

## Oracle® Rdb Extension for SQL Developer

User's Guide

Release 7.3.3.0.0

May 2018

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- Did you find any errors?
- Is the information clearly presented?
- Do you need more information? If so, where?
- Are the examples correct? Do you need more examples?
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- FAX — 603-897-3825 Attn: Oracle Rdb
- Postal service:  
Oracle Corporation  
Oracle Rdb Documentation  
One Oracle Drive  
Nashua, NH 03062-2804  
USA

If you would like a reply, please give your name, address, telephone number, and electronic mail address (optional).

If you have problems with the software, please contact your local Oracle Support Services.

## Preface

This document is your primary source of introductory, installation, post installation configuration, and usage information for Oracle Rdb Extension for SQL Developer.

This preface contains these topics:

- Audience
- Organization
- Related Documentation

- Conventions
- Documentation Accessibility

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## Audience

*Oracle Rdb Extension for SQL Developer User's Guide* is intended for developers who are developing applications to access an Oracle Rdb database. This documentation is also valuable to systems analysts, project managers, and others interested in the development of database applications.

To use this document, you must be familiar with Oracle SQL Developer and must have a working knowledge of Oracle Rdb.

Users should also be familiar with the use of Structured Query Language (SQL) to access information in relational database systems.

## Organization

This document contains:

- [\*\*Chapter 1 Introducing Oracle Rdb Extension for SQL Developer\*\*](#)  
Provides an overview of Oracle Rdb Extension for SQL Developer
- [\*\*Chapter 2 Installing Oracle Rdb Extension for SQL Developer\*\*](#)  
Describes how to install Oracle Rdb Extension for SQL Developer and provides system requirements.  
Read this chapter *before* installing or Oracle Rdb Extension for SQL Developer.
- [\*\*Chapter 3 Browsing Rdb database schema using the Rdb Extension\*\*](#)  
Describes how to browse Rdb database metadata and data using SQL Developer with the Rdb extension installed.
- [\*\*Chapter 4 Rdb Snippets\*\*](#)  
Describes the Rdb-specific snippets.

## Related Documentation

For conceptual, usage, and reference information about Oracle SQL Developer, refer to the online help available when you are running SQL Developer.

Oracle error message documentation is available only in HTML. If you have access to the Oracle Documentation CD, you can browse the error messages by range.

Once you find the specific range, use your browser's "find in page" feature to locate the specific message. When connected to the Internet, you can search for a specific error message using the error message search feature of the Oracle online documentation.

To download free release notes, installation documentation, white papers, or other Collateral on SQL Developer, go to the Oracle Technology Network (OTN). You must register online before using OTN; registration is free and can be done at

<http://www.oracle.com/technology/join/index.html>

If you already have a user name and password for OTN, then you can go directly to the documentation section of the OTN Web site at

<http://www.oracle.com/technology/documentation>

To download free release notes, installation documentation, white papers, or other collateral on Oracle Rdb, please visit the Oracle Rdb web site:

<http://www.oracle.com/rdb>

For more information, refer to these Oracle Rdb resources:

- *Oracle Rdb7 Guide to Database Design and Definition*
- *Oracle Rdb7 Guide to Database Performance and Tuning*
- *Oracle Rdb7 Introduction to SQL*
- *Oracle Rdb 7.2 SQL Reference Manual*
- *Oracle Rdb Guide to SQL Programming*
- *Oracle Rdb JDBC Driver Users Guide*

## Conventions

Oracle Rdb Extension for SQL Developer is often referred to as Rdb extension.

Oracle Rdb is often referred to as Rdb.

Oracle JDBC for Rdb is often referred to as Rdb JDBC.

Oracle JDBC for Rdb thin driver is often referred to as Rdb thin driver.

Oracle JDBC for Rdb thin server is often referred to as Rdb JDBC server.

Hewlett-Packard Company is often referred to as HP.

The following conventions are used in this document:

word	A lowercase word in a format example indicates a syntax element that you supply.
[ ]	Brackets enclose optional clauses from which you can choose one or none.
{ }	Braces enclose clauses from which you must choose one alternative.
...	A horizontal ellipsis means you can repeat the previous item
▪ ▪ ▪	A vertical ellipsis in an example means that information not directly related to the example has been omitted.

### **Conventions in Code Examples**

Code examples illustrate SQL or other command-line statements. They are displayed in a monospace (fixed-width) font and separated from normal text as shown in this example:

```
SELECT last_name FROM employees WHERE last_name = 'TOLIVER';
```

# Chapter 1 Introducing Oracle Rdb Extension for SQL Developer

Oracle SQL Developer is a graphical version of SQL\*Plus that gives database developers a convenient way to perform basic tasks.

Using the Oracle Rdb Extension for SQL Developer, you can connect to any target Oracle Rdb database using standard Oracle Rdb database authentication.

Once connected, you can perform operations on objects in the database. You can browse database objects; run SQL statements and scripts; manipulate and export data; and view and create reports.

# Chapter 2 Installing Oracle Rdb Extension for SQL Developer

To install and use Oracle Rdb Extension for SQL Developer, you simply download a ZIP file and unzip it into a desired parent directory or folder, invoke SQL Developer and then use a simple update process within SQL Developer to install the Oracle Rdb extension.

This chapter contains:

- [What You Need](#)
- [Installing Oracle Rdb Extension for SQL Developer](#)
- [Known Problems and Limitations.](#)
- [Oracle on the Web](#)

## 2.1 What You Need

This section lists the products and database schemas you need to run the examples provided in this guide.

### 2.1.1 SQL Developer

SQL Developer must be installed before you can install the Oracle Rdb Extension for SQL Developer.

Information about SQL Developer including how to download and install this product may be found at the following web site:

<http://www.oracle.com/technetwork/developer-tools/sql-developer/>

If you have not yet installed SQL Developer you should read the [Oracle SQL Developer Installation Guide](#) before you perform the installation.

The following table shows the minimum recommended version of SQL Developer:

Table 2-1 Recommendations for SQL Developer

Resource	Recommended Minimum Value
SQL Developer	Release 17.4.0

## 2.1.2 Oracle JDBC for Rdb

The Rdb extension uses Oracle JDBC for Rdb to connect to your remote Rdb database.

The following minimum version for Oracle JDBC for Rdb is required on both the client and the server side of the JDBC connection.

Table 2-5 Recommendations for Oracle JDBC for Rdb

Resource	Recommended Minimum Value
Oracle JDBC for Rdb	Release 7.3.4.0.4

Refer to the **Oracle JDBC for Rdb User's** and the **Oracle JDBC for Rdb Installation** guides for more information.

### 2.1.2.1 Oracle JDBC for Rdb thin driver

During installation, Rdb extension will place a copy of the Oracle JDBC for Rdb thin driver JAR file in the Rdb subdirectory of the SQL Developer's extensions directory:

```
<sqldeveloper installation  
dir>\sqldeveloper\extensions\oracle.rdb
```

In addition, the Rdb extension installation will configure SQL Developer to use this JAR for the Rdb JDBC access by adding the URL of this driver jar to the Third-party JDBC drivers list. The Third-party JDBC drivers list can be viewed using the **Tools:Preferences:databases:Third Party JDBC drivers** dialog within SQL Developer.

The new JAR will be inserted as the first element in the drivers list. If a URL to another instance of the Oracle JDBC for Rdb thin driver JAR already exists in the Third-Party JDBC driver list, the new driver URL will take precedence and SQL Developer will now use this new reference.

If you wish for SQL Developer to continue to use the previously existing Rdb thin driver JAR, you may move the older JAR URL entry to top of the list, however before doing so, you should ensure that the driver meets the minimum driver version as specified in **Table 2-5 Recommendations for Oracle JDBC for Rdb**.

To ensure that the Rdb extension will function correctly, Oracle recommends using the Rdb thin driver JAR provided and installed by this installation.

### **2.1.2.2 Oracle JDBC for Rdb server**

You must have an Oracle JDBC for Rdb server running on the remote computer.

The server must have access to the database you wish to connect too.

In order for the Rdb extension to work correctly within SQL Developer you should ensure that server meets the minimum driver version as specified in **Table 2-5 Recommendations for Oracle JDBC for Rdb**.

### **2.1.3 Oracle Rdb Database**

You must have Oracle Rdb installed on the remote computer.

The minimum version of Oracle Rdb supported by the Oracle JDBC for Rdb Drivers may be found in the **Oracle JDBC for Rdb Installation Guide**.

#### **2.1.3.1 Database Preconditioning**

Your database may need to have some standard Rdb scripts executed on it prior to using some of the features within SQL Developer.

Refer to [Precondition your databases](#) for details on additional tasks that may be required.

## 2.1.4 Sample Data

The sample data used in this book is the data from `MF_PERSONNEL` database which is one of the Oracle Rdb Sample databases. The sample databases are included as part of the Oracle Rdb Database installation.

## 2.2 Installing Oracle Rdb Extension for SQL Developer

These steps demonstrate how to install Oracle Rdb Extension for SQL Developer once SQL Developer is installed.

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**Note:**

Please note that as new versions of Oracle products are released, the install process may change slightly from what is shown in this guide. The screenshots are based on Oracle Rdb Extension for SQL Developer release 7.3.2.0.0 and Oracle SQL Developer version 4.1.1 running on a Windows PC.

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**To install:**

1. Download the Oracle Rdb Extension for SQL Developer Installer.zip file.

Information on how to download this installation kit can be found on the Oracle Rdb home page:

<http://www.oracle.com/rdb/>

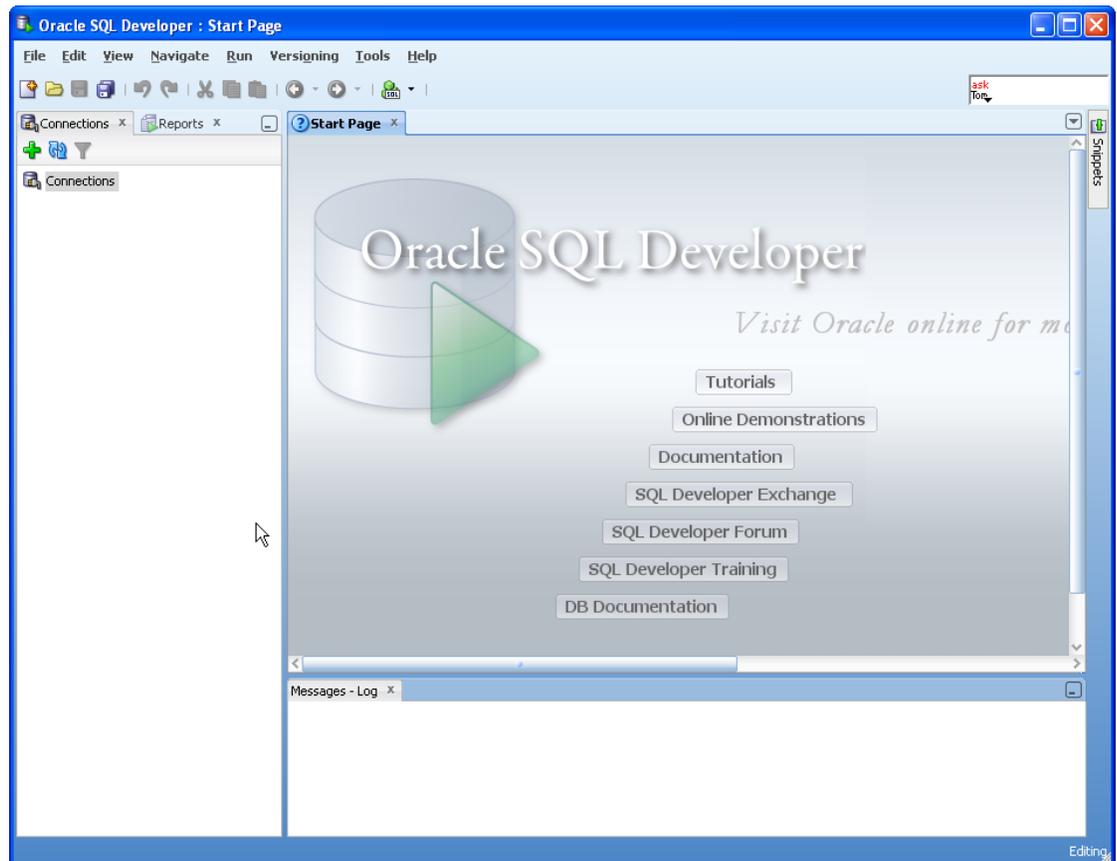
2. Invoke SQL Developer

To start SQL Developer, go to the `sqldeveloper` directory under the `<sqldeveloper_install>` directory, and do one of the following:

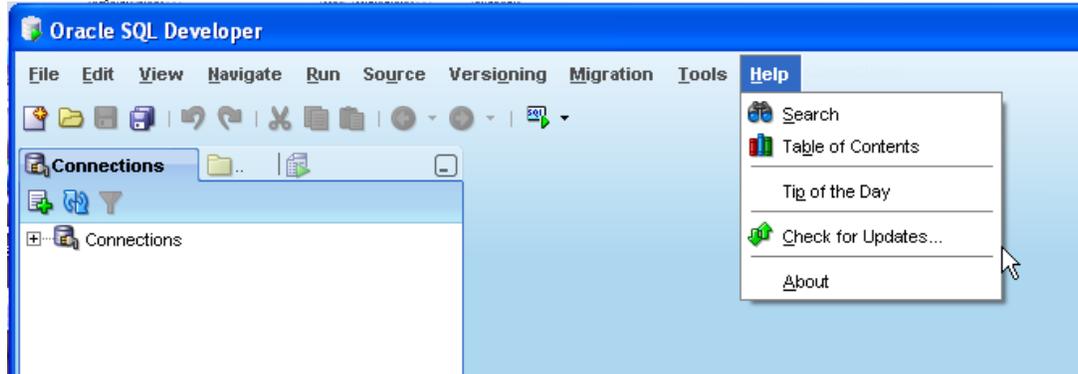
On Linux and Mac OS X systems, run **sh sqldeveloper.sh**.

On Windows systems, double-click **sqldeveloper.exe**.

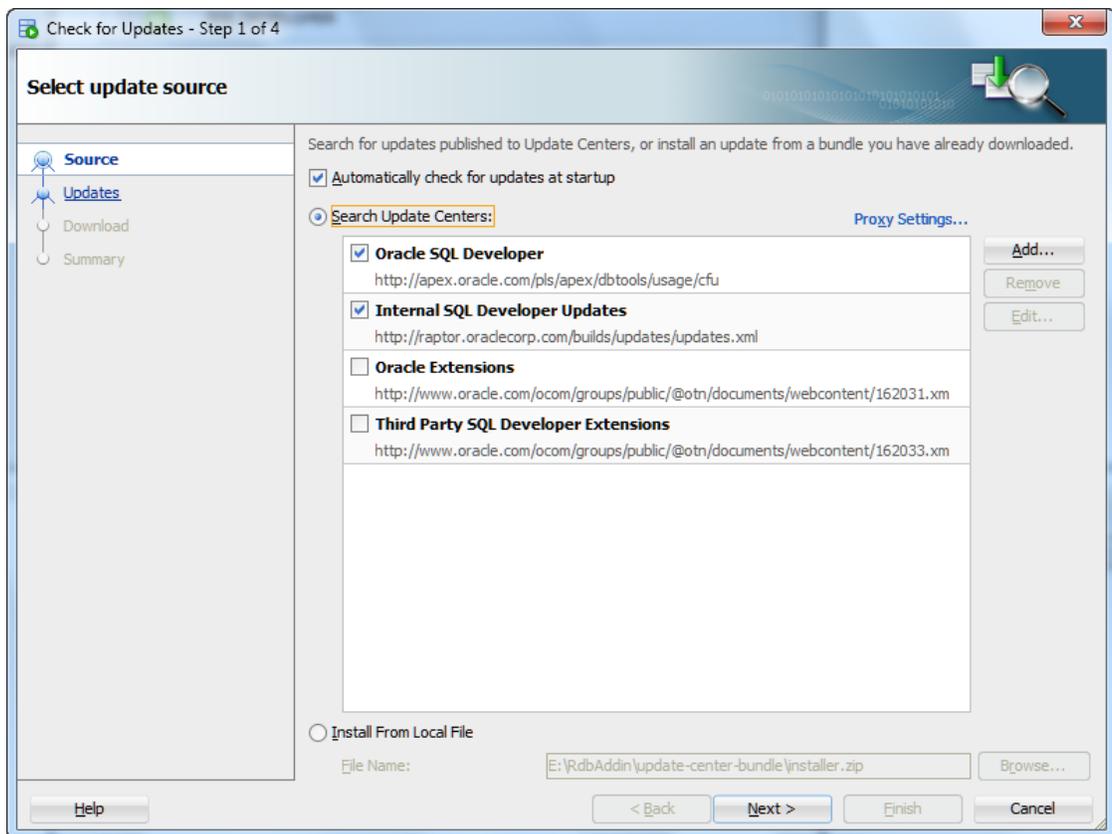
If you are asked to enter the full pathname for `java.exe`, click Browse and find **java.exe**. For example, on a Windows system the path might have a name similar to `C:\Program Files\Java\jdk1.6.0_06\bin\java.exe`.



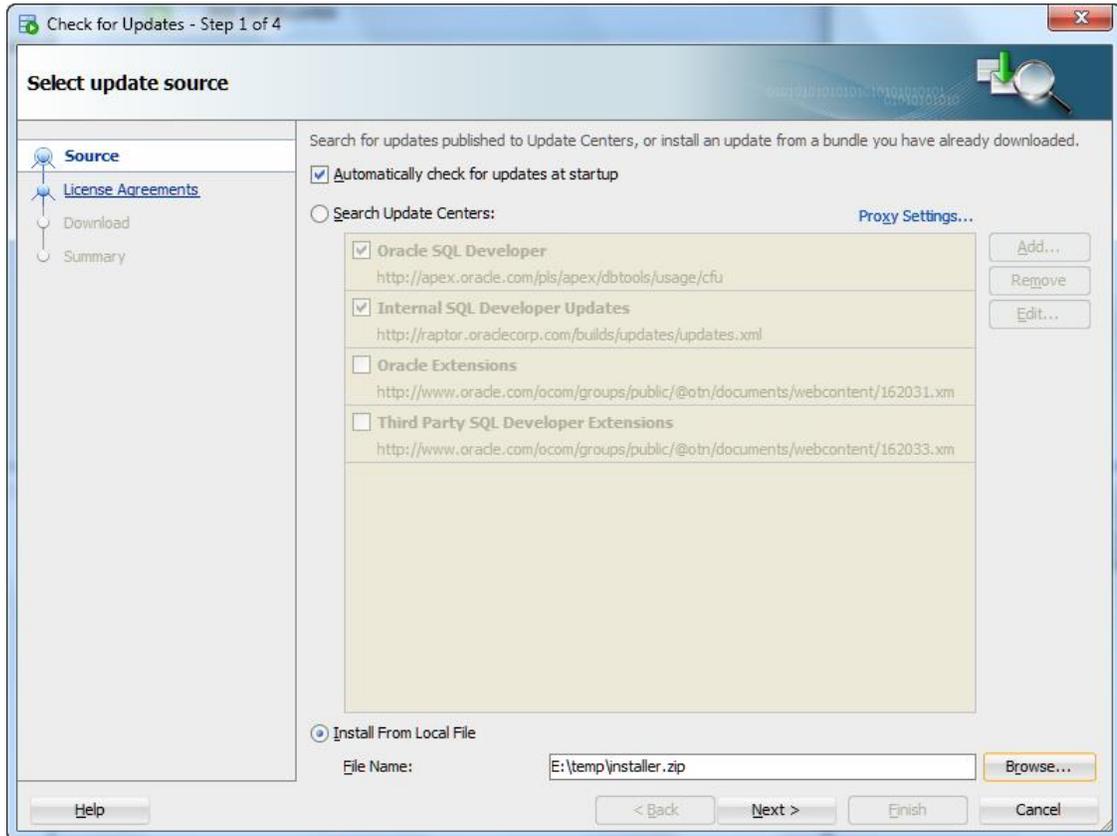
3. Click the **Check for Updates ...** entry of the **HELP** menu within the SQL Developer main window.



A **Source** form will display.

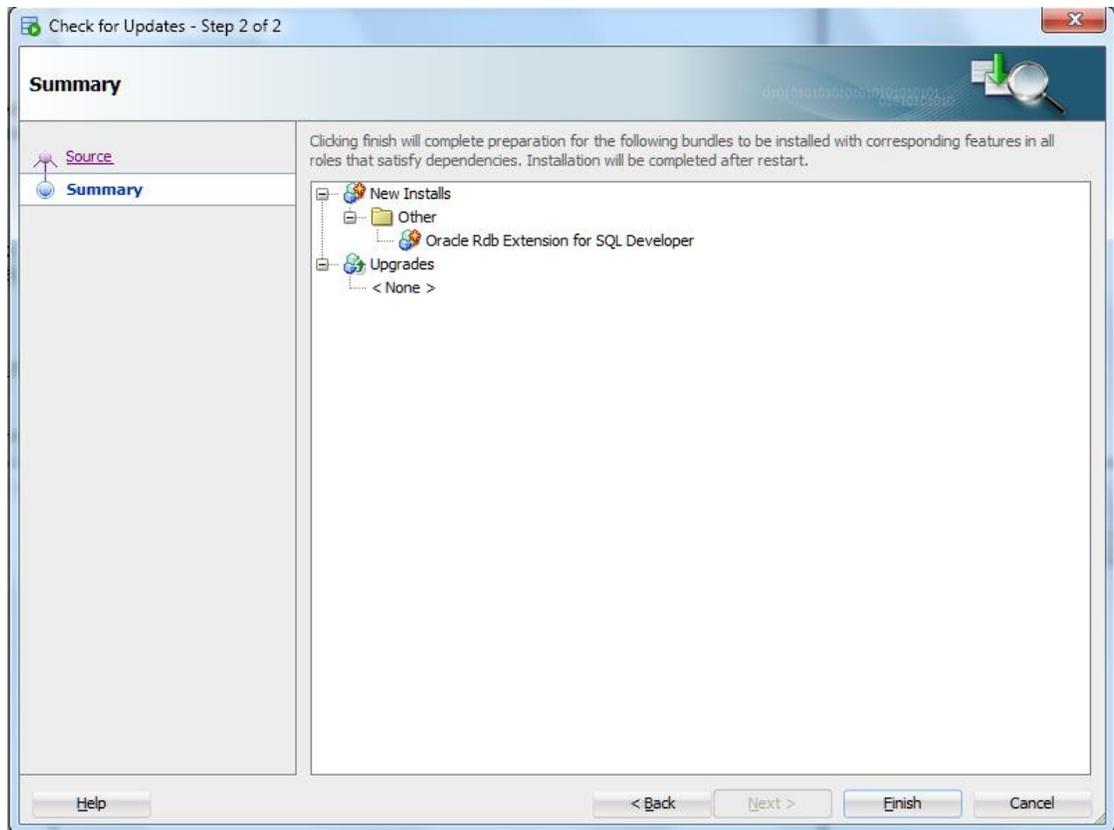


4. Click the **Install from Local File** radio button.
5. Browse or enter the path of the **installer.zip** file you downloaded.



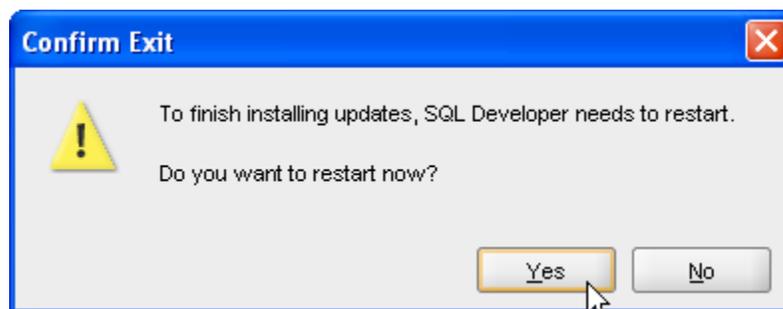
6. Click **Next**.

A **Summary** page will display.



7. Click **Finish**.

The system restart screen will appear.



8. Click **Yes**.

## 2.3 Post-Installation Tasks

After you have installed the Rdb extension, there is a further step that is required before you can utilize fully some of the features of SQL Developer.

- Precondition your databases

### 2.3.1 Precondition your databases

A number of the reports provided in `RdbSystemReports.xml` require some standard preconditioning of the database in order for the reports to execute correctly. These steps are described in the following sections.

#### 2.3.1.1 Information Tables

The Rdb System Reports rely on the standard Rdb Information tables being present in the connected database.

The Rdb Information tables may be added to your database by executing the `Info_tables.sql` script that is placed in `SQL$SAMPLE` directory created during the installation of Oracle Rdb.

You must execute this script on all databases you wish to run the Rdb System Reports on.

Refer to your Oracle Rdb documentation for more information on Information Tables.

### 2.3.2 Reports and Snippets

During installation, Rdb extension will place a copy of the Oracle JDBC for Rdb reports and snippets in the Rdb subdirectory of the SQL Developer's extensions directory :

```
<sqldeveloper installation  
dir>\sqldeveloper\extensions\oracle.rdb
```

These are the same reports and snippets that were added to SQL Developer during the extension installation and are copied here for reference purposes.

## 2.4 Known Problems and Limitations.

This section details any known problems or limitations with the current version of Oracle Rdb Extension for SQL Developer.

## 2.4.1 Metadata Manipulation Restriction

This version of the Rdb extension only enables operations that operate on the data within the Rdb Database. Operations that manipulate the metadata are currently disabled.

Metadata operations include:

- Create Object ( for example TABLE , INDEX, CONSTRAINT ...)
- Alter Object
- Drop Object
- Add Object
- Database Copy
- Database Export

## 2.4.2 Drag and Drop Restriction

The ability to drag and drop objects from an Rdb Connection is currently disabled.

For example, dragging a table object from the Connections navigator onto a SQL Worksheet will not create the appropriate SQL text segment.

This feature is disabled within the current version of SQL Developer but this restriction is expected to be lifted in a future version.

## 2.4.3 Other Disabled features

A number of features within SQL Developer and the SQL Worksheet, require functionality or features that are not available within Oracle Rdb.

In most cases these feature will be marked unavailable when used with an Rdb Connection and may be grayed-out on the UI.

Features that are specific to PL/SQL, SQL\*Plus or OWA (Oracle Web Agent) will not work with Rdb connections.

The following is a list of a number of the features that are not supported when using an Rdb connection. Please note this list is incomplete.

- View menu

- Breakpoints
- Debugger
- Run Manager
- Migrations
- DBMS Output
- OWA Output
- Run Menu
  - Run
  - Debug
- Tools Menu
  - Migration
  - Unit Tests
  - Database Copy
  - Database Diff
  - Database Export
  - Monitor SQL
  - Monitor Session

#### 2.4.4 Display of Function and Procedure source code

When you click a Function or Procedure name within the **Connections** navigator, details about the object will be displayed in the SQL Developer main display region.

Selecting the **Code** tab within the function or procedure display will display the source code of the object.

Currently the display of this source code has the following limitations:

- Code is not displayed for any External routines .
- The code displayed for stored routines is not reformatted by SQL Developer. It will be displayed in the format it was created. Any **Tab**, **New Line** or other formatting characters within the original source will be retained and displayed appropriately.

## 2.5 Oracle on the Web

Oracle provides a number of resources on the Web. These are some sites you may find helpful:

- Oracle Rdb home page:

<http://www.oracle.com/rdb/>

■ SQL Developer home page (OTN):

[http://www.oracle.com/technology/products/database/sql\\_developer/](http://www.oracle.com/technology/products/database/sql_developer/)

■ SQL Developer discussion forum (OTN):

<http://forums.oracle.com/forums/forum.jspa?forumID=260>

■ Oracle Technology Network (OTN):

<http://www.oracle.com/technology/>

■ Oracle Accessibility site:

<http://www.oracle.com/accessibility/>

■ Oracle Corporate site:

<http://www.oracle.com/>

## Chapter 3 Browsing Rdb Database Schema using the Rdb Extension

This chapter explains how the Rdb extension may be used to browse the Rdb database metadata and contains:

- [Creating a New Connection](#)
- [Displaying Database Objects](#)

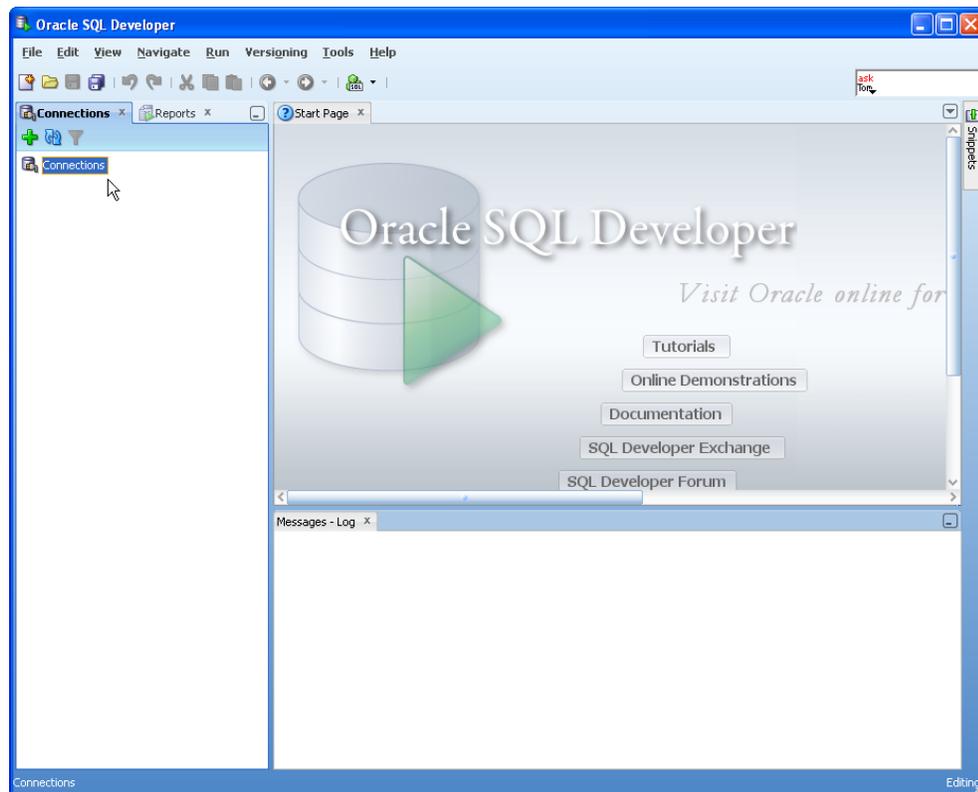
### 3.1 Creating a New Connection

A connection is a SQL Developer object that specifies the necessary information for connecting to a specific database as a specific user of that database. You must have at least one database connection (existing, created, or imported) to use SQL Developer.

You can connect to any target Oracle Rdb database using standard Oracle database authentication. Once connected, you can perform operations on objects in the database.

The connection you create in this chapter serves as a starting point for work in subsequent chapters, so it is important to follow the order of this guide.

1. Start SQL Developer.



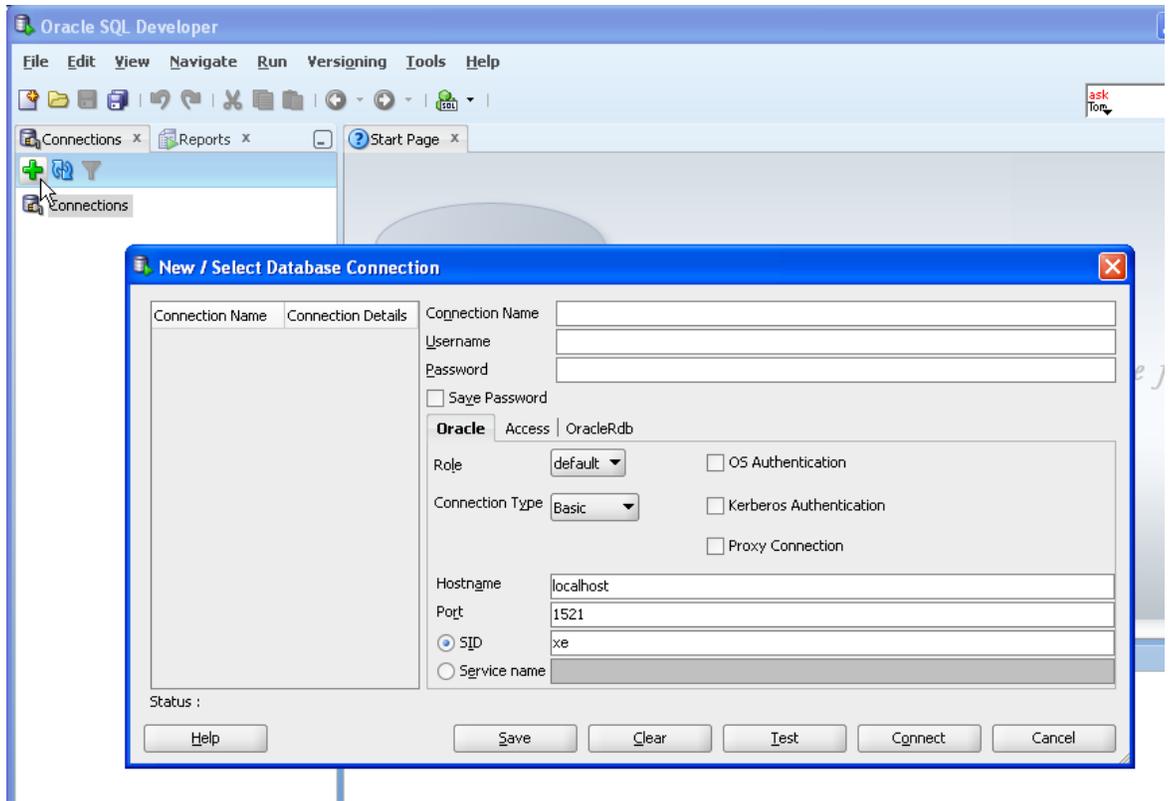
2. Create a new connection.

To create a new database connection, right-click the **Connections** node and select **New Database Connection**. Use the dialog box to specify information about the connection (Refer to SQL Developer [Section 5.13, "Create/Edit/Select Database Connection"](#)). You can also create a new database connection by selecting an existing connection in that dialog box, changing the connection name, changing other connection attributes as needed, and clicking **Save** or **Connect**.

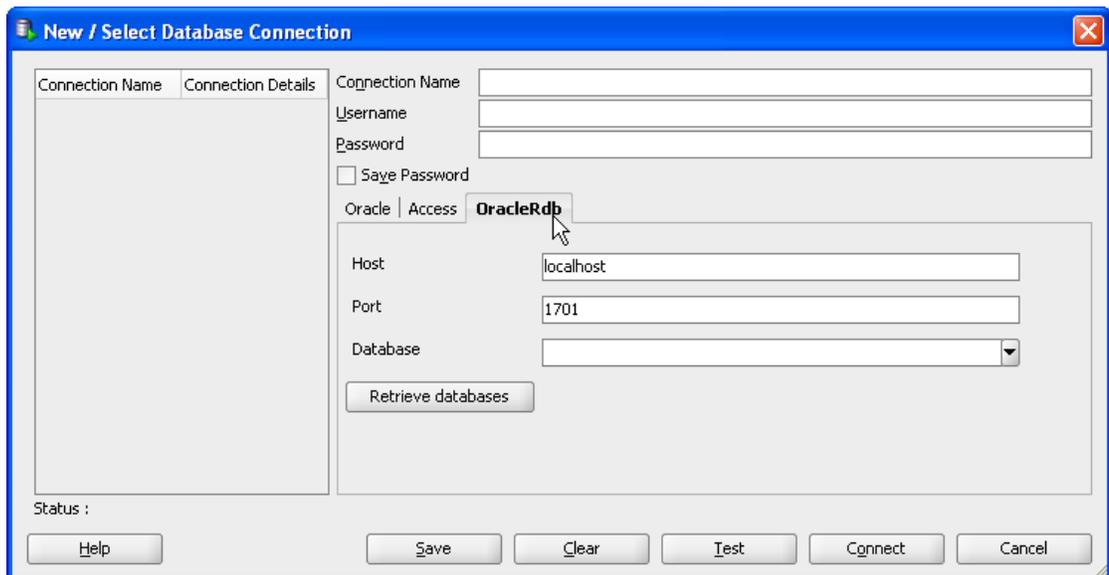
In this example we will be creating a new connection called **MF\_PERS**.

3. right-click the **Connections** node

A **New/Select Database Connection** form will display.



4. Click on the **OracleRdb** tab.



This brings up the connection information specific to Oracle Rdb .

5. Enter the connection information.

The database connection dialog box is used to create a new connection.

The following information is required to be entered:

**Connection Name:** An name for a connection to the database using the information that you enter. (The connection name is not stored in the database, and the connection is not a database object.) Suggestion: Include the database name, or name hint, and node in the connection name. Example: mf\_personnel\_node1 for connecting to MF\_PERSONNEL on NODE1.

**Username:** Name of the database user for the connection. This user must have sufficient privileges to perform the tasks that you want to perform while connected to the database, such as creating, editing, and deleting tables, views, and other objects. Refer to Oracle Rdb Installation Guide about user accounts and its privileges.

**Password:** Password associated with the specified database user.

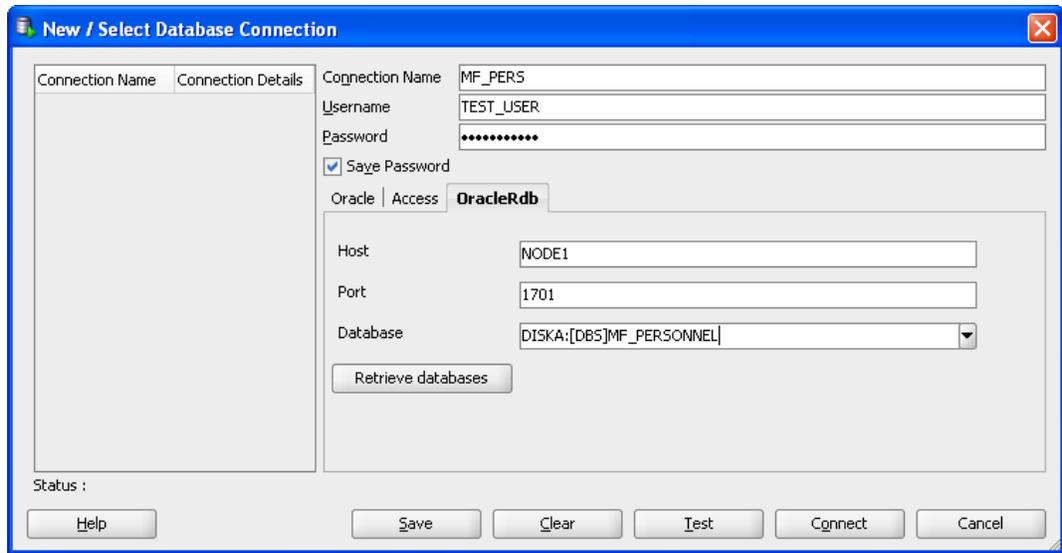
**Save Password:** If this option is checked, the password is saved with the connection information, and you will not be prompted for the password on subsequent attempts to connect using this connection.

**Host:** Host system for the Oracle Rdb database where the Oracle JDBC for Rdb server is running.

**Port:** TCP/IP Port on which Oracle JDBC for Rdb server will listen.

**Database:** The file specification of the database you wish to attach to. You may enter this information directly into the field or if you have already pressed the **Retrieve Databases** button you may select from the drop-down list of available databases.

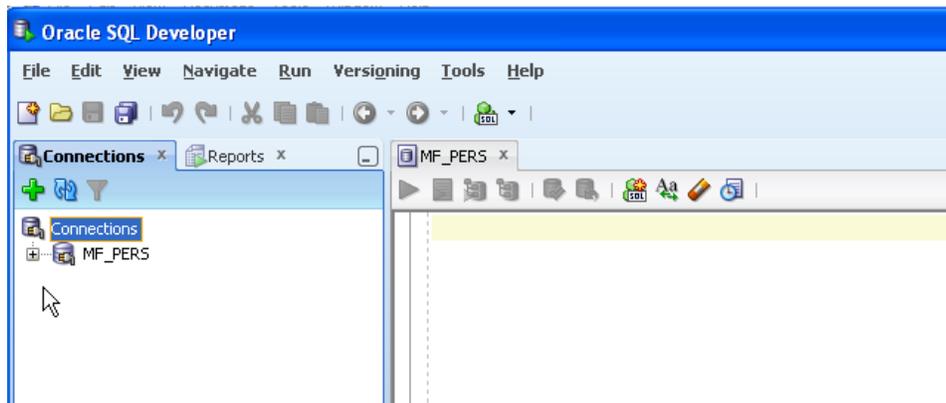
**Retrieve Databases:** Displays a list of databases known to the Oracle JDBC for Rdb server. As part of the configuration of the JDBC server, your system administration or database administrator may specify a list of databases that the server may access. If provided, this list will be displayed when you press this button.



To test the connection before you create it, click **Test**.

6. Click **Connect**.

Your connection will be saved and will be displayed in the **Connections** navigator.



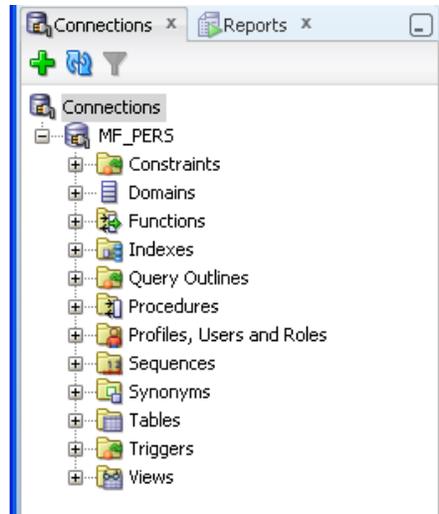
## 3.2 Displaying Database Objects

This section shows you how SQL Developer **Connections** navigator may be used to drill down on database objects held in the connected database.

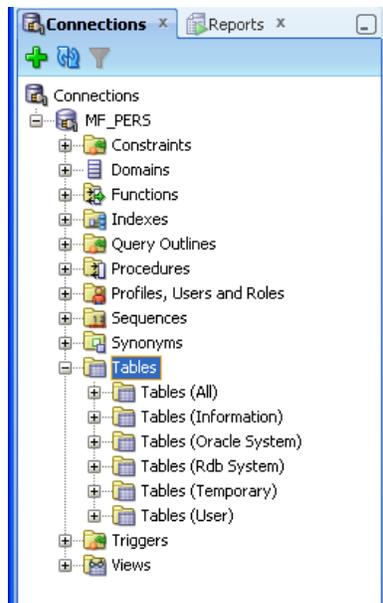
In this example we will drill down on User tables.

1. Select the database connection from the **Connections** navigator by clicking on the node for the database you wish to connect to.

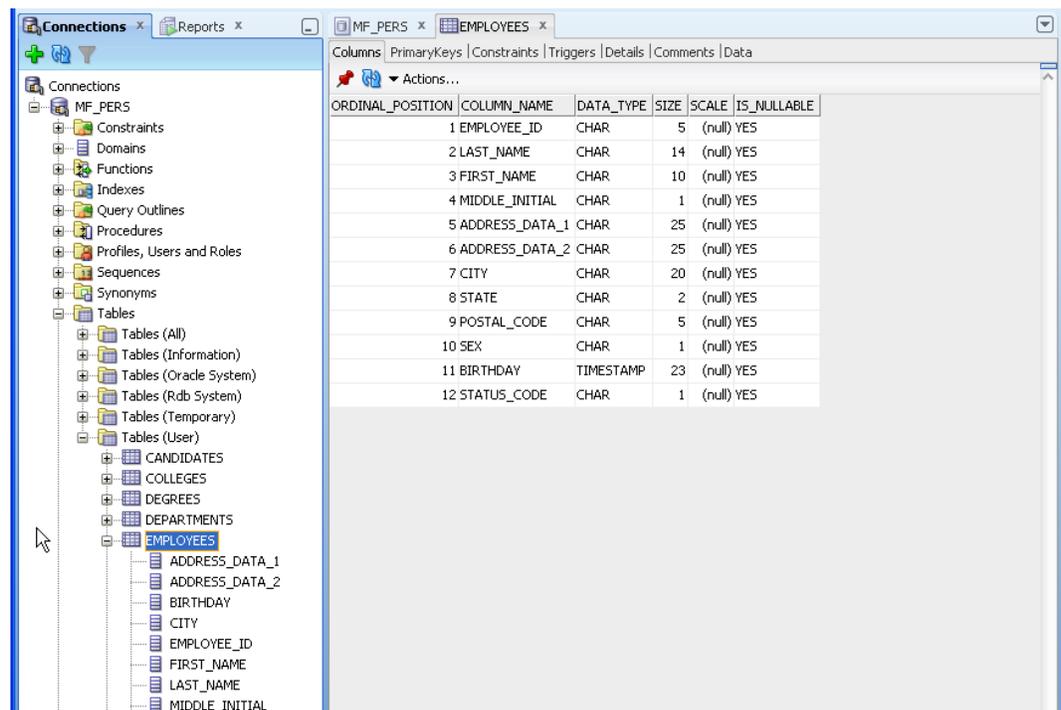
SQL Developer will make a connection to the database, if it is not already connected.



2. Select the object type you wish to drill down on, in this case we choose **Tables**.



3. Click on **Tables (Users)** to show a list of user tables and then click on the **Employees** table.



A list of columns belonging to the table will be displayed in the navigator panel and details about the table will be displayed in the **Employees** tab to the right of the display.

The following information is available for each table and may be shown by clicking the appropriate tab within the table display:

**Columns:** shows details of the columns for the table.

**Primary Keys:** displays any primary key placed on the table.

**Constraints:** displays any table constraints for this table.

**Triggers:** displays any triggers created on this table.

**Details:** displays details such as creation date and creator of this database object.

**Comments:** shows any comment on the table.

**Data:** displays a table of sample data from the table.

### 3.3 Database Objects

The following list describes the nodes that display as you traverse the Connection navigator for a Rdb Connection:

**Constraints:** Folder of different constraint types.

**Constraints (All)** : Folder of all constraints.

**Constraints (Foreign)** : Folder of all Foreign Key constraints.

**Constraints (Non Null)** : Folder of all Not Null constraints.

**Constraints (Other)** : Folder of all constraints that are not Foreign Key, Primary Key, Not Null or Unique constraints.

**Constraints (Primary)** : Folder of all Primary Key constraints.

**Constraints (Unique)** : Folder of all Unique constraints.

**Domains:** Folder of different domain types.

**Domains (All):** Folder of all domains.

**Domains (Oracle System):** Folder of domains associated with the Oracle system relations. These will only exist if you have preconditioned your database for OCI use.

**Domains(Rdb System):** Folder of domains associated with Rdb system relations.

**Domains(SQL):** Folder of domains created by SQL for internal use.

**Domains(User) :** Folder of all user-defined domains.

**Functions:** Folder of different function types.

**Functions (All):** Folder of all functions.

**Functions (Oracle System):** Folder of all functions associated with the Oracle system relations. These will only exist if you have preconditioned your database for OCI use.

**Functions (Rdb System):** Folder of all Rdb system functions.

**Functions (User) :** Folder of all user-defined functions.

**Indexes:** Folder of different indexes types.

**Indexes (All):** Folder of all indexes.

**Indexes (Oracle System):** Folder of Oracle system indexes. These will only exist if you have preconditioned your database for OCI use.

**Indexes (Rdb System):** Folder of Rdb system indexes.

**Indexes (User) :** Folder of all non-system indexes.

**Indexes (User Hashed) :** Folder of all non-system Hashed indexes.

**Indexes (User Sorted) :** Folder of all non-system Sorted indexes.

**Indexes (User Sorted Ranked)** : Folder of all non-system Sorted ranked indexes.

**Query Outlines:** Folder of all query outlines.

**Procedures:** Folder of different procedures types.

**Procedures (All):** Folder of all procedures.

**Procedures (Oracle System):** Folder of all procedures associated with the Oracle system relations. These will only exist if you have preconditioned your database for OCI use.

**Procedures (Rdb System):** Folder of all Rdb system procedures.

**Procedures (User)** : Folder of all user-defined procedures.

**Profiles, Users and Roles:** Folder of profile security objects.

**All:** Folder of all users, roles and profiles.

**Default Roles:** Folder of all default roles.

**Roles:** Folder of all roles.

**Profiles** : Folder of all profiles.

**Users:** Folder of all security profile entries identified as database users.

**Sequences:** Folder of different sequences types.

**Sequences (All):** Folder of all sequences.

**Sequences (System):** Folder of all system sequences.

**Sequences (User)** : Folder of all user-defined sequences.

**Synonyms:** Folder of all synonyms.

**Tables:** Folder of different tables types.

**Tables (All):** Folder of all tables.

**Tables (Information)** : Folder of all information tables.

**Tables (Oracle System):** Folder of Oracle system tables. These will only exist if you have preconditioned your database for OCI use.

**Tables (Rdb System):** Folder of Rdb system tables.

**Tables (Temporary) :** Folder of all temporary tables.

**Tables (User) :** Folder of all non-system tables.

**Triggers:** Folder of all triggers.

**Views:** Folder of different views types.

**Tables (All):** Folder of all views.

**Tables (Oracle System):** Folder of Oracle system views. These will only exist if you have preconditioned your database for OCI use.

**Tables (Rdb System):** Folder of Rdb system views.

**Tables (User) :** Folder of all non-system views.

### 3.3.1 Constraints

A **constraint** specifies a condition that restricts the values that can be stored in a table.

You can perform the following operations on an constraint by right-clicking the constraint name in the Connections navigator and selecting an item from the menu:

- **Open:** Displays information about the constraint

### 3.3.2 Domains

A **domain** defines the set of values, character set, collating sequence, and formatting clause that a column in a table can have.

You can perform the following operations on an domain by right-clicking the domain name in the Connections navigator and selecting an item from the menu:

- **Open:** Displays information about the domain

### 3.3.3 Functions

A **function** is a type of SQL subprogram, which is a programming object that can be stored and executed in the database server, and called from other programming objects or applications. (Functions return a value; procedures do not return a value.)

Rdb supports both stored and external functions.

A **stored** function is defined using the CREATE MODULE statement.

An **external** function is defined using the CREATE FUNCTION statements.

For help with specific options in creating a stored or external function , refer to your Oracle Rdb SQL documentation.

You can perform the following operations on a function by right-clicking the function name in the Connections navigator and selecting an item from the menu:

- **Open:** Displays information about the function

### 3.3.4 Indexes

An **index** is a database object that contains an entry for each value that appears in the indexed column(s) of the table or cluster and provides direct, fast access to rows.

You can perform the following operations on an index by right-clicking the index name in the Connections navigator and selecting an item from the menu:

- **Open:** Displays information about the index

### 3.3.5 Procedures

A **procedure** is a type of SQL subprogram, which is a programming object that can be stored and executed in the database server, and called from other programming objects or applications. (Procedures do not return a value; functions return a value.)

Rdb supports both stored and external procedures.

A **stored** procedure is defined using the CREATE MODULE statement.

An **external** procedure is defined using the CREATE PROCEDURE statements.

For help with specific options in creating a stored or external procedure, refer to your Oracle Rdb SQL documentation.

You can perform the following operations on a procedure by right-clicking the procedure name in the Connections navigator and selecting an item from the menu:

- **Open:** Displays information about the procedure

### 3.3.6 Profiles, Users and Roles

Profiles, Users and Roles are security objects within the database that may be used to control what users may do within the database.

A **profile** may be used to extend a user definition within the database with special attributes that control transactions and resource usage.

A **role** is a security object to which privileges and other roles can be granted. A role can be granted to a user or another role.

A **user** is a special security profile entry to identify a database user. That user can be granted roles, which in turn provide access to database objects.

For information about security objects, see your Oracle Rdb documentation.

You can perform the following operations on a profile object by right-clicking the object name in the Connections navigator and selecting an item from the menu:

- **Open:** Displays information about the object

### 3.3.7 Query Outlines

A **query outline** is an overall plan for how a query can be implemented and may contain directives that control the join order, join methods, index usage (or all of these) the optimizer selects when processing a query. Use of query outlines help ensure that query performance is highly stable across releases of Oracle Rdb.

For information about query outlines, refer to your Oracle Rdb SQL documentation.

You can perform the following operations on a query outline by right-clicking the query outline name in the Connections navigator and selecting an item from the menu:

- **Open:** Displays information about the query outline
- **Compile:** Compile a outline that has been marked invalid.

### 3.3.8 Sequences

**Sequences** are used to generate unique integers. You can use sequences to automatically generate primary key values.

For information about sequences, refer to your Oracle Rdb SQL documentation.

You can perform the following operations on a procedure by right-clicking the procedure name in the Connections navigator and selecting an item from the menu:

- **Open:** Displays information about the sequence

### 3.3.9 Synonyms

**Synonyms** provide alternative names for tables, views, sequences, procedures, functions, or other synonyms.

For information about synonyms, refer to your Oracle Rdb SQL documentation.

You can perform the following operations on a procedure by right-clicking the procedure name in the Connections navigator and selecting an item from the menu:

- **Open:** Displays information about the synonym

### 3.3.10 Tables

**Tables** are used to hold data. Each table typically has multiple columns that describe attributes of the database entity associated with the table, and each column has an associated data type.

You can perform the following operations on table by right-clicking the table name in the Connections navigator and selecting an item from the menu:

- **Open:** Displays information about the table.
- **Table:** Table actions include Rename, Drop (delete the table), Truncate (delete existing data without affecting the table definition), Lock (set the table lock mode: shared read, exclusive write, and so on), Comment (descriptive comment explaining the use or purpose of the table) and Count Rows (return the number of rows).
- **Column:** Column actions include Comment (descriptive comment about a column), Add and Drop.
- **Constraint:** Includes options for adding, dropping, enabling, and disabling constraints.
- **Index:** Options include Create (create an index on specified columns), Create Text (create an Oracle Text index on a column), Create Text (create a function-based index on a column), and Drop.
- **Trigger:** Options include Create, Create PK from Sequence (create a before-insert trigger to populate the primary key using values from a specified sequence), Enable or Disable All, Enable or Disable Single, and Drop (delete the trigger).
- **Export Data:** Enables you to export some or all of the table data to a file or to the system clipboard, in any of the following formats: XML (XML tags and data), CSV (comma-separated values including a header row for column identifiers), SQL Insert (INSERT statements), or SQL Loader (SQL\*Loader control file). After you select a format, the [Export Table Data](#) dialog box is displayed.

### 3.3.11 Triggers

A **trigger** defines the actions to occur before or after a specified table is updated (by a write operation such as an INSERT, DELETE, or UPDATE statement).

A trigger can be thought of as a rule on a single table, which takes effect at a specific time for a particular type of update and causes one or more triggered actions to be performed.

You can perform the following operations on a trigger by right-clicking the trigger name in the Connections navigator and selecting an item from the menu:

- **Open:** Displays information about the trigger.

### 3.3.12 Views

**Views** are virtual tables (analogous to queries in some database products) that select data from one or more underlying tables.

You can perform the following operations on a view by right-clicking the view name in the Connections navigator and selecting an item from the menu:

- **Open:** Displays information about the view.
- **Count:** Count the number of rows within the view.

## 3.4 Retrieving Data using the Table Display

You may use the Table display to show the first 'n' rows of the table.

When you click on a table within the Connection navigator, several tabs will be displayed under that table name within the SQL Developer display area.

The **Data** tab allows you to see a sample of data from the table.

The number of rows displayed will depend on the setting within SQL Developer. Refer to the SQL Developer documentation for information about these options such as maximum display rows.

## To see sample data from a table:

1. Select the database connection from the Connections navigator by clicking on the node for the database you wish to connect to.
2. Click the **Tables** node.
3. Click the **Tables (user)** node.
4. Click the **Employees** node.
5. Click on **Data** tab under the **Employees** tab within the display area.

The screenshot shows the Oracle SQL Developer interface. On the left is the 'Connections' navigator with a tree view showing the database structure. The 'EMPLOYEES' table is selected under 'Tables (User)'. The main window displays the 'Data' tab for the 'EMPLOYEES' table, showing a grid of data with columns: EMPLOYEE ID, LAST NAME, FIRST N..., MIDD..., ADDRESS DA..., and Actions... The data is as follows:

EMPLOYEE ID	LAST NAME	FIRST N...	MIDD...	ADDRESS DA...	...	...	...	...
1 00164	Toliver	Alvin	A	146 Parnell Place ...	Ch...	NH	03...	M
2 00165	Smith	Terry	D	120 Tenby Dr. ...	Ch...	NH	03...	M
3 00166	Dietrich	Rick	(null)	19 Union Square ...	Bo...	NH	03...	M
4 00167	Kilpatrick	Janet	(null)	143 Pine St. ...	Ma...	NH	03...	F
5 00168	Nash	Norman	(null)	87 West Rd. ...	Me...	NH	03...	M
6 00169	Gray	Susan	O	51 Maple St. ...	Et...	NH	03...	F
7 00170	Wood	Brian	(null)	140 Searles Rd. ...	Jef...	NH	03...	M
8 00171	D'Amico	Aruwa	(null)	67 Underhill St. ...	Sa...	NH	03...	F
9 00172	Peters	Janis	K	13 Mobile Coach L...	W...	NH	03...	F
10 00173	Bartlett	Dean	G	149 Steeple Lane ...	Tr...	NH	03...	M
11 00174	Myotte	Daniel	V	95 Princeton Rd. ...	Be...	MA	03...	M
12 00175	Siciliano	George	(null)	109 Old New Bost...	Fa...	MA	03...	M
13 00176	Hastings	Norman	M	170 Summer St. ...	W...	NH	03...	M
14 00177	Kinmonth	Louis	(null)	76 Maple St. ...	Et...	NH	03...	M
15 00178	Goldstone	Neal	(null)	194 Lyons Av. ...	Col...	NH	03...	M
16 00179	Dallas	Meg	(null)	95 Silver Dr. ...	Mil...	NH	03...	F
17 00180	Canonica	Rick	P	15 Echo Rd. ...	Wil...	NH	03...	M
18 00181	Reynolds	Louis	E	63 Derry Rd. ...	Mil...	NH	03...	M
19 00182	Jacobone	Eloi	N	26 Winding Lane ...	Sa...	NH	03...	M
20 00183	Nash	Walter	V	197 Lantern Lane...	Fr...	NH	03...	M
21 00184	Frydman	Louie	T	156 Crown St. ...	Mil...	NH	03...	M
22 00185	Stadecker	Hope	E	51 W Hollis St. ...	Alt...	NH	03...	F
23 00186	Walters	Cora	(null)	200 Copps Hill Rd...	Ke...	NH	03...	F
24 00187	Lasch	Stan	P	59 Mt. Vernon St...	Ac...	NH	03...	M
25 00188	Clarke	Karen	G	86 Searles Rd. ...	Jef...	NH	03...	F

You may have to adjust each columns size within the displayed table of data so that your data may be displayed correctly.

6. In addition you may apply selection criteria (filter) to the data by adding valid SQL selection syntax at the **Filter** prompt.

EMPLOYEE ID	LAST NAME	FIRST NAME	MIDDLE INITIAL	ADDRESS DATA 1
1 00174	Myotte	Daniel	V	95 Princeton Rd. ... (null)
2 00194	Morrison	Mary Lou	U	116 Belknap Rd. ... (null)
3 00204	Myotte	Charles	K	78 Lantern Lane ... (null)
4 00213	Mercier	Len	F	67 Oxford St. ... (null)
5 00214	Mellace	Dean	(null)	73 Balmora Dr. ... (null)
6 00224	Manning	Kevin	G	90 Steeple Lane ... (null)
7 00232	McElroy	Mary	(null)	108 Rocky Pond Rd... (null)
8 00233	Mathias	Susan	N	24 Oxford St. ... (null)
9 00415	Mistretta	Kathleen	G	84 Quarry Circle Dr... (null)
10 00435	MacDonald	Johanna	P	98 Hudson Rd. ... (null)

## Chapter 4 Rdb Snippets

This chapter explains how snippets may be used when creating SQL queries and contains the following sections:

- [Snippet Overview](#)
- [Oracle syntax Snippets](#)
- [Rdb syntax Snippets](#)

### 4.1 Snippet Overview

Snippets are code fragments, such as SQL functions, and miscellaneous SQL programming techniques. Some snippets are just syntax, and others are examples. You can insert and edit snippets when you are using the SQL Worksheet or creating or editing a SQL function or procedure.

To display snippets, from the **View** menu, select **Snippets**. In the snippets window (on the right side), use the drop-down to select a group (such as Aggregate Functions or Character Functions).

A **Snippets** button is placed in the right window margin, so that you can display the snippets window if it becomes hidden.

To insert a snippet into your code in a SQL Worksheet or in a SQL function or procedure, drag the snippet from the snippets window and drop it into the desired place in your code; then edit the syntax so that the SQL function is

valid in the current context. To see a brief description of a SQL function in a tooltip, hold the pointer over the function name.

For example, you could type `SELECT` and then drag `CONCAT(char1, char2)` from the Character Functions group. Then, edit the `CONCAT` function syntax and type the rest of the statement, such as in the following:

```
SELECT CONCAT(title, ' is a book in the library.') FROM books;
```

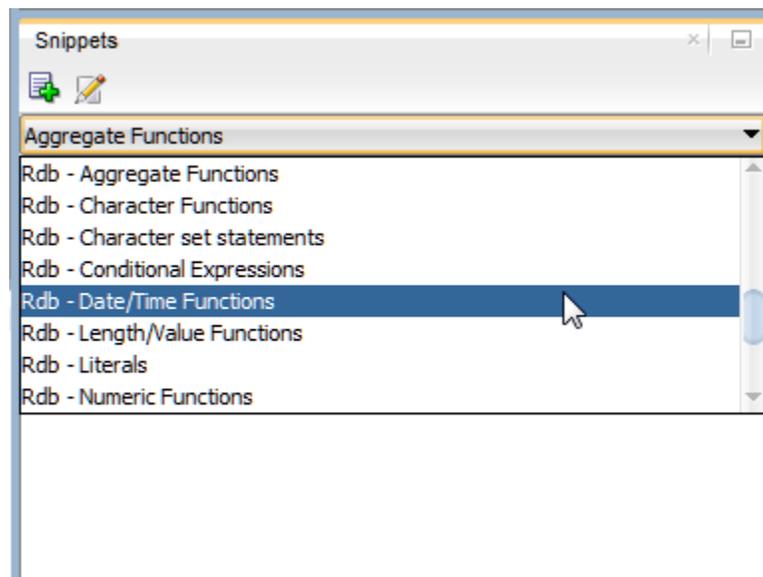
## 4.2 Oracle syntax Snippets

SQL Developer is installed with a set of snippets specifically created for PL/SQL and Oracle database use. Many of these snippets contain SQL syntax that is not compatible with the Oracle Rdb SQL compilers and may cause syntax or other exceptions if used in queries that will be executed using the Oracle JDBC for Rdb thin driver on an Rdb database.

## 4.3 Rdb syntax Snippets

During installation Rdb extension will add Rdb-specific syntax snippets to the SQL Developer snippet library. These Snippets may be used in queries that will be sent down to Rdb for execution as they contain valid Rdb SQL syntax.

Rdb snippets may be found in the snippet window within groups that are prefixed with **Rdb**.



In most cases, the fragments in each group do not represent all available objects in that logical grouping, or all formats and options of each fragment

shown. For complete and detailed information, refer to the Oracle Rdb Database documentation.

## Chapter 5 SQL Developer Reports

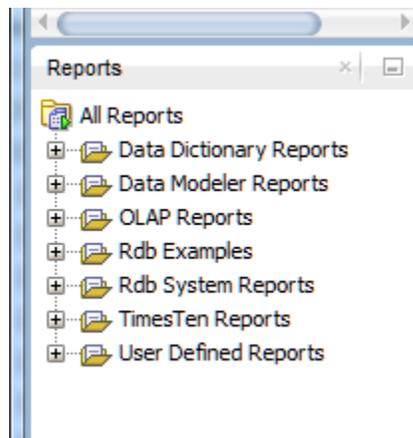
SQL Developer provides many reports about the database and its objects. You can also create your own user-defined reports.

To display reports, click the Reports tab on the left side of the window (refer to [SQL Developer User Interface](#)).

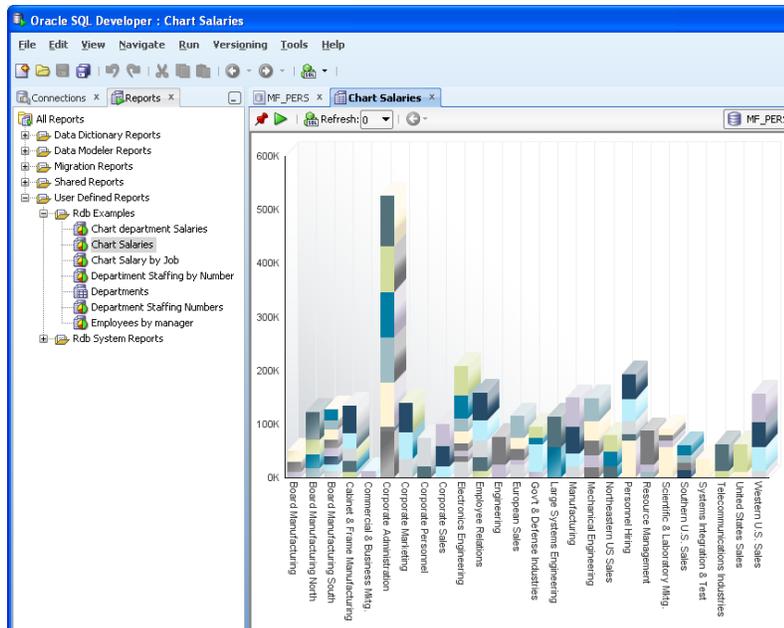
If this tab is not visible, select View and then Reports.

Individual reports are displayed in tabbed panes on the right side of the window; and for each report, you can select (in a drop-down control) the database connection for which to display the report.

**Rdb Examples** and **Rdb System Reports** folders are available within the **All Reports** tree:



The **Rdb Examples** folder contains several sample reports that may be run against the standard Rdb MF\_PERSONNEL database. They show how easy it is to create great graphic and text reports on information within your database.



The **Rdb System Reports** folder contains a number of reports that provide information about your database.

The reports included in this folder are a sample of the types of reports you can create to help manage your Rdb databases.

The SQL Developer User's Guide provides information on how you can create your own reports and share them with colleagues and the greater Rdb community.

The Rdb System reports are grouped under the following categories:

- [About Your Database reports](#)
- [Database Administration reports](#)
- [Server Administration reports](#)
- [Information Tables](#)
- [Temporary Tables](#)
- [User Tables](#)
- [User Views](#)

## Bind Variables for Reports

For some reports, you are prompted for bind variables before the report is generated. These bind variables enable you to further restrict the output. The default value for all bind variables is null, which implies no further restrictions.

To specify a bind variable, select the variable name and type an entry in the Value field.

Any bind variable values that you enter are case insensitive, all matches are returned where the value string appears anywhere in the name of the relevant object type.

## 5.1 About Your Database reports

The About Your Database reports list release information about the database associated with the selected connection. The reports include Version Banner (database settings) and National Language Support Parameters values for globalization support).

## 5.2 Administration reports

Administration reports list information about system resources and allow access to certain RMU function on the connected database.

These reports are grouped into two groups, Database Administration reports and Server Administration reports.

### 5.2.1 Database Administration reports

Database Administration reports list usage information about system resources. This information can help you to manage storage, user accounts, and other aspects of your database efficiently.

**All Information Tables:** Provide details of information tables held in your database.

**All System Tables:** Provide information about system tables.

**All Temporary Tables:** Provide information about temporary tables created by all users.

**All User Tables:** Provide information about user tables create by all users.

**All User Views:** Provide information about views created by all users.

**Database Information:** Provide reports on some database storage and setup information.

**RMU:** Provide the ability to use RMU remotely on your database to extract database storage and execution information.

## **5.2.2 Server Administration reports**

Provide information on Oracle JDBC for Rdb Thin server usage.

## **5.2.3 Information Tables**

Provide details of information tables held in your database that have been created by the User you have connected to the database as.

## **5.2.4 Temporary Tables**

Provide information about temporary tables created by the User you have connected to the database as.

## **5.2.5 User Tables**

Provide information about normal database tables created by the User you have connected to the database as.

## **5.2.6 User Views**

Provide information about views created by the User you have connected to the database as.