

# Oracle® SQL Developer TimesTen In-Memory Database Support

Release Notes

Release 2.1

E15859-03

March 2010

---

This document provides late-breaking information as well as information that is not yet part of the formal documentation.

This document contains the following sections:

- [Changes in this release](#)
- [Supported TimesTen releases and platforms](#)
- [Prerequisites](#)
- [Known problems and limitations](#)

## Changes in this release

This section lists changes in this release:

- [Changes for Release 2.1.1 from Release 2.1](#)
- [New features in SQL Developer 2.1](#)
- [New features in SQL Developer 1.5](#)

## Changes for Release 2.1.1 from Release 2.1

- If the `set serveroutput off` command is used before a PL/SQL block and the block calls procedures from the `DBMS_OUTPUT` package such as `PUT_LINE`, then output is no longer erroneously displayed in the **Dbms Output** pane while connected to a TimesTen database.
- If you connect to a TimesTen database using a User specified DSN and a client/server connection, and the connection string contains settings for the `TTC_SERVER_DSN`, `TTC_SERVER` and `TCP_PORT` attributes, you can successfully connect to the database. When you attempt to view the DDL statement used to create a particular database element in the SQL tab of the element's tab, a `ttSchema` utility error is no longer returned and you can successfully view the statement.

### **New features in Release 2.1.1**

- You can cache an Oracle table that contains columns of data type BLOB, CLOB, or NCLOB. In the corresponding TimesTen cache table, an Oracle BLOB column must be mapped to a TimesTen VARBINARY column, an Oracle CLOB column must be mapped to a TimesTen VARCHAR2 column, and an Oracle NCLOB column must be mapped to a TimesTen NVARCHAR2 column.

VARBINARY, VARCHAR2, and NVARCHAR2 data types have a size limit of 4 MB. Data that exceed the user-defined column size are truncated at run time.

Caching Oracle BLOB, CLOB and NCLOB columns is available in TimesTen Releases 11.2.1.5.0 and later.

### **New features in SQL Developer 2.1**

- You can create, drop, load, refresh, unload and flush cache groups. You can also view and alter the characteristics of a cache group such as its automatic refresh attributes, as well as view the definition of the cache group and its cache tables.
- You can set or change the cache administration user.
- You can define an aging policy on regular tables or cache tables. You can also view and alter the aging properties of a table.
- You can change the memory usage thresholds and aging cycle for all tables that have an LRU aging policy defined.
- You can start and stop the cache agent and replication agent processes.
- You can update and view the table and column statistics used by the query optimizer.
- You can view the execution plan of a statement.

### **New features that apply to TimesTen 11g and later**

- You can create a bitmap index on a table.
- You can create, drop, edit, compile, run, view the characteristics and details of, and export the DDL of PL/SQL packages, procedures and functions. (PL/SQL functionality is available on Microsoft Windows 32-bit systems in TimesTen Releases 11.2.1.4.0 and later, and Microsoft Windows 64-bit systems in TimesTen Releases 11.2.1.5.0 and later.)
- You can grant privileges to and revoke privileges from a particular user on database elements such as regular and cache tables, regular and materialized views, sequences, and PL/SQL packages, procedures and functions. You can also view the privileges granted to all users on a particular database element.
- The following ttlsq utility command is supported in SQL Worksheet: `set serveroutput`

## New features in SQL Developer 1.5

- Both direct-linked and client/server connections to TimesTen In-Memory Database and In-Memory Database Cache are supported.
- The **Connections** navigator supports the following database objects: cache groups, replication schemes, tables, views, indexes, sequences and materialized views.
- You can view the definitions and the properties including the SQL CREATE statements associated with the database objects from the **Connections** navigator.
- The **Connections** navigator supports creation and modification of tables, views, indexes, sequences and materialized views.
- Within the **Data** tab, you can view, sort, search and edit data in existing tables, including cache tables and replicated tables.
- You can use SQL Worksheet to compose and execute TimesTen SQL statements, call TimesTen built-in procedures and run SQL scripts.
- The following ttIsql utility commands are supported in SQL Worksheet: `desc`, `autocommit`, `version` and `dssize`
- Data from Oracle and TimesTen tables can be exported in the ttBulkCp utility text file format.
- Supports the creation of TimesTen user-defined reports.

## Supported TimesTen releases and platforms

SQL Developer 2.1 is available on 32-bit and 64-bit Microsoft Windows and Linux systems. SQL Developer 2.1 supports TimesTen In-Memory Database and Oracle In-Memory Database Cache Releases 7.0.5 and later, and 11.2.1.2.0 and later, and can be used to connect to a TimesTen database that resides on any platform that is supported by the TimesTen software.

## Prerequisites

Before you can use SQL Developer to connect to a TimesTen database:

1. Install TimesTen 7.0.5 or later release, or TimesTen 11.2.1.2.0 or later release of the TimesTen Data Manager or TimesTen Client on the same system as SQL Developer. If SQL Developer will be used to connect to a local database, at minimum install the TimesTen Data Manager on the same system as SQL Developer. If SQL Developer will be used to connect to a remote database, at minimum install the TimesTen Client on the same system as SQL Developer.
2. Execute the *TimesTen\_install\_dir*/bin/ttenv.sh or *TimesTen\_install\_dir*/bin/ttenv.csh shell script on Linux systems, or the *TimesTen\_install\_dir*\bin\ttenv.bat batch file on Microsoft Windows systems to set the TimesTen environment variables before starting SQL Developer.
3. Make sure the CLASSPATH environment variable includes the proper TimesTen JDBC driver file (*TimesTen\_install\_dir*/lib/ttjdbc6.jar on Linux systems or *TimesTen\_install\_dir*\lib\ttjdbc6.jar on Microsoft Windows systems). SQL Developer 2.1 requires Java Development Kit (JDK) 6 be installed.

## Known problems and limitations

- When you use a named connection to connect to a TimesTen database and the **Save Password** check box in the connection's **New/Select Database Connection** dialog box is not selected, you cannot perform any cache group operations such as creating or loading a cache group even if a password for the Oracle user was specified in the **Oracle Password (for Cache)** field. A "No Oracle password found in connection" error is returned when attempting to perform a cache group operation.

Also, if the **Save Password** check box is not selected, you cannot view the DDL statement for any database element such as a table or view in the element's SQL tab.

- If the "**Autocommit in SQL Worksheet**" check box is not selected, then TimesTen SQL operations within the **Connections** navigator are not always automatically committed. The user must issue an explicit commit by either clicking the **Commit** button or by issuing the **commit** command in SQL Worksheet. If the operation encounters any errors, it must be explicitly rolled back by either clicking the **Rollback** button or by issuing the **rollback** command in SQL Worksheet.

If the "**Autocommit in SQL Worksheet**" check box is selected, then TimesTen SQL operations within the **Connections** navigator are automatically committed. A transaction in SQL Worksheet is also automatically committed if there are no open tables in the transaction. If there are open tables, then the transaction in the worksheet is not automatically committed and the user must issue an explicit commit by either clicking the **Commit** button or by issuing the **commit** command in SQL Worksheet.

To access the "**Autocommit in SQL Worksheet**" check box, select **Tools > Preferences**. Then in the **Preferences** dialog box click the + to the left of the **Database** node to expand the node and select **Worksheet**.

- Setting the passthrough level to a value other than 0 can affect the SQL operations in the **Connections** navigator. Make sure this setting is reset to 0 when switching from issuing passthrough operations in SQL Worksheet back to the **Connections** navigator.

You can also create an unshared worksheet which uses a separate database connection from the **Connections** navigator so that a particular passthrough level setting applies only that worksheet. From a shared worksheet, click the **Unshared SQL Worksheet** icon or press **Ctrl+Shift+N** to create an unshared worksheet.

- If you click the + to the left of the **Indexes** node to view the list of indexes, and then click the name of the index that you want to view the characteristics of, you cannot view the index's DDL statement because the **SQL** tab is missing. To view the CREATE INDEX statement, click the **SQL** tab on the index's underlying table or materialized view.
- You can issue the `desc` command in SQL Worksheet to display column definitions for a table or a view. However, displaying the column definitions for a SQL statement or PL/SQL package, procedure or function are not currently supported.
- If you right-click the **Tables** node and select **Apply Filter**, or click the **Apply Filter** icon, then in the **Filter** dialog box select = instead of LIKE to find an exact match of a table name.

- Before you right-click the name of a table in an Oracle database and select **Export Data > ttbulkcp** to export the data in a format that is compatible with the TimesTen ttBulkCp utility, set the format for DATE and TIMESTAMP data using the following instructions:
  1. Select **Tools > Preferences**.
  2. In the **Preferences** dialog box click the + to the left of the **Database** node to expand the node.
  3. Select **NLS**.
  4. In the **Date Format** field, specify RRRR-MM-DD
  5. In the **Timestamp Format** field, specify DD-MON-RRRR HH24:MI:SSXFF

You can change the DATE and TIMESTAMP data format back to their original settings after the data has been exported.
- If you right-click a data cell in the **Data** tab of a TimesTen table and select **Export Data > ttbulkcp**, a TimesTen error may be returned or a Java exception may be thrown. The workaround is to select **Export Data > ttbulkcp** either from the **Actions** pull-down menu in any of the table's tabs or after you right-click the name of the table.
- You can right-click the name of a table and select **Export Data > ttbulkcp** to export data from the table in a format that the ttBulkCp utility recognizes. After you select **Export Data > ttbulkcp**, the **Export Data** dialog box appears. If you click the **Browse** button in the **Export Data** dialog box, the **Export File Chooser** dialog box appears. In the **File Encoding** pull-down menu of the **Export File Chooser** dialog box, you must select UTF-8 if the exported data is to be imported into a table in a TimesTen database using a ttBulkCp -i utility command because all other file encodings are not supported.
- In TimesTen 7.0 and 11g releases up to and including 11.2.1.3, if you connect to a TimesTen database with a client/server connection, you cannot view the DDL statement for any database element such as a table or view in the element's SQL tab. Also, you cannot export the DDL of PL/SQL packages, procedures and functions.
- For a table that has a time-based aging policy defined, you cannot view its DDL statement within the table's SQL tab in the following situations involving particular releases of the TimesTen JDBC driver being used and the version of the TimesTen database that contains the table:
  - TimesTen 7.0.6.0 JDBC driver and TimesTen 7.0.5 database
  - TimesTen 11.2.1.4 JDBC driver and TimesTen 7.0.5 database
  - TimesTen 11.2.1.4 JDBC driver and TimesTen 11g database up to and including 11.2.1.3

In the first case, you must use a TimesTen 7.0.6.1 or later JDBC driver. In the second case, you must upgrade the TimesTen database to release 7.0.6.1 or later, or 11.2.1.4 or later. In the third case, you must upgrade the TimesTen database to release 11.2.1.4 or later.

- In TimesTen 7.0 and 11g releases up to and including 11.2.1.3, if a user in a TimesTen database does not own any tables, you cannot use SQL Developer to create an element within that user's schema by right-clicking the node corresponding to the element type within that user's node and selecting **New ElementType** or **Create (simple)**. You must first create a table owned by that user using a command-line interface such as the `ttlsq` utility, or within SQL Developer using SQL Worksheet.
- If autocommit is disabled and DDL statements are not automatically committed, you cannot view the results of an uncommitted DDL operation performed from SQL Developer when you click the database element's SQL tab until the operation is explicitly committed.

### Issues that apply to TimesTen 11g and later

- In TimesTen 11g releases up to and including 11.2.1.5, a user that has not been granted the ADMIN privilege cannot create PL/SQL objects such as procedures, functions, and packages even if the user has been granted the CREATE PROCEDURE or CREATE ANY PROCEDURE privilege. The workaround is to grant the SELECT privilege on the SYS.SYSTEM\_PRIVILEGE\_MAP system table to the PUBLIC role.
- An "agent status cannot be determined" error is returned when you attempt to start the cache agent or the replication agent as a user that has not been granted the ADMIN privilege. The same error is returned when you attempt to perform an operation that is to be processed by the cache agent such as loading or refresh a cache group.

This problem is fixed in TimesTen Releases 11.2.1.5.0 and later. Granting the CACHE\_MANAGER privilege to the user is sufficient to perform these operations.

- When you execute a PL/SQL procedure or function, its output is written to the **Script Output** pane but not to the **Dbms Output** pane that is accessible by selecting **View > Dbms Output**.
- The hierarchical profile and debugging of PL/SQL procedures and functions in a TimesTen database are not supported.

### Issues that apply only to TimesTen 7.0

- Unlike the Oracle database, TimesTen does not implicitly commit and roll back DDL transactions. These transactions can be rolled back like DML statements.

If you select **Tools > Preferences**, then in the **Preferences** dialog box click the + to the left of the **Database** node to expand the node, select **Worksheet** but do not select the "Autocommit in SQL Worksheet" check box, TimesTen SQL operations are not automatically committed. This applies to both SQL Worksheet and the DDL operations available within the **Connections** navigator. The user must explicitly commit the transaction by either clicking the **Commit** button or by issuing the `commit` command in SQL Worksheet.

- DDL operations fail with error 'TT0941: Execution of operation not possible - dependent object is in use' when the **Data** tab is being viewed. A SELECT cursor is opened when rows are being viewed in the **Data** tab. Certain DDL statements such as ALTER TABLE .. ADD COLUMN are not allowed in TimesTen when a SELECT cursor is opened on the same table. The workaround is to ensure that the **Data** tab is not viewing the same table that you are issuing DDL statements on.

- If a user does not own any tables or materialized views, SQL Developer does not detect the user and, therefore, perceives that the user does not exist. You must use a TimesTen application such as the ttIsql utility to create a table or materialized view owned by that user in order for SQL Developer to determine that the user exists.

## Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible to all users, including users that are disabled. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at <http://www.oracle.com/accessibility/>.

### Accessibility of Code Examples in Documentation

Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

### Accessibility of Links to External Web Sites in Documentation

This documentation may contain links to Web sites of other companies or organizations that Oracle does not own or control. Oracle neither evaluates nor makes any representations regarding the accessibility of these Web sites.

### Deaf/Hard of Hearing Access to Oracle Support Services

To reach Oracle Support Services, use a telecommunications relay service (TRS) to call Oracle Support at 1.800.223.1711. An Oracle Support Services engineer will handle technical issues and provide customer support according to the Oracle service request process. Information about TRS is available at <http://www.fcc.gov/cgb/consumerfacts/trs.html>, and a list of phone numbers is available at <http://www.fcc.gov/cgb/dro/trsphonebk.html>.

Copyright © 2008, 2010, Oracle and/or its affiliates. All rights reserved.

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

U.S. GOVERNMENT RIGHTS Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are "commercial computer software" or "commercial technical data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, duplication, disclosure, modification, and adaptation shall be subject to the restrictions and license terms set forth in the applicable Government contract, and, to the extent applicable by the terms of the Government contract, the additional rights set forth in FAR 52.227-19, Commercial Computer Software License (December 2007). Oracle USA, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

This software 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 which may create a risk of personal injury. If you use this software in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure the safe use of this software. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software in dangerous applications.

Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

This software and documentation may provide access to or information on 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. 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.