploy the plug-in from the agent. Locate the Undeploy From tab at the top of the page.

3. From the **Undeploy From** menu, select **Management Agent...**

**Figure 1–74 Undeploy from Management Agent**

The Undeploy Plug-in from Management Agent General dialog displays. The plug-in Oracle TimesTen In-Memory Database is displayed in the Name column. Locate the Add... button below the Management Agent with this plug-in title.

4. Click **Add...**

**Figure 1–75 Click Add**

The Select Targets dialog displays. You are now ready to select the agent to undeploy. Below the text "Select Status Up Agents where TimesTen In-Memory Database is deployed," ensure that the Target Type column equals **Agent**.

5. In the Target table, locate the row that contains the correct agent as identified by target name and host. Click **in this row** and then click **Select**.

**Figure 1–76 Select agent to undeploy**

Select Targets

Select Status Up Agents where Oracle TimesTen In-Memory Database is deployed

Target Type Agent

Target Name

On Host

Configuration Search <No configuration search selected>

Search

Target Name	Target Type	On Host	Status
testhost:1838	Agent	testhost	↑

Rows Selected 1 Mode Multi-Select

Select Cancel

The Management Agent table is updated with the name of the Management Agent you selected.

6. Click **Continue**.

**Figure 1–77 Click Continue**

Undeploy Plug-in from Management Agent

General

Name Oracle TimesTen In-Memory Database

Management Agent with this plug-in

+ Add... X Remove

Management Agent	Operating System	Deployed Version	Status
testhost:1838	Linux x86-64	13.4.1.0.0	↑

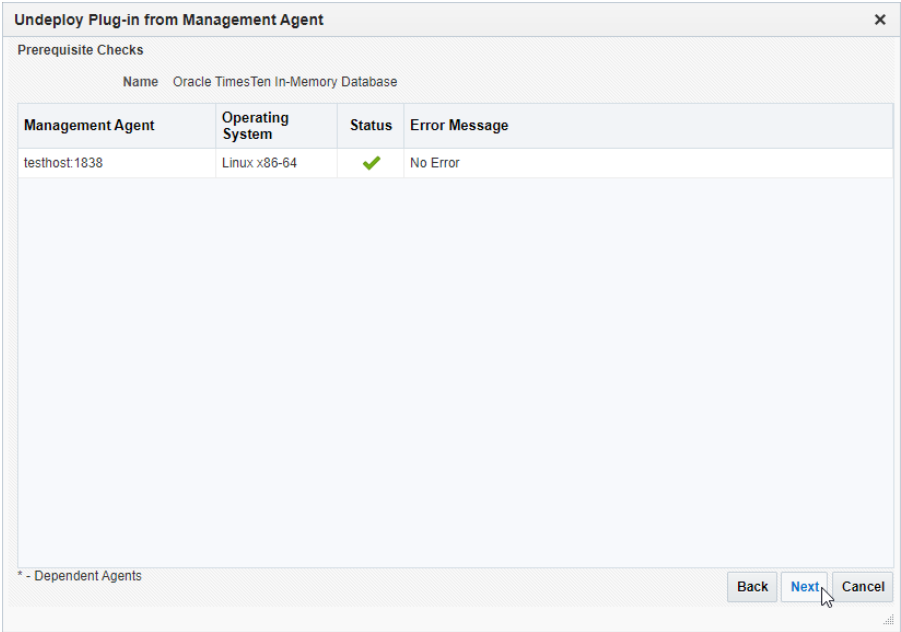
\* - Dependent Agents

Continue Cancel

The Undeploy Plug-in from Management Prerequisite Checks dialog displays. Ensure that there is a green check mark in the Status column of the Management Agent table.

7. Click **Next**.

Figure 1–78 Click Next

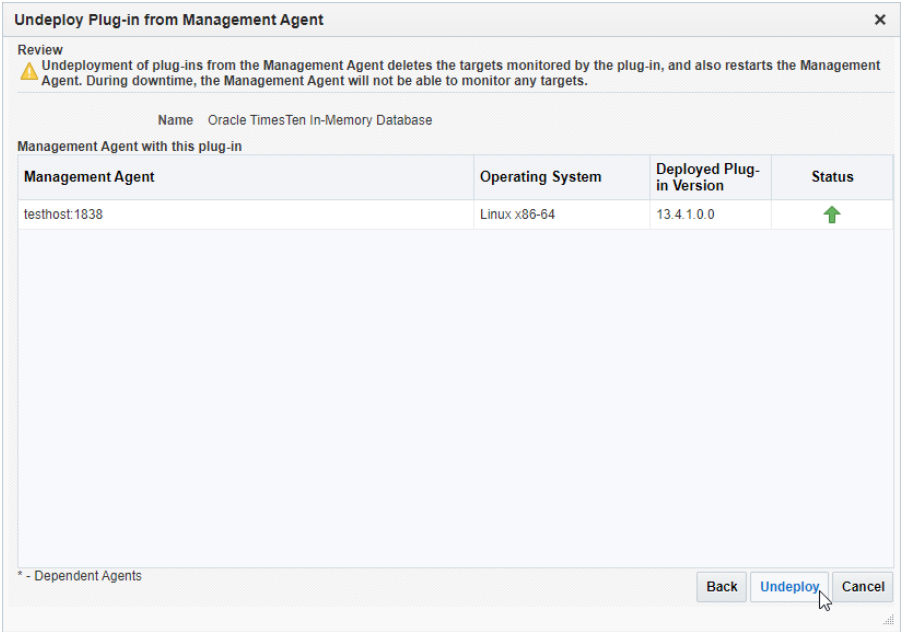


The Undeploy Plug-in From Management Agent Review dialog displays and shows the informational message, "Undeployment of plug-ins from the Management Agent deletes the targets monitored by the plug-in, and also restarts the Management Agent. During downtime, the Management Agent will not be able to monitor any targets."

In the Management Agent with this plug-in table, verify the name in the Management Agent column is correct.

8. Click **Undeploy**.

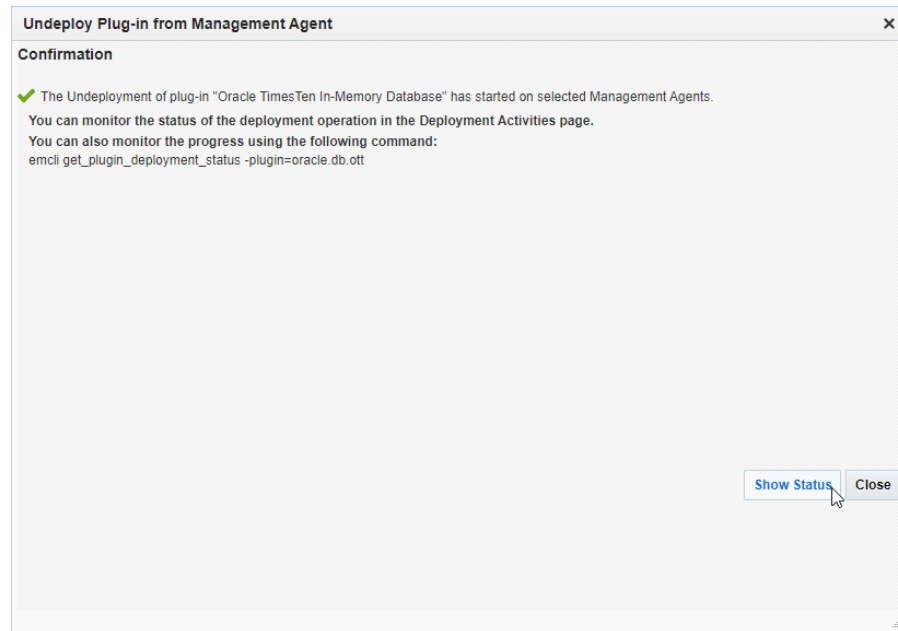
Figure 1–79 Click Undeploy



The Undeploy Plug-in from Management Agent Confirmation dialog displays with a message indicating the undeployment of the plug-in has started on selected agents. The undeployment time varies. You may monitor the undeployment status by clicking Show Status or going to the Recent Deployment Activities page.

9. Click **Show Status**.

**Figure 1–80 Undeploy agent confirmation**



The Plug-ins Deployment Activities page displays showing the status of the undeployment steps in table format. Verify the first step located in the first row of the table contains the text, "Initialize" and verify the last step located in the last row of the table contains the text, "Update inventory." This is the last step in the undeployment process. Ensure that there are green checks in the Status column of each row in the Deployment Steps table. Such checks indicate all steps in the undeployment process are completed and are successful. Also, ensure that there is a green check in the Status column in the undeployment table located at the top of the page. If auto refresh is set to off, you may want to set auto refresh to 15 seconds, so you can see the steps as they are completed.

**Figure 1–81 Undeployment successful**

View ▾						
Name	Version	Status	Content Type	Destination	Job N	
Oracle TimesTen In-Memory Database	13.4.1.0.0	✓	Discovery	testhost:1838	PLUGI	
Oracle TimesTen In-Memory Database	13.4.1.0.0	✓	Plug-in	testhost:1838	PLUGI	

Deployment Steps: Oracle TimesTen In-Memory Database				
Step	Status	Start Time	End Time	Log File
Initialize	✓	Oct 17, 2019 10:32:56 AM	Oct 17, 2019 10:32:56 AM	emoms.log
Delete target	✓	Oct 17, 2019 10:32:56 AM	Oct 17, 2019 10:32:56 AM	emoms.log
Deconfigure plug-in from ...	✓	Oct 17, 2019 10:33:30 AM	Oct 17, 2019 10:36:04 AM	agentplugindepl
Update inventory	✓	Oct 17, 2019 10:33:30 AM	Oct 17, 2019 10:36:04 AM	emoms.log

The plug-in is undeployed from the Management Agent and the automatic discovery scripts of the plug-in are removed from the Management Agent. Repeat Steps 1-8 to undeploy each management agent that is monitoring the plug-in.

You are now ready to undeploy the plug-in from the Oracle Management Service (OMS).

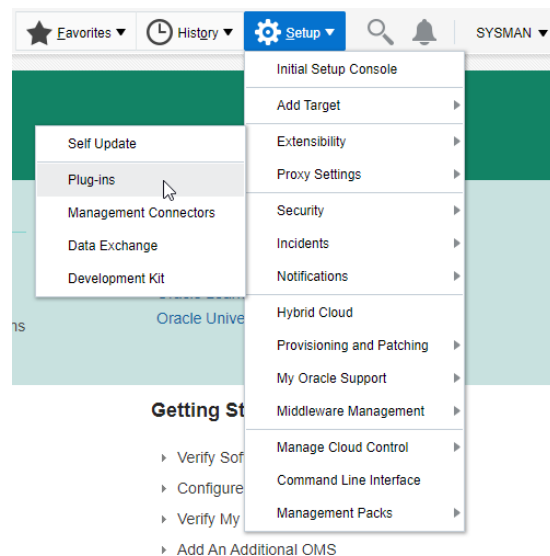
## Undeploy the plug-in from OMS

Before you undeploy the plug-in from OMS, ensure that you have undeployed the plug-in from all the Management Agents that are monitoring the plug-in.

To undeploy the plug-in from OMS, ensure that you are on the Oracle Enterprise Manager Cloud Control home page.

1. From the **Setup** menu, select **Extensibility**, then select **Plug-ins**.

**Figure 1–82 Select Extensibility, then Plug-ins**



The Plug-ins page displays and shows the Plug-ins table. Locate the Databases folder in the Name column.

2. Expand the Databases folder in the Name column and select **Oracle TimesTen In-Memory Database**.

**Figure 1–83 Select TimesTen In-Memory Database plug-in**

**Plug-ins** Page Refreshed Oct 17, 2019 10:41:37 AM PDT ↻

This page lists the plug-ins available, downloaded, and deployed to the Enterprise Manager system. Use this page to deploy or undeploy plug-ins.

Actions ▾ View ▾ Deploy On ▾ Undeploy From ▾ Check Updates Deployment Activities

Name	Version			Management Agent with Plug-in	Description
	Latest Available	Latest Downloaded	On Management Server		
▶ Cloud					
▲ Databases					
Oracle Database	13.4.1.0.0	13.4.1.0.0	13.4.1.0.0	1	Enterprise Manager for Oracle Database provides comprehensive management for Oracle Database and related targets such as Real Application Cluster, Automatic Storage Management (ASM) etc.
Oracle TimesTen In-Mem	13.4.1.0.0	13.4.1.0.0	13.4.1.0.0	0	Enterprise Manager for Oracle TimesTen In-Memory Database
▶ Engineered Systems					
▶ Middleware					
▶ Servers, Storage and Network					
Oracle Beacon	13.4.0.0.0	13.4.0.0.0	13.4.0.0.0	1	Oracle Beacon plugin is required on the Managed Hosts to support beacon test monitoring capability

You are now ready to undeploy the plug-in from OMS. Locate the Undeploy From tab at the top of the page.

- From the **Undeploy From** menu, select **Management Servers....**

**Figure 1–84 Undeploy from OMS**

**Plug-ins** Page Refreshed Oct 17, 2019 10:41:37 AM PDT ↻

This page lists the plug-ins available, downloaded, and deployed to the Enterprise Manager system. Use this page to deploy or undeploy plug-ins.

Actions ▾ View ▾ Deploy On ▾ Undeploy From ▾ Check Updates Deployment Activities

Name	Version			Management Agent with Plug-in	Description
	Latest Available	Latest Downloaded	On Management Server		
▶ Cloud					
▲ Databases					
Oracle Database	13.4.1.0.0	13.4.1.0.0	13.4.1.0.0	1	Enterprise Manager for Oracle Database provides comprehensive management for Oracle Database and related targets such as Real Application Cluster, Automatic Storage Management (ASM) etc.
Oracle TimesTen In-Mem	13.4.1.0.0	13.4.1.0.0	13.4.1.0.0	0	Enterprise Manager for Oracle TimesTen In-Memory Database
▶ Engineered Systems					
▶ Middleware					
▶ Servers, Storage and Network					
Oracle Beacon	13.4.0.0.0	13.4.0.0.0	13.4.0.0.0	1	Oracle Beacon plugin is required on the Managed Hosts to support beacon test monitoring capability

The Undeploy Plug-in from Management Server General page displays. The plug-in Oracle TimesTen In-Memory Database is displayed in the Name column and the Version is auto-filled. You must enter the Repository SYS user password.

- In the **\*Repository SYS Password** column, type the Repository SYS user password. Then, click **Continue**.

Figure 1–85 Repository SYS Password

Undeploy Plug-in From Management Server

General

Name

Oracle TimesTen In-Memory Database

Version

13.4.1.0.0

\* Repository SYS Password

.....

Target Types

Name	Supported Target Versions
TimesTen Database	11.2.2.8.0
TimesTen Instance	11.2.2.8.0

Continue

Cancel

The Undeploy Plug-in From Management Server Review page displays. In the Management Servers table, verify the Management Server name is correct. Verify the version is correct. Also, consider making a backup of the OMS repository before deploying the plug-in. For more information on backing up the OMS repository, see "Backing Up the OMS" in the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

5. Select the **Have you backed up the repository and configuration of first management server?** check box.

Figure 1–86 Select repository backup confirmation

Undeploy Plug-in From Management Server

Review

⚠

Undeployment of plug-in from the Management Server requires downtime. All currently connected users will get automatically disconnected from the Enterprise Manager. During downtime, users will not be able to connect to Enterprise Manager, and Enterprise Manager will not be able to monitor any targets.

Oracle recommends that you take a backup of the repository, and export the first Management Server configuration using the command "emctl exportconfig oms". Otherwise, ensure that a recovery plan is in place prior to undeploying the plug-in.

\* ☒ Have you backed up the repository and configuration of first management server?

Name

Oracle TimesTen In-Memory Database

Version

13.4.1.0.0

Management Servers

Name	Currently Deployed Plug-in Version	Status
testhost:7654_Management_Service	13.4.1.0.0	↑

Back

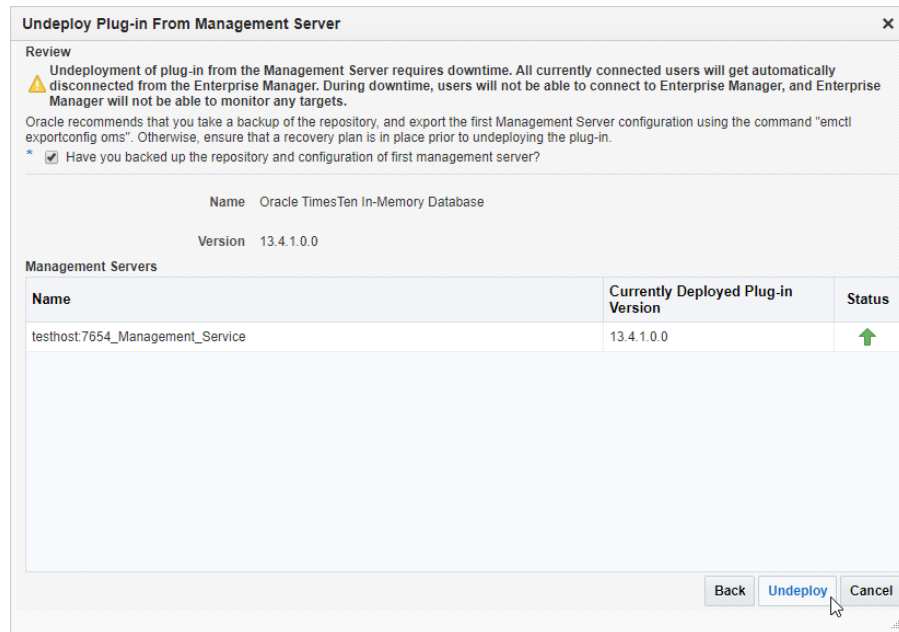
Undeploy

Cancel

6. Click **Undeploy**.

1-52 Oracle Enterprise Manager for Oracle TimesTen In-Memory Database User's Guide



**Figure 1–87 Review Undeploy from OMS**

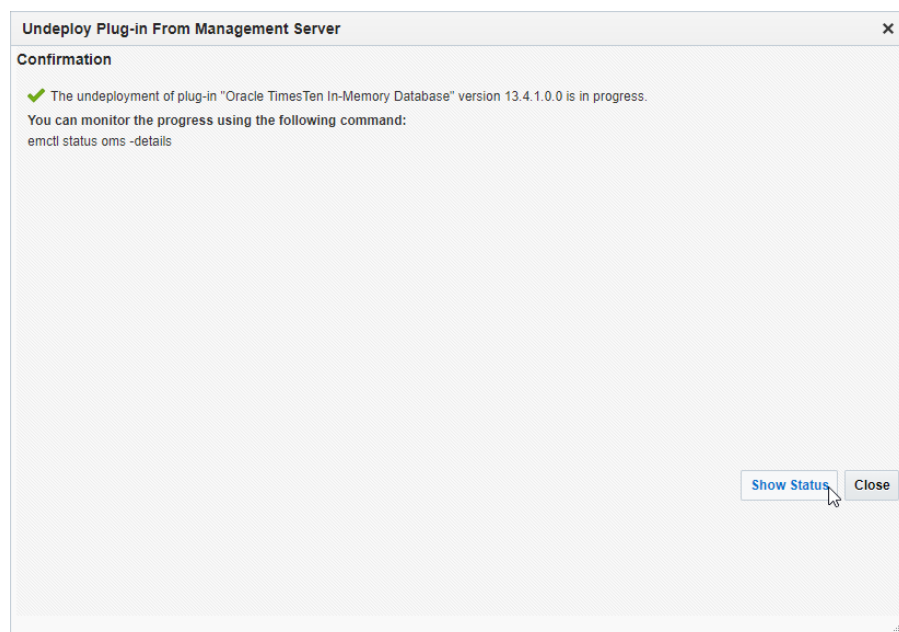

---

**Note:** The Oracle Enterprise Manager Cloud Control server restarts during the undeployment process.

---

The Undeploy Plug-in From Management Server Confirmation page displays with a message indicating the undeployment of the plug-in is in progress. The undeployment time varies. You may monitor the undeployment status by clicking Show Status or going to the Recent Deployment Activities page.

7. Click **Show Status**.

**Figure 1–88 Undeploy from OMS confirmation**

The Plug-ins Deployment Activities page displays showing the status of the undeployment steps in table format. Verify the last step located in the last row of the table contains the text, "Remove plugin's oracle home." This is the last step in the undeployment process. Ensure that there are green checks in the Status column of each row in the Deployment Steps table. Such checks indicate all steps in the undeployment process are completed and are successful. Also, ensure that there is a green check in the Status column in the undeployment table located at the top of the page. If auto refresh is set to off, you may want to set auto refresh to 15 seconds, so you can see the steps as they are completed.

**Figure 1–89 Undeployment of OMS successful**

View ▾						
Name	Version	Status	Content Type	Destination	Jol	
Oracle TimesTen In-Memory Database	13.4.1.0.0	✓	Plug-in	testhost:7654_Man...	PL	

Deployment Steps: Oracle TimesTen In-Memory Database					
Step	Status	Start Time	End Time	Log File	
Submit job for undeploym...	✓	Oct 17, 2019 10:47:33 AM	Oct 17, 2019 10:47:33 AM	emoms.log	
Initialize	✓	Oct 17, 2019 10:48:04 AM	Oct 17, 2019 10:48:05 AM	configplugin_dec	
Validate plug-in home	✓	Oct 17, 2019 10:48:08 AM	Oct 17, 2019 10:48:10 AM	configplugin_dec	
Perform custom preconfig...	✓	Oct 17, 2019 10:48:11 AM	Oct 17, 2019 10:48:11 AM	configplugin_dec	
Delete plug-in's metadata	✓	Oct 17, 2019 10:48:11 AM	Oct 17, 2019 10:48:28 AM	configplugin_dec	
Stop management server	✓	Oct 17, 2019 10:48:28 AM	Oct 17, 2019 10:49:31 AM	emctl.log	
Deconfigure plug-in from ...	✓	Oct 17, 2019 10:49:31 AM	Oct 17, 2019 10:49:45 AM	configplugin_dec	
Deconfigure plug-in from ...	✓	Oct 17, 2019 10:53:40 AM	Oct 17, 2019 10:54:22 AM	schemadrop_201	
Update inventory	✓	Oct 17, 2019 10:54:22 AM	Oct 17, 2019 10:54:28 AM	configplugin_dec	
Start management server	✓	Oct 17, 2019 10:54:28 AM	Oct 17, 2019 11:04:26 AM	emctl.log	
Remove plug-in's Oracle ...	✓	Oct 17, 2019 11:04:26 AM	Oct 17, 2019 11:04:43 AM	deinstall_2019-11	

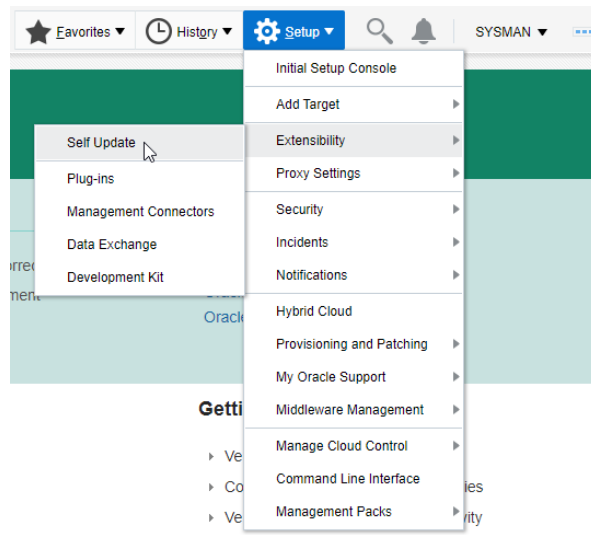
The plug-in is undeployed from OMS.

You are now ready to delete the plug-in from OMS and the Management Agent.

## Delete the plug-in

When you delete the plug-in, you remove the plug-in from the Oracle Enterprise Manager Cloud Control. To delete the plug-in, ensure that you are on the Oracle Enterprise Manager Cloud Control home page.

1. From the **Setup** menu, select **Extensibility**, then select **Self Update**.

**Figure 1–90 Select Extensibility, then Self Update**

The Self Update page displays. Locate the Plug-in folder.

2. Click the name **Plug-in**.

**Figure 1–91 Plug-in folder**

**Self Update**  
Oracle periodically provides new functionality and updates for existing features in Enterprise Manager. The Self Update home

**Status**

Connection Mode **Online** Last Download Time Oct 11, 2019 11:39:09 PM PDT  
Most Recent Refresh Time **Oct 10, 2019 11:39:09 PM PDT** Last Download Type **Plug-in**

Actions **Open** **Check Updates** **Agent Software**

Type	Available Updates	Downloaded Updates	Applied Updates	Description
Oracle Virtual Templates and Oracle	0	0	0	Pre-installed a
<b>Plug-in</b>	0	<b>1</b>	9	Plug-in extend
Problem Analysis	0	0	0	Problem Analy
Provisioning Bundle	0	0	0	Provisioning bi

Past Activities: Agent Software

Actions	Status	OS Platform	Revision
No data to display.			

The Plug-in Updates page displays. In the Plug-in Name column, locate Oracle TimesTen In-Memory Database. Confirm the Status column is equal to Downloaded.

3. In the Plug-in Name column, click **Oracle TimesTen In-Memory Database**.

**Figure 1–92 Plug-in updates**

Status	OS Platform	Plug-in Name	Revision	Version	Vendor	Size(MB)	Description
Applied	Generic Platform	Oracle CSA	0	13.4.0.0.0	ORACLE	2.668	Client System ...
Applied	Generic Platform	Systems Infrastructure	0	13.4.1.0.0	ORACLE	173.287	Enterprise Man...
Applied	Generic Platform	Oracle Cloud Framework	0	13.4.1.0.0	ORACLE	8.208	Enterprise Man...
Applied	Generic Platform	Oracle Fusion Middleware	0	13.4.1.0.0	ORACLE	1,164.218	Enterprise Man...
Applied	Generic Platform	Oracle Database	0	13.4.1.0.0	ORACLE	1,804.497	Enterprise Man...
Applied	Generic Platform	Oracle Exadata	0	13.4.1.0.0	ORACLE	70.568	Enterprise Man...
Downloaded	Generic Platform	Oracle TimesTen In-Memory Database	0	13.4.1.0.0	ORACLE	6.044	Enterprise Man...
Applied	Generic Platform	Oracle Beacon	0	13.4.0.0.0	ORACLE	162.708	Oracle Beacon ...
Applied	Generic Platform	Oracle Home	0	13.4.0.0.0	ORACLE	4.201	Oracle Home P...

Prepare to expand the Actions tab located under Plug-in Updates at the top of the page.

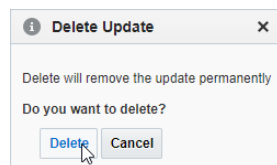
- Expand **Actions** and select **Delete**.

**Figure 1–93 Delete plug-in**

Status	OS Platform	Plug-in Name	Revision	Version	Vendor	Size(MB)	Description
Downloaded	Generic Platform	Oracle CSA	0	13.4.0.0.0	ORACLE	2.668	Client System ...
Downloaded	Generic Platform	Systems Infrastructure	0	13.4.1.0.0	ORACLE	173.287	Enterprise Man...
Downloaded	Generic Platform	Oracle Cloud Framework	0	13.4.1.0.0	ORACLE	8.208	Enterprise Man...
Downloaded	Generic Platform	Oracle Fusion Middleware	0	13.4.1.0.0	ORACLE	1,164.218	Enterprise Man...
Downloaded	Generic Platform	Oracle Database	0	13.4.1.0.0	ORACLE	1,804.497	Enterprise Man...
Downloaded	Generic Platform	Oracle Exadata	0	13.4.1.0.0	ORACLE	70.568	Enterprise Man...
Downloaded	Generic Platform	Oracle TimesTen In-Memory Database	0	13.4.1.0.0	ORACLE	6.044	Enterprise Man...
Applied	Generic Platform	Oracle Beacon	0	13.4.0.0.0	ORACLE	162.708	Oracle Beacon ...
Applied	Generic Platform	Oracle Home	0	13.4.0.0.0	ORACLE	4.201	Oracle Home P...

The Delete Update dialog displays indicating the delete will remove the update (plug-in) permanently. Prepare to confirm the delete by clicking Delete.

- Click **Delete**.

**Figure 1–94 Delete Update confirmation**

A confirmation dialog displays indicating that the update (plug-in) has been deleted permanently.

- Click **OK**.

You have successfully deleted the plug-in. You can verify the plug-in has been deleted by reviewing the Plug-in Updates page. You should no longer see the TimesTen plug-in.

---

## Working with the TimesTen Target Page

The TimesTen plug-in collects many metrics that are useful in troubleshooting performance issues. The TimesTen target page displays a collective view of your database or instance, the performance of your database, and control operations for your instance.

This chapter details the procedure for navigating to the TimesTen target page and provides an overview of the TimesTen target page.

Topics include:

- [Navigating to the TimesTen target page](#)
- [Overview of the TimesTen instance target page](#)
- [Overview of the TimesTen database target page](#)
- [Setting the display time period and auto refresh rate of data on a target page](#)
- [Viewing the log of control operations](#)

### Navigating to the TimesTen target page

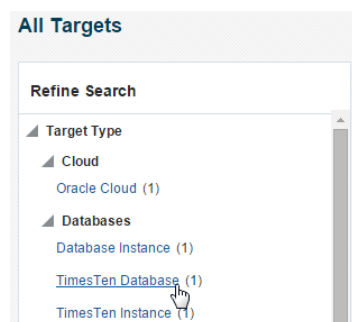
To navigate to the TimesTen target page:

1. From the **Targets** menu, select **All Targets** on the Enterprise Manager Cloud Control 13c home page.

The All Targets page displays. Locate the Refine Search panel under **All Targets**.

2. Expand **Target Type**, then **Databases** and click **TimesTen Instance** or **TimesTen Database**.

**Figure 2–1 Choose TimesTen Database**



The target table displays. For each row in the table, confirm the column Target Type contains **TimesTen Instance** or **TimesTen Database**. The number of rows depends on the number of TimesTen targets you have configured. For example, if you configured two TimesTen targets, then you should see two rows in the table.

3. In the column Target Name, identify the TimesTen target you want to review, and click the **Target Name**. The target name is the name of the TimesTen target you configured.

**Figure 2–2 Click the target name**

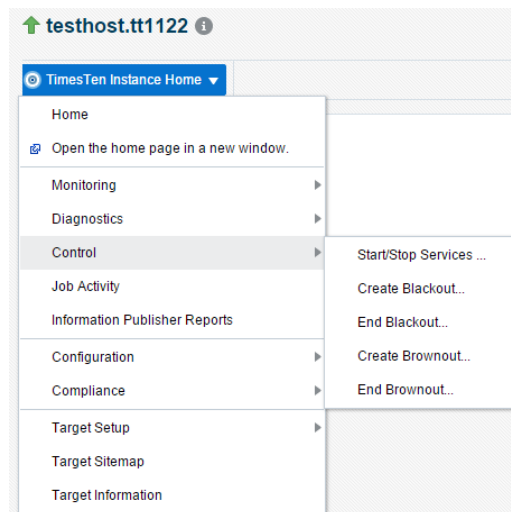
Target Name	Target Type	Target Status
<a href="#">testhost.tt1122_sampledb_d1122</a>	TimesTen Database	↑

The TimesTen target page displays. See ["Overview of the TimesTen instance target page"](#) on page 2-2 for more information on the TimesTen instance target page. See ["Overview of the TimesTen database target page"](#) on page 2-3 for more information on the TimesTen database target page.

## Overview of the TimesTen instance target page

The TimesTen instance target page enables you to gather monitoring and metrics information specific to TimesTen instances and control the TimesTen daemon and server. [Figure 2–3, "TimesTen instance target page"](#) shows Enterprise Manager Cloud Control menu choices and menu choices that have been customized for TimesTen instance targets.

**Figure 2–3 TimesTen instance target page**



A description of the menu choices that have been customized for TimesTen instance targets follows:

- **Home**

Displays high level information about the TimesTen instance. See [Chapter 4, "Working with the TimesTen Instance Home Page"](#) for more information.

- **Monitoring - All Metrics**

Displays TimesTen instance metric information in table format. See ["Viewing TimesTen instance metrics"](#) on page 14-24 for more information.

- **Control - Start/Stop Services**

Displays controls to start and stop the TimesTen daemon and server. See ["Start/stop services"](#) on page 9-1 for more information.

- **Control - Create Blackout**

Displays controls to create a blackout to suspend all data collection activity on a target that is monitored by Enterprise Manager. See ["Create blackout"](#) on page 9-2 for more information.

- **Control - End Blackout**

Displays controls to end a blackout and resume all data collection activities on a target that is monitored by Enterprise Manager. See ["End blackout/brownout"](#) on page 9-3 for more information.

- **Control - Create Brownout**

Displays controls to create a brownout to suppress all notifications on a target that is monitored by Enterprise Manager. See ["Create brownout"](#) on page 9-3 for more information.

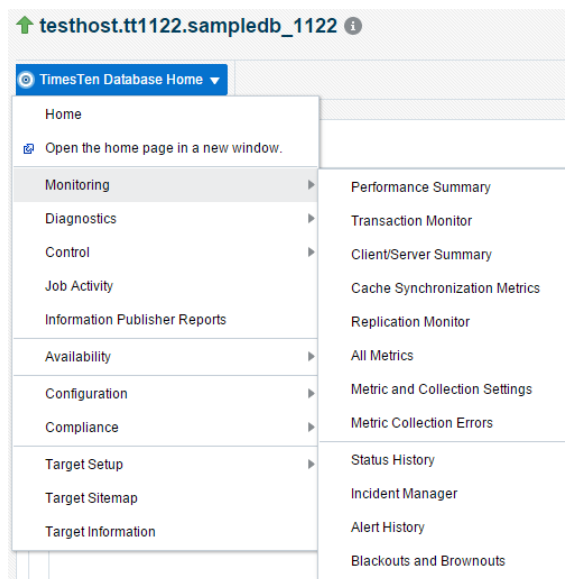
- **Control - End Brownout**

Displays controls to end a brownout and resume all notifications on a target that is monitored by Enterprise Manager. See ["End blackout/brownout"](#) on page 9-3 for more information.

## Overview of the TimesTen database target page

The TimesTen database target page enables you to gather monitoring and metrics information specific to TimesTen database targets and control various functions of the TimesTen database. [Figure 2–4, "TimesTen target page"](#) shows Enterprise Manager Cloud Control menu choices and menu choices that have been customized for TimesTen database targets.

**Figure 2–4 TimesTen target page**



A description of the menu choices that have been customized for TimesTen targets follows:

- **Home**  
Displays high level performance metrics and configuration data. See [Chapter 5, "Working with the TimesTen Database Home Page"](#) for more information.
- **Monitoring - Performance Summary**  
Displays performance metrics in graphical format. See [Chapter 6, "Working with the Performance Summary Page"](#) for more information.
- **Monitoring - Transaction Monitor**  
Displays a snapshot of the current transactions in your TimesTen database and describes details about your transactions. See [Chapter 7, "Working with the Transaction Monitor"](#) for more information.
- **Monitoring - Client/Server Summary**  
Displays client/server information about your database. See [Chapter 8, "Working with the Client/Server Page"](#) for more information.
- **Monitoring - Cache Synchronization Metrics**  
Displays cache synchronization metrics. See [Chapter 12, "Working with the Cache Synchronization Metrics Page"](#) for more information.
- **Monitoring - Replication Monitor**  
Displays information for monitoring replication. See [Chapter 13, "Working with the Replication Monitor"](#) for more information.
- **Monitoring - All Metrics**  
Displays metric information about your TimesTen database target in table format. See ["Viewing TimesTen database metrics"](#) on page 14-3 for more information.
- **Control - Start/Stop Agents**  
Displays controls to start and stop the cache and replication agents. See ["Start/stop agents"](#) on page 10-1 for more information.
- **Control - Ram Load/Unload and Policy Settings**  
Displays controls to control and configure the RAM policy of the TimesTen database. See ["Ram load/unload and policy settings"](#) on page 10-2 for more information.
- **Control - Create Blackout**  
Displays controls to create a blackout to suspend all data collection activity on a target that is monitored by Enterprise Manager. See ["Create blackout"](#) on page 9-2 for more information.
- **Control - End Blackout**  
Displays controls to end a blackout and resume all data collection activities on a target that is monitored by Enterprise Manager. See ["End blackout/brownout"](#) on page 9-3 for more information.
- **Control - Create Brownout**  
Displays controls to create a brownout to suppress all notifications on a target that is monitored by Enterprise Manager. See ["Create brownout"](#) on page 10-4 for more information.



- **Control - End Brownout**

Displays controls to end a brownout and resume all notifications on a target that is monitored by Enterprise Manager. See ["End blackout/brownout"](#) on page 9-3 for more information.

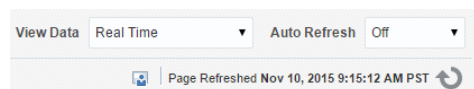
- **Availability - Backup and Restore**

Displays controls to backup and restore the TimesTen database. See [Chapter 11, "Working with the Backup and Restore Page"](#) for more information.

## Setting the display time period and auto refresh rate of data on a target page

Enterprise Manager enables you to set the display frequency and auto refresh rate of data on a target page.

**Figure 2–5 View Data and Auto Refresh region**



You can set the time period and auto refresh rate of data with the following options:

- [View data](#)
- [Auto refresh](#)

### View data

The View Data option enables you to view data on a target page based on a historical time period or in real time. This option is not available on all TimesTen target pages and only affects graphs. When a TimesTen target page has a View Data option it is located in the top right corner of the page with the following options:

- Real Time
- Last 2 Hours
- Last 24 Hours
- Last 7 Days
- Last 31 Days
- Custom Time Period...

By default, every TimesTen target page uses a view data time period of Last 24 Hours. It is recommended to use the Real Time option of View Data when monitoring a TimesTen target.

### Auto refresh

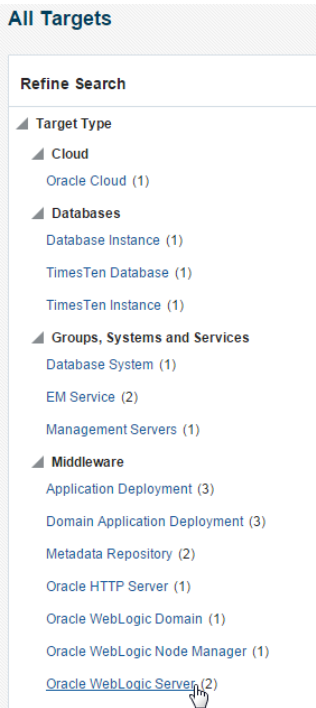
The Auto Refresh option enables you to control the auto refresh rate of a target page. This option is available on all TimesTen target pages and affects the whole target page. The Auto Refresh option is located in the top right corner of the target page and the options vary depending on the value of the View Data option.

# Viewing the log of control operations

Enterprise Manager logs all control operations that are performed on Enterprise Manager targets. In some cases it is useful to review these logs.

- 1. From the **Targets** menu, select **All Targets** on the Enterprise Manager Cloud Control 13c home page.
- 2. Expand **Target Type**, then **Middleware** and click **Oracle WebLogic Server**.

Figure 2–6 Select Oracle WebLogic Server



The target table displays. For each row in the table, confirm the column Target Type contains **Oracle WebLogic Server**.

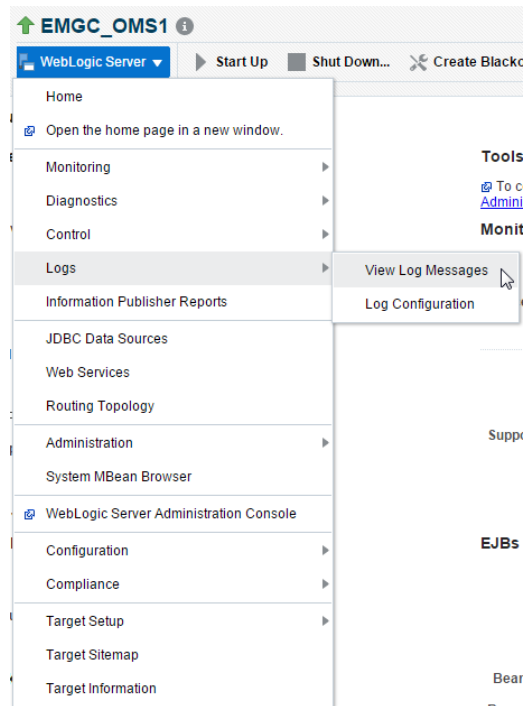
- 3. In the column Target Name, identify the Oracle WebLogic Server target that manages your OMS, and click the **Target Name**. Typically this target name is /EMGC\_EMGC\_DOMAIN/EMGC\_DOMAIN/EMGC\_OMS1.

Figure 2–7 Click the target name

Target Name	Target Type	Target Status
/EMGC_EMGC_DOMAIN/EMGC_DOMAIN/EMGC_ADMIN...	Oracle WebLogic Server	↑
/EMGC_EMGC_DOMAIN/EMGC_DOMAIN/EMGC_OMS1	Oracle WebLogic Server	↑

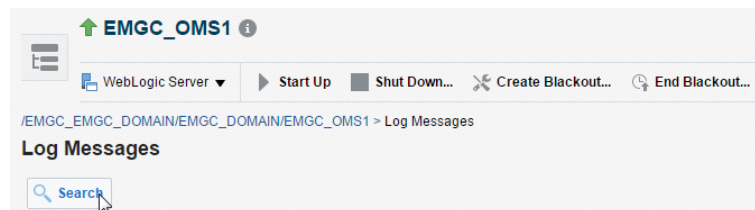
The WebLogic Server target page displays. Locate the WebLogic Server menu.

- 4. From the **WebLogic Server** menu, select **Logs**, then **View Log Messages**.

**Figure 2–8 Select View Log Messages**

The Log Messages page displays. Locate the Search button under the Log Messages title.

5. Click Search.

**Figure 2–9 Click Search**

The Search dialog displays. Locate the Search Mode field.

6. In the **\*Search Mode** field, select the **Online Logs** option. If you want to search through archived logs or both types of logs, select Archive Logs or Both.
7. In the **Date Range** field, select an appropriate date range.
8. In the **\*Message Types** field, select the type of messages that you want to search through. It is recommended to check all message types. TimesTen control operations are logged in trace files.
9. In the **\*Search** field, select **All Fields**.
10. In the **Keyword** field, select **contains** from the drop-down list and enter **OTT** in the text field.
11. Click **Search**.

Figure 2–10 Search log messages

Search

Search Cancel

Selected Targets (4)

Search Mode ☒ Online Logs ☐ Archive Logs ☐ Both

Date Range Most Recent 10 Minutes

Message Types ☒ Incident Error ☒ Error ☒ Warning ☒ Notification ☒ Trace ☒ Unknown

Search ☐ Selected Fields ☒ All Fields

Keyword contains OTT

A processing dialog displays. The search can take several minutes. When the search is complete, the processing dialog closes and the Log Messages page displays. You should see your search results in a table below the Search button. Locate issues that you want to review.

12. Click in the row that identifies the issue that you want to troubleshoot.

Figure 2–11 Search results

/EMGC\_EMGC\_DOMAIN/EMGC\_DOMAIN/EMGC\_OMS1 > Log Messages

Log Messages

Search

View Show Messages View Related Messages Export Messages to File

Time	Message Type	Message ID	Message	Target	Target Type	ECID
Nov 10, 2015 9:40:10 AM PST	Error		OTTDB_INTERNAL_TARGET	/EMGC_EMGC...	Application Deploy...	c0aaa9
Nov 10, 2015 9:39:48 AM PST	Error	OTTDB...	OTTDB-99001: Internal error. Target: testhost.tt1122...	/EMGC_EMGC...	Application Deploy...	00593C
Nov 10, 2015 9:39:19 AM PST	Trace	HTTP...	POST /em/faces/OttDbHome?target=testhost.tt1122.s...	/EMGC_EMGC...	Oracle WebLogic Se...	00593C
Nov 10, 2015 9:39:18 AM PST	Warning	ADFC...	ADFC: Managed bean 'ott_db_recoveryHistoryViewM...	/EMGC_EMGC...	Application Deploy...	00593C
Nov 10, 2015 9:39:17 AM PST	Warning	ADFC...	ADFC: Managed bean 'ott_db_availableBackupsView...	/EMGC_EMGC...	Application Deploy...	00593C
Nov 10, 2015 9:39:15 AM PST	Warning	ADFC...	ADFC: Managed bean 'ott_db_backupScheduleView...	/EMGC_EMGC...	Application Deploy...	00593C
Nov 10, 2015 9:39:01 AM PST	Trace	HTTP...	GET /em/faces/OttDbHome?target=testhost.tt1122.sa...	/EMGC_EMGC...	Oracle WebLogic Se...	00593C

Rows Selected 1 Columns Hidden 33 Total Rows : 48

Nov 10, 2015 9:40:10 AM PST (Error) /EMGC\_EMGC\_DOMAIN/EMGC\_DOMAIN/EMGC\_OMS1/emgc (Application Deployment)

Message Level 1 Host IP Address 10.228.241.133

Relationship ID 0:2913:42469:42 User SYSMAN

Component EMGC\_OMS1 Thread ID RJob Step 43310

Module oracle.sysman.timesten.commands.CreateBackupCommand ECID c0aaa933-35c3-4ed2-b212-4be9de3f3256-00000002

Host testhost.example.com Archive

Message OTTDB\_INTERNAL\_TARGET

Troubleshoot the issues with the details that are displayed in the results region that is located at the bottom of the page.

---

## Working with Access Control

This chapter focuses on access control of TimesTen targets in Oracle Enterprise Manager Cloud Control.

Topics include:

- [Overview of access control](#)
- [Creating a group](#)
- [Defining roles](#)
- [Creating users](#)
- [Granting preferred credentials to users](#)

### Overview of access control

The Oracle Enterprise Manager uses privileges that are assigned to roles to manage targets and their operations. Targets can be grouped into groups. A TimesTen Enterprise Manager administrator can assign roles and groups to users to determine how and what they can manipulate in a TimesTen target.

---

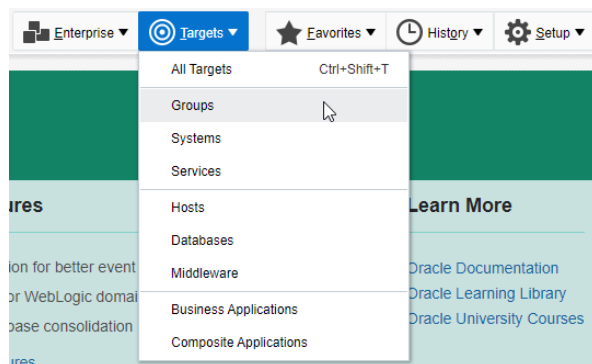
**Note:** The default super administrator of Enterprise Manager, SYSMAN, can view and control all TimesTen targets without having to belong to a group or be assigned a role.

---

### Creating a group

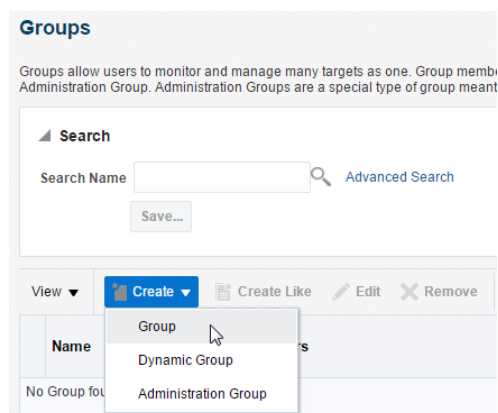
You must create these groups:

- A group that contains the host or hosts that contains your TimesTen targets.
  - A group that contains the TimesTen targets that this group can view and control. You can combine TimesTen instances and databases into a single group or create multiple groups.
1. From the **Targets** menu, select **Groups**.

**Figure 3–1 Select Groups**

The Groups page displays. Locate the Create button above the group table.

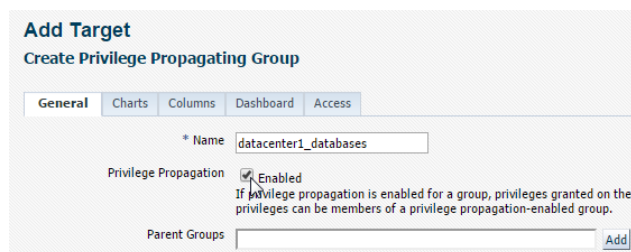
2. Expand **Create** and select **Group**.

**Figure 3–2 Create a group**

The Add Target Create Group page displays. Prepare to enter the properties for your group. The first property is the group name.

In the \*Name text field, you define the group name. Choose a name that is a meaningful identifier. (For example, datacenter1\_hosts or datacenter1\_databases.)

3. Click in the check box to the right of **Privilege Propagation**. This setting allows group users to have access to new targets that are added to this group at a later date.

**Figure 3–3 Enable privilege propagation**

You are now ready to add member targets to your group. You can combine any type of Enterprise Manager target in your group, including TimesTen instance and

TimesTen database targets. However, ensure that you create separate groups for hosts and TimesTen targets. For more information on adding TimesTen targets, see ["Configure a TimesTen target"](#) on page 1-17.

Locate the Add button in the Members region.

4. Click **Add**.

**Figure 3–4 Add member**

The Search and Select: Targets page displays. Locate the Target Type drop-down list in the Search region.

5. Expand the drop-down list labeled **Target Type** and select **Host**, **TimesTen Instance**, or **TimesTen Database**.

---

**Note:** Ensure that you separate hosts and TimesTen targets into different groups.

---

**Figure 3–5 Search results**

The page refreshes with the results of your search. In the Name column, locate the row that contains the target name that you want to add to the group. Confirm the status is a green up arrow.

6. Select the **check box** of the row that identifies the **Name** of the row containing the target. If you want to add multiple targets, select the corresponding check box of any additional targets.

**Figure 3–6 Select target**

Search and Select: Targets

Cancel Select

Search

Target Type: TimesTen Database

Target Name: testhost.tt1122.sampledb\_1122

On Host: testhost

Go

Only targets on which you have FULL privileges are displayed.

Select All | Select None

Select	Name	Type	Host	Status
<input checked="" type="checkbox"/>	testhost.tt1122.sampledb_1122	TimesTen Database	testhost	↑

Cancel Select

Locate the Select button.

- Click **Select**.

**Figure 3–7 Click Select**

Search and Select: Targets

Cancel Select

Search

Target Type: TimesTen Database

Target Name: testhost.tt1122.sampledb\_1122

On Host: testhost

Go

Only targets on which you have FULL privileges are displayed.

Select All | Select None

Select	Name	Type	Host	Status
<input checked="" type="checkbox"/>	testhost.tt1122.sampledb_1122	TimesTen Database	testhost	↑

Cancel Select

The Search and Select: Targets page closes and the Add Target Create Privilege Propagating Group page refreshes. You should now see your selected target in the Members table. Locate the OK button in the top right corner of the page.

- Click **OK**.

**Figure 3–8 Click OK**

Add Target

Create Privilege Propagating Group

OK Cancel

General Charts Columns Dashboard Access

\* Name: datacenter1\_databases

Privilege Propagation: ☒ Enabled

If privilege propagation is enabled for a group, privileges granted on the group will be propagated to the group's member targets. Therefore only those targets on which you have Full Target privileges can be members of a privilege propagation-enabled group.

Parent Groups:  Add

Members

Add members to the group by simple search, by business criteria or both.

Remove Add Add By Criteria

Select All | Select None

Select	Name	Type
<input type="checkbox"/>	testhost.tt1122.sampledb_1122	TimesTen Database

Overview

- Allows administrators to create a group of targets to monitor and manage as one.
- Members can be added based on simple target search, by business criteria or both. An example business criteria can be all Database, Listener and ASM targets with deployment type of "Production".
- Using Charts tab, select metrics at target type level to monitor from your Groups home page. These metrics will be displayed in Charts view.
- Using Columns tab, customize display names for group members columns and charts.
- Using Dashboard tab, configure display settings for your groups dashboard.
- Targets that match the specified filter criteria can be added to the group. Since this group is a privilege propagating group, your search is further limited to targets and other privilege propagating groups for which you have 'Full' target privileges.

The Information Dialog displays. You should see the informational message "Group *group\_name* has been added." Locate the OK button.



9. Click **OK**.

The Information dialog closes. You successfully created an Enterprise Manager group.

Your Enterprise Manager group is created. Repeat steps 1-9 to create additional groups. If you have one host group and at least one TimesTen target group, you can define Enterprise Manager roles.

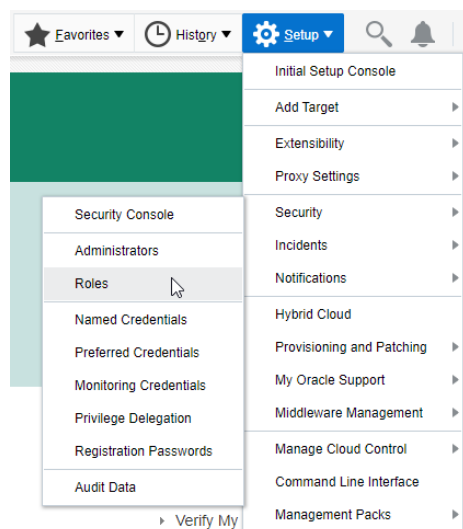
## Defining roles

Create a role that contains the privileges that you want to assign to Enterprise Manager users.

Ensure that you have at least one host group and one TimesTen target group. For more information on the steps to create an Enterprise Manager group, see "[Creating a group](#)" on page 3-1.

1. From the **Setup** menu, select **Security**, then select **Roles**.

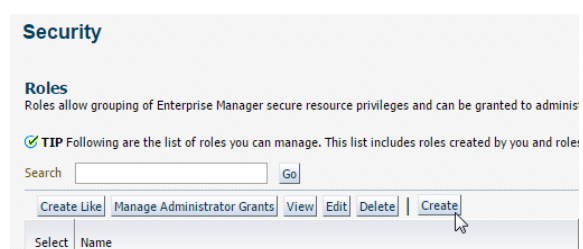
**Figure 3–9 Select Roles**



The Security Roles page displays. Locate the Create button above the Roles table.

2. Click **Create**.

**Figure 3–10 Click Create**



The Create Role: Properties page displays. You are now ready to enter the Enterprise Manager role properties. The first property is the role name.

In the *\*Name* text field, you define the role name. Choose a name that is a meaningful identifier. (For example, TimesTen database administrators.)

3. In the *\*Name* text field, type the Enterprise Manager role name.

Locate the Next button in the upper right corner of the page.

4. Click Next.

**Figure 3–11 Click Next**

The Create Role *role\_name*: Roles page displays. Locate the Next button in the upper right corner of the page.

5. Click Next.

**Figure 3–12 Click Next**

The Create Role *role\_name*: Target Privileges page displays. Locate the Target Privileges region at the bottom of the page.

6. Click the **Add** button from the Target Privileges region.

**Figure 3–13 Select privilege(s)**

**Target Privileges**  
Select targets and grant privileges on those targets explicitly. Any Administrator granted with this role will have these target privileges

Name  Type All target types Go Clear

Add

Select	Name	Type	Manage Target Privilege Grants	Is Aggregate Target	Is Privilege Propagation Enabled
No target privileges are granted					

Cancel Back Step 3 of 6 Next Review

The Search and Add: Targets page displays. Locate the Target Type drop-down list in the Search region.

- Expand the drop-down list labeled **Target Type** and select **Group**.

**Figure 3–14 Search results**

**Search and Add: Targets** Cancel Select

**Search**

Target Type Group

Target Name

On Host

Go

---

Select All | Select None

Select	Name	Type	Host	Status
<input type="checkbox"/>	datacenter1_databases	Group	n/a	n/a
<input type="checkbox"/>	datacenter1_hosts	Group	n/a	n/a

Cancel Select

The page refreshes with the results of your search. In the Name column, locate the row that contains the group names that you want to add to the role. You should have at least one TimesTen target group and its respective host group.

- Select the **check boxes** of the rows that identify the **Name** of the rows containing the groups. Ensure to select a TimesTen target group and its respective host group.

**Figure 3–15 Select groups**

**Search and Add: Targets** Cancel Select

**Search**

Target Type Group

Target Name

On Host

Go

---

Select All | Select None

Select	Name	Type	Host	Status
<input checked="" type="checkbox"/>	datacenter1_databases	Group	n/a	n/a
<input checked="" type="checkbox"/>	datacenter1_hosts	Group	n/a	n/a

Cancel Select

Locate the Select button.

- Click **Select**.

**Figure 3–16 Click Select**

Search and Add: Targets

Search

Target Type: Group

Target Name:

On Host:

Go

Select All | Select None

Select	Name	Type	Host	Status
<input checked="" type="checkbox"/>	datacenter1_databases	Group	n/a	n/a
<input checked="" type="checkbox"/>	datacenter1_hosts	Group	n/a	n/a

Cancel Select

The Search and Add: Targets page closes and the Create Role *role\_name*: Target Privileges page refreshes. You should now see your selected groups in the Target Privileges table. In the Target Privileges table, locate the row that contains your TimesTen target group. In the TimesTen target group row, locate the pencil button in the Manage Target Privilege Grants column.

- In the TimesTen target group row, click the **pencil** button in the Manage Target Privilege Grants column.

**Figure 3–17 Manage target privilege grants**

Target Privileges

Select targets and grant privileges on those targets explicitly. Any Administrator granted with this role will have these target privileges. Use "Grant to All" button to assign privileges to all targets. Use "Grant to Selected" button to assign privileges to multiple targets. Privileges for the selected targets will be replaced by the batch settings. To edit individual privileges use the "Edit" icon.

Name: Type: All target types Go Clear

Remove Grant to Selected Add Grant to All Advanced Privilege Settings

Select All | Select None

Select	Name	Type	Manage Target Privilege Grants	Is Aggregate Target	Is Privilege Propagation Enabled
<input type="checkbox"/>	datacenter1_databases	Group	View	Yes	Yes
<input type="checkbox"/>	datacenter1_hosts	Group	View	Yes	Yes

Cancel Back Step 3 of 6 Next Review

The Create Role *role\_name*: Target Privileges page refreshes. Locate the Target Privileges table.

The Target Privileges table contains all of the available Enterprise Manager privileges that you can assign to a group. Enterprise Manager Cloud Control has a variety of privileges, but only two privileges are important for TimesTen operations:

- View

This privilege is needed to view TimesTen targets.

- Operator

This privilege is needed for TimesTen target control operations. The operator privilege includes the view privilege.

Identify the Name of the privilege(s) that you want to assign to this role.

- Select the check box of the row that identifies the **Name** of the privilege that you want to assign to this group. If you want to add multiple privileges, select the corresponding check box of any additional privilege.

**Figure 3–18 Select privileges**

Properties Roles **Target Privileges** Resource Privileges Administrators Review

Create Role TimesTen database administrators: Target Privileges Cancel Continue

**Privilege Propagation**  
This group is enabled for Privilege Propagation. This means if the Administrator is granted a privilege on the group, then he/she automatically gets the same privilege on all targets that are added to the group.

Select the Target Privileges that you want to grant to this Enterprise Manager administrator. Target Privileges give the administrator the right to perform particular actions on targets selected on the previous page.

Search  Go Clear

Previous 1-25 of 167 Next 25

Select All | Select None

Select	Name	Description	Included Privileges	Applicable Target Types
<input type="checkbox"/>	Group Administration	Ability to perform operations like Add/Remove member target from group, manage target privileges on group, customize charts and dashboard and delete the group.	Full	Group
<input type="checkbox"/>	Full	Ability to do all operations on the target, including delete the target	Manage Database High Availability Privilege Group Database Application DBA Connect Target Migrate Database to Automatic Storage Management Operator Manage Database Initialization Parameters Manage Database Performance Privilege Group Manage Database Schema Privilege Group Manage Database Security Privilege Group Manage Database Storage Privilege Group Deploy Fusion Middleware	All Target Types
<input type="checkbox"/>	View Resource Provider	Ability to view Resource Provider	View	Cloud Resource Provider
<input type="checkbox"/>	Connect Target	Ability to connect and manage target	Connect Target Read-only	All Target Types
<input type="checkbox"/>	Connect Target Read-only	Ability to connect to target in read-only mode	View	All Target Types
<input type="checkbox"/>	Deploy Fusion Middleware	Ability to deploy Fusion Middleware components		All Target Types
<input checked="" type="checkbox"/>	Operator	Ability to do normal administrative operations on the target, such as configure a blackout and edit the target properties	Operator Fusion Middleware View Manage Target Compliance Manage Target Metrics Manage Target Patch Manage Template Collection Operations Execute Command Configure Target	All Target Types

Locate the Continue button in the upper right corner of the page.

**12. Click Continue.**

Figure 3–19 Click Continue

**Create Role TimesTen database administrators: Target Privileges**

Cancel Continue

**Privilege Propagation**  
This group is enabled for Privilege Propagation. This means if the Administrator is granted a privilege on the group, then he/she automatically gets the same privilege on all targets that are added to the group.

Select the Target Privileges that you want to grant to this Enterprise Manager administrator. Target Privileges give the administrator the right to perform particular actions on targets selected on the previous page.

Search  Go Clear

Previous 1-25 of 167 Next 25

Select All | Select None

Select	Name	Description	Included Privileges	Applicable Target Types
<input type="checkbox"/>	Group Administration	Ability to perform operations like Add/Remove member target from group, manage target privileges on group, customize charts and dashboard and delete the group.	Full	Group
<input type="checkbox"/>	Full	Ability to do all operations on the target, including delete the target	Manage Database High Availability Privilege Group Database Application DBA Connect Target Migrate Database to Automatic Storage Management Operator Manage Database Initialization Parameters Manage Database Performance Privilege Group Manage Database Schema Privilege Group Manage Database Security Privilege Group Manage Database Storage Privilege Group Deploy Fusion Middleware	All Target Types
<input type="checkbox"/>	View Resource Provider	Ability to view Resource Provider	View	Cloud Resource Provider
<input type="checkbox"/>	Connect Target	Ability to connect and manage target	Connect Target Read-only	All Target Types
<input type="checkbox"/>	Connect Target Read-only	Ability to connect to target in read-only mode	View	All Target Types
<input type="checkbox"/>	Deploy Fusion Middleware	Ability to deploy Fusion Middleware components		All Target Types
<input checked="" type="checkbox"/>	Operator	Ability to do normal administrative operations on the target, such as configure a blackout and edit the target properties	Operator Fusion Middleware View Manage Target Compliance Manage Target Metrics Manage Target Patch Manage Template Collection Operations Execute Command Configure Target	All Target Types

The Create Role `role_name`: EM Resource Privileges page displays. In the Target Privileges table, locate the row that contains your host group. In the TimesTen target group row, locate the pencil button in the Manage Target Privilege Grants column.

13. In the host group row, click the **pencil** button in the Manage Target Privilege Grants column.

Figure 3–20 Manage target privilege grants

**Target Privileges**  
Select targets and grant privileges on those targets explicitly. Any Administrator granted with this role will have these target privileges  
Use "Grant to All" button to assign privileges to all targets. Use "Grant to Selected" button to assign privileges to multiple targets. Privileges for the selected targets will be replaced by the batch settings. To edit individual privileges use the "Edit" icon.

Name  Type All target types Go Clear

Remove Grant to Selected Add Grant to All Advanced Privilege Settings

Select All | Select None

Select	Name	Type	Manage Target Privilege Grants	Is Aggregate Target	Is Privilege Propagation Enabled
<input type="checkbox"/>	datacenter1_databases	Group	Operator	Yes	Yes
<input type="checkbox"/>	datacenter1_hosts	Group	View	Yes	Yes

Cancel Back Step 3 of 6 Next Review

The Create Role `role_name`: Target Privileges page refreshes. Locate the Target Privileges table.

The Target Privileges table contains all of the available Enterprise Manager privileges that you can assign to a group. Enterprise Manager Cloud Control has a variety of privileges, but only two privileges are important for host operations:

- View

This privilege is needed to view Enterprise Manager host.

- **Execute Command**

This privilege is needed for TimesTen targets to execute operating system commands on a host. The Execute Command privilege is required to control the TimesTen agents, TimesTen database, and TimesTen server, and load and unload the TimesTen database from memory.

Identify the Name of the privilege(s) that you want to assign to this role.

14. Select the check box of the row that identifies the **Name** of the privilege that you want to assign to this group. If you want to add multiple privileges, select the corresponding check box of any additional privilege.

**Figure 3–21 Select privileges**

<input checked="" type="checkbox"/>	Execute Command	Execute any OS Command	View	Host
<input type="checkbox"/>	Manage Target Compliance	Ability to manage compliance of the target		All Target Types
<input type="checkbox"/>	Execute Command as Agent	Execute any OS Command as the Agent User	View	Agent
<input type="checkbox"/>	Put File as Agent	Put any File to the Agent's Filesystem as the Agent User	View	Agent
<input checked="" type="checkbox"/>	View	Ability to view properties, inventory and monitor information about a target		All Target Types
<input type="checkbox"/>	Ability to view Fusion Middleware Logs	Ability to view Fusion Middleware logs data		All Target Types
<input type="checkbox"/>	Process Control Fusion Middleware Target	Ability to start or shutdown Fusion Middleware target		All Target Types
<input type="checkbox"/>	Operator Fusion Middleware	Ability to perform operations, such as start and shutdown and view logs for Fusion Middleware targets	Ability to view Fusion Middleware Logs Process Control Fusion Middleware Target	All Target Types
<input type="checkbox"/>	Manage Template Collection Operations	Ability to associate a template collection to a administration group and Sync targets with the associated template collections.	Manage Target Compliance Manage Target Metrics	Group

Previous Show All 167 Next  
Cancel Continue

Locate the Continue button in the bottom right corner of the page.

15. Click **Continue**.

**Figure 3–22 Click Continue**

<input checked="" type="checkbox"/>	Execute Command	Execute any OS Command	View	Host
<input type="checkbox"/>	Manage Target Compliance	Ability to manage compliance of the target		All Target Types
<input type="checkbox"/>	Execute Command as Agent	Execute any OS Command as the Agent User	View	Agent
<input type="checkbox"/>	Put File as Agent	Put any File to the Agent's Filesystem as the Agent User	View	Agent
<input checked="" type="checkbox"/>	View	Ability to view properties, inventory and monitor information about a target		All Target Types
<input type="checkbox"/>	Ability to view Fusion Middleware Logs	Ability to view Fusion Middleware logs data		All Target Types
<input type="checkbox"/>	Process Control Fusion Middleware Target	Ability to start or shutdown Fusion Middleware target		All Target Types
<input type="checkbox"/>	Operator Fusion Middleware	Ability to perform operations, such as start and shutdown and view logs for Fusion Middleware targets	Ability to view Fusion Middleware Logs Process Control Fusion Middleware Target	All Target Types
<input type="checkbox"/>	Manage Template Collection Operations	Ability to associate a template collection to a administration group and Sync targets with the associated template collections.	Manage Target Compliance Manage Target Metrics	Group

Previous Show All 167 Next  
Cancel Continue

The Create Role `role_name`: Target Privileges page displays. Locate the Next button in the upper right corner of the page.

16. Click **Next**.

**Figure 3–23 Click Next**

**Create Role TimesTen database administrators: Target Privileges**

Privileges applicable to all targets  
Select privileges to grant explicitly to current role. These privileges grant access to class of targets

Select	Name	Description	Included Privileges	Applicable Target Types
<input type="checkbox"/>	Use any Beacon	Use any Beacon on any monitored host to monitor transactions, URLs, and network components. Beacon is installed with the Oracle Agent.		All Target Types
<input type="checkbox"/>	Monitor Enterprise Manager	Monitor Enterprise Manager performance		All Target Types
<input type="checkbox"/>	Add any Target	Add any target in Enterprise Manager	Create any user defined aggregate	All Target Types
<input type="checkbox"/>	View any Target	Ability to view all managed targets in Enterprise Manager	Monitor Enterprise Manager	All Target Types
<input type="checkbox"/>	Create Privilege Propagating Group	Ability to create privilege propagating groups.Privileges granted on a privilege propagating group will be automatically granted on the members of the group	Add any Target	All Target Types

The Create Role *role\_name*: EM Resource Privileges page displays. Locate the resource type list.

- In the resource type list, locate the row that contains Job System as identified by the Resource Type Column. Click the **pencil** button in the Manage Privilege Grants column.

**Figure 3–24 Click the pencil button**

Fusion Middleware Offline Diagnostics	Fusion Middleware Offline Diagnostics Security Class	-	NA	
JVM Diagnostics	JVM Diagnostics allows users to monitor any java target	-	NA	
Job System	Job is a unit of work that may be scheduled that an administrator defines to automate the commonly run tasks	-	-	
Linux Patching	A feature in Cloud Control that helps in keeping the hosts in an enterprise updated with security fixes and critical bug fixes, especially in a data center or a server farm.	-	NA	
Manage Custom Diagnostics Property	Security class for Manage Custom Diagnostics page	-	NA	
Metric Extensions	Metric Extensions allows extending monitoring for a target type by adding new metrics	-	-	
Middleware Diagnostics Advisor	Middleware Diagnostics Advisor, allows administrators to run diagnostics on middleware targets	-	NA	
Monitoring Template	Monitoring Templates are a collection of metrics settings (thresholds, collection schedules, corrective actions) for a target type that can be applied to multiple targets of that type.	-	-	
Named Credential	Credentials to perform Enterprise Manager Administrative Operations	-	NA	

The Create Role *role\_name*: Manage Privileges: Job System page displays. Locate the Resource Type Privileges table.

- Select the check box of the row that identifies the **Create** privilege.

**Figure 3–25 Select the check box**

**Create Role TimesTen database administrators: Manage Privileges : Job System**

Resource Type Privileges  
Resource Type privilege grants the access to the Role on all the Resources of that type

Select All | Select None

Select	Name	Description
<input type="checkbox"/>	View status of "Refresh Updates From Oracle" Job	View status and execution details of "Refresh Updates From Oracle" Job
<input checked="" type="checkbox"/>	Create	Ability to submit jobs, create library jobs, create deployment procedure instance and create deployment procedure configuration.
<input type="checkbox"/>	Manage View Access	Ability to grant and revoke the view access on jobs to other administrators.

Locate the Continue button in the upper right corner of the page.

- Click **Continue**.



**Figure 3–26 Click Continue**

**Create Role TimesTen database administrators: Manage Privileges : Job System**

Resource Type privilege grants the access to the Role on all the Resources of that type

Select	Name	Description
<input type="checkbox"/>	View status of "Refresh Updates From Oracle" Job	View status and execution details of "Refresh Updates From Oracle" Job
<input checked="" type="checkbox"/>	Create	Ability to submit jobs, create library jobs, create deployment procedure instance and create deployment procedure configuration.
<input type="checkbox"/>	Manage View Access	Ability to grant and revoke the view access on jobs to other administrators.

The Create Role *role\_name*: EM Resource Privileges page displays. Locate the Next button in the upper right corner of the page.

20. Click Next.

**Figure 3–27 Click Next**

**Create Role TimesTen database administrators: EM Resource Privileges**

For each of the resource types in the list below, identify specific privileges to be explicitly granted on "all resources" level or individual resources to grant

Resource Type	Description	Privilege Grants Applicable to all Resources	Number of Resources with Privilege Grants	Manage Privilege Grants
Access	Defines the access to different application in Enterprise Manager Cloud Control	-	NA	
Application Data Model	Application Data Model maintains sensitive data types and their associated columns in a database.	-	-	
Application Performance Management	Application Performance Management allows users to manage business application service targets	-	NA	
Application Replay Entities	Application Replay Entities include captures, replay tasks, and replays.	-	NA	

The Create Role *role\_name*: Administrators page displays. Locate the Next button in the upper right corner of the page.

21. Click Next.

**Figure 3–28 Click Next**

**Create Role TimesTen database administrators: Administrators**

Select the administrators that you want to grant this Enterprise Manager role to.

**Available Administrators**

- CLOUD\_SVLIB\_USER
- DESIGNER
- EMCLOUD\_ADMIN
- EMSSA\_ADMIN
- EMUSER\_ADMIN
- INFRA\_ADMIN
- OPER
- PLUGIN\_ADMIN
- PLUGIN\_AGENT\_ADMIN
- PLUGIN\_OMS\_ADMIN
- PLUGIN\_USER
- PROV\_DESIGNER
- PROV\_OPERATOR
- VIEWER

Move

Move All

Remove

Remove All

**Selected Administrators**

The Create Role *role\_name*: Review page displays. In the Properties region, verify the role name is correct. Also, verify that the correct privileges are in the Privileges applicable to all targets table. Locate the Finish button in the upper right corner of the page.

22. Click Finish.

Figure 3–29 Click Finish

Previous Administrators Review

Create Role TimesTen database administrators: Review

Cancel Back Step 6 of 6 Finish

**Properties**

Name TimesTen database administrators  
No description is defined for this role.  
External Role NO  
Private Role No  
Created By SYSMAN

**Roles**

Name	Description
No roles are granted.	

**Target Privileges**

Privileges applicable to all targets

Name	Description
No target resource type privileges are granted	

**Target Privileges**

Name	Type	Manage Target Privilege Grants	Manage Aggregate Only Privilege Grants	Manage Member Only Privilege Grants
datacenter1_databases	Group	Operator	NONE	NONE
datacenter1_hosts	Group	Execute Command, View	NONE	NONE

The Security Roles page displays with a confirmation message that indicates that you successfully created the Enterprise Manager role.

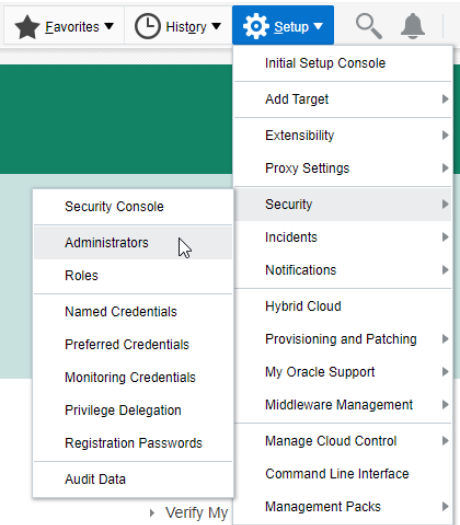
You are now ready to create an Enterprise Manager user.

## Creating users

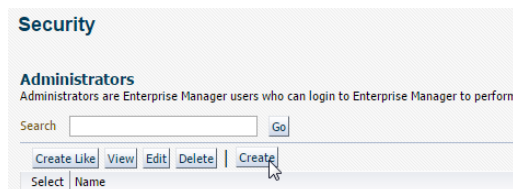
Create a user that can control and view your TimesTen targets.

1. From the **Setup**, select **Security**, then select **Administrators**.

Figure 3–30 Select Administrators



- The Security Administrators page displays. Locate the Create button above the group table.
2. Click **Create**.

**Figure 3–31 Click Create**

The Create Administrator: Properties page displays. You are now ready to enter the Enterprise Manager user properties. The first property is the user name.

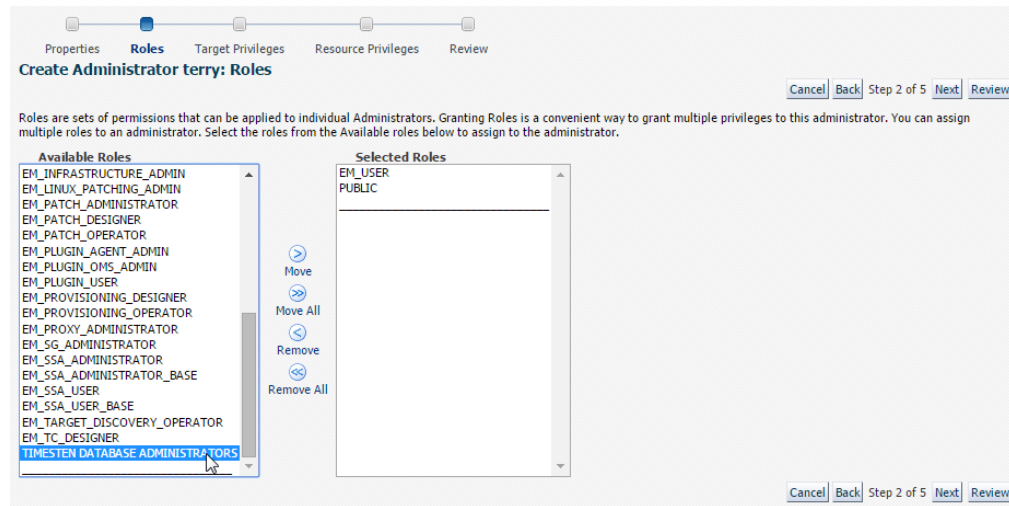
In the **\*Name** text field, you define the user name. Choose a name that is a meaningful identifier. (For example, *terry*.)

3. In the **\*Name** text field, type the user name.
4. In the **\*Password** text field, type the password for the user.
5. In the **\*Confirm Password** text field, re-type the password.  
Locate the Next button in the upper right corner of the page.
6. Click Next.

**Figure 3–32 Click Next**

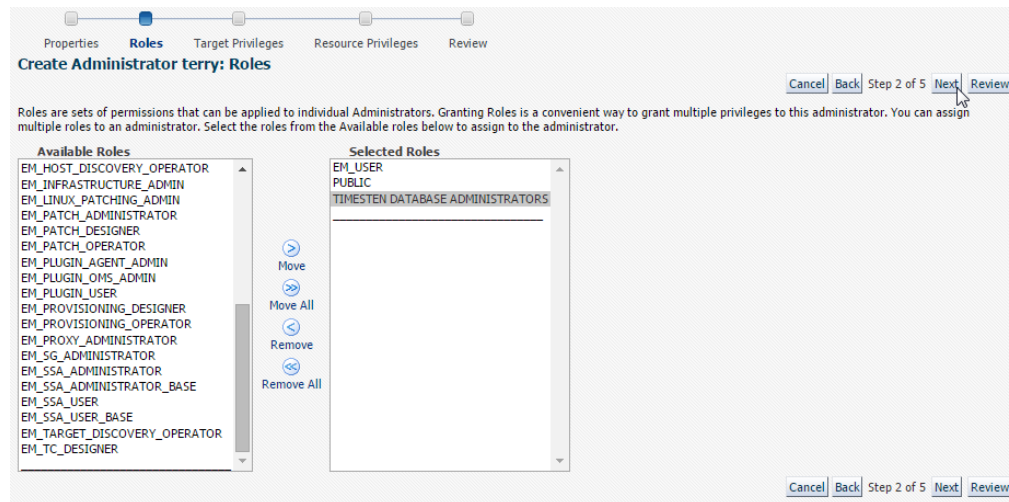
The Create Administrator *username*: Roles page displays. You are now ready to assign a role to your user.

7. In the Available Roles list, locate the row that contains your TimesTen role. Double click the **role name**. If you want to assign multiple roles, double click the corresponding role name of any additional roles.

**Figure 3–33 Assign a role**

Locate the Next button in the upper right corner of the page.

8. Click Next.

**Figure 3–34 Click Next**

The Create Administrator *username*: Target Privileges page displays. Locate the Next button in the upper right corner of the page.

9. Click Next.

**Figure 3–35 Click Next**

Select	Name	Description	Included Privileges	Applicable Target Types
<input checked="" type="checkbox"/>	Use any Beacon	Use any Beacon on any monitored host to monitor transactions, URLs, and network components. Beacon is installed with the Oracle Agent.		All Target Types
<input checked="" type="checkbox"/>	Monitor Enterprise Manager	Monitor Enterprise Manager performance		All Target Types
<input checked="" type="checkbox"/>	Add any Target	Add any target in Enterprise Manager	Create any user defined aggregate	All Target Types
<input checked="" type="checkbox"/>	View any Target	Ability to view all managed targets in Enterprise Manager	Monitor Enterprise Manager	All Target Types

The Create Administrator *username*: EM Resource Privileges page displays. Locate the Next button in the upper right corner of the page.

10. Click Next.

**Figure 3–36 Click Next**

Resource Type	Description	Privilege Grants Applicable to all Resources	Number of Resources with Privilege Grants	Manage Privilege Grants
Access	Defines the access to different application in Enterprise Manager Cloud Control	-	NA	<input checked="" type="checkbox"/>
Application Data Model	Application Data Model maintains sensitive data types and their associated columns in a database.	-	-	<input checked="" type="checkbox"/>
Application Performance Management	Application Performance Management allows users to manage business application service targets	-	NA	<input checked="" type="checkbox"/>

The Create Administrator *username*: Review page displays. In the Properties region, verify that the user name is correct. Also, verify that the correct roles are in the Roles table. Locate the Finish button in the upper right corner of the page.

11. Click Finish.

**Figure 3–37 Click Finish**

**Create Administrator terry: Review**

Cancel Back Step 5 of 5 **Finish**

**Properties**

Name terry  
 Password Profile DEFAULT  
 Prevent password change No  
 Expire password now No  
 E-mail Address No Email address is defined for this administrator.  
 Contact  
 Location  
 Department  
 Cost Center  
 Line of Business  
 Description  
 Super Administrator No  
 User Profile DEFAULT

**Roles**

Name	Description
EM_USER	Role has privilege to access Enterprise Manager Application
PUBLIC	PUBLIC role is granted to all administrators. This role can be customized at site level to group privileges that need to be granted to all administrators
TIMESTEN DATABASE ADMINISTRATORS	

**Target Privileges**

**Privileges applicable to all targets**

Name	Description
No target resource type privileges are granted	

**Target Privileges**

Name	Type	Manage Target Privilege Grants	Manage Aggregate Only Privilege Grants	Manage Member Only Privilege Grants
No target privileges are granted				

The Security Administrators page displays with a confirmation message that indicates that you successfully created the Enterprise Manager user.

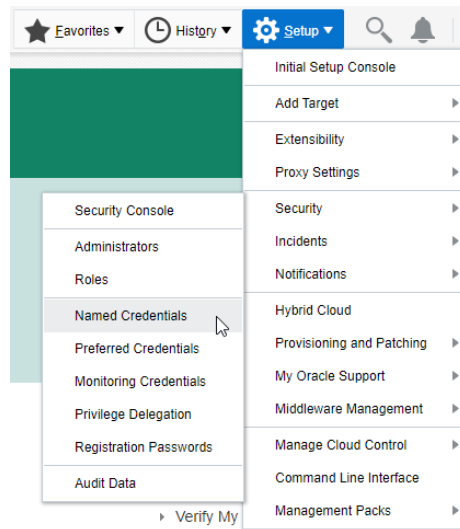
You have successfully created an Enterprise Manager user that can view and control TimesTen targets.

## Granting preferred credentials to users

Enterprise Manager enables you to grant a user access to preferred credentials that you created for a target with the SYSMAN user. Target preferred credentials are required to perform several operations on TimesTen targets. Ensure that you have set preferred credentials for the SYSMAN user before proceeding with this section. For more information, see ["Setting preferred credentials for a target"](#) on page 1-35.

To grant a user access to preferred credentials, ensure that you are on the Oracle Enterprise Manager Cloud Control home page and are logged in as user SYSMAN.

1. From the **Setup** menu, select **Security**, then select **Named Credentials**.

**Figure 3–38 Select Named Credentials**

The Security Named Credentials page displays. Locate the credential name in the Credential Name column.

2. Click the **credential name**.

**Figure 3–39 Select credential name**

**Security** Page Refreshed Nov 17, 2015 2:43:17 PM PST ↻

**Named Credentials**

Following are the list of named credentials you can access. This list include credentials created by you, and credentials for which explicit grant is given to you. Maximum 2000 credentials will be shown. Click on Query by Example icon to search appropriate credential.

View ▾ Create Edit Manage Access X Delete Test View References

Credential Name	Credential Owner	Authenticating Target Type	Credential Type	Target Name	Target Username
SYS_CREDENTIALS	SYSMAN	Database Inst...	Database Cred...		SYS
TT1122_CREDENTIALS	SYSMAN	Host	Host Credentials	testhost.tt1122	nivande
TT1122_SAMPLEDB_1122_CREDENTIALS	SYSMAN	Host	Host Credentials	testhost.tt1122.sample...	nivande

You are now ready to grant the preferred credentials to a user. Locate the Manage Access button.

3. Click **Manage Access**.

**Figure 3–40 Click Manage Access**

**Security** Page Refreshed Nov 17, 2015 2:43:17 PM PST ↻

**Named Credentials**

Following are the list of named credentials you can access. This list include credentials created by you, and credentials for which explicit grant is given to you. Maximum 2000 credentials will be shown. Click on Query by Example icon to search appropriate credential.

View ▾ Create Edit Manage Access X Delete Test View References

Credential Name	Credential Owner	Authenticating Target Type	Credential Type	Target Name	Target Username
SYS_CREDENTIALS	SYSMAN	Database Inst...	Database Cred...		SYS
TT1122_CREDENTIALS	SYSMAN	Host	Host Credentials	testhost.tt1122	nivande
TT1122_SAMPLEDB_1122_CREDENTIALS	SYSMAN	Host	Host Credentials	testhost.tt1122.sample...	nivande

The Security Manage Access: *credential\_name* page displays. Locate the Add Grant button in the Access Control region.

4. Click **Add Grant**.

**Figure 3–41 Click Add Grant**

**Security** Page Refreshed Nov 17, 2015 2:45:01 PM PST ↻

Named Credentials > Manage Access

**Manage Access : TT1122\_SAMPLEDB\_1122\_CREDENTIALS**

Owner: SYSMAN Change Save Cancel

**Access Control**

Grantee  Search Clear

Click on 'Add Grant' to add users. Click on 'Remove Grant' to remove grants to users. Click on 'Change Privilege' to edit privilege for user(s).

+ Add Grant Change Privilege(s) ✕ Revoke Grant

Grantee	Grantee Type	Privileges
No access policy to display.		

The Search and Select - Principals - Oracle Enterprise Manager dialog displays.

- In the dialog, locate the row that contains the correct user name. Click in **this row** and click **Select**.

**Figure 3–42 Select user name**

**Search and Select - Principals - Oracle Enterprise Manager** ✕

**Search**

Name

\* Type All ▼

Go Clear

Name	Type	Description
OPER	Administrator	
EMSSA_ADMIN	Administrator	
PLUGIN_USER	Administrator	
DESIGNER	Administrator	
INFRA_ADMIN	Administrator	
<b>TERRY</b>	<b>Administrator</b>	
EMCLOUD_AD...	Administrator	
PLUGIN_OMS...	Administrator	
TESTSUPERA...	Administrator	
PLUGIN_AGEN...	Administrator	
...	...	...

Select Cancel

The Search and Select - Principals - Oracle Enterprise Manager dialog closes and the Security Manager Access: *credential\_name* page refreshes. You should see your selected user name in the table in the Access Control region. Locate the Save button in the upper right corner of the page.

- Click **Save**.



**Figure 3–43 Click Save**

**Security** Page Refreshed Nov 17, 2015 2:45:01 PM PST ↻

Named Credentials > Manage Access

**Manage Access : TT1122\_SAMPLEDB\_1122\_CREDENTIALS**

Owner: SYSMAN Change Save Cancel

**Access Control**

Grantee  Search Clear

Click on 'Add Grant' to add users. Click on 'Remove Grant' to remove grants to users. Click on 'Change Privilege' to edit privilege for user(s).

+ Add Grant Change Privilege(s) ✕ Revoke Grant

Grantee	Grantee Type	Privileges
TERRY	Administrator	View Credential

The Security Named Credentials page displays. Repeat steps 1-6 to grant access to additional preferred credentials to users.

- To enable preferred credentials on an Enterprise Manager user account, logon to Enterprise Manager using the user credentials. Then, follow the instructions in ["Setting preferred credentials for a target"](#) on page 1-35 and assign the existing named credentials as noted in step 6.

You have successfully granted a user access to preferred credentials of a SYSMAN user target.



---

## Working with the TimesTen Instance Home Page

This chapter describes the TimesTen instance home page. The home page conveys high level information about the TimesTen instance.

Topics include:

- [Viewing the TimesTen instance home page](#)
- [Analyzing information on the TimesTen instance home page](#)

### Viewing the TimesTen instance home page

To view the home page, ensure that you are on the TimesTen instance target page. For information on navigating to the TimesTen instance target page, see "[Navigating to the TimesTen target page](#)" on page 2-1.

From the **TimesTen Instance Home** menu, select **Home**.

The TimesTen home page displays.

### Analyzing information on the TimesTen instance home page

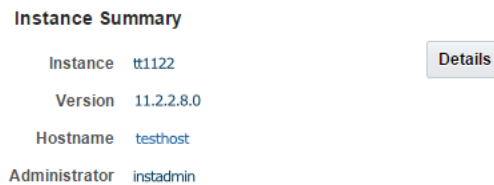
The TimesTen instance home page consists of four regions each of which has been customized specifically for TimesTen instance targets.

The four home page regions described in detail include:

- [Instance summary](#)
- [Daemon status](#)
- [Server status](#)
- [Hosted databases](#)

## Instance summary

**Figure 4–1 Instance summary region**



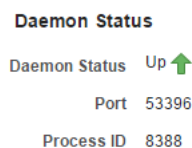
This region shows information about your TimesTen instance target:

- **Instance**  
The name of your current TimesTen instance.
- **Version**  
The version of your current TimesTen instance.
- **Hostname**  
The name of the host where TimesTen is running. This is a link that lets you view the host target page.
- **Administrator**  
The operating system username of the TimesTen instance administrator.

Click the **Details** button to view additional details about your TimesTen instance. The TimesTen instance target needs preferred credentials to display additional instance details. For more information on setting preferred credentials, see "[Setting preferred credentials for a target](#)" on page 1-35. The detailed instance information dialog displays the output of the `ttVersion -m` utility. For more information on the `ttVersion` utility and its output, see "`ttVersion`" in the *Oracle TimesTen In-Memory Database Reference*.

## Daemon status

**Figure 4–2 Daemon status region**



This region shows information about the TimesTen daemon:

- **Daemon status**  
This value can be either Up or Down. The TimesTen daemon need to be Up to use the TimesTen instance and TimesTen database. For more information on how to start and stop the TimesTen daemon, see "[Start/stop services](#)" on page 9-1.
- **Port**

The port number on which the TimesTen daemon listens. If this port number causes conflicts with another application, consider using the `ttInstanceModify -port` utility to modify the TimesTen daemon port number. For more information, see "ttInstanceModify" in the *Oracle TimesTen In-Memory Database Reference*.


- Process ID

The process identifier of the TimesTen daemon process.

## Server status

**Figure 4–3 Server status region**

**Server Status**

Server Status Up 

Port 53397

Process ID 8400

This region shows information about the TimesTen server:

- Server status

This value can be either Up or Down. The TimesTen server need to be Up for TimesTen databases that belong to this TimesTen instance to accept client/server connections. For more information on how to start and stop the TimesTen server, see "[Start/stop services](#)" on page 9-1.

- Port

The port number on which the TimesTen server listens. If this port number causes conflict with another application, consider modifying the TimesTen server port number. For more information, see "Modifying the TimesTen Server attributes" in the *Oracle TimesTen In-Memory Database Operations Guide*.

- Process ID

The process identifier of the TimesTen server process.

## Hosted databases

**Figure 4–4 Hosted databases region**

Hosted Databases					
View ▾ Details Detach					
Database	Total Connections	Client Server Connections	RAM Status	Cache Agent	Replication Agent
<a href="#">sampledb.1122</a>	11	0	Loaded	Up	Up

This region shows the databases that are part of your TimesTen instance in a table format. This information is useful in determining the status of all of the databases associated with this TimesTen instance.

A description of each column follows:

- Database

This value is taken from the last part of the path to the datastore. For example, if the path to the datastore is `/var/tt/sampledb_1122`, the database name is `sampledb_1122`.

If the database is a TimesTen database target you can click the database name to open the home page of the TimesTen database target. For more information on the TimesTen database home page, see ["Working with the TimesTen Instance Home Page"](#) on page 4-1.

- **Total Connections**

The total number of direct linked and client/server connections to the database.

- **Client Server Connections**

The number of client/server connections to the database.

- **RAM Status**

This value can be either Loaded or Not loaded. The RAM status is Loaded if the database is loaded into memory.

- **Cache Agent**

This value can be either Up or Down. If you have not configured a cache group, then this value is Down. The Cache Agent is used for read or write caching of data in an Oracle 11g or 12c database. For more information, on how to start and stop the cache agent, see ["Start/stop agents"](#) on page 10-1.

- **Replication Agent**

This value can be either Up or Down. If you have not configured a replication scheme, then this value is Down. TimesTen uses the Replication Agent to either replicate data between TimesTen databases or to asynchronously write data to an Oracle 11g or 12c database. For more information, on how to start and stop the cache agent, see ["Start/stop agents"](#) on page 10-1.

- **PLSQL**

This value can be either Enabled or Disabled. By default, this column is hidden. To enable this column, click the **View** button, then **Columns**, and then click the **PLSQL** option.

In addition, you can select a row and click **Details** to view all of the connections to a certain database. If you click **Details**, a **Current Connections** dialog opens showing the connections to the database. The Current Connections dialog displays the connection output of the `ttStatus DSN` utility. For more information on the `ttStatus` utility and its output, see *"ttStatus"* in the *Oracle TimesTen In-Memory Database Reference*.

---

## Working with the TimesTen Database Home Page

This chapter describes the TimesTen database home page. The TimesTen database home page conveys high level configuration and performance information about your TimesTen database.

Topics include:

- [Viewing the TimesTen home page](#)
- [Analyzing information on the TimesTen home page](#)

### Viewing the TimesTen home page

To view the home page, ensure that you are on the TimesTen database target page. For information on navigating to the TimesTen database target page, see "[Navigating to the TimesTen target page](#)" on page 2-1.

From the **TimesTen Database Home** menu, select **Home**.

The TimesTen database home page displays.

### Analyzing information on the TimesTen home page

The TimesTen home page consists of three regions each of which has been customized specifically for TimesTen database targets.

The three home page regions described in detail include:

- [Status and Summary](#)
- [Performance Overview and Issues](#)
- [SQL Execution Time and Monitor](#)

### Status and Summary

The Status and Summary region consists of three subregions:

- [Summary](#)
- [Status](#)
- [Configuration](#)

## Summary

**Figure 5–1 Summary region**

<b>Summary</b>	
Database Name	sampledb_1122
Instance Name	<a href="#">tt1122</a>
TimesTen Version	11.2.2.8.0
Hostname	<a href="#">testhost</a>
Oracle Net Service Name	oracledb

This region shows information about your TimesTen target:

- Database name  
This value is taken from the last part of the path to the database. For example, if the path to the database is `/var/tt/sampledb_1122`, the database name is `sampledb_1122`.
- Instance name  
The name of your current TimesTen instance. This is a link that lets you view the TimesTen instance target page.
- TimesTen version  
The version of your current TimesTen instance.
- Hostname  
The name of the host where TimesTen is running. This is a link that lets you view the host target page.
- Oracle Net Service Name  
The service name of the Oracle database used for cache and to load data from an Oracle database into the TimesTen database. If you have not configured the Oracle Net Service Name, then this value is Not Specified.

## Status

**Figure 5–2 Status region**

<b>Status</b>	
TimesTen Server	Up 
Cache Agent	Up 
Replication Agent	Up 
Loaded Since	November 10, 2015 9:37 AM

This region shows status information including:

- TimesTen Server  
This value can be either Up or Down. The TimesTen Server is the listener process that enables client/server connections to the database. For more information on how to start and stop the TimesTen server, see ["Start/stop services"](#) on page 9-1.
- Cache Agent



This value can be either Up or Down. If you have not configured a cache group, then this value is Down. The Cache Agent is used for read or write caching of data in an Oracle database. For more information, on how to start and stop the cache agent, see ["Start/stop agents"](#) on page 10-1.

- Replication Agent

This value can be either Up or Down. If you have not configured a replication scheme, then this value is Down. TimesTen uses the Replication Agent to either replicate data between TimesTen databases or to asynchronously write data to an Oracle database. For more information, on how to start and stop the replication agent, see ["Start/stop agents"](#) on page 10-1.

- Loaded Since

The date and time when the database was loaded into memory.

## Configuration

**Figure 5-3 Configuration region**

Configuration	
Allocated PERM Space (GB)	0.0439625
Allocated TEMP Space (MB)	32
Internal Log Buffer Size (MB)	64
PL/SQL Memory Segment Size (MB)	32

This region shows configuration information specific to your database. These attributes are first connection attributes and the values are set at first connect. For more information on first connection attributes, see ["Connection Attributes"](#) in the *Oracle TimesTen In-Memory Database Reference*.

- Allocated PERM Space
- Allocated TEMP Space
- Internal Log Buffer Size
- PL/SQL Memory Segment Size

## Performance Overview and Issues

The Performance Overview and Issues region consists of two tabs:

- [Performance Overview](#)
- [Issues](#)

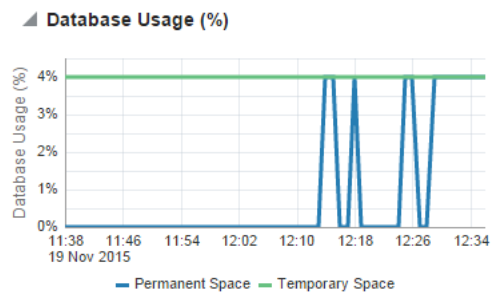
### Performance Overview

The Performance Overview region consists of three subregions:

- [Database Usage \(%\)](#)
- [Database Connections](#)
- [Free Space \(%\)](#)

## Database Usage (%)

**Figure 5–4 Database Usage region**



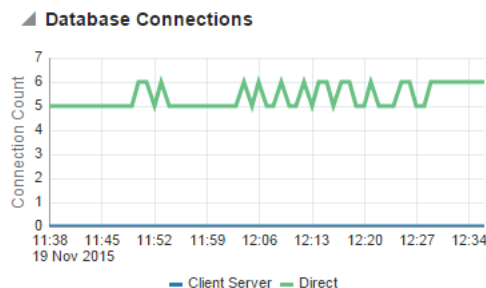
This region uses a line graphs to show permanent and temporary space currently in use. The values are expressed as a percentage of what was configured at database first connect. For information on the configured values, see the [Summary](#), [Status](#), and [Configuration](#) regions.

The X-Axis represents time. The Y-Axis represents the percent of permanent space in use and the percent of temporary space in use.

High database usage may indicate the need to grow the database by allocating more permanent or temporary space.

## Database Connections

**Figure 5–5 Database connections region**

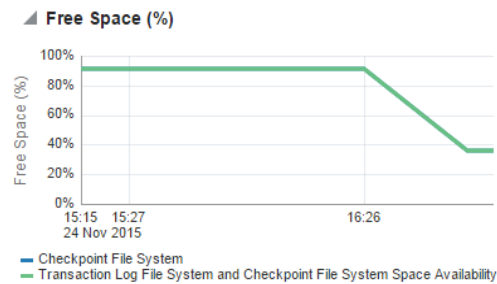


This region uses a line graph to show the number of direct linked connections and client/server connections. These line graphs change according to time to show not only the current value but also the values collected in recent metric collections.

The X-Axis represents time. The Y-Axis represents the number of current direct linked connections and the number of client/server connections. These connections do not include subdaemon connections or connections created by the TimesTen plug-in to collect configuration and performance data.

## Free Space (%)

**Figure 5–6 Free Space region**



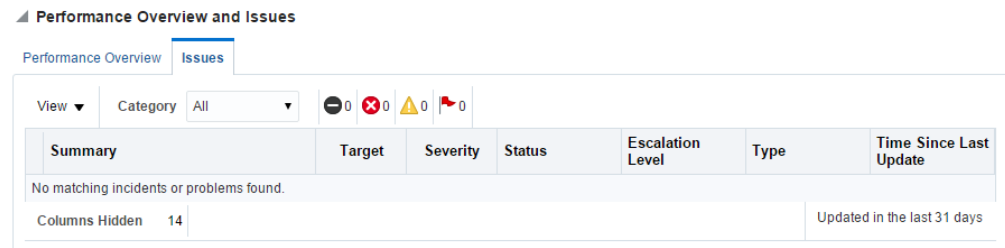
This region uses a graph to show the free space in the file systems where the checkpoint and transaction log files are currently located.

The X-Axis represents time. The Y-Axis represents the free space in the checkpoint file system and the free space in the transaction log file system. If you configured the checkpoint and transaction log files in the same file system and path, the two lines will be on top of each other and you will see one line.

A very low percentage of free disk available may indicate a need to install a larger disk.

## Issues

**Figure 5–7 Issues region**



This region displays alerts that have exceeded either warning or error thresholds.

## SQL Execution Time and Monitor

The SQL Execution Time and Monitor consists of two tabs.



- [SQL Monitor](#)
- [SQL Execution Time Histogram](#)

## SQL Monitor

**Figure 5–8 SQL Monitor region**

SQL Execution Time and Monitor

SQL Monitor SQL Execution Time Histogram

View Exclude System ☐ Statistics  Detach 

Command ID	Execution Count	Prepare Count	Reprepare count	Last Execution Start	Last Execution Time (s)	Maximum Execution Time (s)	Owner	SQL Statement
52043704	12871	12871	0	Nov 19, 2015 1...	0	0.103	APPUSER	call ttSQLExecutionTI...
52038488	12872	12872	0	Nov 19, 2015 1...	0	0.101	APPUSER	call ttSqlCmdCacheInfo2
52107488	1	1	0	Nov 19, 2015 1...	0.1	0.1	APPUSER	call ttStatsConfig('Sql...
43440096	65717	65717	0	Nov 19, 2015 1...	0	0.101	APPUSER	call ttckphistory

Columns Hidden 1

This region shows the top SQL statements in the SQL command cache expressed in table format. This information is useful in analyzing your queries. It may be useful to sort by the number of executions to see the SQL statements that are most executed. It may also be useful to exclude system SQL commands by clicking in the box to the left of **Exclude System**.

As you review the top executions, look at the values in the Prepare Count column. If the SQL query is not prepared, then you should prepare the query. For optimal performance, a SQL statement should be prepared once and executed many times. If the number of prepares for a SQL statement is large then verify if your application can be enhanced to minimize the number of prepares per SQL statement.

Click the **Statistics** button at the top of the table to view the number of cached commands and the current space allocated to store cached commands. This information is derived from the output values of the `ttSQLCmdCacheInfo` built-in procedure. For more information about the `ttSQLCmdCacheInfo` built-in procedure, see "ttSQLCmdCacheInfo" in the *Oracle TimesTen In-Memory Database Reference*.

Click the **Query By Example** at the top of the table to enable query fields for the Owner and SQL Statement columns.

In addition, you can review the queries in the SQL Statement column. You can copy and paste this SQL query into the worksheet in SQL Developer and review the results from **Explain Plan**. You can also paste the SQL query into `ttIsql` and look at the `showplan` for the query. This may give you a better understanding of how and why your queries are performing as they are.

You can also click the column header to sort the table based on the column. A description of each column follows:

---

**Note:** The columns are sorted based on the rows that are currently loaded in the SQL Monitor table. To sort the table based on all the rows from the `ttSQLCmdCacheInfo` built-in procedure, ensure that you are viewing data in Real Time. For more information on viewing data in Real Time, see "[View data](#)" on page 2-5.

---

### ■ Command ID

A unique identifier for the SQL command. The TimesTen database generates this number.

- **Execution Count**

A counter for the number of executions that took place on this command since it was brought into the command cache.

- **Prepare Count**

A counter for the number of prepares for a SQL statement.

- **Reprepare count**

A counter of the number of reprepares.

- **Last Execution Time (s)**

The last execution time for a SQL statement.

- **Maximum Execution Time (s)**

The maximum execution time for a SQL statement.

- **Owner**

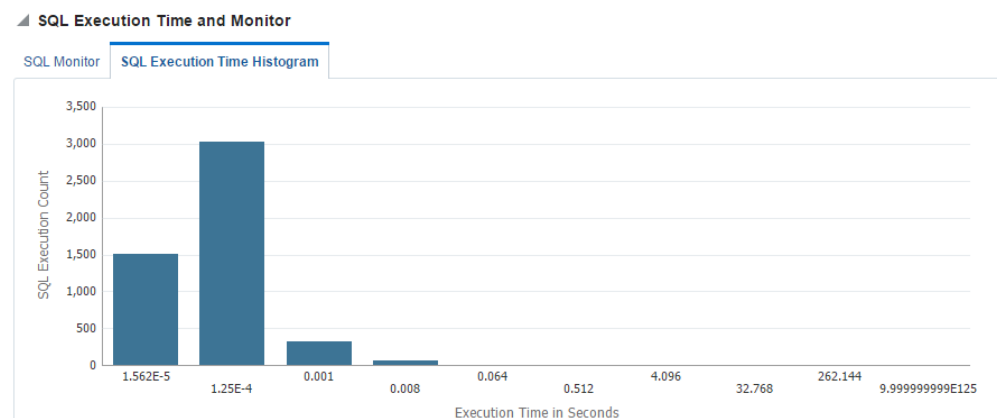
The identifier of the user who created the command.

- **SQL Statement**

The SQL text.

## SQL Execution Time Histogram

**Figure 5–9 SQL Execution Time Histogram region**



This region shows a histogram with the number of SQL commands that have been executed since command cache sampling has been enabled. The histogram is populated with output of the `ttSQLExecutionTimeHistogram` built-in procedure. For more information on the `ttSQLExecutionTimeHistogram` built-in procedure, see "ttSQLExecutionTimeHistogram" in the *Oracle TimesTen In-Memory Database Reference*.

The histogram is populated when the TimesTen database is configured to take sample SQL command cache. To enable TimesTen to take sample SQL command caches, call the `ttStatsConfig` built-in procedure with the `SQLCmdSampleFactor` parameter set to a value that is between 0 and 60000. For more information about the `ttStatsConfig` built-in procedure, see "ttStatsConfig" in the *Oracle TimesTen In-Memory Database Reference*.

For example, call the `ttStatsConfig` built-in procedure with the following parameters and values to enable command cache sampling for every single SQL command:

```
Command> call ttStatsConfig('SqlCmdSampleFactor',1);  
< SQLCMDSAMPLEFACTOR, 1 >  
1 row found.
```

The histogram has the following fixed interval times:

- 0 seconds to .00001562 seconds
- .00001562 seconds to .000125 seconds
- .0000125 seconds to .001 seconds
- .001 seconds to .008 seconds
- .008 seconds to .064 seconds
- .064 seconds to .512 seconds
- .512 seconds to 4.096 seconds
- 4.096 seconds to 32.768 seconds
- 32.768 seconds to 262.144 seconds
- 262.144 seconds to 9.99999999E+125 seconds

To reset the SQL execution time histogram, call the `ttStatsConfig` built-in procedure with the `SQLCmdHistogramReset` parameter set to a value that is not 0. For more information about the `ttStatsConfig` built-in procedure, see "ttStatsConfig" in the *Oracle TimesTen In-Memory Database Reference*.

For example, call the `ttStatsConfig` built-in procedure with the following parameters and values to reset the SQL execution time histogram:

```
Command> call ttStatsConfig('SQLCmdHistogramReset',1);  
< SQLCMDHISTOGRAMRESET, 1 >  
1 row found.
```

---

## Working with the Performance Summary Page

This chapter describes the TimesTen performance summary page. The performance summary page displays performance specific information that has been customized for your TimesTen database targets.

Topics include:

- [Viewing the performance summary page](#)
- [Analyzing information on the TimesTen performance summary page](#)

### Viewing the performance summary page

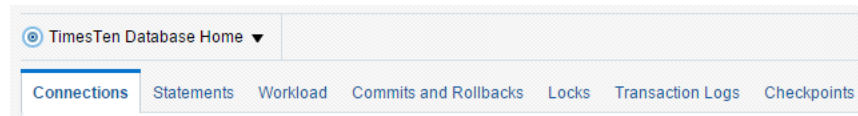
To view the performance summary page, ensure that you are on the TimesTen database target page. For information on navigating to the TimesTen database target page, see ["Navigating to the TimesTen target page"](#) on page 2-1.

From the **TimesTen Database Home** menu, select **Monitoring**, then select **Performance Summary**.

### Analyzing information on the TimesTen performance summary page

[Figure 6-1](#) shows the seven performance specific areas that have been customized for your TimesTen database targets. Click a specific tab to view detailed performance information.

**Figure 6-1** Performance tabs



A description of each area follows:

- [Connections](#)
- [Statements](#)
- [Workload](#)
- [Commits and rollbacks](#)
- [Locks](#)
- [Transaction Logs](#)
- [Checkpoints](#)

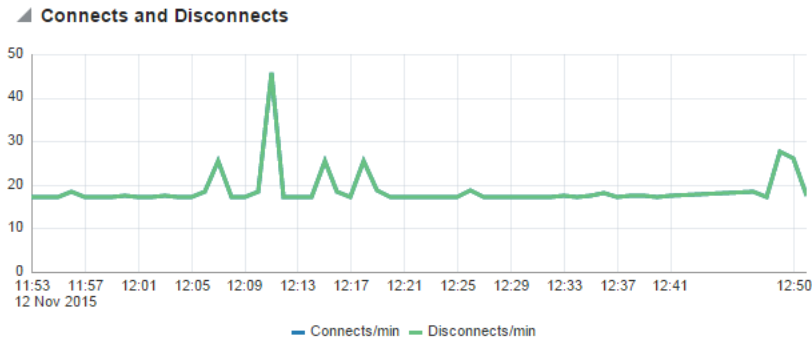
## Connections

The connections tab enables you to view information about database connections and disconnections. The connections tab contains one graph region:

- [Connects and disconnects](#)

### Connects and disconnects

**Figure 6–2** *Connects and disconnects region*



The connects and disconnects rates region uses a line graph to show the number of connects and disconnect per minute.

The X-Axis represents time. The Y-Axis represents the number of connects and disconnects per minute. These numbers represent all connects and disconnects from applications and connections created by the TimesTen plug-in to collect configuration and performance data.

If you see a high rate of connects and disconnects, then investigate why you are seeing this high rate. You may consider modifying your applications to do connection pooling.

## Statements

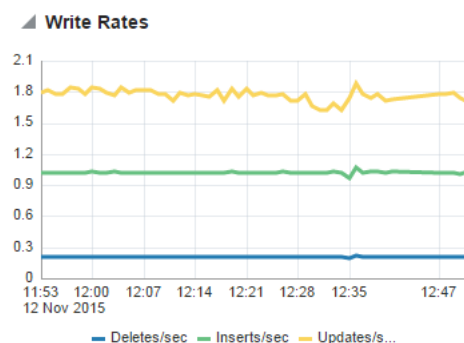
The statements tab enables you to compare and review the execution rates of your SQL statements. It is divided into four regions:

- [Write rates](#)
- [Read rates](#)
- [Ratio of prepares to executes](#)
- [Break up of executed statement types](#)



## Write rates

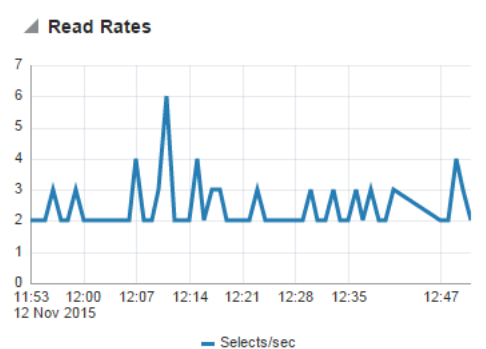
**Figure 6–3 Write Rates region**



The write rates region uses a line graph to show the rate of INSERT, UPDATE, and DELETE statements executed per second.

## Read rates

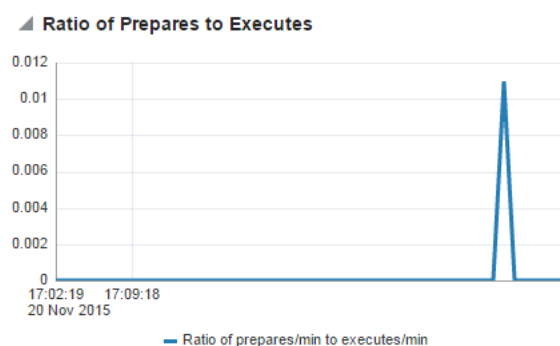
**Figure 6–4 Read Rates region**



The read rates region uses a line graph to show the rate of SELECT statements executed per second.

## Ratio of prepares to executes

**Figure 6–5 Ratio of Prepares to Executes region**



The ratio of prepare to execute rates region uses a line graph to show the overall performance of the statements that are executing.

If SQL statements are prepared for every execute, the ratio of prepares to executes is equal to a value of 1.0. This type of ratio impacts performance. Preparing SQL statements is CPU intensive. Try to minimize the number of times your SQL statements are prepared. In your applications, consider using bind variables. You can then prepare your SQL statements once and then execute your SQL statements multiple times.

A value less than 1.0 means that there are more executes than prepares. When this occurs, the statements being executed are already in the SQL command cache and are already prepared. This results in less work that must be done to execute the statement.

## Break up of executed statement types

The break up of executed statement types region displays information about executed statements. The region is divided into two sub-regions:

- [Summary](#)
- [Detail](#)

### Summary

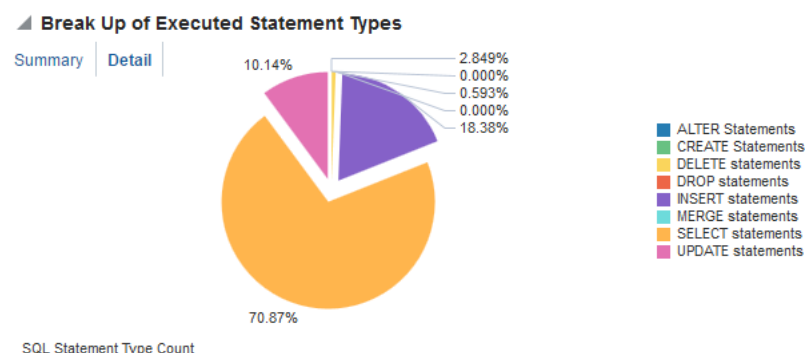
**Figure 6–6 Summary sub-region**



The summary sub-region shows the total number of SQL statements that have been executed since the database has been loaded into memory. There is also a field that shows the date and time when the database was loaded into memory.

### Detail

**Figure 6–7 Detail sub-region**



The detail sub-region has a pie chart that shows the types of SQL statements that have executed since your TimesTen database target was loaded into memory.

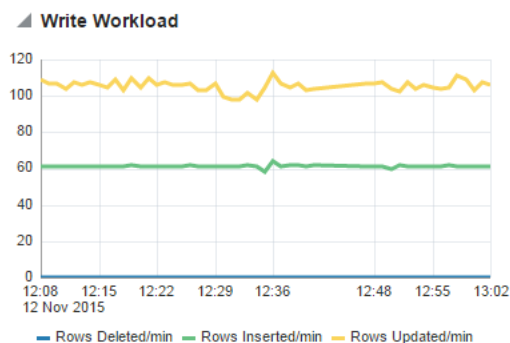
## Workload

The workload tab shows the workload of your TimesTen target. The page is divided into two regions:

- [Write workload](#)
- [Read workload](#)
- [Prepares and reprepares](#)

### Write workload

**Figure 6–8 Write Workload region**



The write workload region uses a line graph to show the number of table rows deleted, inserted, and updated per minute.

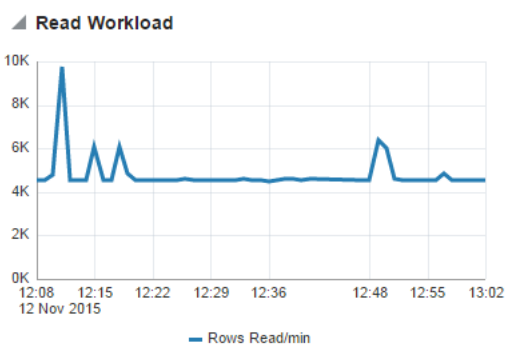
The write workload region is populated when the TimesTen database is enabled to collect all database and operating system statistics. To enable TimesTen to collect all database and operating system statistics, call the `ttStatsConfig` built-in procedure with the `StatsLevel` parameter set to `ALL`.

```
Command> call ttStatsConfig('StatsLevel','ALL');
< STATSLEVEL, ALL >
1 row found.
```

For more information about the `ttStatsConfig` built-in procedure, see "ttStatsConfig" in the *Oracle TimesTen In-Memory Database Reference*.

### Read workload

**Figure 6–9 Read Workload region**



The read workload region uses a line graph to show the number of table rows read per minute.

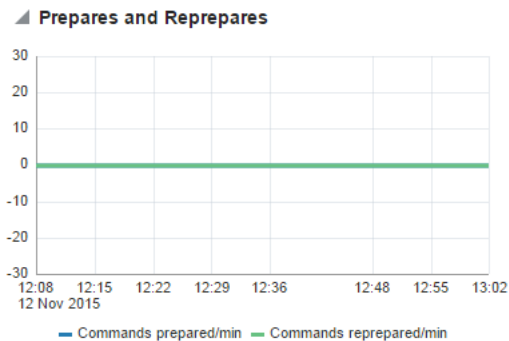
The read workload region is populated when the TimesTen database is enabled to collect all database and operating system statistics. To enable TimesTen to collect all database and operating system statistics, execute the `ttStatsConfig` built-in procedure with the `StatsLevel` parameter set to `ALL`.

```
Command> call ttStatsConfig('StatsLevel','ALL');
< STATSLEVEL, ALL >
1 row found.
```

For more information about the `ttStatsConfig` built-in procedure, see "ttStatsConfig" in the *Oracle TimesTen In-Memory Database Reference*.

## Prepares and reprepares

**Figure 6–10 Prepares and reprepares**

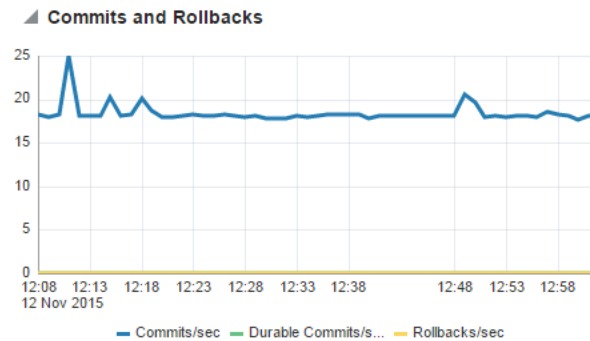


The prepares and reprepares region uses a line graph to show the number of commands prepared per minute and the number of commands reprepared per minute. If you see a high number of reprepared commands per minute, then this is an indication that there are invalidations occurring. This results in performance degradation.

In your applications, consider using bind variables and prepare your SQL statement once. You can then execute the SQL statement multiple times. If you do this, the number of commands prepared per minute should approach zero.

## Commits and rollbacks

**Figure 6–11** *Commits and rollbacks region*



The commits and rollbacks region uses a line graph to show the relationship between durably committed transactions, committed transactions, and rollbacks.

The X-Axis represents time. The Y-Axis represents the rate of transactions durably committed, non-durably committed, and rolled back per second.

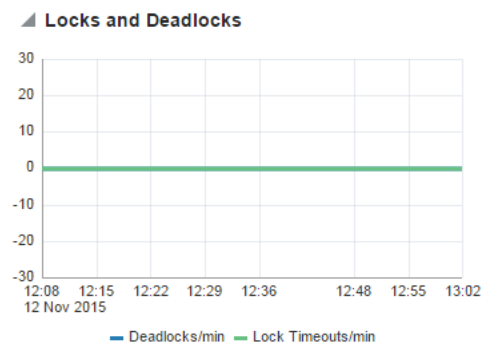
## Locks

The locks page shows information related to the performance of the locks and concurrent operations of your TimesTen database target. It contains three regions:

- [Locks and deadlocks](#)
- [Lock grants](#)
- [Percentage of acquired locks without wait](#)

### Locks and deadlocks

**Figure 6–12** *Locks and Deadlocks region*



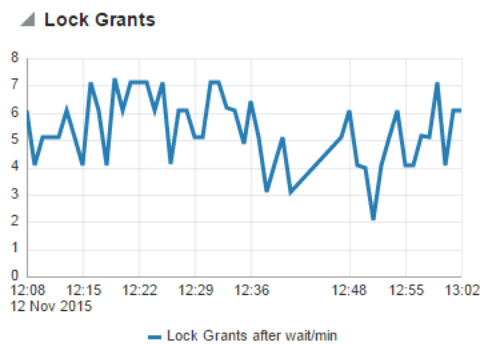
The locks and deadlocks region uses a line graph to show the rate of deadlocks per minute and the lock timeouts per minute.

The deadlock rate should be as low as possible. If you see a continued or growing rate of deadlocks, review the way in which your application acquires resources. If the deadlock rate is greater than zero, review the ["Working with the Transaction Monitor"](#) on page 7-1.

Lock timeouts per minute should be low. If the lock timeouts per minute is not low, then this is an indication there is contention for the same resource. To find out what is causing the lock timeouts, review the ["Working with the Transaction Monitor"](#) on page 7-1.

## Lock grants

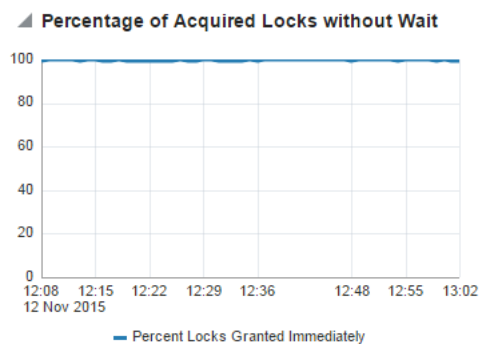
**Figure 6–13 Lock Grants region**



The lock grants region uses a line graph to show the lock grants after wait per minute. The rate of locks granted after wait should be low indicating that locks were acquired on time. Ideally, the rate should be 0.

## Percentage of acquired locks without wait

**Figure 6–14 Percentage of Acquired Locks without Wait region**



The percent of acquired locks without wait uses a line graph to show the ratio of immediate grants per minute divided by the total rate of grants per minute. This percentage should be close to 100% indicating that locks are acquired without wait. This graph is a good measure of lock contention and concurrency in your TimesTen target.

## Transaction Logs

The transaction logs page displays information about log holds and the performance of log holds. The page is divided into two sub-tabs:

- [Log holds](#)
- [Log performance](#)

## Log holds

The log holds sub-tab provides a report of the logs that are being held for the different operations that run on your TimesTen database target. Such operations include transactions, checkpoints, and replication.

**Figure 6–15 Log Holds region**

Log Holds		Log Performance	
View ▼		Detach	
Log Hold Resource	Log File Number	Log File Offset	Type
master1.ds1	148	55597056	Checkpoint
master1.ds0	148	57780224	Checkpoint

The log holds table contains the same columns and values as the `ttLogHolds` built-in procedure. For more information about `ttLogHolds`, see "ttLogHolds" in the *Oracle TimesTen In-Memory Database Reference*. Use the table to monitor how well the operations that depend on the log buffer are doing.

If logs start to accumulate in the log holds table, review the operations that are not allowing the transaction log files to be purged.

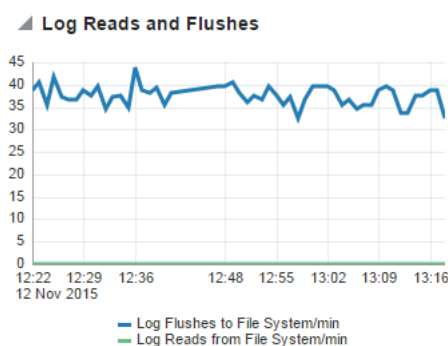
## Log performance

The log performance page enables you to review the performance of the log buffer. The log performance sub-tab is divided into two regions:

- [Log reads and log flushes](#)
- [Log buffer wait](#)

### Log reads and log flushes

**Figure 6–16 Log Reads and Log Flushes region**

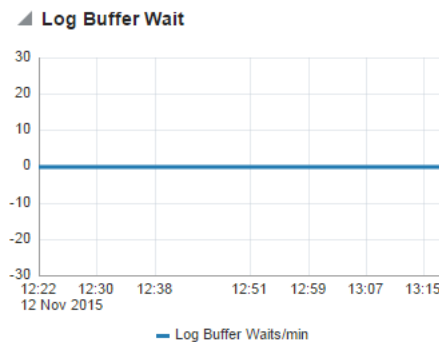


The log reads and log flushes region uses a line graph to show the log reads from the file system per minute and the log flushes to the file system per minute. Both the log reads and the log flushes should be low. A non zero rate of log reads from the file system results in poor response time. Ideally, all log records are read from memory (the log buffer) rather than from disk because reading log records from memory is significantly faster.

A high rate of log flushes to the file system may indicate either the need for a larger log buffer or that operations such as checkpoints, replication or XLA are not performing quickly, resulting in the log buffer being persisted to disk.

## Log buffer wait

**Figure 6–17 Log Buffer Wait region**



The log buffer waits per minute region helps you review how the operations that use the log files are doing. The values should be 0. A nonzero value indicates that transactions needed to wait before writing to the log buffer.

## Checkpoints

**Figure 6–18 Checkpoints table**

View ▼		Detach							
Identifiers	Type	Initiator	Start Time ▼	End Time	Dirty Blocks	Database file number	Checkpoint Volume(MB)	Rate (MB/sec)	Status
6412	Fuzzy	Checkpoint	Novemb...	Novem...	14	0	19.52	0.033	Completed
6413	Fuzzy	Checkpoint	Novemb...	Novem...	14	1	19.52	0.033	Completed
6414	Fuzzy	Checkpoint	Novemb...	Novem...	14	0	19.52	0.033	Completed
6415	Fuzzy	Checkpoint	Novemb...	Novem...	14	1	19.52	0.033	Completed
6416	Fuzzy	Checkpoint	Novemb...	Novem...	14	0	19.52	0.033	Completed
6417	Fuzzy	Checkpoint	Novemb...	Novem...	14	1	19.52	0.033	Completed
6418	Fuzzy	Checkpoint	Novemb...	Novem...	14	0	19.52	0.033	Completed
6419	Fuzzy	Checkpoint	Novemb...	Novem...	14	1	19.52	0.033	Completed
6420	Fuzzy	Checkpoint	Novemb...	Novem...	14	0	19.52	0.033	Completed

The checkpoints table shows the checkpoint history for the last 24 hours. Identifiers is a unique numeric identifier for the checkpoint. Identifiers increase monotonically during the lifetime of the database. If you destroy the database, the identifiers are reset. If you destroy the database, but keep the target in Enterprise Manager, you may see a mixture of checkpoints from the both the destroyed and the new database. The new database identifiers are likely to be small and are at the bottom of the table. If you want to see the new database identifiers at the top of the table, sort by Start Time.

Valid values for Type are static, blocking, fuzzy, or none. Valid values for initiator are user, checkpoint, or subdaemon. For the Dirty Blocks column, the values are the number of dirty blocks written. These are blocks that were modified since the last checkpoint. For the Rates column, the value is the volume written per second (in Megabytes). Valid values for the Status column is Progress, Completed, or Failed.



The TimesTen plug-in polls the TimesTen database target every 10 minutes and checks the latest eight checkpoints. If there are more than eight checkpoints in a 10 minute interval, only the last eight checkpoints are displayed. You can sort checkpoints by start time by clicking on the column header.



---

## Working with the Transaction Monitor

This chapter describes the TimesTen transaction monitor page. The transaction monitor page displays a snapshot of the current transactions in your TimesTen database and describes details about your transactions.

Topics include:

- [Viewing the transaction monitor page](#)
- [Analyzing information on the transaction monitor page](#)

### Viewing the transaction monitor page

Before using the transaction monitor, ensure that preferred credentials are set for your TimesTen database target. For more information about setting preferred credentials, see ["Setting preferred credentials for a target"](#) on page 1-35.

To view the transaction monitor page, ensure that you are on the TimesTen database target page. For information on navigating to the TimesTen database target page, see ["Navigating to the TimesTen target page"](#) on page 2-1.

From the **TimesTen Database Home** menu, select **Monitoring**, then select **Transaction Monitor**.

### Analyzing information on the transaction monitor page

The transaction monitor displays a snapshot of the current transactions in your TimesTen database and describes details about your transactions. Use the transaction monitor to review how your transactions are processed. If your application is running slow, there may be an issue with how the transactions in the application are acquiring locks. If a lock is not released or is taking too long to be released, application responsiveness is degraded. The transaction monitor can help you identify transactions that are taking too long to be processed.

---

**Note:** Enterprise Manager enables you to set the display frequency and auto refresh rate of data on the transaction monitor page. For more information, see ["Setting the display time period and auto refresh rate of data on a target page"](#) on page 2-5.

---

The transaction monitor page is divided into two tabs:

- [Outstanding locks](#)
- [Awaiting locks](#)

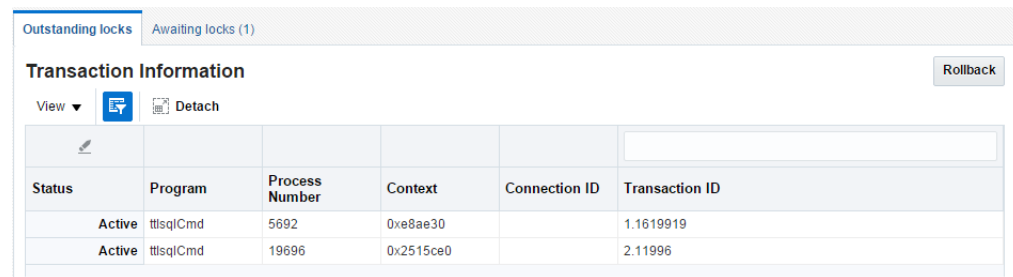
## Outstanding locks

The outstanding locks tab enables you to view information about outstanding locks in your database. It is divided into two regions:

- [Transaction information](#)
- [Lock detail for transaction](#)

### Transaction information

**Figure 7–1** *Transaction Information region*

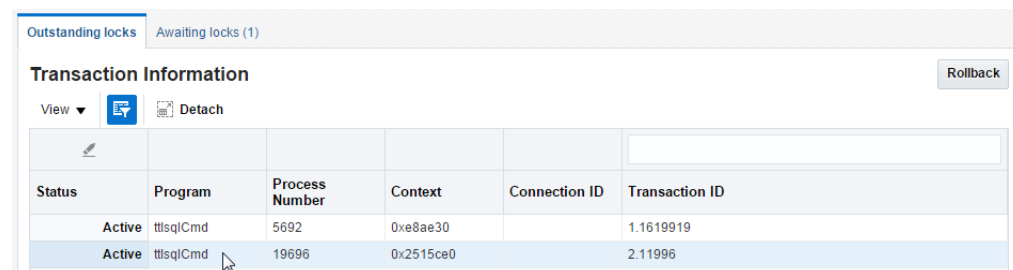


Status	Program	Process Number	Context	Connection ID	Transaction ID
Active	ttlsqCmd	5692	0xe8ae30		1.1619919
Active	ttlsqCmd	19696	0x2515ce0		2.11996

The transaction information region displays the current transactions that are holding locks in your database in a table format. You can click the column header to sort the table based on the column.

Click a transaction to review detailed information about the transaction and the locks associated with the transaction.

**Figure 7–2** *Select a transaction*



Status	Program	Process Number	Context	Connection ID	Transaction ID
Active	ttlsqCmd	5692	0xe8ae30		1.1619919
Active	ttlsqCmd	19696	0x2515ce0		2.11996

The lock information for your selected transaction displays in the lock detail for transaction region. For more information on the lock detail for transaction region, see ["Lock detail for transaction"](#) on page 7-3.

To rollback a transaction, select the transaction and click the **Rollback** button that is located above the transaction information table.

**Figure 7–3 Rollback a transaction**

Transaction Information

View Detach

Status	Program	Process Number	Context	Connection ID	Transaction ID
Active	ttlsqCmd	5692	0xe8ae30		1.1619919
Active	ttlsqCmd	19696	0x2515ce0		2.11996

Rollback

A confirmation dialog appears where you need to confirm the rollback operation.

## Lock detail for transaction

**Figure 7–4 Lock details**

Lock Detail for Transaction

View Detach

Lock Mode	Resource ID	Resource	On Table	SQL Text	Process Number
IXn	1798032	Table	APPUSER.T1	update appuser.t1 set c1=3 where c1=1	19696
S	43496344	Command		update appuser.t1 set c1=3 where c1=1	19696

The lock details region displays information about the locks of a selected transaction.

The number of locks in the lock details region should be low. If you see many locks, review the way your application is acquiring locks.

For more information about locks and transactions, see "ttXactAdmin" in the *Oracle TimesTen In-Memory Database Reference*.

## Awaiting locks

**Figure 7–5 Awaiting locks**

Awaiting locks (1)

View Detach

Resource	Resource ID	On Table	Process Number	Context	Transaction ID	Mode	SQL Text	Holder Transaction ID
Row	BMUFVUAAA...	APPUSER.T1	19696	0x2515ce0	2.11996	Un	update appuser.t1 set c1=3 where c1=1	1.1619919

The awaiting locks region displays transactions that are competing for the same lock resources.

The number of locks in the awaiting locks region should be low. Locks that are awaiting events such as user input do not show in the table. If you see a transaction that does not clear after running the transaction monitor multiple times, review the lock. You may need to force a commit or a rollback on the transaction.

For more information about locks and transactions, see "ttXactAdmin" in the *Oracle TimesTen In-Memory Database Reference*.



---

## Working with the Client/Server Page

This chapter describes the TimesTen database client/server page. The TimesTen database client/server page conveys performance information about your TimesTen client/server connection.

Topics include:

- [Viewing the client/server page](#)
- [Analyzing information on the TimesTen client/server page](#)

### Viewing the client/server page

To view the client/server summary page, ensure that you are on the TimesTen database target page. For information on navigating to the TimesTen database target page, see ["Navigating to the TimesTen target page"](#) on page 2-1.

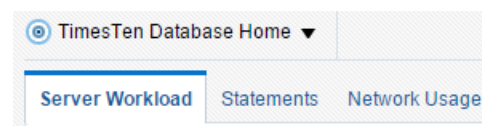
From the **TimesTen Database Home** menu, select **Monitoring**, then select **Client/Server Summary**.

The TimesTen database client/server summary page displays.

### Analyzing information on the TimesTen client/server page

[Figure 8-1](#) shows the three client/server specific tab that have been customized for your TimesTen database targets. Click a specific tab to view detailed client/server information.

**Figure 8-1** *Client/Server Summary tabs*



A description of each area follows:

- [Server Workload](#)
- [Statements](#)
- [Network usage](#)

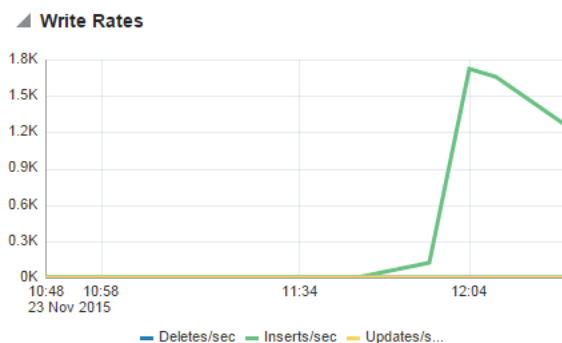
## Server Workload

The server workload tab enables you to view information about server workload. The server workload tab contains three graph regions:

- [Write rates](#)
- [Read rates](#)
- [Commits and rollbacks](#)

### Write rates

**Figure 8–2 Write Rates region**



The write rates region uses a line graph to show the rate of INSERT, UPDATE, and DELETE operations executed on rows per second on the TimesTen server.

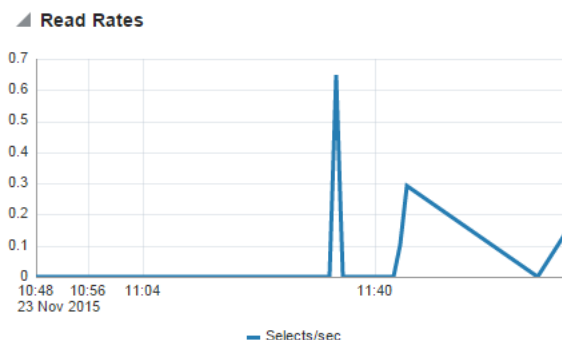
The write rates region is populated when the TimesTen database is enabled to collect all database and operating system statistics. To enable TimesTen to collect all database and operating system statistics, call the `ttStatsConfig` built-in procedure with the `StatsLevel` parameter set to `ALL`.

```
Command> call ttStatsConfig('StatsLevel','ALL');
< STATSLEVEL, ALL >
1 row found.
```

For more information about the `ttStatsConfig` built-in procedure, see "ttStatsConfig" in the *Oracle TimesTen In-Memory Database Reference*.

### Read rates

**Figure 8–3 Read Rates region**





The read rates region uses a line graph to show the rate of `SELECT` operations executed on rows per second on the TimesTen server.

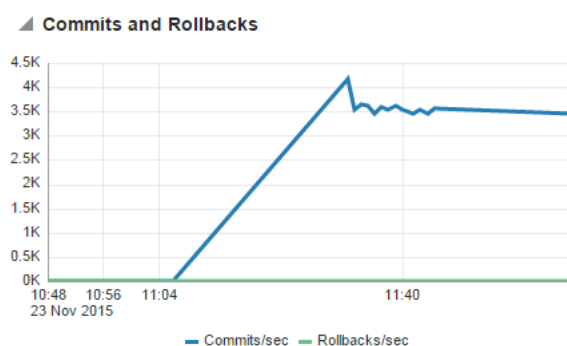
The read rates region is populated when the TimesTen database is enabled to collect all database and operating system statistics. To enable TimesTen to collect all database and operating system statistics, execute the `ttStatsConfig` built-in procedure with the `StatsLevel` parameter set to `ALL`.

```
Command> call ttStatsConfig('StatsLevel','ALL');
< STATSLEVEL, ALL >
1 row found.
```

For more information about the `ttStatsConfig` built-in procedure, see "`ttStatsConfig`" in the *Oracle TimesTen In-Memory Database Reference*.

## Commits and rollbacks

**Figure 8–4 Commits and Rollbacks region**



The commits and rollbacks region uses a line graph to show the rate of `COMMIT` and `ROLLBACK` statements executed per second on the TimesTen server.

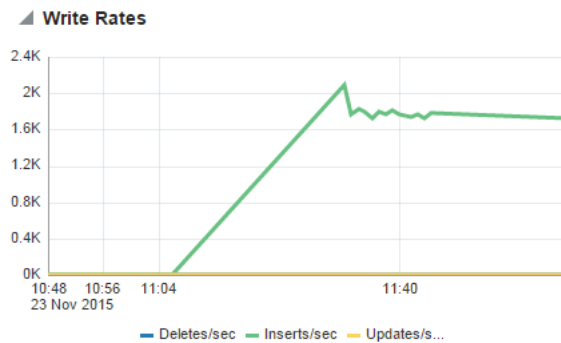
## Statements

The statements tab enables you to view information about the read and write rates of your SQL statements. The statements tab contains two graph regions:

- [Write rates](#)
- [Read rates](#)

## Write rates

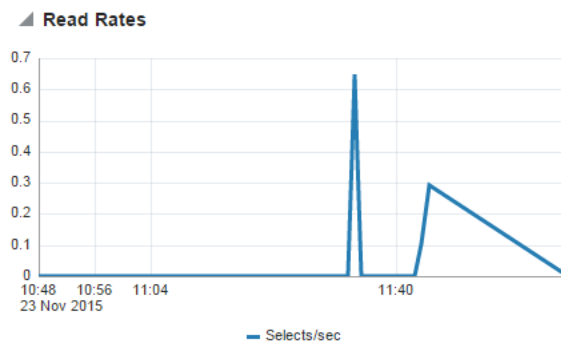
**Figure 8–5 Write Rates region**



The write rates region uses a line graph to show the rate of `INSERT`, `UPDATE`, and `DELETE` operations executed per second on the TimesTen server.

## Read rates

**Figure 8–6 Read Rates region**



The read rates region uses a line graph to show the rate of `SELECT` operations executed per second on the TimesTen server.

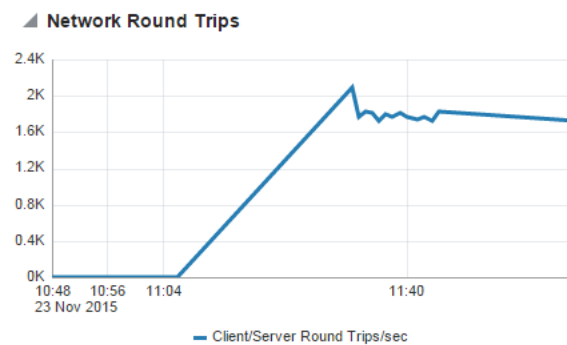
## Network usage

The network usage tab enables you to view information about client/server network usage. The network usage tab contains two graph regions:

- [Network round trips](#)
- [Bytes sent and received](#)

## Network round trips

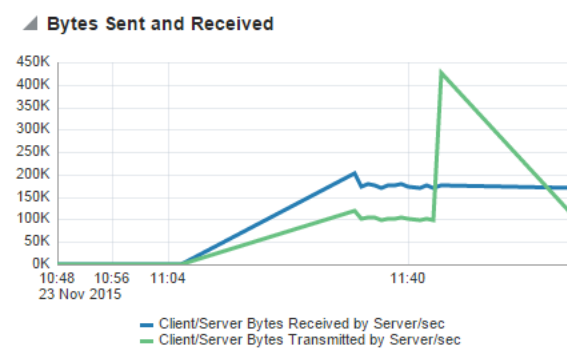
**Figure 8–7 Network Round Trips region**



The network round trips region uses a line graph to show the client/server round trips per second.

## Bytes sent and received

**Figure 8–8 Bytes Sent and Received region**



The bytes sent and received region uses a line graph to show the number of bytes sent and received by the TimesTen server per second.



---

## Working with the Instance Control Menu

This chapter describes the TimesTen instance control menu. The instance control menu displays options to control various aspects of your TimesTen instance targets.

Topics include:

- [Viewing the instance control menu](#)

### Viewing the instance control menu

To view the instance control menu, ensure that you are on the TimesTen instance target page. For information on navigating to the TimesTen instance target page, see ["Navigating to the TimesTen target page"](#) on page 2-1.

From the **TimesTen Instance Home** menu, select **Control**.

The TimesTen instance control menu displays. Click a specific option to view TimesTen instance controls. A description of each option follows:

- [Start/stop services](#)
- [Create blackout](#)
- [End blackout/brownout](#)

### Start/stop services

The start/stop services page enables you to start and stop the TimesTen daemon and TimesTen server services. This page also displays statistics of TimesTen databases that are part of your current TimesTen instance. The start/stop services page contains two regions:

---

**Note:** In order to start and stop the TimesTen daemon of a TimesTen instance, you must set preferred credentials for your TimesTen instance target. For more information, see ["Setting preferred credentials for a target"](#) on page 1-35.

---

- [Service](#)
- [Database](#)

# Service

Figure 9–1 Service region

TimesTen Instance Home ▾

View ▾ ▶ Start ■ Stop Detach

Service	Status	Process ID	Port
Daemon	Up	8388	53396
Server	Up	8400	53397

The service region enables you to start and stop the TimesTen daemon and TimesTen server services. You can select a row and then click Start or Stop to control the TimesTen services. If you stop the TimesTen daemon and a TimesTen database is loaded into memory, Enterprise manager displays a dialog that recommends that you close all connections to your TimesTen database and unload the database from memory. This dialog enables you to filter the Database region to only view the TimesTen databases with active connections and that are loaded into memory.

The services region enables you to perform similar control operations as the `ttDaemonAdmin` utility. The Status, Process ID, and Port columns are populated with information from the `ttStatus` utility. For more information about the utilities, see "ttDaemonAdmin" and "ttStatus" in the *Oracle TimesTen In-Memory Database Reference*.

The port column of the Service table shows you the ports on which the TimesTen daemon and TimesTen server listen. If these ports conflict with another application, consider changing the TimesTen ports with the `ttInstanceModify` utility. For more information on the `ttInstanceModify` utility, see "ttInstanceModify" in the *Oracle TimesTen In-Memory Database Reference*.

# Database

Figure 9–2 Database region

View ▾ Details Detach

Database	Total Connections	Client Server Connections	RAM Status
sampledb_1122	11	0	Loaded

The database region displays statistics of TimesTen databases that are part of your current TimesTen instance. The database table is populated with information from the `ttStatus` utility. You can select a row in the table and then click the Details button to view all the connections to the selected TimesTen database. For more information about the `ttStatus` utility, see "ttStatus" in the *Oracle TimesTen In-Memory Database Reference*.

# Create blackout

Create a blackout to suspend all data collection activity on a target that is monitored by Enterprise Manager. Consider creating a blackout to perform maintenance on a TimesTen instance target. For more information on creating a blackout, see "Creating a Blackout" in the *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

## Create brownout

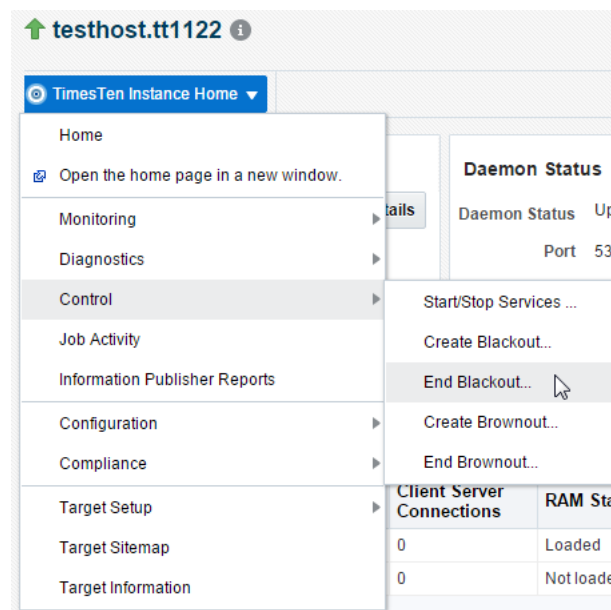
Create a brownout to suppress the notifications on a target that is monitored by Enterprise Manager. The Agent continues to monitor the target under brownout and the OMS will show the actual target status along with an indication that the target is currently under brownout. Events will be generated as usual during a brownout. Only the event notifications are suppressed.

## End blackout/brownout

Blackouts and brownouts end automatically after the set duration expires. In some cases you may want to end a blackout or brownout before the blackout duration expires. To end a blackout or brownout, ensure that you are on the TimesTen instance target page and that a blackout is active for your TimesTen instance target. For information on navigating to the TimesTen instance target page, see ["Navigating to the TimesTen target page"](#) on page 2-1.

1. From the **TimesTen Instance Home** menu, select **Control**, then select **End Blackout** or **End Brownout**.

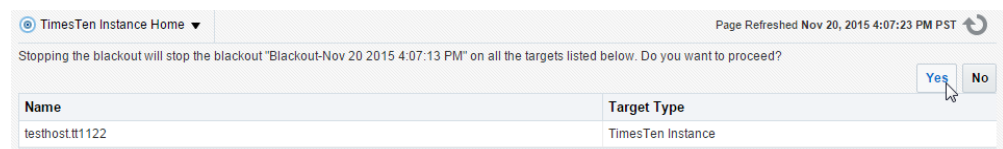
**Figure 9–3 Select End Blackout or End Brownout**



The Blackouts confirmation page displays. Locate the Yes button.

2. Click Yes.

**Figure 9–4 Click Yes**



The information dialog displays with text saying that the blackout or brownout successfully ended.

You have successfully ended the blackout or brownout of your TimesTen instance target. Enterprise Manager can take several minutes to resume data collection activities on your TimesTen instance target.



## Working with the Database Control Menu

This chapter describes the TimesTen database control menu. The database control menu displays options to control various aspects of your TimesTen database targets.

Topics include:

- [Viewing the database control menu](#)

### Viewing the database control menu

To view the database control menu, ensure that you are on the TimesTen database target page. For information on navigating to the TimesTen database target page, see ["Navigating to the TimesTen target page"](#) on page 2-1.


From the **TimesTen Database Home** menu, select **Control**.

The TimesTen database control menu displays. Click a specific option to view TimesTen database controls. A description of each option follows:

- [Start/stop agents](#)
- [Ram load/unload and policy settings](#)
- [Create blackout](#)
- [End blackout/brownout](#)

### Start/stop agents

**Figure 10–1 Start/Stop Agents page**

View ▼	▶ Start	■ Stop	 Detach
Service		Status	
Cache Agent		Up	
Replication Agent		Up	

The start/stop agents page enables you to start and stop the TimesTen replication and TimesTen cache agents. You can select a row and then click Start or Stop to control the TimesTen agents.

The start/stop agents page calls these built-in procedures to control the TimesTen agents:

- `ttCacheStart` - This built-in procedure starts the TimesTen cache agent. For more information, see *"ttCacheStart"* in the *Oracle TimesTen In-Memory Database Reference*.

- `ttCacheStop` - This built-in procedure stops the TimesTen cache agent. For more information, see "ttCacheStop" in the *Oracle TimesTen In-Memory Database Reference*.
- `ttRepStart` - This built-in procedure starts the TimesTen replication agent. For more information, see "ttRepStart" in the *Oracle TimesTen In-Memory Database Reference*.
- `ttRepStop` - This built-in procedure stops the TimesTen replication agent. For more information, see "ttRepStop" in the *Oracle TimesTen In-Memory Database Reference*.

## Ram load/unload and policy settings

The Ram load/unload and policy settings page enables you to load and unload the TimesTen database from memory and change the RAM policy of the TimesTen database. This page contains two regions:

- [Load/unload RAM](#)
- [RAM policy configuration](#)

### Load/unload RAM

**Figure 10–2 Load/Unload RAM region**

**Load/Unload RAM**

Load Status: Loaded [Load] [Unload]

**Current Connections**

View [Icon] Detach [Icon]

Name	Type	Process ID	Connection ID	Context
Manager	Subdaemon	8395	142	0x00000000139a370
Rollback	Subdaemon	8395	141	0x0000000013f1880
IndexGC	Subdaemon	8395	135	0x00007f0f580008c0
Log Marker	Subdaemon	8395	137	0x00007f0f600008c0
Monitor	Subdaemon	8395	136	0x00007f0f640008c0

The load/unload RAM region enables you to load and unload the TimesTen database from memory. You can also review the load status of the TimesTen database and current connections to your TimesTen database. The load and unload options are only available if your database RAM residence policy is set to Manual. You can click the Load button to load the database into memory. You can click the Unload button to unload the database from memory. Before unloading the TimesTen database from memory, ensure that all applications are disconnected from your TimesTen database. Also, ensure that you stop the cache and replication agents. For more information on stopping the cache and replication agents, see ["Start/stop agents"](#) on page 10-1.

The load/unload RAM region runs the `ttAdmin` utility to load and unload the database from memory. For more information, see "ttAdmin" in the *Oracle TimesTen In-Memory Database Reference*.

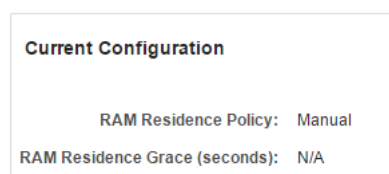
## RAM policy configuration

The RAM policy configuration region enables you to view your current RAM residence policy and change the RAM policy of your TimesTen database. The RAM policy configuration contains two sub-regions:

- [Current configuration](#)
- [Change RAM policy](#)

### Current configuration

**Figure 10–3** *Current Configuration sub-region*



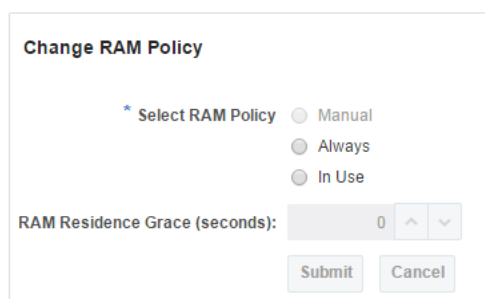
The screenshot shows a panel titled "Current Configuration". Inside, it displays two settings: "RAM Residence Policy: Manual" and "RAM Residence Grace (seconds): N/A".

The current configuration sub-region displays the current RAM residence policy and the RAM residence grace period.

The current configuration sub-region runs the `ttAdmin` utility to display the current RAM configuration of your database. For more information, see "ttAdmin" in the *Oracle TimesTen In-Memory Database Reference*.

### Change RAM policy

**Figure 10–4** *Change RAM policy sub-region*



The screenshot shows a panel titled "Change RAM Policy". It contains a section labeled "\* Select RAM Policy" with three radio buttons: "Manual" (selected), "Always", and "In Use". Below this is a text field for "RAM Residence Grace (seconds):" with the value "0" and up/down arrow buttons. At the bottom are "Submit" and "Cancel" buttons.

The change RAM policy sub-region enables you to modify the RAM policy of your TimesTen database. If you set the RAM policy as In Use, you can also set a RAM residence grace period.

The change RAM policy sub-region runs the `ttAdmin` utility to change the RAM policy and set RAM residence grace period. For more information on the `ttAdmin` utility and the RAM policy settings, see "ttAdmin" in the *Oracle TimesTen In-Memory Database Reference*.

## Create blackout

Create a blackout to suspend all data collection activity on a target that is monitored by Enterprise Manager. Consider creating a blackout to perform maintenance on a TimesTen instance target. For more information on creating a blackout, see "Creating a Blackout" in the *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

# Create brownout

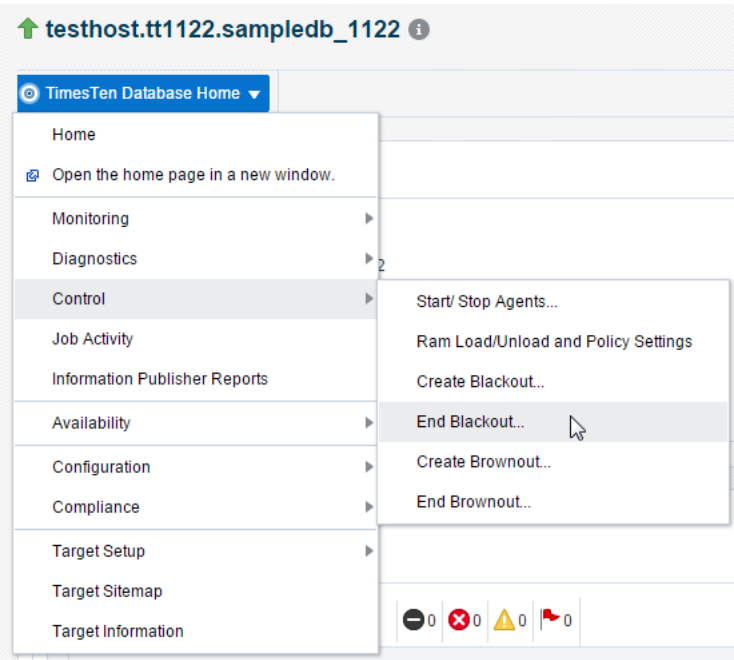
Create a brownout to suppress the notifications on a target that is monitored by Enterprise Manager. The Agent continues to monitor the target under brownout and the OMS will show the actual target status along with an indication that the target is currently under brownout. Events will be generated as usual during a brownout. Only the event notifications are suppressed.

# End blackout/brownout

Blackouts and brownouts end automatically after the set duration expires. In some cases you may want to end a blackout or brownout before the blackout duration expires. To end a blackout or brownout, ensure that you are on the TimesTen database target page and that a blackout is active for your TimesTen database target. For information on navigating to the TimesTen database target page, see ["Navigating to the TimesTen database target page"](#) on page 2-1.

1. From the **TimesTen Database Home** menu, select **Control**, then select **End Blackout** or **End Brownout**.

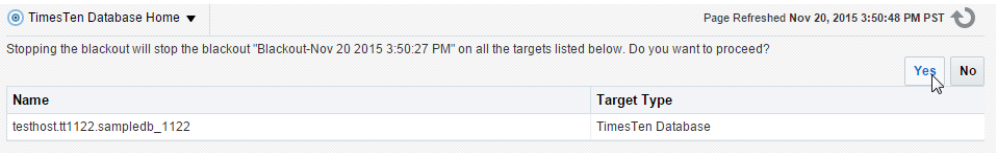
Figure 10–5 Select End Blackout



The Blackouts confirmation page displays. Locate the Yes button.

2. Click Yes.

Figure 10–6 Click Yes



The information dialog displays with text saying that the blackout or brownout successfully ended.

You have successfully ended the blackout or brownout of your TimesTen database target. Enterprise Manager can take several minutes to resume data collection activities on your TimesTen database target.



---

## Working with the Backup and Restore Page

This chapter describes the TimesTen database Backup and Restore page. The TimesTen database backup and restore page enables you to schedule database backups, restore from available backups, and view recovery history.

Topics include:

- [Viewing the backup and restore page](#)
- [Analyzing information on the TimesTen backup and restore page](#)

### Viewing the backup and restore page

Before using database backup and restore, ensure that preferred credentials are set for your TimesTen database target. For more information about setting preferred credentials, see ["Setting preferred credentials for a target"](#) on page 1-35.

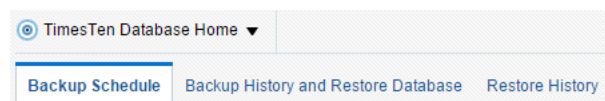
To view the backup and restore page, ensure that you are on the TimesTen database target page. For information on navigating to the TimesTen database target page, see ["Navigating to the TimesTen target page"](#) on page 2-1.

From the **TimesTen Database Home** menu, select **Availability**, then select **Backup and Restore**.

### Analyzing information on the TimesTen backup and restore page

[Figure 11-1](#) shows the three backup and restore specific areas that have been customized for your TimesTen database targets. Click a specific tab to view detailed information.

**Figure 11-1 Backup and Restore tabs**



A description of each area follows:

- [Backup schedule](#)
- [Backup history and restore database](#)
- [Restore history](#)

# Backup schedule

Figure 11–2 Backup Schedule tab

Backup Schedule

Backup History and Restore Database

Restore History

View

Create...

Activate/Deactivate...

Immediate...

✕ Delete...

Detach

Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Start Date	End Date	Schedule State	Transaction Log Files		Backup Files		Owner	Backup Completion State	
								Current Count	Maximum	Current Count	Maximum		Current State	Last Successful Backup
No data available.														

The backup schedule tab enables you to create, edit, and delete backup schedules for your TimesTen database. TimesTen calls the `ttBackup` utility to perform backups of your TimesTen database. For more information on the `ttBackup` utility, see "ttBackup" in the *Oracle TimesTen In-Memory Database Reference*.

You can perform these actions on the backup schedule tab:

- [Create a backup schedule](#)
- [Activate a backup schedule](#)
- [Deactivate a backup schedule](#)
- [Request an immediate backup](#)
- [Delete a backup schedule](#)

## Create a backup schedule

To create a backup schedule, ensure that you are on the Backup Schedule tab of the Backup and Restore page.

**Note:** The backup and restore functions for the TimesTen database in Enterprise Manager cannot backup and restore TimesTen databases with cache groups. For more information on backing up and restoring TimesTen databases with cache groups, see "Backing up and restoring a database with cache groups" in the *Oracle TimesTen Application-Tier Database Cache User's Guide*.

1. Click **Create**.

Figure 11–3 Click Create

Backup Schedule

Backup History and Restore Database

Restore History

View ▾

Create...

Activate/Deactivate...

Immediate...

✕ Delete...

📄 Detach

Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Start Date	End Date	Schedule State	Transaction Log Files		Backup Files		Owner	Backup State Completion	
								Current Count	Maximum	Current Count	Maximum		Current State	Last Successful Backup
No data available.														

The Create a Backup Schedule dialog displays. The first property is the Type of Backup.

2. Select a backup type from the **Type** options. These are the available backup types:



- **Incremental**

An incremental backup augments an existing incremental-enabled backup of the same database. An incremental backup moves the backup point of an existing backup forward in time by augmenting the backup with all of the transaction log files created since its last backup point.

- **Full**

A full backup saves the entire database. For full backups, you must have enough disk space available to hold both the existing backup and the new backup, until the new backup succeeds.

**Figure 11–4 Select a backup type**

The screenshot shows a dialog box titled "Create a Backup Schedule". It contains several fields and options for configuring a backup schedule. The "Backup Type" is set to "Incremental" (radio button selected). Other fields include "Backup Identifier", "Backup Directory", "Backup File Prefix", "Recurrence Interval" (set to "1 hr"), "Start Date" (Nov 19, 2015 2:43:51), "End Date" (Nov 16, 2025 2:43:51), and "Maximum Transaction Log Files" (set to 128). There are "OK" and "Cancel" buttons at the bottom right.

You are now ready to define your new backup schedule.

### Incremental

An incremental backup augments an existing incremental-enabled backup of the same database. An incremental backup moves the backup point of an existing backup forward in time by augmenting the backup with all of the transaction log files created since its last backup point.

An incremental backup typically completes much faster than a full backup, as it has less data to copy. The performance gain of incremental backups over full backups comes at the cost of increased disk usage and longer restoration times. Use incremental backups in concert with full backups to achieve a balance between backup time, disk usage, and restoration time.

Before defining a backup schedule, ensure that you have completed the steps up to step 2 from ["Create a backup schedule"](#) on page 11-2.

---

**Note:** For more information about TimesTen backup types, see "Types of backups" in the *Oracle TimesTen In-Memory Database Installation, Migration, and Upgrade Guide*.

---

1. In the \* **Backup Identifier** text field, type a meaningful backup schedule name. (For example, *hourly\_backup*.)
2. In the \* **Backup Directory** text field, type the directory where the backup files should be stored. Ensure that this directory exists.
3. In the **Backup File Prefix** text field, type a file prefix for the backup files in the backup directory. The Backup File Prefix field is optional. The default value for this option is the file name portion of the *DataStore* attribute of the database's ODBC definition. For more information about the *DataStore* attribute, see "DataStore" in the *Oracle TimesTen In-Memory Database Reference*.
4. From the \* **Recurrence Interval** drop-down list, select a recurrence for when TimesTen checks the maximum transaction log files criteria. If the maximum transaction log files criteria is met, TimesTen performs an incremental backup. The default value is 1 hour.
5. Click the calendar button to the right of the \* **Start Date** field, then select the start date and time for the backup schedule. The default value is the current date and time of the Enterprise Manager server.
6. Click the calendar button to the right of the \* **End Date** field, then select the end date for the backup schedule. The default value is 10 years after the current date of the Enterprise Manager server.
7. In the **Maximum Transaction Log Files** text field, type the number of transaction log files when an incremental backup is performed. TimesTen only performs the incremental backup if the maximum transaction log files criteria is met during a recurrence check. The default value is 128.
8. Click **OK**.

**Figure 11–5 Click OK**

The screenshot shows the 'Create a Backup Schedule' dialog box. The 'Backup Type' is set to 'Incremental'. The 'Backup Identifier' is 'hourly\_backup'. The 'Backup Directory' is '/backup'. The 'Backup File Prefix' is empty. The 'Recurrence Interval' is '1 hr'. The 'Start Date' is 'Nov 19, 2015 2:43:51'. The 'End Date' is 'Nov 16, 2025 2:43:51'. The 'Maximum Transaction Log Files' is '128'. The 'OK' button is highlighted with a mouse cursor.

The Create a Backup Schedule dialog closes and you are returned back to the Backup Schedule tab of the Backup and Restore page. Notice the backup schedule you created is auto-filled in the backup schedule table.

If you see a "No preferred credentials set" error message, set preferred credentials for your TimesTen database target and activate the backup schedule you created. Ensure that your backup schedule works by requesting an immediate backup. For more information, see ["Setting preferred credentials for a target"](#) on page 1-35, ["Activate a backup schedule"](#) on page 11-6, and ["Request an immediate backup"](#) on page 11-9.

You successfully created a TimesTen incremental backup schedule.

## Full

A full backup saves the entire database. For full backups, you must have enough disk space available to hold both the existing backup and the new backup, until the new backup succeeds.

---

**Note:** For more information about TimesTen backup types, see "Types of backups" in the *Oracle TimesTen In-Memory Database Installation, Migration, and Upgrade Guide*.

---

1. In the \* **Backup Identifier** text field, type a meaningful backup schedule name. (For example, *daily\_backup*.)
2. In the \* **Backup Directory** text field, type the directory where the backup files should be stored. Ensure that this directory exists.
3. In the **Backup File Prefix** text field, type a file prefix for the backup files in the backup directory. The Backup File Prefix field is optional. The default value for this option is the file name portion of the DataStore attribute of the database's ODBC definition. For more information about the DataStore attribute, see "DataStore" in the *Oracle TimesTen In-Memory Database Reference*.
4. From the \* **Recurrence Interval** drop-down list, select a recurrence for when TimesTen checks the maximum transaction log files criteria. If the maximum transaction log files criteria is met, TimesTen performs an incremental backup.
5. Click the calendar button to the right of the \* **Start Date** field, then select the start date and time for the backup schedule. The default value is the current date and time of the Enterprise Manager server.
6. Click the calendar button to the right of the \* **End Date** field, then select the end date for the backup schedule. The default value is 10 years after the current date of the Enterprise Manager server.
7. In the **Maximum Backup Files** text field, type the maximum number of full backup files that TimesTen can store at any given time. When the maximum backup files value is exceeded, TimesTen deletes the oldest backup file before creating a new backup file. The default value is 31.
8. Click **OK**.

Figure 11–6 Click OK

Create a Backup Schedule

Backup Type

☐ Incremental ☒ Full

Backup Identifier

daily\_backup

Backup Directory

/backup

Backup File Prefix

Recurrence Interval

Daily

Start Date

Nov 19, 2015 2:43:51

End Date

Nov 16, 2025 2:43:51

Maximum Backup Files

31

OK

Cancel

The Create a Backup Schedule dialog closes and you are returned back to the Backup Schedule tab of the Backup and Restore page. Notice the backup schedule you created is auto-filled in the backup schedule table.

If you see a "No preferred credentials set" error message, set preferred credentials for your TimesTen database target and activate the backup schedule you created. Ensure that your backup schedule works by requesting an immediate backup. For more information, see ["Setting preferred credentials for a target"](#) on page 1-35, ["Activate a backup schedule"](#) on page 11-6, and ["Request an immediate backup"](#) on page 11-9.

You successfully created a TimesTen full backup schedule.

Activate a backup schedule

When you create a backup schedule Enterprise Manager activates the backup schedule. An active backup schedule runs based on its configured schedule.

To activate a backup schedule, ensure that you are on the Backup Schedule tab of the Backup and Restore page:

- 1. In the Backup Schedule table, click in the row that identifies the **Backup Identifier** of your backup schedule. Ensure that the Schedule State is Inactive.

Figure 11–7 Select your backup schedule

Backup Schedule

Backup History and Restore Database

Restore History

View

Create...

Activate/Deactivate...

Immediate...

Delete...

Detach

Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Start Date	End Date	Schedule State	Transaction Log Files		Backup Files		Owner	Backup Completion State	
								Current Count	Maximum	Current Count	Maximum		Current State	Last Successful Backup
daily_...	Incre...	/backup	samp...	Daily	No...	N...	Inactive	128	N/A	N/A	N/A	SYS...	Pend...	
hourly...	Incre...	/backup	samp...	1 hr	No...	N...	Active	128	N/A	N/A	N/A	SYS...	Pend...	

## 2. Click **Activate/Deactivate**.

**Figure 11–8 Click Activate/Deactivate**

Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Start Date	End Date	Schedule State	Transaction Log Files		Backup Files		Owner	Backup Completion State	
								Current Count	Maximum	Current Count	Maximum		Current State	Last Successful Backup
daily...	Incre...	/backup	samp...	Daily	No...	N...	Inactive	128	N/A	N/A	N/A	SYS...	Pend...	
hourly...	Incre...	/backup	samp...	1 hr	No...	N...	Active	128	N/A	N/A	N/A	SYS...	Pend...	

The Activate/Deactivate Backup Schedule dialog displays. Locate the Activate button.

## 3. Click **Activate**.

**Figure 11–9 Click Activate**

**Activate/Deactivate Backup Schedule**

Backup Identifier: daily\_backup

Backup Type: Incremental

Backup Directory: /backup

Backup File Prefix: sampled\_b\_1122

Recurrence Interval: Daily

Start Date: Nov 19, 2015 2:30:09 PM

End Date: Nov 16, 2025 2:30:09 PM

Schedule State: Inactive

Owner: SYSMAN

**Activate** Deactivate Cancel

The Activate/Deactivate Backup Schedule dialog closes and the Backup Schedule tab of the Backup and Restore page refreshes. Notice that the Schedule State of your Backup Identifier is now Active.

You have successfully activated your backup schedule.

## Deactivate a backup schedule

To deactivate a backup schedule, ensure that you are on the Backup Schedule tab of the Backup and Restore page:

1. In the Backup Schedule table, click in the row that identifies the **Backup Identifier** of your backup schedule. Ensure that the Schedule State is Active.

**Figure 11–10 Select your backup schedule**

Backup Schedule

Backup History and Restore Database

Restore History

View

Create...

Activate/Deactivate...

Immediate...

Delete...

Detach

Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Start Date	End Date	Schedule State	Transaction Log Files		Backup Files		Owner	Backup State		Completion State
								Current Count	Maximum	Current Count	Maximum		Current State	Last Successful Backup	
hourly...	Incre...	/backup	samp...	1 hr	No...	N...	Active		128	N/A	N/A	SYS...	Pend...		
daily...	Incre...	/backup	samp...	Daily	No...	N...	Active		128	N/A	N/A	SYS...	Pend...		

- Click **Activate/Deactivate**.

**Figure 11–11 Click Activate/Deactivate**

Backup Schedule

Backup History and Restore Database

Restore History

View

Create...

Activate/Deactivate...

Immediate...

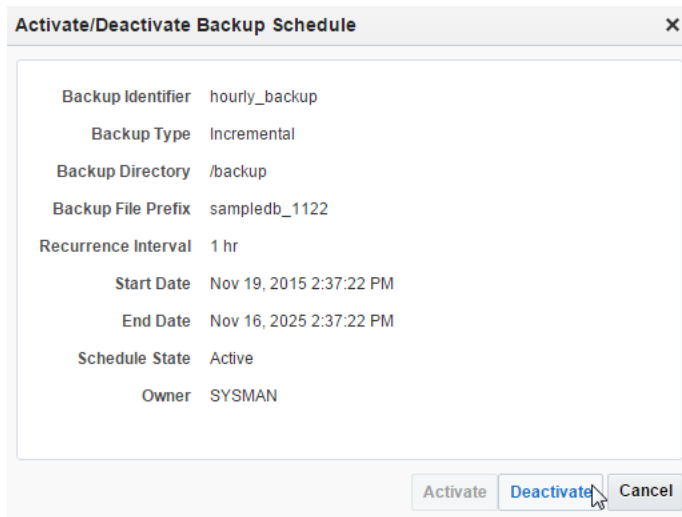
Delete...

Detach

Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Start Date	End Date	Schedule State	Transaction Log Files		Backup Files		Owner	Backup Completion State	
								Current Count	Maximum	Current Count	Maximum		Current State	Last Successful Backup
hourly...	Incre...	/backup	samp...	1 hr	No...	N...	Active		128	N/A	N/A	SYS...	Pend...	
daily...	Incre...	/backup	samp...	Daily	No...	N...	Active		128	N/A	N/A	SYS...	Pend...	

The Activate/Deactivate Backup Schedule dialog displays. Locate the Deactivate button.

- Click **Deactivate**.

**Figure 11–12 Click Deactivate**


**Activate/Deactivate Backup Schedule**

Backup Identifier: hourly\_backup

Backup Type: Incremental

Backup Directory: /backup

Backup File Prefix: sampled\_b\_1122

Recurrence Interval: 1 hr

Start Date: Nov 19, 2015 2:37:22 PM

End Date: Nov 16, 2025 2:37:22 PM

Schedule State: Active

Owner: SYSMAN

The Activate/Deactivate Backup Schedule dialog closes and the Backup Schedule tab of the Backup and Restore page refreshes. Notice that the Schedule State of your Backup Identifier is now Inactive.

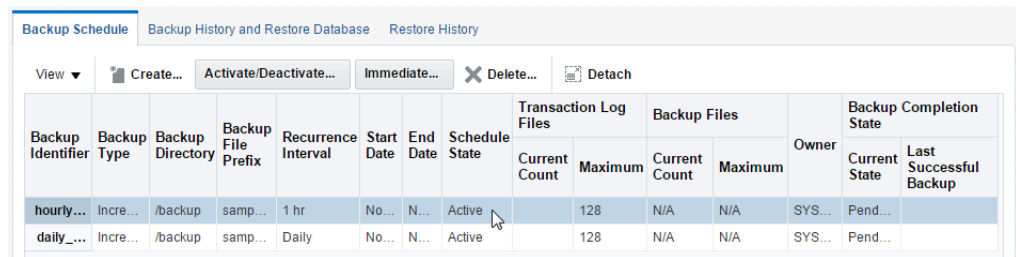
You have successfully deactivated your backup schedule.

## Request an immediate backup

To request an immediate backup, ensure that you are on the Backup Schedule tab of the Backup and Restore page:

1. In the Backup Schedule table, click in the row that identifies the **Backup Identifier** of your backup schedule. Ensure that the Schedule State is Active.

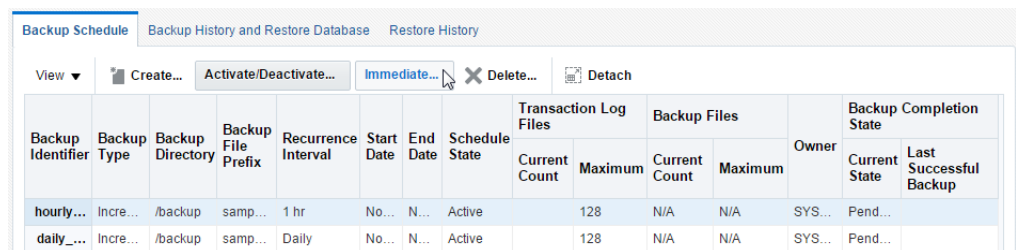
**Figure 11–13 Select your backup schedule**



Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Start Date	End Date	Schedule State	Transaction Log Files		Backup Files		Owner	Backup Completion State	
								Current Count	Maximum	Current Count	Maximum		Current State	Last Successful Backup
hourly...	Incre...	/backup	samp...	1 hr	No...	N...	Active	128	N/A	N/A	N/A	SYS...	Pend...	
daily...	Incre...	/backup	samp...	Daily	No...	N...	Active	128	N/A	N/A	N/A	SYS...	Pend...	

2. Click **Immediate**.

**Figure 11–14 Click Immediate**

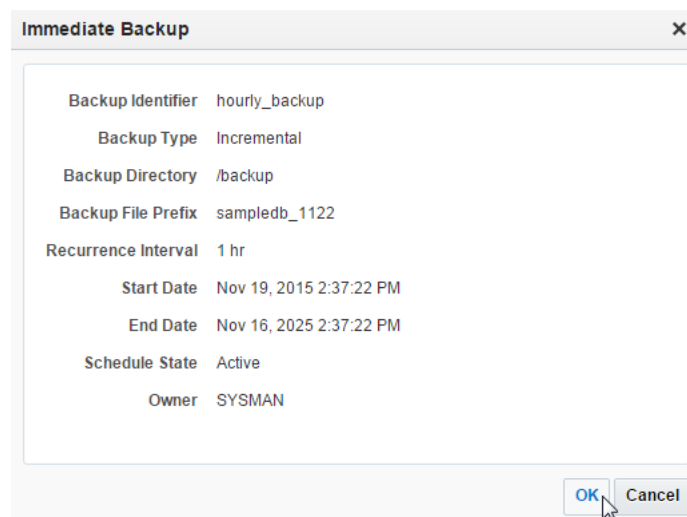


Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Start Date	End Date	Schedule State	Transaction Log Files		Backup Files		Owner	Backup Completion State	
								Current Count	Maximum	Current Count	Maximum		Current State	Last Successful Backup
hourly...	Incre...	/backup	samp...	1 hr	No...	N...	Active	128	N/A	N/A	N/A	SYS...	Pend...	
daily...	Incre...	/backup	samp...	Daily	No...	N...	Active	128	N/A	N/A	N/A	SYS...	Pend...	

The Immediate Backup dialog displays. Locate the OK button.

3. Click **OK**.

**Figure 11–15 Click OK**



**Immediate Backup**

Backup Identifier: hourly\_backup

Backup Type: Incremental

Backup Directory: /backup

Backup File Prefix: sampledb\_1122

Recurrence Interval: 1 hr

Start Date: Nov 19, 2015 2:37:22 PM

End Date: Nov 16, 2025 2:37:22 PM

Schedule State: Active

Owner: SYSMAN

**OK** **Cancel**

The Immediate Backup dialog closes. TimesTen runs the ttBackup utility to complete your backup request. The backup time varies depending on the size of

your database. Review the Backup History tab to see the status of your TimesTen backup. For more information on the Backup History tab, see ["Backup history and restore database"](#) on page 11-11. For more information on the `ttBackup` utility, see `"ttBackup"` in the *Oracle TimesTen In-Memory Database Reference*.

You have successfully requested an immediate TimesTen backup.

## Delete a backup schedule

To delete a backup schedule, ensure that you are on the Backup Schedule tab of the Backup and Restore page:

1. In the Backup Schedule table, click in the row that identifies the **Backup Identifier** of your backup schedule.

**Figure 11-16 Select your backup schedule**

Backup Schedule

Backup History and Restore Database

Restore History

View

Create...

Activate/Deactivate...

Immediate...

Delete...




Detach

Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Start Date	End Date	Schedule State	Transaction Log Files		Backup Files		Owner	Backup Completion State	
								Current Count	Maximum	Current Count	Maximum		Current State	Last Successful Backup
hourly...	Incr...	/backup	samp...	1 hr	No...	N...	Active		128	N/A	N/A	SYS...	Pend...	
daily...	Incr...	/backup	samp...	Daily	No...	N...	Active		128	N/A	N/A	SYS...	Pend...	

2. Click **Delete**.

**Figure 11-17 Click Delete**

Backup Schedule   Backup History and Restore Database   Restore History

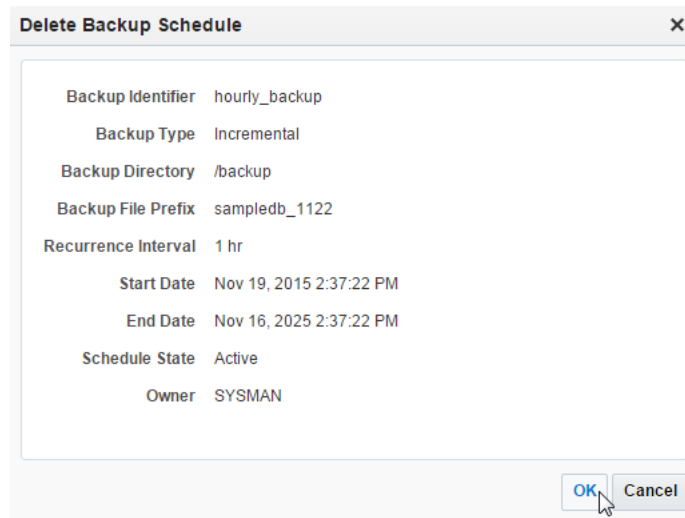
View ▾    Create...   Activate/Deactivate...   Immediate...    Delete...    Detach

Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Start Date	End Date	Schedule State	Transaction Log Files		Backup Files		Owner	Backup Completion State	
								Current Count	Maximum	Current Count	Maximum		Current State	Last Successful Backup
hourly...	Incr...	/backup	samp...	1 hr	No...	N...	Active		128	N/A	N/A	SYS...	Pend...	
daily...	Incr...	/backup	samp...	Daily	No...	N...	Active		128	N/A	N/A	SYS...	Pend...	

The Delete Backup Schedule dialog displays. Locate the OK button.

3. Click **OK**.



**Figure 11–18 Click OK**

The Delete Backup Schedule dialog closes and the Backup Schedule tab of the Backup and Restore page refreshes. You can verify the backup schedule has been deleted by reviewing the Backup Schedule tab of the Backup and Restore page. You should no longer see your TimesTen backup schedule.

You have successfully deleted your TimesTen backup schedule.

## Backup history and restore database

**Figure 11–19 Backup History tab**

Backup Schedule   Backup History and Restore Database   Restore History										
View ▾   Restore...   Delete...   Detach										
Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Backup Start Date	Backup End Date	Status	Reason for Failure	Backup Size (GB)	Elapsed Time (sec)
hourly_backup	Incremental	/scratch/ba...	sampledb_...	1 hr	Nov 20, ...	Nov 20, 20...	Success		0.054	1
daily_backup	Full	/scratch/ba...	sampledb_...	Daily	Nov 20, ...	Nov 20, 20...	Success		0.054	1

The backup history tab and restore database enables you to view backup history, delete backups, and recover your TimesTen database. TimesTen calls the `ttRestore` utility to restore your TimesTen database from a backup. For more information on the `ttRestore` utility, see "ttRestore" in the *Oracle TimesTen In-Memory Database Reference*.

You can perform these actions on the backup history tab:

- [Restore the TimesTen database with an available backup](#)
- [Delete a TimesTen database backup file](#)

### Restore the TimesTen database with an available backup

To restore your TimesTen database with an available backup, ensure that you are on the Backup History and Restore Database tab of the Backup and Restore page and that your TimesTen database is unloaded from memory. For more information on unloading your TimesTen database from memory, see "[Load/unload RAM](#)" on page 10-2.

**Note:** During the restoration procedure, Enterprise Manager does not collect any TimesTen database metric information. Enterprise Manager starts collecting TimesTen database metric information when the TimesTen database is restored.

1. In the Backup History and Restore Database table, click in the row that identifies the **Backup Identifier** of your backup. Ensure that the Status is Success.

**Figure 11–20 Select your backup**

Backup Schedule Backup History and Restore Database Restore History										
View ▾ Restore... Delete... Detach										
Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Backup Start Date	Backup End Date	Status	Reason for Failure	Backup Size (GB)	Elapsed Time (sec)
hourly_backup	Incremental	/scratch/ba...	sampledb_...	1 hr	Nov 20, ...	Nov 20, 20...	Success		0.054	1
daily_backup	Full	/scratch/ba...	sampledb_...	Daily	Nov 20, ...	Nov 20, 20...	Success		0.054	1

2. Click **Restore**.

**Figure 11–21 Click Restore**

Backup Schedule Backup History and Restore Database Restore History										
View ▾ Restore... Delete... Detach										
Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Backup Start Date	Backup End Date	Status	Reason for Failure	Backup Size (GB)	Elapsed Time (sec)
hourly_backup	Incremental	/scratch/ba...	sampledb_...	1 hr	Nov 20, ...	Nov 20, 20...	Success		0.054	1
daily_backup	Full	/scratch/ba...	sampledb_...	Daily	Nov 20, ...	Nov 20, 20...	Success		0.054	1

The Restore Backup dialog displays. Locate the OK button.

3. Click **Restore**.

**Figure 11–22 Click Restore**

Restore Backup

Backup Identifier

hourly\_backup

Backup Type

Incremental

Backup Directory

/scratch/backup/20151120082354

Backup File Prefix

sampledb\_1122

Recurrence Interval

1 hr

Backup Start Date

Nov 20, 2015 8:23:54 AM

Backup End Date

Nov 20, 2015 8:23:55 AM

Status

Success

Reason for Failure

Backup Size (GB)

0.054

Restore...

Cancel

The Restore Backup dialog closes. TimesTen runs the `ttRestore` utility to complete your TimesTen database restoration request. The restore time varies depending on

the size of your database. Review the Restore History tab to see the status of your TimesTen database restoration. For more information on the Restore History tab, see "[Restore history](#)" on page 11-14. For more information on the ttRestore utility, see "ttRestore" in the *Oracle TimesTen In-Memory Database Reference*

You have successfully requested a TimesTen database restoration.

## Delete a TimesTen database backup file

To delete a TimesTen database backup file entry or a failed TimesTen database backup entry, ensure that you are on the Backup History tab of the Backup and Restore page:

**Note:** Ensure that you delete TimesTen backup files from the Backup History table. If you delete TimesTen backup files directly from the file system, Enterprise Manager does not remove the entry from the Backup History table.

1. In the Backup History and Restore Database table, click in the row that identifies the **Backup Identifier** of your TimesTen backup file or failed TimesTen database backup entry.

**Figure 11-23 Select your TimesTen database backup file**

Backup Schedule


Backup History and Restore Database

Restore History

View

Restore...

✕ Delete...

 Detach

Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Backup Start Date	Backup End Date	Status	Reason for Failure	Backup Size (GB)	Elapsed Time (sec)
hourly_backup	Incremental	/scratch/backup	sampledb_000							

2. Click Delete.

**Figure 11-24 Click Delete**

Backup Schedule

Backup History and Restore Database

Restore History

View

Restore...

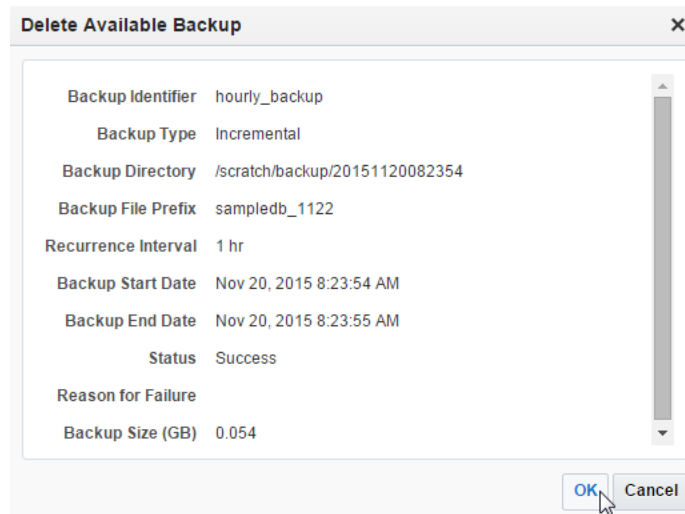
Delete

Detach

Backup Identifier	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Backup Start Date	Backup End Date	Status	Reason for Failure	Backup Size (GB)	Elapsed Time (sec)
hourly_backup	Incremental	/scratch/backup	sampledb_	1 hr	Nov 20, 2023	Nov 20, 2023	Success		0.054	1
daily_backup	Full	/scratch/backup	sampledb_	Daily	Nov 20, 2023	Nov 20, 2023	Success		0.054	1

The Delete Available Backup dialog displays. Locate the OK button.

3. Click OK.

**Figure 11–25 Click OK**

The Delete Available Backup dialog closes and the Backup History tab of the Backup and Restore page refreshes. You can verify that the TimesTen backup entry has been deleted by reviewing the Backup History tab of the Backup and Restore page. You should no longer see your TimesTen backup entry.

You have successfully deleted your TimesTen backup entry from Enterprise Manager and Enterprise Manager deletes the TimesTen backup from your file system.

## Restore history

**Figure 11–26 Restore History tab**

Backup Schedule Backup History and Restore Database Restore History												
View ▼		✕ Delete...	Detach									
Backup Identifier	Initiated By	Restore Start Date	Restore End Date	Status	Reason for Failure	Backup Start Date	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Backup Size (GB)	Elapsed Time (sec)
hourly_b...	SYSMAN	Nov 20,...	Nov 20,...	Succ...		Nov 20,...	Incremental	/scratc...	sample...	1 hr	0.054	7

The restore history tab enables you to review and delete TimesTen database recovery entries.

You can perform these actions on the restore history tab:

- [Review a restore history entry](#)
- [Delete a restore history entry](#)

### Review a restore history entry

The restore history table shows all of the restore operations that have been performed on the TimesTen database from Enterprise Manager. This information is useful in keeping track of recovery operations and reviewing the causes of recovery failures.

### Delete a restore history entry

To delete a TimesTen database restore entry ensure that you are on the Restore History tab of the Backup and Restore page:

1. In the Restore History table, click in the row that identifies the **Backup Identifier** of your TimesTen database restore entry.

**Figure 11–27 Select your TimesTen database recovery entry**

Backup Identifier	Initiated By	Restore Start Date	Restore End Date	Status	Reason for Failure	Backup Start Date	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Backup Size (GB)	Elapsed Time (sec)
hourly_b...	SYSMAN	Nov 20,...	Nov 20,...	Succ...		Nov 20,...	Incremental	/scratc...	sample...	1 hr	0.054	7

Locate the Delete button.

2. Click **Delete**.

**Figure 11–28 Click Delete**

Backup Identifier	Initiated By	Restore Start Date	Restore End Date	Status	Reason for Failure	Backup Start Date	Backup Type	Backup Directory	Backup File Prefix	Recurrence Interval	Backup Size (GB)	Elapsed Time (sec)
hourly_b...	SYSMAN	Nov 20,...	Nov 20,...	Succ...		Nov 20,...	Incremental	/scratc...	sample...	1 hr	0.054	7

The Delete Recovery History dialog displays. Locate the OK button.

3. Click **OK**.

**Figure 11–29 Click OK**

**Delete Recovery History**

Backup Identifier: hourly\_backup

Initiated By: SYSMAN

Recovery Start Date: Nov 20, 2015 9:20:05 AM

Recovery End Date: Nov 20, 2015 9:20:12 AM

Status: Success

Reason for Failure:

Backup Start Date: Nov 20, 2015 8:23:55 AM

Backup Type: Incremental

Backup Directory: /scratch/backup/20151120082354

Backup File Prefix: sampled\_b\_1122

OK Cancel

The Delete Recovery History dialog closes and the Restore History tab of the Backup and Restore page refreshes. You can verify that the TimesTen restore history entry has been deleted by reviewing the Restore History tab of the Backup and Restore page. You should no longer see your TimesTen restore history entry.

You have successfully deleted your TimesTen restore history entry.



---

## Working with the Cache Synchronization Metrics Page

This chapter describes the Cache Synchronization Metrics page.

Topics include:

- [Viewing the cache synchronization metrics page](#)
- [Analyzing the cache synchronization metrics page](#)

### Viewing the cache synchronization metrics page

The cache synchronization metrics shows cache specific performance information. In order to view the metrics, ensure that you have configured a cache environment for your TimesTen target and ensure that the cache agent is up. For more information on configuring a cache environment, see the *Oracle TimesTen Application-Tier Database Cache User's Guide*.

To view the cache synchronization metrics, ensure that you are on the TimesTen target page. For information on navigating to the TimesTen target page, see "[Navigating to the TimesTen target page](#)" on page 2-1.

From the **TimesTen Database Home** menu, select **Monitoring**, then select **Cache Synchronization Metrics**.

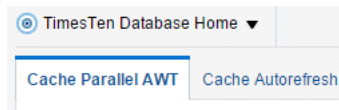
### Analyzing the cache synchronization metrics page

[Figure 12-1](#) shows two cache synchronization metrics tabs that have been customized for TimesTen cache environments. Click a specific tab to view detailed cache synchronization metrics information.

---

**Note:** Only one of these tabs is available at a time: Cache Parallel AWT or Cache AWT. If you have set cache AWT parallelism, Enterprise Manager displays the Cache parallel AWT tab. If you have not set cache AWT parallelism, Enterprise Manager displays the Cache AWT tab. For more information on cache AWT parallelism, see "Configuring parallel propagation to Oracle Database tables" in the *Oracle TimesTen Application-Tier Database Cache User's Guide*.

---

**Figure 12–1** *Cache Synchronization Metrics tabs*

A description of each area follows:

- [Cache AWT](#)
- [Cache parallel AWT](#)
- [Cache autorefresh](#)

## Cache AWT

---

---

**Note:** The Cache AWT tab is only available if you have not set cache AWT parallelism.

---

---

The cache AWT tab enables you to view performance information of AWT cache groups. It is divided into five regions:

- [Cache AWT](#)
- [AWT transactions propagated to the Oracle database](#)
- [AWT transactions committed on Oracle database](#)
- [AWT batch performance](#)
- [AWT volume \(MB/sec\)](#)



## Cache AWT

**Figure 12–2 Cache AWT region**

Cache AWT	
<b>General</b>	
Transactions committed on Oracle database	80987
Calls made to Oracle database	80987
Rollbacks on Oracle database because of errors	0
Transactions propagated to Oracle database	10324542
Transactions retried in case of an error	0
<b>SQL Array Execution Method</b>	
Batches sent to Oracle database	0
Bytes sent to Oracle database	0
Delete batches sent to Oracle database	0
Rows deleted on Oracle database	0
Insert batches sent to Oracle database	0
Rows inserted on Oracle database	0
Update batches sent to Oracle database	0
Rows updated on Oracle database	0
<b>PL/SQL Execution Method</b>	
Batches sent to Oracle database	80987
Bytes sent to Oracle database	1332068360
Rows deleted on Oracle database	10122100
Rows inserted on Oracle database	10122100
Rows updated on Oracle database	0
Database Loaded Since	

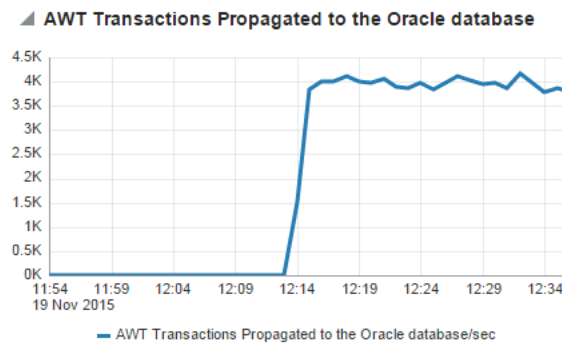
The cache AWT region shows the number of transactions committed on the Oracle database and the number of transactions rolled back on the Oracle database. The number of batches sent, bytes sent, rows deleted, rows inserted, and rows updated on the Oracle database for the SQL array execution method and the PL/SQL execution method of AWT cache are also displayed. The performance data is derived from values in the SYS.SYSTEMSTATS system table. For more information, see "SYS.SYSTEMSTATS" in the *Oracle TimesTen In-Memory Database System Tables and Views Reference*.

The method determines whether TimesTen uses the PL/SQL execution method or the SQL array execution method to apply changes to the Oracle database server for asynchronous writethrough propagation.

For more information about AWT cache methods, see "TimesTen Cache first connection attributes" in the *Oracle TimesTen In-Memory Database Reference*.

## AWT transactions propagated to the Oracle database

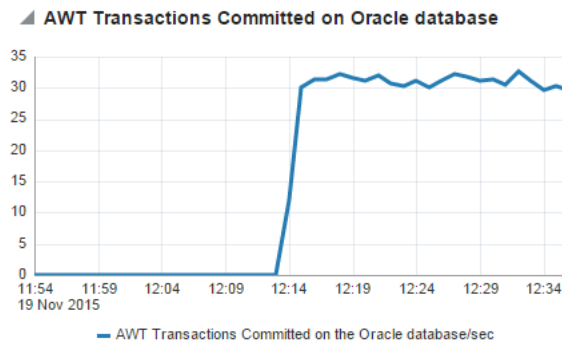
**Figure 12–3 AWT Transactions Propagated to the Oracle Database region**



The AWT transactions propagated to the Oracle database region uses a line graph to show the number of AWT transactions propagated to the Oracle database per second.

## AWT transactions committed on Oracle database

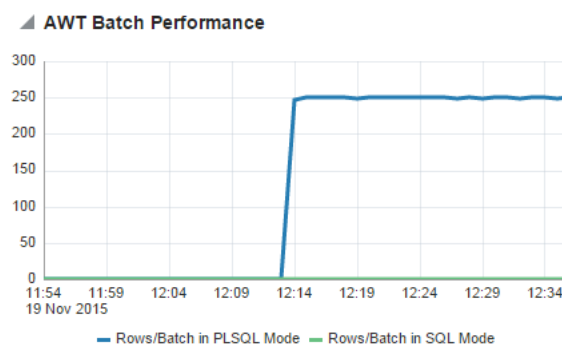
**Figure 12–4 AWT Transactions Committed on Oracle Database region**



The AWT transactions committed on Oracle database region uses a line graph to show the number of AWT transactions committed on the Oracle database per second.

## AWT batch performance

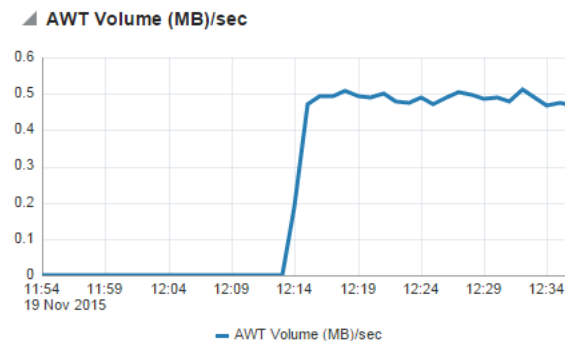
**Figure 12–5 AWT Batch Performance region**



The AWT batch performance region uses a line graph to show AWT Batch performance represented as a rate of rows per batch. SQL array execution mode is set with `CacheAWTMethod=0` and PL/SQL execution mode is set with `CacheAWTMethod=1`. For more information on `CacheAWTMethod`, see "CacheAWTMethod" in the *Oracle TimesTen In-Memory Database Reference*.

## AWT volume (MB/sec)

**Figure 12–6 AWT Volume (MB)/sec region**



The AWT volume (MB/sec) region uses a line graph to show the AWT volume in Megabytes per second.

## Cache parallel AWT

---

**Note:** The Cache parallel AWT tab is only available if you have set cache AWT parallelism. For more information on cache AWT parallelism, see "Configuring parallel propagation to Oracle Database tables" in the *Oracle TimesTen Application-Tier Database Cache User's Guide*.

---

The cache parallel AWT tab displays track and performance information about AWT cache groups that are configured with parallel propagation. For more information on parallel propagation for AWT cache groups, see "Configuring parallel propagation to Oracle Database tables" in the *Oracle TimesTen Application-Tier Database Cache User's Guide*. The cache parallel AWT tab is divided into two sub-tabs:

- [Performance](#)
- [Tracks](#)

### Performance

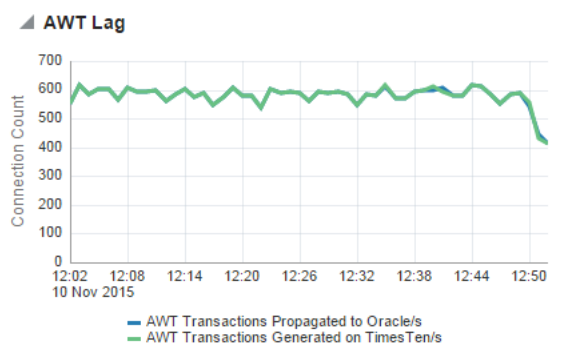
The performance sub-tab provides performance information about AWT cache groups that are configured with parallel propagation. The performance sub-tab is divided into four regions:

- [AWT lag](#)
- [AWT bytes sent](#)
- [AWT batch performance](#)

## ■ AWT transactions

### AWT lag

**Figure 12–7 AWT Lag region**

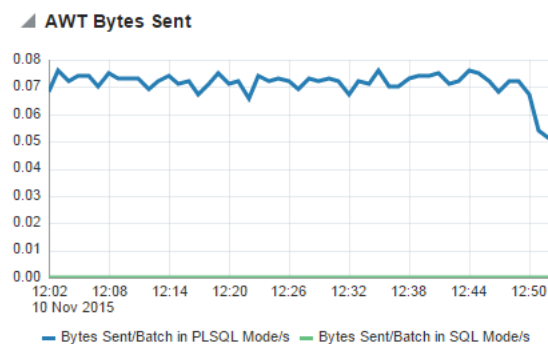


The AWT lag region uses a line graph to show the number of AWT transactions propagated to the Oracle database and generated on the TimesTen database per second.

It is important that the number of AWT transactions propagated to the Oracle database match the number of AWT transactions generated on the TimesTen database. For more information on troubleshooting AWT performance, see "AWT performance monitoring" in the *Oracle TimesTen In-Memory Database Troubleshooting Guide*.

### AWT bytes sent

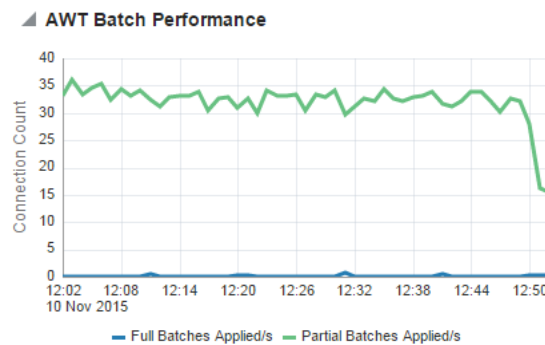
**Figure 12–8 AWT Bytes Sent region**



The AWT bytes sent region uses a line graph to show the bytes sent per batch in SQL mode and PLSQL mode per second. SQL array execution mode is set with `CacheAWTMethod=0` and PL/SQL execution mode is set with `CacheAWTMethod=1`. For more information on `CacheAWTMethod`, see "CacheAWTMethod" in the *Oracle TimesTen In-Memory Database Reference*.

## AWT batch performance

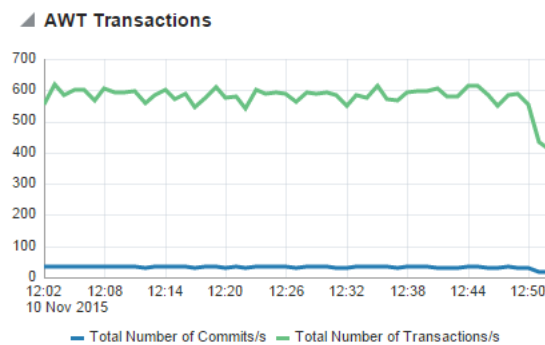
**Figure 12–9 AWT Batch Performance region**



The AWT batch performance region uses a line graph to show the number of full and partial batches applied per second.

## AWT transactions

**Figure 12–10 AWT Transactions region**



The AWT transactions region uses a line graph to show the number of commits and transactions per second.

## Tracks

The tracks sub-tab provides performance information about parallel AWT tracks. The tracks sub-tab is divided into two regions:

- [Parallel AWT tracks](#)
- [Transactions processed on Oracle database](#)

## Parallel AWT tracks

**Figure 12–11** *Parallel AWT Tracks region*

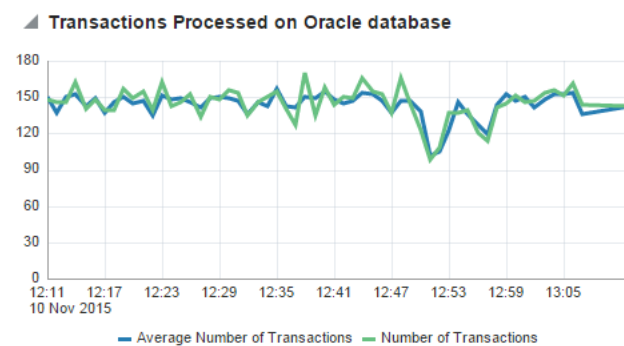
Performance		Tracks								
Parallel AWT Tracks										
Peer Name	Transactions Processed	SQL Mode Batches	PL/SQL Mode Batches	Oracle database Rollbacks	Batches Sent Fully	Batches Sent Partially	Batches Begin waited	Depend Begin Waits Count	Depend Commit Waits Count	
_ORACLE...	2565311	0	139596	0	0	0	338	139258	81914	
_ORACLE...	2533327	0	139654	0	0	0	333	139321	81470	
_ORACLE...	2544300	0	139594	0	0	0	329	139265	81737	
_ORACLE...	2557062	0	139679	0	0	0	316	139363	81937	

The Parallel AWT tracks region shows the performance of the various parallel AWT tracks. Parallel AWT tracks are set with the `CacheAWTParallelism` connection attribute. For more information on the `CacheAWTParallelism` connection attribute, see "CacheAWTParallelism" in the *Oracle TimesTen In-Memory Database Reference*.

Click a peer name to review the number of transactions processed on the Oracle database for the parallel AWT track. The number of transactions processed on the Oracle database for the parallel AWT track display in the transactions processed on Oracle database region. For more information on the transactions processed on Oracle database region, see "[Transactions processed on Oracle database](#)" on page 12-8.

## Transactions processed on Oracle database

**Figure 12–12** *Transactions Processed on Oracle database region*



The transactions processed on Oracle database region uses a line graph to show the number of transactions processed on the Oracle database for the parallel AWT track.

## Cache autorefresh

The cache autorefresh tab enables you to view performance information of read-only cache groups. This tab is divided into three regions:

- [Cache autorefresh](#)
- [Readonly cache](#)
- [Updates pending refresh](#)

## Cache autorefresh

**Figure 12–13 Cache Autorefresh region**

Cache Autorefresh	
Cycles completed successfully on TimesTen	5291
Number of cycles that failed due to errors	9
Rows deleted in TimesTen from Oracle database	1115788
Rows inserted in TimesTen from Oracle database	1119092
Rows updated in TimesTen from Oracle database	16597
Full refreshes triggered	0
Database Loaded Since	November 9, 2015 11:53 AM

The cache autorefresh region shows the number of rows deleted, inserted, and updated in TimesTen from the Oracle database. The number of cycles that completed successfully and the number of cycles that failed on TimesTen are also displayed. TimesTen starts collecting these metrics when the TimesTen database is loaded into memory.

## Readonly cache

**Figure 12–14 Readonly Cache region**

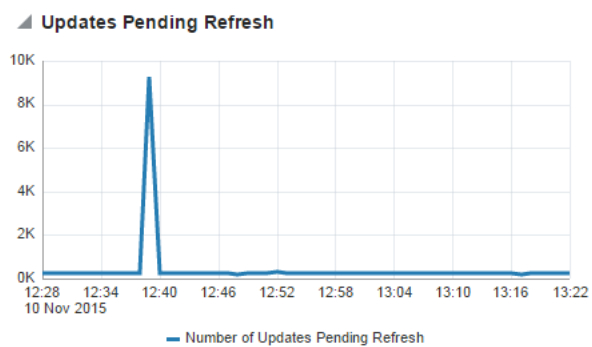
Readonly Cache										
Cache Group Identifier	Start Time	Duration of Autorefresh Transaction(ms)	Number of Rows Autorefreshed	Status	Cache Group Name	Cache Group Owner	Object Identifiers	Number of Updates Pending Refresh	Number of Tables	Refresh Interval(ms)
3766624	11/10...	10	307	Complete	READONLY...	EMCACHE	74588	246	1	15000

The readonly cache region displays information about the last autorefresh operations of each of the read-only cache groups of your TimesTen database. For more information on read-only cache groups, see "Read-only cache group" in the *Oracle TimesTen Application-Tier Database Cache User's Guide*.

Click a cache group identifier to review the number of updates pending refresh. The number of updates pending refresh display in the updates pending refresh region. For more information on the updates pending refresh region, see ["Updates pending refresh"](#) on page 12-10.

## Updates pending refresh

**Figure 12–15** *Updates Pending Refresh region*



The updates pending refresh region shows a line graph with the number of updates pending refresh for your specified cache group in the last hour.



---

## Working with the Replication Monitor

This chapter describes the replication monitor page. The replication monitor page enables you to monitor and analyze TimesTen database targets that use AWT cache groups and that use replication to replicate objects to other databases.

Topics include:

- [Viewing the replication monitor](#)
- [Analyzing information on the TimesTen replication monitor](#)

### Viewing the replication monitor

In order to view the replication monitor metrics, ensure that you have configured replication for your TimesTen database target and ensure that the replication agent is up.

Navigate to the TimesTen database target page. For information on navigating to the TimesTen database target page, see "[Navigating to the TimesTen target page](#)" on page 2-1.

From the **TimesTen Database Home** menu, select **Monitoring**, then select **Replication Monitor**.

### Analyzing information on the TimesTen replication monitor

The TimesTen replication monitor page consists of two areas each of which have been customized specifically for TimesTen replication.

The top area consists of:

- [Summary](#)
- [Status](#)
- [State](#)

The bottom area consists of five tabs:

- [Replication peers](#)
- [Replication log holds](#)
- [Transmitter thread status](#)
- [Receiver thread status](#)
- [Tracks](#)

## Summary

**Figure 13–1 Summary region**

```
Summary
Database Name  master
Replication Policy  Manual
```

This region identifies your database and the configuration of your replication policy:

- Database name  
This value is taken from the last part of the path to the database. For example, if the path to the database is `/var/tt/master`, the database name is `master`.
- Replication policy  
The replication policy is set with the `-repPolicy` option of the `ttAdmin` utility. The default value is manual. For more information on changing the replication policy, see "ttAdmin" in the *Oracle TimesTen In-Memory Database Reference*.

## Status

**Figure 13–2 Status region**

```
Status
Replication Agent  Up
Most Recent Log File Number  148
Last Log File Number Held by Replication  148
```

The replication status region shows overall information relative to the current state of the replicated operations. If the most recent log file number is much greater than the last log file held by replication, then the replication agent has fallen behind in transmitting the recently created transactions.

Values for Replication Agent are Up or Down. If you have not configured a replication scheme, then the value is Down.

## State

**Figure 13–3 State region**

```
State
Replication State  Active
Cache Grid State  No Cache Grid
```

The replication state region shows the current replication state of a database in an active standby pair.

The replication state region uses values from the `ttRepStateGet` built-in procedure. For more information about `ttRepStateGet`, see "ttRepStateGet" in the *Oracle TimesTen In-Memory Database Replication Guide*.

## Replication peers

**Figure 13–4 Replication Peers region**

Replication Peers

Replication Log Holds

Transmitter Thread Status

Receiver Thread Status

Tracks

View ▾

Detach

Name	Hostname	State	Port and Status
SUB1	testhost	Started	37463 (AUTO) (Connected)
SUB1	testhost	Started	37463 (AUTO) (Connected)
MASTER2	testhost	Started	49162 (AUTO) (Connected)
MASTER2	testhost	Started	49162 (AUTO) (Connected)
SUB1	testhost	Started	37463 (AUTO) (Connected)
MASTER2	testhost	Started	49162 (AUTO) (Connected)

The replication peers table is common to any database regardless of whether the database is in the role of transmitter or receiver. The table shows the list of peers to the database.

The replication peers table uses values from the `TTREP.REPPEERS` replication table. You can also view these values with the `ttRepAdmin -showstatus` utility. For more information about the `TTREP.REPPEERS` replication table, see "TTREP.REPPEERS" in the *Oracle TimesTen In-Memory Database System Tables and Views Reference*. For more information about the `ttRepAdmin` utility, see "ttRepAdmin" in the *Oracle TimesTen In-Memory Database Reference*.

## Replication log holds

**Figure 13–5 Replication Log Holds region**

Replication Log Holds						Replication Peers	Transmitter Thread Status	Receiver Thread Status	Tracks
View ▼	Detach								
Peer Name	Hostname	Last Message Sent	Log File Number	Latency	Track				
SUB1	TESTHOST	00:00:03	148	1	0				
SUB1	TESTHOST	00:00:03	148	1	1				
SUB1	TESTHOST	00:00:03	148	1	2				
MASTER2	TESTHOST	00:00:03	148	-1	0				
MASTER2	TESTHOST	00:00:03	148	-1	1				
MASTER2	TESTHOST	00:00:03	148	-1	2				

The replication log holds table shows information for databases that replicate transactions to other databases. The table shows replication log holds.

The replication log holds table uses values from the `ttLogHolds` built-in procedure. For more information about the `ttLogHolds` utility, see "ttLogHolds" in the *Oracle TimesTen In-Memory Database Reference*.

## Transmitter thread status

The transmitter thread status tab shows a detailed list and status of transmitter threads for this TimesTen database. This tab is populated for databases that replicate transactions to other databases. This tab is divided into two regions:

- [Replication transmitters](#)
- [Transactions sent in the last hour](#)

### Replication transmitters

**Figure 13–6 Replication Transmitters region**

Peer Name	Start or Restart Count	Transactions Sent
MASTER2 (track 0)	1	4541
MASTER2 (track 1)	1	4502
MASTER2 (track 2)	1	4519
SUB1 (track 0)	1	0
SUB1 (track 1)	1	0
SUB1 (track 2)	1	0

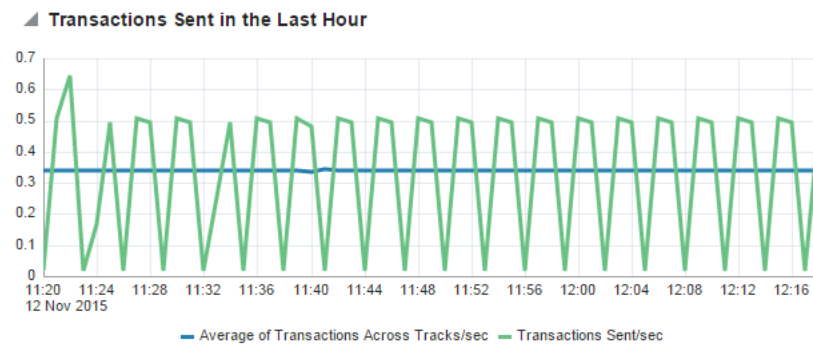
The replication transmitters table shows information for databases that replicate transactions to other databases. The table shows the status of transmitter threads for the database.

The replication transmitters table uses values from the `ttRepAdmin -showstatus` utility. For more information about the `ttRepAdmin` utility, see "ttRepAdmin" in the *Oracle TimesTen In-Memory Database Reference*.

Click a transmitter track to review the number of transactions sent on that track. The number of transactions sent in the last hour display in the transactions sent in the last hour region. For more information on the transactions sent in the last hour region, see "[Transactions sent in the last hour](#)" on page 13-5.

## Transactions sent in the last hour

**Figure 13–7 Transactions Sent in the Last Hour region**



The transactions sent in the last hour region shows a line graph with the number of transactions sent for your specified transmitter track and average number of transactions sent per transmitter track per second.

## Receiver thread status

The receiver thread status tab shows a detailed list and status of receiver threads for this TimesTen database. This tab is populated for databases that receive transactions from other databases. This tab is divided into two regions:

- [Replication receivers](#)
- [Transactions received in the last hour](#)

## Replication receivers

**Figure 13–8 Replication Receivers region**

Replication Peers   Replication Log Holds   Transmitter Thread Status <b>Receiver Thread Status</b> Tracks			
Replication Receivers			
Peer Name	Start or Restart Count	Transactions Received	
MASTER1 (track 0)	1	4811	
MASTER1 (track 1)	1	4749	
MASTER1 (track 2)	1	4842	

The receiver threads status table shows information for databases that receive transactions from other databases. The table shows the status of receiver threads for the database.

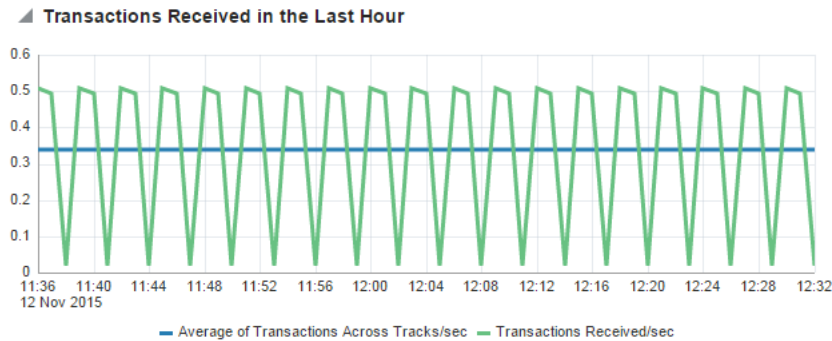
The replication receivers table uses values from the `ttRepAdmin -showstatus` utility. For more information about the `ttRepAdmin` utility, see "ttRepAdmin" in the *Oracle TimesTen In-Memory Database Reference*.

Click a receiver track to review the number of transactions received on that track. The number of transactions received in the last hour display in the transactions received in the last hour region. For more information on the transactions received in the last hour

region, see ["Transactions received in the last hour"](#) on page 13-6.

Transactions received in the last hour

Figure 13-9 Transactions Received in the Last Hour region



The transactions received in the last hour region shows a line graph with the number of transactions received for your specified receiver track and average transactions received per receiver track per second.

Tracks

Figure 13-10 Tracks tab

Replication Peers   Replication Log Holds   Transmitter Thread Status   Receiver Thread Status <b>Tracks</b>							
View ▼		Detach					
Track	Transaction Log Waits	Receiver Transaction Commit Waits	Receiver Transaction Commits	Receiver Batch Commits	Receiver Batch Commit Time	Name	Subscriber
0	0	14	4811	678	0	MASTER1(T...	MASTER1
1	0	10	4749	670	0	MASTER1(T...	MASTER1
2	0	10	4842	677	0	MASTER1(T...	MASTER1
0	0	0	0	0	0	MASTER2(T...	MASTER2
1	0	0	0	0	0	MASTER2(T...	MASTER2
2	0	0	0	0	0	MASTER2(T...	MASTER2
0	0	0	0	0	0	SUB1(TRAC...	SUB1

The tracks tab uses a table to show performance information about each track. This information can help you determine the location of transaction bottlenecks.

---

## Viewing Metrics

This chapter details metric information collected for your TimesTen database and TimesTen instance to assist you in determining the efficiency and performance of your target.

Topics include:

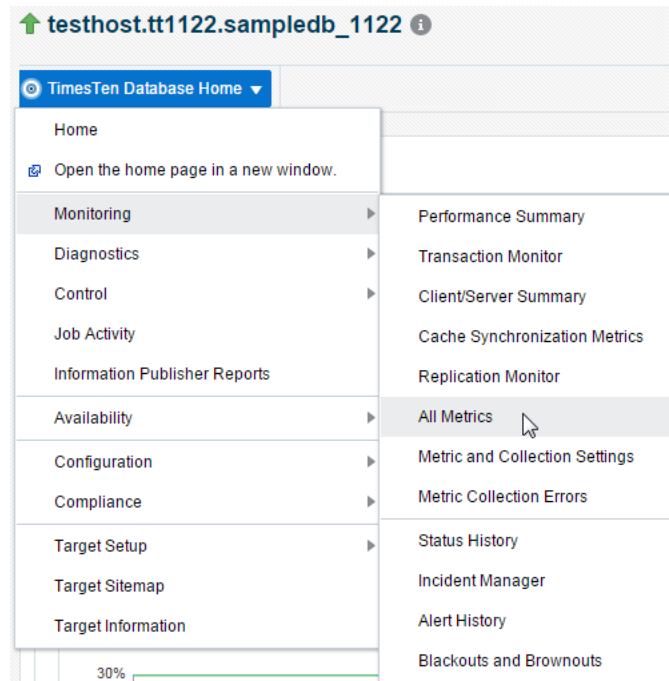
- [Navigating to the TimesTen database metrics page](#)
- [Navigating to the TimesTen instance metrics page](#)
- [Viewing TimesTen database metrics](#)
- [Viewing TimesTen instance metrics](#)

### Navigating to the TimesTen database metrics page

Ensure that you are on the TimesTen database target page. For more information on navigating to the TimesTen database target page, see "[Navigating to the TimesTen target page](#)" on page 2-1.

1. From the **TimesTen Database Home** menu, select **Monitoring**, then select **All Metrics**.

**Figure 14–1 TimesTen database All Metrics**



The All Metrics page displays. Locate the name of the metric group.

2. Expand the metric group, and click the **name of the metric**.

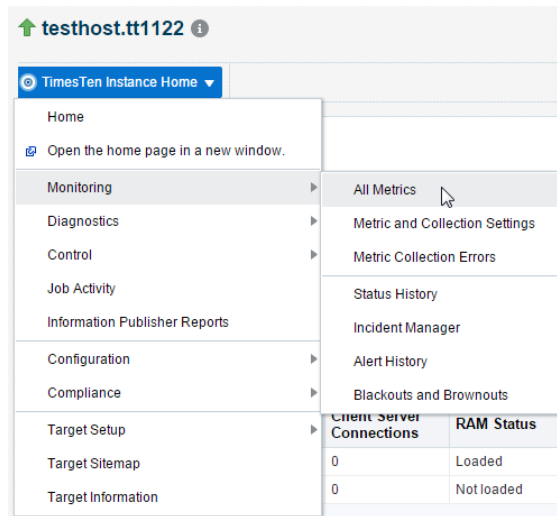
The metric information displays in table format. For more information on TimesTen database metrics, see "[Viewing TimesTen database metrics](#)" on page 14-3.

## Navigating to the TimesTen instance metrics page

Ensure that you are on the TimesTen instance target page. For more information on navigating to the TimesTen instance target page, see "[Navigating to the TimesTen target page](#)" on page 2-1.

1. From the or **TimesTen Instance Home** menu, select **Monitoring**, then select **All Metrics**.



**Figure 14-2 TimesTen Instance All Metrics**

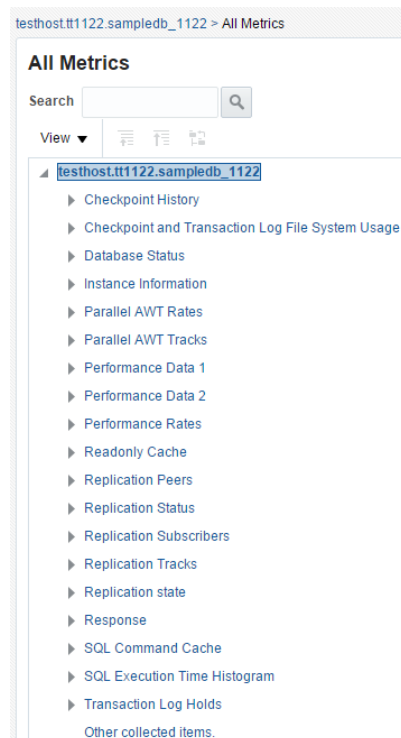
The All Metrics page displays. Locate the name of the metric group.

- Expand the metric group, and click the **name of the metric**.

The metric information displays in table format. For more information on TimesTen instance metrics, see "[Viewing TimesTen instance metrics](#)" on page 14-24.

## Viewing TimesTen database metrics

There are twelve groups of TimesTen database metrics:

**Figure 14-3 Groups of metrics**

- [Checkpoint history](#)
- [Checkpoint and transaction log file system usage](#)
- [Database status](#)
- [Instance information](#)
- [Parallel AWT rates](#)
- [Parallel AWT tracks](#)
- [Performance data](#)
- [Performance rates](#)
- [Readonly cache](#)
- [Replication peers](#)
- [Replication status](#)
- [Replication subscribers](#)
- [Replication tracks](#)
- [Replication state](#)
- [Response](#)
- [SQL command cache](#)
- [SQL execution time histogram](#)
- [Transaction log holds](#)

Some metrics have predefined warning and critical thresholds. You can modify and add new thresholds. The Oracle Enterprise Manager Cloud Control issues alerts and warnings when the values collected for the metrics surpass the set threshold.

## Checkpoint history

Table 14–1 lists each metric and describes the metrics.

**Table 14–1** Checkpoint History

Metric	Description
Blocks currently in use out of total blocks	The number of blocks that are currently in use.
Bytes occupied by all blocks	The number of bytes occupied by all blocks.
Bytes occupied by blocks in use	The number of bytes occupied by the blocks that are in use.
Bytes occupied by dirty blocks	The number of bytes occupied by dirty blocks.
Bytes written in MB	Bytes written in megabytes.
Bytes written per sec	Bytes written per second.
Checkpoint sequence number	Checkpoint sequence number.
Dirty blocks written by this checkpoint	The number of dirty blocks written by this checkpoint.
Initiator	The initiator of the checkpoint request.
Percentage of the checkpoint that has been completed	Indicates the percentage of the checkpoint that has been completed. If there is no checkpoint in progress, the value is NULL.

**Table 14–1 (Cont.) Checkpoint History**

<b>Metric</b>	<b>Description</b>
Permanent blocks currently allocated in the database	Permanent blocks currently allocated in the database.
Status	Status of the checkpoint operation.
The database file number used by the checkpoint	The database file number used by the checkpoint.
The transaction log file number of the checkpoint log record	The transaction log file number of the checkpoint log record.
The transaction log file offset of the checkpoint log record	The transaction log file offset of the checkpoint log record.
Time when the checkpoint completed	Time when the checkpoint completed.
Time when the checkpoint was begun	Time when the checkpoint began.
TimesTen database error number for the failure	TimesTen error number that indicates the reason for the failure.
Total bytes written by this checkpoint	The total number of bytes written by this checkpoint.
Type	The type of checkpoint.

## Checkpoint and transaction log file system usage

Table 14–2 lists each metric and describes the metrics.

**Table 14–2 Checkpoint and Transaction Log File System Usage**

<b>Metric</b>	<b>Description</b>
Checkpoint file system	Checkpoint file system.
Checkpoint file system mount Point	Checkpoint file system mount point.
Checkpoint file system size (MB)	Checkpoint file system size in megabytes.
Checkpoint file system space available (%)	Checkpoint file system space available (expressed as a percentage).
Checkpoint file system space available (MB)	Checkpoint file system space available in megabytes.
Transaction log file system	Transaction log file system.
Transaction log file system mount point	Transaction log file system mount point.
Transaction log file system size (MB)	Transaction log file system size in megabytes.
Transaction log file system space available (%)	Transaction log file system space available (expressed as a percentage).
Transaction log file system space available (MB)	Transaction log file system space available in megabytes.

## Database status

Table 14–3 shows information about your database.

**Table 14–3 Database status**

<b>Database information</b>	<b>Description</b>
Cache agent running	1 if running; 0 if not running.

**Table 14–3 (Cont.) Database status**

Database information	Description
Replication agent running	1 if running; 0 if not running.
Time of first connection to database	Time of first connection to the database.

## Instance information

Table 14–4 shows information about your TimesTen instance.

**Table 14–4 Instance Information**

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

For more information on your TimesTen instance, see "ttStatus" in the *Oracle TimesTen In-Memory Database Reference*.

## Parallel AWT rates

Table 14–5 shows information about your Parallel AWT rates.

**Table 14–5 Parallel AWT Rates**

Name	Description
Bytes sent in PL/SQL mode MB per sec	The number of megabytes sent in PL/SQL mode to the Oracle database per second.
Bytes sent in SQL mode MB per sec	The number of megabytes sent in SQL mode to the Oracle database per second.
Oracle database Rollbacks Timeout per sec	The timeout per second for rollbacks on the Oracle database.
Total AWT MB per sec	The number of megabytes sent for AWT to the Oracle database per second.
Total number of Oracle database commits per sec	The total number of Oracle database commits per second.
Total number of batches sent fully per sec	The total number of batches sent fully per second.
Total number of batches sent partially per sec	The total number of batches sent partially per second.
Total number of transactions per sec	The total number of transactions sent to the Oracle database per second.
Transaction master restart per sec	The number of transaction master restarts per second.

**Table 14–5 (Cont.) Parallel AWT Rates**

Name	Description
Transactions Generated on TimesTen database per sec	The number of transactions generated on the TimesTen database per second.
Transactions propagated to Oracle database per sec	The number of transactions propagated to the Oracle database per second.

## Parallel AWT tracks

[Table 14–6](#) shows information about your Parallel AWT tracks.

**Table 14–6 Parallel AWT tracks**

Name	Description
Batches Begin Waited	The number of AWT batches that had to wait on a begin dependency before being transmitted between the TimesTen database and the Oracle database.
Batches Begin Waits Count	The number of times the AWT batch had to check on a begin dependency to be satisfied before being transmitted between the TimesTen database and the Oracle database.
Commit Waited Count	The number of times the AWT batch had to check on a commit dependency to be satisfied before the AWT batch is committed on the Oracle database.
Full Batches	The number of full AWT batches transmitted between the TimesTen database and the Oracle database.
Oracle database Rollbacks	The number of rollbacks performed on the Oracle database.
PL/SQL Mode Batches	The number of AWT batches transmitted between the TimesTen database and the Oracle database in PL/SQL mode.
Partial Batches	The number of partial AWT batches transmitted between the TimesTen database and the Oracle database.
SQL Mode Batches	The number of AWT batches transmitted between the TimesTen database and the Oracle database in SQL mode.
Subscriber	The name of the subscriber database.
Track	The track number.
Transaction processed	The total number of transactions processed.
Transactions processed per sec	The number of transactions processed per second.

## Performance data

[Table 14–7](#) shows performance information.

**Table 14–7 Performance Data**

Metric	Description
Cache - AWT transactions committed on Oracle database	Number of AWT transactions committed on the Oracle database.
Cache - AWT transactions re-tries in case of an error	Number of times AWT transactions are re-tried on Oracle database.
Cache - Autorefresh cycles completed successfully	Number of autorefresh cycles completed successfully on TimesTen.

**Table 14–7 (Cont.) Performance Data**

<b>Metric</b>	<b>Description</b>
Cache - Autorefresh cycles that failed due to errors	Number of autorefresh cycles that failed because of errors.
Cache - Batches sent to Oracle database in SQL mode	Number of batches sent to the Oracle database in SQL mode (CacheAWTMethod = 0).
Cache - Bytes flushed to Oracle database	Number of bytes flushed to the Oracle database.
Cache - Bytes loaded due to dynamic load miss-local	Total number of bytes loaded from the Oracle database for servicing dynamic load misses for dynamic local cache groups.
Cache - Bytes loaded due to dynamic load misses	Total number of bytes loaded from the Oracle database for servicing dynamic load misses.
Cache - Bytes sent to Oracle database for SWT operations	Number of bytes sent to the Oracle database during SWT cache group operations.
Cache - Bytes sent to Oracle database in PL/SQL mode	Number of bytes sent to the Oracle database in PL/SQL mode (CacheAWTMethod = 1).
Cache - Bytes sent to Oracle database in SQL mode	Number of bytes sent to the Oracle database in SQL mode (CacheAWTMethod = 0).
Cache - Calls made to Oracle database for AWT	Number of calls made to the Oracle database for AWT.
Cache - Data loads from Oracle database for dynamic load misses	Number of data loads from the Oracle database when servicing dynamic load misses for dynamic local cache groups.
Cache - Data reqs. due to dyn. load on remote cache grid member	Number of requests for data received by this cache grid member from another cache grid member (because of a dynamic load on the remote cache grid member).
Cache - Data requests received for dirty data	Number of requests for data received by this cache grid member when the data requested is dirty (and must first be propagated to the Oracle database).
Cache - Data requests received where data not present	Number of requests for data received by this cache grid member when the data requested was not found in this member.
Cache - Data requests received where locked by transaction	Number of requests for data received by this cache grid member when the data requested was locked by a transaction on this member.
Cache - Delete batches sent to Oracle database in SQL mode	Number of delete batches sent to the Oracle database in SQL mode (CacheAWTMethod = 0).
Cache - Dynamic load misses from the Oracle database	Number of times a dynamic load miss had to load the requested data from the Oracle database.
Cache - Flush cache group executes	Number of flush cache group executions.
Cache - Full refreshes triggered during autorefresh operations	Number of full refreshes triggered during autorefresh operations.
Cache - Global dynamic cachegroup cache hits	Global dynamic cache group hits: Dynamic loads that find the data in the local cache grid member without requiring the data to be loaded from the Oracle database or another cache grid member.

**Table 14–7 (Cont.) Performance Data**

<b>Metric</b>	<b>Description</b>
Cache - Global dynamic cachegroup cache misses	Global dynamic cache group misses: Dynamic loads that do not find data initially in the local cache grid member (either need to go to the Oracle database or another cache grid member).
Cache - Insert batches sent to Oracle database in SQL mode	Number of insert batches sent to the Oracle database in SQL mode (CacheAWTMethod = 0).
Cache - Local dynamic cachegroup cache hits	Local dynamic cache group hits: Number of dynamic loads that find the requested data in the database.
Cache - Local dynamic cachegroup misses	Local dynamic cache group misses: Number of dynamic loads that do not find the requested data in the database and need to load the data from the Oracle database.
Cache - PL/SQL block batches sent to Oracle database	Number of PL/SQL block batches sent to the Oracle database. (CacheAWTMethod = 1).
Cache - Remote dynamic loads	Dynamic loads that do not find data in the local cache grid member and successfully load the required data from another cache grid member.
Cache - Rollbacks on Oracle database because of errors	Number of rollbacks on Oracle database because of errors.
Cache - Rows deleted in the TimesTen database by autorefresh	Number of rows deleted from TimesTen during autorefresh from the Oracle database.
Cache - Rows deleted on Oracle database in PL/SQL	Number of rows deleted from Oracle database in PL/SQL mode (CacheAWTMethod = 1).
Cache - Rows deleted on Oracle database in SQL	Number of rows deleted from the Oracle database in SQL mode (CacheAWTMethod = 0).
Cache - Rows flushed to Oracle database	Number of rows flushed to the Oracle database.
Cache - Rows in SWT cache groups deleted on Oracle database	Number of rows in SWT cache groups deleted from Oracle database.
Cache - Rows in SWT cache groups inserted on Oracle database	Number of rows in SWT cache groups inserted into Oracle database.
Cache - Rows in SWT cache groups updated on Oracle database	Number of rows in SWT cache groups updated on Oracle database.
Cache - Rows inserted in the TimesTen database by autorefresh	Number of rows inserted into TimesTen during autorefresh from the Oracle database.
Cache - Rows inserted on Oracle database in PL/SQL mode	Number of rows inserted into Oracle database in PL/SQL mode (CacheAWTMethod = 1).
Cache - Rows inserted on Oracle database in SQL mode	Number of rows inserted into Oracle database in SQL mode (CacheAWTMethod = 0).
Cache - Rows updated in the TimesTen database by autorefresh	Number of rows updated in TimesTen during autorefresh from the Oracle database.

**Table 14–7 (Cont.) Performance Data**

<b>Metric</b>	<b>Description</b>
Cache - Rows updated on Oracle database in PL/SQL mode	Number of rows updated on Oracle database in PL/SQL mode (CacheAWTMethod = 1).
Cache - Rows updated on Oracle database in SQL mode	Number of rows updated on Oracle database in SQL mode (CacheAWTMethod = 0).
Cache - Transactions propagated from TimesTen to Oracle database	Number of TimesTen transactions propagated to the Oracle database.
Cache - Update batches sent to Oracle database in SQL mode	Number of updated batches sent to the Oracle database in SQL mode (CacheAWTMethod = 0).
Cache grid - Cache grid members that have attached so far	Number of attach operations.
Cache grid - Detach operations	Number of detach operations.
Checkpoint - Bytes written during last checkpoint	Number of bytes written during last checkpoint.
Checkpoint - Checkpoint bytes written during database recovery	Number of bytes written for checkpointing during database recovery.
Checkpoint - Checkpoint volume in bytes	Number of bytes written for checkpointing.
Checkpoint - Checkpoint writes	Number of checkpoint writes.
Checkpoint - Checkpoints completed	Number of checkpoints completed.
Checkpoint - End time of last checkpoint begun	End time of last checkpoint begun.
Checkpoint - Fuzzy checkpoints completed	Number of fuzzy checkpoints completed.
Checkpoint - Start time of last checkpoint begun	Start time of last checkpoint begun.
Checkpoint - Status of last checkpoint begun	Status of last checkpoint begun. For instance, completed.
Checkpoint - Type of last checkpoint begun	Type of last checkpoint begun. For example, fuzzy.
Checkpoint - Whether last checkpoint begun had an error	Whether last checkpoint begun had an error.
Client/Server - Round trips	Number of client/server round-trips.
Client/Server - ALTER statements executed by server	Number of ALTER statements executed by server.
Client/Server - Bytes received by server	Number of client/server bytes received by server.
Client/Server - Bytes transmitted by server	Number of client/server bytes transmitted by server.



**Table 14–7 (Cont.) Performance Data**

<b>Metric</b>	<b>Description</b>
Client/Server - CREATE statements executed by server	Number of CREATE statements executed by server.
Client/Server - DELETE statements executed by server	Number of DELETE statements executed by server.
Client/Server - DROP statements executed by server	Number of DROP statements executed by server.
Client/Server - Disconnects	Number of client/server disconnects.
Client/Server - INSERT statements executed by server	Number of INSERT statements executed by server.
Client/Server - MERGE statements executed by server	Number of MERGE statements executed by server.
Client/Server - SELECT statements executed by server	Number of SELECT statements executed by server.
Client/Server - Table rows deleted by server	Number of table rows deleted by server.
Client/Server - Table rows inserted by server	Number of table rows inserted by server.
Client/Server - Table rows updated by server	Number of table rows updated by server.
Client/Server - Transaction rollbacks by server	Number of transaction rollbacks by server.
Client/Server - Transactions committed by server	Number of transactions committed by server.
Client/Server - UPDATE statements executed by server	Number of UPDATE statements executed by server.
Connections - Client-server connections established	Cumulative number of client/server connections established.
Connections - Database connects established	Cumulative number of database connections established.
Connections - Database connects exceeding configured maximum	Cumulative number of database connection thresholds exceeded.
Connections - Database disconnects	Cumulative number of database disconnections.
Connections - Direct linked database connections established	Cumulative number of direct mode database connections established.
Connections - First database connections established	Number of first database connections established.
DB - Deletes from range indexes	Number of rows deleted from range indexes.
DB - Full table scans	Number of full table scans.

**Table 14–7 (Cont.) Performance Data**

<b>Metric</b>	<b>Description</b>
DB - Hash index inserts during database recovery index rebuild	Number of rows inserted into hash indexes during index rebuild phase of database recovery.
DB - Hash indexes scanned	Number of hash indexes scanned.
DB - Hash indexes scanned during replication	Number of hash indexes scanned during replication operations (such as insert, update, and delete operations on tables).
DB - Indexes rebuilt	Number of indexes rebuilt.
DB - Inserts into range indexes	Number of rows inserted into range indexes.
DB - LRU aging commits done since database loaded	Number of LRU aging commits since the database was loaded into memory.
DB - LRU aging cycles completed since database loaded	Number of LRU aging cycles completed since the database was loaded into memory.
DB - LRU aging high threshold crossings since database loaded	Number of times LRU aging high threshold has been reached since the database was loaded into memory.
DB - Merge joins done	Number of merge joins done.
DB - Nested loop joins done	Number of nested loop joins done.
DB - Range index inserts during database recovery index rebuild	Number of rows inserted into range indexes during index rebuild phase of database recovery
DB - Range indexes scanned	Number of temporary indexes scanned.
DB - Range indexes scanned during replication	Number of temporary indexes scanned during replication operations.
DB - Rows deleted during LRU aging since database loaded	Number of rows deleted during LRU aging since the database was loaded into memory.
DB - Rows deleted during time-based aging since database loaded	Number of rows deleted during time-based aging since the database was loaded into memory.
DB - Rows deleted from hash indexes	Number of rows deleted from hash indexes.
DB - Rows fetched from hash indexes	Number of rows fetched from hash indexes.
DB - Rows fetched from hash indexes during replication	Number of rows fetched from hash indexes during replication operations.
DB - Rows fetched from range indexes during replication	Number of rows fetched from range indexes during replication operations.
DB - Rows fetched from temp indexes during replication	Number of rows fetched from temporary indexes during replication operations.
DB - Rows fetched from temporary indexes	Number of rows fetched from temporary indexes.
DB - Rows inserted into hash indexes	Number of rows inserted into hash indexes.

**Table 14–7 (Cont.) Performance Data**

<b>Metric</b>	<b>Description</b>
DB - Rows not deleted using LRU aging because of lock contention	Number of rows that were not deleted using LRU aging because of lock contention since the database was loaded into memory.
DB - Rows not deleted using time-based aging - lock contention	Number of rows that were not deleted using time-based aging because of lock contention since the database was loaded into memory.
DB - Sorts done	Number of sorts done.
DB - Table rows deleted	Number of table rows deleted.
DB - Table rows inserted	Number of table rows inserted.
DB - Table rows read	Number of table rows read.
DB - Table rows updated	Number of table rows updated.
DB - Temporary indexes created	Number of temporary indexes created.
DB - Temporary indexes scanned	Number of range indexes scanned.
DB - Temporary indexes scanned during replication	Number of range indexes scanned during replication operations (such as insert, update, and delete operations on tables).
DB - Time-based aging commits done since the database loaded	Number of time-based aging commits since the database was loaded into memory.
DB - Time-based aging cycles completed since database loaded	Number of time-based aging cycles completed since the database was loaded into memory.
DB - Times LRU aging low threshold reached since database loaded	Number of times LRU aging low threshold has been reached since the database was loaded into memory.
DB - Tuples fetched from range indexes	Number of rows fetched from range indexes.
DB - Updates on range indexes	Number of rows updated on range indexes.
Lock - Deadlocks	Number of deadlocks.
Lock - Locks acquired for DML activity	Number of locks acquired for DML activity.
Lock - Locks acquired for table scans	Number of locks acquired for table scans.
Lock - Locks granted immediately	Number of locks granted immediately.
Lock - Locks granted that required waiting	Number of locks granted that required waiting.
Lock - Requests denied due to timeouts	Number of lock requests denied due to timeouts.
Log - Bytes inserted into the log buffer	Number of bytes inserted into the log buffer.
Log - Bytes of log read during DB recovery	Number of log bytes read during database recovery.

**Table 14–7 (Cont.) Performance Data**

<b>Metric</b>	<b>Description</b>
Log - Bytes read from log for commits	Number of bytes read from the log for commit processing.
Log - Earliest log file currently	Earliest log file that currently exists in the database.
Log - File system reads	Number of file system reads.
Log - File system reads for commits	Number of file system reads from the log for commit processing.
Log - File system writes	Number of file system writes.
Log - Last log file number	Number of last log file.
Log - Log files generated so far	Number of log files generated so far.
Log - Log records inserted into the log buffer	Number of log records inserted into the log buffer.
Log - Most recent log file present	Most recent log file present.
Log - Times the log is synched to disk	Number of times the log has been synchronized to disk.
Log - Total waits for inserts	Number of times a thread was delayed while trying to insert a log record into the log buffer because the log buffer was full. If this value is increasing, it generally indicates that the log buffer is too small.
Memory - Highest amount of permanent region in use - MB	Highest amount of memory of the permanent data region in use since the first connection to the database.
Memory - Highest amount of temporary region in use - MB	Highest amount of memory of the temporary data region in use since the first connection to the database.
Memory - MB of permanent space in use	Size of permanent region currently in use.
Memory - MB of temporary space in use	Size of temporary region currently in use.
Memory - Percent of permanent space in use	Percent of the permanent region space currently being used.
Memory - Percent of temporary space in use	Percent of the temporary region space currently being used.
PL/SQL - Cache hit ratio for object handles	The cache hit ratio for PL/SQL object handles.
PL/SQL - Cache hit ratio for pin requests	The cache hit ratio for PIN requests.
PL/SQL - Lock requests for a PL/SQL object	Number of times a lock was requested for a PL/SQL object.
PL/SQL - Object invalidations due to dependent object changes	Total number of times objects in the namespace were marked invalid because a dependent object was modified.
PL/SQL - PINs of objects not 1st performed since creation	Any PIN of an object that is not the first PIN performed since the object handle was created and which requires loading the object from the database.

**Table 14–7 (Cont.) Performance Data**

<b>Metric</b>	<b>Description</b>
PL/SQL - Times PL/SQL object's handle found in memory	Number of times a PL/SQL object's handle was found in memory.
PL/SQL - Times a PIN was requested for PL/SQL objects	Number of times a PIN was requested for PL/SQL objects.
PL/SQL - Times all metadata of library object found in memory	Number of times all of the metadata pieces of the library object were found in memory.
PL/SQL - Total heap (MB) for PL/SQL on this database connection	Total amount of heap memory in megabytes allocated to PL/SQL for the database connection.
PL/SQL - Total times a deferred cleanup occurred	Number of times a deferred cleanup occurred.
Replication - Last log file number held by replication	Number of last log file held by replication.
Replication - Transactions replicated from this database	Number of replicated transactions generated on the local database that are being replicated to at least one peer database.
Statement - ALTER statements executed	Number of ALTER statements executed.
Statement - Automatic statement reprepares	Number of automatic statement reprepares.
Statement - CREATE statements executed	Number of CREATE statements executed.
Statement - Command cache misses during statement prepare	Number of command cache misses during statement prepare.
Statement - DELETE statements executed	Number of DELETE statements executed.
Statement - DROP statements executed	Number of DROP statements executed.
Statement - INSERT statements executed	Number of INSERT statements executed.
Statement - MERGE statements executed	Number of MERGE statements executed.
Statement - SELECT statements executed	Number of SELECT statements executed.
Statement - Statement prepares	Number of statement prepares.
Statement - Statement reprepares (forced or automatic)	Number of statement reprepares including forced and automatic.
Statement - Total SQL statements executed	Number of SQL statements executed.
Statement - UPDATE statements executed	Number of UPDATE statements executed.

**Table 14–7 (Cont.) Performance Data**

<b>Metric</b>	<b>Description</b>
Transaction - Durable replicated transaction commits	Number of durable replicated transaction commits.
Transaction - Durable transaction commits	Number of durable transaction commits.
Transaction - Nondurable replicated transaction commits	Number of nondurable replicated transaction commits.
Transaction - Nondurable transaction commits	Number of nondurable transaction commits.
Transaction - Replication initiated transaction commits	Number of replication initiated transaction commits.
Transaction - Transaction rollbacks	Number of transaction rollbacks.
Transaction - Transactions committed	Number of durable and non-durable transaction committed.
Transaction - XLA initiated transaction commits	Number of XLA initiated transaction commits.
Workload - 10th most commonly executed SQL statement	Tenth most commonly executed SQL statement.
Workload - 2nd most commonly executed SQL statement	Second most commonly executed SQL statement.
Workload - 2nd most commonly prepared SQL statement	Second most commonly prepared SQL statement.
Workload - 2nd most commonly reprepared SQL statement	Second most commonly reprepared SQL statement.
Workload - 3rd most commonly executed SQL statement	Third most commonly executed SQL statement.
Workload - 3rd most commonly prepared SQL statement	Third most commonly prepared SQL statement.
Workload - 3rd most commonly reprepared SQL statement	Third most commonly reprepared SQL statement.
Workload - 4th most commonly executed SQL statement	Fourth most commonly executed SQL statement.
Workload - 4th most commonly prepared SQL statement	Fourth most commonly prepared SQL statement.
Workload - 4th most commonly reprepared SQL statement	Fourth most commonly reprepared SQL statement.

**Table 14–7 (Cont.) Performance Data**

<b>Metric</b>	<b>Description</b>
Workload - 5th most commonly executed SQL statement	Fifth most commonly executed SQL statement.
Workload - 5th most commonly prepared SQL statement	Fifth most commonly prepared SQL statement.
Workload - 5th most commonly repprepared SQL statement	Fifth most commonly repprepared SQL statement.
Workload - 6th most commonly executed SQL statement	Sixth most commonly executed SQL statement.
Workload - 7th most commonly executed SQL statement	Seventh most commonly executed SQL statement.
Workload - 8th most commonly executed SQL statement	Eighth most commonly executed SQL statement.
Workload - 9th most commonly executed SQL statement	Ninth most commonly executed SQL statement.
Workload - Cache hits	Number of hits inside cache.
Workload - Client/Server connections	The number of current active client/server connections on the TimesTen database.
Workload - Commands prepared	Number of commands prepared (compiled).
Workload - Commands repprepared	Number of commands repprepared.
Workload - Communication with Oracle database for dynamic load	Number of executes from the Oracle database using dynamic load.
Workload - Cursor opens	Number of cursor opens.
Workload - Cursors closed	Number of cursor closed.
Workload - Direct linked connections	The number of current direct mode connections on the database.
Workload - Fetches from Oracle database using dynamic load	Number of fetches from the Oracle database using dynamic load.
Workload - Most commonly executed SQL statement	Most commonly executed SQL statement.
Workload - Most commonly prepared SQL statement	Most commonly prepared SQL statement.
Workload - Most commonly repprepared SQL statement	Most commonly repprepared SQL statement.
Workload - Passthrough count	Number of passthrough operations executed.
Workload - System connections	The sum of the current active subdaemon, replication agent, and cache connect agent connections.

**Table 14–7 (Cont.) Performance Data**

<b>Metric</b>	<b>Description</b>
Workload - Total number of connections	Sum of all current active connections on the TimesTen database.

## Performance rates

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 last minute or the per-minute rate (if you have changed the most recent collection interval to a value other than one minute).

Table 14–8 shows each metric and describes the metrics.

**Table 14–8 Performance Rates**

<b>Metric</b>	<b>Description</b>
Cache - Rows per batch in PL/SQL mode	The number of rows sent per batch in PL/SQL mode to the Oracle database.
Cache - Rows per batch in SQL mode	The number of rows sent per batch in SQL mode to the Oracle database.
Cache - Total AWT MB per sec	The number of megabytes of AWT transactions sent per second to the Oracle database.
Cache - Transactions committed on Oracle database per sec	The number of transactions committed per second on the Oracle database.
Cache - Transactions propagated to Oracle database per sec	The number of transactions propagated per second to the Oracle database.
Cache grid - Cache grid attaches per minute	The number of cache grid attaches per minute.
Cache grid - Cache grid detaches per minute	The number of cache grid detaches per minute.
Cache grid - Cache grid global hit percent	The number of cache grid global hit percent (percent is found in local grid member).
Cache grid - Cache grid global hits per sec	The number of cache grid global hits per second.
Cache grid - Cache grid global misses per sec	The number of cache grid global misses per second.
Cache grid - Cache grid local hits per sec	The number of cache grid local hits per second.
Cache grid - Cache grid local misses per sec	The number of cache grid local misses per second.
Cache grid - Cache grid misses filled from Oracle database per sec	The number of cache grid misses filled from the Oracle database per second.
Client/Server - ALTER statements executed by server per sec	The number of ALTER statements executed per second by the TimesTen server.
Client/Server - Bytes received by server per sec	The number of client/server bytes received per second by the TimesTen server.



**Table 14–8 (Cont.) Performance Rates**

<b>Metric</b>	<b>Description</b>
Client/Server - Bytes transmitted by server per sec	The number of client/server bytes transmitted per second by the TimesTen server.
Client/Server - CREATE statements executed by server per sec	The number of CREATE statements executed per second by the TimesTen server.
Client/Server - DELETE statements executed by server per sec	The number of DELETE statements executed per second by the TimesTen server.
Client/Server - DROP statements executed by server per sec	The number of DROP statements executed per second by the TimesTen server.
Client/Server - INSERT statements executed by server per sec	The number of INSERT statements executed per second by the TimesTen server.
Client/Server - MERGE statements executed by server per sec	The number of MERGE statements executed per second by the TimesTen server.
Client/Server - Round trips per sec	The number of client/server round-trips per second.
Client/Server - SELECT statements executed by server per sec	The number of SELECT statements executed per second by the TimesTen server.
Client/Server - Table rows deleted by server per sec	The number of table rows deleted per second by the TimesTen server.
Client/Server - Table rows inserted by server per sec	The number of table rows inserted per second by the TimesTen server.
Client/Server - Table rows updated by server per sec	The number of table rows updated per second by the TimesTen server.
Client/Server - Transaction rollbacks by server per sec	The number of transaction rollbacks per second by the TimesTen server.
Client/Server - Transactions committed by server per sec	The number of transactions committed per second by the TimesTen server.
Client/Server - UPDATE statements executed by server per sec	The number of UPDATE statements executed per second by the TimesTen server.
DB - Table rows deleted per minute	The number of table rows deleted per minute in the TimesTen database.
DB - Table rows inserted per minute	The number of table rows inserted per minute in the TimesTen database.
DB - Table rows read per minute	The number of table rows read per minute in the TimesTen database.
DB - Table rows updated per minute	The number of table rows updated per minute in the TimesTen database.
Lock - Deadlocks per minute	The number of deadlocks per minute.
Lock - Immediate lock grants per minute	The number of nonblocking locks acquired per minute.

**Table 14–8 (Cont.) Performance Rates**

<b>Metric</b>	<b>Description</b>
Lock - Lock grants after wait per minute	The number of blocking locks acquired per minute.
Lock - Lock timeouts per minute	The number of lock timeouts per minute.
Lock - Percent locks granted immediately	The percent of locks granted immediately versus having to wait.
Log - Log buffer MB inserted per sec	The number of megabytes inserted into the log buffer per second.
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 bytes to disk per minute in MB	The number of megabytes of log that was written to disk per minute.
Log - Log flushes to file system per minute	Number of times per minute the log buffer was written to the file system.
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.
Prepares per minute to executes per minute ratio	The ratio of the prepares per minutes to executes per minute.
Replication - Transactions replicated per minute	The number of transactions replicated to a peer per minute.
Statement - DELETE statements executed per sec	The number of <code>DELETE</code> statements executed per second.
Statement - INSERT statements executed per sec	The number of <code>INSERT</code> statements executed per second.
Statement - MERGE statements executed per sec	The number of <code>MERGE</code> statements executed per second.
Statement - SELECT statements executed per sec	The number of <code>SELECT</code> statements executed per second.
Statement - Total statements executed per sec	The total number of statements executed per second.
Statement - UPDATE statements executed per sec	The number of <code>UPDATE</code> statements executed per second.
Transaction - Transaction rollbacks per sec	The number of transactions rolled back per second.
Transaction - Transactions committed per sec	The number of transactions committed per second.
Transaction - Transactions durably committed per sec	The number of durable transactions committed per minute.
Workload - Commands prepared per minute	The number of SQL commands prepared (compiled) per minute.
Workload - Commands repprepared per minute	The number of SQL commands repprepared (recompiled) per minute.
Workload - Connects per minute	The number of connections to the database per minute.
Workload - Disconnects per minute	The number of disconnects from the database per minute.

**Table 14–8 (Cont.) Performance Rates**

Metric	Description
Workload - Queries per sec	The number of queries per second.

## Readonly cache

Table 14–10 shows readonly cache metrics and describes the metrics.

**Table 14–9 Readonly Cache**

Metric	Description
Auto refresh status	The status of the autorefresh operation.
Cache group ID	The identifier of the cache group.
Cache group name	The name cache group.
Cache group owner	The owner of the cache group.
Object Identifiers	The object identifier of the table on the Oracle database.
Refresh Interval	The refresh interval for the cache group.
Refresh Time Spent(ms)	The total time spent performing refresh operations.
Rows autorefreshed	The number of rows that have been autorefreshed.
Start Time	The timestamp of when the last autorefresh was performed.
Updates pending refresh	The number of updates that are pending refresh.

## Replication peers

Table 14–10 shows replication peers metrics and describes the metrics.

**Table 14–10 Replication Peers**

Metric	Description
Replication peer host name	Name of the system that hosts replication.
Replication peer name	If replication type is DNS, name of the database to be queried. If replication type is PEERS, name of the database that is a replication peer to this database.
Replication port number	TCP/IP port used by the replication agent to listen for connections from the transmitter threads of remote replication agents. The default is 0 indicating that this port has been assigned automatically to the replication agent, rather than being specified as part of a replication scheme.
Replication protocol	Protocol used by replication to communicate between peers.
Replication state	Current replication state of the replication peer in relation to the queried database.
Type	The replication type.

## Replication status

Table 14–11 shows replication status information.

**Table 14–11 Replication Status**

Name	Description
Replication peer name	The replication peer name.
Replication thread type	The replication thread type. Valid values are Transmitter or Receiver.
Start or restart count	Start or restart count.
Transactions sent or received	The total number of transactions sent or received.
Transactions sent or received per sec	The number of transactions sent or received per second.

## Replication subscribers

[Table 14–12](#) shows replication subscriber information.

**Table 14–12 Replication Subscribers**

Name	Description
Average latency time (in seconds)	The average latency time in seconds between when the master sends a message and when it receives the final acknowledgment from the subscriber.
Last message received	Time in seconds since this subscriber received the last message from the master.
Last message sent	Time in seconds since the master sent the last message to the subscriber. This includes the "heartbeat" messages sent between the databases.
Replication host name	Name of the system that hosts the subscriber.
Replication peer name	Name of the subscriber database.
Replication port number	TCP/IP port used by the subscriber agent to receive updates from the master. A value of 0 indicates that replication has automatically assigned the port.
Replication protocol	Protocol used by replication to communicate between master and subscribers.
Replication state	Current replication state of the subscriber peer in relation to the queried database.
Replication track	Replication track.
Txn log files held by the master database for a subscriber	Number of transaction log files the master database is retaining for a subscriber.

## Replication tracks

[Table 14–15](#) shows replication tracks information.

**Table 14–13 Replication Tracks**

Name	Description
Receiver batch commit counts	The total number of batch commits on the receiver.
Receiver batch commit time	The total time of batch commits on the receiver.
Receiver txn commit counts	The total number of commits on the receiver.
Receiver txn commit waits	The total number of commits waits on the receiver.

**Table 14–13 (Cont.) Replication Tracks**

Name	Description
Subscriber	The subscriber database.
Track	The track number.
Transmitter log waits	The log waits from the transmitter.

## Replication state

[Table 14–11](#) shows replication state information.

**Table 14–14 Replication State**

Name	Description
Cache grid State	The current state of the cache grid if the active standby pair is configured for cache grid. If cache grid is not configured the status is No Cache Grid.
State	The current replication state of the database in an active standby pair.

## Response

[Table 14–15](#) shows response information.

**Table 14–15 Response**

Name	Description
Status	Valid values are Up or Down.

## SQL command cache

[Table 14–16](#) describes information in the SQL command cache.

**Table 14–16 SQL Command Cache**

Name	Description
Command ID	The SQL command identifier.
Executions which took place on this command	The number of executions that took place on this command since it was brought into the command cache.
Fetch executions done internally for this statement	The number of fetch executions that were done internally for this statement.
Indicates if command can be garbage collected	Indicates whether this command can be garbage collected by the subdaemon. If 0, it is non-freeable. If 1, it is freeable.
Last measured execution time of the command	The last measured execution time for this SQL command.
Maximum execute time in seconds of this statement	The maximum execution time in seconds for this SQL command.
Minimum execute time in seconds	The minimum execution time in seconds for this SQL command.
Reprepares or invalidations of this command	A counter for the number of reprepares or invalidations of this command.
SQL for the current command	The full SQL text for the current command.

**Table 14–16 (Cont.) SQL Command Cache**

Name	Description
Space(bytes) allocated for this command in the command cache	The total space in bytes allocated for this command in the command cache.
Time when the statement started	The time of when the last execution of the SQL statement started.
Unique ID of a private connection	Unique identifier of a private connection.
User prepares which result in a hit on the command cache	A counter for the number of user prepares that result in a hit in the command cache.
User who created this command	The identifier of the user who created this command.

## SQL execution time histogram

Table 14–18 shows SQL execution time histogram information.

**Table 14–17 SQL Execution Time Histogram**

Name	Description
Accumulated wall clock execution time(sec) when sampling	The accumulated wall clock execution time when sampling in seconds.
Execution Time(sec) upper bound for the bucket	The execution time upper bound limit for this bucket in seconds.
Execution time samples since database start or statistics reset	The number of execution time samples that have been taking since the database has started or since statistics were reset.
SQL command count in this bucket	The SQL command count in this bucket.

## Transaction log holds

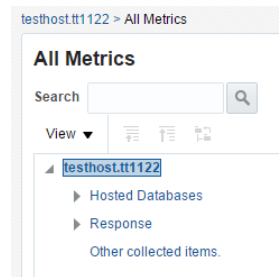
Table 14–18 shows transaction log holds information.

**Table 14–18 Transaction Log Holds**

Name	Description
Object for which the hold was created	The type specific object for which the hold was created.
Transaction log file number of the hold	The transaction log file number of the hold.
Transaction log file offset of the hold	The transaction log file offset of the hold.
Type of hold	The type of hold.

## Viewing TimesTen instance metrics

There are two groups of TimesTen instance metrics:

**Figure 14–4 TimesTen Instance All Metrics**

- [Hosted databases](#)
- [Response](#)

Some metrics have predefined warning and critical thresholds. You can modify and add new thresholds. The Oracle Enterprise Manager Cloud Control issues alerts and warnings when the values collected for the metrics surpass the set threshold.

## Hosted databases

[Table 14–18](#) shows hosted databases information.

**Table 14–19 Hosted Databases**

Name	Description
Cache agent	This value can be either Up or Down. If you have not configured a cache group, then this value is Down.
Client server connections	The number of client/server connections to the database.
Database path name	The value is taken from the last part of the path to the database. For example, if the path to the database is <code>/var/tt/sampledb_1122</code> , the database name is <code>sampledb_1122</code> .
PL/SQL	This value can be either Enables or Disabled. Once PL/SQL support is enabled in a database, you cannot disable it later.
Ram status	This value can be either Loaded or Not loaded. The RAM status is Loaded if the database is loaded into memory.
Replication agent	This value can be either Up or Down. If you have not configured a replication scheme, then this value is Down.
Total connections	The total number of direct mode and client/server connections to the database.

## Response

[Table 14–18](#) shows response information.

**Table 14–20 Response**

Name	Description
Status	Valid values are Up or Down.





---

## Viewing Target Topology

This chapter describes the TimesTen topology page. The topology page provides a visual layout of the relationships between Enterprise Manager targets and performance information about your targets.

Topics include:

- [Viewing the topology page](#)
- [Changing the view of the topology page](#)
- [Adding monitoring metrics](#)

### Viewing the topology page

To view the topology page, ensure that you are on the TimesTen target page. For information on navigating to the TimesTen target page, see "[Navigating to the TimesTen target page](#)" on page 2-1.

Depending on the type of target there are two ways of accessing the topology page:

- For a TimesTen instance target:  
From the **TimesTen Instance Home** menu, select **Configuration**, then select **Topology**.
- For a TimesTen database target:  
From the **TimesTen Database Home** menu, select **Configuration**, then select **Topology**.

### Changing the view of the topology page

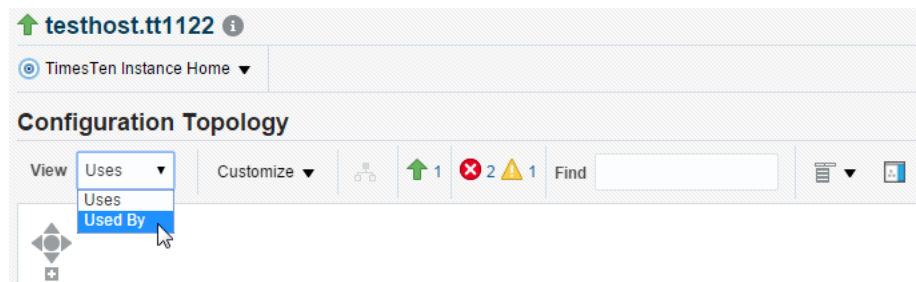
The topology page provides a visual layout of the relationships between Enterprise Manager targets and performance information about your targets.

To change the view of the topology page:

1. From the **View** drop-down list, select a view type:
  - **Uses**  
This view helps you determine the targets that the selected target depends on. If a target is having problems, this view can be useful in helping you determine whether its problems have been caused by another target it depends on. This is the default view.
  - **Used by**

This view shows you the targets that depend on the selected target. This can be useful, for example, to view a certain TimesTen metric for the TimesTen databases that are associated with a specific TimesTen instance.

**Figure 15–1 Select view**



The topology page refreshes with your selected view type.

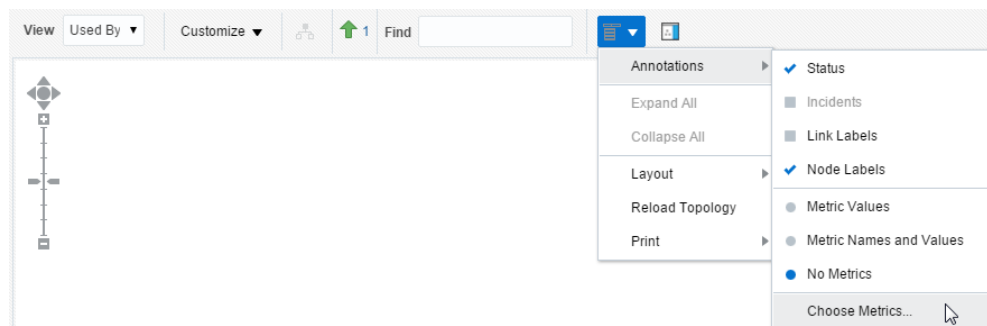
## Adding monitoring metrics

The topology page enables you to view monitoring metrics for your Enterprise Manager targets on a single page. For example, you can monitor the `PermSize` and `TempSize` attributes of all of the TimesTen databases that are associated with your TimesTen instance.

To add monitoring metrics to the targets displayed on the topology page, ensure that you are on the topology page for your TimesTen target.

1. From the **Options** menu, select **Annotations**, then select **Choose Metrics**.

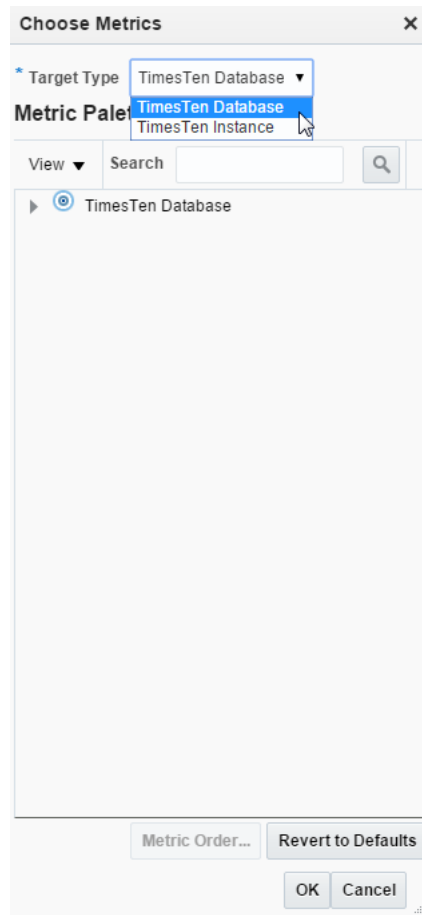
**Figure 15–2 Select Choose Metrics**



The Choose Metrics dialog displays. Locate the \* Target Type drop-down list.

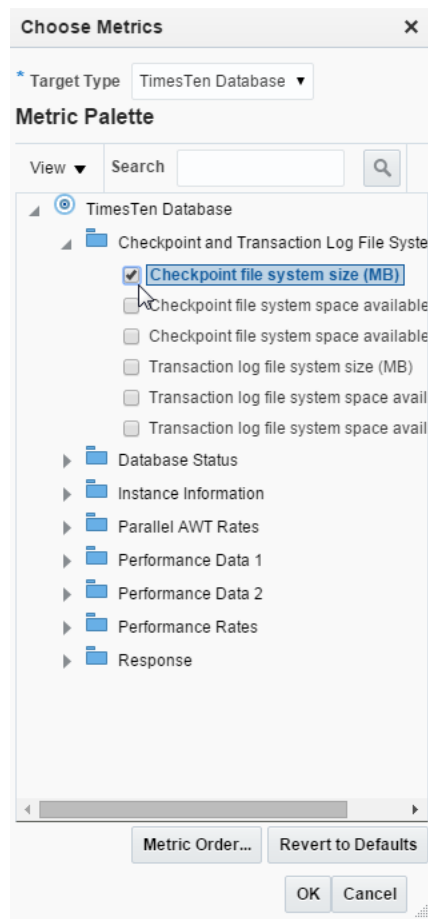
2. From the \* **Target Type** drop-down list, select a target type:
  - **TimesTen Database**  
This target type lets you choose metrics that are specific for TimesTen database targets. For more information on TimesTen database metrics, see ["Viewing TimesTen database metrics"](#) on page 14-3.
  - **TimesTen Instance**  
This target type lets you choose metrics that are specific for TimesTen instance targets. For more information on TimesTen instance metrics, see ["Viewing TimesTen instance metrics"](#) on page 14-24.

**Figure 15–3** Select the target type



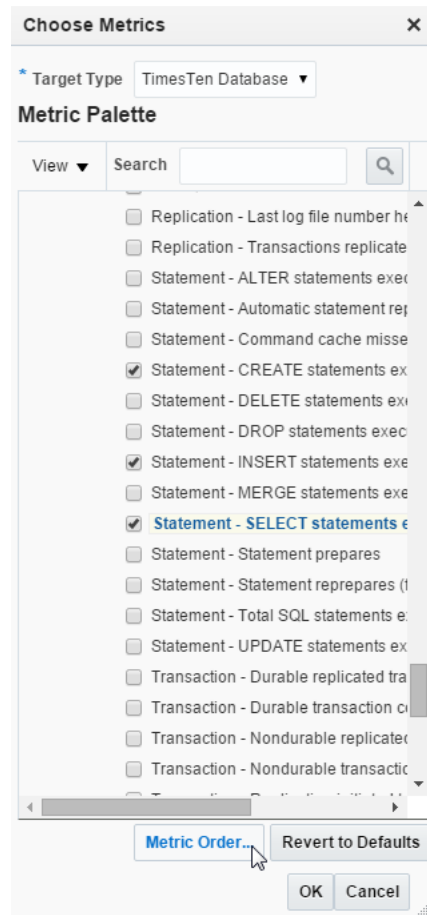
Locate the name of the metric group.

3. Expand the metric group, and click the **name of the metric**.

**Figure 15–4 Choose Metrics dialog**

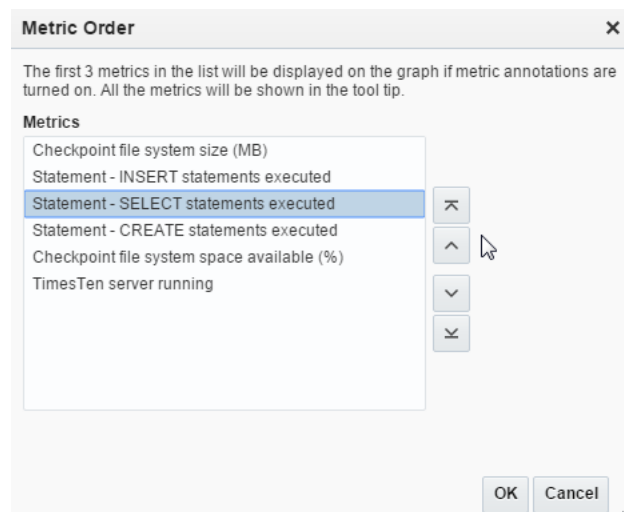
Repeat this step until you add all of the metrics that you want to monitor. Locate the Metric Order button.

4. Click **Metric Order**.

**Figure 15–5 Click Choose Metric**

The Metric Order dialog displays. The first three metrics in the list are displayed for each of your Enterprise Manager target on the topology page. Additional metrics are displayed in the tooltip of the Enterprise Manager target.

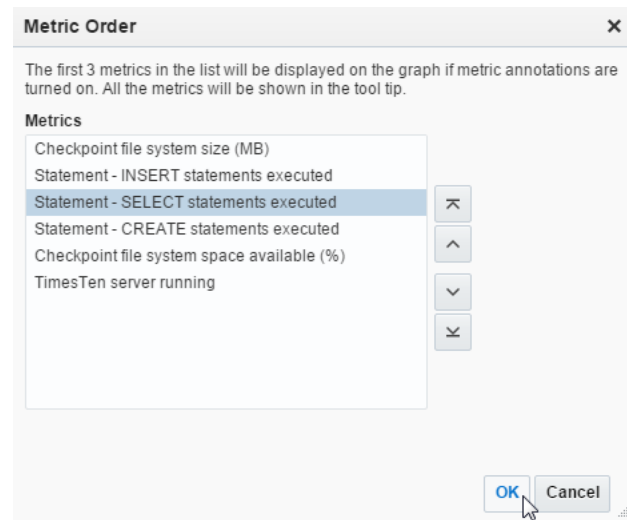
5. Organize the metrics with the arrows that are on the right of the metric list.

**Figure 15–6 Organize the metrics**

Locate the OK button.

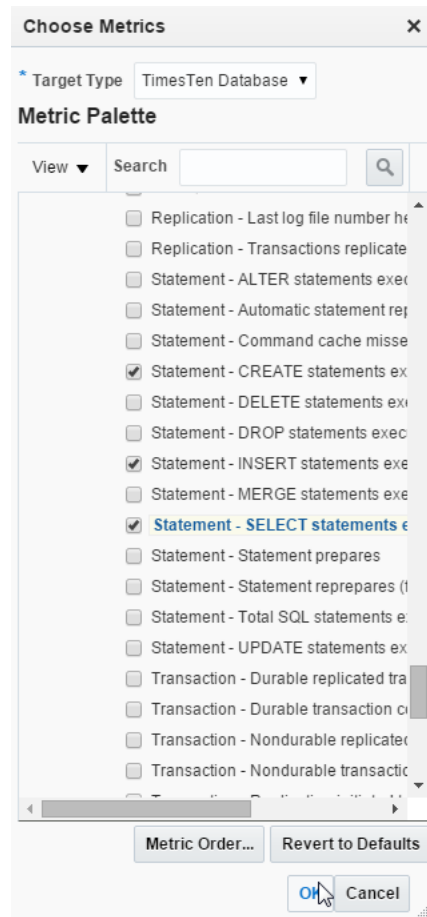
6. Click **OK**.

**Figure 15–7 Click OK**



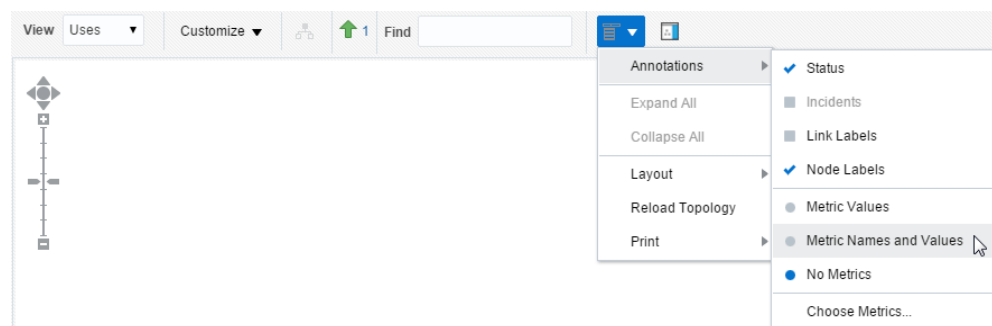
The Metric Order dialog closes. Locate the OK button in the Choose Metrics dialog.

7. Click **OK**.

**Figure 15–8 Click OK**

The Choose Metrics dialog closes. Locate the Options button on the topology page.

8. From the **Options** menu, select **Annotations**, then select **Metric Names and Values**.

**Figure 15–9 Select Metric Names and Values**

The Topology page refreshes.

Your targets now show the top three metrics that you configured. Hover over a target and click the **more** link in the popup to see all of your configured metrics for a specific target.





---

---

# Index

## A

---

access control  
    group, 3-1  
    overview, 3-1  
    roles, 3-5  
    users, 3-14  
        granting preferred credentials, 3-18  
agent  
    status, 5-2  
auto refresh  
    set, 2-5

## B

---

backup  
    full, 11-5  
    incremental, 11-3  
backup file  
    delete, 11-13  
backup schedule  
    activate, 11-6  
    create, 11-2  
    deactivate, 11-7  
    delete, 11-10  
    immediate backup, 11-9

## C

---

cache  
    viewing, 12-1  
control operations  
    log, 2-6  
create blackout  
    TimesTen database, 10-3  
    TimesTen instance, 9-2  
create brownout  
    TimesTen database, 10-4  
    TimesTen instance, 9-3

## D

---

database  
    restore, 11-11  
database connections  
    client/server, 5-4  
    direct linked, 5-4

database usage  
    high values, 5-4  
    permanent space, 5-4  
    temporary space, 5-4  
delete  
    backup file, 11-13  
display time period  
    set, 2-5

## E

---

end blackout  
    TimesTen database, 10-4  
    TimesTen instance, 9-3  
end brownout  
    TimesTen database, 10-4  
    TimesTen instance, 9-3

## F

---

free space  
    checkpoint file system, 5-5  
    transaction log file system, 5-5

## I

---

installation  
    deploying plug-in for TimesTen on management  
        agent, 1-12  
    deploying plug-in for TimesTen on OMS, 1-6  
    deployment  
        failure, 1-6  
    prerequisites, 1-1  
    uninstalling plug-in, 1-42

## L

---

locks  
    acquisition, 7-1  
log  
    control operations, 2-6  
log flushes  
    high rate, 6-10  
log holds  
    high volume, 6-9

## M

---

### management agent

- adding, 1-14

### metrics

- collection errors, 1-34

#### TimesTen database

- all metrics, 14-2

- checkpoint and transaction log file system usage, 14-5

- checkpoint history, 14-4

- database information, 14-5

- instance information, 14-6

- navigating, 14-1

- parallel AWT rates, 14-6

- parallel AWT tracks, 14-7

- performance data, 14-7

- performance rates, 14-18

- readonly cache, 14-21

- replication peers, 14-21

- replication state, 14-23

- replication status, 14-21

- replication subscribers, 14-22

- replication tracks, 14-22

- response, 14-23

- SQL command cache, 14-23

- SQL execution time histogram, 14-24

- transaction log holds, 14-24

- viewing, 14-3

#### TimesTen instance

- all metrics, 14-3

- hosted databases, 14-25

- navigating, 14-2

- response, 14-25

- viewing, 14-24

## P

---

### performance

- checkpoints, 6-10

- commits and rollbacks, 6-7

- locks, 6-7

- transaction logs, 6-8

- viewing, 6-1

### performance summary

- connections, 6-2

- statements, 6-2

- workload, 6-5

### plug-in

- changing monitoring configuration, 1-39

- deleting, 1-54

- validating, 1-33, 1-35, 1-39

- verifying, 1-33

## R

---

### replication

- viewing, 13-1

### restore

- database, 11-11

### restore history

- delete, 11-14

- review, 11-14

## S

---

### set

- auto refresh, 2-5

- display time period, 2-5

- SQL command cache, 5-5

## T

---

### target

- configuring, 1-17

#### database

- adding manually, 1-29

#### instance

- adding manually, 1-26

- remove, 1-42

- setting preferred credentials, 1-35

### TimesTen

- issues, 5-5

#### target page

- navigation, 2-1

### TimesTen database

#### client/server

- network usage, 8-4

- server workload, 8-2

- statements, 8-3

- configuration, 5-3

#### control

- create blackout, 10-3

- create brownout, 10-4

- end blackout, 10-4

- end brownout, 10-4

- load database into ram, 10-2

- ram policy settings, 10-2

- start/stop agents, 10-1

- unload database from memory, 10-2

- status, 5-2

- summary, 5-2

#### transaction monitor

- awaiting locks, 7-3

- outstanding locks, 7-2

### TimesTen instance

#### control

- create blackout, 9-2

- create brownout, 9-3

- end blackout, 9-3

- end brownout, 9-3

- start/stop services, 9-1

- daemon status, 4-2

- hosted databases, 4-3

- server status, 4-3

- summary, 4-2

### topology page

- adding monitoring metrics, 15-2

- change view, 15-1

### transaction

- rollback, transaction monitor

rollback, 7-2

## U

---

undeployment

    plug-in for TimesTen from management

        agent, 1-44

    plug-in for TimesTen from OMS, 1-50

uninstallation

    deleting the plug-in, 1-54

    plug-in, 1-42

