

Exult Oracle User Guide

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Chapter 1

Introduction

Exult Oracle is an easy-to-use Wizard Application for importing data from XML files into an Oracle Database. Exult Oracle automatically shreds the XML file into tables and columns depending on the XML structure. The tables and columns are created as required and data is imported into these tables.

1.1 Benefits of using Exult Oracle

- Easy import of XML data into Oracle.
- XML is shredded into relational data and makes it easy to query and update using SQL.
- Easy for legacy downstream applications to consume the XML data.
- Merge data from multiple XML files.
- Handles arbitrarily complex XML without problems.
- Optimized for large XML files.
- Includes a Command Line interface for easing scheduled XML import.

1.2 Shredding XML vs Raw XML Import

Recent versions of Oracle databases provide facilities for importing XML into the database and using XQuery/XPath to query and extract data from XML. In contrast to this approach, Exult Oracle processes an XML file and builds regular relational tables with relationships among these tables depending on the XML structure. While the former approach might be more suitable for some usage scenarios, shredding the XML into tables is also useful in other cases. Please decide which approach you would like to take to process your XML before proceeding further.

1.3 Importing Data from Multiple XML Files

Exult Oracle can easily import data from multiple XML files. When importing multiple XML files, existing tables are re-used for populating the database. This provides a way for combining data from multiple XML files and using this data in SQL queries and updates.

1.4 Processing Large XML Files

Exult Oracle uses a streaming approach to process an XML file which makes it possible to process large XML files without running into memory issues on the database server. Exult Oracle has been specially tuned for performance when importing large XML files into the database.

1.5 Complex XML Files

While some approaches to importing XML data into Oracle may fail due to the complexity of the XML, Exult Oracle has no problems with importing arbitrarily complex XML. The XML is processed and parent-child relationships are mirrored using primary and foreign keys in the database.

1.6 Batch Processing

Exult Oracle includes a command line program in the distribution which enables you to import XML files into the database on a schedule. It is easy to create a Windows Scheduler task using Exult Oracle Command Line to import the data into Oracle.

1.7 Update and Delete Imported Data

Exult Oracle includes the ability to delete all data from one or more imported XML files. This makes it easy to update (or refresh) data from updated XML. Just delete the data from previously imported XML and re-import from updated XML.

Chapter 2

Using Exult Oracle

2.1 Prerequisites

The following pre-requisites are required for using Exult Oracle.

- An **Oracle Client Installation** is required on the computer where Exult Oracle is being used.
- Access to an Oracle database.
- Username and password for connecting to Oracle.

2.1.1 Oracle Client Installation

The Oracle client libraries must be installed on the computer where Exult Oracle is being used. The client installation could be an Oracle Instant Client installation or a full-fledged *ORACLE_HOME* installation. You can download the Oracle Instant Client libraries from Oracle's site at: <http://www.oracle.com/technetwork/database/features/instant-client/index.html>. The Oracle client libraries must be found in the *PATH* to be able to connect to Oracle.

You could also have a full fledged *ORACLE_HOME* installation on the computer and use the client libraries from that installation. For this please make sure *ORACLE_HOME* environment variable is set to the correct value before running Exult Oracle.

2.1.2 Using TNSNAMES.ORA

To use *TNSNAMES.ORA* to locate an Oracle database to connect, please make sure that *TNS_ADMIN* or *ORACLE_HOME* is set appropriately as follows:

To use *TNS_ADMIN*, set this environment variable to point to the directory where *TNSNAMES.ORA* is located.

To use *ORACLE_HOME*, set this variable to point to the *ORACLE_HOME* location. *TNSNAMES.ORA* is then expected to be found under the directory: *\$ORACLE_HOME/network/admin*.

Once *TNSNAMES.ORA* is located, you can use the entries specified therein to specify a connection to the Oracle database.

2.2 Usage Summary

Exult Oracle is a wizard application which takes you through the steps needed to import XML data into Oracle. The wizard application has Next and Back buttons which allow forward and backward navigation. Each step consists of a wizard page which requires interactions from the user. Once all the required input is collected, the XML data is then imported. The following sections describe how to use Exult Oracle.

2.3 The Welcome Page

The welcome page is the first screen shown by the application. In addition to a summary of the capabilities of the software, it also shows the software version (❶) which is required to be quoted when requesting support.

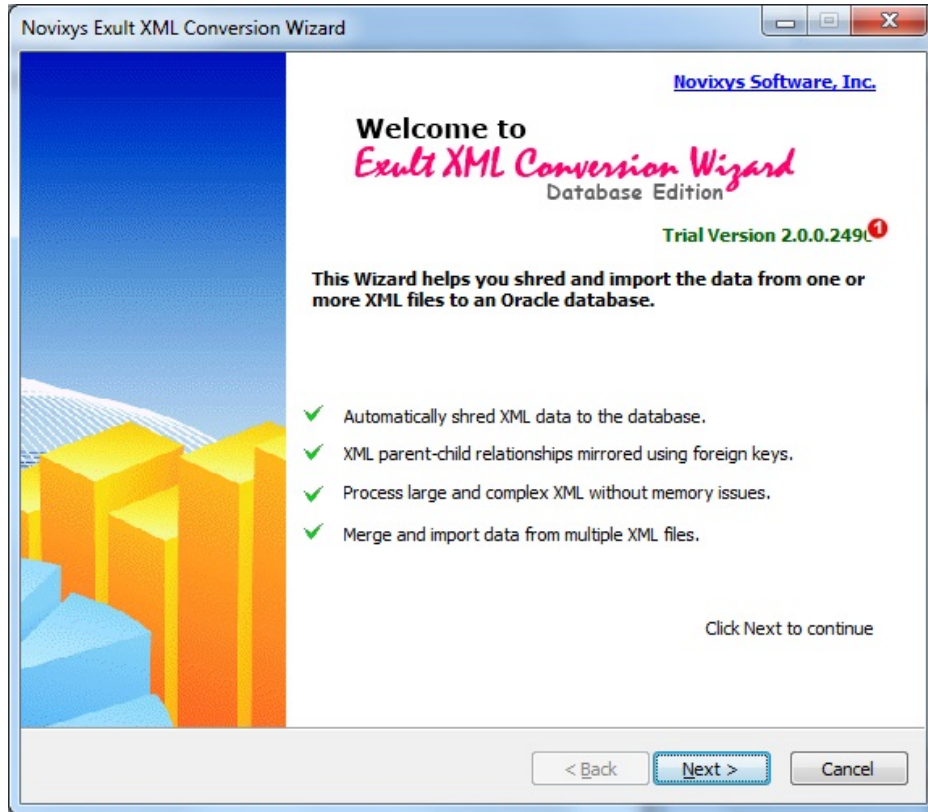


Figure 2.1: The Welcome Page

2.4 The Trial Version Page

The Trial version screen is shown in the trial version of the software and shows the amount of trial period left. For user convenience the trial period is the later of a certain period such as 15 days or number of uses left (❶). For example suppose a user installs the software and uses it once or twice and then is unable to use it again for a month. Based on trial period the software would have expired. However since the number of allowed uses has not been reached, the user can still use the software.

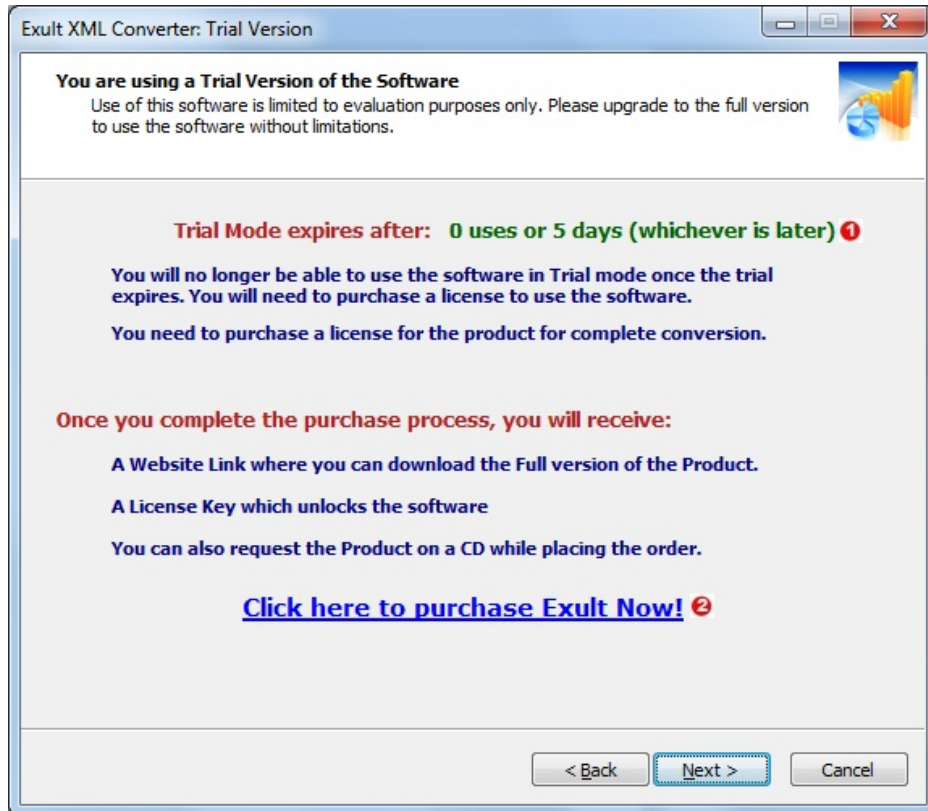


Figure 2.2: The Trial Version page

In addition to showing the trial period information, the screen also provides a link (2) to allow the user to purchase a license to use the software beyond the trial period.

2.5 Trial Expiry

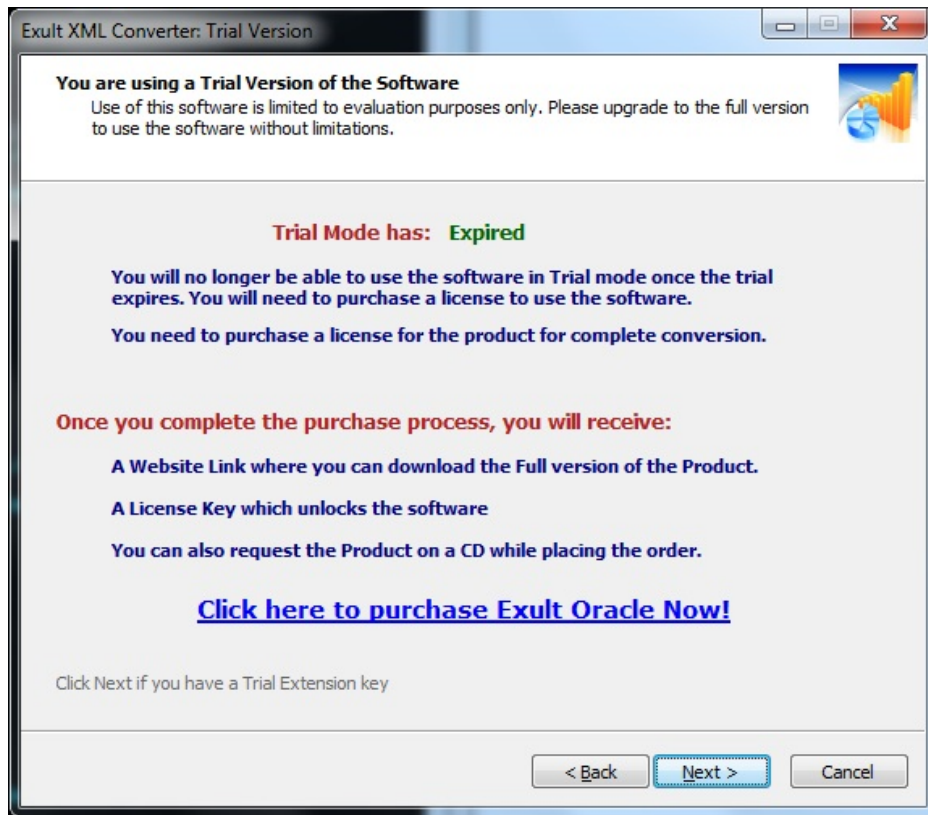


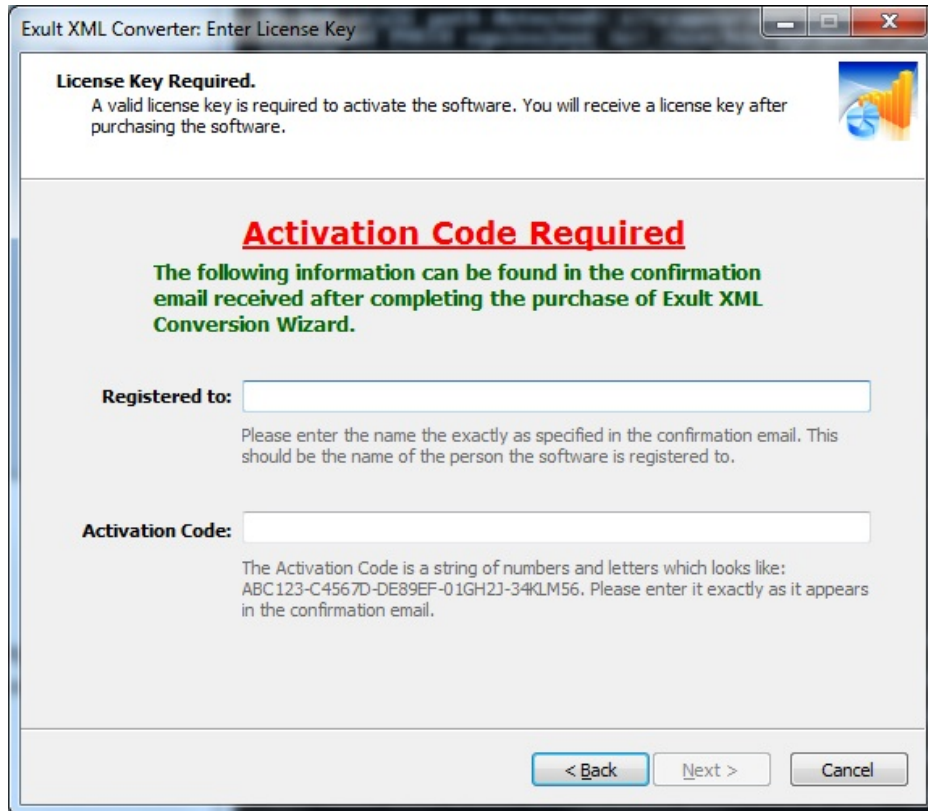
Figure 2.3: Trial Has Expired

Once the Trial Period expires, the software shows the message shown and does not allow you to use it. A link is provided for purchasing the software. After purchasing the software, a link is provided for downloading the full version of the software and a license key for activation.

In case the trial period is not sufficient to fully evaluate the software, we do provide a license key to extend the trial period usage. Please contact us at <https://www.novixys.com/support/> for requesting a trial extension key.

2.6 The Registration Page

Once the trial period expires, you will not be able to use the software until a valid name and license key is entered. The name and license key is issued after the purchase of the software is completed. The Registration page is used to enter the name and the license key to be able to use the software beyond the trial period.



The screenshot shows a window titled "Exult XML Converter: Enter License Key". The window contains the following text and elements:

- License Key Required.** A valid license key is required to activate the software. You will receive a license key after purchasing the software.
- Activation Code Required** (in red text)
- The following information can be found in the confirmation email received after completing the purchase of Exult XML Conversion Wizard.
- Registered to:** [Text input field]
Please enter the name the exactly as specified in the confirmation email. This should be the name of the person the software is registered to.
- Activation Code:** [Text input field]
The Activation Code is a string of numbers and letters which looks like: ABC123-C4567D-DE89EF-01GH2J-34KLM56. Please enter it exactly as it appears in the confirmation email.
- Navigation buttons: < Back, Next >, and Cancel.

Figure 2.4: The Registration Page

Note

In some cases, the allowed trial period is not sufficient to fully evaluate the software. For these cases, we issue a trial extension key on special request. The name/key combination must be entered here to continue the evaluation.

2.7 The Connection Page

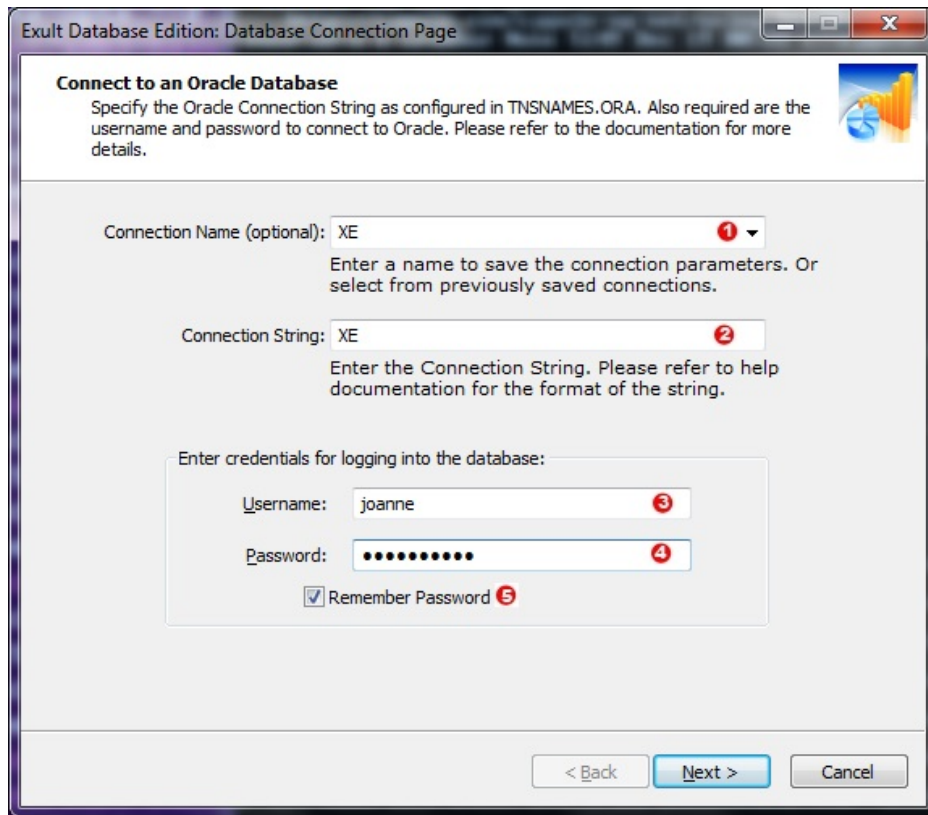


Figure 2.5: The Connection Page

The Connection page is where the connection parameters for connecting to the database is entered and a connection performed.

- An optional connection name is entered (1) for saving the connection parameters. If a name is not entered, you will have to enter the connection parameters the next time you use the software.
- A valid connection string is required to be able to connect to the database (2). Please see below for the format of the connection string.
- A username (3) and password (4) may be required for connecting to the database depending on how your Oracle database is set up.
- Select the checkbox (5) to save the password so you do not have to enter it everytime you use the software. The password is saved unencrypted in the registry so we recommend that you do not select this checkbox for sensitive passwords.

After entering the required parameters, please click Next to connect to the database. If the connection succeeds you will be taken to the next screen. If there was an error, it is shown in an error dialog and you can reenter the parameters if necessary.

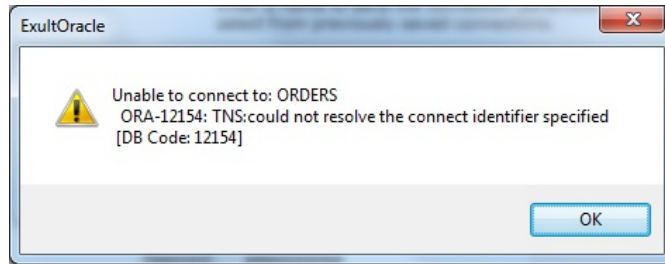


Figure 2.6: Connection Error

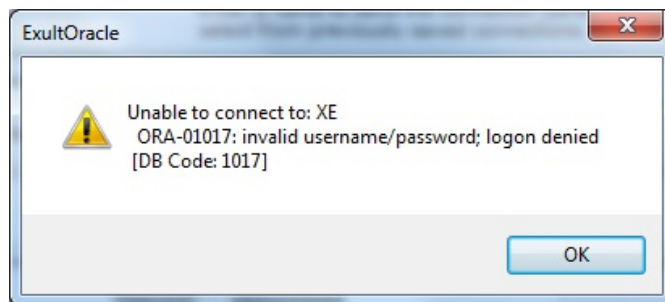


Figure 2.7: Login Error

2.7.1 Connection Strings

A valid Oracle connection string must be entered for connecting to the Oracle database. The format of the connection string depends on whether *TNSNAMES.ORA* is being used or not.

2.7.1.1 Using TNSNAMES.ORA

- If *TNSNAMES.ORA* is found, you can enter just the name from *TNSNAMES.ORA*.
- *TNSNAMES.ORA* is found in the directory specified by an environment variable *TNS_ADMIN*. If this variable is not set, but *ORACLE_HOME* is set, the file is found in *\$ORACLE_HOME/network/admin*.

2.7.1.2 SQL Connect String

If *TNSNAMES.ORA* is not found and you are using the Oracle Instant Client to connect to oracle, you can enter the connection string as an SQL Connect String in the following format:

```
//host:[port][/]service name]
```

For example,

```
//dbase-server-5:4321/ORDERS
```

2.7.1.3 Using Oracle-Net Keywords

You can also enter connection information as Oracle-Net keyword-value pairs. For example:

```
(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP) (HOST=dlsun242)
(PORT=5521))
(CONNECT_DATA=(SERVICE_NAME=bjava21)))
```

2.8 The Database Actions Page

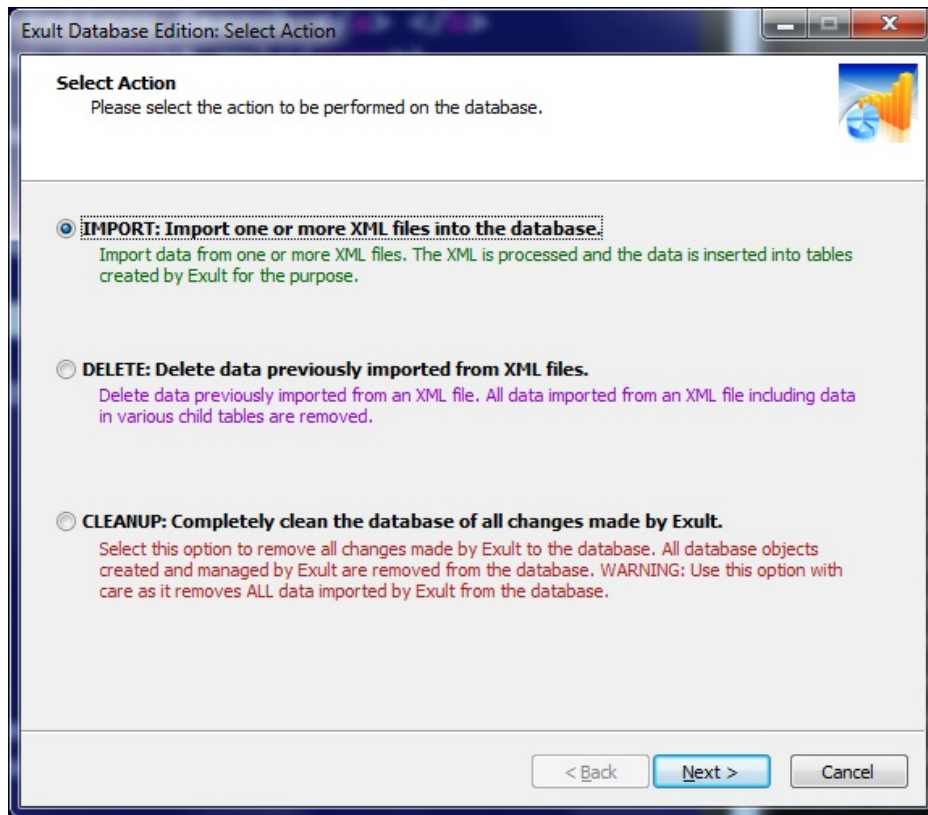


Figure 2.8: The Actions Page

Once the connection to the database is successful, you can select the action to perform on the database from the following:

- Import XML: Select this option to import data from one or more XML files or URLs.
- Delete XML Data: Allows you to delete data from previously imported XML files.
- Cleanup Database: For completely removing all objects created by Exult Oracle from the database including all imported data.

2.9 The XML File Selection Page

After selecting the IMPORT action, you can specify the XML files for shredding and importing into the database. Exult Oracle provides the following methods for specifying the XML files to import.

2.9.1 Simple File Selection Box

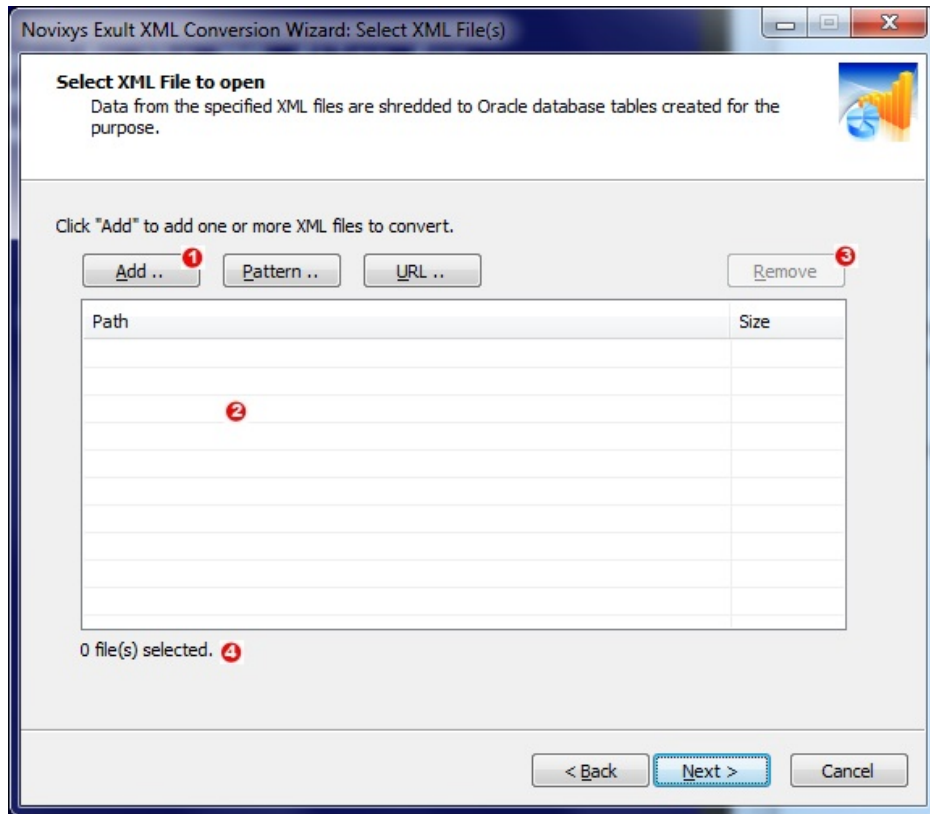


Figure 2.9: XML File Selection

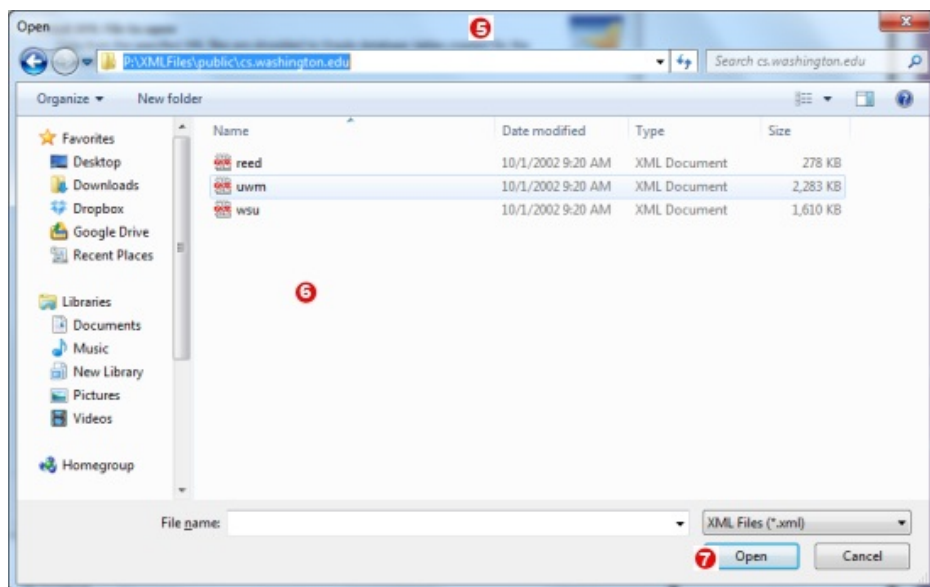


Figure 2.10: Windows File Selection Box

A single file or a small number of files can be specified using this method. Click *Add* (1) in the Select XML page and a File Selection box is shown (5) which allows you to browse to a directory and select one or more files from that directory (6). Click *Open* (7) in the File Selection Box to add the selected files to the list of XML files to be processed (2). The total number of files added for processing is also shown (4).

**Warning**

Owing to the limitations of the Windows File Selection box, we recommend that you use this method to select a small number of files for processing (say less than 100). For specifying larger number of files, please use the Pattern File Selection method.

2.9.2 Pattern File Selection

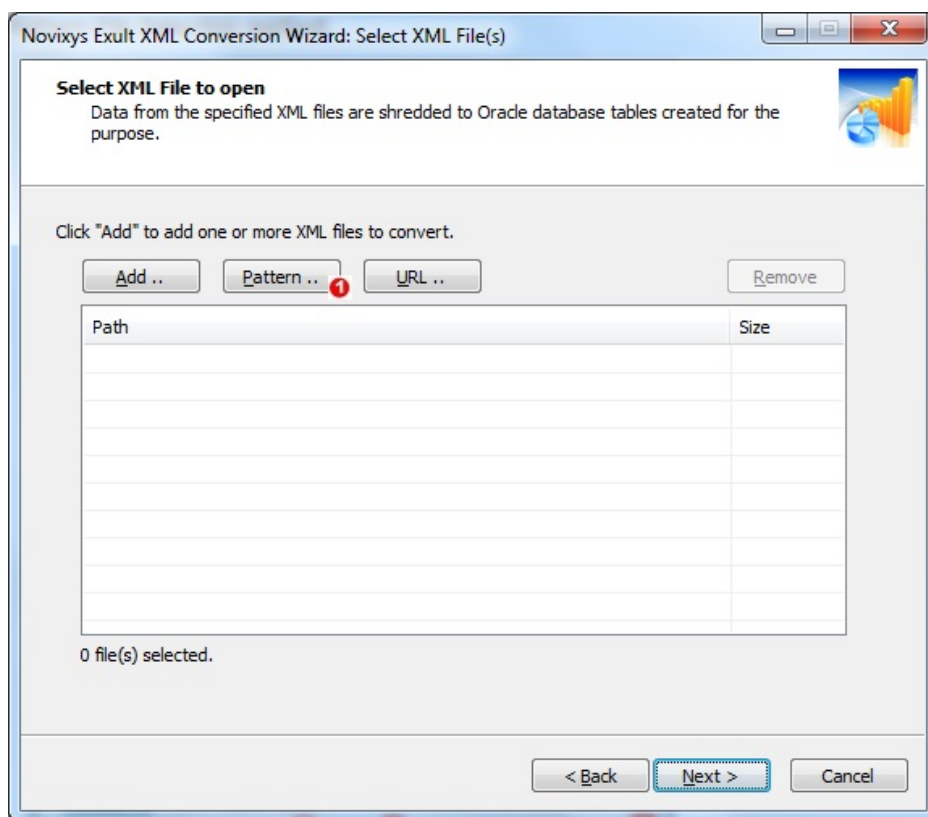


Figure 2.11: XML File Selection by Pattern

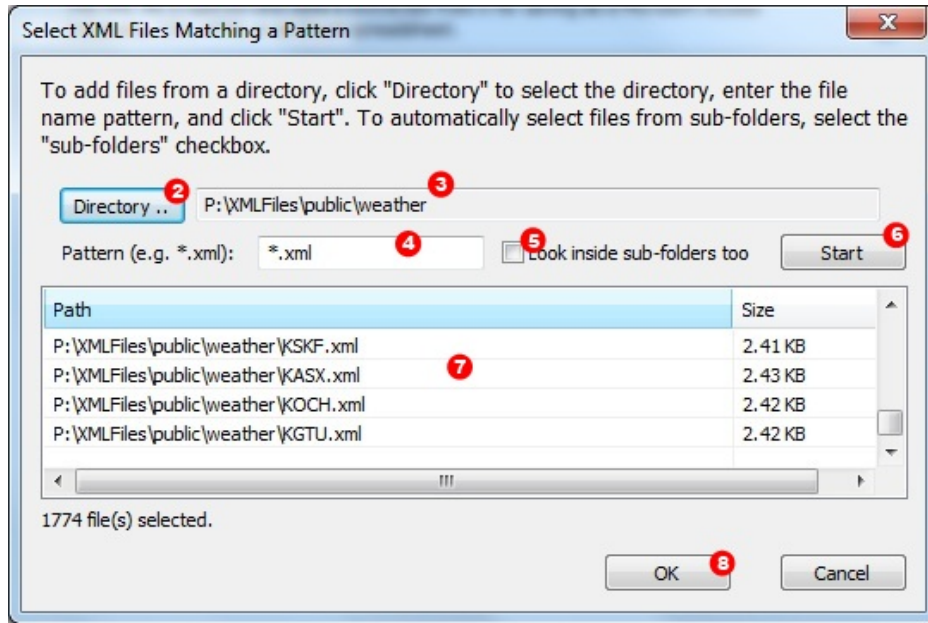


Figure 2.12: Pattern Selection Box

For selecting a large number of XML files using pattern search including recursively looking inside sub-folders, we offer the Pattern File Selection.

1. Click *Pattern* (1) to open the Pattern Selection Box.
2. Click *Directory* (2) to browse to the folder where the XML files are located.
3. Enter the filename pattern to search for (4).
4. Select the *Look inside sub-folders too* checkbox to recursively descend into child folders looking for files matching the pattern.
5. Click *Start* (6) to begin the search. Selected files are displayed in the list box (7).
6. Click *OK* (8) to accept the files selected.

2.9.3 XML URL Selection

In addition to being able to import XML data from local files, Exult Oracle can also directly import data from XML file URLs. This is a convenience which eliminates the requirement of a separate download procedure for the user.

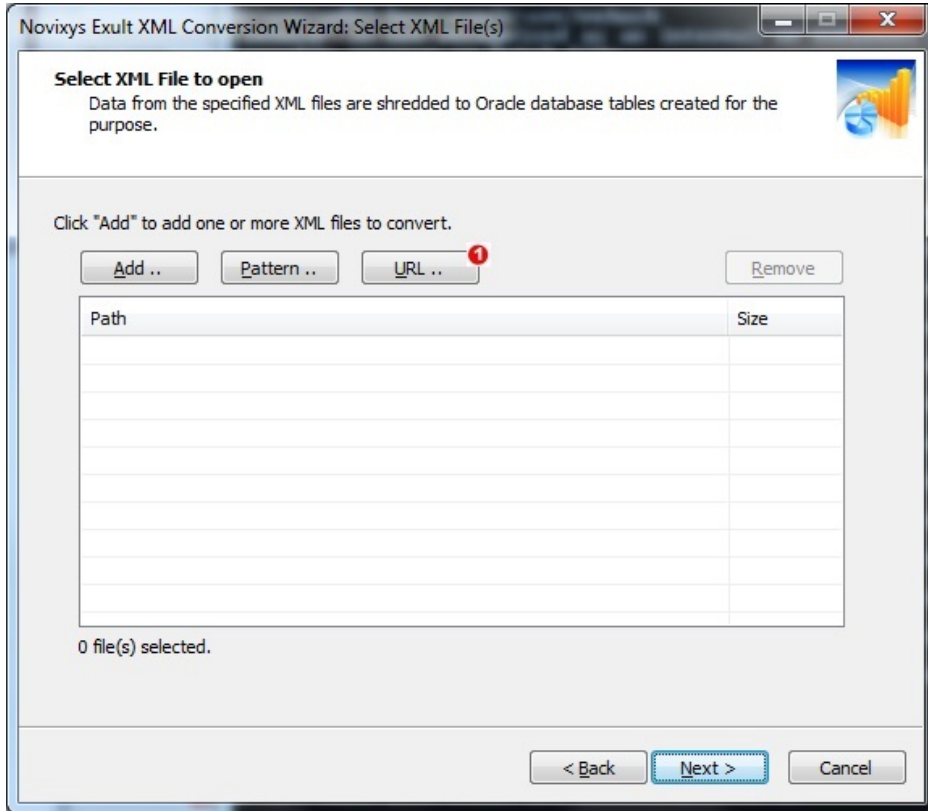


Figure 2.13: XML URL Selection

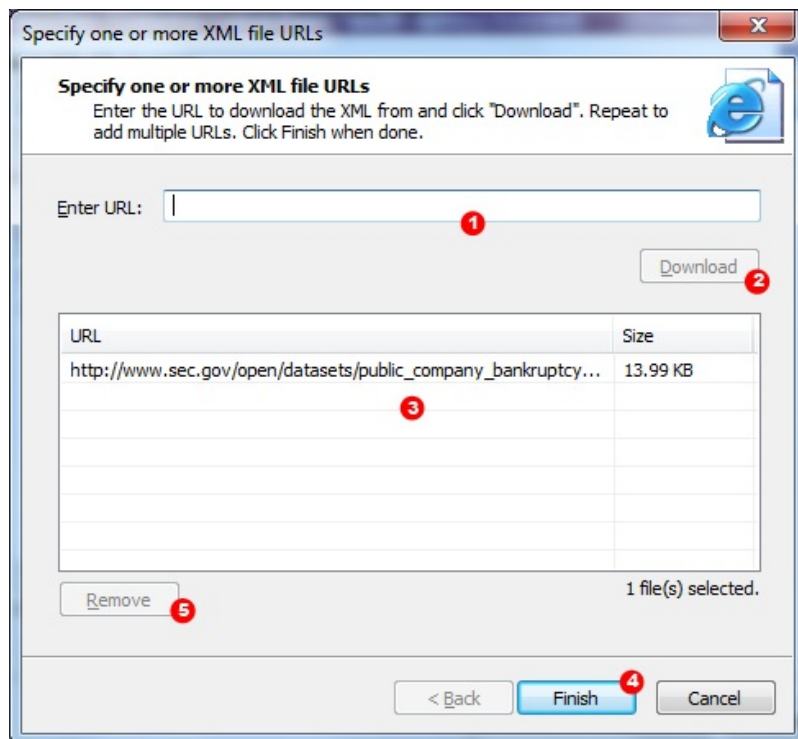


Figure 2.14: URL Selection Box

1. Click *URL* (1) to begin the XML URL Selection procedure. The URL Selection Box is shown.
2. Enter the XML file URL to be downloaded in the *Enter URL* box.
3. Click *Download* to download the file. If there are errors downloading the file, an error dialog is shown.
4. After the download completes, the URL is shown in the list box with the size of the file (4).
5. Repeat the process to add additional XML URLs if desired.
6. To remove any downloaded files, select the file and click *Remove* (5)
7. Click *Finish* (5) to accept the selected XML files.

2.10 Processing XML

Clicking *Next* from the XML File Selection page begins the process of importing XML into the database. The Processing XML Page is shown.

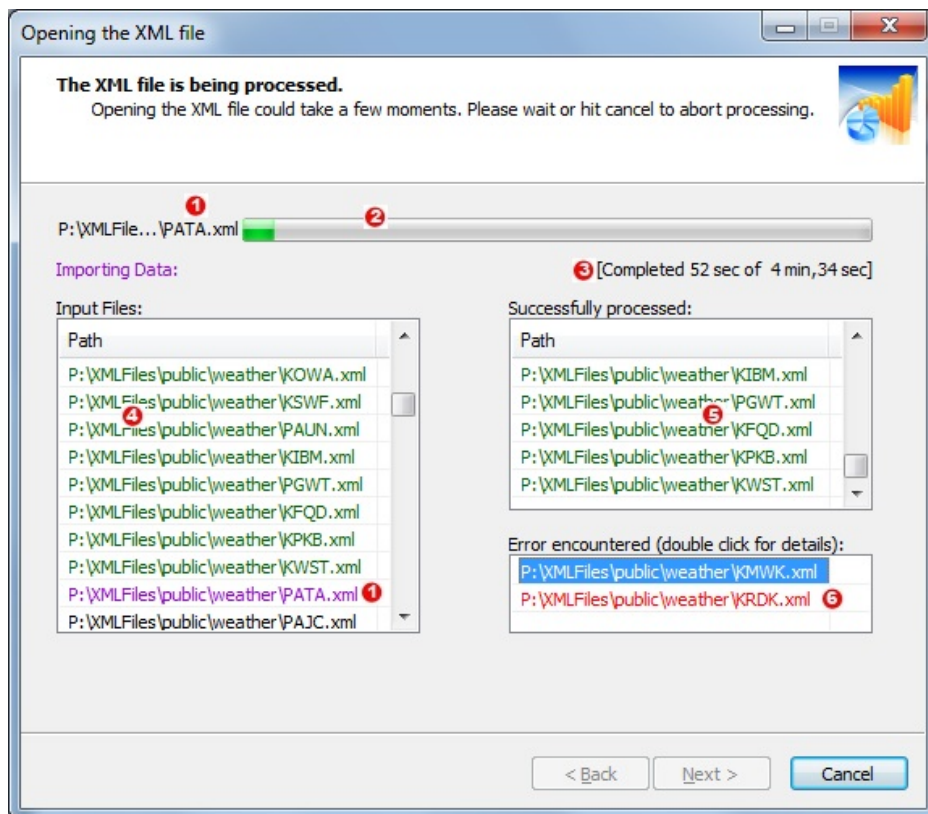


Figure 2.15: Processing XML

The current file being processed is shown and also highlighted in the input files list (1).

Progress of importing the current file is shown in (2).

A time estimate for the completion of the process is also shown (3) which is updated as necessary.

The list of input files to be processed is shown in (4).

Successfully imported files are shown in (5) and any files with errors in the XML is shown in (6).

Double-clicking on an entry in the error files list shows the details of the error (7).

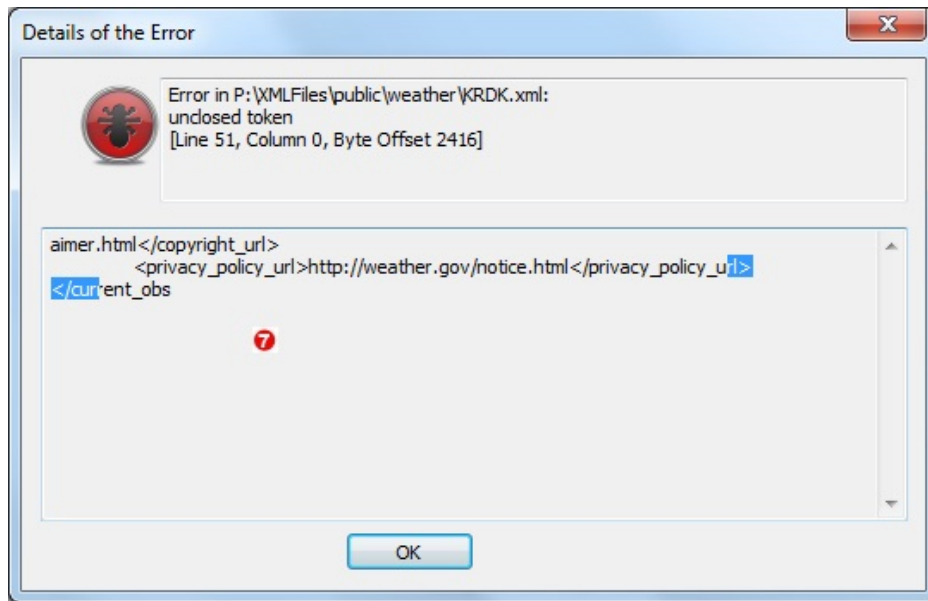


Figure 2.16: Details of XML Processing Error

2.11 Previewing Imported Data

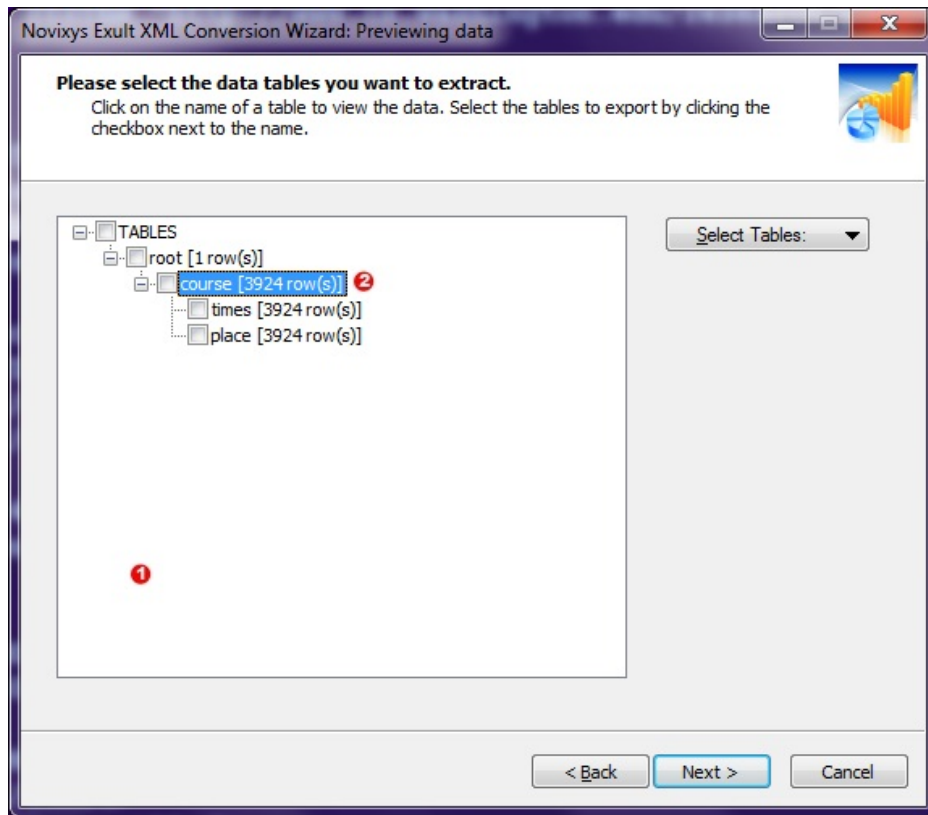


Figure 2.17: Previewing Imported XML Data

Clicking *Next* on the Processing Page takes you to the Preview Page where you can preview the imported data. The tables identified from XML data is shown in (1). Clicking on a table (2) shows the table data in a separate window as shown below.

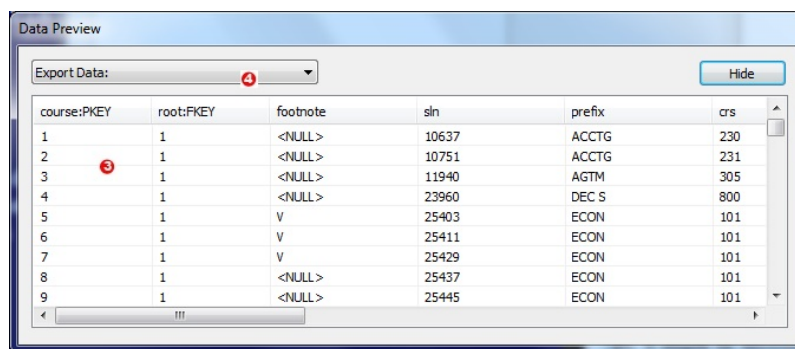


Figure 2.18: Viewing Table Data

The table data is shown in the data list (3).

You can export the previewed data in a variety of formats using the Export menu (4).

2.12 Deleting Imported XML Data

After data from XML is imported into the database and used in downstream applications, it might be necessary to delete data. This is accomplished by using the Delete XML Data screen. Select *Delete* on the Actions Page.

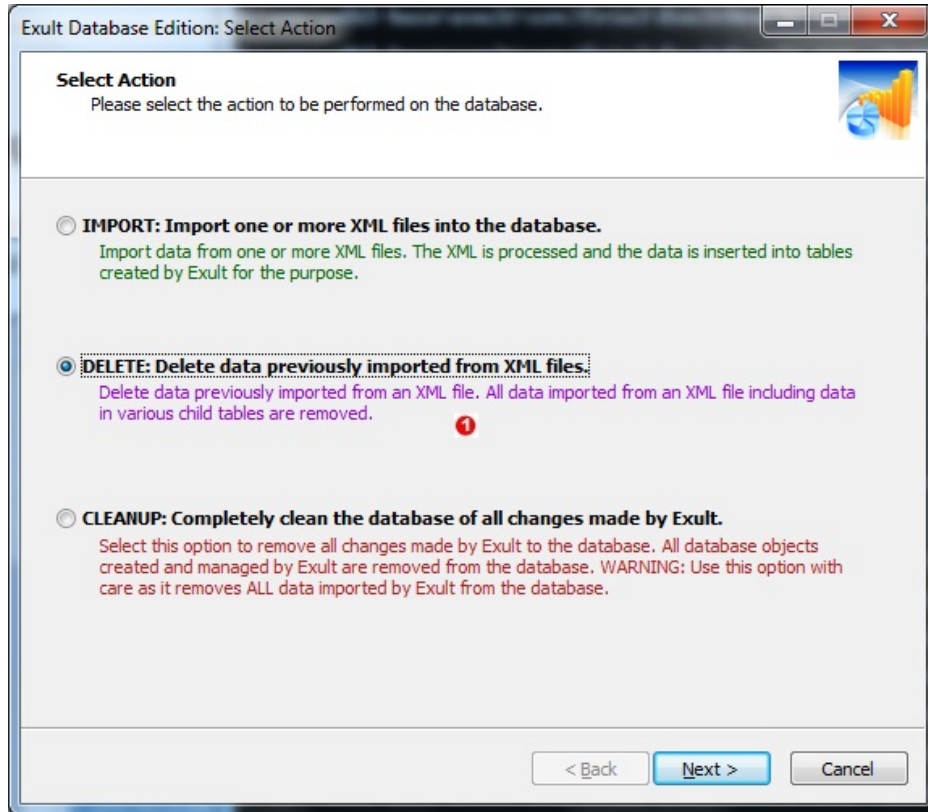


Figure 2.19: Selecting Delete XML Option

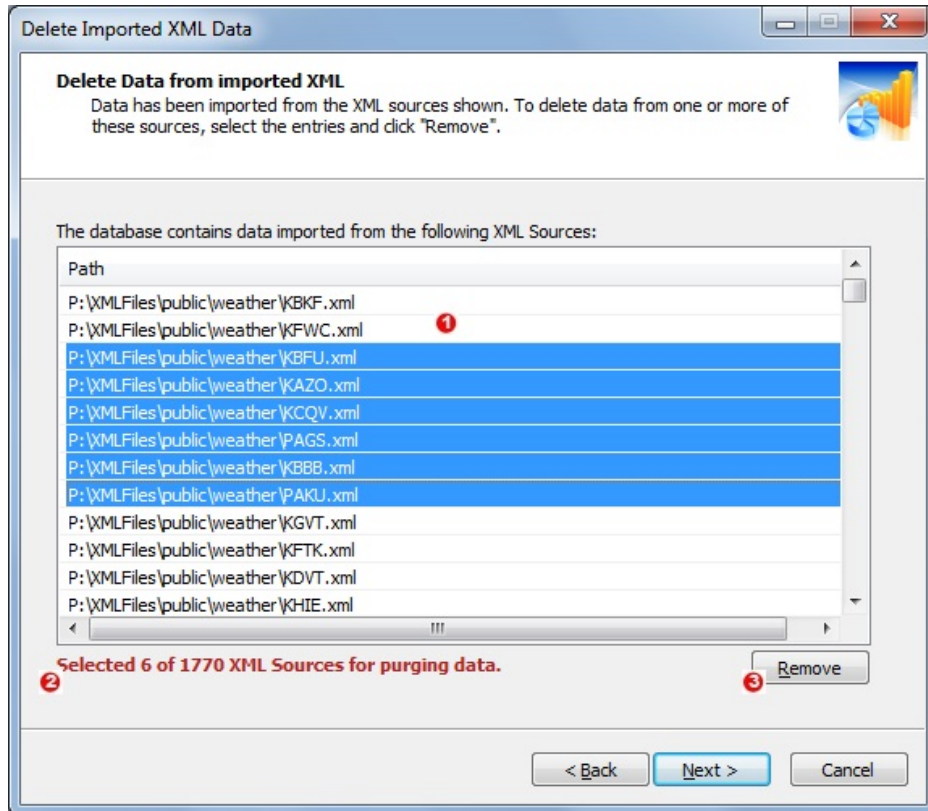


Figure 2.20: The Delete XML Data Page

The list of XML files imported into the database is shown in (1).

Select one or more files for deletion. The number of selected files is shown in (2).

Click *Remove* (3) to purge the data from the XML files from the database.

Repeat procedure as required.

2.13 Database Cleanup

Database Cleanup is a procedure which removes all tables, sequences, views and any other objects **created by Exult Oracle**. Note that only tables and other objects created by Exult Oracle should be removed during this process. Other objects in the database will not be altered by this procedure.



Warning

All objects created by Exult Oracle will be removed by this procedure. This also includes all XML data imported by Exult into the database. Please proceed with caution since this operation cannot be undone.

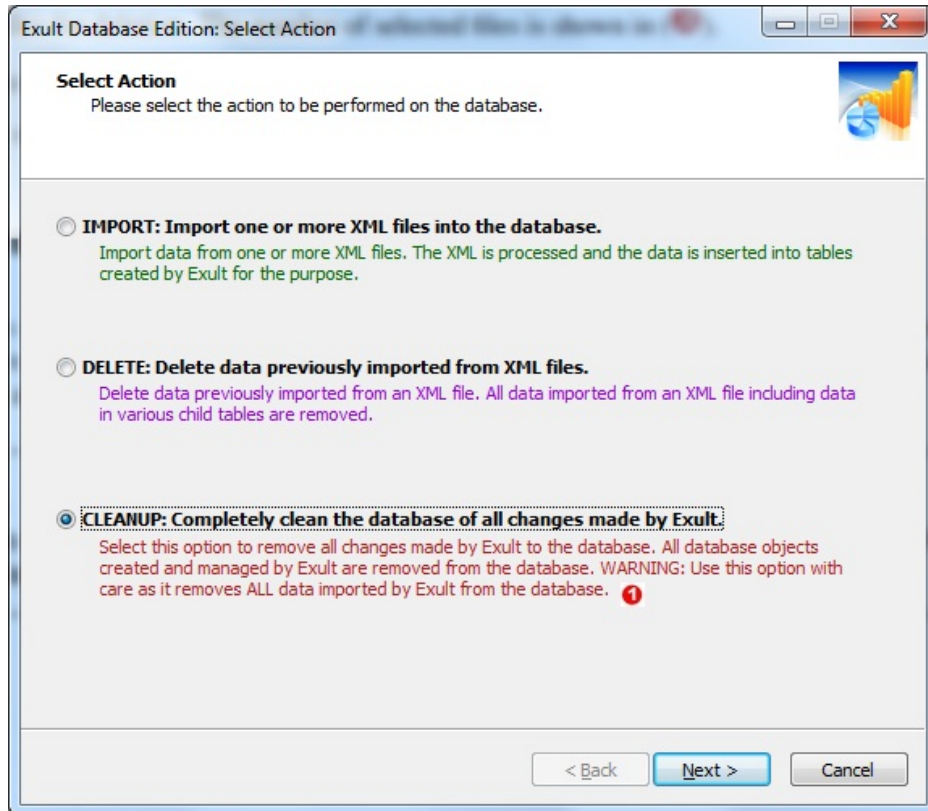


Figure 2.21: Selecting Cleanup Action

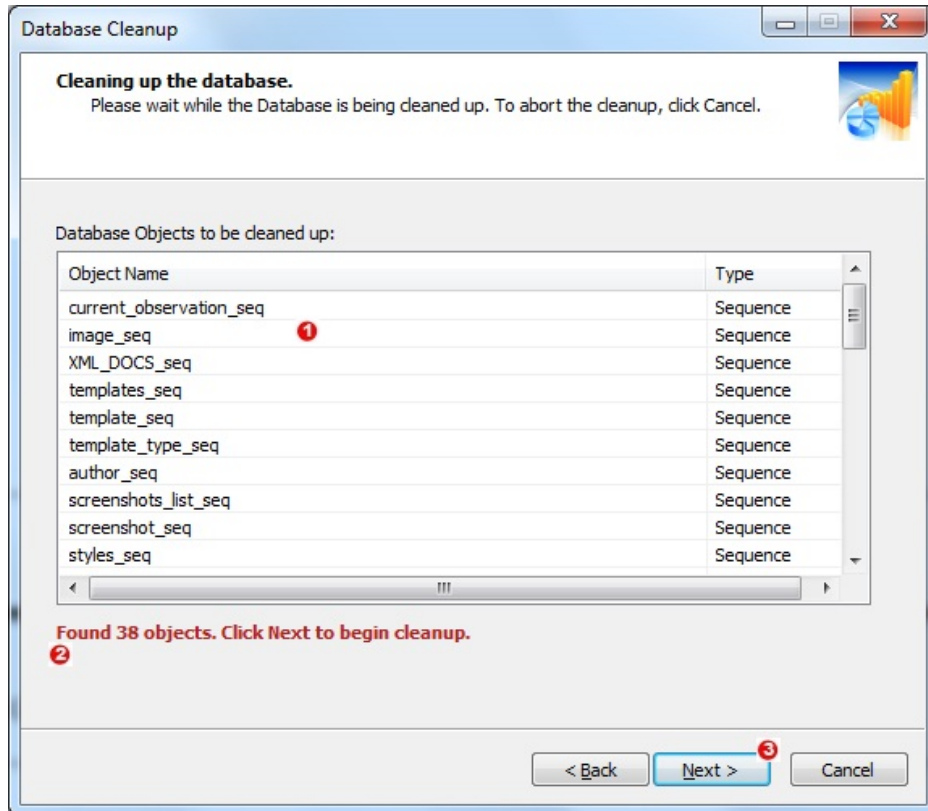


Figure 2.22: Database Cleanup Screen

The list of objects that will be deleted is shown in (1).

The number of objects to be cleaned up is shown in (2).

Click *Next* (3) to start the cleanup procedure.

Chapter 3

Using Exult Oracle Command Line

Exult Oracle includes a command line program which can be used in batch scripts for automating most if not all of the activities that can be performed using the GUI. The command line program is called *Exultcmd.exe* and should be located in the same directory where Exult Oracle has been installed. A full usage synopsis and syntax description of *Exultcmd.exe* can be obtained by running it with the *-h* option as follows:

```
C:> Exultcmd.exe -h
```

3.1 Prerequisites

The pre-requisites for running Exult Oracle command line are similar to the pre-requisites for Exult Oracle GUI. An Oracle client installation must be found using the Command Line program environment as follows.

The environment variable *ORACLE_HOME* must be set in the environment to point to the installation of a suitable *ORACLE_HOME* if one is installed.

In case you are using the Oracle Instant Client libraries instead of an *ORACLE_HOME*, please add the directory where the Oracle Instant Client Libraries are located to the *PATH* environment variable before executing *Exultcmd.exe*.

In either case, the environment variable *TNS_ADMIN* can be set to the path where *TNSNAMES.ORA* is located. This is required if the connection is to be made using an Oracle instance name from *TNSNAMES.ORA*.

3.2 Connecting to Oracle Using the Command Line

When specifying a connection string to the command line program, please use one of the following formats.

3.2.1 Using TNSNAMES.ORA

If *TNSNAMES.ORA* is being used, an instance identifier can be specified as the connection string as follows:

```
ORDERS
```

3.2.2 Using SQL Connect Syntax

If *TNSNAMES.ORA* is not found or you would like to specify the connection string in SQL Connect Syntax, please use the following format:

```
//host:[port][/]service name]
```

For example,

```
//dbase-server-5:4321/ORDERS
```

3.2.3 Specifying Username and Password

Exultcmd.exe accepts `-username Value` (or just `-u Value`) to specify the username to connect to Oracle. The option `-password Value` (or `-p Value`) is used for specifying the password. The password needs to be specified as plain, unencrypted text.

For example:

```
Exultcmd.exe -u SCOTT -p TIGER ORDERS
```

3.3 Importing XML into Oracle

To import XML into Oracle using the Exult Oracle Command Line, the first argument after the options specifies the connection string to connect to Oracle. Subsequent arguments are the input XML files to be imported. In the following example, we are connecting to database instance called `ORDERS` with the username and password specified as shown. The XML file `Data.xml` is being imported.

```
C:> Exultcmd.exe -username SCOTT -password TIGER ORDERS C:\Path\To\XML\Data.xml
```

To specify multiple XML files using a pattern, you could use:

```
C:> Exultcmd.exe .. C:\Path\To\XML\*.xml
```

3.4 Listing Imported XML Files

Listing XML files that have been imported into Oracle is accomplished by specifying the option `-listXML` as shown in the following command line:

```
C:> Exultcmd.exe -u scott -p tiger -listXML ORDERS
```

Instead of listing all XML files, list files matching a pattern.

```
C:> Exultcmd.exe -u scott -p tiger -listXML ORDERS A*.xml
```

3.5 Deleting Imported XML Files

When it is necessary to remove all data imported from an XML file, just remove the XML file from the database. Use the `-listXML` option to obtain a list of XML files imported previously.

```
C:> Exultcmd.exe -u scott -p tiger -listXML ORDERS P:\Imported\XML\File.xml
```



Warning

A substring match is used to match the specified file path against the path in the database. Sometimes, this might result in extra XML files being marked for deletion. Always check that the file pattern matches only the required files using the `-listXML` option.

3.6 Cleaning up the Database

Cleanup is a procedure which removes all tables and other objects created by Exult Oracle. All the data in the tables is also removed and the database reflects the state it was in before importing XML files using Exult Oracle. This should not change any other tables or objects in the database not touched by Exult Oracle.

Perform a cleanup of the database using the `-cleanup` option (or shortly `-X`).

```
C:> Exultcmd.exe -u scott -p tiger -cleanup ORDERS
```

A warning is printed before the cleanup is performed and the software waits for about 30 seconds before proceeding with the cleanup. This is to allow the user to abort the cleanup procedure. You can override this waiting period by specifying the `-confirm` option and the cleanup proceeds immediately.

```
C:> Exultcmd.exe -u scott -p tiger -cleanup -confirm ORDERS
```

3.7 Registering the Software

The software can be registered by entering a name and a license key from the command line too. Use the option `-register` to register the software. It asks for a name and a license key to register the software.

```
C:> Exultcmd.exe -register
```

Chapter 4

Troubleshooting

The following sections describe various problems you may have with Exult Oracle and suggest workarounds for them.

4.1 Failed to load DBMS Client Library

This error arises when the software cannot find Oracle Client Libraries. The solution is to install an Oracle Client installation on the computer where Exult Oracle is installed. If an Oracle installation is already present on the system, please ensure that the environment variable *ORACLE_HOME* is set to the correct location.

It is also possible to install the Oracle Instant Client libraries instead of a full-fledged Oracle Installation. After unpacking the correct Oracle Instant Client package for your system, please make sure that the *PATH* environment variable contains this directory.

**Warning**

Exult Oracle is available only as a 32-bit build. This means that the Oracle Client Libraries or the Oracle Instant Client installation must be a 32-bit installation even on a 64-bit system. Otherwise Exult Oracle will not be able to load the libraries.
