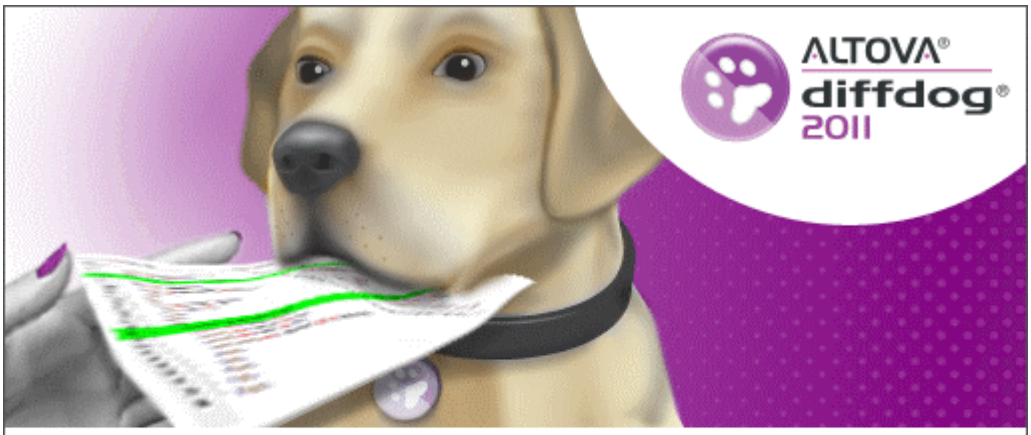
User and Reference Manual



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Altova DiffDog 2011 User & Reference Manual

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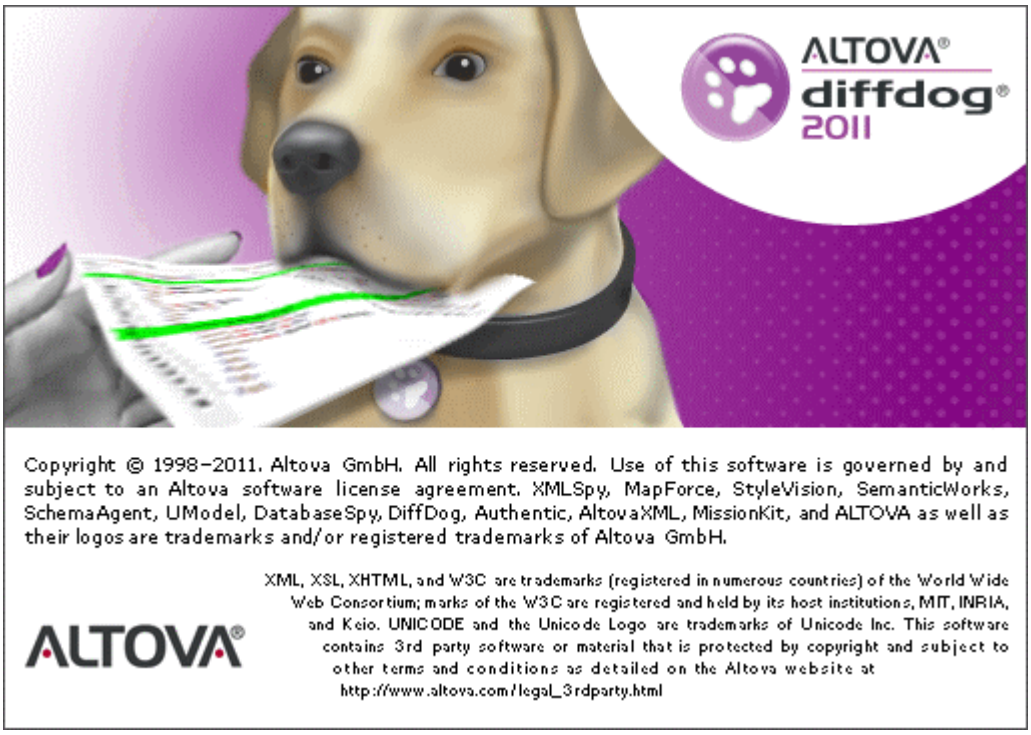
Chapter 1

Welcome to DiffDog 2011

1 Welcome to DiffDog 2011

Altova® DiffDog® 2011 Enterprise Edition is a powerful XML differencing application that intelligently finds differences between pairs of directories and between pairs of files. In addition, you can also compare Microsoft Word documents, the structure of XML schemas or database schemas, as well as database data even if it is contained in databases of different types. Directories and files (also Microsoft Word files) as well as database data can be compared on different bases and according to a variety of options that you can change quickly in the GUI. The GUI also helps you to quickly spot and analyze differences, edit your documents directly within the interface, merge differences, and instantly re-compare edited documents. Additionally, the directory comparison functionality is linked to the file comparison functionality, thus enabling you to compare directories instantly and then to directly open and compare file pairs from within the directory comparison. What is more, also database data comparisons can be opened from within database schema comparisons so that you can have a quick look on the contained data when comparing database schemas. DiffDog is available in 64-bit and 32-bit versions.



Chapter 2

What's New in DiffDog Version 2011 Release 3

2 What's New in DiffDog Version 2011 Release 3

New features in DiffDog Version 2011 Release 3 include:

- Enhanced and simplified synchronization of directories.
  A radio button for full synchronization from left to right or right to left, respectively, has been added to the **Synchronize directories** dialog box. A summary will be displayed before the synchronization is actually performed.
- File modification alerts in directory comparisons when files are changed outside of DiffDog.
- Enhanced options for the Quick comparison mode.
- Option to display a confirmation dialog box when files are deleted, copied, or replaced during directory merge operations.

DiffDog Version 2011 Release 2 SP1

DiffDog Version 2011 Release 2 SP1 contains bug fixes and enhancements.

DiffDog Version 2011 Release 2

New features in DiffDog Version 2011 Release 2 include:

- Comparison of Microsoft Word (*.doc, *.docx) documents
- The `Show content of ZIP-conformant files` check box has been removed from the File Comparison tab of the **DiffDog Options** dialog box. This option is now available as **Show Files in ZIP Archives** command in the **Diff and Merge** menu as well as a toolbar icon in the Comparison Mode toolbar
- Bug fixes

DiffDog Version 2011

DiffDog Version 2011 contains enhancements and bug fixes.

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2.1 Version 2010

DiffDog Version 2010 Release 3 SP1

DiffDog Version 2010 Release 3 SP1 contains bug fixes and enhancements.

DiffDog Version 2010 Release 3

New features in DiffDog Version 2010 Release 3 include:

- Considering attributes of child nodes as comparison criteria when comparing XML files
- Defining groups of attributes to be considered as comparison criteria
- Adding the element text as comparison criteria

DiffDog Version 2010 Release 2

New features in DiffDog Version 2010 Release 2 include:

- 64-bit version of DiffDog available
- Integration into Windows Explorer (file and directory comparison)

DiffDog Version 2010

New features in DiffDog Version 2010 include:

- Comparison of XML Schemas
- Comparison of database schemas
- Display of SQL Change Script before merging database differences
- Support of Windows 7
- Pretty-Print for XML files

Chapter 3

Introduction

3 Introduction

Altova® DiffDog® 2011 Enterprise Edition enables you to intelligently find differences between a pair of directories and between a pair of documents.Furthermore, you can also find structural differences between a pair of XML Schemas or database schemas, and compare also the data that is contained in selected tables of a pair of databases. Directories and files as well as XML Schemas, database schemas, and database data can be compared on different bases and according to a variety of options that you can change quickly in the GUI. In addition, DiffDog allows you to synchronize the content of two directories, generate XSLT stylesheets and MapForce® mappings for XML Schemas, merge the structure or data of database tables, and copy or delete changed files with a mouse click.

This User Manual describes the interface and the various features of DiffDog, and provides guidance on how to use DiffDog. It consists of the following parts:

- An **Introduction** (this section), which provides an overview of DiffDog features and a description of the available comparison modes.
- An overview of the DiffDog interface.
- Guidance on **how to use DiffDog**. These sections provide an overview of how to use the file comparison, directory comparison, Microsoft Word document comparison, XML Schema comparison, database schema as well as database data comparison features of DiffDog and also introduces you to various ways in which you can put these features to efficient use.
- Descriptions of how to navigate, merge, and export differences.
- A **User Reference**, which contains a description of all the toolbar icons, menu commands, as well as status and result messages of DiffDog.
- An overview of the command line options in DiffDog and how to use DiffDog in source control systems.

How to use this User Manual

We suggest that you read the sections titled Introduction as well as Comparing Files, Comparing Directories, Comparing Microsoft Word Documents, Comparing XML Schemas, Comparing Database Schemas, and Comparing Database Data in order to get an overview of the features of DiffDog and to learn how to use DiffDog. These sections should give you all the information you need to get started using DiffDog. For subsequent reference, you should look up the User Reference.

The User Manual is indexed so you can find topics quickly. Additionally, the onscreen Help provides full text search (**Help | Search**): Keying in a search term in the onscreen Help will pop up a list of topics in which the search term appears. This documentation is also available online and in PDF format at the Altova website.

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3.1 Product Features

DiffDog provides the following main features.

File Comparison

A file comparison in DiffDog is made in a File Comparison window. Files to be compared are opened in separate panes of a File Comparison window by browsing in Windows Explorer-type windows or from drop-down lists of previously opened files. DiffDog remembers file comparison pairs, and, when you select a file for comparison, can provide a list of files with which the selected file was previously compared.

Files can be compared as text or as structured XML. You can also compare binary files, however DiffDog cannot—with the exception of Microsoft Word (*.doc or *.docx) documents—display the changes within binary files, it can only detect whether or not a pair of binary files is equal. A large range of navigation controls enables you to move easily among differences.

A wide range of comparison options are available, thus allowing you to define what aspects of files to compare and what aspects to ignore. Comparison options include settings for how whitespace and blank lines should be treated, whether case-sensitivity should be considered or not, whether differences should be indicated by line or character, whether certain node types, namespaces, and the order of attributes and/or elements should be ignored, whether entities should be resolved, etc.

If a file is modified outside DiffDog while it is open in a File Comparison window, DiffDog can watch for changes and reload the file if required.

Differences within files are indicated with background colors, and corresponding differences in the two panes are joined with lines, thus making visual analysis easier. Note that this does not apply to binary files! Vertical and horizontal scrolling of the two files in Comparison windows can be synchronized. This enables corresponding differences always to be displayed simultaneously.

File Editing and Merging in File Comparison Windows

After you have compared a file pair, files can be edited and saved directly within File Comparison windows and you can specify whether and how backups of files you edit should be kept. Comparisons can be done dynamically as you edit.

DiffDog provides high-level find-and-replace functionality, which also includes support for regular expressions. Differences between files can be merged, i.e. a different block in one file can be copied to replace the corresponding block in the other file. Editing and merging changes in either file can be undone an unlimited number of times.

Directory Comparison

A directory comparison in DiffDog is made in a Directory Comparison window. The directories to be compared are opened in separate panes of a Directory Comparison window. DiffDog provides a drop-down list of recently compared directories from which to select. Additionally, once a directory is selected to be opened in one pane, DiffDog can provide a list of directories with which that directory was previously compared; as a result previously compared pairs can quickly be opened in a Directory Comparison window. You can define filters to specify what file types to compare and what file types to ignore in a directory comparison.

Directories can be compared on the basis of the sizes and timestamps of files within them (Quick Comparison Mode), or on the basis of the contents of files. The compared directories are displayed as expandable/collapsible trees and show details such as file size and last

modification date. The view of the compared directories can be configured on the basis of the comparison results. For example, equal directories and files can be hidden, and only non-equal folders and files shown. Differences between directories and files are indicated with color-coding and easy-to-identify icons.

If a directory is modified outside DiffDog while it is open in a Directory Comparison window, DiffDog can watch for changes and reload the directory if required. Non-equal directories and files can be copied from one pane (directory) to the other. You can also synchronize the directories, that is, copy all missing or updated files from one directory to the other or delete unneeded files. File comparisons can be started directly from within a Directory Comparison window by double-clicking a file in a directory.

Microsoft Word document comparison

A comparison of Microsoft Word documents is made in a Word Comparison window. Please note that Microsoft Word must be installed on your computer and that you cannot run a 64-bit version of DiffDog together with a 32-bit version of Microsoft Word, or vice versa, if you want to compare Microsoft Word documents in DiffDog. DiffDog opens two instances of Microsoft Word side by side and displays an empty document in both of them. Documents are opened separately in the left and right pane by clicking the **Open** button in the respective toolbar or choosing a previously compared document from the drop-down list box.

XML Schema comparison

An XML schema comparison is made in an XML Schema Comparison window. The XML schemas to be compared are opened in two components of the XML Schema Comparison window. Occasionally, you will have to set a root element for the comparison. The root elements on both sides are mapped and DiffDog tries to find and map corresponding (child) elements. The mappings can be changed manually at any time.

You can save the mapping and the settings of an XML Schema comparison in a file. If such an XML Schema comparison file is modified outside DiffDog while it is open in an XML Schema Comparison window, DiffDog can watch for changes and reload the file if required. DiffDog also allows you to generate XSLT Stylesheets and MapForce Mappings for the compared XML Schemas. The XSLT Stylesheet or MapForce Mapping, respectively, can then be saved or, for XSLT Stylesheets, opened in XMLSpy®.

Database schema comparison

A comparison of database schemas is made in a Database Schema Comparison window. The tables of the database schemas to be compared are opened in two components of the Database Schema Comparison window. DiffDog provides a selection dialog box which serves as a starting point for establishing the connections to the database schemas to be compared. Once a connection to a data source exists, the dialog box presents the schemas and tables of that database in a tree structure with several layout and filter options so that you can quickly locate the tables within the schema you want to compare.

When you start a comparison, tables are mapped automatically based on table and column names. If tables or columns cannot be mapped by name, DiffDog compares the structure of unmapped items and tries to find corresponding pairs.

You can save the mapping and the settings of a database schema comparison in a file. If such a database schema comparison file is modified outside DiffDog while it is open in a Database Schema Comparison window, DiffDog can watch for changes and reload the file if required. DiffDog also allows you to merge the structure of the compared schemas, that is, the required change script is generated and executed automatically in the background.

Database data comparison

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A comparison of database tables is made in a Database Data Comparison window. The tables to be compared are opened in two components of the Database Data Comparison window. DiffDog provides a selection dialog box which serves as a starting point for establishing the connections to the databases to be compared. Once a connection to a data source exists, the dialog box presents the tables of that database in a tree structure with several layout and filter options so that you can quickly locate the tables you want to compare.

Before you can start a comparison, tables have to be mapped. This can be done automatically, based on column names and/or data types, or manually by drawing connection lines between the two components of the comparison. Tables can then be compared either with regard to the strings contained in them or natively, that is, based on their data types. When comparing columns of data type XML, a variety of options can be considered or ignored during comparison.

The result view of the compared tables can be configured on the basis of the comparison results. For example, equal rows and columns where no differences occur can be hidden, and only non-equal rows and columns shown. Differences between tables are indicated with color-coding and easy-to-identify icons.

You can save the mapping and the settings of a database data comparison in a file. If such a database data comparison file is modified outside DiffDog while it is open in a Database Data Comparison window, DiffDog can watch for changes and reload the file if required. DiffDog also allows you to merge the data of the compared tables, that is, the required change script is generated and executed automatically in the background.

Interface

Multiple comparison windows (directory, file, XML Schema, database schema, and database data) can be opened in DiffDog at a time. Directory synchronization is done in a dialog box that can be opened from the Directory Comparison window after you have run a directory comparison, and which allows you to customize the default synchronization settings according to your needs.

The GUI has user-friendly menu layouts, intuitive toolbar icons, right-click quick menus, and a status bar that summarizes the results of comparisons. You can customize the look of Directory Comparison windows, File Comparison windows, XML Schema Comparison windows, Database Schema Comparison windows, and Database Data Comparison windows, including the background colors that are used to highlight differences. Files can be viewed in Text View or Altova's Grid View.

The Text View of documents in File Comparison windows provides line-numbering, source-folding (i.e. expandable and collapsible elements), indentation guides, bookmarking, syntax coloring, and whitespace and linefeed indicators. Syntax coloring can be adjusted according to file type.

Grid View displays structured documents, such as XML documents, in a tabular grid. This enables you to carry out large-scale changes easily (for example, inserting a column would insert the node represented by the column in all the nodes represented by the rows of the grid).

Command Line

DiffDog can be called from the command line. The application can be integrated with any source control system which provides the possibility to set up a path to the DiffDog executable.

System Requirements

Altova DiffDog runs on Windows XP, Windows Server 2003 and 2008, as well as Windows Vista and Windows 7.

3.2 DiffDog Terminology

Terms used in this documentation are defined below.

Comparisons: DiffDog enables you to make five kinds of comparisons: File Comparisons, Directory Comparisons, Microsoft Word document Comparisons, XML Schema Comparisons, Database Schema Comparisons, and Database Data Comparisons (*see below*).

File comparison: A file comparison is the process of comparing two files. The term is also used to refer to the display of results of the comparison.

File Comparison window: Each file comparison is displayed in a File Comparison window. Multiple file comparisons can be open in DiffDog at a time, but only one may be active at any given time.

Microsoft Word document comparison: A Microsoft Word document comparison is the process of comparing two Microsoft Word (*.doc or *.docx) files. The term is also used to refer to the display of results of the comparison.

Word Comparison window: Each Microsoft Word document comparison is displayed in a Word Comparison window. Multiple Microsoft Word document comparisons can be open in DiffDog at a time, but only one may be active at any given time.

Directory comparison: A directory comparison is the process of comparing two directories. The term is also used to refer to the display of the results of the comparison.

Directory Comparison window: Each directory comparison is displayed in a Directory Comparison window. Multiple directory comparisons can be open in DiffDog at a time, but only one may be active at any given time.

Database Data comparison: A database data comparison is the process of comparing the content of tables contained in two databases.

Database Data Comparison window: Each database data comparison is displayed in a Database Data Comparison window. Multiple database data comparisons can be open in DiffDog at a time, but only one may be active at any given time.

Database Schema comparison: A database schema comparison is the process of comparing the structure of tables contained in two database schemas.

Database Schema Comparison window: Each database schema comparison is displayed in a Database Schema Comparison window. Multiple database schema comparisons can be open in DiffDog at a time, but only one may be active at any given time.

XML Schema comparison: An XML schema comparison is the process of comparing two XML schemas. The term is also used to refer to the display of results of the comparison.

XML Schema Comparison window: Each XML schema comparison is displayed in an XML Schema Comparison window. Multiple XML schema comparisons can be open in DiffDog at a time, but only one may be active at any given time.

Component: In Database Data comparisons, Database Structure comparisons, and XML Schema comparisons, the items to be compared are contained in two components within the respective comparison window. The components are used to select and map the items of the comparison and provide several context menu options.

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Data source: The database that hosts the tables compared in a database data or database schema comparison is referred to as data source. You need a connection to a data source in order to start a database data or database schema comparison in DiffDog.

Database Data Comparison Result window: In contrast to file and directory comparisons, the results of a database data comparison are not displayed directly in the Database Data Comparison window but in a separate window which is called the Database Data Comparison Result window. The Database Data Comparison window itself provides only a short overview stating whether or not the data in the two tables is equal and how many rows are different or exist only on one side of the comparison.

Directories and Folders: These two terms are used interchangeably.

Difference: Six types of differences are distinguished: (1) differences between two compared files, (2) differences between two compared directories, (3) differences between two compared Microsoft Word documents, (4) differences between the data in tables of two compared databases, (5) differences between the structure in schemas of two compared databases, and (6) differences between two compared XML Schemas.

(1) A difference between two files that are compared as text denotes a line of text in a file that is different from the corresponding line (if any) in the compared file. Note that the entire line is considered to be a single difference—even if the option to show differences within lines is selected. (This is significant when merging differences because the entire line will be merged; merges are not carried out at the character level.) A line of text is considered to be different from its corresponding line if one or more characters of text in it are different, if text is missing, or if a line is present for which there is no corresponding line in the compared file.

A difference between two files that are compared as XML denotes a node that is different from the corresponding node in the compared file. In general, nodes are considered different if the corresponding text values do not match. What constitutes a difference can be further refined in the **Comparison Options** dialog box.

(2) Differences between two compared directories are determined by comparing corresponding files within the two compared directories. In Quick Comparison Mode, the file sizes and time stamps of the corresponding files are compared. If one of these is different, the files are said to be different. Alternatively, corresponding files within directories are compared on the basis of their contents. Such comparisons are carried out as normal DiffDog file comparisons, and a difference causes the files to be flagged as different. *Also see the definition of Equal Files and Non-Equal Files.*

(3) A difference between two Microsoft Word documents denotes a sentence or a paragraph (depending on the settings you have defined in the Word comparison options) that is different from the corresponding sentence/paragraph (if any) in the compared document. Note that the entire sentence/paragraph is considered to be a single difference—even if the option to show differences within lines is selected. (This is significant when merging differences because the entire sentence/paragraph will be merged; merges are not carried out at the character level.) A sentence/paragraph is considered to be different from its corresponding sentence/paragraph if one or more characters of text in it are different, if text is missing, or if a sentence/paragraph is present for which there is no corresponding line in the compared file.

(4) A difference between tables in two databases when strings are compared occurs when the string representation of the data contained in a field is different between the two tables.

A difference between tables in two databases when the content of a database is compared using the database's internal data types (native comparison) occurs when the content of a field itself (and not its string representation which might be different for the same content in different databases) in the first table does not match the content of the corresponding field in the second

table.

(5) A difference between the structure of schemas in two compared databases occurs when the name or data type of a database item is different or when a database items exists in one schema that is missing in the other schema.

(6) A difference between two compared XML Schemas occurs when items exist in one XML Schema that are missing in the other XML Schema or when the names of items are different.

Equal Files: In directory comparisons, files that are identical according to the comparison options, are said to be equal.

Non-equal Files: In directory comparisons, there are two types of non-equal files: (1) a different file (*see definition of Difference above*), and (2) a file that is present in one directory but not in the other. Note that a non-equal file is not necessarily a different file.

Mapping: In database data, database schema, and XML Schema comparisons, each table, column, or item, respectively, in the left comparison component has to be assigned a table, column, or item, respectively, in the right comparison component to be compared with. This process is called mapping in DiffDog and can be done either automatically by the application based on column name and/or data type, or manually by the user using the mouse.

Merging: Differences found in a file, database data, or database schema comparison can be merged, that is, copied from one file or table, respectively, to the other. The block that is copied overwrites the corresponding block or space in the compared file/database. In file comparisons, merges are performed for the active (current) difference, and can be performed in either direction. In database comparisons, merges are performed either for all or for the selected items. Note that non-equal files in a Directory Comparison can also be copied from one pane (directory) to the other and that rows that exist only on one side of a database data comparison can be copied to the other side.

Synchronizing: Two directories that are different are synchronized by copying or deleting, respectively, all non-equal files and sub-folders from one directory to the other, or by deleting files that are present in one directory but not in the other. The default synchronization options are displayed in the **Synchronize directories** dialog box where they can be changed for the entire directory. Additionally, you can also edit the synchronization actions for individual files or sub-folders.

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3.3 Comparison Mode

Files, directories, and database data can be compared in DiffDog in several ways. The comparison mode is indicated by the icons in the Comparison Mode and Database Data Comparison Mode toolbars. You can change the comparison mode either by clicking a different toolbar icon or by selecting the desired mode from the **Diff and Merge** menu.

The comparison mode you select is important. For example, identical files with different timestamps will be indicated as same in Text Comparison Mode but as different in Quick Comparison Mode. The available comparison modes are described below.

File comparison

When a File Comparison window is active, or when Quick Comparison Mode is toggled off in a Directory Comparison window, you can select from among the following four file comparison modes:

Text: Compares files as text files; compares directories with contents treated as text files.

XML: Compares files as XML files; compares directories with contents treated as XML files.

Binary: Compares files as binary files; compares directories with contents treated as binary files.

File extension: Compares files as text or XML according to settings for file extensions, which you can make in the File Types tab of the **DiffDog Options** dialog (**Tools | DiffDog Options**); compares directories with contents treated as text files, XML files, Microsoft Word files, or binary files according to file extension.

Directory comparison

When a Directory Comparison window is active, you can choose between Quick Comparison Mode and one of the four file comparison modes described in the File comparison section above.

Quick comparison: Compares files within directories and sub-directories by size and date modified. This mode is either toggled on or off. When toggled off, the four file comparison modes become available. Selecting one of the file comparison modes causes directories to be compared in terms of their contents as text, XML, or binary files.

Database data comparison

When a Databases Data Comparison window is active, you can select either string comparison or native comparison.

String: Compares the content of database tables as strings with no regard to how the content is stored in the database.

Native: Considers the data type of a database column when comparing tables. The same data, for example, can be considered different when it is stored in two columns using different data types.

XML Native: Treats the content of XML columns as XML files. This comparison mode is only available together with the Native comparison mode.

Current Comparison Mode

DiffDog uses the concept of the **current comparison mode**. This is the comparison mode that is current at any given time. For each *type* of comparison window (file, directory, and database data), a *separate* current comparison mode exists at all times. The current comparison mode for each type of comparison window is that comparison mode most recently selected by you in any of the open comparison windows of that type. When the application is started, the current comparison modes are the comparison modes that were current at the time the application was last closed.

Every File Comparison window, Directory Comparison window, and Database Data Comparison window has a comparison mode.

When new comparison windows (file, directory, or database data) are opened, they have the current comparison mode for that type of comparison window (file, directory, or database data). Note that the current comparison mode for file comparisons applies to new directory comparison windows if Quick Comparison Mode is not the current comparison mode for directory comparisons.

If you change the comparison mode of a comparison window, then that comparison mode applies to that particular comparison window. The comparison mode of other open comparison windows is not affected. However, the newly selected comparison mode becomes the current comparison mode and is applied to all comparison windows that are opened subsequently.

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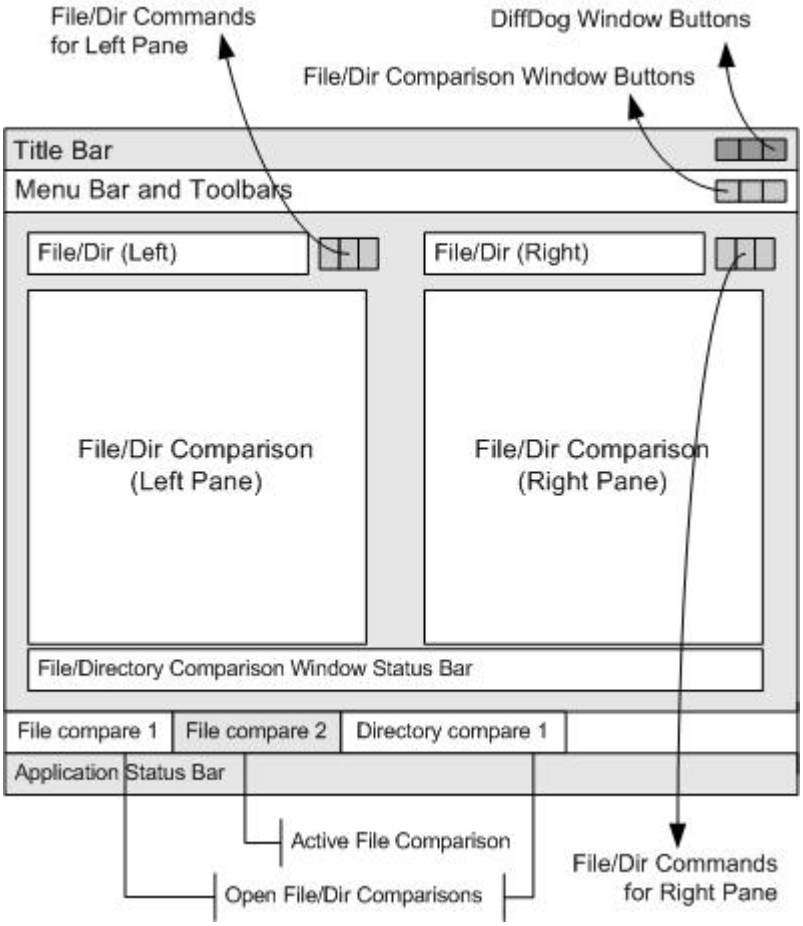
Chapter 4

The DiffDog Interface

4 The DiffDog Interface

The DiffDog interface displays multiple File Comparison windows, Directory Comparison windows, Word Comparison Windows, Database Data Comparison windows, Database Schema Comparison windows, and XML Schema Comparison windows within the DiffDog application window. The schematic diagrams below illustrate the main parts of the interface. They are accompanied by a brief description of the various interface parts.



The Database Data, Database Schema, and XML Schema Comparison windows look slightly different than the File Comparison and Directory Comparison windows. They consist of only one pane which has a left and a right component that serve for the selection of the data sources and tables for the database or XML Schema comparison.

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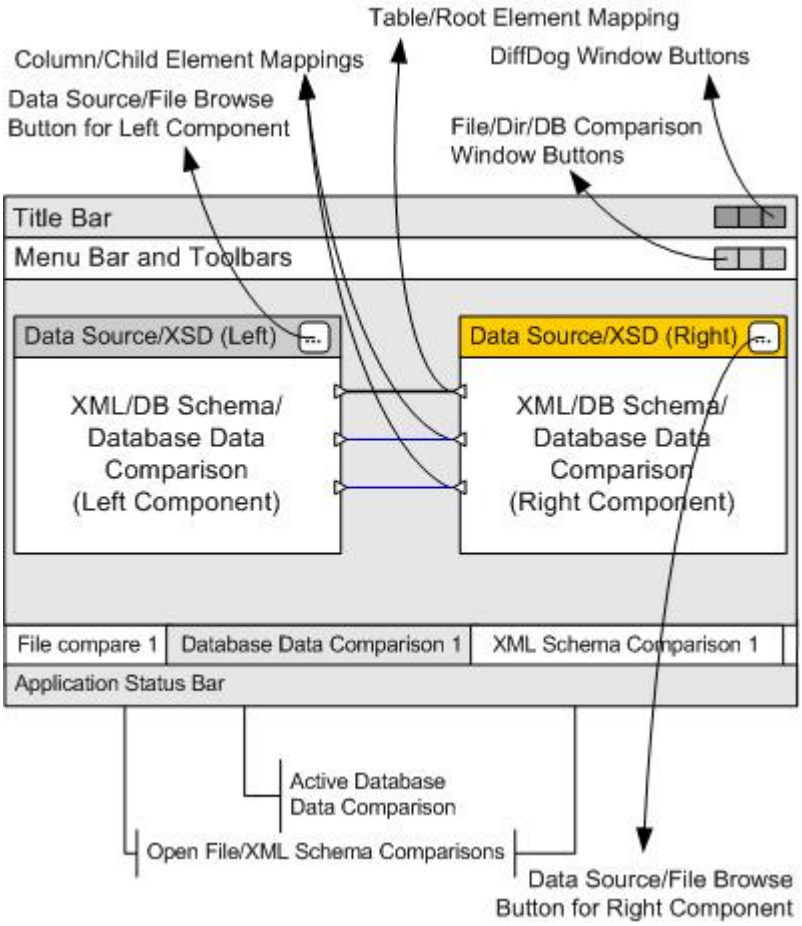

Title Bar
The Title Bar displays the application name (i.e., DiffDog) followed by the name of the active File Comparison window, Directory Comparison window, Word Comparison window, XML Schema Comparison window, Database Schema Comparison window, or Database Data Comparison window. At the right-hand side are buttons to minimize, reduce or maximize, and close the DiffDog application window.

Menu Bar and Toolbars
The Menu Bar displays the menus. Each toolbar displays a group of icons for DiffDog commands. You can reposition the menu bar and toolbars by dragging their handles to the desired locations. At the right-hand side are buttons to minimize, reduce or maximize, and close the active comparison window.

File/Directory/Microsoft Word/XML Schema/Database Schema/Database Data Comparison Window
Multiple File Comparison windows and/or Directory Comparison windows and/or Word Comparison windows and/or Database Data Comparison windows and/or Database Schema Comparison windows and/or XML Schema Comparison windows can be open at a time, but only one of them is active. The name of the active comparison window appears in the title bar and its name tab (at the bottom of the DiffDog application window) is highlighted and the name itself is displayed in bold; the name tabs of the other open comparison windows are grayed out and the names are displayed in normal font. To make another comparison window the active comparison window, click its name tab.

Each comparison window (file/Microsoft Word or directory) has two panes of equal width

arranged side-by-side and a status bar for that comparison window below the two panes. Above each pane is a file/directory selection area. This consists of a combo box, where you can enter the name of the file/directory to be compared, or select a previously opened file or directory from the drop-down menu. The buttons to the right of this area allow you to browse for files or directories, and to open files, save files and refresh files. The file and directory that is opened in each pane can therefore be opened independently of the file or directory in the other pane. Once a file/directory has been opened in both panes of a comparison window, a comparison can be made.

In Directory Comparison windows, directories are displayed as trees, the levels of which can be expanded/collapsed by double-clicking on a directory-level. Additionally, the width of individual columns can be adjusted by dragging borders to the desired width. In File Comparison windows, the view of the document can be customized using commands in the **View** and **Text View** menus.

In XML Schema Comparison windows, XML Schemas are selected in two components that are displayed in one pane of the comparison window. Each component has a title bar displaying the file name of the XML Schema that is currently loaded into the component, and a browse button that opens the Windows **Open** dialog box where the XML Schemas for the left and right comparison component can be selected or changed. The width of a component can be adjusted by dragging the handle in the lower right corner of the component. The elements inside a component are displayed as trees. By double-clicking on an element or clicking the plus symbol next to an element name, the element can be expanded to show the child elements. Elements that are mapped to their respective counterparts in the other components are connected by connector lines. These mappings can be selected, deleted, or dragged to other tables/columns using the mouse.

In database comparison windows (schema or data), data sources and tables are selected in two components that are displayed in one pane of the comparison window. Each component has a title bar displaying the data source the component is currently connected to, and a browse button that opens the **Select Tables for Data Comparison** dialog box where the data sources and tables for the left and right comparison component can be selected or changed. The width of a component can be adjusted by dragging the handle in the lower right corner of the component. The tables and columns inside a component are displayed as trees. By double-clicking on a table or clicking the plus symbol next to a table name, the table can be expanded to show the table columns. Tables and columns that are mapped to their respective counterparts in the other components are connected by connector lines. These mappings can be selected, deleted, or dragged to other tables/columns using the mouse.

Comparison Window Status Bar
The status bar of a file/Microsoft Word or directory comparison window indicates the status of that comparison. If files or directories have not been opened, this is indicated. If a comparison has been made, the type of comparison is reported along with the result of the comparison. The comparison window status bar is not available in XML Schema comparison windows, database data comparison windows, and database data comparison windows, and should not be confused with the application status bar.

Application Status Bar
The application status bar appears at the bottom of the application window, and shows application-level information. The most useful of this information are the tooltips that are displayed here when you mouseover a toolbar icon. The application status bar should not be confused with the comparison window status bar. If you are using the 64-bit version of DiffDog, this is indicated in the status bar with the suffix (x64) after the application name. There is no suffix for the 32-bit version.

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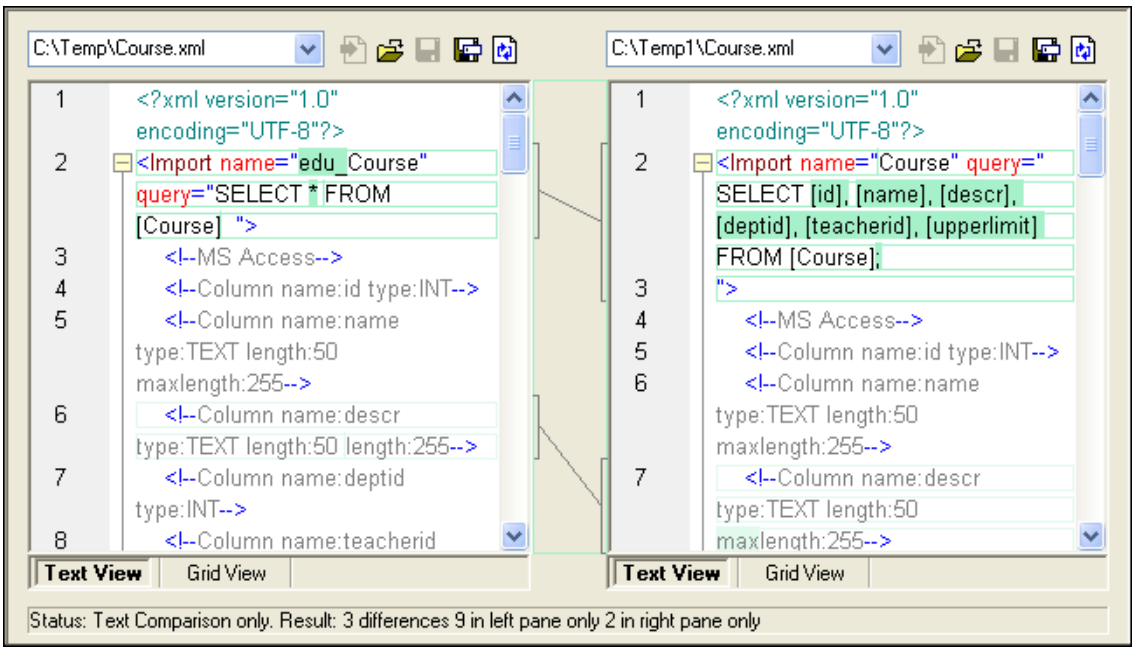
Chapter 5

Comparing Files

5 Comparing Files

Altova web site: file diff tool

File comparison in DiffDog is done in a File Comparison window, which provides several features for comparing, editing, and merging files. For well-formed, XML-based files, you have the additional option to change between Text View and Grid View.



To start a file comparison in DiffDog, you can either directly choose two files to compare or first open an empty File Comparison window and then select the files to be compared. Alternatively, you can also select two files in Windows Explorer, right-click and select **Compare with Altova DiffDog** from the context menu. This will open a new instance of DiffDog and display the selected files in a Comparison Window.

The comparison will start automatically unless you have deactivated the **Autostart Comparison** option in the **Diff and Merge** menu. You can change the comparison mode as desired and restart the comparison. In addition, to eliminate differences, DiffDog allows you to edit the content of the files directly in the comparison window and copy content from one pane to the other.

When comparing ZIP-conformant files and Office Open XML (OOXML) files in DiffDog, please note that these comparisons initially have to be started as a directory comparison since ZIP and OOXML files contain multiple files.

Altova web site: ooxml diff, zip diff

To open a file comparison window:

Do one of the following:

- Select the menu option **File | Open** or press **Ctrl+O** and select `Compare files` in the **Open comparison** dialog box. Then choose the files to be compared in the Content group box and click **OK**. A new File Comparison window containing the selected files is opened.

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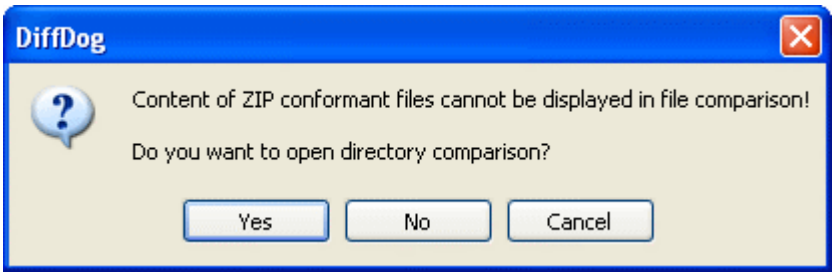
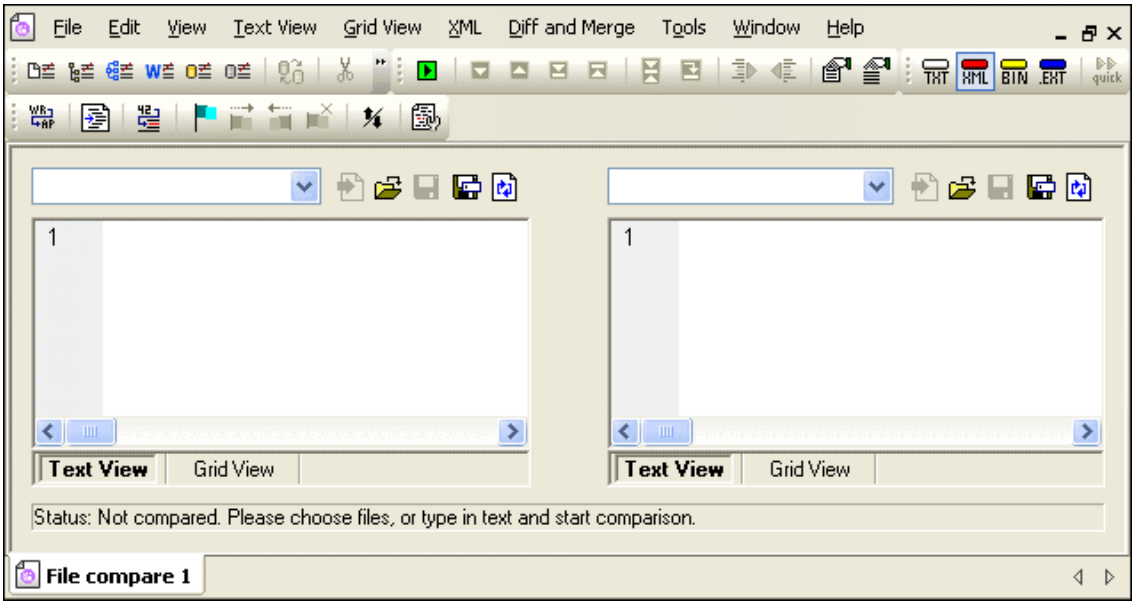
If you choose a ZIP-conformant or OOXML file, a dialog box is displayed and you can choose to open a directory comparison instead.



- Select the menu option **File | Compare Files** or click the **Compare files** icon in the Standard toolbar. An empty File Comparison window is opened.
- To compare Microsoft Word (*.doc or *.docx) documents, click the **Compare Microsoft Word** icon in the Standard toolbar.

5.1 Opening a File Comparison Window

When opening a new File Comparison window, the file comparison is given a name of the form `File compare X`, where `X` is an integer indicating that file comparison's position in the sequence of file comparisons opened in the current DiffDog session. This name appears in a tab at the bottom of the window.



Note that the **Compare Files** command opens only the File Comparison window; it does not open any file within the window. The two files to be compared must be opened subsequently in the panes of the comparison window, one in each pane.

To open an empty File Comparison window:

- Select the menu option **File | Compare Files** or click the **Compare files** button in the Standard toolbar.

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5.2 Selecting Files for Comparison

Files can be selected for comparison in various ways. You can open the files in a new File Comparison window, re-open a previous comparison, or change the files in the currently open File Comparison window. In addition, you can also drag and drop files from the Windows Explorer into the respective panes of a File Comparison window or select a file pair in Windows Explorer and use a context menu option to start a comparison in DiffDog.

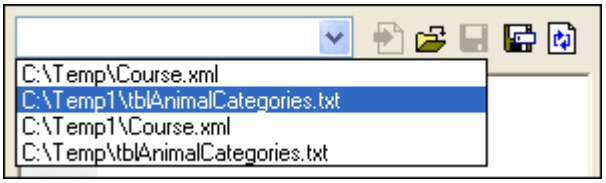
To open files in a new File Comparison window:

1. Select the menu option **File | Open** or press **Ctrl+O**.
2. In the **Open Comparison** dialog box, select `Compare files` in the Mode group box.
3. In the Content group box, for the first and the second file, do one of the following:
   - Enter the path of the files.
   - Select previously compared files from the drop-down list.
   - Click the **Browse...** button and select files from the file system.
4. Click **OK**. The selected files are opened in a new File Comparison window.

To select files in the active File Comparison window:

1. In the left pane of an existing File Comparison window, do one of the following:
   - Click the **Open** icon and select a file in the Windows **Open** dialog box.
   - Enter the full path to a file and click the **Apply** button.

   - Drag a file from the Windows Explorer into the pane.
   - Select a previously compared file from the drop-down list.

2. Repeat any of the steps described in step 1 for the right pane.

To start a file comparison from Windows Explorer:

1. Select two files in Windows Explorer.
2. Right-click and choose **Compare with Altova DiffDog** from the context menu.

   A new instance to DiffDog is opened, the selected files are displayed in a File Comparison window, and the comparison is started automatically.

5.3 Modifying the File Comparison Options

The options of a file comparison can be changed in the **Comparison Options** dialog box. This dialog box provides separate tabs for text and XML comparison. In addition, the **Diff and Merge** menu offers several toggle commands which can be switched on or off via the menu:

- Show Options Before Comparison
- Autostart Comparison
- Compare while Editing
- Support Recently Compared Pairs

General options for the comparison of files are furthermore available in the File comparison tab of the **DiffDog Options** dialog box.

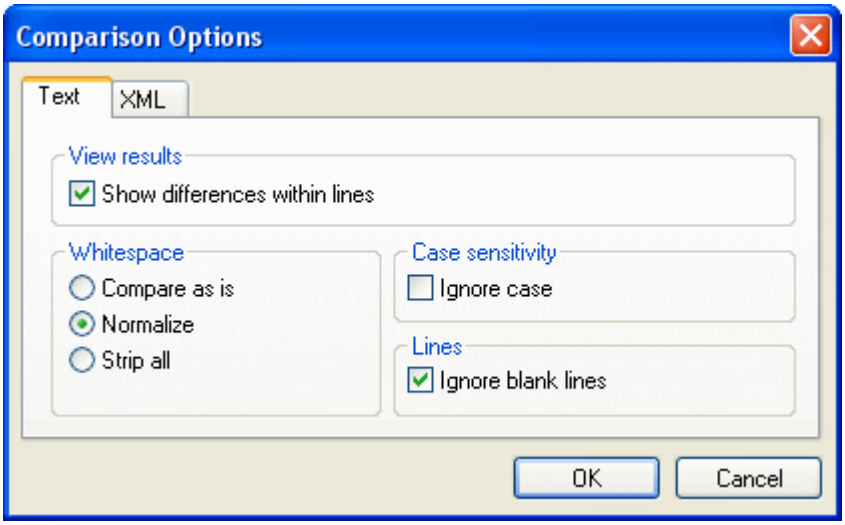
To modify the file comparison options:

Do one or more of the following:

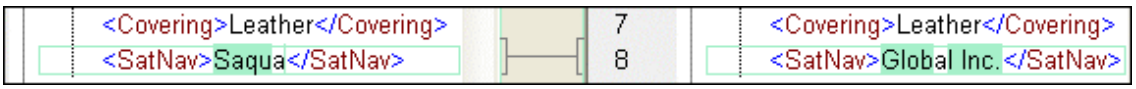
- Select the menu option **Tools | Comparison Options...** and change the settings in the Text and XML tabs as required.
- Activate or deactivate the desired comparison management options in the **Diff and Merge** menu.

5.3.1 Options for Text Comparison

The Text tab of the **Comparison Options** dialog box displays the options that are used for text comparison.



View results
By activating the `Show differences within lines` check box, you can display the differences on character level. Note that the **Compare as Text** button must be active in order to display differences within lines.



If the check box is deactivated, differences are displayed only on line level, that is, character

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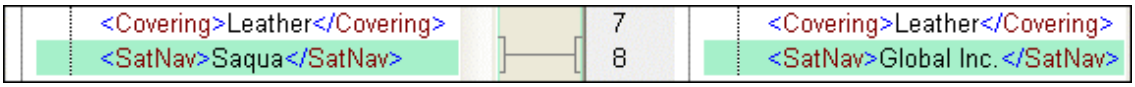
level differences are not highlighted. Only the line, as a whole, is indicated as being different.



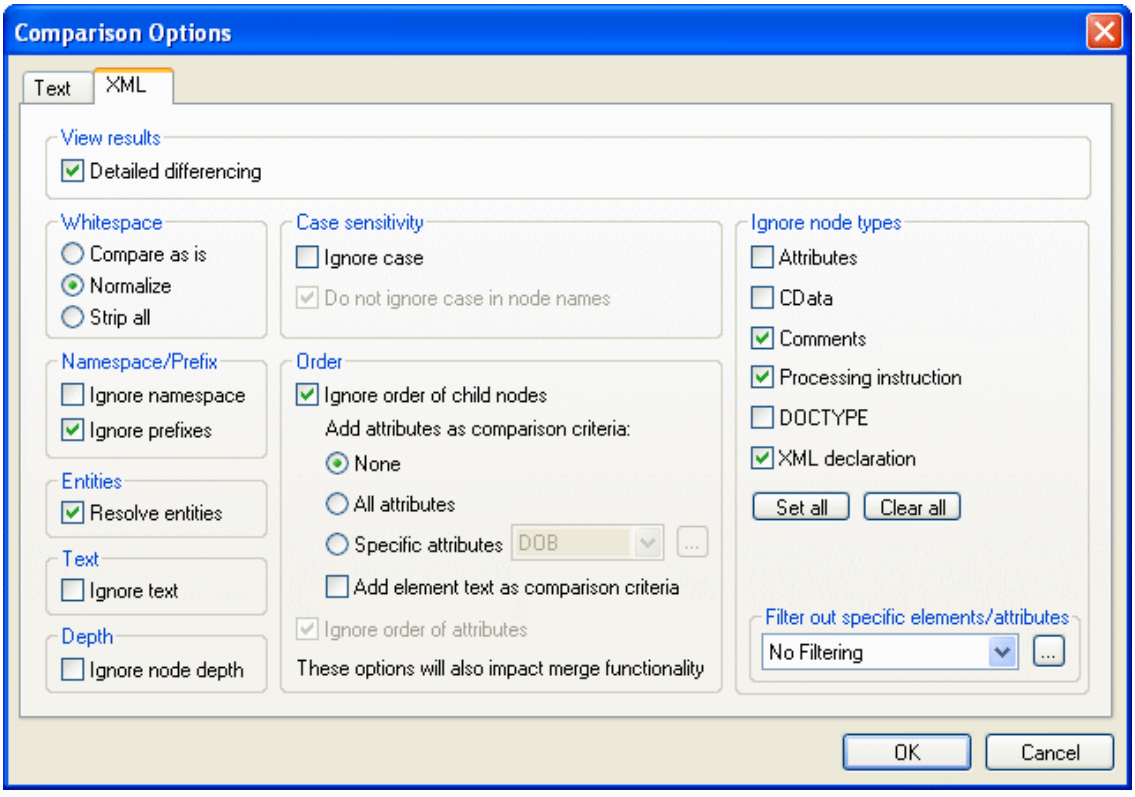
Whitespace
Whitespace characters are space, tab, carriage return, and line feed. The three options here compare files with whitespace unchanged; with whitespace normalized (i.e., all consecutive whitespace characters are reduced to one whitespace character); and with all whitespace stripped (i.e., not considered for comparison).

Case sensitivity
Activate the `Ignore case` check box if upper and lower casing should be ignored when checking for differences.

Lines
Here you define whether blank lines should be ignored.

5.3.2 Options for XML Comparison

The XML tab of the **Comparison Options** dialog box displays the options that are used for XML-based comparison.



View results
The `Detailed differencing` option enables you to show differences in detail or reduce the number of differences (so that navigation is faster). With detailed differencing toggled off, consecutive nodes that are different are displayed as a single node. This applies also to consecutive nodes on different hierarchical levels, such as an element node and its child attribute node. Please note that detailed differencing must be checked to enable merging and

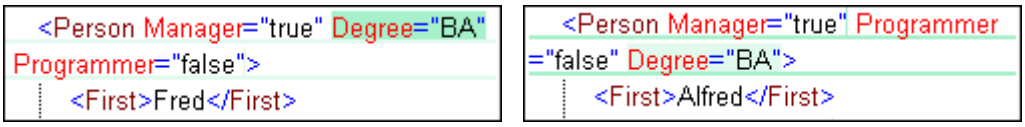
exporting differences.

Whitespace
Whitespace characters are space, tab, carriage return, and line feed. The three options here compare files with whitespace unchanged; with whitespace normalized (i.e., all consecutive whitespace characters are reduced to one whitespace character); and with all whitespace stripped (i.e., not considered for comparison).

Namespace/Prefix
These are options for ignoring namespaces and prefixes when searching for differences.

Entities
If `Resolve entities` is selected, then all entities in the document are resolved. Otherwise the files are compared with the entities as is.

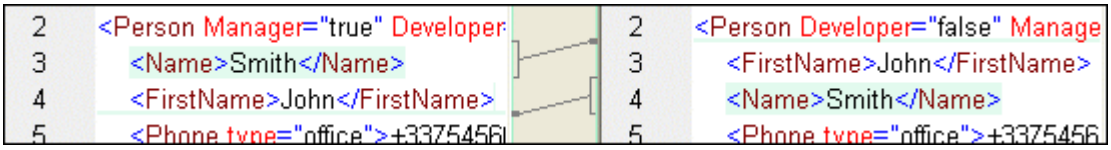
Text
If `Ignore text` is selected, then differences in corresponding text nodes are not reported. The different first name is ignored since only the XML structure is compared but not the text content of the tags.



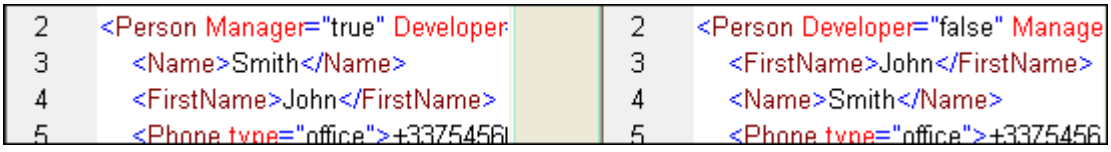
Depth
If `Ignore node depth` is selected, then the additional depth of any element (i.e., more levels of descendants) relative to the depth of the corresponding element in the compared file is ignored. This option must be unselected to enable merging and exporting differences.

Case sensitivity
If the `Ignore case` check box is checked, then case is ignored, and you have the option of ignoring or not ignoring case in node names.

Order
If `Ignore order of child nodes` is selected, then the relative position of the child nodes of an element is ignored, provided that the individual nodes within a node level have unique node names. As long as an element node with the same name exists in each of the two sets of sibling nodes, the two sets are considered to be equal. In the following example, the order of the `<Name>` and `<FirstName>` nodes is different in the left and right file and is marked as different if the `Ignore order of child nodes` option is deactivated.



Checking the `Ignore order of child nodes` option will ignore this difference in the comparison window.



Note, however, that DiffDog can ignore the order of child nodes only if the node names on a certain node level are unique. If several occurrences of a node appear, e.g. with different

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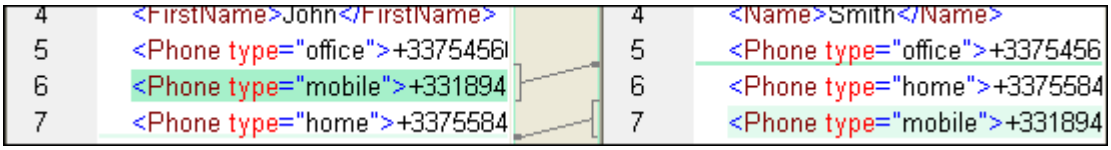
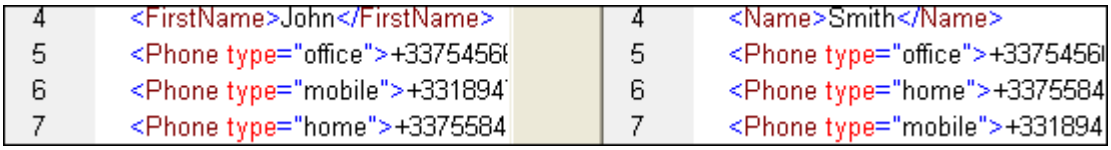
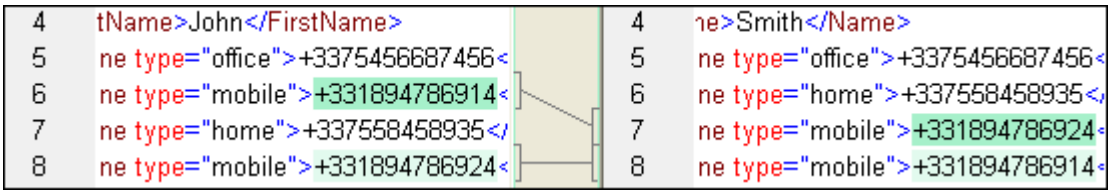
attributes assigned, a node, if appearing in a different order, will always be considered unequal to an element with the same name and attribute in the compared sibling set—even if the `Ignore order of child nodes` is selected. If we add different attributes to the `<Phone>` node of our example, then the difference in order of the three occurrences of the <Phone> node will appear in the comparison window although the `Ignore order of child nodes` check box is selected.



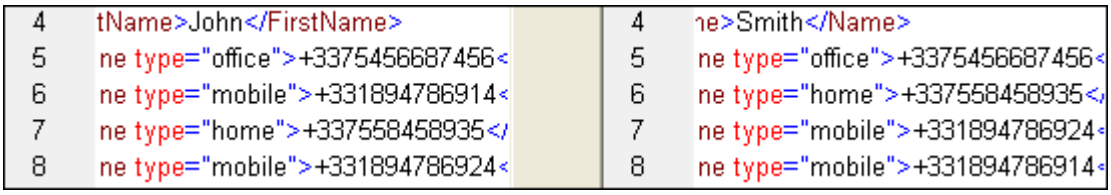
In order to ignore the order of several occurrences of child nodes that have different attributes assigned, you can add these attributes as comparison criteria. DiffDog provides two options: (i) add all attributes and (ii) define a list of specific attributes, which in our example will both result in the <Phone> nodes being displayed as equal. However, if you select the `Specific attributes` option, you will first have to define an attribute group accordingly.



It may happen that several occurrences of child nodes appear that have also the same attribute assigned (e.g. a person with more than one mobile phone number in our example). In the screenshot below the `All attributes` radio button has been selected, however differences are still reported since two mobile phone numbers are listed.

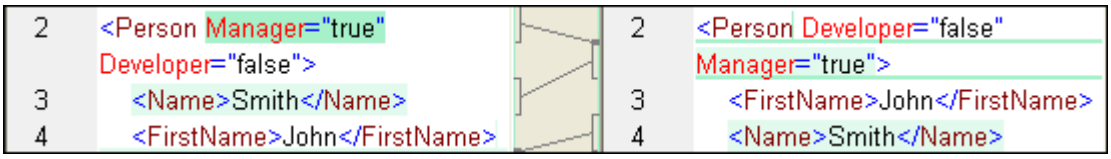


In DiffDog you can cope also with this scenario by activating the `Add element text as comparison criteria` check box. If element text, attribute value, and node name are identical and only the order of the nodes is different, no differences will be reported.



Note that, if the Ignore Order option is specified, then the merge functionality also ignores the order. If `Ignore order of child nodes` is unselected, then differences in order are represented as differences.

The option of ignoring the order of attributes is also available, and applies to the order of attributes of a single element. In the above example, the `Ignore order of attributes` option, has been checked, and DiffDog therefore has ignored the order of the attributes of the `<Person>` node. Note that the order of attributes will always be ignored, if the `Ignore order or child nodes` check box is activated. In the screenshot below, both the `Ignore order of child nodes` and the `Ignore order of attributes` check box are deactivated.

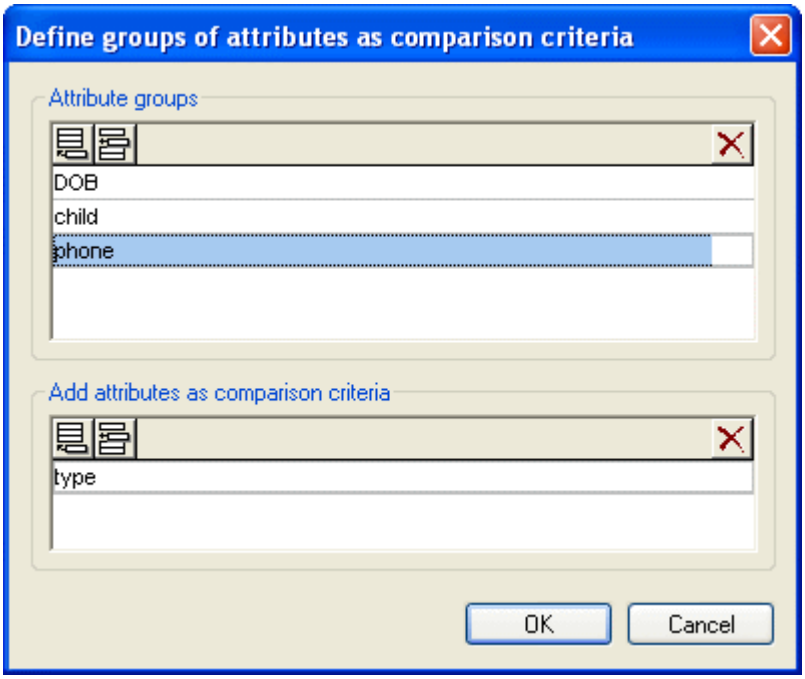


Ignore node types
Check the node types that will **not** be compared in the Compare session. Node types that may be ignored are Attributes, CDATA, Comments, Processing Instructions, DOCTYPE statements, and XML declarations.

Filter out specific elements/attributes
Enables you to define filters to set what elements and/or attributes should not be considered for comparison. A filter is defined at the application level, which means that once a filter is defined, it is available for every comparison. More than one filter can be defined, and, for every comparison, the filter to be used is selected in the drop-down list in the Filter out specific elements/attributes group box.

Defining Groups of Attributes

If you choose the `Specific attributes` radio button in the Order group box, the **Define groups of attributes as comparison criteria** dialog box opens where you can create different lists of attributes that shall be used as comparison criteria.



Attributes to be considered as comparison criteria are organized in attribute groups, that is, you first have to define an attribute group and then add the relevant attributes to the group. You can select the attribute group to be used from the `Specific attributes` drop-down list in the **Comparison Options** dialog box.

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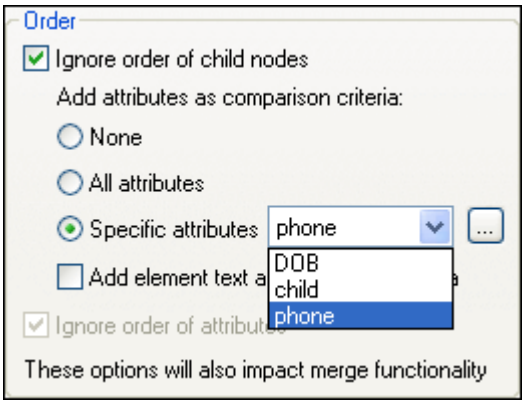
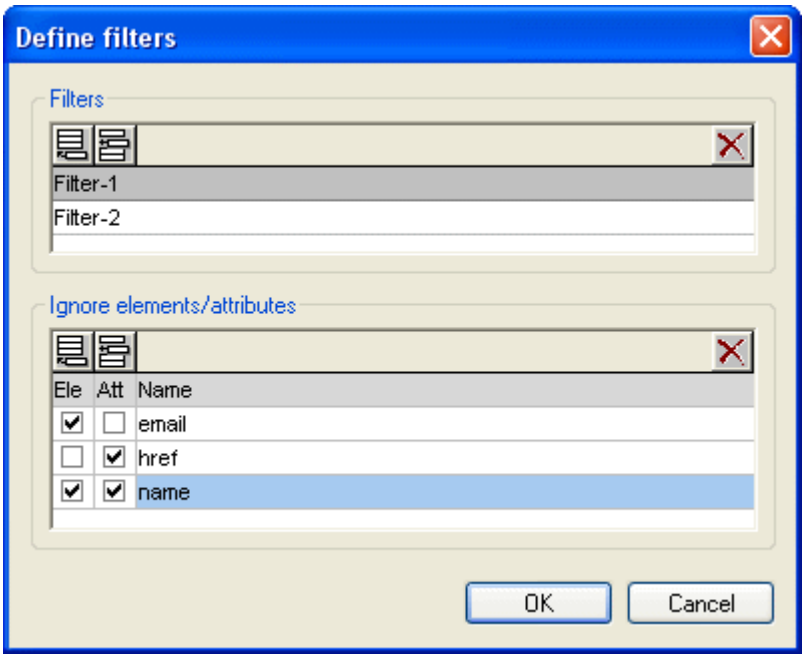


To define groups of attributes to be considered as comparison criteria:

1. Select the menu option **Tools | Comparison Options...** or click the **Comparison Options** button in the Diff and Merge toolbar, and change to the XML tab.
2. In the Order group box, activate the radio button `Specific attributes` and click the **Browse** button next to the drop-down list to open the **Define groups of attributes as comparison criteria** dialog box.
3. In the Attribute groups group box, click the respective icon to append or insert a group to the list of groups and give it a name. Always define a group before specifying attributes. Do not enter the attributes in the Attribute groups group box.
4. With the attribute group selected, in the Add attributes as comparison group box, click the respective icon to append or insert elements to the list and enter the name of the attribute that should be considered. Add an extra list element for each attribute.
5. When done with defining attribute groups, click **OK**. The defined attribute groups are now available in the combo box in the **Comparison Options** dialog box.

Defining a Filter to Ignore Elements or Attributes for Comparison

Filters are defined by clicking the **Define Filters** button in the **Comparison Options** dialog box, which pops up the **Define Filters** dialog box.



In the screenshot above, two filters (`Filter-1` and `Filter-2`) have been defined. `Filter-1` specifies that the elements `email` and `name`, and the attributes `href` and `name`, are to be ignored for comparison.

To create a filter for ignoring element/attributes for comparison:

1. Select the menu option **Tools | Comparison Options...** or click the **Comparison Options** button in the Diff and Merge toolbar, and change to the XML tab.
2. In the Filter out specific elements/attributes group box, click the **Define Filters** button to open the **Define filters** dialog box.
3. In the Filters group box, click the respective icon to append or insert a filter to the list of filters and give it a name.
4. With the filter selected, in the Ignore Elements/Attributes group box, click the respective icon to append or insert elements and filters to the list. The `Ele` check box is activated by default.
5. Deactivate the `Ele` check box and/or activate the `Att` check box, if required, and enter a name for the element/attribute.
6. Optionally, repeat steps 4 and 5 for additional elements/attributes.
7. When done with defining a filter, click **OK**. The defined filters are now available in the combo box in the **Comparison Options** dialog box.

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5.4 Running a File Comparison

When the two documents to be compared are loaded into the comparison window, a comparison is automatically carried out if the **Autostart Comparison** command is toggled on (which is the default setting). In addition, comparisons can be explicitly started any number of times with the **Start Comparison** command.

When editing documents, they are compared dynamically as you type if the **Compare while Editing** command is toggled on.

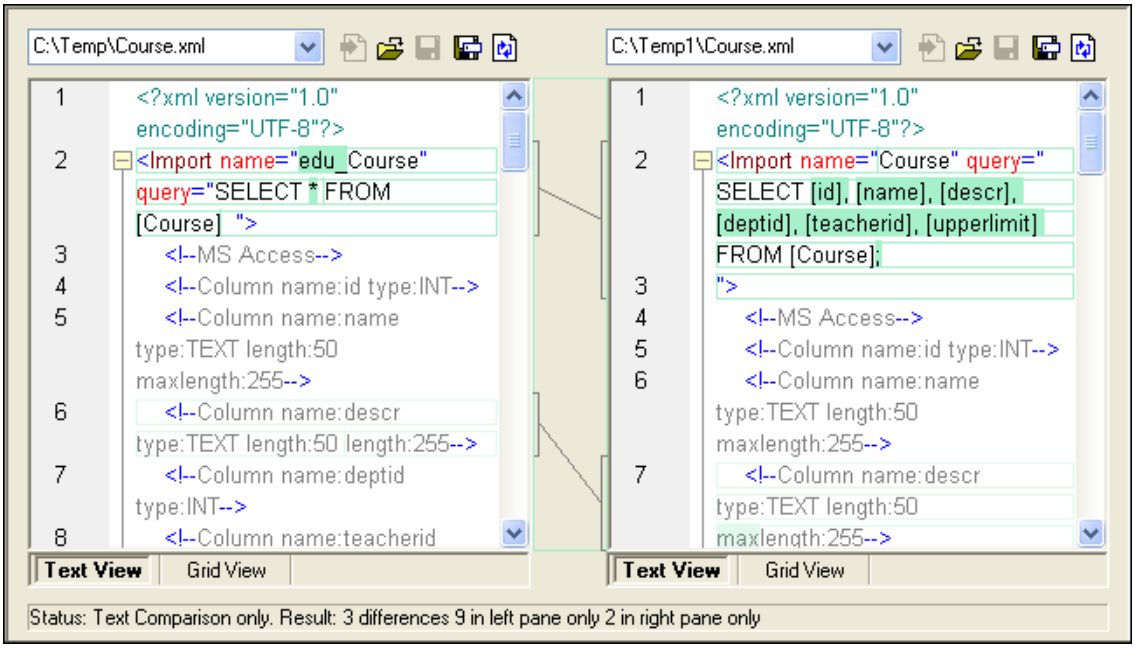
You can run file comparisons using all three of the methods listed above; these methods are not mutually exclusive. If the Show Options Before Comparison command is toggled on, then the **Comparison Options** dialog box is displayed each time before the comparison is run (except when it is run dynamically by DiffDog while you edit). This is useful if you wish to run comparisons with different options.

5.5 Displaying Differences in Files

After you start a comparison, the differences between the two files are displayed as blocks of highlighted text and the results of the comparison are reported in the Comparison Window Status Bar. Normally, Text View is used for displaying differences, however if you compare well-formed files, you can also switch to Grid View.

5.5.1 Text View

Text View is the standard display mode for any file pair being compared in DiffDog. Notice that the corresponding differences in the two documents are linked for easier identification and analysis. When synchronized scrolling is toggled on, both documents scroll so that corresponding differences are always in view simultaneously.



The current difference is highlighted in a different color than the other differences. In the screenshot above the current difference is displayed in a darker green. These colors can be changed in the DiffDog Options. It is important to know which difference is the current difference because merging is always done for the current difference only. You can navigate among the differences with the navigation commands that are available in the **Diff and Merge** menu and as toolbar icons.

Displaying Text

Text View has visual features to make the display and editing of large sections of text easier. Some very useful features are: (i) Line Numbers, (ii) Bookmarks, (iii) Source Folding (expanding and collapsing the display of nodes), (iv) Indentation Guides, and (v) End-of-Line and Whitespace Markers. These commands are available in the **Text View Settings** dialog box (*first screenshot below*) and the Text toolbar (*second screenshot below*).

The **Text View Settings** dialog box is accessed via the **Text View | Text View Settings** command or the **Text View Settings** button in the Text toolbar. Settings in the **Text View Settings** dialog box apply to the entire application—not only to the active document.

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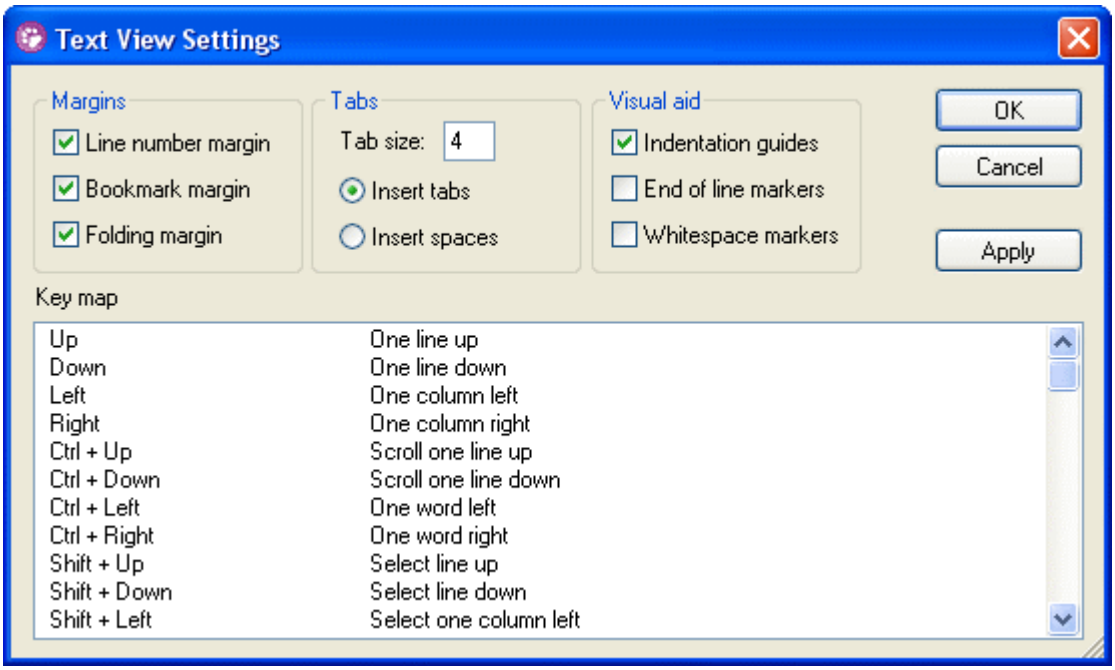
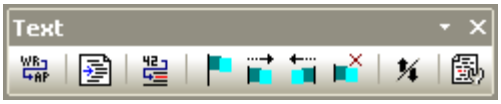




Other useful features are the Zooming and Go-to-Line/Character features.

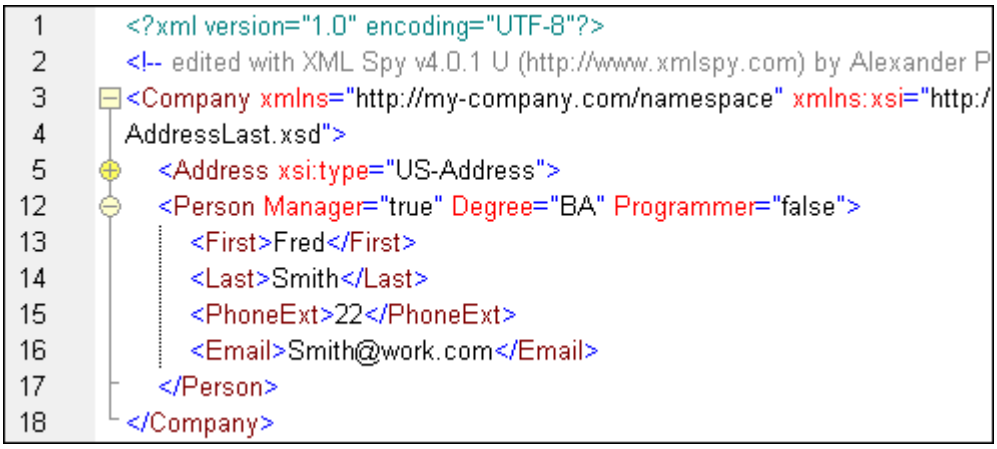
Line numbers
Line numbers are displayed in the line numbers margin, which can be toggled on and off in the **Text View Settings** dialog box. When a section of text is collapsed, the line numbers of the collapsed text are also hidden. A related command is the Go-to-Line/Character command.

Bookmarks
Lines in the document can be separately bookmarked for quick reference and access. If the bookmarks margin is toggled on, bookmarks are displayed in the bookmarks margin; otherwise, bookmarked lines are highlighted in cyan.

The bookmarks margin can be toggled on or off in the **Text View Settings** dialog box.

You can edit and navigate bookmarks using commands in the **Text View** menu and Text toolbar. Bookmarks can be inserted with the **Text View | Insert/Remove Bookmark** command, enabling you to mark a line in the document for reference. A bookmark can be removed by selecting the bookmarked line and then selecting the **Text View | Insert/Remove Bookmark** command. To navigate through the bookmarks in a document, use the **Text View | Next Bookmark** and **Text View | Previous Bookmark** commands. These bookmark commands are also available as icons in the Text toolbar.

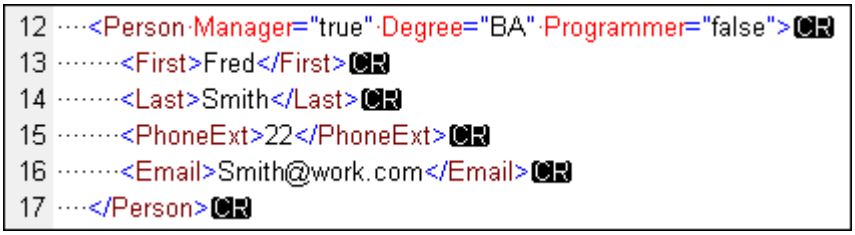
Source folding
Source folding refers to the ability to expand and collapse nodes and is displayed in the source folding margin. The margin can be toggled on and off in the **Text View Settings** dialog box. In the screenshot below, notice how the line numbering at Line 5 has been collapsed together with the collapsed nodes.



The **Toggle All Folds** command in the Text toolbar toggles all nodes together to their expanded or collapsed forms.

Indentation guides
Indentation guides are vertical dotted lines that indicate the extent of a line's indentation (*see screenshot above*). They can be toggled on and off in the **Text View Settings** dialog box.

End-of-line markers, whitespace markers
End-of-line (EOL) markers and whitespace markers can be toggled on in the **Text View Settings** dialog box. The screenshot below shows these markers in the document display; each dot represents a whitespace.



Zooming in and out
You can zoom in and out of Text View by scrolling (with the scroll-wheel of the mouse) while keeping the **Ctrl** key pressed. This enables you to magnify and reduce the size of text in Text View. If you wish to increase the size of fonts, do this in the DiffDog Options dialog box.

Go to line/character
This command in the **View** menu and Text toolbar enables you to go to a specific line and character in the document text.

5.5.2 Grid View

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Grid View can be used to display files that are well-formed, typically XML files. In Grid View, each node is displayed as a row in a grid. This enables you to see the hierarchy in a graphical view, to navigate through the document more easily, and to manipulate the structure of the document using graphical mechanisms such as drag-and-drop.

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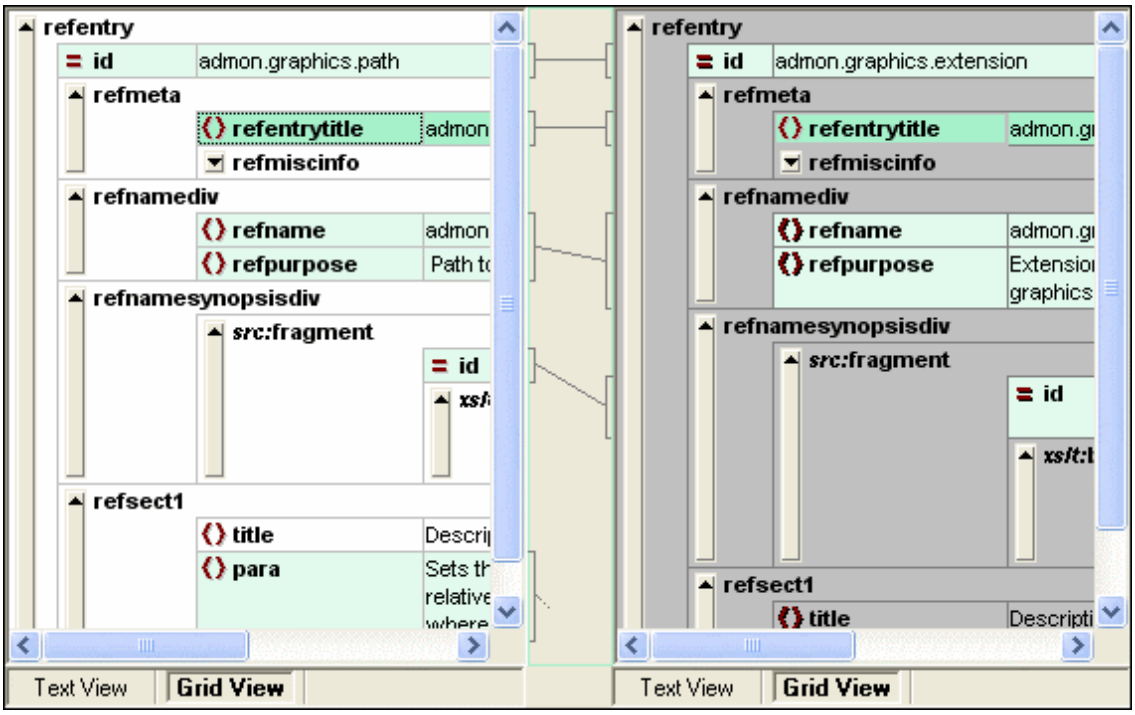


Note the following points, all of which can be seen in the screenshot above:

- Node names are displayed in bold, their contents in normal font.
- Different node types are indicated with different symbols. For example, attributes are indicated with a red = symbol, elements with red angular brackets.
- Nodes that are different from one document to the other are highlighted, with the current difference being highlighted in a different color.
- Corresponding differences in the two documents are joined with a line.

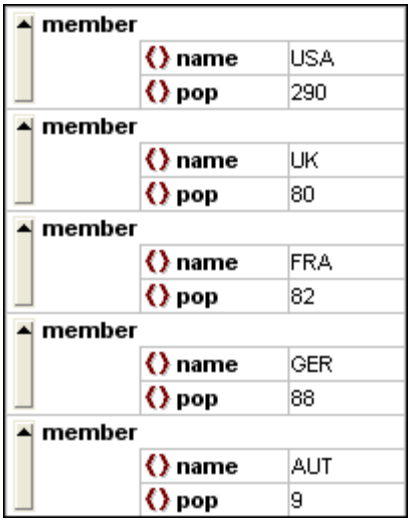
Nodes (rows) can be expanded and collapsed by clicking on the upward arrow button at the extreme left of a grid row. To edit a node name or node contents, double-click the location where you wish to insert the cursor.

Grid rows can be dragged to new locations by selecting the row and dragging it to the desired location. Multiple nodes that are contiguously located can be selected for this operation. Individual nodes can also be moved left or moved right using the respective **Grid View** menu commands (or their toolbar icons). This changes the position of the node in the document hierarchy. Graphical manipulation of structure and contents is further enhanced in Table View, which is another mode of Grid View.

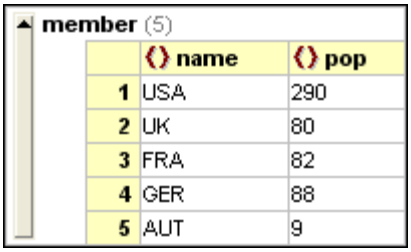
Columns can be resized by dragging their borders left or right.

Displaying Repeating Elements as Table

In normal Grid View, each node has a grid row to itself, as shown in the screenshot below.



When an element occurs multiple times at the same hierarchical level (as is the case with the `member` element in the screenshot above), it can be displayed as a table (*screenshot below*) in which each occurrence of the element created as a table is represented as a row. The table element's child nodes (attributes, elements, etc) are displayed as columns of the table.



To display multiple elements as table:

1. Select one of the occurrences of the element to be created as a table.
2. Select the menu option **Grid View | Table | Display as Table** or click the **Display as Table** button in the Grid toolbar.

To switch from Table View to the normal Grid View:

- Select the table or any of its rows (not a column or cell), and click the **Display as Table** toolbar icon.
  The table element switches to normal Grid View.

Editing the table

The structure and contents of the table can also be edited using table mechanisms. For example, rows (new table element occurrences) and columns (new child nodes for all table element occurrences) can be inserted into the table, and the table can be sorted on one of its columns.

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member (5)

	name	pop
1	AUT	9
2	UK	80
3	FRA	82
4	GER	88
5	USA	290

In the screenshot above, the table (for `member` elements) is sorted on the `pop` column. (This was done by selecting the `pop` column and then clicking the command **Grid View | Table | Ascending Sort**.)

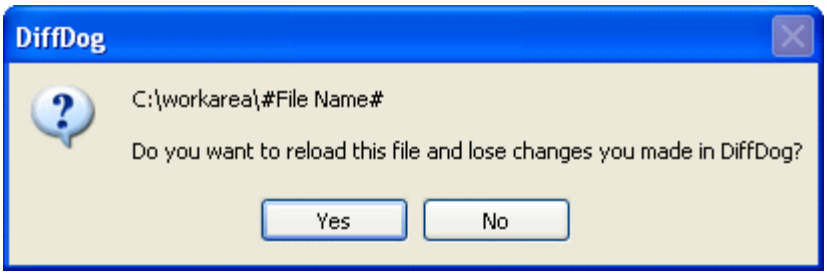
5.6 Editing Files

After you have run a comparison and investigated the differences of the two files, you can edit the content of the files directly in DiffDog. The available editing features differ for text-based and XML-based files.

Changes to the content of both text-based and XML-based files are made in Text View. When comparing well-formed XML-based files, DiffDog's Grid View allows you to also change the document structure of the files.

Reloading files

You can always undo all changes you have made to a document since you last saved it, and reload the file into DiffDog. A warning message will be displayed if you are about to lose changes.



To reload a file into DiffDog:

1. In the respective pane of a comparison window, click the **Reload** button.
2. If the file has changed since you last saved it, a warning message is displayed.
3. Click **Yes** if you want to reload, or **No** if you want to cancel the operation.

5.6.1 Changing the Content

In Text View, DiffDog provides syntax coloring and other visual aids such as line numbering, indentation, and bookmarking, as well as powerful Find and Replace functionality that can help with editing. A history of changes is maintained for each file separately, and unlimited Undos are allowed.

If you have the **Compare while Editing** option activated in the **Diff and Merge** menu, the comparison of the files is refreshed continuously as you type.

To edit files:

- Type in your changes in the respective pane of the File Comparison window.

To undo changes in a file:

- Place the cursor in the file and click **Edit | Undo** or press **Ctrl+Z**.

5.6.2 Changing the Structure

The Grid View shows the hierarchical structure of well-formed, XML-based documents through a set of nested containers, that can be easily expanded and collapsed to get a clear picture of

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the document's structure. In Grid View contents and structure can both be easily manipulated.

You can insert or append new elements or attributes, edit the content of the file, or drag the individual elements to a different location in the document.

5.7 Finding and Replacing Text

DiffDog offers powerful Find and Replace functionality that can help with editing. The Find and Replace options are different for Text View and Grid View. Please note that the scope of the **Find**, **Find next**, and **Replace** commands is the active document, and not both documents of a file comparison.

The **Replace** dialog box is similar to the respective **Find** dialog box displayed in Text View or Grid View, respectively, but additionally has a text box in which you enter the text string with which you wish to replace the found string.

To search for text in the active pane of a comparison window:

1. Place the cursor into the pane in which you want to search for text.
2. Select the menu option **Edit | Find** or press **Ctrl+F**.
3. Enter the text you want to search for into the `Find what` field.
4. In Text View, optionally activate the `Regular expression` check box and use the button to enter a regular expression.
5. To restrict your search, do one of the following:
   - In Text View, click the **Advanced** button and select the required XML node types to be searched in the Types group box.
   - In Grid View, select the required XML node type or DTD declarations to be searched in the Types group box.
6. Click **Find Next**.
7. In Text View, optionally click the **Find Previous** button to jump back to the previous occurrence of the search text.

To mark all occurrences of a text in Text View:

1. Select the menu option **Edit | Find** or press **Ctrl+F** to open the **Find** dialog box.
2. Enter the text you want to search for into the `Find what` field.
3. Click **Mark All**.
4. Use the **Next Bookmark** and **Previous Bookmark** icons in the Text toolbar to navigate between the occurrences of the search text.

5.7.1 Searching Text View

Clicking the **Find** command in Text View pops up the **Find** dialog box shown below. If text is marked prior to opening the dialog box, then the marked text is automatically inserted into the `Find What` text box.

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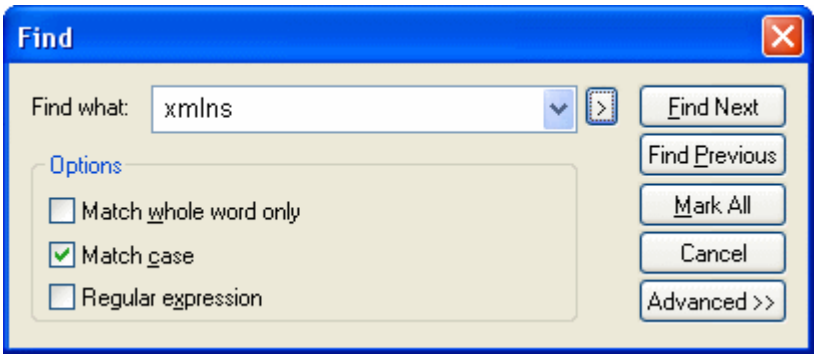


The **Find Next** and **Find Previous** buttons enable you to navigate through the document when the **Find** dialog box is open. Once the **Find** dialog box is closed, you can repeat the current search by pressing **F3** for a forward search, or **Shift+F3** for a backward search.

Options

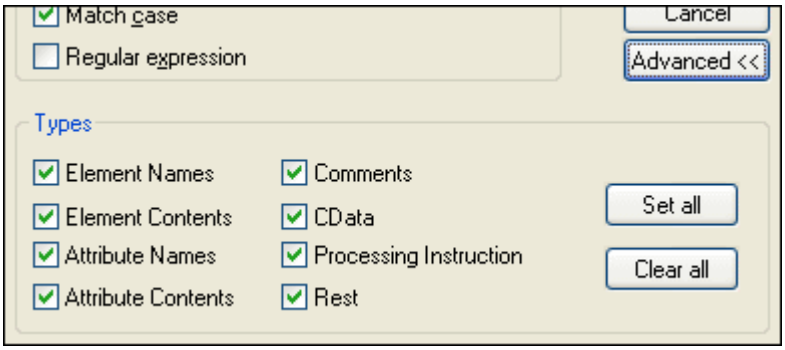
You can check one or more of the options in the Options group box to select them.

`Match whole word only` finds the text string only if, in the document, it is delimited by spaces. `Match case` finds the text string only if the casing in the document is the same as that in the entry.

Checking the `Regular expression` option causes the entry to be read as a regular expression. The button to the right of the `Find What` combo box opens a menu with entries to help define regular expressions.

Advanced Options

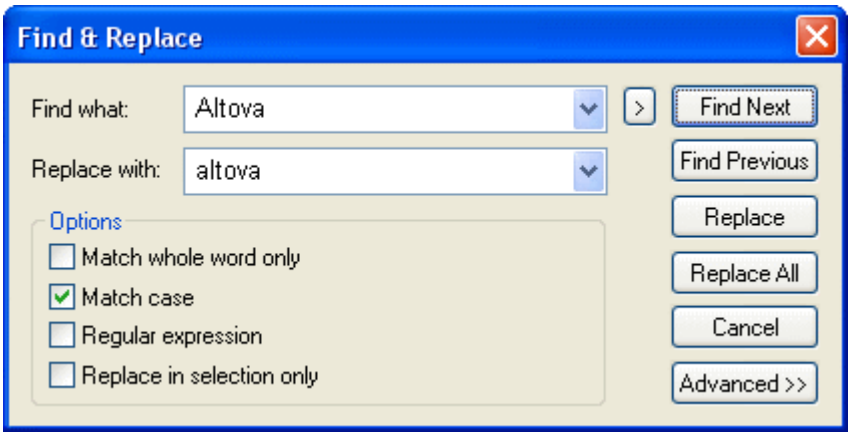
Clicking the **Advanced** button, opens a pane (*screenshot below*) that allows you to select XML node types to be searched.



The **Set all** and **Clear all** buttons enable you to check or uncheck all options with a single click.

Replacing Text

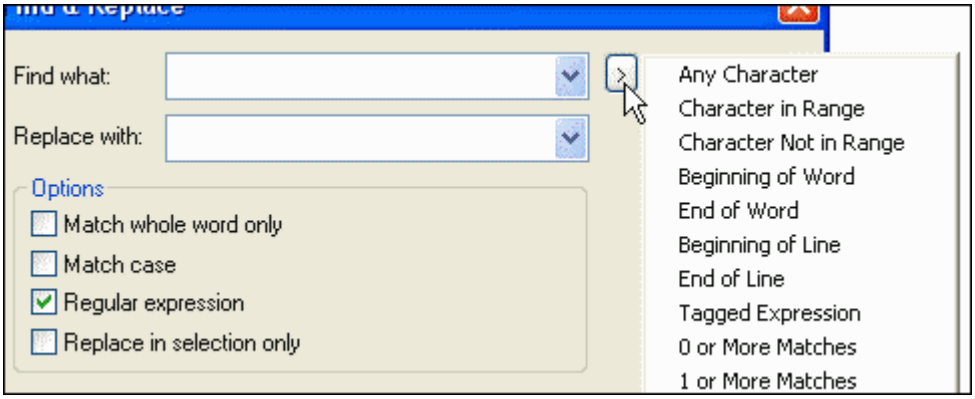
Clicking the **Replace** command in Text View pops up the **Find & Replace** dialog box (*screenshot below*). Clicking the **Advanced** button opens a pane for selecting XML node types in which to search (*see screenshot above*).



Note that the regular expression option applies only to the Find entry. You can replace within a selected text range (the range must be selected before opening the dialog) by checking the `Replace in Selection Only` option.

Using Regular Expressions

You can use **regular expressions** to further refine your search criteria. A pop-up list is available to help you build regular expressions. To access this list, click the **>** button to the right of the input field for the search term.



When you select an entry in the regular expressions popup, DiffDog inserts the corresponding regular expression in the `Find what` field.

- **Any Character** inserts ".". To find "Smith" as well as "Smyth", enter the following:

  Sm.th

- **Character in Range** inserts "[]". Note that the cursor appears between the two brackets. To find "Wong" and "Wang", but not "Wing", enter the following:

  W[ao]ng

- **Character Not in Range** inserts "[^]" and places the cursor after the ^-sign. Enter the character you want to disregard when searching. Note that you can also enter several characters.

  W[^a]ng

- **Beginning of Word** inserts "\<". First choose the regular expression from the popup and then enter the string you want to find. "\<mark" will find "marketing" but not

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"benchmark".

\<mark

- **End of Word** inserts "\>". First enter the enter the string you want to find and then choose the regular expression from the popup. "mark\>" will find "benchmark" but not "marketing".

mark\>

- **Beginning of Line** inserts "^"; DiffDog will find the string that follows only if it appears at the beginning of a line.

^Altova

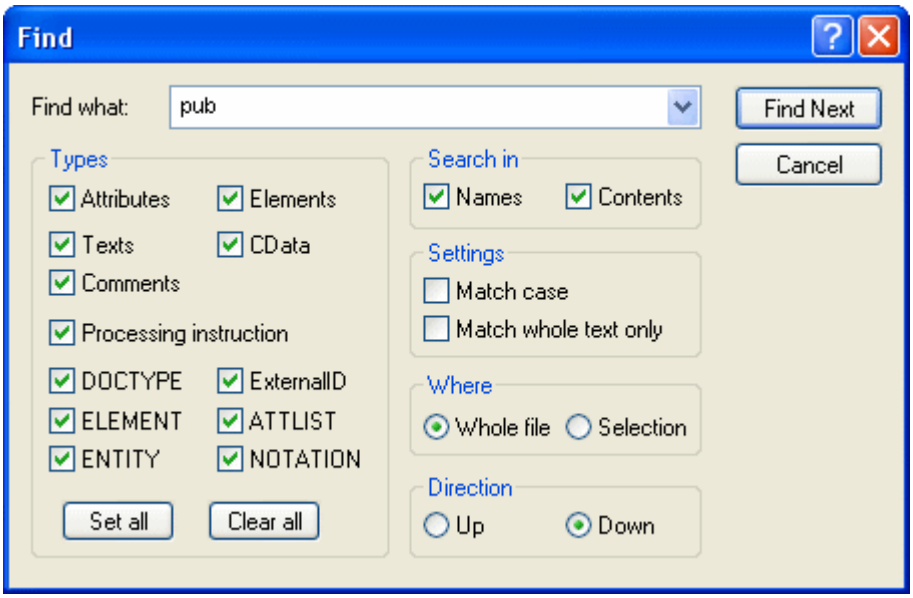
- **End of Line** inserts "$". Enter a string and choose "End of Line" from the popup. DiffDog will find the string only if it appears at the end of a line.

Altova$

- **Tagged Expression** inserts "\(\)" and places the cursor in front of the second backslash so that you can enter the tagged expression.
- **0 or More Matches** inserts "*". The character or set of characters, respectively, preceding the * can optionally occur in the string to be found.
- **1 or More Matches** inserts "+". The character or set of characters, respectively, preceding the + can occur once or several times in the string to be found.

5.7.2 Searching Grid View

Clicking the **Find** command in Grid View pops up the **Find** dialog box shown below.



Types
In the Types group box, you can select or deselect various XML node type or DTD declarations to be searched. The **Set all** and **Clear all** buttons enable you to check or uncheck all options with a single click.

Search in
You can search only the names and/or the contents of nodes by activating the respective check boxes in the Search in group box.

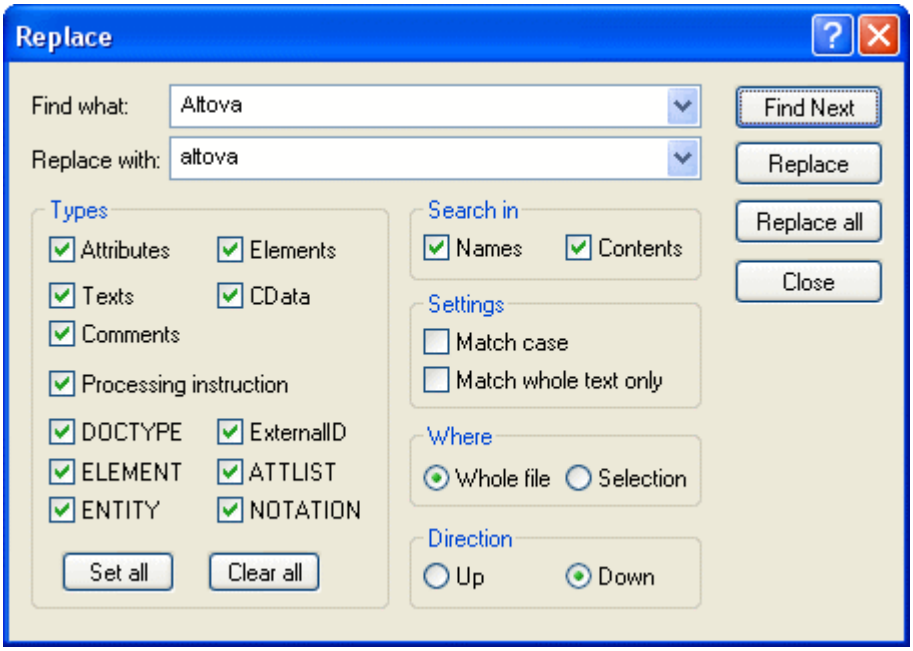
Settings
`Match case` finds the text string only if the casing in the document is the same as that in the entry. `Match whole text only` finds the text string only if, in the document, it is delimited by spaces.

Where
The scope of the search can be restricted to the current selection or the whole file can be searched.

Direction
The radio buttons in the Direction group box allow you to define whether the search should progress upwards or downwards from the current selection or cursor location.

Replacing text

Clicking the **Replace** command in Grid View pops up the **Replace** dialog box shown below.



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5.8 Saving Files

To save a document you have edited in DiffDog, use the **Save** or **Save As** buttons in the respective panes of the comparison window. Files can also be saved using the **Close**, **Close All**, and **Save** commands in the **File** menu. Note that the individual files in the comparison window must be saved separately.

In the File comparison tab of the **DiffDog Options** dialog box, you can also specify whether and how backup files should be saved.

To save a file:

Do one of the following:

- To save an individual file, click the **Save** button in its pane of the comparison window.
- To save an individual file under a new name or path, click the **Save As** button in its pane of the comparison window. The Windows **Save As** dialog box appears where you can specify the new name or path for the file.
- To save both files of a comparison, select the menu option **File | Save**. The **Save files** dialog box appears where you can select the files to be saved or choose to discharge the changes.

To save and close the files of a comparison:

1. Click the tab of the comparison window that contains the files you want to save and close.
2. Select the menu option **File | Close**.
3. If a file contains unsaved changes, the **Save files** dialog box appears. Make sure that the file's check box is selected and click **Save selected**.
   The file is saved and the comparison window is closed.

To save and close the files of all comparisons:

1. Select the menu option **File | Close all**.
2. For every comparison window that contains a file with unsaved changes, the **Save files** dialog box appears. Make sure that the file's check box is selected and click **Save selected**.
   The file is saved and the comparison window is closed.

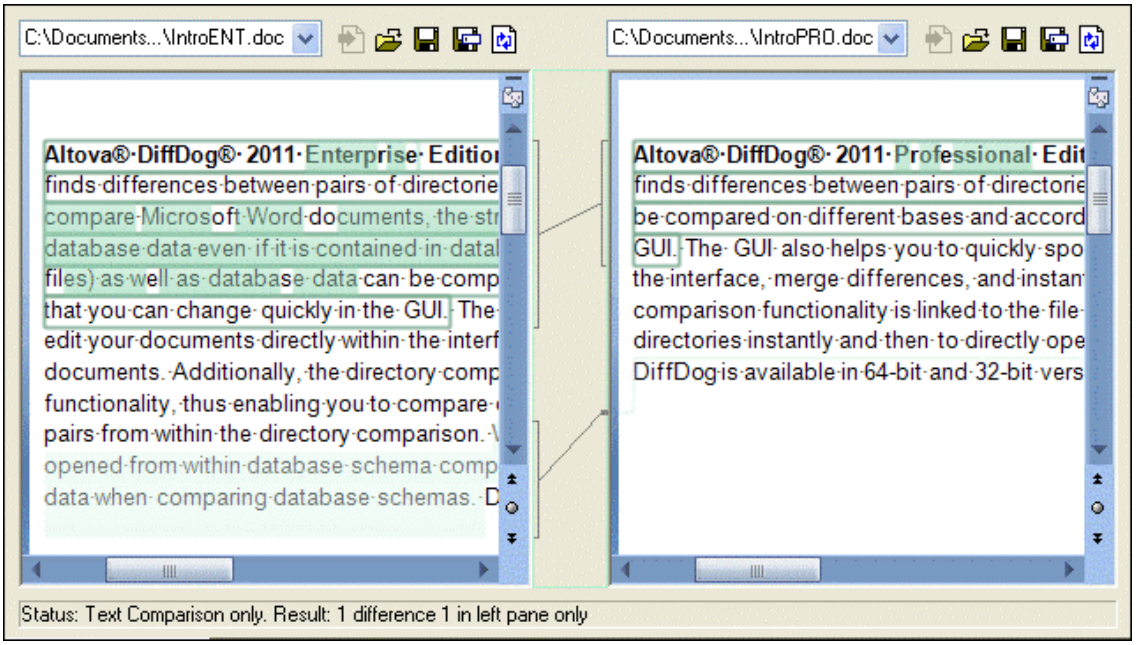
Chapter 6

Comparing Microsoft Word Documents

6 Comparing Microsoft Word Documents

Microsoft Word Document Comparison integrates Microsoft Word into the DiffDog GUI and uses some Microsoft Word functions such as Find, Replace, Copy, Cut, Paste, Undo, Redo, and Clear in the context of DiffDog. This allows you to use Microsoft Word's formatting and editing features together with DiffDog's powerful comparison engine. Please note that whenever the focus is on a Microsoft Word document and you press a keyboard shortcut in DiffDog, this will call the corresponding Microsoft Word function (e.g., if in a Word Comparison window you press **F5** to start a comparison, this will open Microsoft Word's **Find and Replace** dialog box instead).

When you compare MS Word (*.doc or *.docx) documents, two instances of MS Word are opened side by side in DiffDog. Please note that **at least Microsoft Word 2003 must be installed** on your computer and that for both programs (i.e., DiffDog and Microsoft Word) either the 32-bit version or the 64-bit version must be installed, that is, DiffDog x64 requires Microsoft Word x64, while DiffDog x32 requires Microsoft Word x32.



To start a Microsoft Word comparison in DiffDog, you must first open an empty Word Comparison window and then select the Microsoft Word documents to be compared or simply drag them from Windows Explorer into the Word Comparison window. Alternatively, you can also select two documents in Windows Explorer, right-click and select **Compare with Altova DiffDog** from the context menu . This will open a new instance of DiffDog and display the selected Microsoft Word documents in a Comparison Window.

The comparison will start automatically unless you have deactivated the **Autostart Comparison** option in the **Diff and Merge** menu. To eliminate differences, DiffDog allows you to edit the content of the Microsoft Word documents directly in the comparison window and copy content from one pane to the other.

Microsoft Word documents that have been saved in the *.docx format can also be considered and compared as ZIP-conformant files and Office Open XML (OOXML) files in DiffDog, please note that in this case, the comparison initially has to be started as a directory comparison and that you have to define *.docx files as ZIP-conformant in the File Types tab of the **DiffDog**

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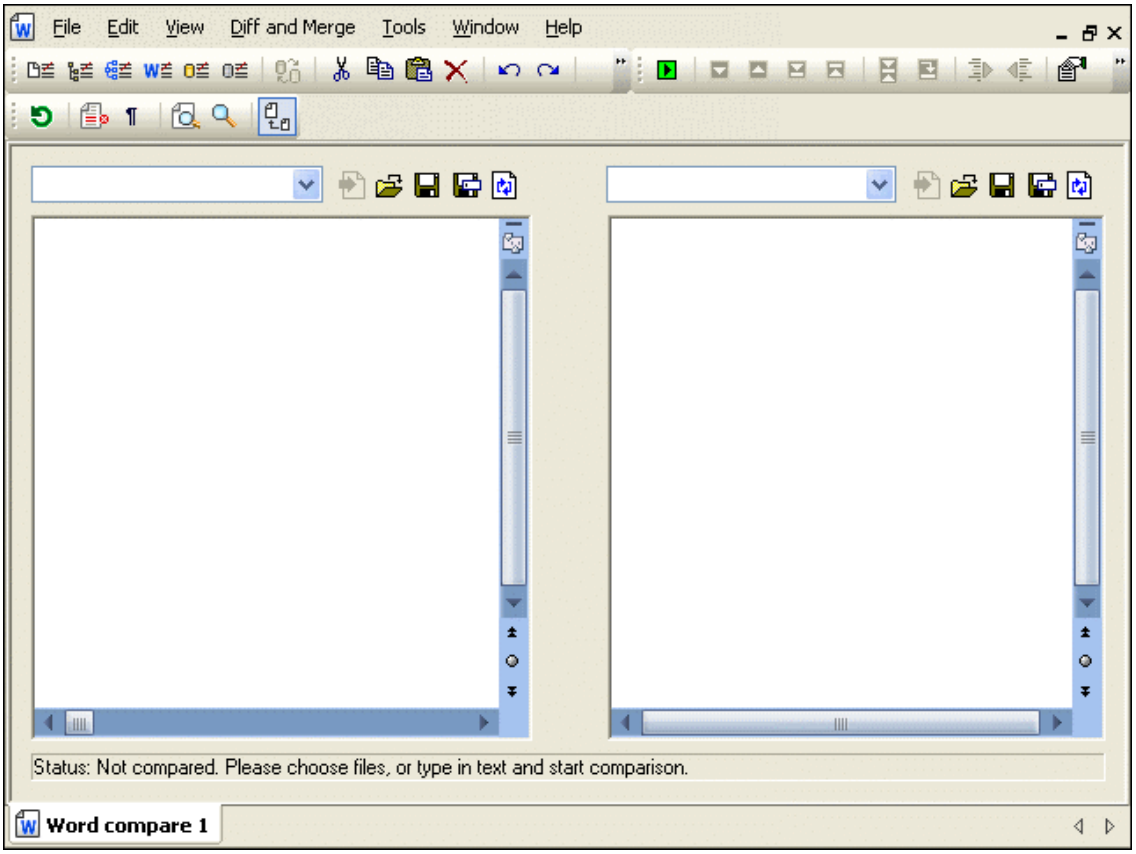
Options dialog box.

6.1 Opening a Word Comparison Window

When opening a new Word Comparison window, the Microsoft Word document comparison is given a name of the form `MS Word compare X`, where `X` is an integer indicating that Microsoft Word document comparison's position in the sequence of Microsoft Word document comparisons opened in the current DiffDog session. This name appears in a tab at the bottom of the window.



Note that the **Compare Microsoft Word Files** command opens the Microsoft Word Comparison window with two new and empty Word documents; it does not open any particular Microsoft Word document within the window. The two documents to be compared must be opened subsequently in the panes of the comparison window, one in each pane.

To open an empty Word Comparison window:

- Select the menu option **File | Compare Microsoft Word Files** or click the **Compare Microsoft Word files** button in the Standard toolbar.

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6.2 Selecting Microsoft Word Documents for Comparison

Microsoft Word documents can be selected for comparison in various ways. You can open a new Word Comparison window and select documents, re-open a previous comparison, or change the documents in the currently open Word Comparison window. In addition, you can select a pair of documents in Windows Explorer and use a context menu option to start a comparison in DiffDog.

Dragging documents into a DiffDog Word Comparison window

If you drag and drop files from the Windows Explorer into the respective panes of a Word Comparison window, the documents will be opened for comparison. However, you can deactivate the **Open/Insert document on drop** button so as to insert the document as text box in the Word document that is currently open in the Word Comparison window (this is the default behavior for drag and drop in Microsoft Word). Note that the content of text boxes cannot be compared in DiffDog. Therefore, the **Open/Insert document on drop** button is by default activated in DiffDog

To select Microsoft Word documents in the active Word Comparison window:

1. In the left pane of an existing Word Comparison window, do one of the following:
   - Click the **Open** icon and select a file in the Windows **Open** dialog box.
   - Enter the full path to a file and click the **Apply** button.
   - Drag a file from the Windows Explorer into the pane.
   - Select a previously compared file from the drop-down list.
2. Repeat any of the steps described in step 1 for the right pane.

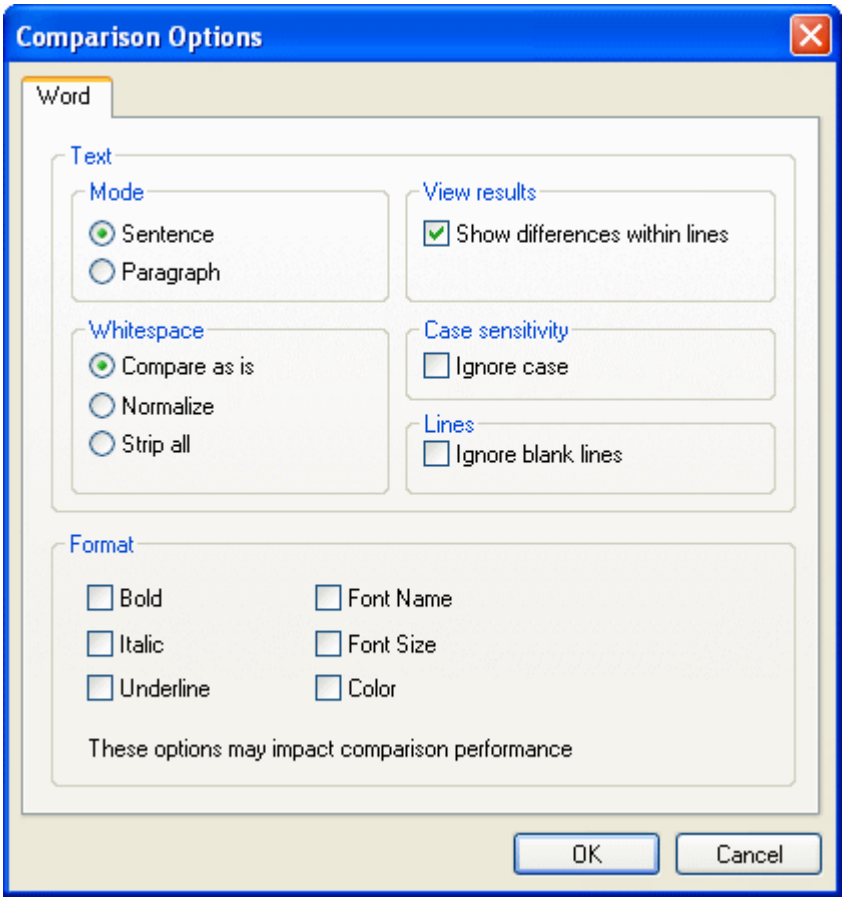
To start a Microsoft Word document comparison from Windows Explorer:

1. Select two Microsoft Word documents in Windows Explorer.
2. Right-click and choose **Compare with Altova DiffDog** from the context menu.

   A new instance to DiffDog is opened, the selected files are displayed in a Word Comparison window, and the comparison is started automatically.

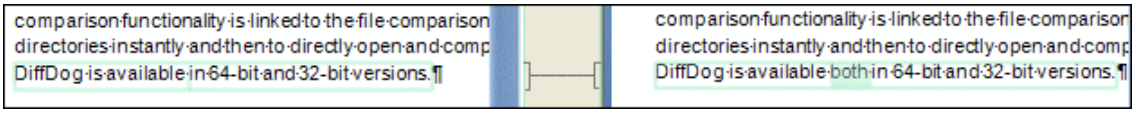
6.3 Modifying the Microsoft Word Comparison Options

The Word tab of the **Comparison Options** dialog box displays the options that are used for the comparison of Microsoft Word documents.

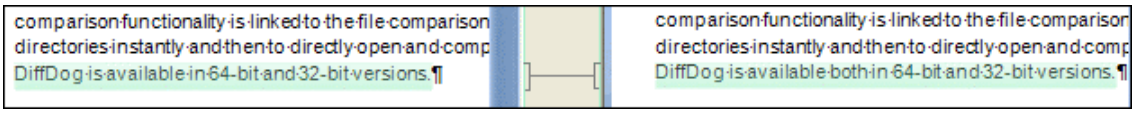


Mode
DiffDog can compare the documents either on sentence level or an paragraph level.

View results
By activating the `Show differences within lines` check box, you can display the differences on character level.



If the check box is deactivated, differences are displayed only on sentence/paragraph level, that is, character level differences are not highlighted. Only the sentence/paragraph, as a whole, is indicated as being different.



Whitespace
Whitespace characters are space, tab, carriage return, and line feed. The three options here

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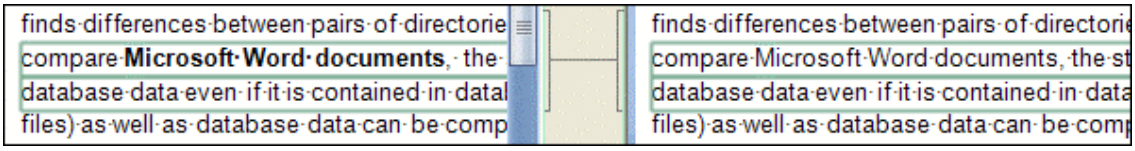
compare files with whitespace unchanged; with whitespace normalized (i.e., all consecutive whitespace characters are reduced to one whitespace character); and with all whitespace stripped (i.e., not considered for comparison).

Case sensitivity
Activate the `Ignore case` check box if upper and lower casing should be ignored when checking for differences.

Lines
Here you define whether blank lines should be ignored.

Format
You can specify which type of formatting should be considered when comparing documents. If differences in formatting are found, the entire sentence that contains the difference is marked as not equal.



6.4 Running a Microsoft Word Document Comparison

When the two documents to be compared are loaded into the comparison window, a comparison is automatically carried out if the **Autostart Comparison** command is toggled on (which is the default setting). In addition, comparisons can be explicitly started any number of times with the **Start Comparison** command.

When editing documents, they are compared dynamically as you type if the **Compare while Editing** command is toggled on.

You can run file comparisons using all three of the methods listed above; these methods are not mutually exclusive. If the Show Options Before Comparison command is toggled on, then the **Comparison Options** dialog box is displayed each time before the comparison is run (except when it is run dynamically by DiffDog while you edit). This is useful if you wish to run comparisons with different options.

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6.5 Configuring the Word Comparison Window

The Word Comparison window provides a toolbar which enables you to configure the view of the documents that are displayed in the comparison window, and refresh the screen after comparisons.

Configuring the view

Since DiffDog runs Microsoft Word inside the Word Comparison window, some Microsoft Word functions are available in DiffDog and you can use the buttons of the toolbar to switch them on or off.

Show/Hide Revisions and Comments: Revision marks and comments that have been added to a Microsoft Word document are hidden by default when the document is displayed in DiffDog. Activate the **Show/Hide Revisions and Comments** toggle to view them in the Word Comparison window. Please note that this setting also influences the result of a comparison: hidden revisions and comments will not be considered during a comparison!

Show/Hide formatting symbols: Shows or hides non-printing formatting characters such as blanks, paragraph marks, tabs, etc.

Zooming

Zoom to Fit Page: Sizes both documents so that an entire page is displayed in each pane of the Word Comparison window.

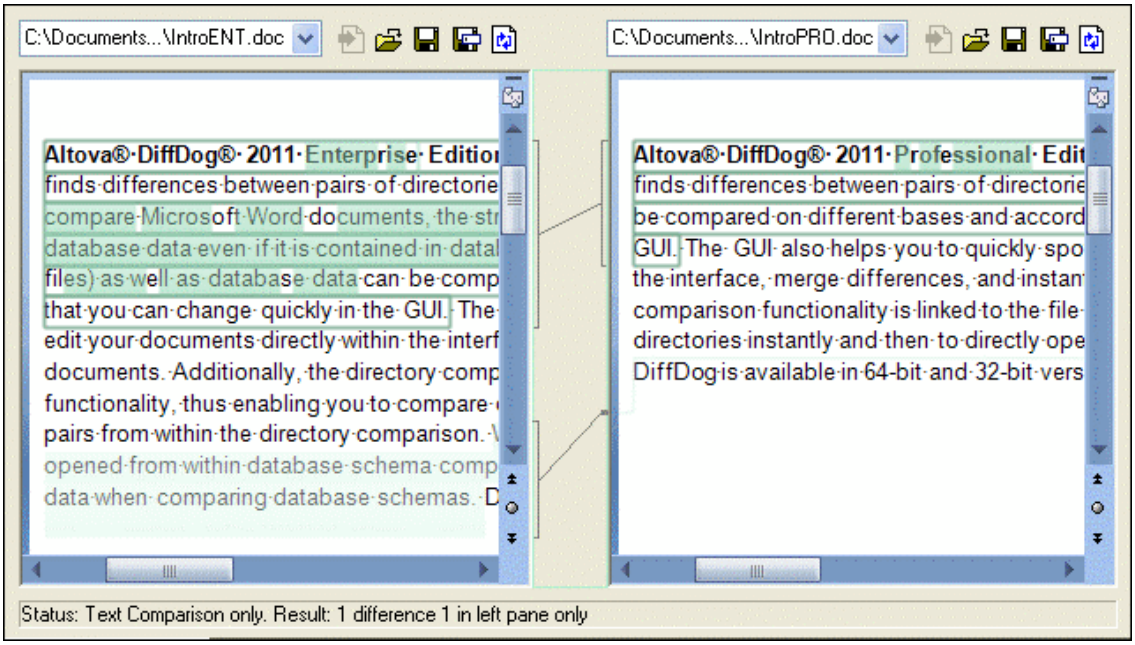
Zoom 100%: Zooms the documents in the panes to 100%. You will have to use the scrollbars to navigate through the documents.

Refreshing the display

Refresh GUI: After you have edited a document in DiffDog, you can refresh the display by clicking this button. Note that this does not reload the documents.

6.6 Displaying Differences in Microsoft Word Documents

After you start a comparison, the differences between the two files are displayed as blocks of highlighted text (which can be a sentence or a paragraph, depending on the setting in the Word Comparison Options) and the results of the comparison are reported in the Comparison Window Status Bar. Notice that the corresponding differences in the two documents are linked for easier identification and analysis.



The current difference is highlighted in a different color than the other differences. In the screenshot above the current difference is displayed in a darker green. These colors can be changed in the DiffDog Options. It is important to know which difference is the current difference because merging is always done for the current difference only. You can navigate among the differences with the navigation commands that are available in the **Diff and Merge** menu and as toolbar icons.

Zooming into the documents

Since each pane of the Word Comparison window hosts an instance of Microsoft Word, you might want to change the zoom of the documents. The **Word Comparison** toolbar provides two options for this: **Zoom 100%** to view the details of the document and edit them, and **Zoom to Fit Page** to display the entire page for a better overview. You can also change the zoom of an individual pane by clicking into it an changing the zoom with the mouse wheel while holding the **Ctrl** key pressed.

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6.7 Editing Microsoft Word Documents in DiffDog

After you have run a comparison and investigated the differences of the two files, you can edit the content of the files directly in DiffDog. You can use all the features of Microsoft Word that are available via the context menu or keyboard shortcuts.

Finding and replacing text

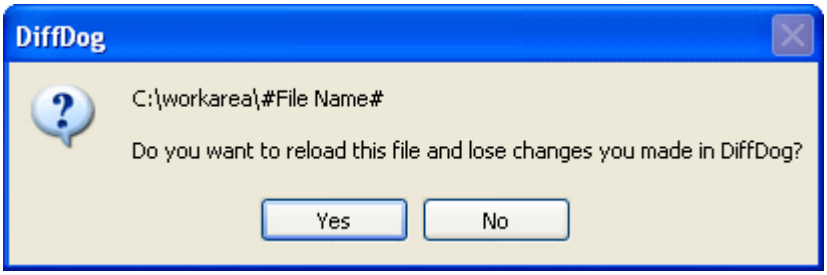
In Word Comparison windows, DiffDog does not use its own Find and Replace functionality but gives you access to Microsoft Word's **Find and Replace** dialog box instead.

To call Microsoft Word's Find and Replace dialog box:

- Place the cursor into the pane in which you want to search for text and press **Ctrl+F**,or click the **Find** button in the Standard toolbar.
  For details on Microsoft Word's find and replace functionality please consult the relevant Microsoft Word help pages.

Reloading documents

You can always undo all changes you have made to a document since you last saved it, and reload the file into DiffDog. A warning message will be displayed if you are about to lose changes.



To reload a file into DiffDog:

1. In the respective pane of a comparison window, click the **Reload** button.
2. If the file has changed since you last saved it, a warning message is displayed.
3. Click **Yes** if you want to reload, or **No** if you want to cancel the operation.

6.8 Saving Microsoft Word Documents

To save a document you have edited in DiffDog, use the **Save** or **Save As** buttons in the respective panes of the comparison window. Files can also be saved using the **Close**, **Close All**, and **Save** commands in the **File** menu. Note that the individual files in the comparison window must be saved separately.

To save a file:

Do one of the following:

- To save an individual file, click the **Save** button in its pane of the comparison window.
- To save an individual file under a new name or path, click the **Save As** button in its pane of the comparison window. The Windows **Save As** dialog box appears where you can specify the new name or path for the file.
- To save both files of a comparison, select the menu option **File | Save**. The **Save files** dialog box appears where you can select the files to be saved or choose to discharge the changes.

To save and close the files of a comparison:

1. Click the tab of the comparison window that contains the files you want to save and close.
2. Select the menu option **File | Close**.
3. If a file contains unsaved changes, the **Save files** dialog box appears. Make sure that the file's check box is selected and click **Save selected**.
   The file is saved and the comparison window is closed.

To save and close the files of all comparisons:

1. Select the menu option **File | Close all**.
2. For every comparison window that contains a file with unsaved changes, the **Save files** dialog box appears. Make sure that the file's check box is selected and click **Save selected**.
   The file is saved and the comparison window is closed.

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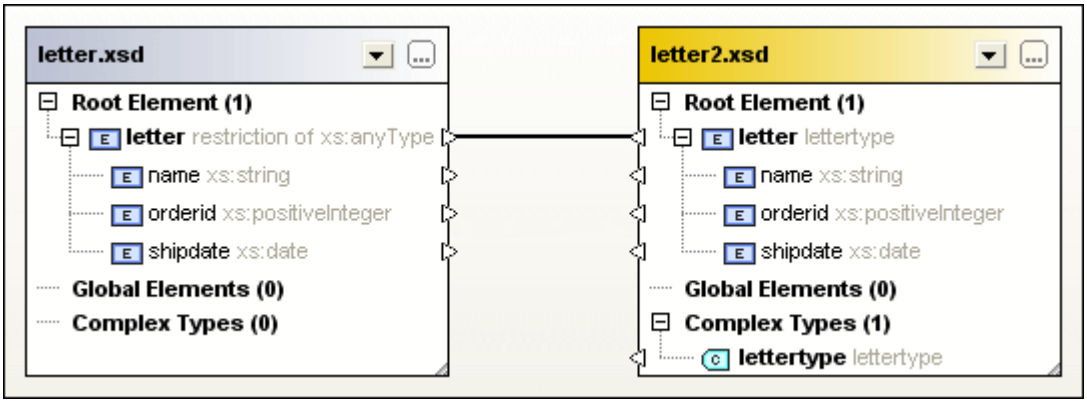
Chapter 7

Comparing XML Schemas

7 Comparing XML Schemas

Altova web site: XML Schema comparison

To compare XML Schemas, DiffDog uses an XML Schema Comparison Window, which provides options for comparing XML Schemas as well as for generating (and saving) and viewing (in XMLSpy if installed) of XSLT style sheets, and generating a MapForce mapping.



To start an XML Schema comparison in DiffDog, you have to open an XML Schema Comparison window and select the XML Schemas you want to compare. If an XML Schema contains more than one element on root level, you will also have to set the active root element for the comparison.

Note: Although you can right-click two XML Schemas in Windows Explorer and select **Compare with Altova DiffDog** from the context menu, the selected XML Schemas will be compared as files in this case.

XML Schema comparisons can be saved to an *.xsdif file. These files can later be reopened in DiffDog using the menu command **File | Open Comparison File...**.

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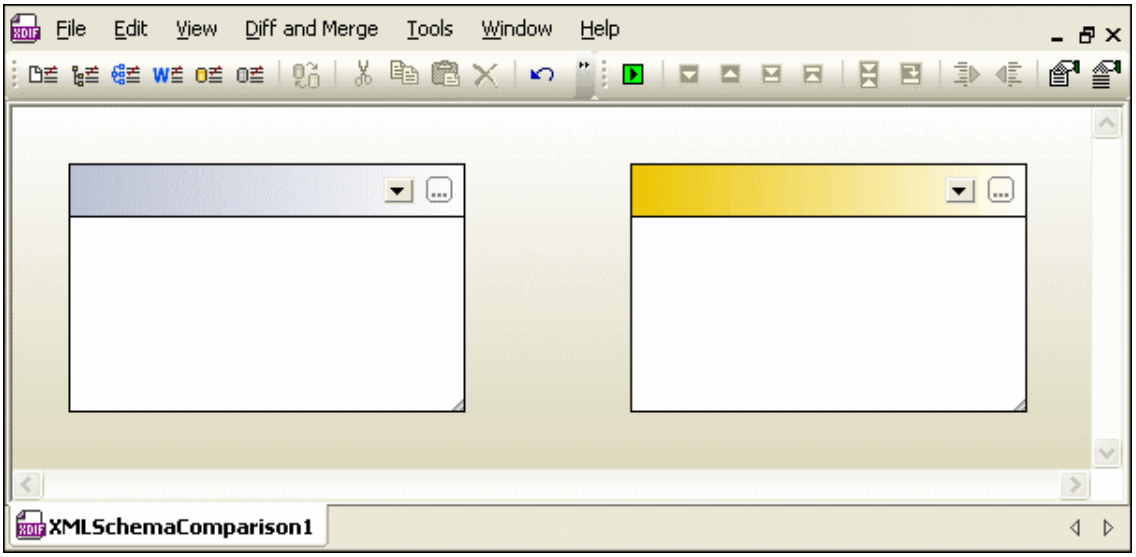
7.1 Opening an XML Schema Comparison Window

When opening a new XML Schema Comparison window, the XML Schema comparison is given a name of the form `XMLSchemaComparisonX`, where `X` is an integer indicating that XML Schema comparison's position in the sequence of XML Schema comparisons opened in the current DiffDog session. This name appears in a tab at the bottom of the window.



Note that the **Compare XML Schemas** command opens only the XML Schema Comparison window; it does not open any XML Schema within the window. The two XML Schemas to be compared must be opened subsequently in the components of the comparison window, one in each component.

To open an empty XML Schema Comparison window:

- Select the menu option **File | Compare XML Schemas** or click the **Compare XML Schemas** button in the Standard toolbar.

7.2 Selecting XML Schemas for Comparison

XML Schemas can be selected for comparison in various ways. You can open the XML Schemas in a new XML Schema Comparison window, open an XML Schema comparison document (*.xsdif) from the file system, or change the XML Schemas in the currently open XML Schema Comparison window. XML Schemas that have already been compared before are available in a drop-down list in the title bar of each component. Note that you can select only one schema per component.

To select XML Schemas in the active XML Schema Comparison window:

1. In the left component of an existing XML Schema Comparison window, do one of the following:
   - Click the **Browse** icon and select a file in the Windows **Open** dialog box.
   - Double-click the title bar, enter the path to a file and press **Enter**.
   - Click the button and select a previously compared XML Schema from the drop-down list.
2. Repeat step 1 for the right component.

To open an XML Schema comparison document:

- Select the menu option **File | Open Comparison File...** and choose an *.xsdif file from the file system. The comparison is opened in a new XML Schema Comparison window with the name of the comparison document appearing in the comparison window tab.

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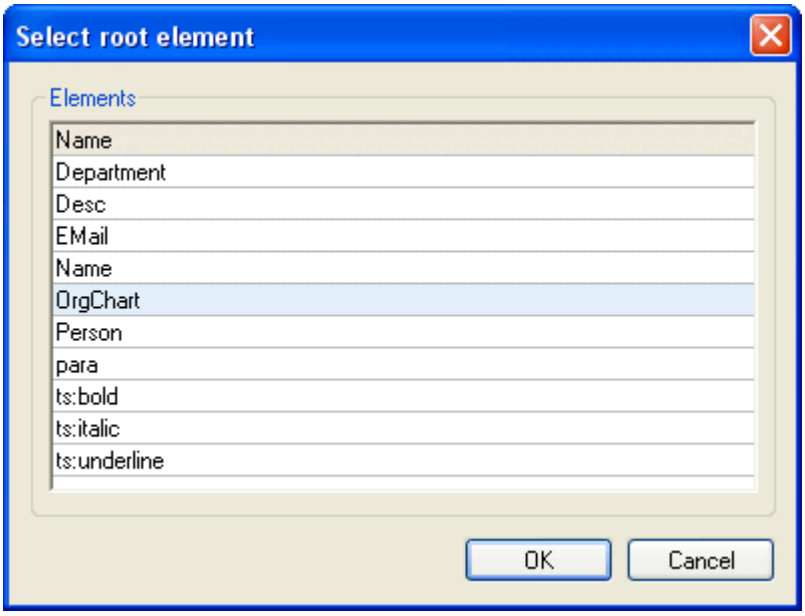
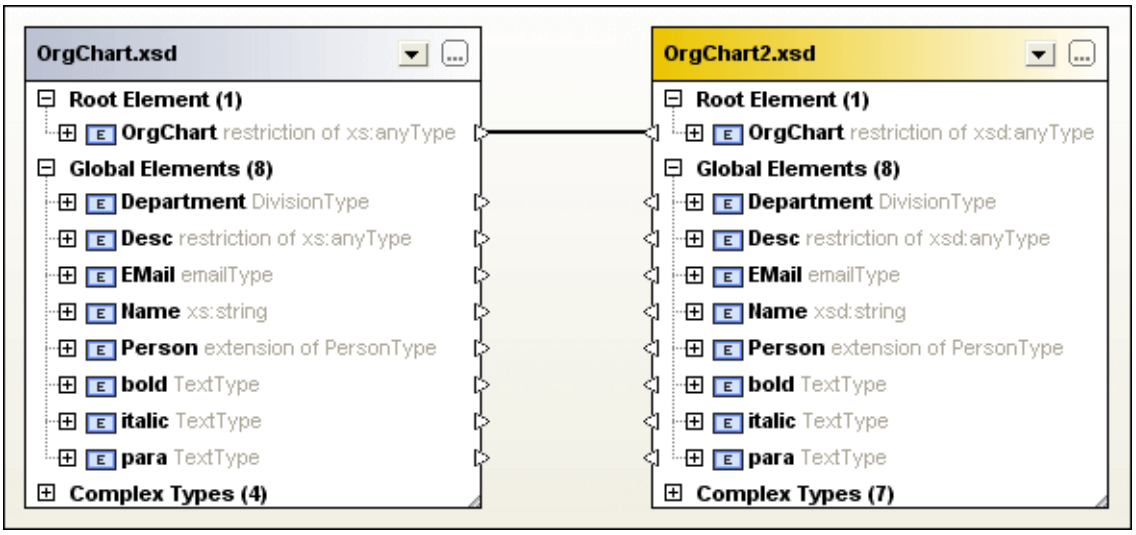
7.3 Setting the Active Root Element

A structural comparison of XML Schemas in DiffDog is done between two global elements on root level. These global elements are mapped automatically when you start a comparison. If an XML Schema contains more than one global element, the **Select Root Element** dialog box will pop up when you select such a schema for comparison.



Choose the active root element to be used for the comparison in this dialog box. The active root element is mapped automatically and cannot be unmapped.



When an XML Schema has already been loaded into a comparison component, you have several options for changing the active root element:

- Manually map two unmapped elements and set one of them as active root element; the mapped element in the opposite component can also be set as active root element, or you can leave the opposite root element unchanged.

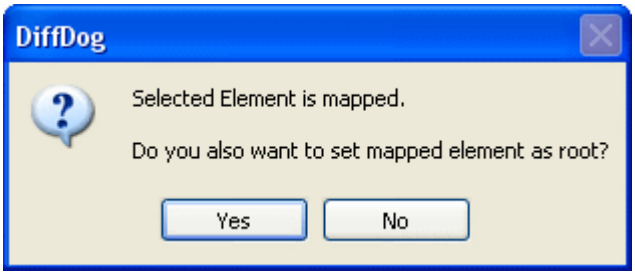
- Activate an unmapped root element in one component; this element will be automatically mapped to the active root element on the other side of the comparison.

If a warning dialog box is displayed, you can always abort the operation by clicking the **No** button in the dialog box. The root element is displayed in a separate section on top of the comparison component.

How to set the active root element:

Do one of the following:

- When opening an XML Schema Comparison window and selecting the XML Schemas for comparison, choose the active root element in the **Select Root Element** dialog box that pops up after you have selected an XML Schema containing more than one global element.
- Right-click a mapped global element in one of the components and select **Set as active root element** from the context menu. A dialog box appears where you can decide whether or not the corresponding element on the opposite side should also be set as the active root element.



If you click **No**, the selected element will be mapped to the current root element of the opposite component.

- Right-click an unmapped global element in one of the components and select **Set as active root element** from the context menu. The element is moved to the Root Element section and mapped to the respective root element in the opposite component.

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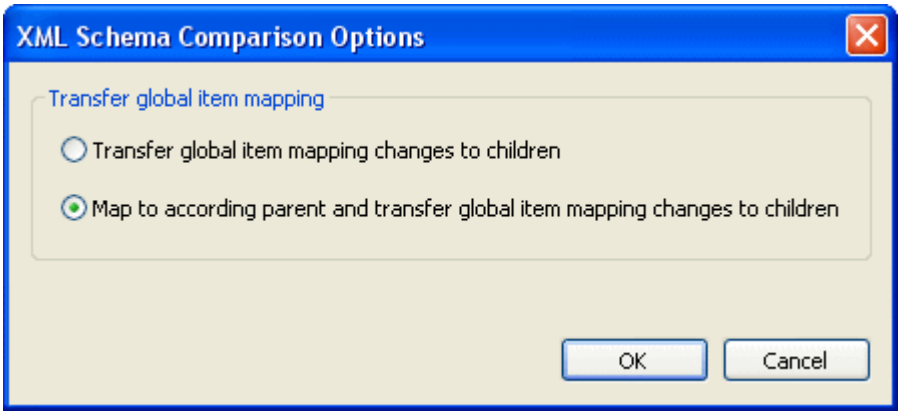
7.4 Modifying the XML Schema Comparison Options

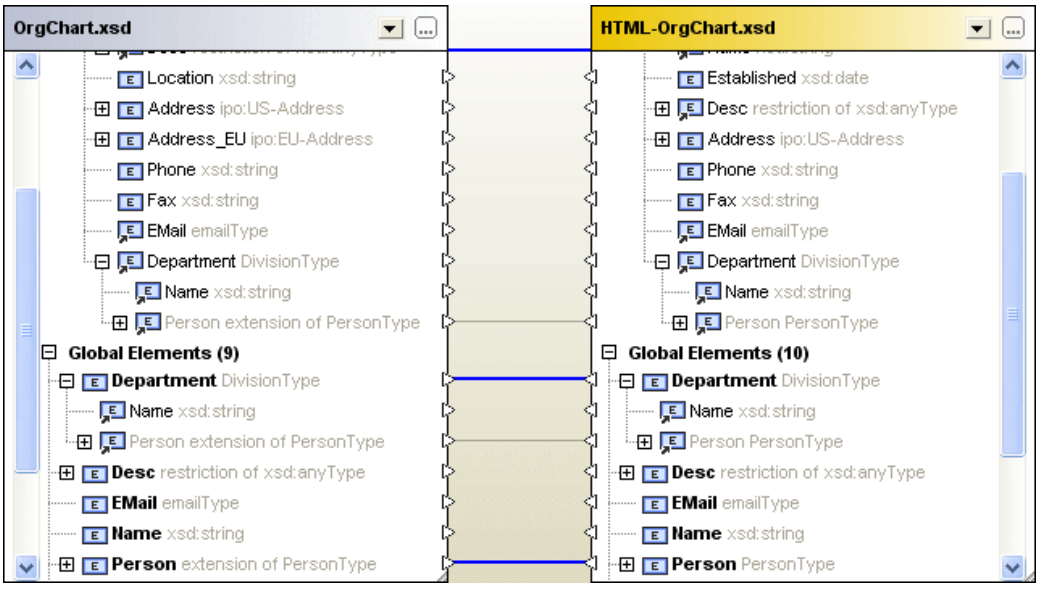
The XML Schema Comparison options can be changed in the **XML Schema Comparison Options** dialog box, which is called by clicking the **Comparison Options** icon in the Diff and Merge toolbar of an XML Schema Comparison window or via the **Tools** menu when the active comparison window is an XML Schema Comparison window.

You can also define whether or not DiffDog should start an automatic mapping when XML Schemas are loaded.



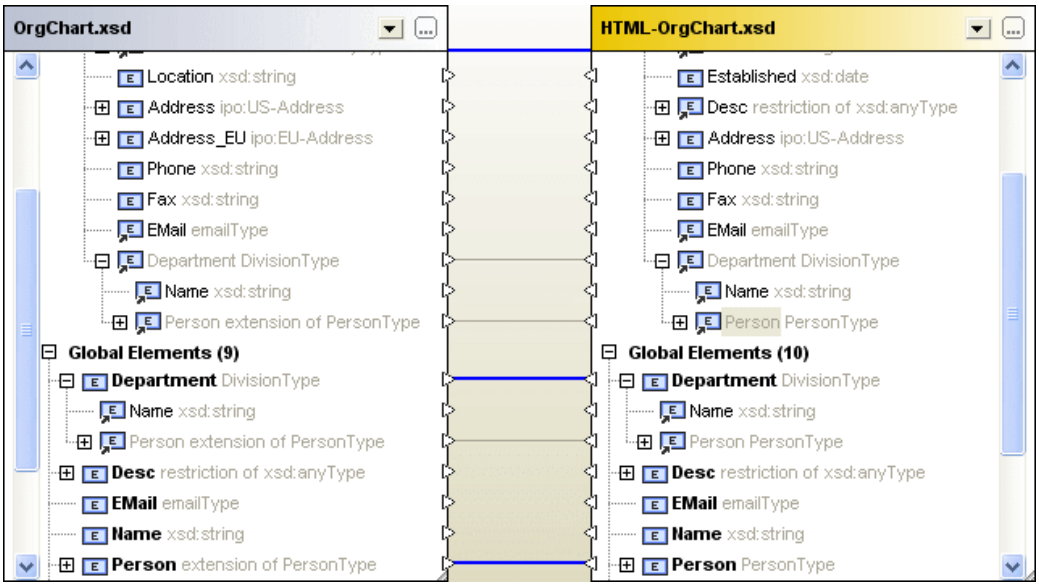
You define how DiffDog should transfer the changes in mapping of a global item to its children. Two options are available:

- Transfer global item mapping changes to children
  This option transfers the mapping of global items if these items appear as children of other items but does not map the respective parent. In the screenshot below, the mapping of global item "Person" is transferred only when it appears as child of global item "Department", whereas the mapping of parent "Department" is not transferred.



- Map to according parent and transfer global item mapping changes to children
  This option transfers the mapping of global items even if they do not appear as children.

In the screenshot below, the mapping of both child "Person" and its parent "Department" is transferred.



To modify the XML Schema comparison options:

1. Do one of the following:
   - Select the menu option **Tools | Comparison Options...**.
   - Click the **Comparison Options** icon in the Diff and Merge toolbar.
2. Change the settings in the **XML Schema Comparison Options** dialog box as required

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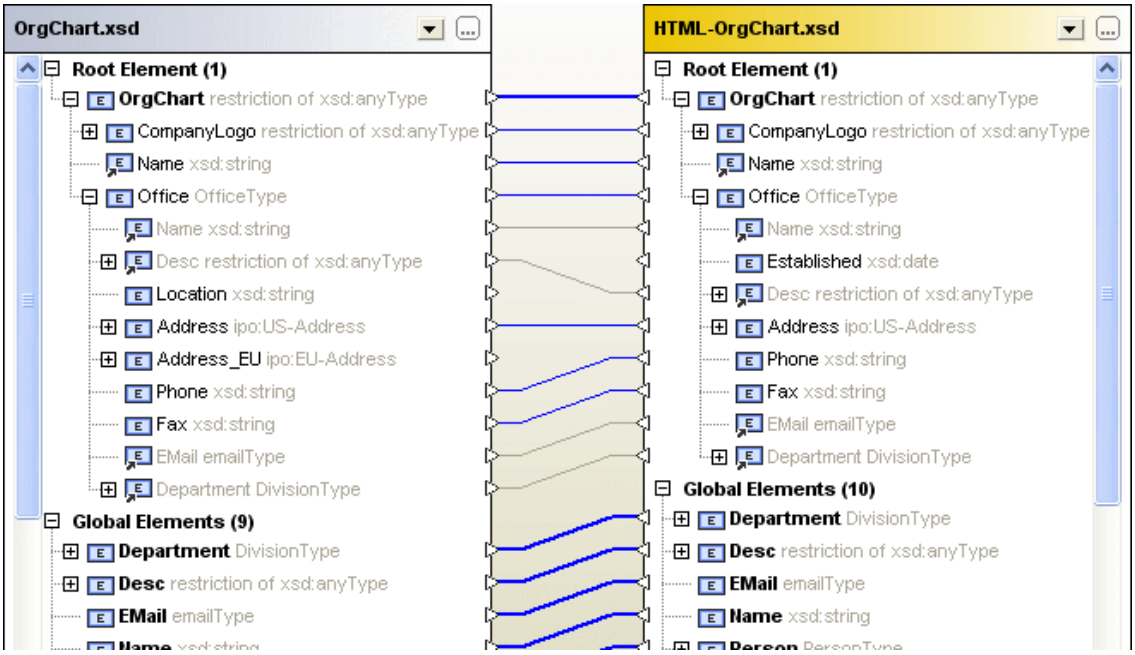
7.5 Mapping Elements

When you select two XML Schemas for comparison, their respective root elements will automatically be mapped when the XML Schemas are loaded into the comparison components of the XML Schema Comparison window. You will have to select the active root element if an XML Schema contains more than one element on root level.

The remaining elements as well as any child elements of the (active) root element will be mapped automatically by DiffDog when you start the comparison. If you are not satisfied with the proposed mappings, you can manually change a mapping and re-run the comparison. Note that the mapping of the root element cannot be changed! If the mapping of the root elements is incorrect, you have to replace one (or both) of the root elements to change the mapping.

If elements are referencing other elements, this is indicated with an icon. When such a referenced element is mapped, DiffDog also maps all references to this element in the same way. These references are indicated with an icon next to the element name (at the location where the reference occurs), and the mapping itself is displayed with gray lines (*see screenshot below*).



You can still change these automatic mapping by drawing a new mapping connection; such manual mappings will then be displayed with blue connector lines. A context menu option is also available allowing you to re-apply the mapping of the global item to a referenced item.

To change or delete a mapping:

- To delete a mapping, right-click the element in either component or the line that connects two elements, respectively, and choose **Unmap selected** from the context menu or hit the **Del** key.
- To change an existing mapping, click the triangle next to the element name in one component and, keeping the mouse button pressed, draw a line to the corresponding triangle in the opposite component. Release the mouse button when the mouse cursor changes its shape.

To unmap all elements:

- Right-click into the title bar of either component and choose **Unmap items** from the context menu.

  Note that the active root element cannot be unmapped.

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7.6 Saving XML Schema Comparison Files

After you have selected XML Schemas for comparison and defined the appropriate comparison options, you can save the comparison to an XML Schema comparison file. This is either done via the **File | Save As...** command or by right-clicking the tab of an XML Schema Comparison window and choosing **Save** from the context menu. If you do a particular comparison on a regular basis, the use of an XML Schema comparison file which can be opened directly may save you a considerable amount of working time.

7.7 Running a Schema Comparison

After you have selected a root element, you can start a comparison. All global elements as well as their child elements will be mapped automatically.

Note: When comparing XML Schemas, DiffDog tries to find matching pairs of elements on both sides of the comparison rather than detecting or indicating differences between the two files. So, XML Schema comparison is about finding and indicating the parts that are equal in two XML Schemas. This approach is different from comparing files, directories, database schemas, or database data!

To start a comparison:

Do one of the following:

- Select the menu option **Diff and Merge | Start XML Schema mapping** or press **F5**.
- Right-click the title bar or any element of either component and choose **Start XML Schema mapping** from the context menu.
- Right-click anywhere into the XML Schema Comparison window and choose **Start XML Schema mapping** from the context menu.
- Right-click the tab of the XML Schema Comparison window and choose **Start Comparison** from the context menu.

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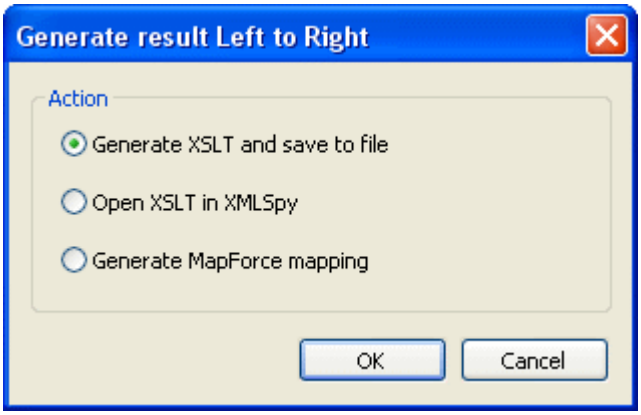
7.8 Merging Differences in XML Schemas

If differences occur in compared XML Schemas, DiffDog does not merge the differences in the two compared XML Schemas but provides XSLT Stylesheets or MapForce Mappings so that you are able to update the XML files that have been generated with the compared XML Schemas. The respective commands are available as menu options in the **Diff and Merge** menu, as context menu commands, or they can be called by clicking the and toolbar options in the Diff and Merge toolbar.

If you click the **Generate Result Left to Right** or the **Generate Result Right to Left** button in the Diff and Merge toolbar, a dialog box is displayed, where you can choose which result is to be generated.



Choose the required option and click **OK**.

7.9 Generating an XSLT Stylesheet

After you have compared two XML Schemas in DiffDog, you can generate an XSLT stylesheet which can later be executed on existing XML files so as to reflect the changes in the XML Schema in the XML files that have previously been generated using this schema.

You can either save the XSLT or open it in XMLSpy® if you have XMLSpy installed on your computer. The relevant commands are included in the context menu.

To generate an XSLT Stylesheet:

Do one of the following:

- Right-click the title bar of either component or anywhere into the XML Schema Comparison window and select **Generate XSLT Left to Right...** or press **Alt+Right**.

  Alternatively, click the **Generate Result Left to Right** button in the Diff and Merge toolbar and select the `Generate XSLT and save to file` radio button in the **Generate result Left to Right** dialog box.

- Right-click the title bar of either component or anywhere into the XML Schema Comparison window and select **Generate XSLT Right to Left...** or press **Alt+Left**.

  Alternatively, click the **Generate Result Right to Left** button in the Diff and Merge toolbar and select the `Generate XSLT and save to file` radio button in the **Generate result Right to Left** dialog box.

To display an XSLT Stylesheet in XMLSpy:

Do one of the following:

- Right-click the title bar of either component or anywhere into the XML Schema Comparison window and select **Open XSLT Left to Right in XMLSpy**. Alternatively, click the **Generate Result Left to Right** button in the Diff and Merge toolbar and select the `Open XSLT in XMLSpy` radio button in the **Generate result Left to Right** dialog box.

- Right-click the title bar of either component or anywhere into the XML Schema Comparison window and select **Open XSLT Right to Left in XMLSpy**. Alternatively, click the **Generate Result Right to Left** button in the Diff and Merge toolbar and select the `Open XSLT in XMLSpy` radio button in the **Generate result Right to Left** dialog box.

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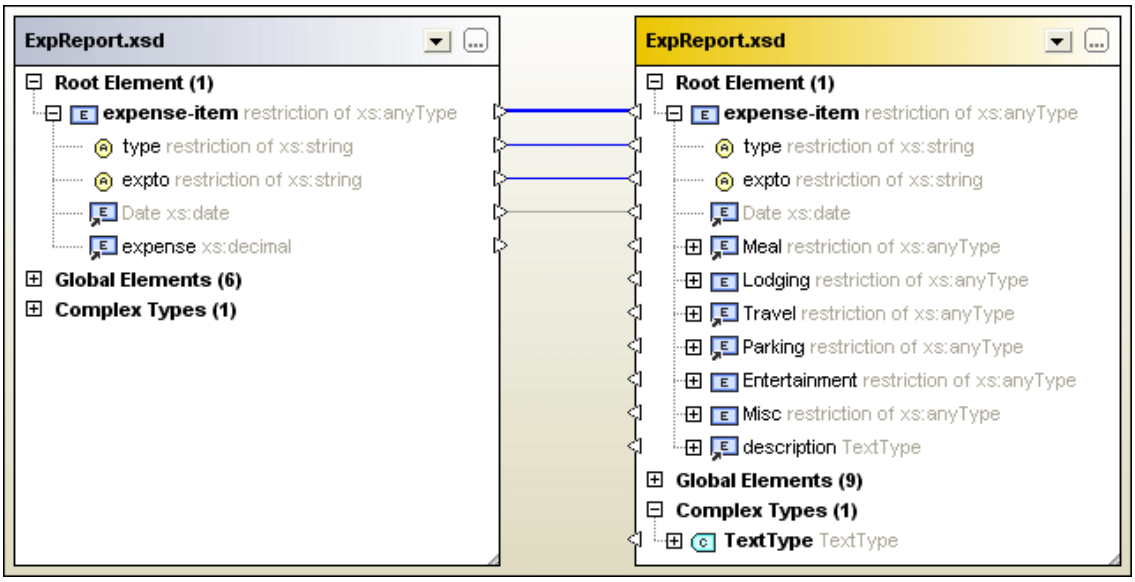
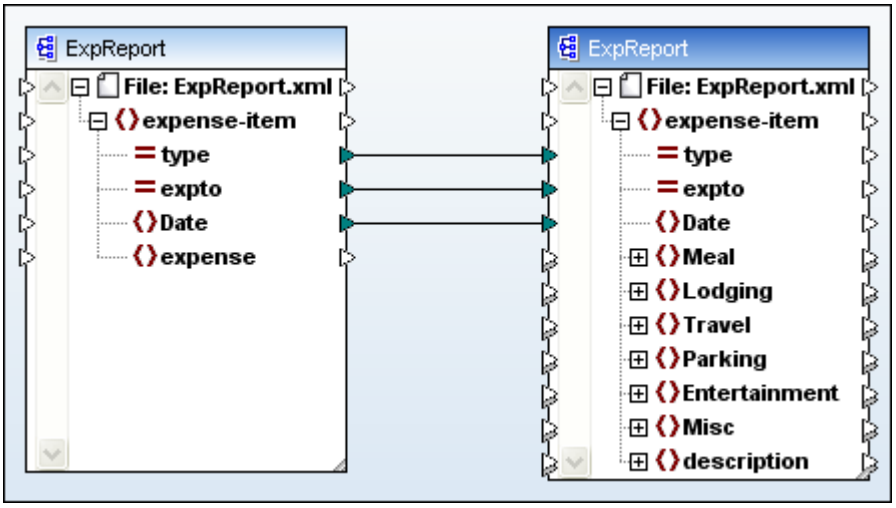
7.10 Generating a MapForce Mapping

If you have MapForce® installed on your computer, you can create a MapForce Mapping for the compared root element from within DiffDog and display it in a new instance of MapForce. Depending on whether you choose the Left to Right or the Right to Left command, you can determine which file is used as source or target, respectively.



If you choose the **Generate MapForce mapping Left to Right** command in the XML Schema Comparison above, you will get the following mapping in MapForce:



To generate a MapForce mapping:

1. Define the root element for which you want to generate the MapForce mapping.
2. Run an XML Schema comparison.
3. Right-click the title bar of either component or anywhere into the XML Schema Comparison window and select **Generate XSLT Left to Right** or **Generate XSLT Right to Left**, respectively. The mapping opens in a new MapForce instance.

   Alternatively, click the **Generate Result Left to Right** or **Generate Result Right to**

Left button in the Diff and Merge toolbar and select the `Generate MapForce Mapping` radio button in the **Generate result** dialog box.

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Chapter 8

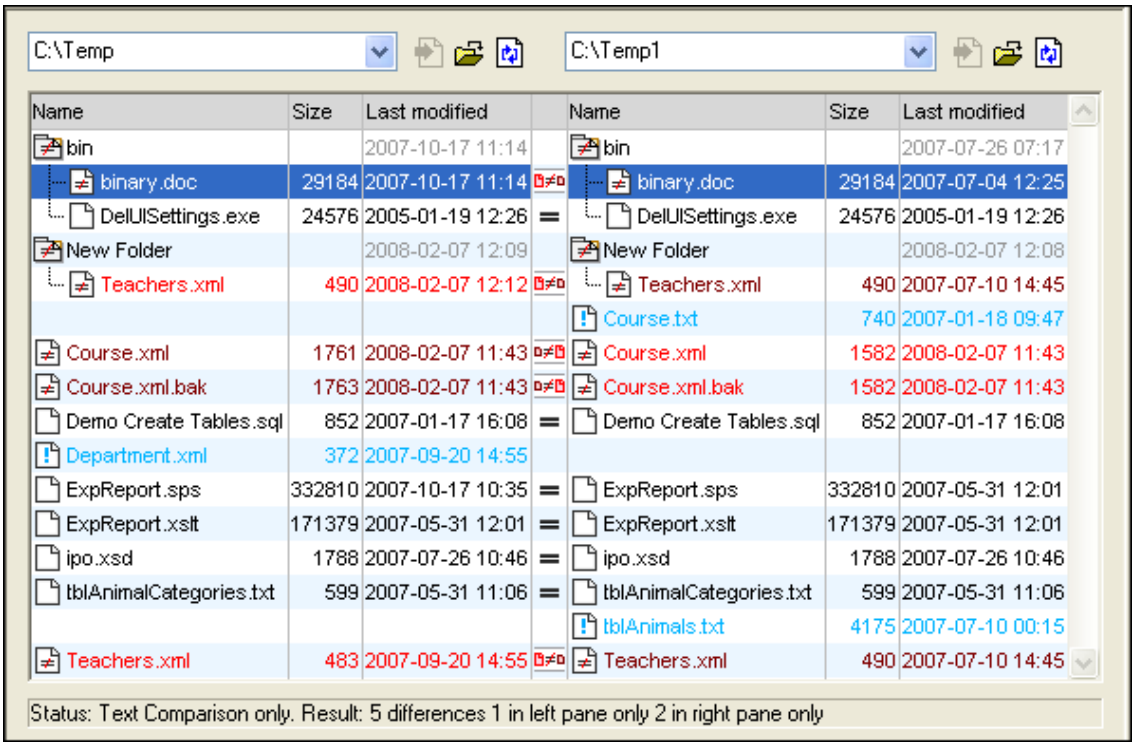
Comparing Directories

8 Comparing Directories

Altova web site: folder diff

In DiffDog, directories and, optionally, their sub-directories are compared in Directory Comparison windows. Here you can compare, merge, or synchronize directories. There are two ways in which DiffDog compares directories:

- By comparing the sizes and timestamps of files in the directories. This comparison mode is called Quick Comparison Mode.
- By comparing the contents of files in directories. This comparison mode is Text Comparison Mode, or XML Comparison Mode, or Binary Comparison Mode, or Extensions Comparison Mode.



To start a directory comparison in DiffDog, you can either directly choose two directories to compare or first open an empty Directory Comparison window and then select the directories to be compared. Alternatively, you can also select two directories in Windows Explorer, right-click and select **Compare with Altova DiffDog** from the context menu. This will open a new instance of DiffDog and display the selected folders in a Directory Comparison Window.

The comparison will start automatically unless you have deactivated the **Autostart Comparison** option in the **Diff and Merge** menu. You can change the comparison mode as desired and restart the comparison. In addition, to eliminate differences, DiffDog allows you to copy files from one pane to the other.

To open a directory comparison window:

Do one of the following:

- Select the menu option **File | Open** or press **Ctrl+O**. Then do the following:

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1. Select `Compare directories` in the **Open comparison** dialog box.
2. Choose the directories to be compared in the Content group box.
3. Optionally, select a filter from the `File/directory filter` drop-down list.
4. Optionally, activate the `Include subdirectories` check box.
5. Click **OK**.

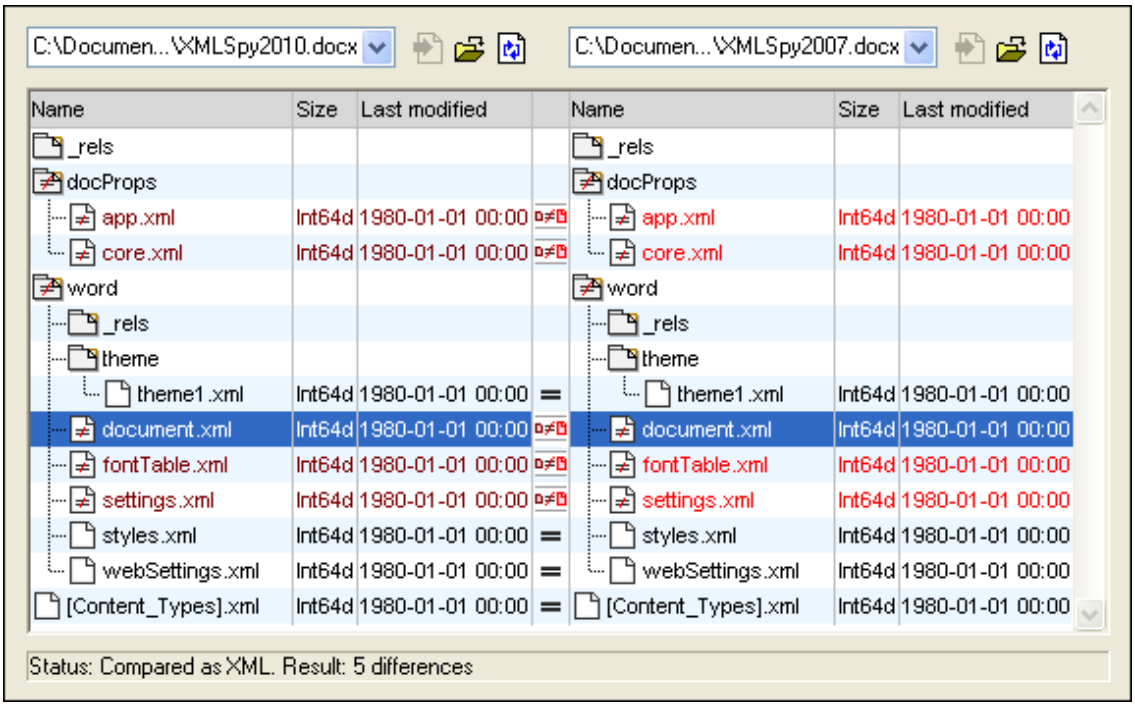
   A new Directory Comparison window containing the selected directories is opened.

- Select the menu option **File | Compare Directories** or click the **Compare directories** icon in the Standard toolbar. An empty Directory Comparison window is opened.

ZIP and OOXML files

ZIP-conformant files are regarded as directories if the `ZIP conformant file` option is selected as the default file comparison mode for *.zip files on the File types tab of the **DiffDog Options** dialog (this is the default setting). You can then select a ZIP file as one of the directories in a directory comparison, show the content of a ZIP file if it appears as a file in a directory comparison, and also copy and merge files that are contained in the ZIP file.

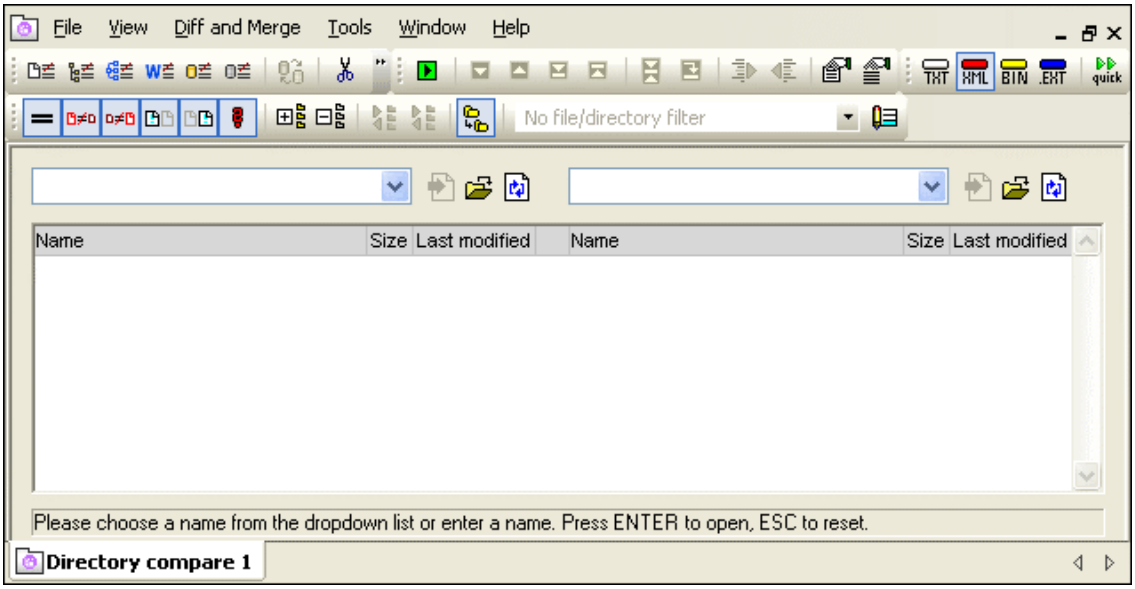
Office Open XML (OOXML) files—which can be thought of as a specialized form of ZIP archives—are also opened for comparison in directory comparison windows. After the content of the OOXML file is displayed in the directory comparison window, you can browse for the document.xml file and open it in a file comparison window.



Altova web site: ooxml diff, zip diff

8.1 Opening a Directory Comparison Window

When opening a new Directory Comparison window, the Directory Comparison is given a name of the form `Directory compare X`, where `X` is an integer indicating that directory comparison's position in the sequence of directory comparisons opened in the current DiffDog session. This name appears in a tab at the bottom of the window.



Note that the **Compare Directories** command opens only the Directory Comparison window; it does not open any directory within the window. The two directories to be compared must be opened subsequently in the panes of the comparison window, one in each pane.

To open an empty Directory Comparison window:

- Select the menu option **File | Compare Directory** or click the **Compare directories** button in the Standard toolbar.

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8.2 Selecting Directories for Comparison

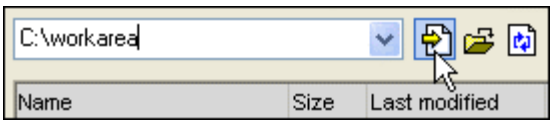
Directories can be selected for comparison in various ways. You can open the directories in a new Directory Comparison window, re-open a previous comparison, or change the directories in the currently open Directory Comparison window.

To open directories in a new Directory Comparison window:

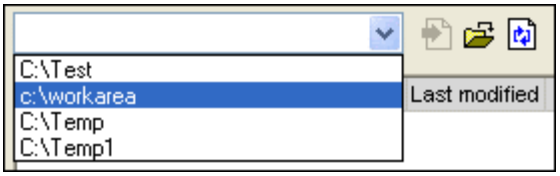
1. Select the menu option **File | Open** or press **Ctrl+O**.
2. In the **Open Comparison** dialog box, select `Compare directories` in the Mode group box.
3. In the Content group box, for the first and the second directory, do one of the following:
   - Enter the path of the directories.
   - Select previously compared directories from the drop-down list.
   - Click the **Browse...** button and select directories from the file system.
4. Optionally, choose a filter from the `File/Directory filter` drop-down list if you want to restrict the displayed content of the directories to certain file types.
5. If required, activate the `Include subdirectories` check box.
6. Click **OK**. The selected directories are opened in a new Directory Comparison window.

To select directories in the active Directory Comparison window:

1. In the left pane of an existing Directory Comparison window, do one of the following:
   - Click the **Open** icon and select a directory in the Windows **Open** dialog box.
   - Enter the full path of a directory and click the **Apply** button.



   - Select a previously compared directory from the drop-down list.



2. Repeat any of the steps described in step 1 for the right pane.

To start a directory comparison from Windows Explorer:

1. Select two directories in Windows Explorer.
2. Right-click and choose **Compare with Altova DiffDog** from the context menu.

A new instance to DiffDog is opened, the selected folders are displayed in a Directory Comparison window, and the comparison is started automatically.

8.3 Modifying the Directory Comparison Options

When comparing directories, the comparison mode you choose determines how the content of the directories in the left and right pane of the Directory Comparison window are compared. The basic comparison mode switch is the Quick Comparison toggle. In order to access Text Comparison Mode, or XML Comparison Mode, or Binary Comparison Mode, or Extensions Comparison Mode, Quick Comparison **must first be toggled off**.

You can also define which types of files will be displayed in the Directory Comparison window by applying a filter. In addition, the **Diff and Merge** menu offers several toggle commands which can be switched on or off via the menu:

- Show Options Before Comparison
- Autostart Comparison
- Compare while Editing
- Support Recently Compared Pairs

General options for the comparison of directories are furthermore available in the Directory comparison tab of the **DiffDog Options** dialog box.

Note: If a new Directory Comparison window is opened, it assumes the comparison options of the last comparison window (file or directory) to have had any of its comparison options modified.

To change the mode for directory comparison:

Do one of the following:

- To use Quick Comparison Mode, toggle on Quick Comparison by selecting the menu option **Diff and Merge | Compare only Size and Modification Date** or activating the **Quick Comparison** icon in the Comparison Mode toolbar.
- Make sure that Quick Comparison is toggled off and select one of the following comparison modes from the **Diff and Merge** menu or activate its corresponding icon in the Comparison Mode toolbar:
  - **Textual Comparison Only**
  - **Compare as XML**
  - **Compare as Binary**
  - **Compare According to File Extension Settings**

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8.4 Running a Directory Comparison

When the two directories to be compared are loaded into the Directory Comparison window, a comparison is automatically carried out if the **Autostart Comparison** command is toggled on (which is the default setting) or if you have selected directories in Windows Explorer and used the **Compare with Altova DiffDog** context menu command. In addition, comparisons can be explicitly started any number of times with the **Start Comparison** command.

If you double-click a file in the Directory Comparison window, this file and the corresponding file in the compared directory are opened in a new File Comparison window and compared immediately.

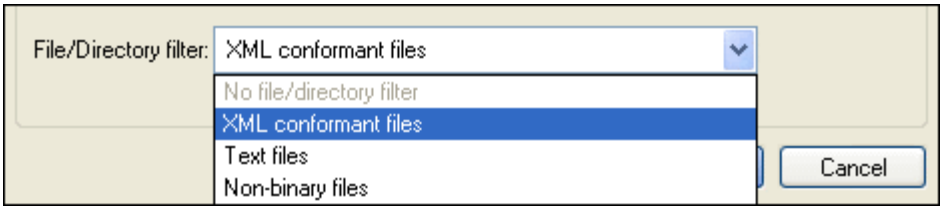
Filtering the content of compared directories

The Directory content toolbar contains a drop-down list from which you can select a filter to be applied to the Directory Comparison window. You can change this filter at any time prior to or after a comparison, or change the definition of a filter as well as add a new filter.

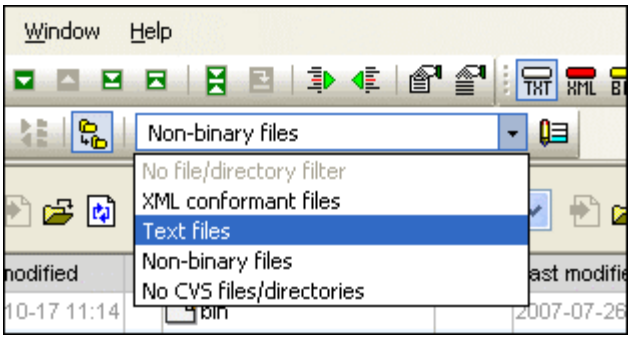
To run a filtered directory comparison:

Do one of the following:

- When selecting directories for comparison using the **File | Open** menu option, select a filter from the `File/Directory filter` drop-down list in the **Open Comparison** dialog box.



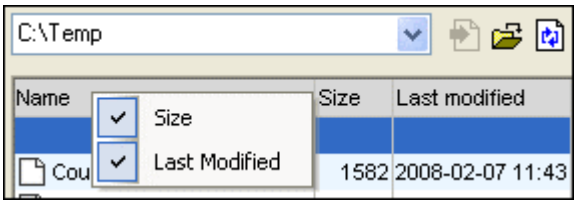
- If you have already opened a Directory Comparison window, select a filter from the drop-down list that is available in the Directory content toolbar.



The content in the Directory Comparison window is updated and a comparison is started immediately.

8.5 Configuring the View

In Directory Comparison windows, you can toggle on and off the display of the Size and Last Modified columns by right-clicking the Header of either pane and then clicking **Size** and/or **Last Modified**.



The column width can also be changed by dragging column borders to the desired location.

Controlling what files are displayed

You can configure the view of individual Directory Comparison windows to display files on the basis of their compared status. For example, you can opt to not display all equal files, or to not display non-comparable files, or to display files that are unequal and newer in the left pane but to not display files that are unequal and newer in the right pane. To do this, you use a set of simple toggle commands that are available as toolbar icons. Note that the toggle is on when the icon has a border around it (as depicted below).

Show/Hide equal: Shows or hides files and sub-directories that are equal in the left and right pane.

Show/Hide left newer: Shows or hides files that are unequal, and where the never version of the file is located in the left pane.

Show/Hide right newer: Shows or hides files that are unequal, and where the never version of the file is located in the right pane.

Show/Hide left only: Toggles on and off the display of subdirectories and files that are present in the left pane only.

Show/Hide right only: Toggles on and off the display of subdirectories and files that are present in the right pane only.

Show/Hide not comparable: Toggles on and off the display of files that are not comparable. Files are considered to be non-comparable if they cannot be compared in the selected Comparison Mode. For example, in XML Comparison Mode, file types that have been specified as not being XML-conformant are considered to be not comparable.

Displaying sub-directories

If, during opening the directories using the **File | Open** menu option, you have decided to not show sub-directories in the Directory Comparison window, you can nevertheless activate this option in any stage of the comparison by clicking the **Include Subdirectories** button in the Directory content toolbar. Clicking the button again will toggle the display of sub-directories off again. With the button toggled on, you can use the following buttons to customize the display of sub-directories:

Collapse: Collapses all directories that have subdirectories. Note that this command will collapse **all** sub-directories in both panes. To collapse a single sub-directory, double-click on it.

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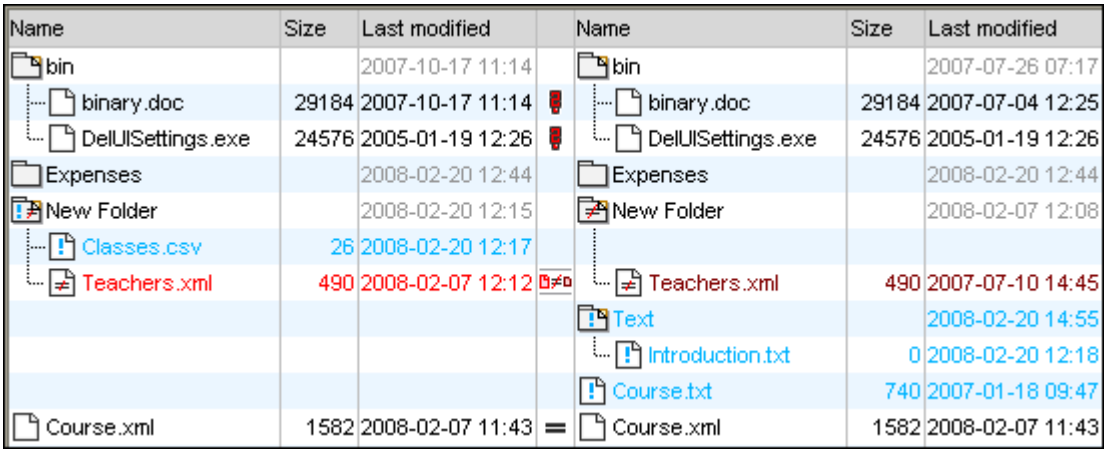
Expand: Expands all directories that have subdirectories.

8.6 Displaying Differences in Directories

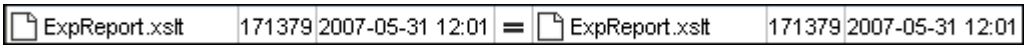
The directory comparison results are displayed as trees in both panes. If sub-directories are displayed, they can be collapsed and expanded by double-clicking the icons for them. The comparison results are indicated with colors and icons as described below.



Name	Size	Last modified		Name	Size	Last modified
bin		2007-10-17 11:14		bin		2007-07-26 07:17
binary.doc	29184	2007-10-17 11:14		binary.doc	29184	2007-07-04 12:25
DelUISettings.exe	24576	2005-01-19 12:26		DelUISettings.exe	24576	2005-01-19 12:26
Expenses		2008-02-20 12:44		Expenses		2008-02-20 12:44
New Folder		2008-02-20 12:15		New Folder		2008-02-07 12:08
Classes.csv	26	2008-02-20 12:17				
Teachers.xml	490	2008-02-07 12:12		Teachers.xml	490	2007-07-10 14:45
				Text		2008-02-20 14:55
				Introduction.txt	0	2008-02-20 12:18
				Course.txt	740	2007-01-18 09:47
Course.xml	1582	2008-02-07 11:43		Course.xml	1582	2008-02-07 11:43

The colors in which file names are displayed are significant. DiffDog displays the individual files in a Directory Comparison window in the following colors:

- **Black**: The file is equal in the selected comparison mode.

ExpReport.xslt	171379	2007-05-31 12:01	=	ExpReport.xslt	171379	2007-05-31 12:01

  Names of files that cannot be compared in the selected comparison mode are also displayed in black.

Create Tables.sql	852	2007-01-17 16:08		Create Tables.sql	852	2007-01-17 16:08

- **Blue***:* The file is present in the directory in which it is displayed, but not in the other directory.

				Course.txt	740	2007-01-18 09:47

- **Red***:* The file is present in both directories, but is not equal in the selected comparison mode. Note that the newer file is colored a brighter red.

Course.xml.bak	1763	2008-02-07 11:43		Course.xml.bak	1582	2008-02-07 11:43

Sub-directory names are always displayed in black.

Folder icons

The following icons are used for directories in Directory Comparison windows. Note that expanded directories are shown with their top right corners turned down (left icon):

Directories that contain files that are **equal** in the selected comparison mode are indicated with a blank body.

Directories that contain **different** files in the selected comparison mode are indicated with a not-equal sign.

Directories that contain files that are **not present** in the corresponding directory in the other pane are indicated with a blue exclamation mark.

Directories that have **both extra** files **and different** files are indicated with an exclamation mark and a not-equal sign.

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ZIP and OOXML icons

The following icons for ZIP and OOXML files are used for directories in Directory Comparison windows:

If the ZIP archives/OOXML files contain files that are **equal** in both panes, the ZIP symbol displays two blank file icons.

ZIP archives/OOXML files that contain **different** files are indicated with a not-equal sign.

ZIP archives/OOXML files that contain files that are **not present** in the corresponding ZIP in the other pane are indicated with a blue exclamation mark. Note that the exclamation mark is displayed in the pane where the additional file is located.

ZIP archives/OOXML files that have **both extra** files **and different** files are indicated with an exclamation mark and a not-equal sign.

File icons

The following file icons are displayed in Directory Comparison windows:

Files that are **equal** in the selected comparison mode are displayed with a blank body.

Files that are **non-equal** in the selected comparison mode are displayed with a not-equal sign.

Files that are **not present** in the other pane are displayed with a blue exclamation mark.

Comparison symbols

The following symbols appear in the column between the two panes and indicate the results of the directory comparison, specifically the relationship between the files on either side of the symbol. Note that these symbols are only displayed for files and not for subdirectories.

Files are **equal** in the selected comparison mode.

Files are **different** in the selected comparison mode.

Files **cannot be compared** in the selected comparison mode.

8.7 Comparing Files from within a Directory Comparison

Double-clicking a file in any of the two directories opens that file and its corresponding file in the other directory in a File Comparison window. If a corresponding file does not exist, no file is opened in the second window.

The new file comparison is opened in the current comparison mode of the directory comparison or—if Quick Comparison is the comparison mode of the directory comparison—in the comparison mode that was the current file comparison mode (Text, XML, Binary, or Extensions) when the directory comparison was opened, respectively.

You can continue to work in the File Comparison window as in a regular file comparison session .

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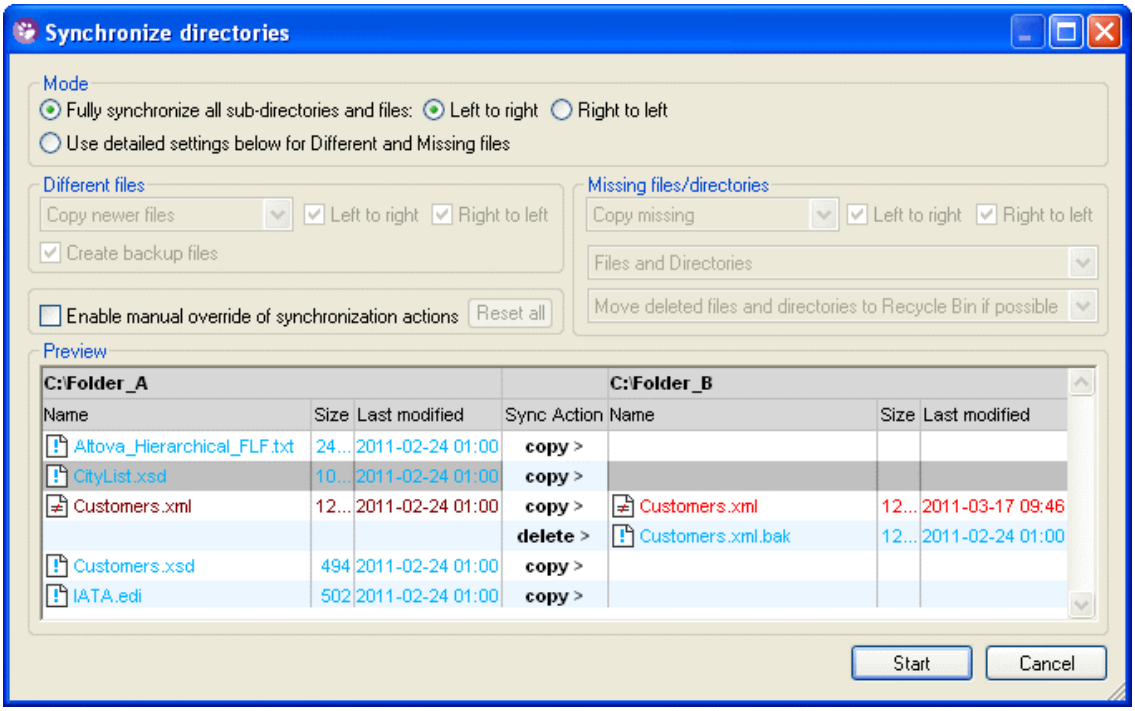
8.8 Synchronizing Directories

In addition to the merging functionality, which allows you to copy individual files from one pane to the other, DiffDog in the **Diff and Merge** menu also provides the **Synchronize directories** option. This option allows you to synchronize the content of the two directories in one single step.



The **Synchronize directories** dialog box can be opened exclusively from a Directory Comparison window, that is, there is no independent menu option available and you have to open a Directory Comparison window first. After two directories have been compared in a Directory Comparison window, you have the following options:

- Synchronizing the currently displayed directories including their sub-directories
- Selecting a single sub-directory in the Directory Comparison window and synchronizing only that particular sub-directory

In the Mode group box of the **Synchronize directories** dialog box, you can choose from two options: (i) Fully synchronize all sub-directories and files (left to right or right to left), or (ii) adapt the synchronization settings. You can always change the synchronization actions for the individual files by activating the `Enable manual override of synchronization actions` check box, and, finally, synchronize the two directories.

To open the Synchronize directories dialog box:

1. Make sure that the two directories that you want to synchronize are displayed in a Directory Comparison window and that you have compared them.
2. Do one of the following:
   - To synchronize the currently displayed directories including their sub-directories, select the menu option **Diff and Merge | Synchronize directories** or click the **Synchronize** button in the Directory content toolbar.

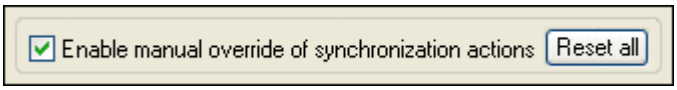
- To synchronize only the sub-directory that is selected in the Directory Comparison window, select the menu option **Diff and Merge | Synchronize selected directory** or click the **Synchronize selected** button in the Directory content toolbar.

8.8.1 Full Synchronization

If you have activated the `Fully synchronize all sub-directories and files` check box in the Mode group box, you can choose whether you want to synchronize (i.e., copy) the files from left to right or from right to left by selecting the corresponding radio button. This option will perform the following actions:

- All different files will be overridden
- Files that only exist in the source directory will be copied to the target directory
- Additional files that exist in the target directory will be deleted permanently (respectively moved to the recycle bin, if possible)
- No backup files will be created

You can, however change the default synchronization settings by activating the `Enable manual override of synchronization actions` check box.



The `Enable manual override of synchronization actions` check box enables you to fine-tune your synchronization actions for one or more particular files or sub-directories. If this check box is activated, the Sync Action column provides a drop-down list where you can choose a synchronization action for an individual file or sub-directory and thus override the settings that have been defined on directory level.

8.8.2 Adapting the Synchronization Settings

Within a running session of DiffDog, the **Synchronize directories** dialog box opens with the previously saved settings for directory synchronization and displays them in the upper part of the dialog. When a new DiffDog instance (or session) is opened, the **Synchronize directories** dialog box opens for the first time with the default settings. Using the drop-down lists and check boxes, you can adapt those settings so as to meet the requirements for synchronizing the currently displayed directories.

In the Different files group box, you define which files are to be copied, that is, whether older or newer files are to be kept, and whether they should be copied to the right, or left directory, or to both directories. The default option copies newer files to the opposite side so that only the newer version of the file will be kept.

You can choose from among the following options:

- **No action:** This option ignores different files.
- **Copy newer files**: This option copies the newer version of a file to the opposite directory. You can use the `Left to right` and `Right to left` check boxes to limit the update to one particular directory. Check both boxes to copy the newer files to the opposite directory and thus update both directories.

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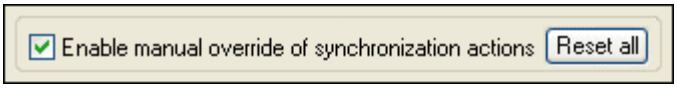
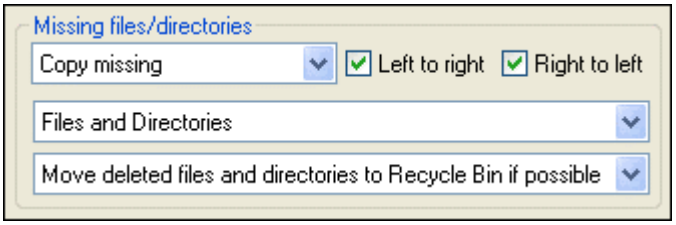
- **Copy older files**: This option copies the older version of a file to the opposite directory. You can use the `Left to right` and `Right to left` check boxes to limit the update to one particular directory. Check both boxes to copy the older files to the opposite directory and thus update both directories.

The `Create backup files` check box allows you to keep a backup of a file's previous version in the directory. If activated, the previous version is saved with a `.BAK` extension before the updated version is copied to the directory.



The `Enable manual override of synchronization actions` check box enables you to fine-tune your synchronization actions for one or more particular files or sub-directories. If this check box is activated, the Sync Action column provides a drop-down list where you can choose a synchronization action for an individual file or sub-directory and thus override the settings that have been defined on directory level.



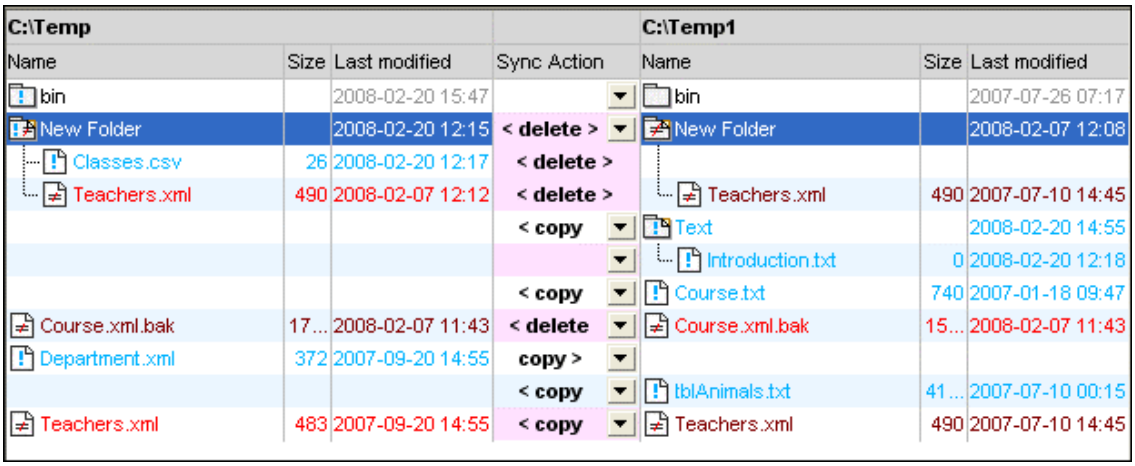
The Missing files/directories group box determines, how missing files and/or directories are to be handled when directories are synchronized. You can choose, whether these options are to be applied to files and directories or to directories (when copying) or files (when deleting) only. Furthermore, you can define, whether deleted items should be moved to the Recycle Bin if possible or be deleted permanently.

The following options are available for missing files and directories:

- **No action**: No synchronization for files that are present in only one of the directories.
- **Copy missing**: Missing files are copied to the opposite directory. You can use the `Left to right` and `Right to left` check boxes to limit the update to one particular directory. Check both boxes to copy missing files to the opposite directory and thus update both directories.
- **Delete missing**: Missing files are deleted from the opposite side. You can use the `Left only` and `Right only` check boxes to restrict the deletion to one particular directory. Check both boxes to delete missing files from the opposite directory and thus delete missing files from both directories.

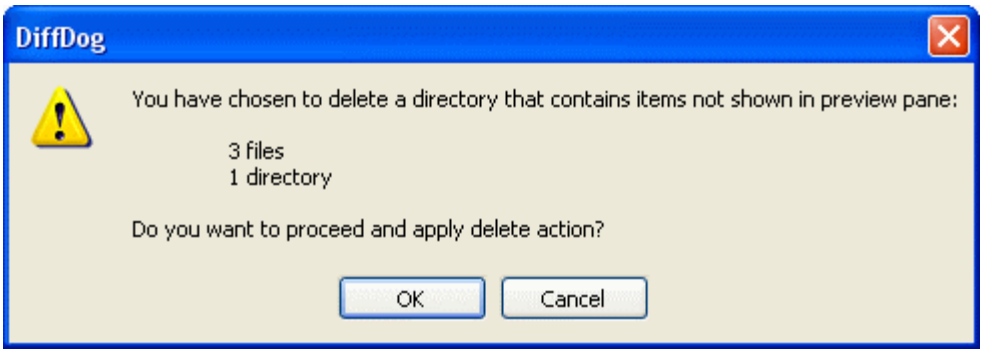
8.8.3 Changing the Synchronization Actions

Basically, the synchronization options are defined for the directories as a whole. You can, however, change the synchronization actions for one or more individual files or sub-directories manually if the `Enable manual override of synchronization actions` check box is activated.



C:\Temp				C:\Temp1		
Name	Size	Last modified	Sync Action	Name	Size	Last modified
bin		2008-02-20 15:47		bin		2007-07-26 07:17
New Folder		2008-02-20 12:15	< delete >	New Folder		2008-02-07 12:08
Classes.csv	26	2008-02-20 12:17	< delete >			
Teachers.xml	490	2008-02-07 12:12	< delete >	Teachers.xml	490	2007-07-10 14:45
			< copy	Text		2008-02-20 14:55
				Introduction.txt	0	2008-02-20 12:18
			< copy	Course.txt	740	2007-01-18 09:47
Course.xml.bak	17...	2008-02-07 11:43	< delete	Course.xml.bak	15...	2008-02-07 11:43
Department.xml	372	2007-09-20 14:55	copy >			
			< copy	tblAnimals.txt	41...	2007-07-10 00:15
Teachers.xml	483	2007-09-20 14:55	< copy	Teachers.xml	490	2007-07-10 14:45

Warning: If you apply a delete action to a sub-directory, also all files that are contained in this directory will be deleted on the chosen side. Since equal files are not displayed in the **Synchronize directories** dialog, DiffDog displays a warning so as to alert you to this fact.



To define synchronization actions manually for individual files:

1. Make sure that the `Enable manual override of synchronization actions` check box is activated.
2. Optionally, change the default synchronization option for the directories in the Different files and Missing files/directories group boxes.
3. To change the pre-selected synchronization action for a particular file, click the drop-down list in the Sync Action column between the two directory panes and select one of the following options:
   - *<blank>*: No synchronization for this file.
   - **copy >**: The file will be copied from the left side to the right side without considering which file is newer.
   - **< copy**: The file will be copied from the right side to the left side without considering which file is newer.
   - **delete >**: The file will be deleted on the right side.
   - **< delete**: The file will be deleted on the left side.
   - **< delete >**: The file will be deleted on both sides.
4. If you choose to delete a sub-directory, click **OK** in the warning message informing you that also equal files will be deleted.

   A message pops up informing you that manual changes will not be considered when changing the synchronization options.

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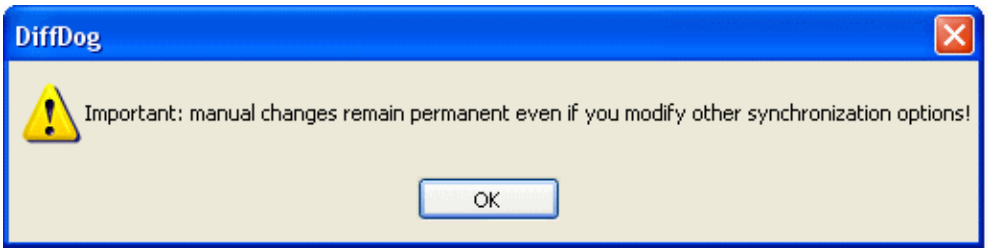
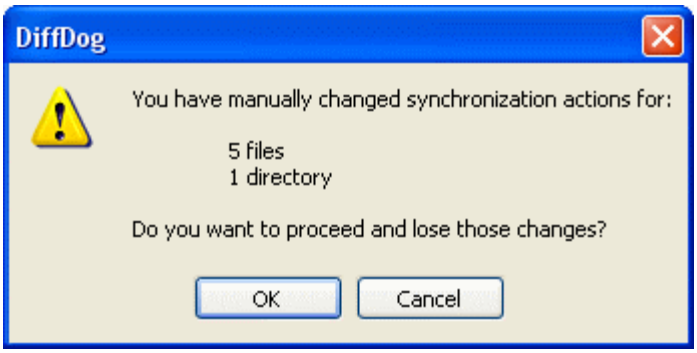


5. Click **OK**.
   The synchronization action is indicated with a different background color. If you later on change the overall settings for the directories and the settings happen to match the manually changed action, the background color will be removed again.

To reset manual synchronization actions:

1. Do one of the following:
   - Click the **Reset all** button.
   - Deactivate the `Enable manual override of synchronization actions` check box.
2. Click **OK** in the message box that appears.



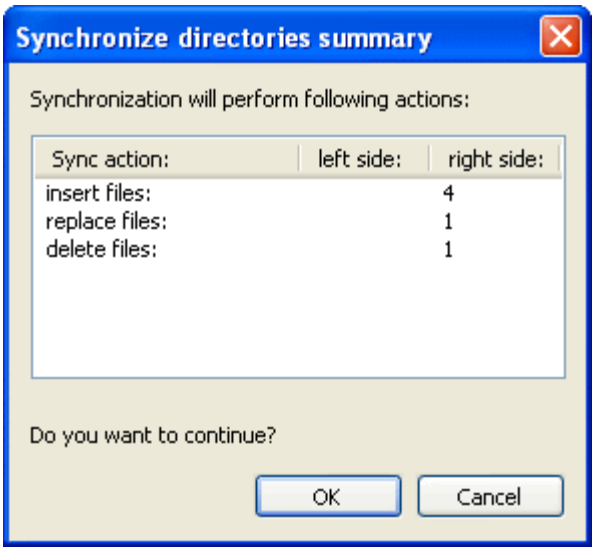
8.8.4 Starting a Directory Synchronization

After you have configured the synchronization actions on directory level and, if applicable, for individual files, you have to start a directory synchronization manually.

To start a directory synchronization:

1. Open a Directory Comparison window and run the comparison.
2. Open the **Synchronize directories** dialog box.
3. Choose either full synchronization or define detailed settings for different and missing files.
4. Optionally, adapt the default synchronization settings or change the synchronization action for individual files.
5. To run the directory synchronization, click the **Start** button. If you choose to not run the synchronization and abort the synchronization settings you defined in the **Synchronize directories** dialog box, click the **Cancel** button to return to the Directory Comparison window from where you opened the **Synchronize directories** dialog box.

After you have clicked the **Start** button, DiffDog displays a summary where the different actions are listed that will be performed during the synchronization.



You can click on **OK** to commit the changes or cancel the synchronization process.

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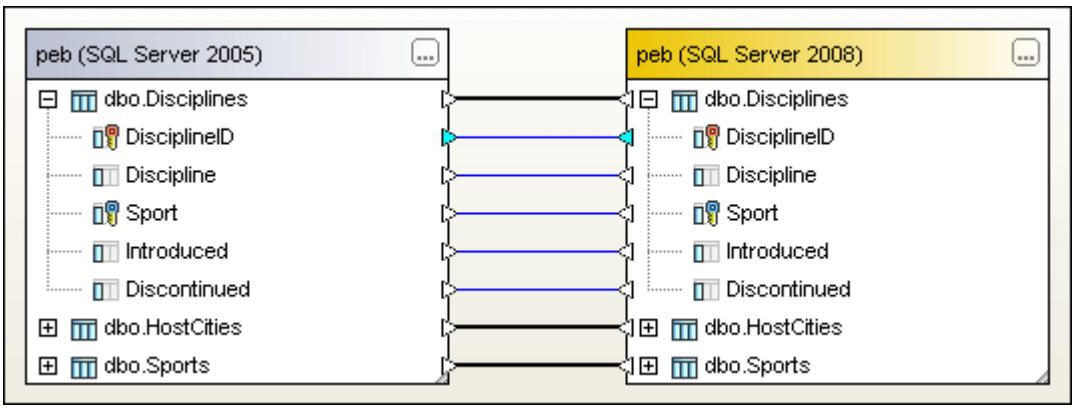
Chapter 9

Comparing Database Data

9 Comparing Database Data

Altova web site: database table comparison

To compare database data in DiffDog, the tables that should be compared are added to components in a Database Data Comparison window, where they are mapped, and where several options for comparing and merging the table data are provided. The two components represent the databases that are compared and are indicated with different colors (grey: left component, dark yellow: right component). These colors will later also appear in the Comparison Result window so that you can easily see which column belongs to which database. The title bar of each component displays the name of the database; if you place the mouse cursor over a title bar, a balloon help appears and displays also the name of the data source that is used to connect to the database.



When the requirements for a database data comparison are met, there are several ways to start a comparison of databases in DiffDog:

- Opening a Database Data Comparison window and adding tables using the **Select Database Objects for Comparison** dialog box. Tables from both databases can be selected in the dialog box.
- Opening a data comparison file that is stored in your file system using the **File | Open Database Data Comparison File...** command.

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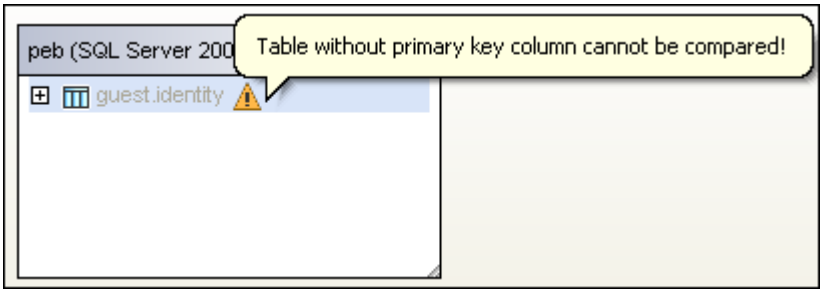
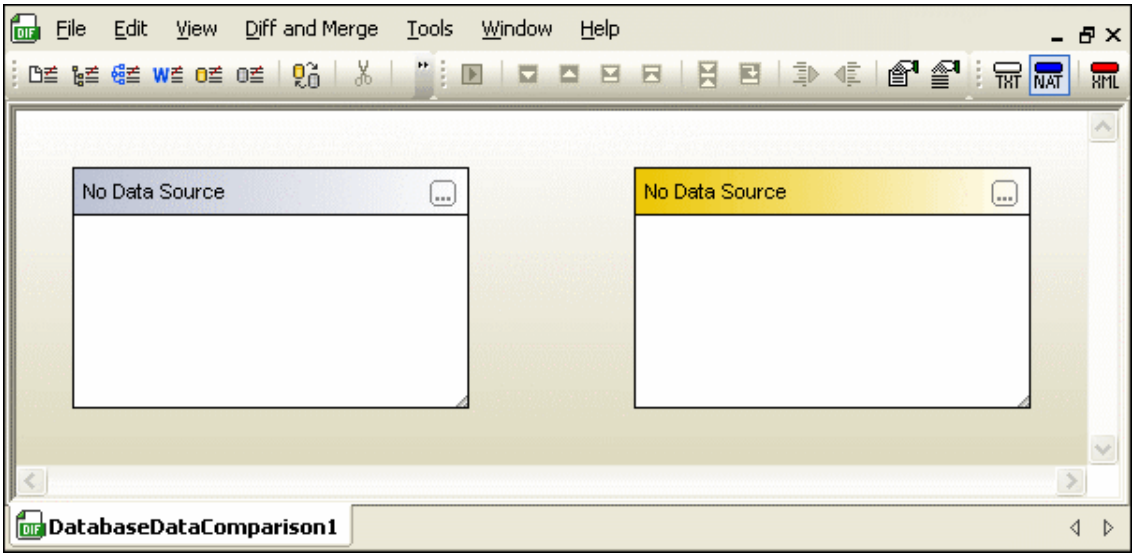
9.1 Prerequisites

At least one column in each table is used as a sort criterion that is needed for comparison. DiffDog uses primary key columns to sort tables for comparison. DiffDog indicates tables that cannot be compared (*see screenshot below*), and these tables cannot be mapped.



9.2 Opening a Database Data Comparison Window

When opening a new Database Data Comparison window, the database comparison is given a name of the form `DatabaseDataComparisonX`, where `X` is an integer indicating that database comparison's position in the sequence of database comparisons opened in the current DiffDog session. This name appears in a tab at the bottom of the window.



The **File | Compare Database Data** command opens the Database Data Comparison window and pops up the **Select Database Objects for Comparison** dialog box, where you select the required tables. Usually you will also select the first database when opening a new Database Data Comparison window. However, you could also just open a Data Comparison window and add the tables later. This way, you could, for example, create comparison templates with different options (e.g., ignore whitespace or case, etc.).

To open a Database Data Comparison window:

- Select the menu option **File | Compare Database Data** or click the **Compare Database Data** button in the Standard toolbar. If the `Show table selection for new documents` check box on the Database Data comparison tab of the **DiffDog Options** dialog box is activated (default setting), the **Select Database Objects for Comparison** dialog box pops up automatically.

  If you just want to open a Data Comparison window without selecting a database yet, click **Cancel**. The **Select Database Objects for Comparison** dialog box closes and the empty Data Comparison window is displayed in DiffDog.

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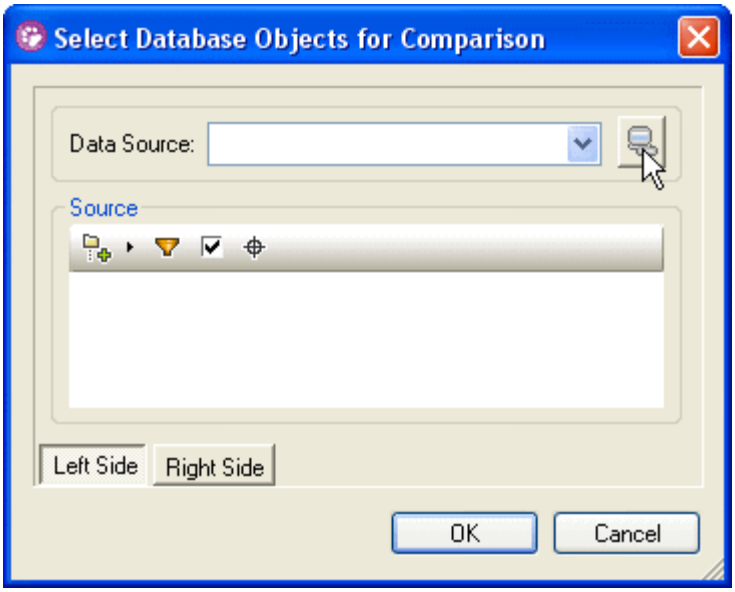
9.3 Choosing a Data Source Connection

Before you can select tables for comparison you have to connect both components of your comparison window to the data source that hosts the tables in question. If no data source connection exists yet in DiffDog and you double-click the header or click the **Browse** button of either component, the **Select Database Objects for Comparison** dialog box opens but does not contain any data source to choose from in the `Data Source` drop-down list and, therefore, no tables that can be selected for comparison.



You can connect to a database by clicking the **Connect to a Database** button. This opens the **Create a Database Connection** dialog box, where you can use the Connection Wizard to connect to the most commonly used database types, or create an ADO or ODBC connection from scratch.

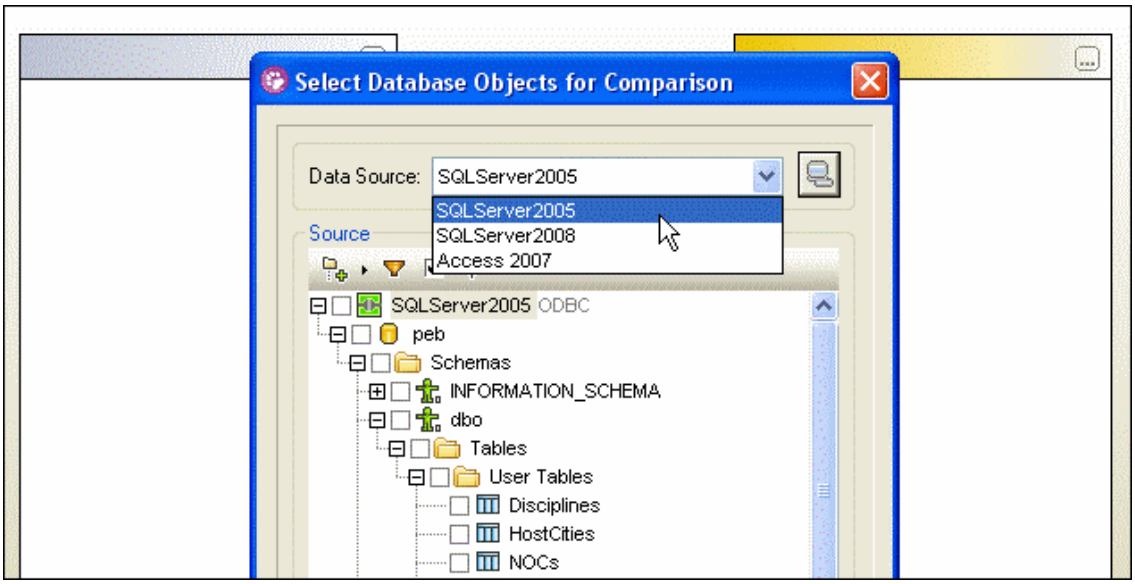
If you have already established connections to data sources in DiffDog before, these connections are listed in the `Data Source` drop-down list and on the Existing Connections page of the **Create a Database Connection** dialog box.

To connect to a database in DiffDog:

1. Open a Database Data Comparison window.
2. Double-click the header or click the **Browse** button of either component in the Database Data Comparison window to open the **Select Database Objects for Comparison** dialog box.
3. Do one of the following:
   - Select a data source from the `Data Source` drop-down list.
   - If no data source connection is available, click the **Connect to a Database** button to call the **Create a Database Connection** dialog box and create a new data source connection there.
4. Click the **Right Side** button and repeat step 3 for the right side of the comparison (or click the **Left Side** button if you started with the right side).

9.4 Selecting Tables

Tables are selected for comparison in the **Select Database Objects for Comparison** dialog box which can be called in various ways: You can either click the **Browse** button in the title bar of either component or double-click one of the title bars. The **Select Database Objects for Comparison** dialog box opens with the pane for the left or right component, respectively, selected. If you have DatabaseSpy installed on you computer, you can also select one or more tables in the Online Browser and drag them into a component of a Database Data Comparison window in DiffDog.



In the **Select Database Objects for Comparison** dialog box, the first connected data source is suggested in the `Data Source` drop-down list. If the data source containing the tables you want to compare is not listed in the drop-down list, you can click the **Browse** button in the Data Source group box to open the **Create a Database Connection** dialog box, where you can create the required data source connection.

To add tables to a comparison component:

1. Open a Database Comparison window.
2. Click the Browse button in the title bar, or double-click the title bar of either component.

   The **Select Database Objects for Comparison** dialog box opens with either the **Left Side** or the **Right Side** button activated, depending on the component you have used to call the dialog box.
3. Choose one of the data sources from the `Data Source` drop-down list.
4. Expand the data source as required and choose the desired tables by activating the respective check boxes. Activating a folder check box selects all the tables that are contained in the folder.
5. Click the **Right Side** button (or the **Left Side** button, respectively, if you started from the right side) and repeat steps 3 and 4 for the second database.
6. Click **OK**. The selected tables are displayed in the components of the database

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comparison window.

9.5 Adding and Removing Tables

If you need to add one or more tables to a database data comparison, you can use the **Select Tables for Comparison** dialog box to do so.

To add tables to an existing data comparison:

- In the Database Data Comparison window, click the **Browse** button in either component or double-click the title bar of a component to open the **Select Database Objects for Comparison** dialog box. If you have clicked into the left component, the dialog box opens for the left side of the comparison, ditto for the right side.

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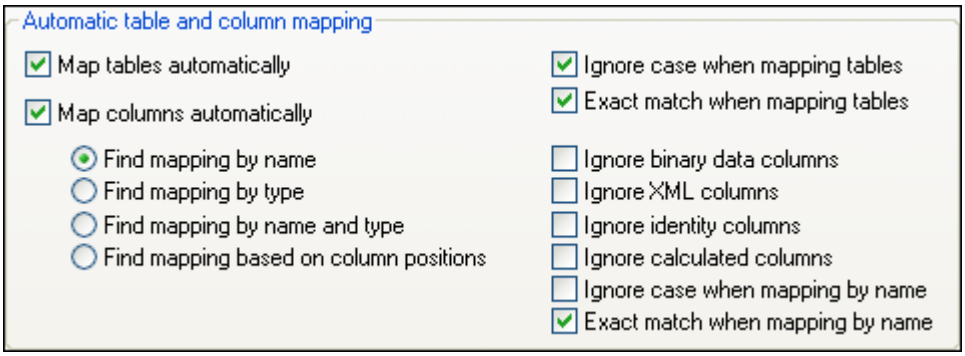
9.6 Mapping Tables and Columns

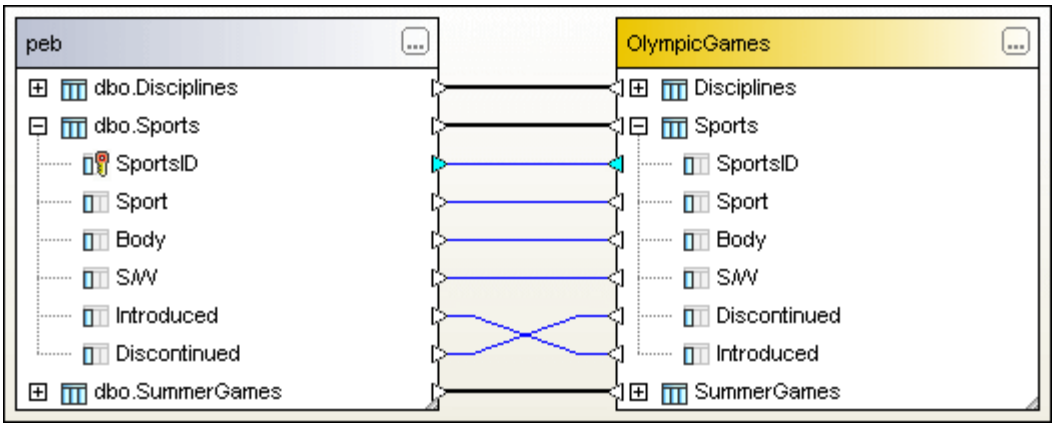
After you have selected two tables for comparison, DiffDog analyzes the structure of the tables and presents them in the Database Data Comparison window.

Mapping options

The default comparison options define that tables and columns be mapped automatically according to the table name or column name, respectively, after the second database has been selected. You can change these options on the Database Data comparison tab of the **DiffDog Options** dialog box.



If you do not change these settings, all tables and columns that you include in a component for comparison will be mapped automatically. Mapped tables are connected by bold black lines. You can expand or collapse tables to view or hide the table columns. Mapped columns are connected by blue lines.



You can disable auto-mapping for the active comparison and for future comparisons by deactivating the `Map tables automatically` check box on the Database Data comparison tab of the **DiffDog Options** dialog page. When auto-mapping is disabled, you can map columns and/or table in several ways:

- Select the **Map items** option from the context menu
- Draw a mapping line between the two components

To map tables or columns manually:

1. In a Database Data Comparison window, click the triangle next to a table name and, keeping the mouse button pressed, move the cursor to the corresponding triangle in the second component. Now triangles are also displayed for the columns of the connected

table.

2. Repeat step 1 for all columns that you want to include in your comparison. Be sure to map the column which is indicated by a cyan triangle since this column is used as a sort criterion and the tables cannot be compared without it.

To map all tables of a component:

- Right-click the title bar of either the left or the right component and select **Map items** from the context menu.

9.6.1 Mapping Columns

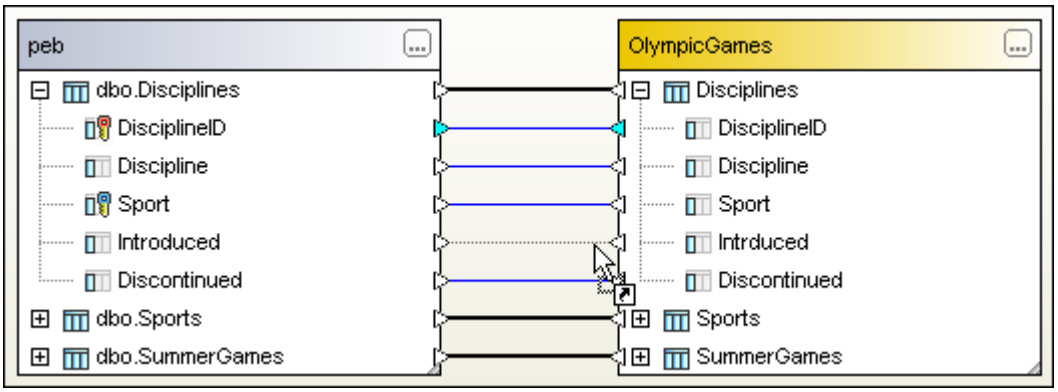
When columns are mapped automatically, you can choose from among the following options on the Database Data comparison tab of the **DiffDog Options** dialog box:

- **Column name**: DiffDog checks for matching column names in both tables. Additional options for ignoring case sensitivity or white space are also available on the Database Data tab of the **Comparison Options** dialog box (for all future comparisons).
- **Data type**: This option should only be used in small databases where each column has a unique data type to prevent conflicts with multiple columns of the same data type. DiffDog analyzes the tables' data types and assigns them to a set of data type representations which can be compared. This way you could automatically map columns that have a different name but share the same data type.
- **Name and data type**: Using this option, DiffDog considers first the column name and then its data type when mapping.
- **Ordinal position**: Columns will only be mapped if the ordinal position at the time of table creation is identical in both tables. This way you can compare tables that are equally designed but use different column names.

Manual mapping

If automatic mapping fails for some reason (e.g., because of a typo in a column name), you can map columns manually by drawing a line between the triangles next to the column names in both components.

In the screenshot below, the "Introduced" column could not be mapped automatically because it is misspelled in the right component. You have to map this column manually.



Note that you can only map two columns when their parent tables are also mapped. A mapping as illustrated in the screenshot below is not allowed and hence impossible.

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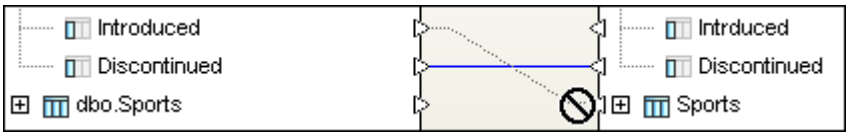


To map columns manually:

1. Click the triangle next to the column name in the first component and, keeping the mouse button pressed, move the cursor to the corresponding triangle in the second component.
2. When the shape of the cursor changes (*see first screenshot above*) release the mouse button. The dotted connection line becomes solid and the two columns are mapped. You can only map columns when the corresponding tables have already be mapped (*see second screenshot above*).

9.6.2 Changing and Deleting Mappings

Mappings that are incorrect or concern columns that should not be compared can be deleted. You can also change the mapping of a table or column and map it to a different table or column in the second comparison component.

DiffDog provides context options for deleting the mapping of the selected object or all objects of the comparison component. In addition, you can use your mouse to change the mapping of individual tables or columns. Note that if you have activated automatic mapping of columns in the Database data comparison options, DiffDog tries to map columns automatically when you change the mapping of a table.

To delete mappings:

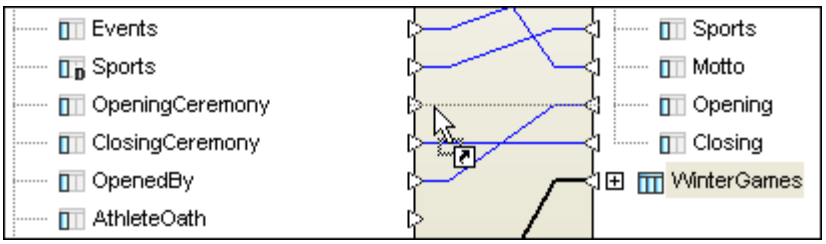
Do one of the following:

- To delete all mappings of a comparison, right-click the title bar of either component and choose **Unmap items** from the context menu.
- To delete a single table or column mapping, right-click the appropriate object and choose **Unmap selected** from the context menu.
- Click the connection line between two mapped tables or columns and hit the **Del** button.

  Note that unmapping a table will also unmap all columns of that table.

Changing the mapping

If you want to change an existing mapping, you can either delete the incorrect mapping and use one of the methods for manual mapping or simply re-draw the connection line between two tables. Please note that you cannot change the end point of a connection line but have to create a mapping as if no mapping would exist for the table or column in question.



In the example above, the Opening column in the right component has been incorrectly mapped to the OpenedBy column in the left component. To correct this, start at the triangle next to the

Opening column on the right side and draw a connection to the OpeningCeremony column on the left side. You could also start at the OpeningCeremony column and connect it with the Opening column. The incorrect mapping between OpenedBy and Opening will disappear when the mouse button is released.

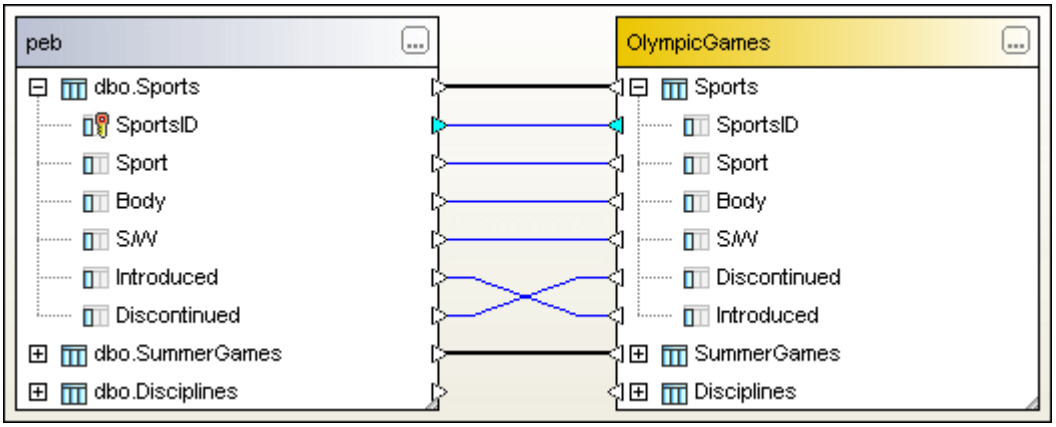
To change an incorrect mapping:

- Ignore the existing mapping and draw a connection between the two tables or columns you want to map.

9.6.3 Sorting Mapped Tables

Tables that are displayed in the components of a Database Data Comparison window can be sorted either ascending or descending. In addition,DiffDog provides the option to prefer mapped tables in the sort order so that all mapped tables are sorted either ascending or descending, and only then the remaining, unmapped tables are displayed in a component.

The tables in the screenshot below have been sorted using the command **Ascending mapped first**. Note that the column order cannot be changed, only the tables are sorted with the mapped tables being displayed on top.



The sort options are available in the **Diff and Merge** menu and in the context menu that appears when you right click the title bar of either component or an unoccupied area of the Database Data Comparison window. Please note, that the sorting commands always apply to both databases, irrespective of which title bar you have clicked.

To sort tables in the Database Data Comparison window:

1. Do one of the following:
   - Select the menu option **Diff and Merge**.
   - Right-click the title bar of either the left or the right component.
   - Right-click into an unoccupied area of the Database Data Comparison window.
2. Choose either **Ascending** or **Descending** from the **Sort tables** sub-menu. If you want to exclude unmapped tables from the sort order, choose **Ascending mapped first** or **Descending mapped first**, respectively.

Dragging tables in components

You can always change the position of a table within a comparison component by dragging the table to the desired location. If both components are connected to the same data source, you

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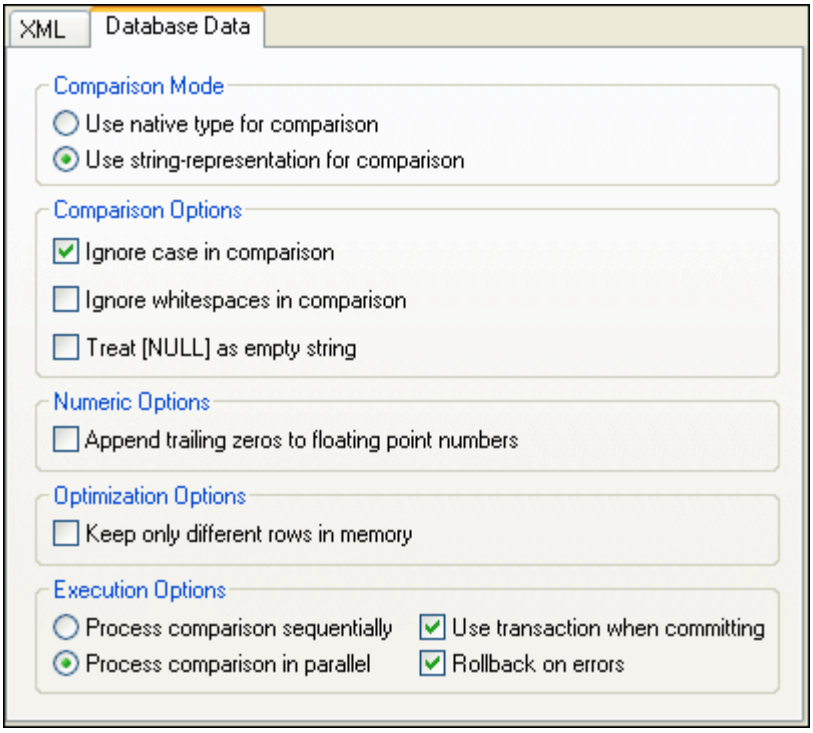
can also drag a table from one component to the other. The order in which the columns of a table appear in a component is determined by the column's ordinal position and cannot be changed.

9.7 Modifying the Database Comparison Options

The default comparison options are defined on the Database Data and XML tabs of the **Comparison Options** dialog box. These settings apply to all Database Data Comparison windows that are opened in the future.

9.7.1 Options for String Comparison

The Database Data tab of the **Comparison Options** dialog box displays the default comparison options for all future Database Data Comparison windows. Special comparison options for XML fields are defined on the XML tab of the **Comparison Options** dialog box.



Comparison Mode
You can choose from among two comparison modes: The native type considers the data type of the column that is compared, whereas everything will be converted into strings before comparison if you use the string representation type.

Comparison Options
Deactivate the `Ignore case in comparison` check box if upper and lower casing should not be ignored when checking for differences.
Check the `Ignore whitespaces in comparison` option if you do not want to consider whitespaces when comparing database data. Whitespace characters are space, tab, carriage return, and line feed.
If you do not want to make a difference between an empty field and a field containing the NULL value, activate the `Treat [NULL] as empty` string check box.

Numeric Options
Floating point numbers can be filled up with trailing zeros by activating the `Append trailing zeros to floating point numbers` check box.

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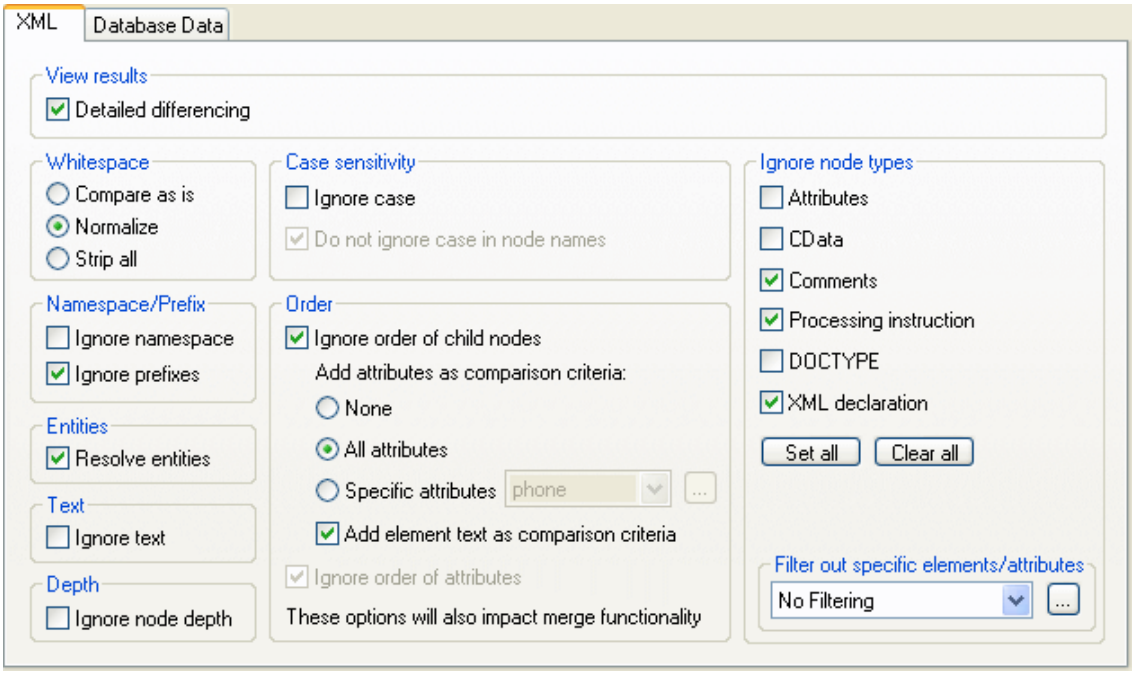
Optimization Options
If you do not care to see rows that are equal in both tables of a comparison, you can check the `Keep only different rows in memory` option. In this case, only different rows are kept in the memory and displayed in the Result window.

Execution Options
You can define whether you want to process comparisons of multiple tables sequentially or in parallel. Changes can be committed with or without the use of transactions and you can decide whether or not you want to rollback on errors.

9.7.2 Options for Comparing XML Fields

The XML tab of the **Comparison Options** dialog box displays the default comparison options that apply to columns of type XML if native comparison has been selected. The options that are defined on this dialog page are valid for all future Database Data Comparison windows.



View results
The `Detailed differencing` option is only used in file comparisons.

Whitespace
Whitespace characters are space, tab, carriage return, and line feed. The three options here compare files with whitespace unchanged; with whitespace normalized (i.e., all consecutive whitespace characters are reduced to one whitespace character); and with all whitespace stripped (i.e., not considered for comparison).

Case sensitivity
If the `Ignore case` check box is checked, then case is ignored, and you have the option of ignoring or not ignoring case in node names.

Namespace/Prefix
These are options for ignoring namespaces and prefixes when searching for differences.

Order

If `Ignore order of child nodes` is selected, then the relative position of the child nodes of an element is ignored. As long as an element node with the same name exists in each of the two sets of sibling nodes, the two sets are considered to be equal. Note, however, that if an element node has an attribute, it will be considered unequal to an element with the same name in the compared sibling set—even if the `Ignore order of child nodes` is selected. In order to ignore the order of several occurrences of child nodes that have different attributes assigned, you can add these attributes as comparison criteria. DiffDog provides two options: (i) add all attributes and (ii) define a list of specific attributes. However, if you select the `Specific attributes` option, you will first have to define an attribute group accordingly. It may also happen that several occurrences of child nodes appear that have also the same attribute assigned. In DiffDog you can cope also with this scenario by activating the `Add element text as comparison criteria` check box. If element text, attribute value, and node name are identical and only the order of the nodes is different, no differences will be reported.

The option of ignoring the order of attributes is also available, and applies to the order of attributes of a single element.

Entities
If `Resolve entities` is selected, then all entities in the document are resolved. Otherwise the files are compared with the entities as is.

Text
If `Ignore text` is selected, then differences in corresponding text nodes are not reported. A different string inside a tag will be ignored since only the XML structure is compared but not the text content of the tags.

Depth
If `Ignore node depth` is selected, then the additional depth of any element (i.e., more levels of descendants) relative to the depth of the corresponding element in the compared file is ignored.

Ignore node types
Check the node types that will **not** be compared in the Compare session. Node types that may be ignored are Attributes, CDATA, Comments, Processing Instructions, DOCTYPE statements, and XML declarations.
Filters are only used in file comparisons.

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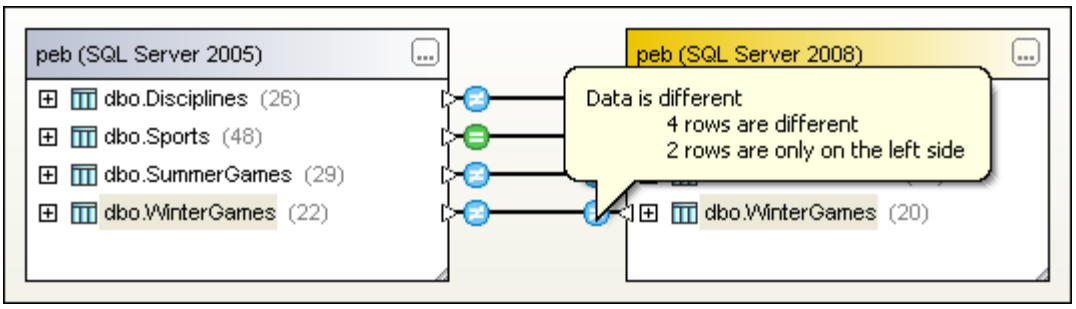
9.8 Saving Database Data Comparison Files

After you have selected and mapped tables for comparison and defined the appropriate comparison options, you can save the comparison in a data comparison file. This is either done via the **File | Save As...** command or by right-clicking the tab of a Database Data Comparison window and choosing **Save** from the context menu. If you do a particular comparison on a regular basis, the use of a data comparison file which can be opened directly and establishes the needed data source connections automatically may save you a considerable amount of working time.

9.9 Running a Database Data Comparison

After you have selected and mapped the tables and columns you want to compare, you can start a database data comparison in DiffDog. Either one or more selected tables or all tables included in the active database data comparison can be compared. A comparison can be started (i) via the **Diff and Merge** menu, (ii) the **Start Comparison** button in the Database Data Comparison window, (iii) the context menu, or (iv) by pressing **F5**. In the background, SQL SELECT statements are generated and executed for, and data is retrieved from, both tables.



To run a database data comparison:

- To compare all tables in the comparison component, do one of the following:
  - Select the menu option **Diff and Merge | Start Comparison**.
  - Click the **Start Comparison** button in the Diff and Merge toolbar.
  - Right-click the title bar of either component and select **Compare items** from the context menu.
  - Press **F5**.
- To restrict comparison to only some of the tables in the component:
  1. Select one or more tables in either component.
  2. Right-click and choose **Compare selected** from the context menu or press **F5**.

The result of a comparison is indicated with icons in the Database Data Comparison window. When placing the mouse cursor over an icon, a balloon help appears with a brief description of the comparison result for the selected table (*see screenshot above*). It makes no difference whether you hover over the left or over the right icon. In huge tables which contain a lot of columns, you can collapse and expand individual tables when you are examining the differences. If you double-click a column in one component, both versions of the column are collapsed or expanded, respectively, simultaneously in both components. To collapse all columns in both components with a single click, use the **Collapse tables** command from the **Data Comparison** menu or the context menu that opens when you right click the title bar of a component.

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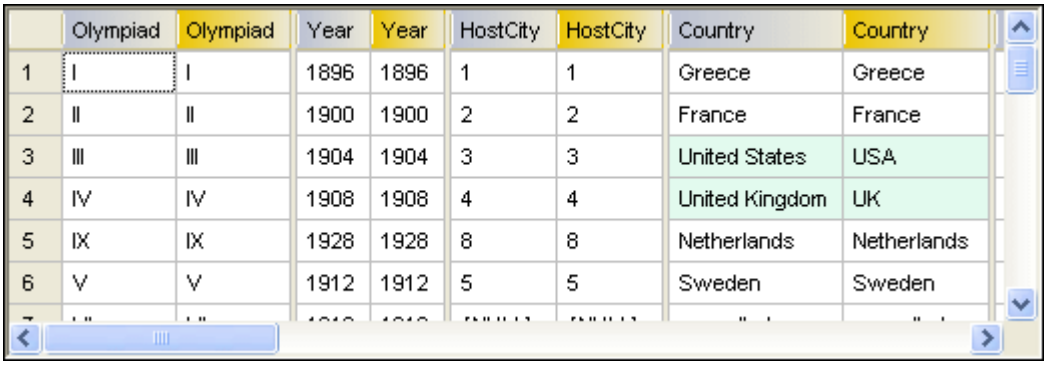
9.10 Displaying Differences in Databases

The result of a database comparison is displayed in a balloon help when you hover over one of the comparison icons. A detailed view of the differences is available in the Result window where you can check every table cell for differences.



	Olympiad	Olympiad	Year	Year	HostCity	HostCity	Country	Country
1	I	I	1896	1896	1	1	Greece	Greece
2	II	II	1900	1900	2	2	France	France
3	III	III	1904	1904	3	3	United States	USA
4	IV	IV	1908	1908	4	4	United Kingdom	UK
5	IX	IX	1928	1928	8	8	Netherlands	Netherlands
6	V	V	1912	1912	5	5	Sweden	Sweden

The Result window for comparisons displays the columns of the compared tables next to each other in the result grid. This way, you see the content of the compared columns side by side. Differences are indicated with colors.

Hiding columns without differences

In tables with a large amount of columns where only some of the columns contain differences, you can hide the columns that contain no differences and show only different columns in the result grid. Click the **Show/Hide columns which don't have any differences** button in the Database Data Comparison Result toolbar for this purpose.

Searching text

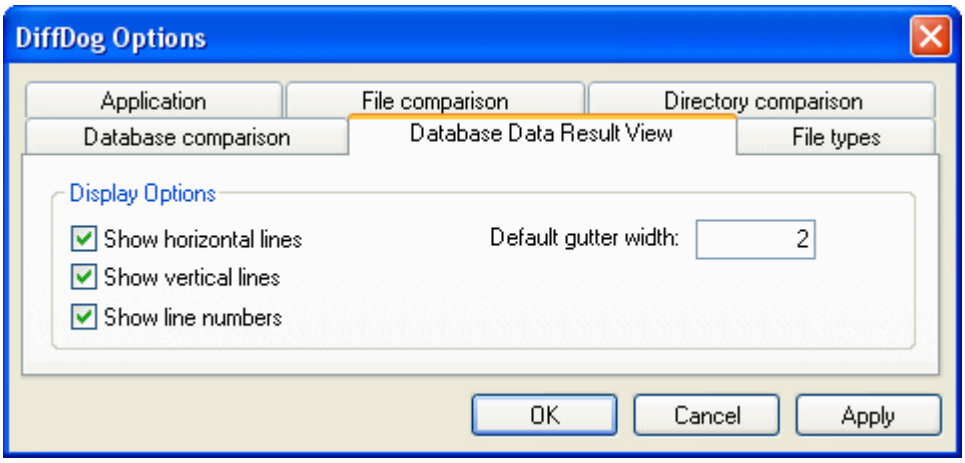
If you search for a particular string in the Comparison Result window, you can use the **Find** button in the Standard toolbar.

To show the results of a table comparison:

1. Run a table comparison.
2. Do one of the following:
   - In the Database Data Comparison window, click one of the comparison result icons for the compared table.
   - In one of the comparison components, right-click a table and choose **Show selected results** from the context menu.
   - Right-click the title bar of a comparison component and choose **Show results** from the context menu.
   - Select the menu option **Diff and Merge | Show results**.
3. Optionally, if you want to hide columns where no differences occur, click the **Show/Hide columns which don't have any differences** button in the Database Data Comparison Result toolbar .

9.10.1 Configuring the Comparison Result View

On the Database Data Result View tab of the **DiffDog Options** dialog box, you can customize the appearance of the Database Data Result View.



Display Options
You can show horizontal and/or vertical lines as well as line numbers in the result grid by activating the respective check boxes. The default gutter width (i.e., the space between the individual column pairs) can also be defined on this page.

Controlling what rows are displayed

You can configure the view of individual Comparison Result windows to display rows on the basis of their compared status. For example, you can opt to not display all equal rows, or to display rows that exist only in the left component but to not display files that exist only in the right component. To do this, you use a set of simple toggle commands that are available as toolbar icons.

Show/Hide all equal rows: Shows or hides rows that are equal in the left and right component.

Show/Hide all different rows: Shows or hides rows that are different in the left and right component.

Show/Hide rows that are only on the left: Shows or hides rows that exist only in the table that is contained in the left component.

Show/Hide rows that are only on the right: Shows or hides rows that exist only in the table that is contained in the right component.

Show/Hide rows that cannot be merged from left to right: Shows or hides rows that are different in the left and right component and can be merged only from the right to the left side and not from the left to the right side.

Show/Hide rows that cannot be merged from right to left: Shows or hides rows that are different in the left and right component and can be merged only from the left to the right side and not from the right to the left side.

In addition, you can also hide all equal columns in the result grid and show only those columns where differences occur.

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Show/Hide columns which don't have any differences: A toggle command that toggles the display of columns without differences on and off.

9.11 Comparing Structure from within a Data Comparison

You can open a database schema comparison from within a database data comparison if you want to check the structure of the schema that contains a particular column. The selected tables and their corresponding tables in the other component of the comparison open in a new Database Schema Comparison window and are mapped automatically. If a corresponding table does not exist in the opposite component, no table is opened in the second component.

You can continue to work in the Database Schema Comparison window as in a regular database schema comparison session (see Comparing Database Schemas for a description of the process).

To compare the structure of selected tables:

1. Select one or more tables in either component of a Database Data Comparison window.
2. Right-click and choose **Open selected in new Schema Comparison** from the context menu or click the icon in the Standard toolbar.

To compare the structure of all tables contained in a component:

- Right-click the title bar of either component and choose **Open in new Schema Comparison** from the context menu.

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9.12 Merging Database Data

After you have started a database comparison in DiffDog, you have several options for merging the data between the two tables:

- Merging one or more selected table(s) (left to right or right to left) in the Database Data Comparison window
- Merging all tables in the Database Data Comparison window
- Merging single cells (left to right or right to left) in the Database Data Comparison Result window

The following icons are used for merging (note that the same icons are used for different commands, depending on the menu command you select or the toolbar button you click):

Merge selected Left to Right: This command is available as a context menu option in a database comparison window when at least one table is selected in the left or right component. Clicking this command replaces the table in the right component with the table in the left component.

Merge selected Right to Left: This command is available as a context menu option in a database comparison window when at least one table is selected in the left or right component. Clicking this command replaces the table in the left component with table in the right component.

Merge Left to Right: This command is available in the context menu that opens when you right-click the title bar of either component in a database comparison window. Clicking this command replaces all the tables in the right component with the corresponding tables in the left component.

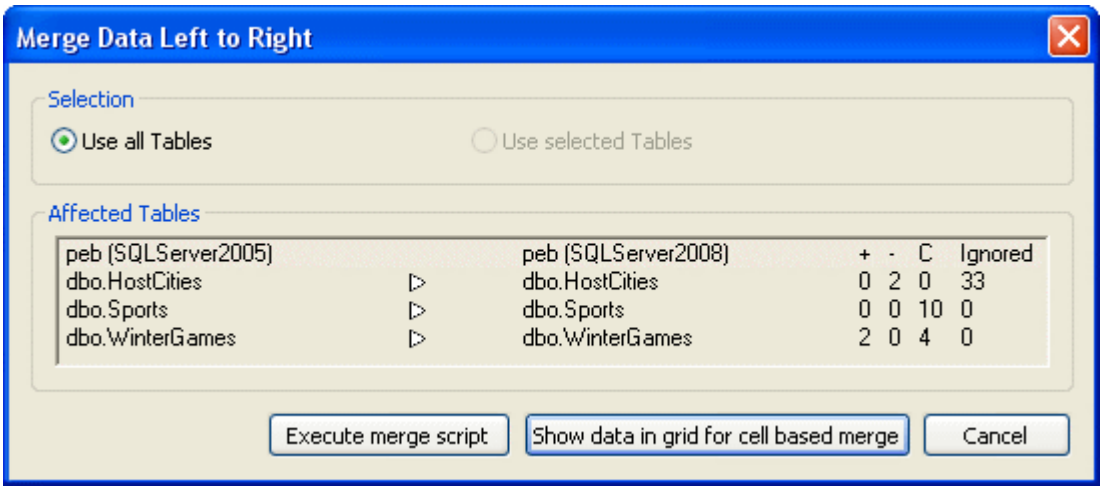
Merge Right to Left: This command is available in the context menu that opens when you right-click the title bar of either component in a database comparison window. Clicking this command replaces all the tables in the left component with the corresponding tables in the right component.

Copy from Left to Right: This command is available in the **Diff and Merge** menu, as a toolbar button in the Diff and Merge toolbar and as a context menu option in the Database Data Comparison Result window when at least one cell is selected. Clicking this command replaces the selected table/cell in the right component with the corresponding table/cell in the left component. When no table is selected in the Database Data Comparison window, then all tables in the component will be merged.

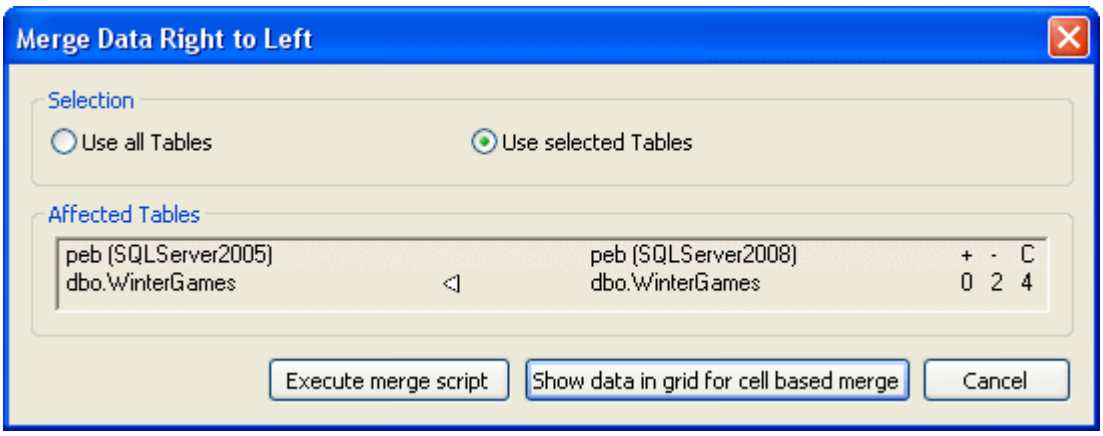
Copy from Right to Left: This command is available in the **Diff and Merge** menu, as a toolbar button in the Diff and Merge toolbar and as a context menu option in the Database Data Comparison Result window when at least one cell is selected. Clicking this command replaces the selected table/cell in the left component with the corresponding table/cell in the right component. When no table is selected in the Database Data Comparison window, then all tables in the component will be merged.

9.12.1 Merging Tables

When you decide to merge tables in your components, DiffDog displays a dialog box providing an overview of the actions to be carried out. You must confirm the merge before the changes are actually committed to the database.



DiffDog displays the databases and the affected tables, and indicates the direction in which the merge will take place. If you have selected at least one table before calling the merge command, the `Use selected Tables` radio button is selected and you can choose in the dialog box whether you want to display (and merge) only the selected or all tables.



To merge all compared tables:

1. Select and map the required tables and run a database data comparison.
2. Check the comparison result and decide which table(s) should be kept.
3. Select the appropriate menu option from the **Diff and Merge** menu:
   - To copy the data from the left table, choose **Copy from Left to Right**.
   - To copy the data from the right table, choose **Copy from Right to Left**.
4. Click **Execute merge script** to commit the changes to the database.
   - Click **Show data in grid for cell based merge** if you want to merge only selected data. A Database Data Comparison Result view opens for each selected table.

To merge selected compared tables:

1. Select and map the required tables and run a database data comparison.
2. Check the comparison result and decide which table(s) should be kept.
3. Select the table(s) that you want to merge.

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4. Select the appropriate menu option from the context menu or click the corresponding button in the Diff and Merge toolbar:
   - To copy the data from the left table, choose **Merge selected Left to Right** or click the **Copy from left to right** button or press **Alt+Right**.
   - To copy the data from the right table, choose **Merge selected Right to Left** or click the **Copy from right to left** button or press **Alt+Left**.
5. Click **Execute merge script** to commit the changes to the database.

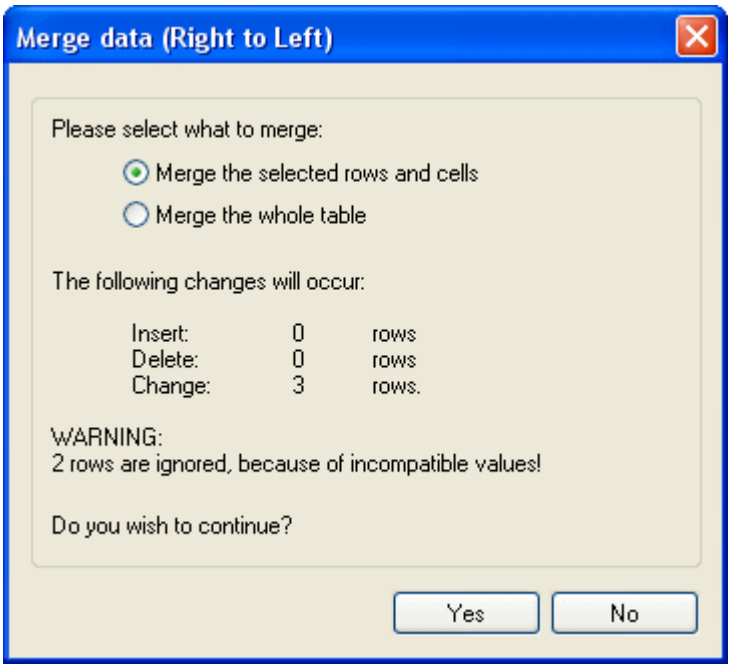
9.12.2 Merging Individual Results

In the Database Data Comparison Result view, you can merge single cells in the result grid, that is, copy individual cells from one column of a comparison pair to the other. This enables you to copy data from both sides of a comparison in the same result grid. Note that the changes cannot be undone and that not all rows may be merged in both directions. When rows are present only on one side of a comparison, only the entire row can be copied to the other side or deleted, respectively!

Cells that cannot be merged in both directions are marked with little arrows in red and green in the result grid, where the green arrow indicates the direction in which the merge is possible, and the red arrow indicates the direction in which a merge is not possible. If columns cannot be merged at all, an icon with two red arrows is displayed. In the example below, the left table uses the 3-digit country code and the data type of its Country column is varchar(3). The right table uses the full name of the country and stores it in a Country column of type varchar(100). Since the full names would be truncated when being copied to the 3-digit column in the left table, only merging from left to right is possible in this case.

Country	Country
GRE	Greece
FRA	France
USA	USA
GBR	United Kingdom

If you try to merge tables that contain such incompatible values, the entire row in which such a merge problem occurs is ignored during the merge. DiffDog displays a message box where the changes are listed and that you have to commit before the merge is started.



In the **Merge Data** dialog box, you can still decide to merge all rows of the table.

The commands **Copy from Left to Right** and **Copy from Right to Left** are available as toolbar icons as well as context menu options. Additionally, you can also use the keyboard shortcuts **Alt +Right** and **Alt+Left**.

To merge individual cells in the Database Data Comparison Result view:

1. In the Database Data Comparison Result view, select one or more cells that are different in the left and right table, and do one of the following:
   - Click the **Copy from Left to Right** or **Copy from Right to Left** button, respectively, which are located in the Diff and Merge toolbar.
   - Right-click and select **Copy from Left to Right** or **Copy from Right to Left**, respectively, from the context menu.
2. In the **Merge data** dialog box that appears, click **Yes** to commit the changes to the database.

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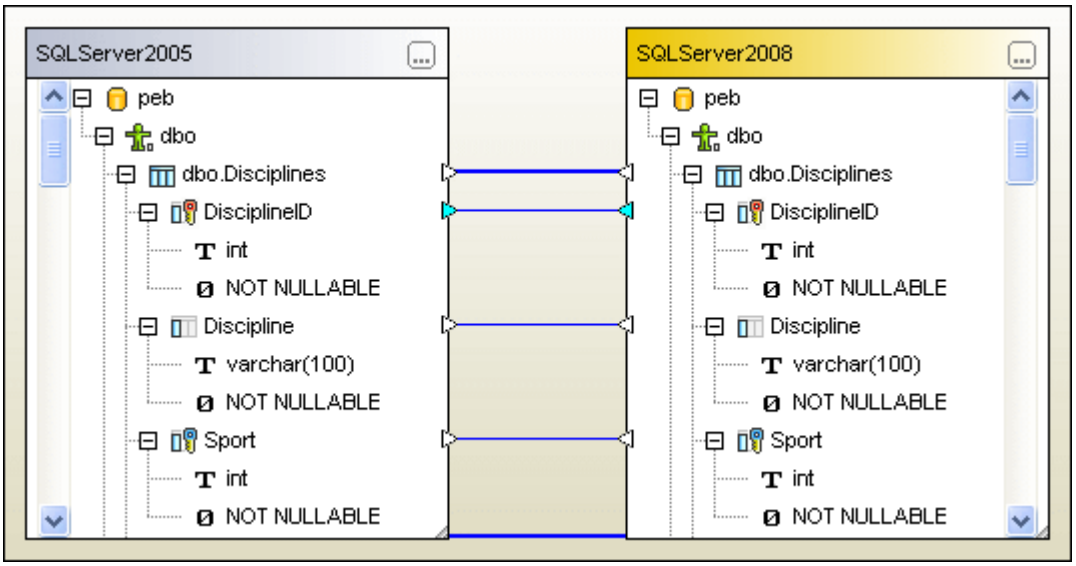
Chapter 10

Comparing Database Schemas

10 Comparing Database Schemas

Altova web site: database schema comparison

If you show tables in a Database Schema Comparison window (*see screenshot below*), all database items (e.g., data types, constraints, keys, etc.) are displayed in the comparison components so that you are able to compare the structure of the tables within the database schema. By default, corresponding tables and columns are mapped automatically by name after tables have been loaded into the comparison components, however you can also change this settings in the Database Data comparison tab of the **DiffDog Options** dialog box, or map items manually if you want to compare database items that have not been identified as being correspondent by DiffDog.



There are several ways to start a comparison of database schemas in DiffDog:

- Opening a Database Schema Comparison window and adding tables using the **Select Database Objects for Comparison** dialog box. Tables from both databases can be selected in the dialog box.
- Opening a schema comparison file that is stored in your file system using the **File | Open Database Data Comparison File...** command.

After a comparison has been started, the schema comparison window shows the comparison results and automatically expands the tree structure so as to display the database items that are different in the left and right components (*see screenshot below*).

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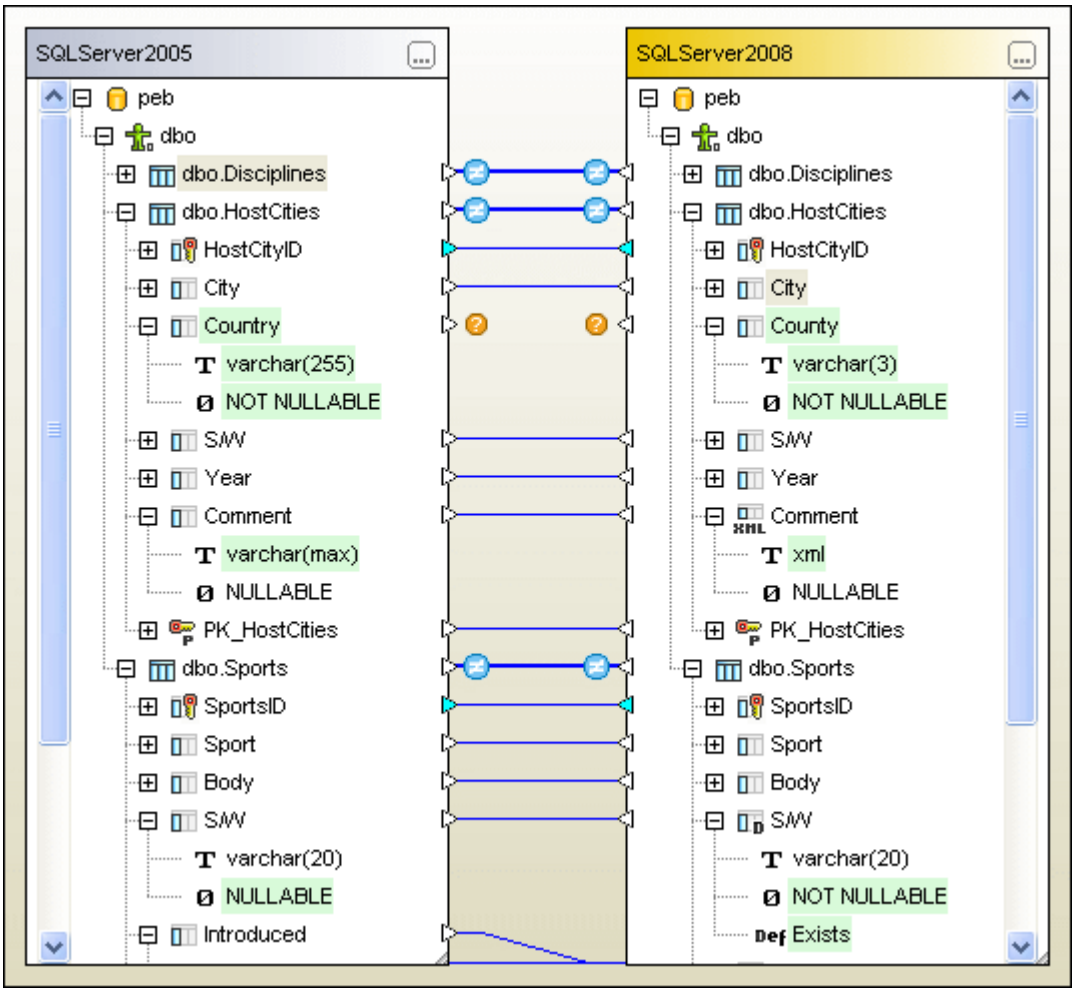
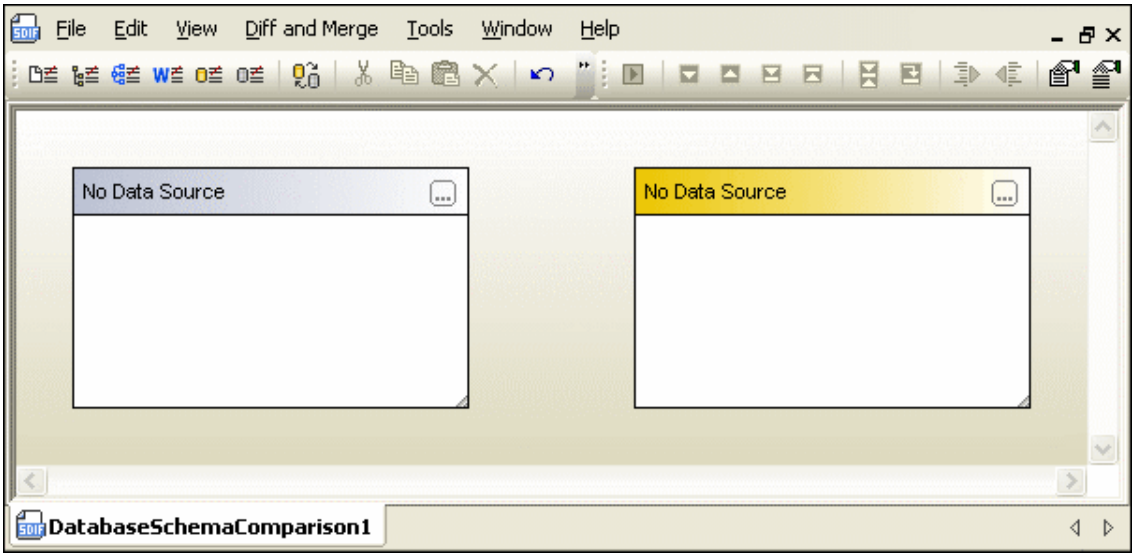


In the database schema comparison window, you can merge the two schemas or selected items.

10.1 Opening a Database Schema Comparison Window

When opening a new Database Schema Comparison window, the database comparison is given a name of the form `DatabaseSchemaComparisonX`, where `X` is an integer indicating that database schema comparison's position in the sequence of database schema comparisons opened in the current DiffDog session. This name appears in a tab at the bottom of the window.



The **File | Compare Database Schemas** command opens the Database Schema Comparison window and pops up the **Select Database Objects for Comparison** dialog box, where you select the required schemas and tables. Usually you will also select the first database when opening a new Database Schema Comparison window. However, you could also just open a Schema Comparison window and add schemas and tables later.

To open a Database Schema Comparison window:

- Select the menu option **File | Compare Database Schemas** or click the **Compare Database Schemas** button in the Standard toolbar. If the `Show table selection for new documents` check box on the Database comparison tab of the **DiffDog Options** dialog box is activated (default setting), the **Select Database Objects for Comparison** dialog box pops up automatically.

  If you just want to open a Schema Comparison window without selecting a database yet, click **Cancel**. The **Select Database Objects for Comparison** dialog box closes and the empty Schema Comparison window is displayed in DiffDog.

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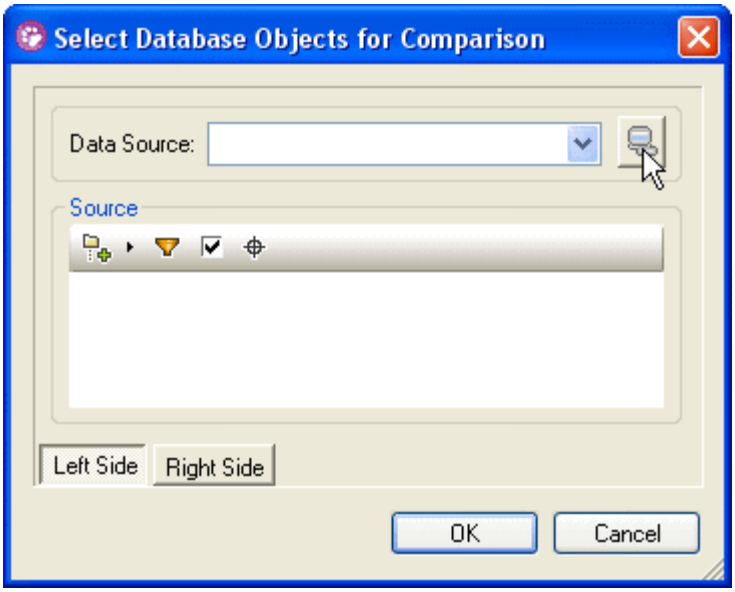
10.2 Choosing a Data Source Connection

Before you can select tables for comparison you have to connect both components of your comparison window to the data source that hosts the tables in question. If no data source connection exists yet in DiffDog and you double-click the header or click the **Browse** button of either component, the **Select Database Objects for Comparison** dialog box opens but does not contain any data source to choose from in the `Data Source` drop-down list and, therefore, no tables that can be selected for comparison.



You can connect to a database by clicking the **Connect to a Database** button. This opens the **Create a Database Connection** dialog box, where you can use the Connection Wizard to connect to the most commonly used database types, or create an ADO or ODBC connection from scratch.

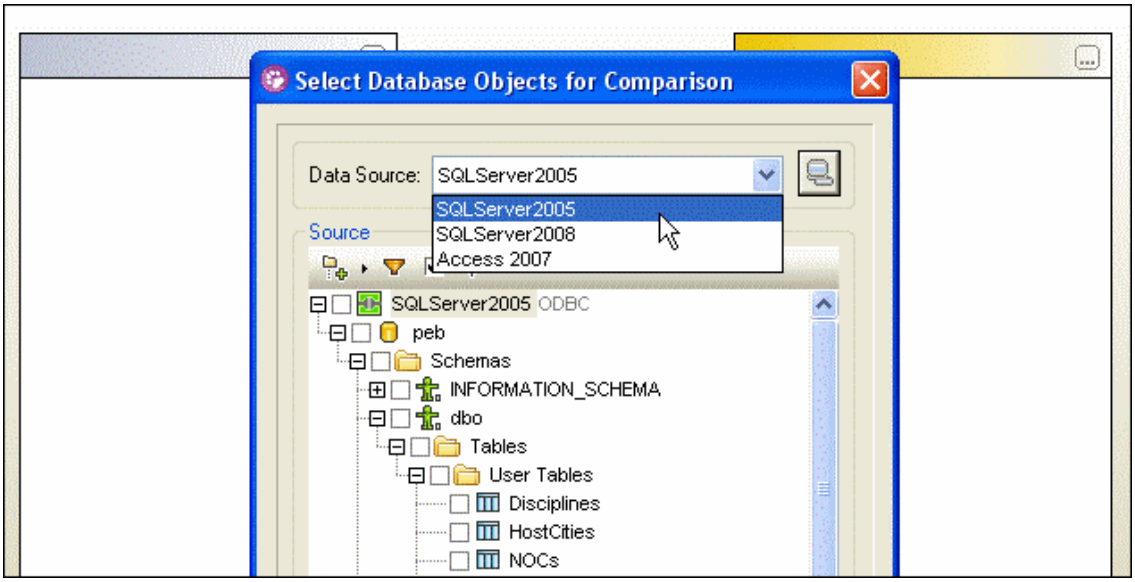
If you have already established connections to data sources in DiffDog before, these connections are listed in the `Data Source` drop-down list and on the Existing Connections page of the **Create a Database Connection** dialog box.

To connect to a database in DiffDog:

1. Open a Database Schema Comparison window.
2. Double-click the header or click the **Browse** button of either component in the Database Schema Comparison window to open the **Select Database Objects for Comparison** dialog box.
3. Do one of the following:
   - Select a data source from the `Data Source` drop-down list.
   - If no data source connection is available, click the **Connect to a Database** button to call the **Create a Database Connection** dialog box and create a new data source connection there.
4. Click the **Right Side** button and repeat step 3 for the right side of the comparison (or click the **Left Side** button if you started with the right side).

10.3 Selecting Schemas

Schemas or individual tables within schemas, respectively, are selected for comparison in the **Select Database Objects for Comparison** dialog box which can be called in various ways: You can either click the **Browse** button in the title bar of either component or double-click one of the title bars. The **Select Database Objects for Comparison** dialog box opens with the pane for the left or right component, respectively, selected. If you have DatabaseSpy installed on you computer, you can also select one or more schemas or tables in the Online Browser and drag them into a component of a Database Schema Comparison window in DiffDog.



In the **Select Database Objects for Comparison** dialog box, the first connected data source is suggested in the `Data Source` drop-down list. If the data source containing the tables you want to compare is not listed in the drop-down list, you can click the **Browse** button in the Data Source group box to open the **Create a Database Connection** dialog box, where you can create the required data source connection.

To add tables to a comparison component:

1. Open a Database Schema Comparison window.
2. Click the Browse button in the title bar, or double-click the title bar of either component.

   The **Select Database Objects for Comparison** dialog box opens with either the **Left Side** or the **Right Side** button activated, depending on the component you have used to call the dialog box.
3. Choose one of the data sources from the `Data Source` drop-down list.
4. Expand the data source as required and choose the desired tables by activating the respective check boxes. Activating a folder check box selects all the tables that are contained in the folder.
5. Click the **Right Side** button (or the **Left Side** button, respectively, if you started from the right side) and repeat steps 3 and 4 for the second database.
6. Click **OK**. The selected tables are displayed in the components of the database

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comparison window.

10.4 Adding and Removing Tables

If you need to add one or more tables to a database schema comparison, you can use the **Select Database Objects for Comparison** dialog box to do so.

To add tables to an existing database schema comparison:

- In the Database Schema Comparison window, click the **Browse** button in either component or double-click the title bar of a component to open the **Select Database Objects for Comparison** dialog box. If you have clicked into the left component, the dialog box opens for the left side of the comparison, ditto for the right side.

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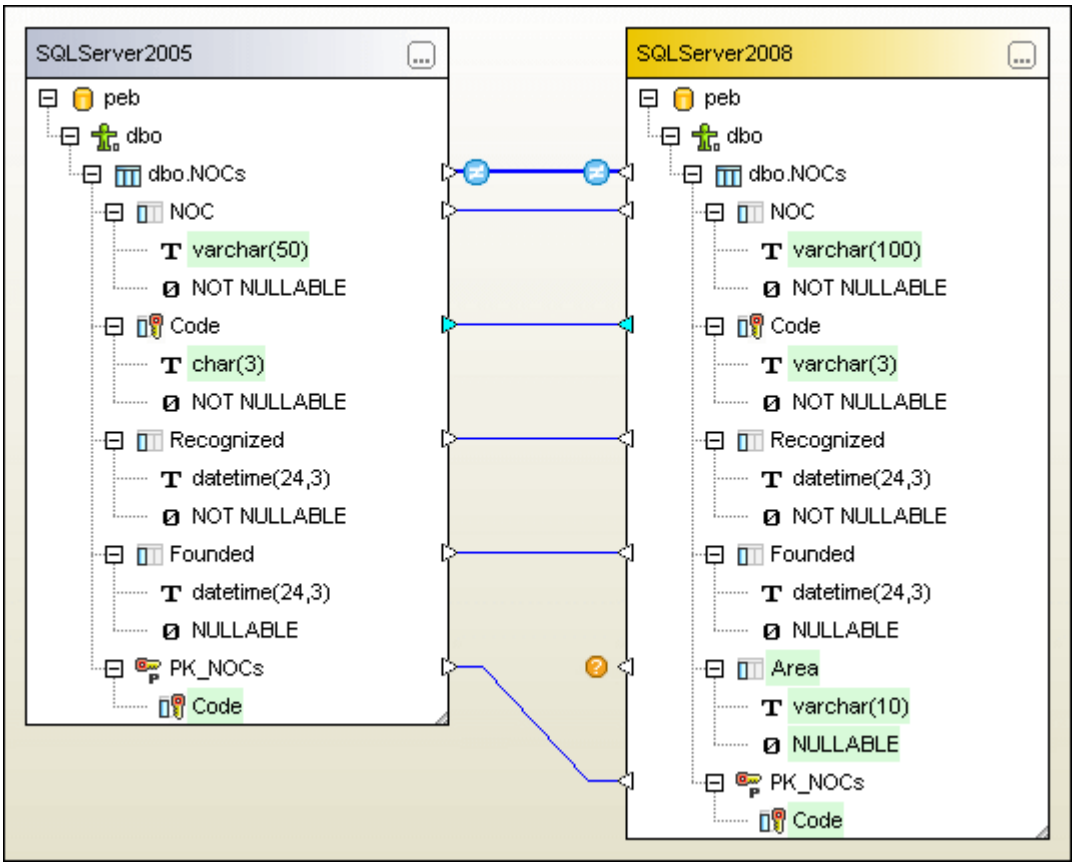
10.5 Saving Database Schema Comparison Files

After you have selected tables for comparison and defined the appropriate comparison options, you can save the comparison in a database schema comparison file (*.dbsdif). This is either done via the **File | Save As...** command or by right-clicking the tab of a Database Schema Comparison window and choosing **Save** from the context menu. If you do a particular comparison on a regular basis, the use of a database schema comparison file which can be opened directly and establishes the needed data source connections automatically may save you a considerable amount of working time.

10.6 Running a Database Schema Comparison

After you have selected the schemas and tables you want to compare, you can start a database schema comparison in DiffDog. Either one or more selected tables or all tables included in the active database schema comparison can be compared. A comparison can be started (i) via the **Diff and Merge** menu, (ii) the **Start Comparison** button in the Database Schema Comparison window, or (iii) the context menu, or (iv) by pressing **F5**.



If not all database items could be mapped in both comparison components, unmapped items are indicated with an icon in the components

To run a database schema comparison:

- To compare all tables in the comparison component, do one of the following:
  - Select the menu option **Diff and Merge | Start Comparison**.
  - Click the **Start Comparison** button in the Diff and Merge toolbar.
  - Right-click the title bar of either component and select **Compare items** from the context menu.
  - Press **F5**.
- To restrict comparison to only some of the tables in the component:

  1. Select one or more tables in either component.

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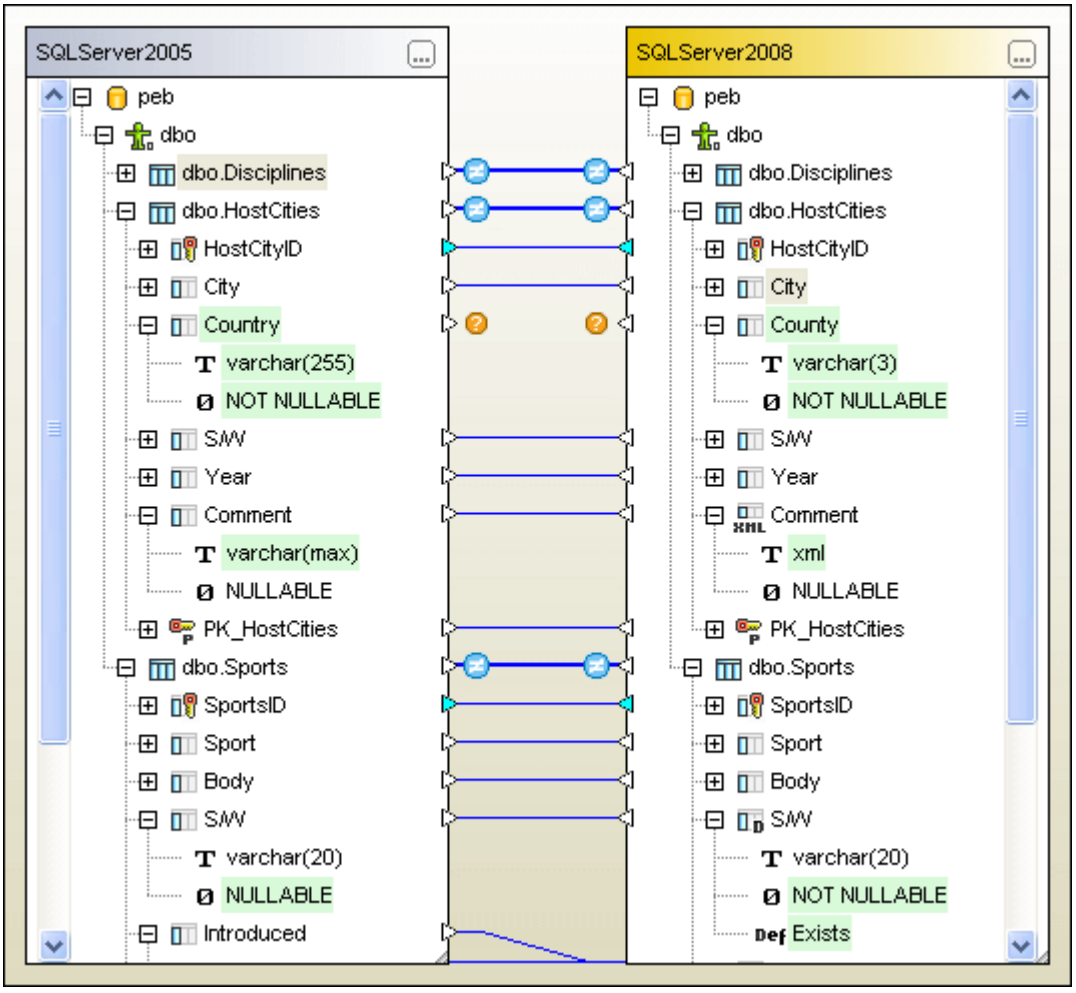
2. Right-click and choose **Compare selected** from the context menu or press **F5**.

10.7 Displaying Differences in Database Schemas

After you start a comparison, DiffDog tries to map the tables and columns by comparing the name and structure of the database items. The differences between the tables in the two comparison components are displayed as blocks of highlighted text.



The result of a comparison is furthermore indicated with icons in the Database Schema Comparison window:

The compared tables are equal in both components

Differences exist between the tables in the left and right components

A corresponding item is missing in the opposite component

For unequal or missing items, smaller versions of these icons are also displayed on column or item level, respectively.

In huge tables which contain a lot of columns, you can collapse and expand individual tables when you are examining the differences. If you double-click an item in one component, both versions of the item are collapsed or expanded, respectively, simultaneously in both components. To collapse all items in both components with a single click, use the **Collapse items** command from the **Schema Comparison** menu or the context menu that opens when

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you right click the title bar of a component.

10.8 Comparing Data from within a Schema Comparison

You can open a database data comparison from within a database schema comparison if you want to check which data is contained in a particular column. The selected tables and their corresponding tables in the other component of the comparison open in a new Database Data Comparison window and are mapped automatically. If a corresponding table does not exist in the opposite component, no table is opened in the second component.

You can continue to work in the Database Data Comparison window as in a regular database data comparison session (see Comparing Database Data for a description of the process).

To compare the data of selected tables:

1. Select one or more tables in either component of a Database Schema Comparison window.
2. Right-click and choose **Open selected in new Data Comparison** from the context menu or click the icon in the Standard toolbar.

To compare the data of all tables contained in a component:

- Right-click the title bar of either component and choose **Open in new Data Comparison** from the context menu.

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10.9 Changing and Deleting Mappings

When a schema comparison is started in DiffDog, tables and columns are mapped automatically according to name and structure, that is, DiffDog first looks for pairs of matching names and then tries to find pairs with a similar structure (e.g., data type) that may be compared. If you feel that some of these mappings are incorrect, you can delete mappings and manually map two database items that should be compared.

To delete mappings:

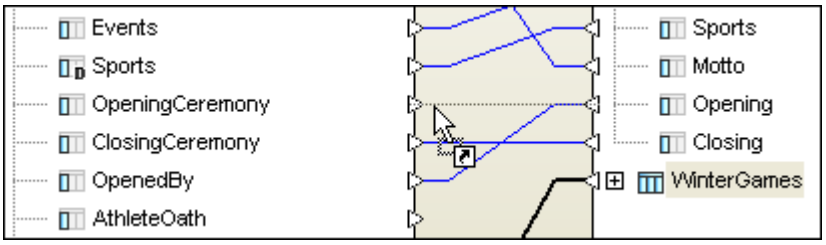
Do one of the following:

- To delete all mappings of a comparison, right-click the title bar of either component and choose **Unmap items** from the context menu.
- To delete a single table or column mapping, right-click the appropriate object and choose **Unmap selected** from the context menu.
- Click the connection line between two mapped tables or columns and hit the **Del** button.

  Note that unmapping a table will also unmap all columns of that table.

Changing the mapping

If you want to change an existing mapping, you can either delete the incorrect mapping and use one of the methods for manual mapping or simply re-draw the connection line between two tables. Please note that you cannot change the end point of a connection line but have to create a mapping as if no mapping would exist for the table or column in question.



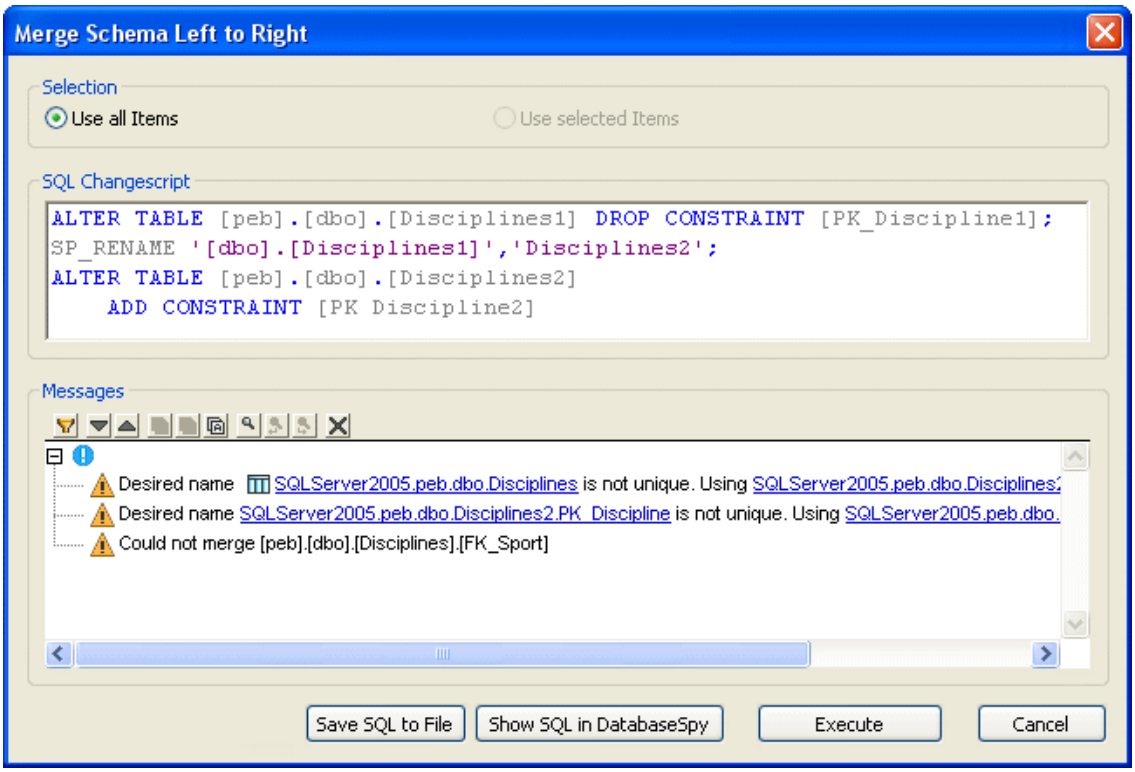
In the example above, the Opening column in the right component has been incorrectly mapped to the OpenedBy column in the left component. To correct this, start at the triangle next to the Opening column on the right side and draw a connection to the OpeningCeremony column on the left side. You could also start at the OpeningCeremony column and connect it with the Opening column. The incorrect mapping between OpenedBy and Opening will disappear when the mouse button is released.

To change an incorrect mapping:

- Ignore the existing mapping and draw a connection between the two tables or columns you want to map.

10.10 Merging Database Schemas

Database schemas cannot be merged directly with a single click of the mouse. Since you could easily destroy your database this way,DiffDog always displays the SQL that will be executed to commit the changes to the database in the **Merge Schema** dialog box first. After you have reviewed the SQL, you must execute the script to actually merge the schema structures. If you have DatabaseSpy installed, you can also open and edit the merge script in DatabaseSpy.



To be able to merge two schemas, you must first run a schema comparison. Then you can decide whether you want to merge all items of the compared schemas or select individual items for merging. In DiffDog, there are several ways of merging database structures:

- Displaying the **Merge Schema** dialog box, which displays the SQL change script for the selected or for all items. You can choose to execute the script, save it to a file, or show it in DatabaseSpy for further editing and execution.
- Opening the merge script directly in DatabaseSpy, if installed. This opens DatabaseSpy , creates a new project and adds a data source connection to the target database (i.e., the database where the changes will occur). If a project is already open in DatabaseSpy , a new data source connection is added to the project and you may be asked to define a name for that data source. The merge script is displayed in an SQL Editor window, where you can check the script and edit it if required.
- Saving the merge script to a file and using an external editor or the respective database management system to display, edit, and execute the script.

Important note: When you want to merge individual items as opposed to all tables that are contained in the comparison components, you have to select **all** items that should be merged. That is, child elements of a table or column are **not** automatically included in the merge if you select the parent. For example, it the column name is equal but the data type is different (*see screenshot below*), you must select the data type item to create a valid merge script.

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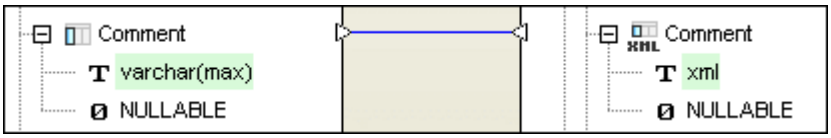

A merge can be started from the **Diff and Merge** menu or the and toolbar icons. Note that the context menu provides only options to save the merge script to a file or to show the merge script in DatabaseSpy, if installed.

To show the merge script and merge items in DiffDog:

1. Add the required items to the Database Schema Comparison window and run a comparison.
2. Decide which version of the database schema should be kept (i.e., choose the left or the right comparison component).
3. Optionally, if you want to merge only specific items, select these items in a component using **Ctrl+Click**. Note that it has no influence on the direction of the merge whether you select the items in the left or in the right component (e.g., you can select items in the right component and still choose to merge from left to right).
4. Select the appropriate menu option or toolbar icon:
   - To copy the structure of the schema in the left component to the right component, choose the menu option **Diff and Merge | Copy from Left to Right**, press **Alt+Right**, or click the **Copy from left to right** button in the toolbar of the comparison window.
   - To copy the structure of the schema in the right component to the left component, choose the menu option **Diff and Merge | Copy from Right to Left**, press **Alt+Left**, or click the **Copy from right to left** button in the toolbar of the comparison window.

   The SQL merge script is displayed in the **Merge Schema** dialog box. If no items have been selected before the merge was started, the `Use all Items` radio button in the Selection group box is selected and the merge script is displayed for all different items in the comparison window. The `Use selected Items` radio button is active if one or more items have been selected for merging. In this case you can still decide to merge all items by choosing the Use all Items radio button.
5. Review the merge script and click the **Execute** button to actually merge the schemas. If the merge script should be incorrect, you can cancel the operation, save the SQL merge script to a file and edit it with an external editor, or show and edit the SQL merge script in DatabaseSpy, if installed.

To show the merge script in DatabaseSpy:

1. Optionally, select one or more items in either comparison component for merging.
2. Right-click either a component header or one of the selected items and do one of the following:
   - To show the merge script for copying the structure of the schema in the left component to the right component, choose **Show merge script: Left to Right in DatabaseSpy** from the context menu.
   - To show the merge script for copying the structure of the schema in the right component to the left component, choose **Show merge script: Right to Left in DatabaseSpy** from the context menu.

3. The command opens DatabaseSpy, creates a new project and adds a data source connection to the target database (i.e., the database where the changes will occur). If a project is already open in DatabaseSpy, a new data source connection is added to the project and you may be asked to define a name for that data source. The merge script is displayed in an SQL Editor window, where you can check the script and edit it if required.

4. Connect to the data source, click the **Execute** button or press **F5** to execute the change script and commit the schema changes to the database.

To save the merge script to a file:

1. Optionally, select one or more items in either comparison component for merging.
2. Right-click either a component header or one of the selected items and do one of the following:
   - To save the merge script for copying the structure of the schema in the left component to the right component, choose **Save merge script: Left to Right...** from the context menu.
   - To save the merge script for copying the structure of the schema in the right component to the left component, choose **Save merge script: Right to Left...** from the context menu.
3. DiffDog opens the **Save SQL Change Script** dialog box, where you can choose a location in your file system to save the change script in a file.

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Chapter 11

Supported Databases

11 Supported Databases

DiffDog currently supports comparisons of the following database types:

- Microsoft SQL Server 2000, 2005, and 2008
- Microsoft Access 2003 and 2007
- MySQL 4.x and 5.x
- Oracle 9i, 10g, and 11g
- IBM DB2 8.x and 9
- IBM DB2 for i 5.4 and 6.1
- Sybase 12
- PostgreSQL 8.0, 8.1, 8.2, and 8.3

Altova DiffDog fully supports databases listed above. While Altova endeavors to support other ODBC/ADO databases, successful connection and comparison have only been tested with the listed databases.

When installing the **64-bit** version of DiffDog, please make sure that you have access to the 64-bit database drivers needed for the specific database you are connecting to.

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Chapter 12

Connecting to a Database

12 Connecting to a Database

To establish a connection to a database, DiffDog provides several options in the **Connect to a data source** dialog box, which is called from within a Database Data or Database Schema Comparison window, respectively, by clicking the **Browse** button in one of the components and then clicking the Connect to a database icon in the **Select Database Objects for Comparison** dialog box.

The **Connect to a data source** dialog box provides the following options:

- Create connections to a data source with the aid of the Connection Wizard
- Use an existing connection that has already been established in DiffDog
- Create new ADO Connections
- Create new ODBC Connections or use existing System DSNs, User DSNs, or File DSNs to connect to a data source

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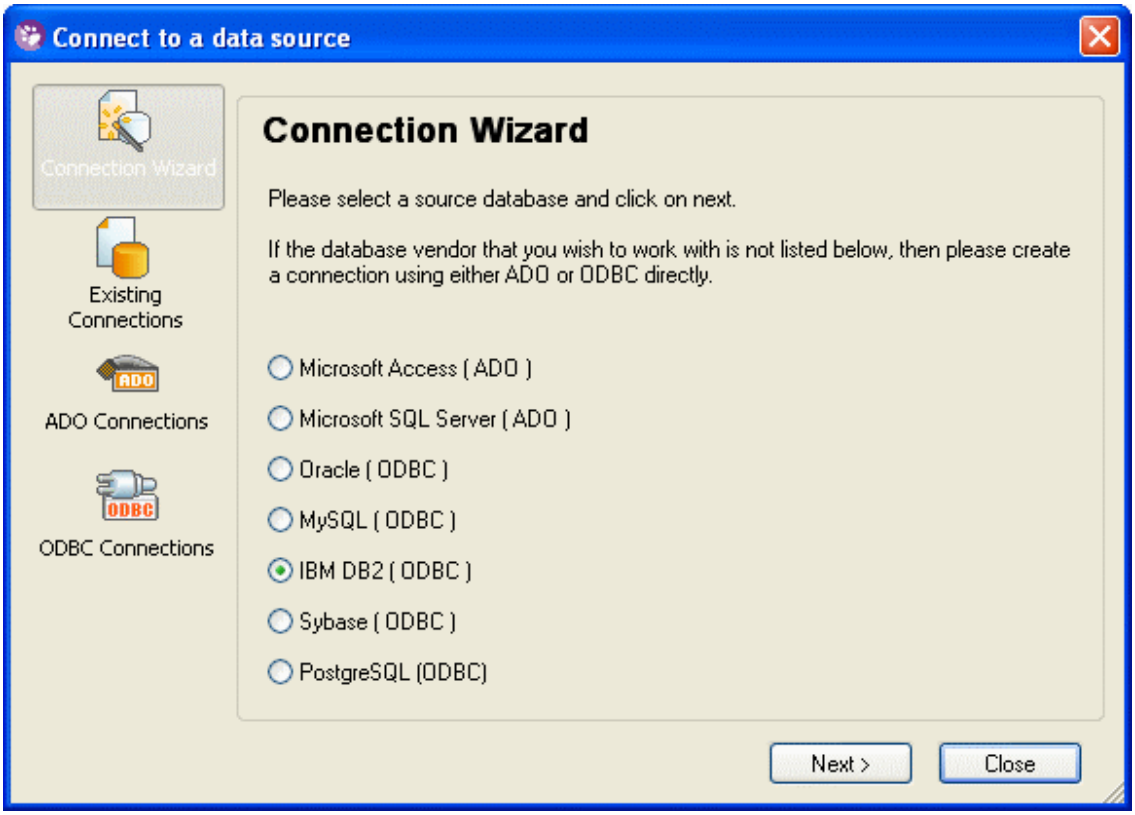
12.1 Using the Connection Wizard

The Connection Wizard simplifies the choices needed to connect to a database and proposes a number of preferred connection types. It allows you to quickly create connections to any of the database types in the list.



The following procedure explains how to use the Connection Wizard.

To use the Connection Wizard for creating connections:

1. Select the menu option **File | Compare Database Data** or **File | Compare Database Schemas**, respectively, or click the **Compare Database Data** or **Compare Database Schemas** icon, respectively, in the Standard toolbar to open a Database Data or Database Schema Comparison window. Then click the **Browse** button the title bar of either component and, in the **Select Database Objects for Comparison** dialog box that opens, click the **Connect to a database** icon.
   The **Connect to a data source** dialog box appears.
2. Click the **Connection Wizard** icon.
3. See the respective sections below on how to create a connection to a particular database.

12.1.1 How to Connect to Access

1. Open the Connection Wizard and select the `Microsoft Access (ADO)` radio button.
2. Click **Next** and enter the path to an Access database or click the **Browse** button to locate an Access database in your file system.
3. Click **Connect** to open the **Set A Data Source Name** dialog box.

   Enter the name of the new connection and click **OK** to confirm.

   The new connection is displayed in the Source group box of the **Select Database Objects for Comparison** dialog box and is automatically activated.

Click the **Right Side** button in the **Select Database Objects for Comparison** dialog box and select a data source connection for the right side of the comparison.

12.1.2 How to Connect to SQLServer

1. Open the Connection Wizard and select the `Microsoft SQLServer (ADO)` radio button.
2. Click **Next** and select a provider in the **Connecting to MS SQL Server** screen.
3. Click **Next** to open the Connection tab of SQL Server's **Data Link Properties** dialog box.
   Depending on the provider you have selected in step 1, the information you have to enter may differ slightly.
4. Enter the server name or data source location, respectively.
5. Select either `Use Windows NT Integrated security` if you want to use your Windows log-on information for logging on to the server, or choose `Use a specific user name and password`, enter the user name and password, and activate the `Allow saving password` check box.
6. Enter the name of the database, or select it from the drop-down list, if available. When using "Microsoft OLE DB Provider for SQL Server", you can also browse to a database file.
7. Optionally, click **Test Connection**.
8. Click **OK** to open the **Set A Data Source Name** dialog box.

   Enter the name of the new connection and click **OK** to confirm.

   The new connection is displayed in the Source group box of the **Select Database Objects for Comparison** dialog box and is automatically activated.

Click the **Right Side** button in the **Select Database Objects for Comparison** dialog box and select a data source connection for the right side of the comparison.

12.1.3 How to Connect to Oracle

1. Open the Connection Wizard and select the `Oracle (ODBC)` radio button.
2. Click **Next** to display the **Connecting to Oracle** screen.
3. Do one of the following:

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- Create a new data source name.
  1. Choose the `Create a new Data Source Name (DSN) with the driver` radio button, select a driver from the drop-down list.

     If no drivers are listed in the drop-down list, or if the desired driver is not included in the list, optionally click the **Where can I find <database type> drivers?** button to display information on how to find an ODBC driver for your database.
  2. Optionally, if a desired driver does not appear in the selection list, do the following:
     1. Click the **Edit Drivers** button.
     2. Activate the desired drivers in the list box, or deactivate drivers that you want to remove from the selection list.
        You can sort the drivers list by name or by activation status by clicking the respective column header. Clicking a header once will sort the list ascending, clicking a second time, descending.
     3. Click the **Back** button.
  3. Click **Next** and enter data source name, an optional description, user name and password (if required), and server or TNS service name, respectively.
     Depending on the driver you have selected in step 1, the information you have to enter may differ slightly.
  4. Optionally, click **Test Connection**.
  5. Click **OK**.
- Use an existing data source name.
  1. Choose the `Use an existing Data Source Name` radio button.
  2. Select either the User DSN or the System DSN radio button.
  3. Select a data source from the list and click **Next**.

4. Enter the password and click **OK**.

   In the **How Do You Want the Data Source to Communicate with the Server?** dialog box, choose either `Natively` or `Via the ODBC API.`
5. Click **OK** to open the **Set A Data Source Name** dialog box.

   Enter the name of the new connection and click **OK** to confirm.

   The new connection is displayed in the Source group box of the **Select Database Objects for Comparison** dialog box and is automatically activated.

Click the **Right Side** button in the **Select Database Objects for Comparison** dialog box and select a data source connection for the right side of the comparison.

12.1.4 How to Connect to MySQL

1. Open the Connection Wizard and select the `MySQL (ODBC)` radio button.
2. Click **Next** to display the **Connecting to MySQL** screen.
3. Do one of the following:
   - Create a new data source name.
     1. Choose the `Create a new Data Source Name (DSN) with the`

`driver` radio button, select a driver from the drop-down list.

If no drivers are listed in the drop-down list, or if the desired driver is not included in the list, optionally click the **Where can I find <database type> drivers?** button to display information on how to find an ODBC driver for your database.

2. Optionally, if a desired driver does not appear in the selection list, do the following:
   1. Click the **Edit Drivers** button.
   2. Activate the desired drivers in the list box, or deactivate drivers that you want to remove from the selection list.
      You can sort the drivers list by name or by activation status by clicking the respective column header. Clicking a header once will sort the list ascending, clicking a second time, descending.
   3. Click the **Back** button.
3. Click **Next** and enter data source name, an optional description, user name and password (if required), and server or TNS service name, respectively.
   Depending on the driver you have selected in step 1, the information you have to enter may differ slightly.
4. Enter the password and select a database from the drop-down list.
5. Optionally, click **Test**.

- Use an existing data source name.
  1. Choose the `Use an existing Data Source Name` radio button.
  2. Select either the User DSN or the System DSN radio button.
  3. Select a data source from the list and click **Next**.

4. Click **OK**.

   In the **How Do You Want the Data Source to Communicate with the Server?** dialog box, choose either `Natively` or `Via the ODBC API`.

5. Click **OK** to open the **Set A Data Source Name** dialog box.

   Enter the name of the new connection and click **OK** to confirm.

   The new connection is displayed in the Source group box of the **Select Database Objects for Comparison** dialog box and is automatically activated.

Click the **Right Side** button in the **Select Database Objects for Comparison** dialog box and select a data source connection for the right side of the comparison.

12.1.5 How to Connect to DB2

To be able to establish a connection to a DB2 database, you must first create a database alias. This can be done in IBM's Control Center which has been installed with the database client for DB2. Please consult the respective IBM DB2 Control Center help files if you need assistance when creating an alias.

1. Open the Connection Wizard and select the `IBM DB2 (ODBC)` radio button.
2. Click **Next** to display the **Connecting to IBM DB2** screen.
3. Do one of the following:

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- Create a new data source name.
  1. Choose the `Create a new Data Source Name (DSN) with the driver` radio button, select a driver from the drop-down list.
  2. Optionally, if a desired driver does not appear in the selection list, do the following:
     1. Click the **Edit Drivers** button.
     2. Activate the desired drivers in the list box, or deactivate drivers that you want to remove from the selection list.
        You can sort the drivers list by name or by activation status by clicking the respective column header. Clicking a header once will sort the list ascending, clicking a second time, descending.
     3. Click the **Back** button.
  3. Click **Next** and choose a database alias from the drop-down list.
  4. Enter a data source name and an optional description, and click **OK**.
- Use an existing data source name.
  1. Choose the `Use an existing Data Source Name` radio button.
  2. Select either the User DSN or the System DSN radio button.
  3. Select a data source from the list and click **Next**.

4. In the **Connect To DB2 Database** dialog box, enter user ID and password and select the connection mode.
5. Click **OK**.

   In the **How Do You Want the Data Source to Communicate with the Server?** dialog box, choose either `Natively` or `Via the ODBC API.`
6. Click **OK** to open the **Set A Data Source Name** dialog box.

   Enter the name of the new connection and click **OK** to confirm.

   The new connection is displayed in the Source group box of the **Select Database Objects for Comparison** dialog box and is automatically activated.

Click the **Right Side** button in the **Select Database Objects for Comparison** dialog box and select a data source connection for the right side of the comparison.

12.1.6 How to Connect to Sybase

1. Open the Connection Wizard and select the `Sybase (ODBC)` radio button.
2. Click **Next** to display the **Connecting to Sybase** screen.
3. Do one of the following:
   - Create a new data source name.
     1. Choose the `Create a new Data Source Name (DSN) with the driver` radio button, select a driver from the drop-down list and click **Next**.
     2. Optionally, if a desired driver does not appear in the selection list, do the following:
        1. Click the **Edit Drivers** button.

2. Activate the desired drivers in the list box, or deactivate drivers that you want to remove from the selection list.
   You can sort the drivers list by name or by activation status by clicking the respective column header. Clicking a header once will sort the list ascending, clicking a second time, descending.
3. Click the **Back** button.

3. Enter data source name, an optional description, choose a network library name.
4. Enter the network address: For Winsock type "<servername or IP address>, <port number>", and for NamedPipes enter the pipe address.
5. Enter the database name of the database you want to connect to.
   Depending on the provider you have selected in step 1, the information you have to enter may differ slightly.
6. Optionally, click **Test Connect**.
7. Click **OK**.
8. In the **Logon to Sybase** dialog box, enter Login Id and password and click **OK**.

- Use an existing data source name.
  1. Choose the `Use an existing Data Source Name` radio button.
  2. Select either the User DSN or the System DSN radio button.
  3. Select a data source from the list and click **Next**.

4. In the **Logon to Sybase** dialog box, enter Login ID and password.
5. Click **OK**.

   In the **How Do You Want the Data Source to Communicate with the Server?** dialog box, choose either `Natively` or `Via the ODBC API.`
6. Click **OK** to open the **Set A Data Source Name** dialog box.

   Enter the name of the new connection and click **OK** to confirm.

   The new connection is displayed in the Source group box of the **Select Database Objects for Comparison** dialog box and is automatically activated.

Click the **Right Side** button in the **Select Database Objects for Comparison** dialog box and select a data source connection for the right side of the comparison.

12.1.7 How to Connect to PostgreSQL

1. Open the Connection Wizard and select the `PostgreSQL (ODBC)` radio button.
2. Click **Next** to display the **Connect to PostgreSQL** screen.
3. Do one of the following:

- Create a new data source name.
  1. Choose the `Create a new Data Source Name (DSN) with the driver` radio button, select a driver from the drop-down list.

     If no drivers are listed in the drop-down list, or if the desired driver is not included in the list, optionally click the **Where can I find <database type> drivers?** button to display information on how to find an ODBC driver for your database.
  2. Optionally, if a desired driver does not appear in the selection list, do the

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following:

1. Click the **Edit Drivers** button.
2. Activate the desired drivers in the list box, or deactivate drivers that you want to remove from the selection list.
   You can sort the drivers list by name or by activation status by clicking the respective column header. Clicking a header once will sort the list ascending, clicking a second time, descending.
3. Click the **Back** button.

3. Click **Next** and enter data source name, an optional description, user name and password (if required), and server or TNS service name, respectively.
   Depending on the driver you have selected in step 1, the information you have to enter may differ slightly.
4. Enter the database you want to connect to.
5. Choose the desired SSL Mode from the drop-down list and enter the port.
6. Optionally, click the **Data source** button and change the advanced options.
7. Optionally, click the **Global** button and change the global settings.
8. Optionally, click **Test**.
9. Click **Save**.

- Use an existing data source name.
  1. Choose the `Use an existing Data Source Name` radio button.
  2. Select either the User DSN or the System DSN radio button.
  3. Select a data source from the list and click **Next**.

In the **How Do You Want the Data Source to Communicate with the Server?** dialog box, choose either `Natively` or `Via the ODBC API`.

4. Click OK to open the **Set A Data Source Name** dialog box.

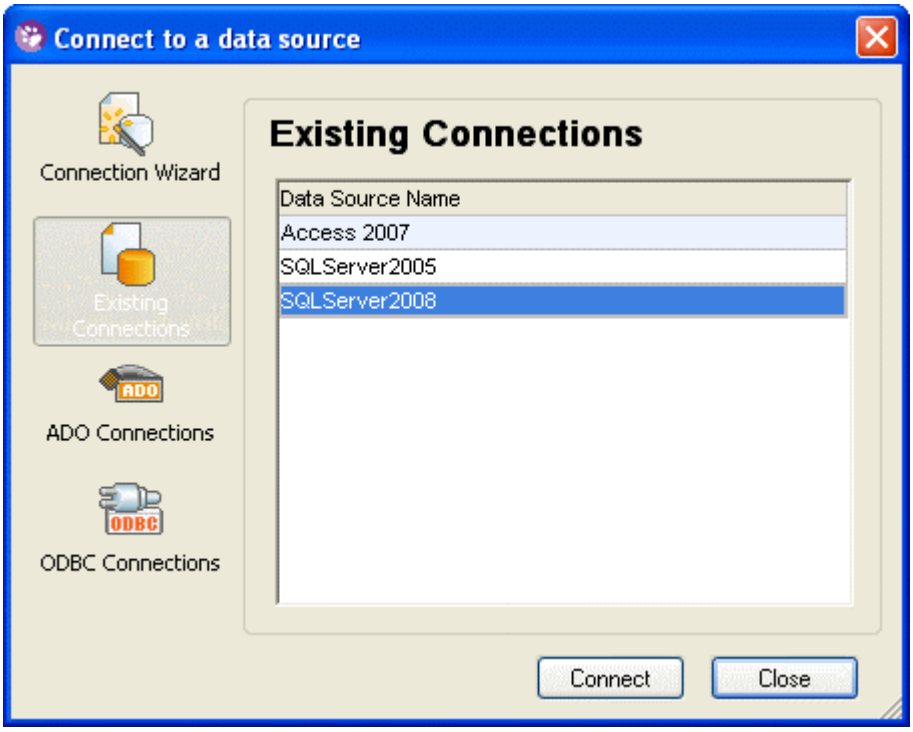
   Enter the name of the new connection and click **OK** to confirm.

   The new connection is displayed in the Source group box of the **Select Database Objects for Comparison** dialog box and is automatically activated.

Click the **Right Side** button in the **Select Database Objects for Comparison** dialog box and select a data source connection for the right side of the comparison.

12.2 Selecting an Existing Connection

The Existing Connections page of the **Connect to a data source** dialog box provides a list of all data source connections that have already been established in this instance of DiffDog.



To select an existing connection:

1. Open a Database Data Comparison or a Database Schema comparison window:
   - Select the menu option **File | Compare Database Data** or click the **Compare Database Data** icon in the Standard toolbar to open a Database Data Comparison window.
   - Select the menu option **File | Compare Database Schema** or click the **Compare Database Schema** icon in the Standard toolbar to open a Database Schema Comparison window.
2. Click the **Browse** button the title bar of either component and, in the **Select Database Objects for Comparison** dialog box that opens, click the **Connect to a database** icon.
   The **Connect to a data source** dialog box appears.
3. On the Existing Connections page, select a data source and click the **Connect** button. The new connection is displayed in the Source group box of the **Select Database Objects for Comparison** dialog box.

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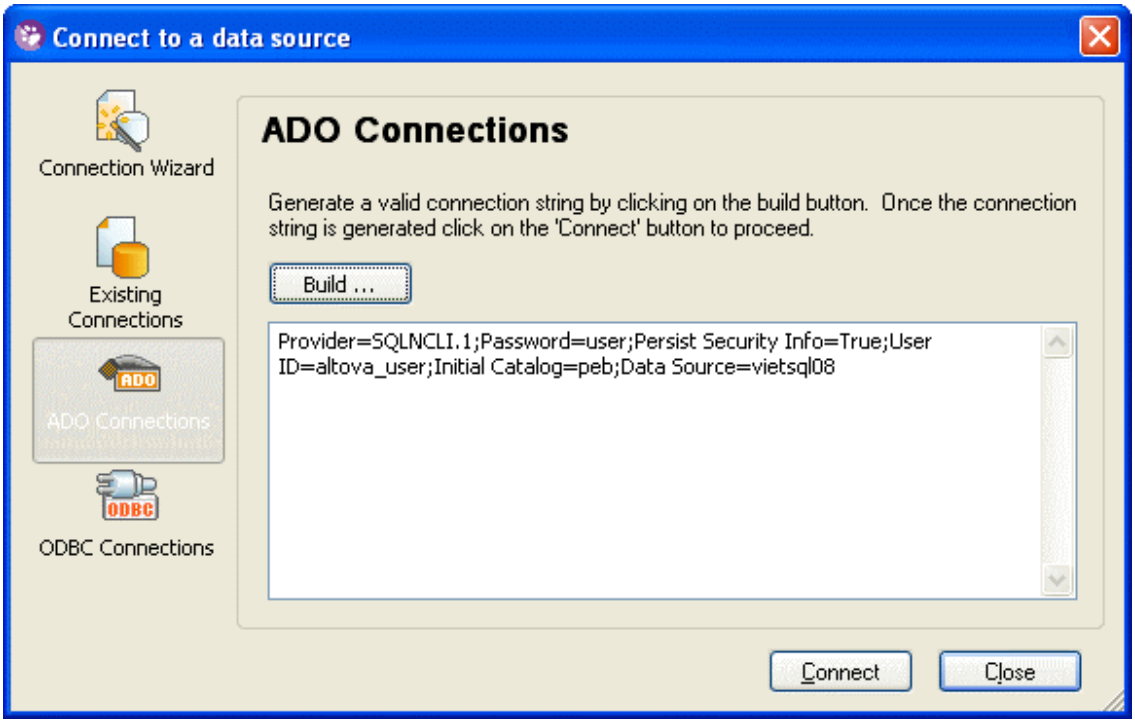
12.3 Creating an ADO Connection

An ADO (ActiveX Data Objects) connection can be created without carrying out any preliminary steps, such as creating a DSN. Always use an ADO connection for MS Access databases, as ODBC does not support relationships.

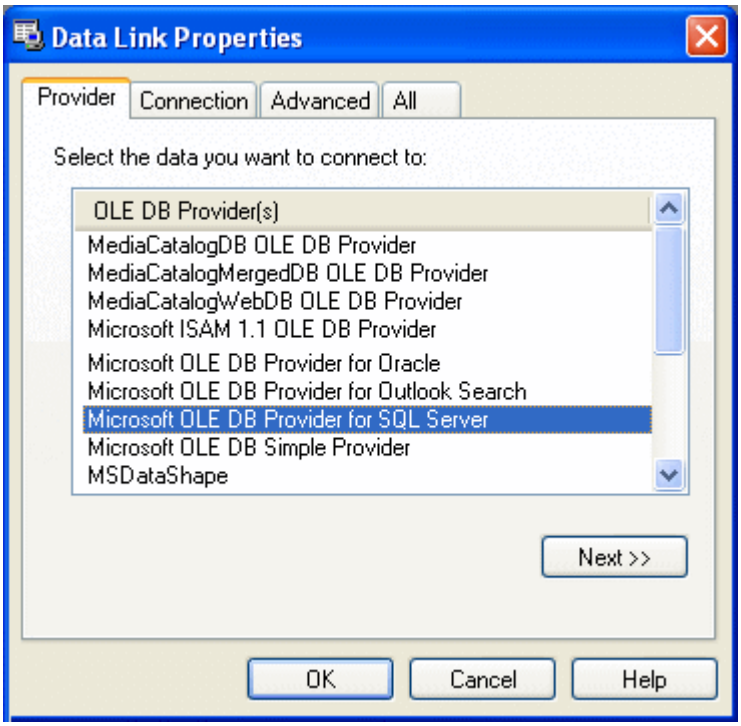


The following procedure explains how to create an ADO connection, using Microsoft SQL Server as an example.

For an ADO connection to MS SQL Server via the driver SQL Server Native Client 10.0 the following property values must be set in the *All* tab of the Data Link Properties dialog: (i) Set the property value of Integrated Security to a space character; (ii) Set the property value of Persist Security Info to `true`.

To create an ADO connection:

1. Select the menu option **File | Compare Database Data** or **File | Compare Database Schemas**, respectively, or click the **Compare Database Data** or **Compare Database Schemas** icon, respectively, in the Standard toolbar to open a Database Data or Database Schema Comparison window. Then click the **Browse** button the title bar of either component and, in the **Select Database Objects for Comparison** dialog box that opens, click the **Connect to a database** icon.
   The **Connect to a data source** dialog box appears.
2. Click the **ADO Connections** icon.
3. Click the **Build** button. The Provider tab of the **Data Link Properties** dialog box opens.



4. Select `Microsoft OLE DB Provider for SQL Server` from the drop-down list and click **Next**. The Connection tab appears.

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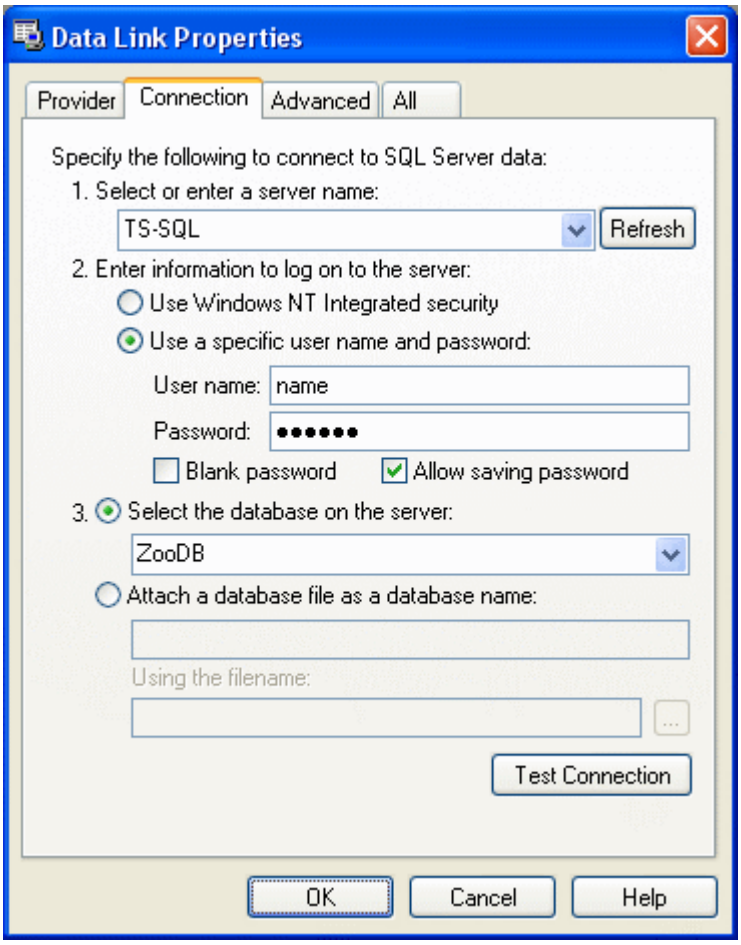


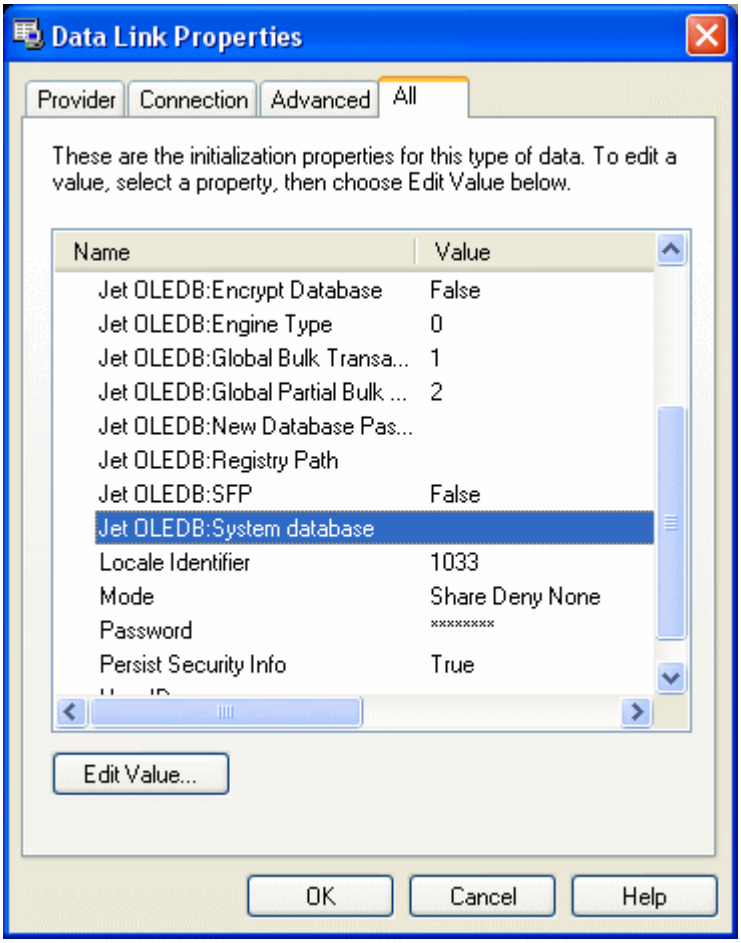
5. Enter a server name or select it from the drop-down list.
   Click the **Refresh** button to refresh the list of available server names, if required.
6. Do one of the following:
   - Select `Use Windows NT Integrated security.`
   - Select `Use a specific user name and password`, enter the user name and password, and select the `Allow saving password` check box.
7. Select the database from the drop-down list.
8. Optionally, click **Test Connection**.
9. Click **OK**.
   The **Data Link Properties** dialog box closes. The connection string appears in the **Connect to a data source** dialog box.
10. Click **Connect** to open the **Set a Data Source Name** dialog box.
11. Enter the name of the new connection and click **OK** to confirm. You may be prompted for a user name and password or for the data source to connect to.
    The new connection is displayed in the Source group box of the **Select Database Objects for Comparison** dialog box and is automatically activated.
12. Click the **Right Side** button in the **Select Database Objects for Comparison** dialog box and select a data source connection for the right side of the comparison.

Important note: If you use "SQL Server Native Client 10.0" as a driver for your ADO

connection, make sure that the `Integrated Security` property is set to a space character and that the `Persist Security Info` property is set to "True" on the All tab of the **Data Link Properties** dialog box.

12.3.1 Connecting to an Access Database

When you connect to an Access database in DiffDog, in addition to your user name and password, you may also have to specify the workgroup information file for the database in order to be able to connect to the database. Please note that in this case you cannot use the Connection Wizard to connect.



To connect to an Access database using a user in a workgroup:

1. Select the menu option **File | Compare Database Data** or **File | Compare Database Schemas**, respectively, or click the **Compare Database Data** or **Compare Database Schemas** icon, respectively, in the Standard toolbar to open a Database Data or Database Schema Comparison window. Then click the **Browse** button the title bar of either component and, in the **Select Database Objects for Comparison** dialog box that opens, click the **Connect to a database** icon.
   The **Connect to a data source** dialog box appears.

2. Click the **ADO Connections** icon.

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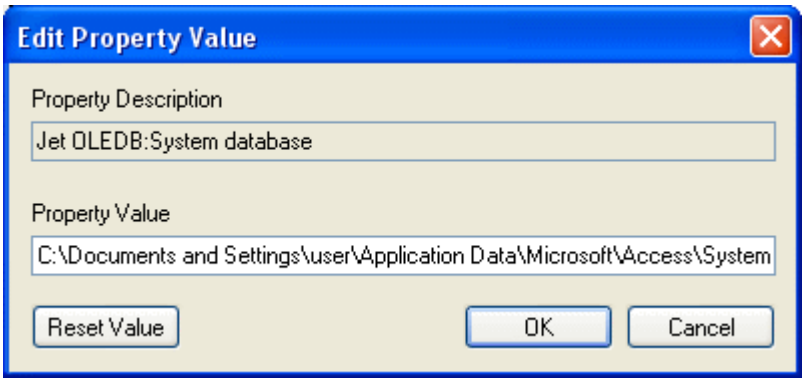
3. Click the **Build** button. The Provider tab of the **Data Link Properties** dialog box opens.
4. Select `Microsoft Jet 4.0 OLE DB Provider` from the drop-down list and click **Next**. The Connection tab appears.
5. Enter a database name or click the ... button to browse to the database.
6. Enter the user name and password, and select the `Allow saving password` check box.
7. Click the All tab and select the `Jet OLEDB: System database` entry.
8. Click the **Edit Value...** button and enter the path to the Workgroup Information file.



9. Click **OK**.
10. Optionally, click the Connection tab and click the **Test Connection** button to see if the connection details have been entered correctly.
11. Click **OK**.

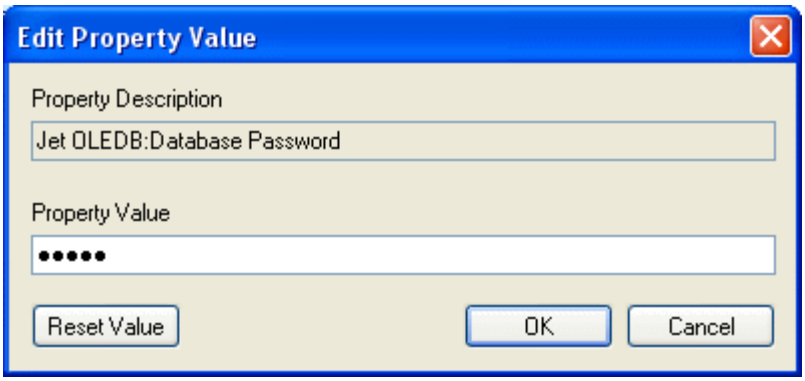
    The **Data Link Properties** dialog box closes. The connection string appears in the **Connect to a data source** dialog.
12. Click **Connect** to open the **Set a Data Source Name** page.
13. Enter the name of the new connection and click **OK** to confirm. You may be prompted for a user name and password or for the data source to connect to.
    The new connection is displayed in the Source group box of the **Select Database Objects for Comparison** dialog box and is automatically activated.
14. Click the **Right Side** button in the **Select Database Objects for Comparison** dialog box and select a data source connection for the right side of the comparison.

To connect to a password-protected Access database:

1. Select the menu option **File | Compare Database Data** or **File | Compare Database Schemas**, respectively, or click the **Compare Database Data** or **Compare Database Schemas** icon, respectively, in the Standard toolbar to open a Database Data or Database Schema Comparison window. Then click the **Browse** button the title bar of either component and, in the **Select Database Objects for Comparison** dialog box that opens, click the **Connect to a database** icon.
   The **Connect to a data source** dialog box appears.
2. Click the **ADO Connections** icon.
3. Click the **Build** button. The Provider tab of the **Data Link Properties** dialog box opens.
4. Select `Microsoft Jet 4.0 OLE DB Provider` from the drop-down list and click

Next. The Connection tab appears.

5. Enter a server database name or click the ... button to browse to the database.
6. Click the All tab and select the `Jet OLEDB: Database Password` entry.
7. Click the **Edit Value...** button and enter the database password.



8. Click **OK**.
9. Optionally, click the Connection tab and click the **Test Connection** button to see if the connection details have been entered correctly.
10. Click **OK**.

    The **Data Link Properties** dialog box closes. The connection string appears in the **Connect to a data source** dialog box.
11. Click **Connect** to open the **Set a Data Source Name** page.
12. Enter the name of the new connection and click **OK** to confirm. You may be prompted for a user name and password or for the data source to connect to.
    The new connection is displayed in the Source group box of the **Select Database Objects for Comparison** dialog box and is automatically activated.
13. Click the **Right Side** button in the **Select Database Objects for Comparison** dialog box and select a data source connection for the right side of the comparison.

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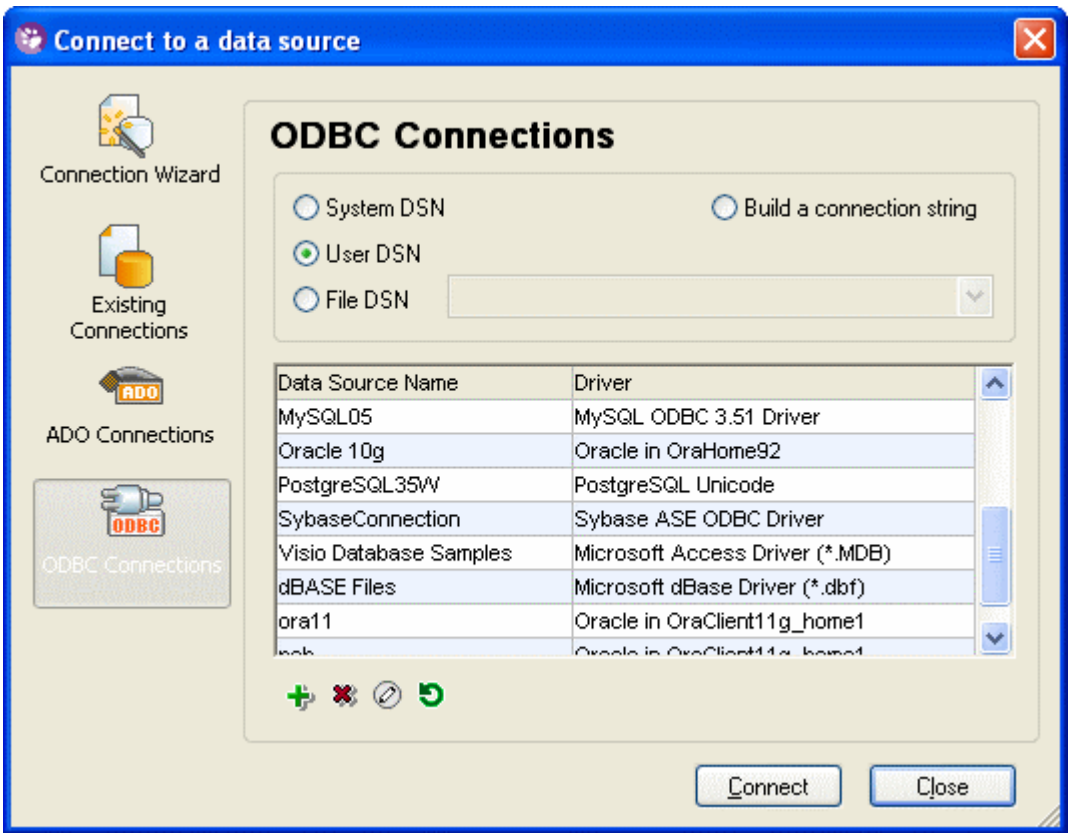
12.4 Creating an ODBC Connection

When using the ODBC (Open Database Connectivity) **type of connection, you can choose from among the following DSN** (data source name) **modes:**

- System DSN: This type of DSN can be used by anyone who has access to the computer. DSN information is stored in the registry.
- User DSN: This type of DSN is created for a specific user and is also stored in the registry.
- File DSN: For this type of DSN, DSN information is stored in a text file with DSN extension.

Please note: In order to create an ODBC connection in DiffDog, you must first create a DSN. The list box of the ODBC Connections page contains all the existing DSNs that have already been created earlier.



When you choose either the `System DSN` or the `User DSN` radio button, several icons are available at the bottom of the dialog box which can be used to create new or maintain existing DSNs:

Create a new DSN: Opens the **Create an ODBC DSN** dialog box where you can select a driver and choose the desired DSN mode (user or system DSN) to create a new DSN .

Edit selected DSN: Allows you to change the settings of the selected DSN.

Remove selected DSN: Removes the selected DSN from the data source list.

Refresh listed DSNs: Updates the data source list.

Using pure ODBC API

Before DatabaseSpy connects to a data source via ODBC, a selection dialog is displayed where the user can choose whether to use pure ODBC API or Altova's native support for a particular database.

Native is the recommended method for communicating with the server and for retrieving information. It generally provides far richer details about the schema of your database than what can be obtained through ODBC alone, and provides additional functionality that ODBC cannot support (e.g., databases that have native XML schema support) but at the cost of being highly coupled to specific versions of the server.

If you experience problems retrieving information about your database(s) with the default method, or if for some other reason you would prefer it, choose **ODBC API**. This method may also provide a workaround for unexpected issues with the database (e.g., if the system tables have non-standard names, or if you are using a newer version of a database which is not officially supported yet).

To connect to an existing DSN:

1. Select the menu option **File | Compare Database Data** or **File | Compare Database Schemas**, respectively, or click the **Compare Database Data** or **Compare Database Schemas** icon, respectively, in the Standard toolbar to open a Database Data or Database Schema Comparison window. Then click the **Browse** button the title bar of either component and, in the **Select Database Objects for Comparison** dialog box that opens, click the **Connect to a database** icon.
   The **Connect to a data source** dialog box appears.
2. Click the **ODBC Connections** icon.
3. Select one of the following:
   - System DSN
   - User DSN

   The available DSNs in the selected category appear.
   - File DSN

   Select a folder which contains the File DSNs.
4. Select the desired data source name.
5. Click **Connect** to open the **Set a Data Source Name** dialog page.
6. Enter the name of the new connection and click **OK** to confirm. You may be prompted for a user name and password or for the data source to connect to.

   In the **How Do You Want the Data Source to Communicate with the Server?** dialog box, choose either `Natively` or `Via the ODBC API`.

   The new connection is displayed in the Source group box of the **Select Database Objects for Comparison** dialog box and is automatically activated.
7. Click the **Right Side** button in the **Select Database Objects for Comparison** dialog box and select a data source connection for the right side of the comparison.

To create a new user DSN or system DSN:

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1. Select the menu option **File | Compare Database Data** or **File | Compare Database Schemas**, respectively, or click the **Compare Database Data** or **Compare Database Schemas** icon, respectively, in the Standard toolbar to open a Database Data or Database Schema Comparison window. Then click the **Browse** button the title bar of either component and, in the **Select Database Objects for Comparison** dialog box that opens, click the **Connect to a database** icon.
   The **Connect to a data source** dialog box appears.
2. Click the **ODBC Connections** icon and click the **Create a new DSN button** at the bottom of the dialog box.
3. In the **Create an ODBC DSN** dialog box, select a driver from the drop-down list and select either the **User DSN** or the **System DSN** button.
4. Enter the data required for the selected data source connection. The amount of data that has to be entered depends on the database driver you have selected from the drop-down list in step 3.

12.4.1 Creating a DSN (Data Source Name)

Before you create an ODBC connection, you might have to create a data source name (DSN) for the data source you want to connect to. The DSN contains all the relevant data that enables the database driver to connect to the database. The following types of DSN can be created in DatabaseSpy:

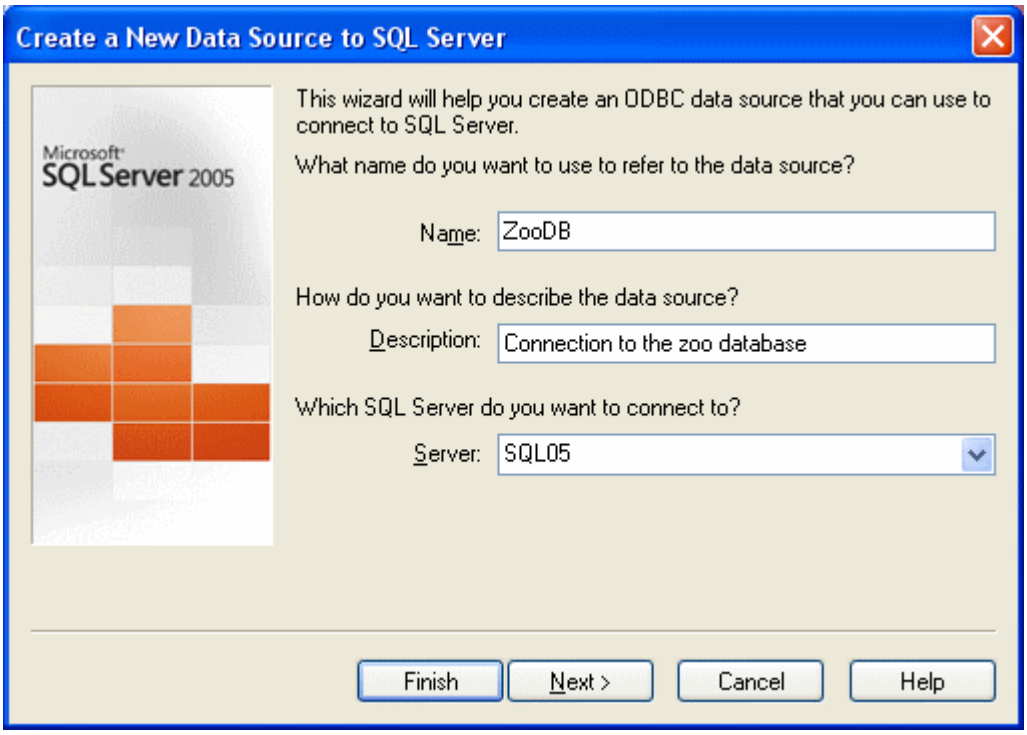
- **System DSN**: This data source name is stored in the registry and can be used by any user on that computer.
- **User DSN**: The use of this data source name is limited to a particular user; it is also stored in the registry.
- **File DSN**: All relevant information is stored within a text file (extension *.DSN). Users of different computers who have the same drivers installed can use the file.

What the creation of a DSN looks like, depends on which type of DSN you are creating and which type of database you are connecting to. The following procedure explains how to create a user DSN for Microsoft SQL Server. Note that the same procedure has to be followed when creating a system DSN.

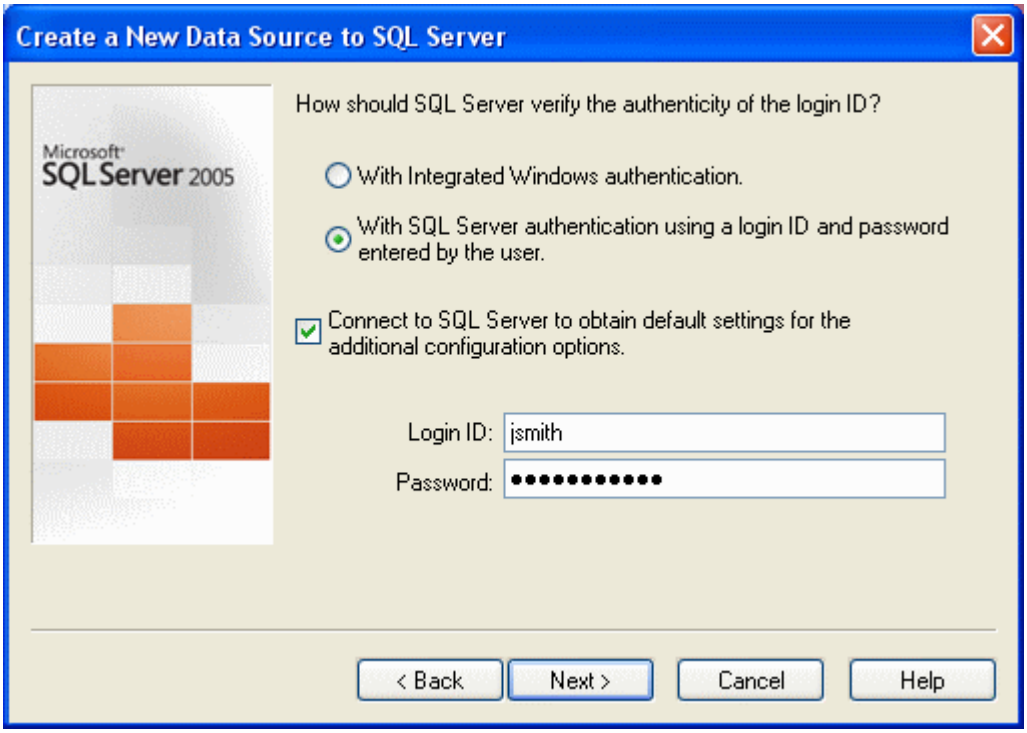
To create a user DSN for Microsoft SQL Server:

1. Select the menu option **File | Compare Database Data** or **File | Compare Database Schemas**, respectively, or click the **Compare Database Data** or **Compare Database Schemas** icon, respectively, in the Standard toolbar to open a Database Data or Database Schema Comparison window. Then click the **Browse** button the title bar of either component and, in the **Select Database Objects for Comparison** dialog box that opens, click the **Connect to a database** icon.
   The **Connect to a data source** dialog box appears.
2. Click the **ODBC Connections** icon and click the **Create a new DSN button** at the bottom of the dialog box.
3. In the **Create an ODBC DSN** dialog box, select "SQL Native Client" from the drop-down list.
4. Click the **User DSN** button. The **Create a New Data Source to SQL Server** dialog box

appears.



5. Type in the name under which you want to save the DSN, and a description of the data source. Select the server from the combo box. Click **Next**.



6. Select the kind of authentication you want to use when connecting to this MS SQL server:
   - Integrated Windows authentication

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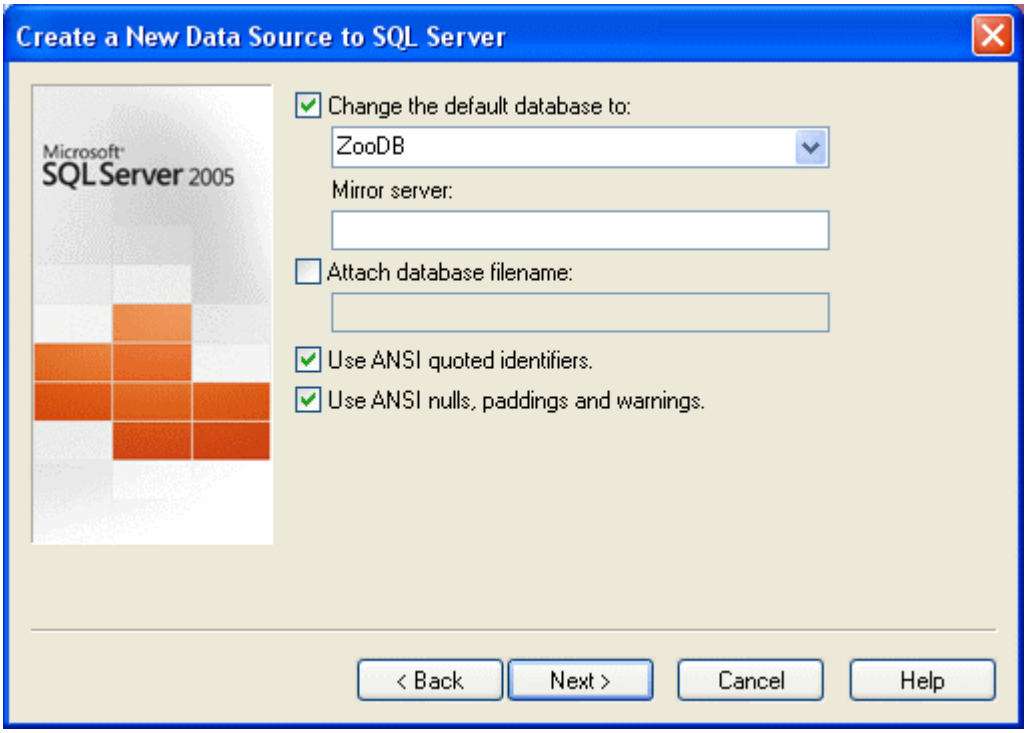
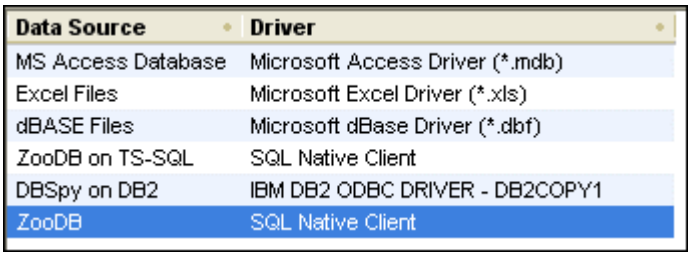
- SQL Server authentication**:** In this case, you also have to select the check box and enter your **Login ID** and **Password**.

Click **Next**.



7. Change the default database to the database you would like to connect to on this server. Click **Next**.
8. Optionally change the language, encryption, and regional settings options or specify paths for log files.
9. Click **Finish**. A summary of the settings of the newly created data source is presented in the **ODBC Microsoft Server Setup** dialog box. Optionally, click the **Test Data Source...** button.
10. Click **OK**. The new DSN appears in the Data Source list in the **Connect to a data source** dialog box.



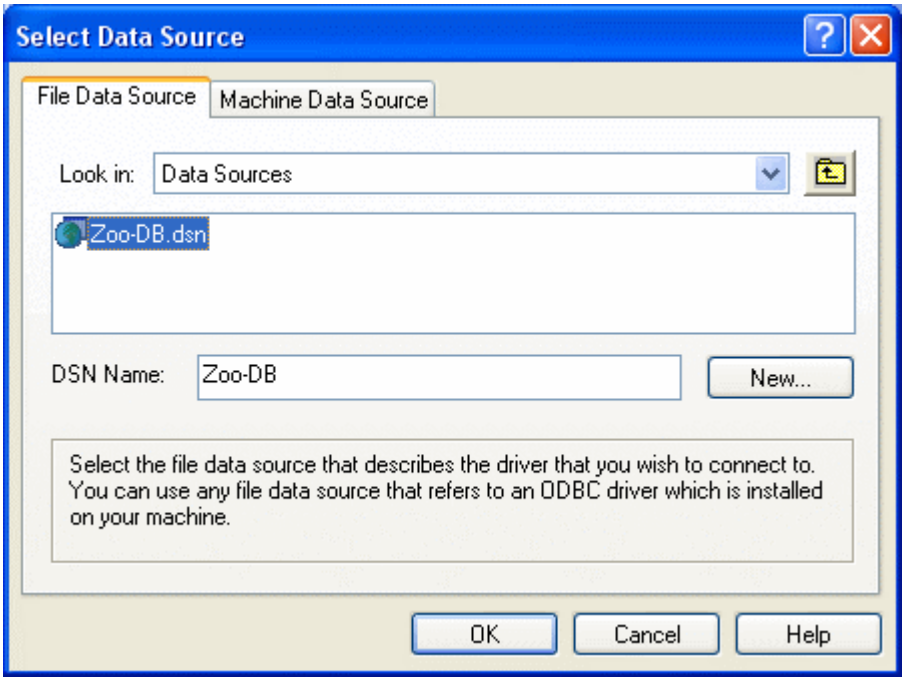
Data Source	Driver
MS Access Database	Microsoft Access Driver (*.mdb)
Excel Files	Microsoft Excel Driver (*.xls)
dBASE Files	Microsoft dBase Driver (*.dbf)
ZooDB on TS-SQL	SQL Native Client
DBSpy on DB2	IBM DB2 ODBC DRIVER - DB2COPY1
ZooDB	SQL Native Client

12.4.2 Building a Connection String for ODBC

Once you have created a new DSN, you must create a connection string in order to be able to use this DSN for the connection to a data source.

To build a connection string:

1. Select the menu option **File | Compare Database Data** or **File | Compare Database Schemas**, respectively, or click the **Compare Database Data** or **Compare Database Schemas** icon, respectively, in the Standard toolbar to open a Database Data or Database Schema Comparison window. Then click the **Browse** button the title bar of either component and, in the **Select Database Objects for Comparison** dialog box that opens, click the **Connect to a database** icon.
   The **Connect to a data source** dialog box appears.
2. Click the **ODBC Connections** icon and select the `Build a connection string` radio button.
3. Click **Build**.
   The **Select Data Source** dialog box appears.



4. Do one of the following:
   - Select the **File Data Source** tab, choose a folder, and select a file DSN from the list.
   - Select the **Machine Data Source** tab and select a user or system DSN from the list.
   - Click **New** in either of the two tabs to create a new DSN.
5. Click **OK**.

   You may be prompted for a user name and password.
6. Click the **Connect** button. You are prompted for the Connection name and the connection is made active.

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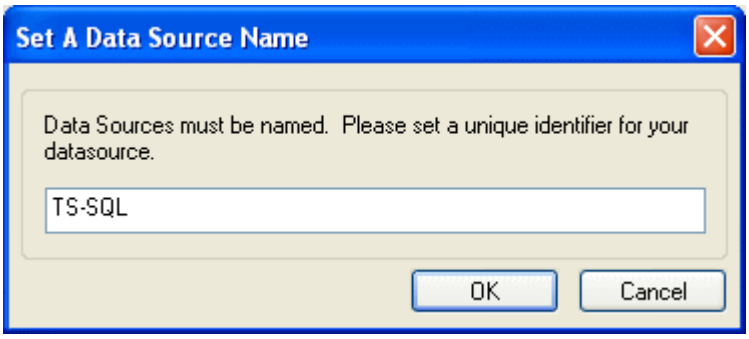
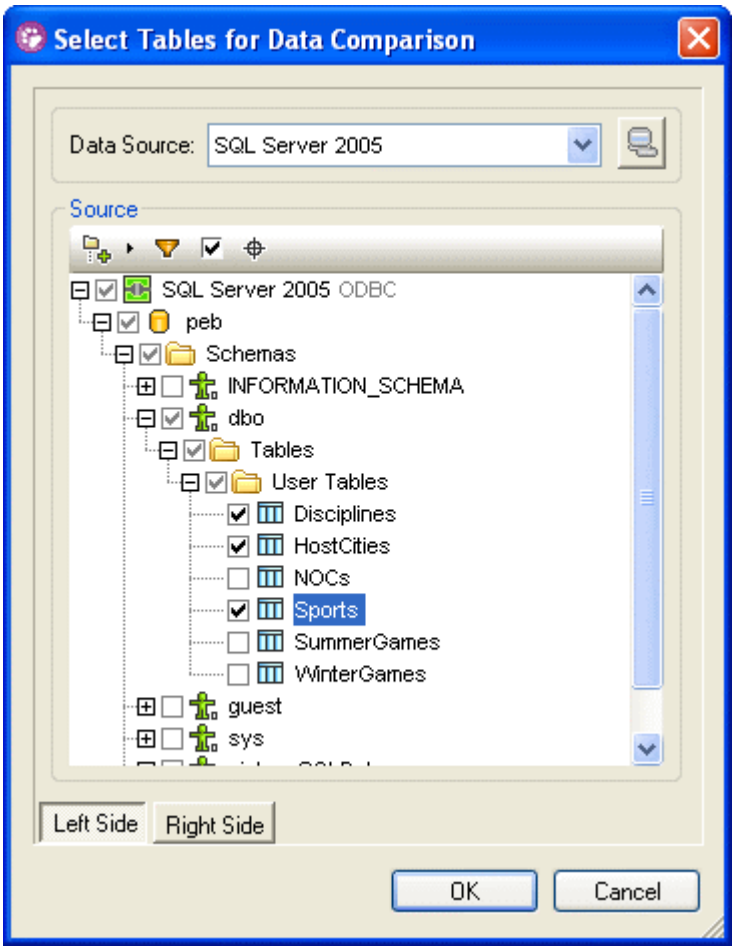

Set A Data Source Name
Data Sources must be named. Please set a unique identifier for your datasource.
TS-SQL
OK
Cancel

Chapter 13

Browsing Data Sources

13 Browsing Data Sources

When selecting tables and/or columns for comparison, DiffDog provides several options to customize the way the database objects are displayed in the **Select Database Objects for Comparison** dialog box. You can apply filters to different folders as well as use the Object Locator to locate specific database objects in the **Select Database Objects for Comparison** dialog box. The dialog box also provides the **Show checked objects only** icon, which is particularly useful if you have a large number of tables in your database and want to compare only a few of them. After you have activated the check boxes of the appropriate tables, clicking the **Show checked objects only** icon displays only the tables that you have selected for comparison and hides the tables not concerned.



After you have clicked **OK**, DiffDog displays the data source and its selected tables in a Database Data Comparison window. Each of the two databases is displayed in a component containing a tree structure of the tables that have been selected for comparison. The tables can be collapsed or expanded to show or hide the table columns.

Display options in the Database Data Comparison window

In the Database Data Comparison window, the schema of compared tables is displayed by default. In the Database Data Comparison options, you can disable this option, and you can also choose to display the tables' data source name in the header of each component.

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13.1 Expanding and Collapsing Elements

In the **Select Database Objects for Comparison** dialog box, you can expand and collapse either individual elements or use the menu commands to expand or collapse all siblings or children of a certain element.

To expand or collapse a single element:

Do one of the following:

- To expand an element, click the **+** icon to the left of the element.
  Alternatively, you can also select the element and press the right arrow key or the **NUM +** key.
- To collapse an element, click the **-** icon to the left of the element.
  Alternatively, you can also select the element and press the left arrow key or the **NUM -** key.

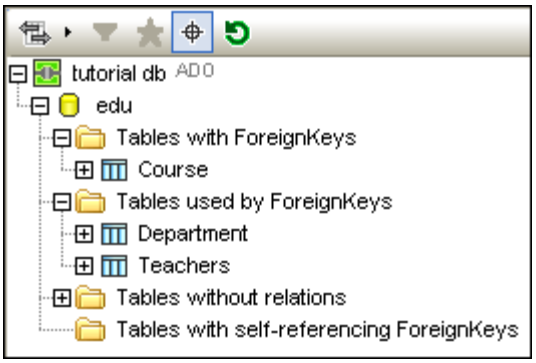
To expand or collapse siblings or children:

- Right-click an object in the **Select Database Objects for Comparison** dialog box and select one of the following from the context menu:
  - **Expand | Siblings:** Fully expands all contents of the objects that are on the same level as the selected object. For example, if you right-clicked on a table, all sibling tables and the selected table will be expanded.
  - **Expand | Children:** Fully expands the descendent objects of the selected object.
  - **Collapse | Siblings:** Collapses all contents of the objects that are on the same level as the selected object. For example, if you right-clicked on a table, all sibling tables and the selected table will be collapsed.
  - **Collapse | Children:** Collapses the descendent objects of the selected object.

13.2 Customizing the Browser Layout

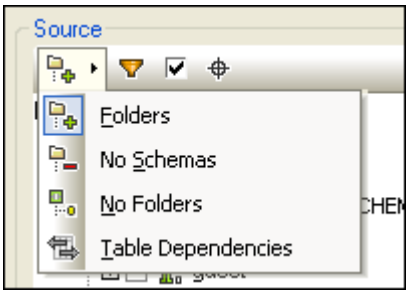
DiffDog provides several predefined layouts for the display of the various database objects in the **Select Database Objects for Comparison** dialog box. You can currently select from among the following layouts:

- The **Folders** layout organizes database objects into folders based on object type in a hierarchical tree. This is the default setting in DiffDog.
- The **No Schemas** layout is similar to the Folders layout, except that there are no schema folders; tables are therefore not categorized by schema.
- The **No Folders** layout displays database objects in a hierarchy without using folders.
- The **Table Dependencies** layout categorizes tables according to their relationships with other tables. There are categories for tables with foreign keys, tables referenced by foreign keys and tables that have no relationships to other tables.



To select a layout for the Source group box:

- In the Source group box, click the layouts icon and select the desired layout from the drop-down list.
  Please note that the icon changes in accordance with the selected layout.



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13.3 Locating Objects

To find a specific database item by its name, you can either use DiffDog's filtering functions or the Object Locator which appears as a drop-down list at the bottom of each database's Source group box in the **Select Database Objects for Comparison** dialog box if you activate the **Object Locator** button

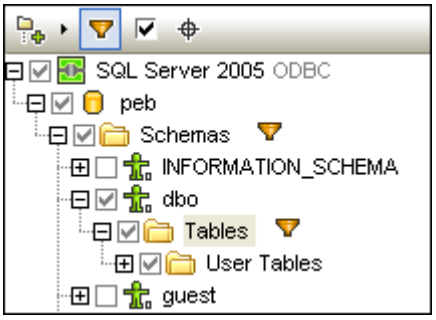
13.3.1 Applying Filters

In the **Select Database Objects for Comparison** dialog box, it is possible to filter schemas and tables by name or part of a name. Objects are filtered as you type in the name.

Please note: The filter function does not work if you are using No Folders layout.

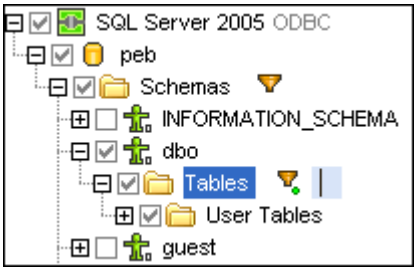
To filter objects in the selection dialog box:

1. Click the **Filter Folder contents** icon in the toolbar or select a database object and press **Ctrl+Ctrl+Alt+F** to activate filtering. Filter icons appear next to all folders.



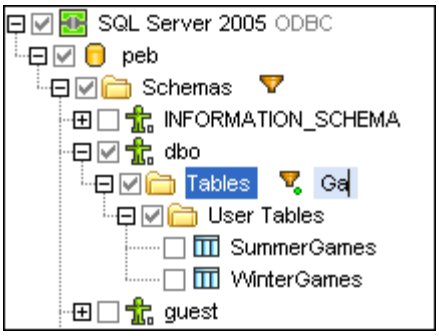
2. Click the filter icon that is next to the folder you want to filter. Select the desired filtering option from the popup menu that appears.

3. Next to the folder, the icon for the chosen filter type appears with an empty field next to it.



4. Expand the folder you are filtering to display the objects it contains.

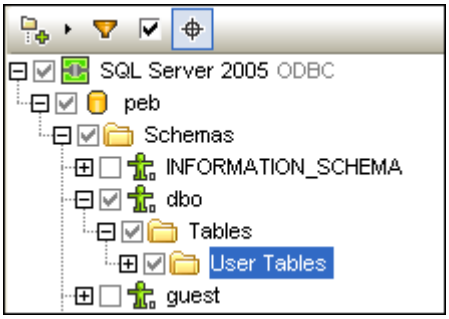
5. In the field, enter the string you want to search for. The results are adjusted as you type.



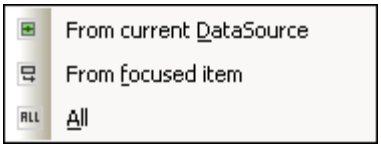
6. If required, repeat the procedure for the second database.

13.3.2 Using the Object Locator

You can use the Object Locator in different ways. Either use the drop-down list to select one of the objects contained herein, or type a string in the text field of the drop-down list and further filter the list of objects contained in the list.



The icon next to the Object Locator drop-down list opens a menu allowing you to further define the displayed database objects.



Using this menu, you can restrict the display of objects as follows:

- **From current Data Source**: Displays only objects from the currently selected data source.
- **From Focused Item**: Changes the display dynamically, depending on the folder or object that is currently selected.
- **All**: Displays all objects from all data sources that are currently connected.

To find database elements using the Object Locator:

1. Click the **Object Locator** icon in the Source group box of the **Select Database Objects for Comparison**dialog box or press **Ctrl+L**.
2. Optionally, change the Object Locator context by clicking the arrow icon next to the

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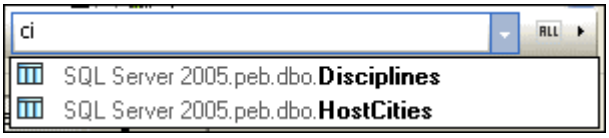
drop-down list and select one of the options.

3. Enter the string you want to look for, e.g., "ci".
   Clicking the drop-down arrow displays all elements that contain that string.



4. Click the desired object to have it selected in the **Select Database Objects for Comparison** dialog box.

13.4 Hiding Unselected Items

For a better overview in large databases, the **Select Database Objects for Comparison** dialog box allows you to show only selected database items in the individual Source group boxes. This saves you from scrolling through the list of tables and columns and you can easily check whether all items you want to compare are properly selected.

The `Show checked objects only` check box can be activated separately for both databases to be compared. When this option is checked, all unselected items are hidden in the group box and only the items that have been selected for comparison are displayed.

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Chapter 14

Navigating Differences

14 Navigating Differences

When the results of a comparison are first displayed in File Comparisons, Word Comparisons, and Directory Comparisons, it is always the first difference that is the current difference. In Database Data Comparisons and Database Schema Comparisons as well as in XML Schema Comparisons, no difference is selected when the result window is first displayed. You can navigate through the differences by selecting other differences to be the current difference or move the selection of the current difference by using the following navigation commands in the **Diff and Merge** menu and toolbar:

Next Difference (Alt+Down): Selects the next difference as the current difference.

Previous Difference (Alt+Up): Selects the previous difference as the current difference.

Last Difference (Alt+End): Selects the last difference in the document as the current difference.

First Difference (Alt+Home): Selects the first difference in the document as the current difference.

Display Current Difference (Ctrl+Enter): Scrolls through the document to display the current difference. This command is useful if you have scrolled to some point that causes the current difference to be outside the display area (document pane).

Make Current Difference (Alt+Enter): Makes the selected difference the current difference, and sets it as the difference from which to navigate. The **Make Current Difference** command is useful if you wish to jump directly to a particular difference and navigate from there. In Database Data Comparisons and Database Schema Comparisons, clicking a difference will always make it the current difference, this command is therefore not available in Database Schema Comparison windows.

If the icons described above are not displayed in your toolbar, you can include them by checking the `Diff and Merge` option in the Toolbars tab of the **Customize** dialog box.

Please note: The navigation commands move the selection of the current difference in **both** documents/tables. If you wish to edit highlighted text, you must place the cursor in the highlighted text (in the appropriate document).

Current difference and editing

If, in a File Comparison window, you start typing into the document and the **Compare While Editing** toggle in the **Diff and Merge** menu is off, all difference highlighting disappears in both documents. If the **Compare While Editing** toggle is on, then if you type in something that results in a difference it is highlighted as the current difference; if you make a modification that removes a difference, the difference immediately following the cursor position is highlighted as the current difference.

To make a difference the current difference:

1. Place the cursor in the required difference (which could be anywhere in the document) or navigate to it using the **Next Difference** or **Previous Difference** navigation commands listed above.
2. If applicable, select the menu option **Diff and Merge | Make Current Difference** or

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press **Alt+Enter** or select the corresponding toolbar icon from the Diff and Merge toolbar. Note that in Database Data Comparison Result windows, every difference that you select automatically becomes the current difference.

Chapter 15

Merging Differences

15 Merging Differences

After running a file, directory, Microsoft Word document, database data, or database schema comparison in a comparison window, you can merge differences that exist between the directories/files/Microsoft Word documents/tables in the two panes or components, respectively.

In **File Comparison windows** and **Word Comparison windows**,a difference (that is, a text fragment for which there is no, or no identical, corresponding text fragment in the compared file) can be copied over from one file to the corresponding location in the other file. Note that in Microsoft Word document comparisons both **text and formatting** will be copied from the source to the target file.

In **Directory Comparison windows**, the selected non-equal file (a file for which no, or no equal, corresponding file exists in the compared directory) can be copied from one directory to the other directory.

In **Database Data Comparison windows**, data of (i) the selected table(s) or (ii) all tables can be copied from one component to the other component. In **Database Data Comparison Result windows**, non-equal data of the selected rows can be copied from one table to the other table. In both windows, a warning message providing details of the changes is displayed and has to be confirmed before the changes are committed to the database. The necessary database structure change scripts are generated and executed in the background.

In **Database Schema Comparison windows**, the structure of (i) the selected item(s) or (ii) all items can be copied from one component to the other component. Please note that the merge is not executed immediately; DiffDog always shows the database structure change script first and provides the options to save it to a file or display it in DatabaseSpy (if installed).

You use the following commands to merge a difference:

Copy from Left to Right (Alt+Right)

For the selected difference in a file comparison or Microsoft Word comparison, copies text from the document in the left pane to the document in the right pane.

For the selected non-equal file in a directory comparison, copies the file from the (directory in the) left pane to the (directory in the) right pane.

For the selected table in a database data comparison, copies the table's data from the (table in the) left component to the (table in the) right component.

For the selected non-equal row in a database data comparison result, copies the data from the row in the left column to the row in the right column.

For the selected non-equal item in a database schema comparison, opens the **Merge Schema Left to Right** dialog box, where the resulting change script is displayed. In this dialog box you can choose to execute the SQL, save it to a file, or show it in DatabaseSpy (if installed).

Copy from Right to Left (Alt+Left)

For the selected difference in a file comparison or Microsoft Word comparison, copies text from the document in the right pane to the document in the left pane.

For the selected non-equal file in a directory comparison, copies the file from the (directory in the) right pane to the (directory in the) left pane.

For the selected table in a database data comparison, copies the table's data from the (table in the) right component to the (table in the) left component.

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For the selected non-equal row in a database data comparison result, copies the data from the row in the right column to the row in the left column.

For the selected non-equal item in a database schema comparison, opens the **Merge Schema Right to Left** dialog box, where the resulting change script is displayed. In this dialog box you can choose to execute the SQL, save it to a file, or show it in DatabaseSpy (if installed).

In file and Microsoft Word comparisons, the source difference is copied in its entirety (i.e., the entire unit highlighted in the current difference background color overwrites the entire difference in the target document). Merged differences in file and Microsoft Word document comparisons can be shown in a different background color. This setting is made in the File Comparison tab of the **DiffDog Options** dialog box.

To merge a difference in file, Microsoft Word, and directory comparisons:

1. Place the cursor in the required difference (which could be anywhere in the document) or navigate to it using the **Next Difference** or **Previous Difference** navigation commands listed above.
2. If applicable, select the menu option **Diff and Merge | Make Current Difference** or press **Alt+Enter** or select the corresponding toolbar icon from the Diff and Merge toolbar. Note that in Database Data Comparison Result windows, every difference that you select automatically becomes the current difference.
3. Do one of the following:
   - Select the menu option **Diff and Merge | Copy from Left to Right** or click the corresponding toolbar icon or press **Alt+Right** if you want to copy from the left pane to the right pane.
   - Select the menu option **Diff and Merge | Copy from Right to Left** or click the corresponding toolbar icon or press **Alt+Left** to copy from the right pane to the left pane.

To merge database data:

- To merge every difference in all tables of a database comparison, select the menu option **Diff and Merge | Copy from Left to Right (Alt+Right)** or **Copy from Right to Left (Alt+Left)**, respectively.
- To merge every difference in selected tables of a database comparison, select one or several tables in the left or right component and choose the menu option **Diff and Merge | Copy from Left to Right (Alt+Right)** or **Copy from Right to Left (Alt+Left)**, respectively. Alternatively, right-click the desired tables and choose **Merge selected Left to Right** or **Merge selected Right to Left**, respectively, from the context menu.

An information box with an overview appears. Optionally, click the **Show Details** button, and click **Yes** to confirm the merge.

- To merge selected differences in a result window of a database comparison:
  1. Select a table in the left or right component and choose the menu option **Diff and Merge | Show results** or right-click a table and choose **Show selected results** from the context menu. Alternatively, click the comparison result icon.
  2. In the Database Data Comparison Result window, place the cursor in the required difference (which could be anywhere in the document) or navigate to it using the

Next Difference or **Previous Difference** navigation commands listed above.

3. Select the menu option **Diff and Merge | Copy from Left to Right (Alt+Right)** or **Copy from Right to Left (Alt+Left)**, respectively).
4. In the **Merge data (x to y)** dialog box that appears, choose either the `Merge the selected rows and cells` or the `Merge the whole table` radio button.
5. Click **Yes** to confirm the merge.

To merge database schemas:

1. Place the cursor in the required difference and do the following:
   - Select the menu option **Diff and Merge | Copy from Left to Right** or click the corresponding toolbar icon or press **Alt+Right** if you want to copy from the left pane to the right pane.
   - Select the menu option **Diff and Merge | Copy from Right to Left** or click the corresponding toolbar icon or press **Alt+Left** to copy from the right pane to the left pane.

   The **Merge Schema Left|Right to Right|Left** dialog box appears and shows the SQL that will change the schema in the database.
2. Chose one of the following options:
   - Click **Execute** to commit the changes to the database.
   - Click **Save SQL to File** to save the script to a file for later execution.
   - If you have DatabaseSpy installed, click **Show SQL in DatabaseSpy** to display the SQL in DatabaseSpy's SQL Editor where you can check, edit, and execute the script.

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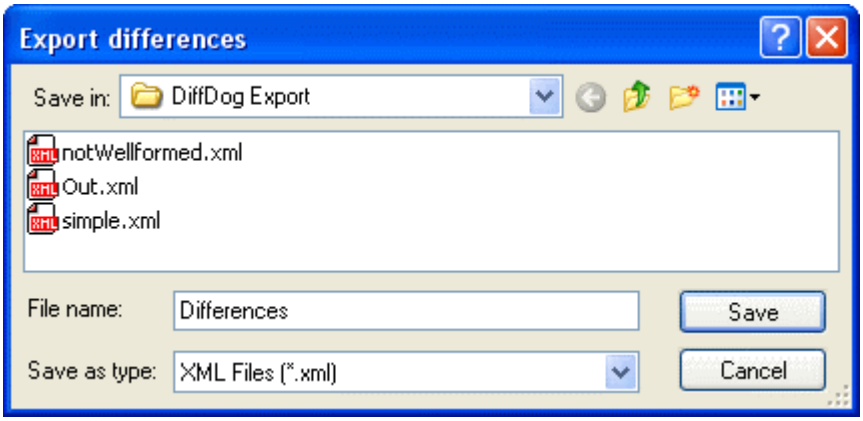
Chapter 16

Exporting Differences

16 Exporting Differences

For file and directory comparisons, the differences can be exported to file. Clicking the **Export Differences...** command pops up the **Export Differences** dialog box (*screenshot below*), in which you can specify the file name of the file to which the differences will be exported.



Differences can be exported either in XML or in text format; the available format depends on the comparison mode, according to the following table:

	TXT	XML	BIN	EXT	quick
File comparison			n.a.		n.a.
Directory comparison					

Please note that the menu option **File | Export differences...** is **not available** if the comparison options for XML files are set as follows:

- The `Detailed differencing` check box in the View results group box is **not** activated, or
- the `Ignore node depth` check box in the Depth group box is activated.

The **Export Differences** command is also available from the command line.

To export differences to file:

1. Run a file comparison or run a directory comparison.
2. Select the menu option **File | Export differences...**.
3. In the **Export differences** dialog box, choose the location where you want to export the differences to from the `Save in` drop-down list.
4. Enter a file name and choose the desired file format from the `Save as type` drop-down list.
5. Click **Save** to save the differences under the specified file name.

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Chapter 17

Comparison Management Options

17 Comparison Management Options

The **Diff and Merge** menu includes a series of commands that are used to customize the file, directory, Microsoft Word document, and database comparisons and can be summed up as comparison management options. Apart from the option to explicitly start a comparison (*see below*), options to automate certain comparison functions as well as to facilitate the selection of recently compared pairs are available.

Starting a comparison

The **Start Comparison** command in the **Diff and Merge** menu applies to File Comparison as well as Directory Comparison, XML Schema Comparison, Word Comparison, and Database Comparison windows and is used to explicitly start a comparison at any time. Please note that a comparison starts automatically and this command is thus not needed if the Autostart Comparison or Compare while Editing comparison management options are toggled on.

To explicitly start a comparison:

- Select the menu option **Diff and Merge | Start Comparison** or press **F5**. Alternatively, you can also click the corresponding toolbar button in the Diff and Merge toolbar or right-click the tab of a comparison window and select the **Start Comparison** command from the context menu that appears.

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17.1 Automatic Comparison Functions

DiffDog provides options that automatically start a comparison when files are loaded or edited. In addition, you can display the comparison options each time before a comparison is actually started. Note that all of these options are toggle commands.

Autostart Comparison

If the **Autostart Comparison** option is toggled on, then a comparison is automatically made when files or directories are loaded into a comparison window. If this option is toggled off, then a comparison (file or directory) must be explicitly started.

To autostart comparisons:

- Activate the menu option **Diff and Merge | Autostart Comparison** or activate the corresponding toolbar icon in the Diff and Merge toolbar.

Compare while Editing

A toggle to compare or not compare documents in File Comparison windows while editing. If toggled on, differences are highlighted as you edit. If toggled off, highlighting of differences is turned off in both documents as soon as you start typing in either document; to highlight differences after editing, you must run a comparison.

To compare files while editing:

- Activate the menu option **Diff and Merge | Compare while Editing** or activate the corresponding toolbar icon in the Diff and Merge toolbar.

Show Options Before Comparison

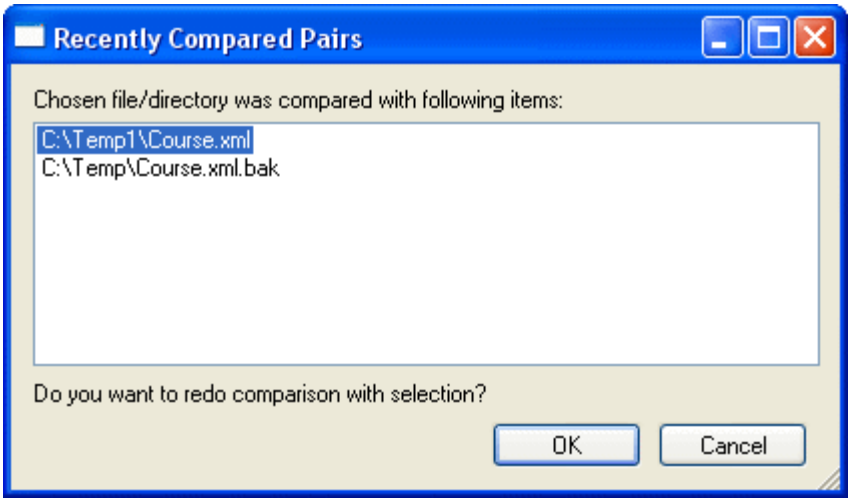
This command is toggled either on or off for individual comparison windows. When toggled on for a comparison window, the **Comparison Options** dialog box is displayed each time a comparison is made in that window. Note that the **Comparison Options** dialog box is not displayed before comparisons made dynamically by DiffDog while you edit a document.

To show the options before comparison:

- Activate the menu option **Diff and Merge | Show Options Before Comparison** or activate the corresponding toolbar icon in the Diff and Merge toolbar.

17.2 Recently Compared Pairs

If, (i) a file or directory you select for comparison has previously been compared with another file or directory, respectively, and (ii) the **Support Recently Compared Pairs** option in the **Diff and Merge** menu has been toggled on, then the **Recently Compared Pairs** dialog box (*shown below*) appears. This dialog box contains a list of the five files or directories with which the file or directory being opened has most recently been compared.



If you wish to compare the file or directory being opened with one of the files or directories listed in this dialog box, select the item from the list in the dialog box and click **OK**. This causes both files or directories to be opened, one in each pane. If you do not wish to select any of the items listed in the dialog, click **Cancel**. This causes the file or directory to be opened alone; you now have to select the file or directory with which you wish to compare it in the second pane.

Note: Clicking **Cancel** causes the selected file or directory to open in one pane without opening any previously compared file or directory in the other pane. Clicking **Cancel does not** stop the selected file or directory from being opened. If you wish not to have the **Recently Compared Pairs** dialog box appear each time you open a document, then toggle the **Support Recently Compared Pairs** option off.

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17.3 Auto-Mapping XML Schemas

If the **Automap on Load XML Schema** toggle is activated in the Diff and Merge menu, DiffDog performs an automatic mapping of the XML Schemas in the comparison components when the documents are loaded into the XML Schema Comparison window.

Chapter 18

DiffDog Options

18 DiffDog Options

The **Tools | DiffDog Options** command enables you to define global application settings. These settings are specified in a dialog box and saved in the registry. They apply to all current and future document windows. The **Apply** button in the **DiffDog Options** dialog box displays the changes in the currently open documents and fixes the current settings. The changes are seen immediately in the background windows.

Each page of the **DiffDog Options** dialog box is described in detail in this section.

To change DiffDog settings:

1. Select **Tools | DiffDog Options...** or select the **DiffDog Options** button in the Diff and Merge toolbar.
   The **DiffDog Options** dialog box appears.
2. Select the tabs for the following options:
   - Application
   - File Comparison
   - Directory Comparison
   - Database Comparison
   - Database Data Result View
   - File Types
3. Make the desired changes and click **OK**.

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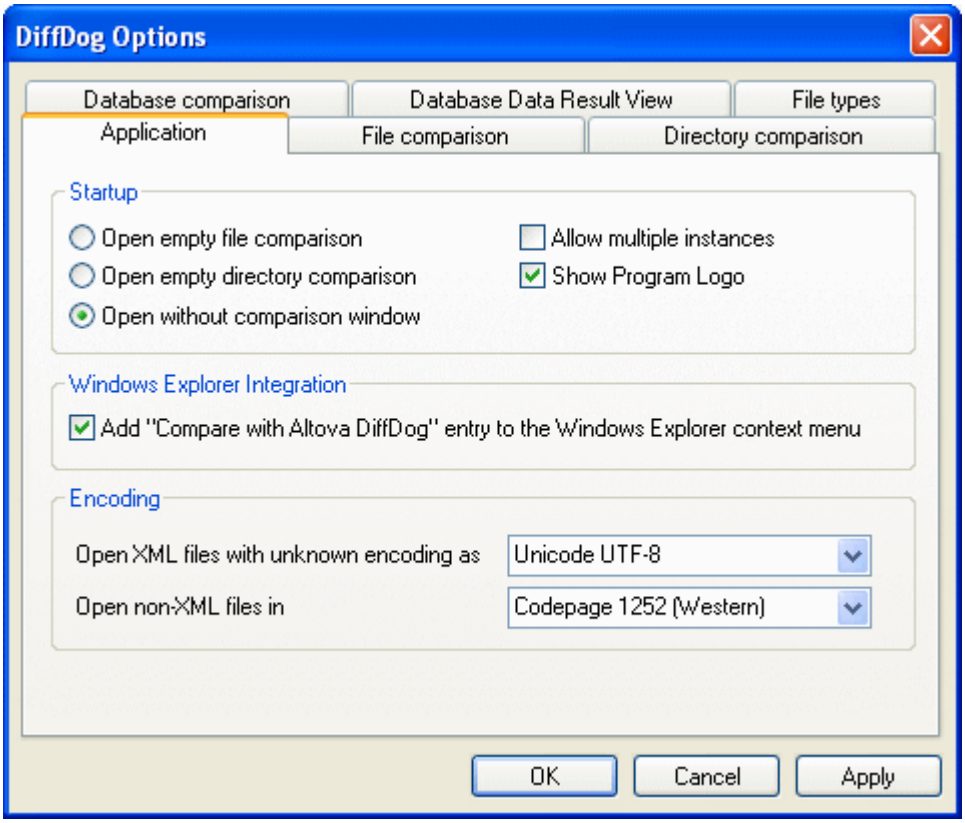
18.1 Application

In the Application tab of the **DiffDog Options** dialog box, you define the startup options of the application.



Startup
Three radio buttons are available to define whether DiffDog starts up with an empty File Comparison window, an empty Directory Comparison window, or no comparison window.

If the `Allow multiple instances` check box is deactivated, starting DiffDog when an instance of DiffDog is already running causes a new comparison window (file, directory, or empty) to open in the already running instance of DiffDog.

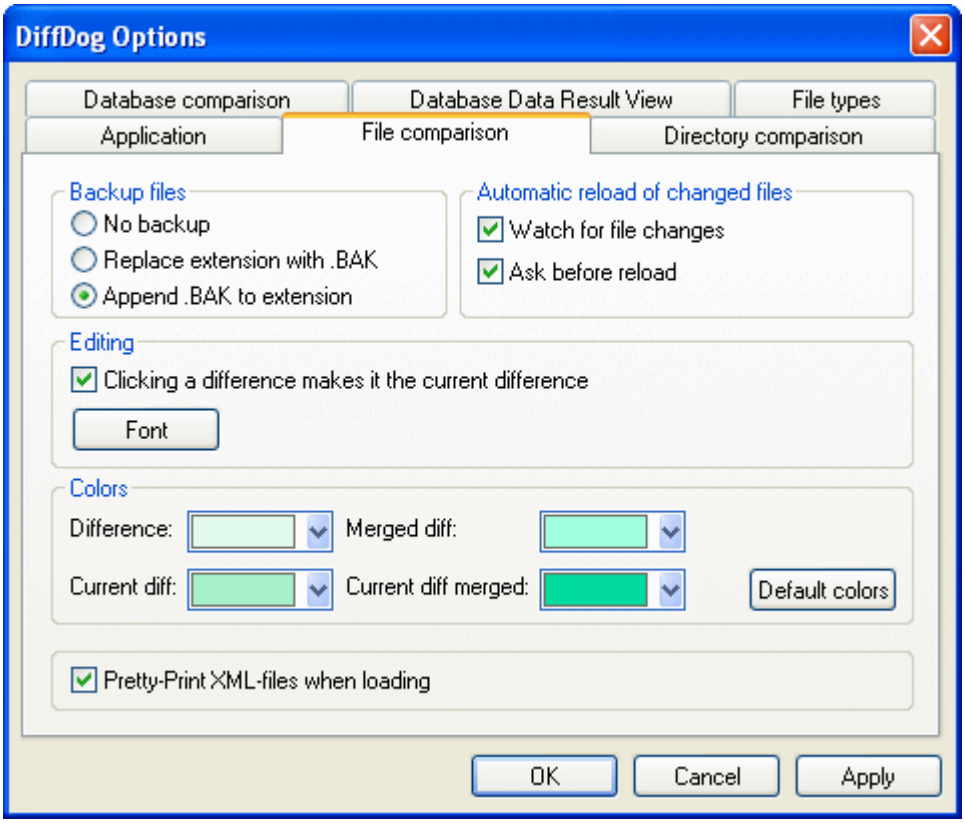
The `Show Program Logo` option—if checked—displays the splash screen (logo) when DiffDog starts.

Windows Explorer Integration
If the `Add "Compare with Altova DiffDog" entry to the Windows Explorer context menu` check box is activated, you can start a file or directory comparison directly from Windows Explorer by selecting the respective files or directories and choosing **Compare with Altova DiffDog** from the context menu.

Encoding
You can select the encoding with which to open an XML file or non-XML files, respectively, where the encoding cannot be detected.

18.2 File Comparison

The File comparison tab enables you to set preferences for file comparisons. These options range from display attributes to file actions, and apply to all open and subsequently opened file comparisons.



Backup files
This option lets you configure whether the original file should be saved if you decide to save a version of it that you have edited in DiffDog, and, in such cases, how the original file and edited file should be named. The newly named files are created when you save an edited file. The following options are available.

- No backup: The original file is overwritten by the edited file, and the name of the original file is retained.
- Replace extension with `.BAK`: If the original file was called `abc.xml`, changes are written to this file, and a copy of the original is saved as `abc.bak`.
- Append `.BAK` to extension: If the original file was called `abc.xml`, changes are written to this file, and a copy of the original is saved as `abc.xml.bak`.

Tip: The `.BAK` files can be set to be XML-conformant, and used for comparisons with other XML files.

If ZIP-conformant files change, DiffDog creates a backup for the individual files that have changed inside the ZIP rather than a backup of the ZIP itself.

Automatic reload of changed files
If a file that is open in DiffDog has been changed by another application or another person, DiffDog can reload the changed file, with or without prompting you to reload.

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Editing
You can make a difference in the compared documents the current difference by clicking in it if the `Clicking a difference makes it the current difference` check box is activated.

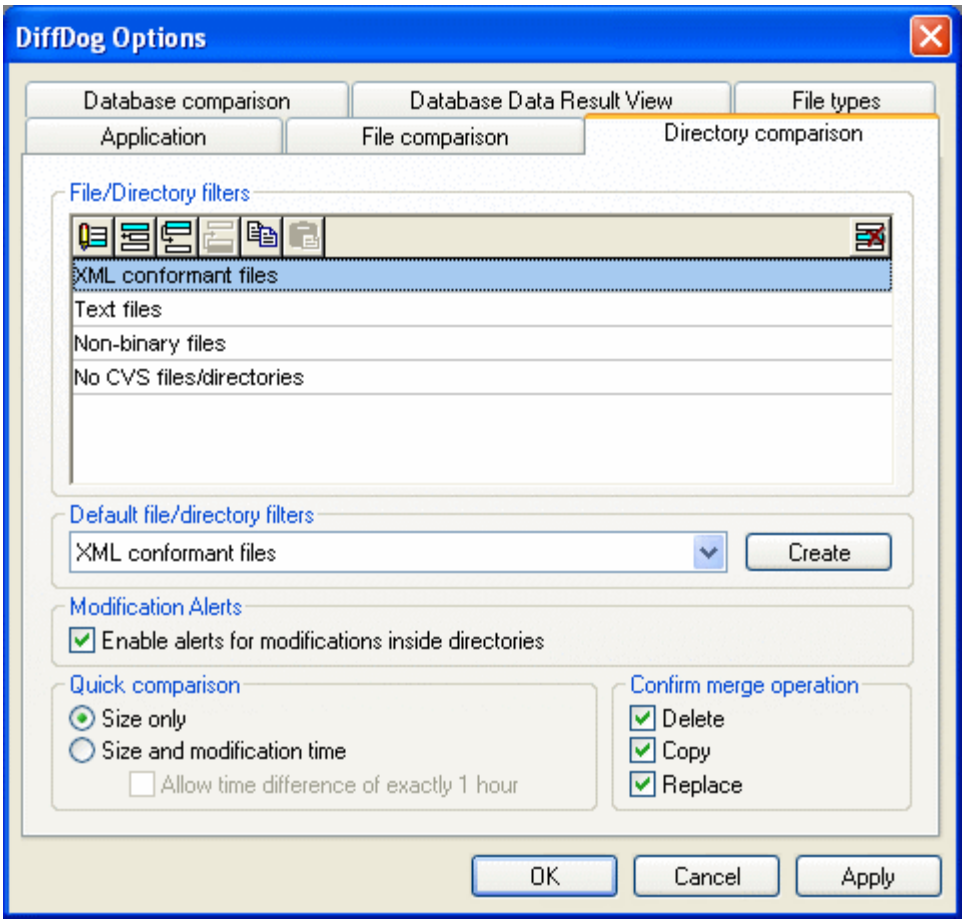
The properties of the display font can be freely chosen. Clicking the **Font** button opens the **Font** dialog box for this purpose.

Colors
You can choose different background colors for highlighting differences in compared documents, the current difference, merged differences (that is, all merged differences that have not been saved as yet), and the current merged difference (a merged difference that is currently selected). You can go back to the default colors by clicking the **Default colors** button. Note that these colors are also used in Word comparison windows.

Pretty-Print
The `Pretty-Print XML files when loading` option automatically creates a more user-friendly display when XML files that are originally delivered in a continuous stream without line breaks are loaded into File Comparison windows.

18.3 Directory Comparison

The Directory comparison tab enables you to create filters that determine what files will be considered in directory comparisons.



Note: After exiting this dialog box by clicking **OK**, you still have to select the required filter in the Directory Comparison window. Clicking **OK** does not select the filter for use; it saves the changes and exits the dialog box.

File/Directory filters
Filters are available for selection in the toolbar of the Directory Comparison window and in the **Open Comparison** dialog box if the `Compare directories` option has been selected.

The File/Directory filters group box contains several buttons for defining, organizing, and deleting the filters:

Opens the **Edit Filter** dialog for the selected filter, where you can change the filter definition.

Opens the **Edit Filter** dialog, where you can create a new filter. When the definition is completed, the filter is added to the list of available filters below the filter that has been selected when the button has been clicked.

Moves the selected filter one position down in the list of filters.

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Moves the selected filter one position up in the list of filters.

Creates a copy of the selected filter.

Pastes the copy of a filter below the selected filter.

Deletes the selected filter.

Default file/directory filters
This group box contains a drop-down list with the available default filters. Select a filter and click **Create** to open the **Edit Filter** dialog box, where you can create a new filter based on the definition of the selected default. Edit name and filter definition as required and click **OK** to add a new filter to the list of available filters in the File/Directory filters group box.

Modification Alerts

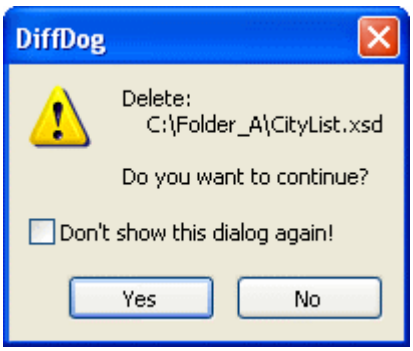
If the `Enable alerts for modifications inside directories` check box is activated, DiffDog displays a warning message when the content of the displayed folders is changed outside of DiffDog. You can then decide whether or not you want to update the display.

Quick comparison

In this group box, you can define whether size only, or size and modification date should be considered during quick comparison. When `Size and modification time` is selected. you can also activate the `Allow time difference of exactly 1 hour` check box. A time difference of exactly one hour may occur shortly after the shift to, or from, daylight saving time when the system time is changed automatically. Activating the `Allow time difference of exactly 1 hour` check box will prevent such files from being displayed as different.

Confirm merge operation

You can define whether or not a warning message should be displayed before files are deleted, copied, or replaced during directory merge operations.



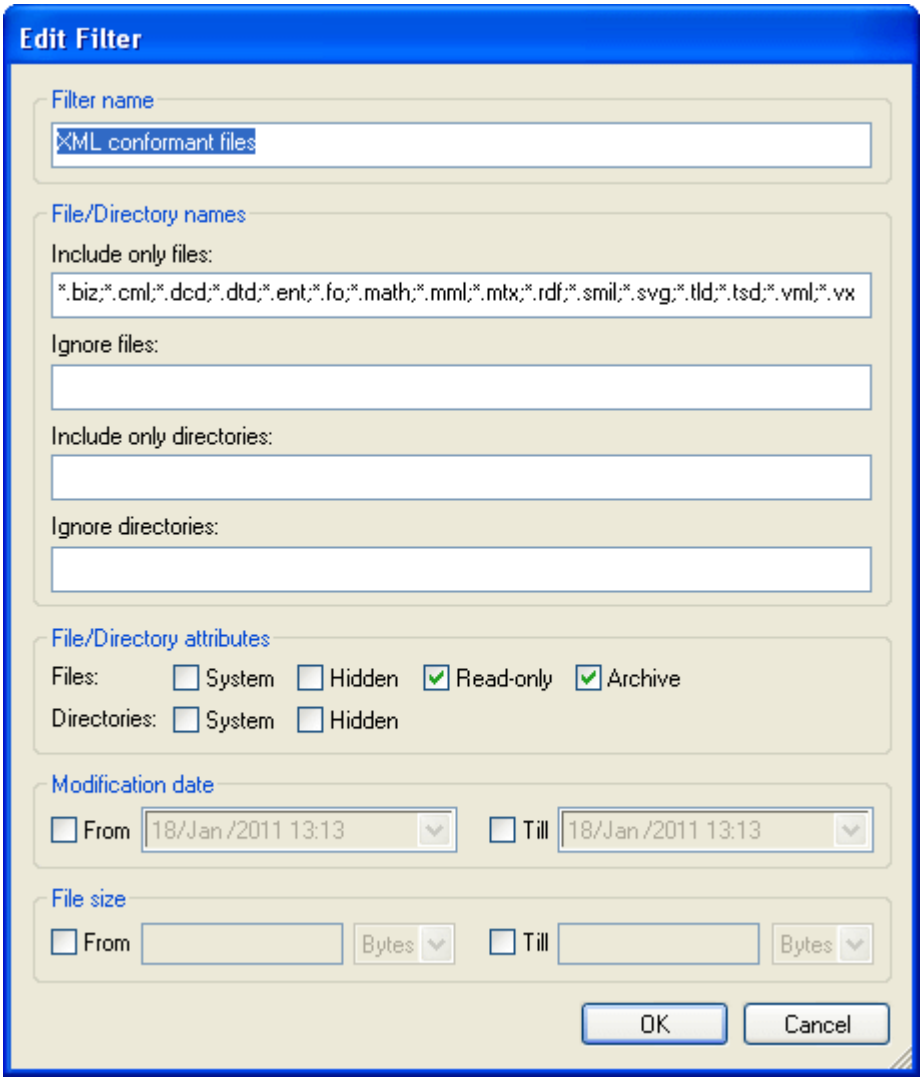
If you activate the `Don't show this dialog again!` in this dialog box, the corresponding

option is automatically deactivated in the **DiffDog Options** dialog box.

18.3.1 Defining a Filter

The **Edit Filter** dialog provides several options to restrict the directory comparison:

- Consider only files of a certain type
- Consider only specific directories
- Ignore certain files or directories
- Compare files or directories with certain attributes
- Define a date range for files/directories to be compared
- Restrict files to a certain file size



Note that if a file type is included in both the `Include only files` and `Ignore files` field, then that file type is **ignored** in a directory comparison.

For Directory Comparison windows that were opened before a new filter is selected, you must reload both directories so that the new filters are applied to these comparison windows.

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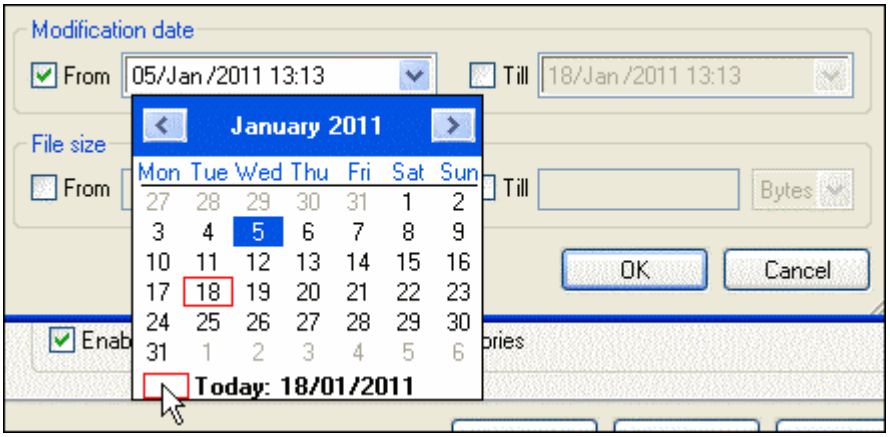
Modification date

In the Modification date group box, you can enter a From and/or a Till date to define a date range for directory comparison. Only files within that particular date range will be considered when the directories are compared. To include all files from or until a particular date, activate only the corresponding check box (`From` or `Till`, respectively) and leave the second check box unchecked.

If a check box is activated, you have several options for changing the date:

- Type a two-digit number in the year, day, hour, and minute fields. Note that in the year field, the number 91 through 99 will display the years 1991 through 1999, whereas the numbers 00 through 90 will result in years 2000 through 2090.
- In the respective date field, click the arrow button to the right of the date to open the calendar drop-down window. Here, several options are available:
  - Select a date by clicking on it.
  - Select today's date by clicking the corresponding button (*see second screenshot below*) or by right-clicking anywhere in the calendar drop-down window and selecting **Go to today** from the context menu that appears.
  - Browse the calendar years by clicking into the year and using the arrow buttons that appear next to the year (*see screenshot*), or the Up and Down keys.

  - Browse the calendar months by clicking the arrows or by clicking into the month and selecting the desired new month from the list that appears.



- Click into the date field and select the date part (i.e., year, month, day, hour, minute) you want to change and use the Up and Down keys or, for day, year, and time, simple type in the new number to alter the content. You can navigate to the next or previous date part by pressing the Right or Left key on your keyboard.

To define a filter for directory comparison:

1. Select the menu option **Tools | DiffDog Options** and change to the Directory Comparison tab, or click the **Edit Filter** button in the toolbar of a File Comparison window to open the **DiffDog Options** dialog.
2. Click the button to open the **Edit Filter** dialog.
3. In the **Edit Filter** dialog, enter a descriptive name in the `Filter name` field.

By default, "*.*" is displayed in the `Include only files` fields and "*" is displayed in the `Include only directories` fields. If you don't change this settings, files of all types and in all directories will be compared.

4. To restrict the comparison to certain file types, enter the file extension in the `Include only files` field. To exclude file types from comparison, enter the file extension in the `Ignore files` field. Note that file types are listed in the form `*.ext`, and that the delimiter between file types in a filter is the semi-colon `(;)`.
5. To include or ignore specific sub-folders of a directory during comparison, enter the name of the folder(s) in the `Include only directories` field or the `Ignore directories` field, respectively. You can also use the wildcard character `*` to enter only parts of folder names. Note that the delimiter between individual folder names in a filter is the semi-colon `(;)`.
6. To include files or directories that have certain attributes applied, activate the respective check box(es) in the File/Directory attributes group box. Files or directories with unchecked attributes will not be shown in the Directory Comparison window. Note that hidden files in hidden directories will not be shown if the `Hidden` check box is activated for files but deactivated for directories.
7. Activate the `From` and/or `Till` check boxes in the Modification date group box, if you want to restrict the comparison to a certain date range.
8. Activate the `From` and/or `Till` check boxes in the File size group box, if you want to restrict the comparison to files of a certain size. Enter a number and select the appropriate unit from the drop-down list.
9. Click **OK** to save the changes.

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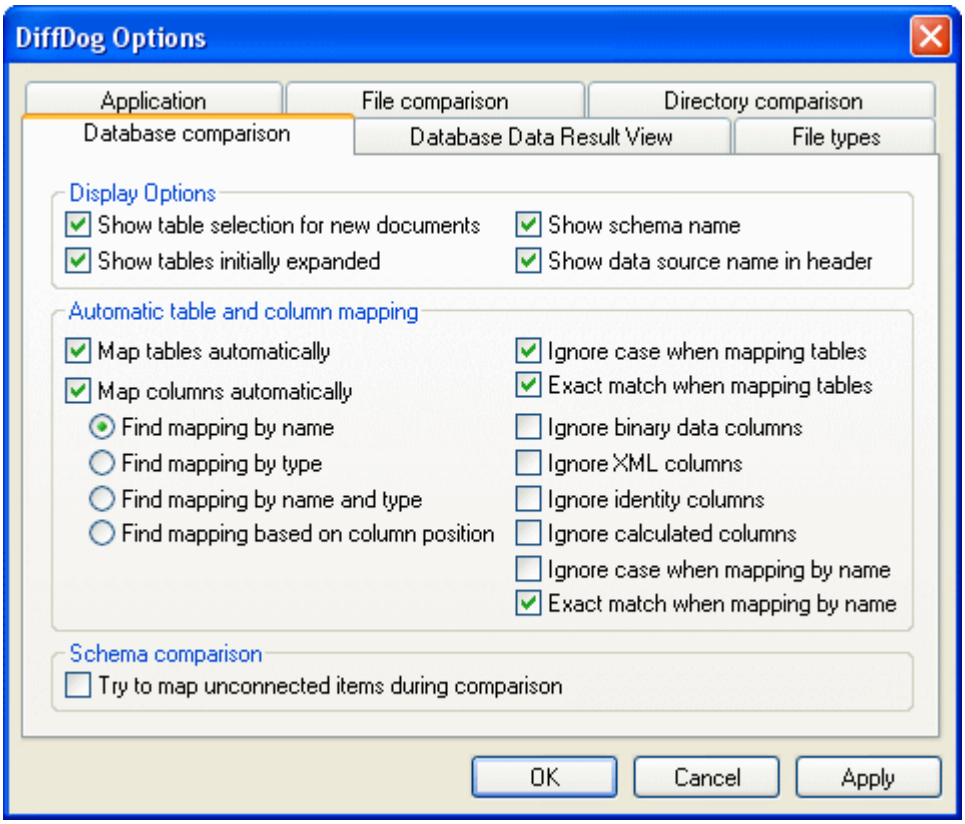
18.4 Database Comparison

The Database comparison tab defines how compared data and structure in tables are displayed in the comparison components and whether tables and/or columns should be mapped automatically when added to a comparison. Additional settings related to database data comparison are defined on the XML and Text tabs of the **Comparison Options** dialog box.



Display Options
In order to be able to open a Database Comparison window without having to specify data source and tables to be compared, deactivate the `Show table selection for new documents` check box. If you prefer that all tables be shown with the columns not expanded, deactivate the `Show tables initially expanded check box`. You can deactivate the display of the schema name for tables in components, and show the data source name in the component header.

Automatic table and column mapping
When tables are added to a comparison, they are automatically mapped. You can deactivate the automatic mapping of columns and/or tables and choose how (i.e., by name, by type, by name and type, or based on ordinal position) they should be mapped. In addition, you can specify whether or not binary data columns, XML columns, identity columns, calculated columns, or the case of a column name should be ignored. If you want to map item names that match to a large extent but are not exactly equal (e.g. "expenses2008" and "expenses_09"), deactivate the `Exact match when mapping by name` check box.

Schema comparison
If you activate the `Try to map unconnected items during comparison` check box, DiffDog will try to find corresponding items for unmapped items in the opposite component

when a comparison is started.

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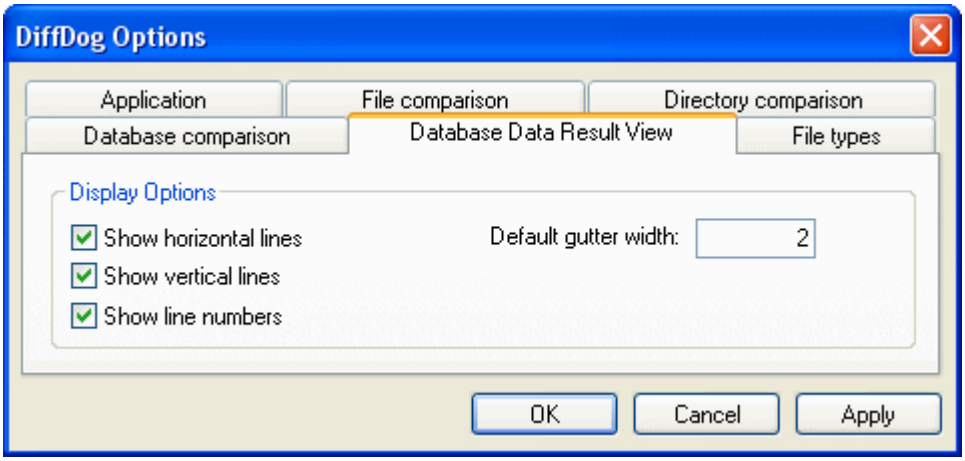
18.5 Database Data Result View

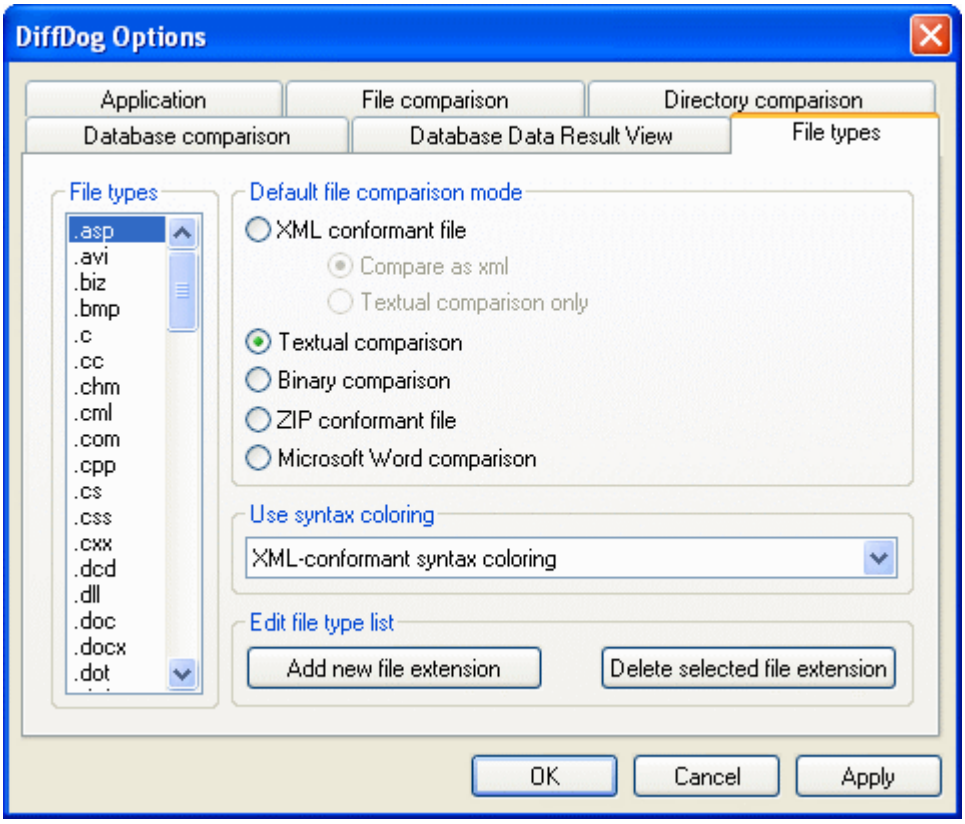
The Database Data Result View tab of the **DiffDog Options** dialog box provides options for customizing the display of the comparison results.



Display options
Activate the relevant check boxes if you want to display horizontal or vertical lines, or line numbers in the Compare Result View. You can also adapt the default gutter width if you want to separate the compared columns from each other more clearly.

18.6 File Types

In the File types tab (*screenshot below*), you set the default comparison mode of various file types. File types are identified by their extension (`.asp`, `.biz`, etc.), and the comparison mode can be XML, text, binary, or ZIP-conformant.



File types
This pane is used to select the file extension for which the options in the group boxes `Default comparison mode` and `Use syntax coloring` are defined. Please note that any changes that you make in these two group boxes only apply to the file type currently selected in the File Types pane.

Default file comparison mode
To assign a default comparison mode for a particular file type, in the Default file comparison mode group box, choose one of the following radio buttons:

- XML-conformant file
  An instance of that file type is checked for XML conformance, and is treated as an XML file if it is conformant. An XML-conformant file may be compared as XML or text.
- Textual comparison
- Binary comparison
  An instance of that file type is considered as binary file. A byte-by-byte comparison is used in directory comparison. Files of this type will not be displayed in text view.
- ZIP-conformant file
  An instance of that file type is considered as a sub-directory in directory comparison. In file comparison, files of this type are compared as binaries.

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- Microsoft Word comparison
  An instance of that file is considered as Microsoft Word document and can be compared in a Microsoft Word comparison.

The comparison mode can be overridden for individual file comparisons by selecting the desired comparison mode in the **Diff and Merge** menu. DiffDog detects binary files automatically.

Use syntax coloring
You can choose from among the following options for syntax coloring:

- No syntax coloring
- XML-conformant syntax coloring
- Source code-conformant syntax coloring

Edit file type list
To add a new file type to the list in the File types pane, click the **Add New File Extension** button. To delete a file type from the list, select the file extension in the list and then click the **Delete Selected File Extension** button.

Chapter 19

User Reference

19 User Reference

The **User Reference** section contains a complete description of all DiffDog menu commands. We've tried to make this user manual as comprehensive as possible. If, however, you have questions which are not covered in the User Reference or other parts of this documentation, please look up the FAQs and Discussion Forums on the Altova website. If you are still not able to have your problem satisfactorily addressed, please do not hesitate to contact us through the Support Center on the Altova website.

Note that in the **File** and **Edit** menus, all standard Windows commands are supported, as well as DiffDog-related commands

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19.1 Toolbar icons

Icons in the toolbar are shortcuts for various commands, most of which are also available as menu commands. You can toggle the display of any group of icons in the toolbar on or off using the Toolbars tab of the **Customize** dialog (**Tools | Customize**). In the GUI, you can move a toolbar by dragging its handle to the desired location.

The available toolbars are depicted below. See the respective chapters in the Reference section for a description of the commands.

The **Standard** Group of icons are shortcuts for file commands and common editing commands that occur in the **File**, **Edit**, and **XML** menus.

The **Comparison Mode** Group of icons enables you to select the comparison mode for files and directories. This group of commands is available in the **Diff and Merge** menu.

The **Database Data Comparison Mode** Group of icons enables you to select the comparison mode for database data. This group of commands is available in the **Diff and Merge** menu.

The **Diff and Merge** Group of icons enables you to start comparisons, navigate through differences between files, merge differences, and set application and comparison options. All these commands are available in the **Diff and Merge** menu and in the **Tools** menu.

The **Directory Content** Group of icons enables you to configure the display of Directory Comparison windows. Note that—except for the directory synchronization commands, which are included in the **Diff and Merge** menu—none of these commands are available as menu commands (see chapters "Configuring the View" and "Running a Directory Comparison" in the section "Comparing Directories" for a description) . Each of these commands applies to the active directory comparison only.

The **Word Comparison** Group of icons enables you to configure the display of Word Comparison windows. Note that none of these commands are available as menu commands (see chapter "Configuring the Word Comparison Window" in the section "Comparing Microsoft Word Documents" for a description).

The **Database Data Comparison Result** Group of icons enables you to configure the display of Database Data Comparison Result windows. Note that these commands are available only as context menu commands (see chapter "Configuring the Comparison Result View" in section "Comparing Database Data" for a description). Each of these commands applies to the active database data comparison result only.

The **Grid** Group of icons is enabled in Grid View in File Comparison windows, and most of these commands are available in the **Grid View** menu. With the Grid Group commands, you can make structural editing changes and modify the Grid View of your XML document. Grid View is not available for non-XML or non-well-formed documents; that is, for the Grid View of a document to be displayed, the document must be an XML document and be well-formed.

The following icons are **not** included in the **Grid View** menu:

Expand all selected: In Grid View, this command expands one or more selected nodes in Grid View.

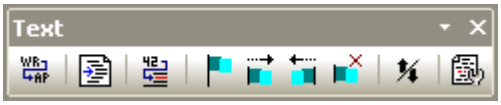
Collapse all selected: In Grid View, this command collapses the selected nodes.

Fully expand all selected: In Grid View, this command expands all selected nodes and their descendant nodes.

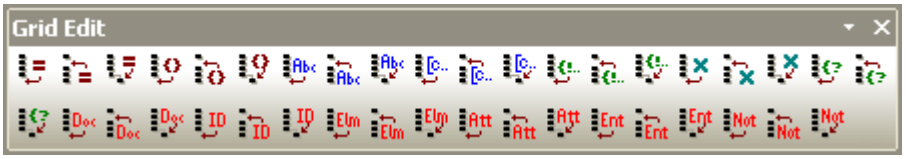
Collapse unselected: In Grid View, this command collapses all selected nodes and their descendant nodes.

Optimal widths: In Grid View, this command sets columns to optimal widths.

The **Text** Group of icons enables you to configure the display and navigation features of Text View. Some of these commands apply to the selected file only (that is, the file in which the cursor is). Other commands apply to all open files and subsequently opened files. All these commands are available as **Text View** menu commands.



Icons in the **Grid Edit** Group are used for editing in Grid View. These commands are fully described in the Grid View Menu section. Please note that this toolbar is deactivated by default, you have to activate the respective check box in the Toolbars tab of the **Tools | Customize** dialog box to view it.



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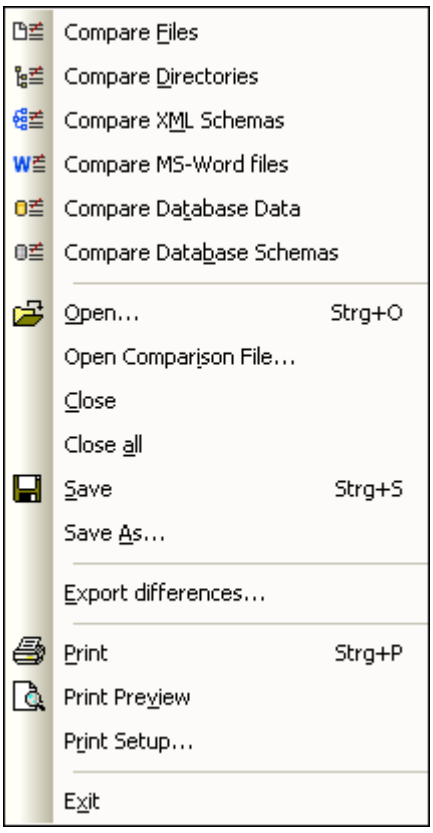
19.2 File Menu

The **File** menu contains all commands relevant to manipulating files, in the order common to most Windows software products.



In addition to the standard Open, Save, Print, Print Setup, and Exit commands, DiffDog offers a range of application-specific commands. Note that in File Comparison and Directory Comparison windows, each of the two panes also has pane-specific icons located near the top of each pane to open and refresh the file/directory in that pane and (for file comparisons) to save the file in that pane.

19.2.1 Compare Files

The **Compare Files** command opens a new empty window with two empty panes for file comparison. The two files to be compared must be opened subsequently in the panes of the comparison window.

19.2.2 Compare Directories

The **Compare Directories** command opens a new empty window for directory comparison. The two directories to be compared must be opened separately in each pane.

19.2.3 Compare Microsoft Word Files

The **Compare Microsoft Word Files** command opens a new empty window with two empty Microsoft Word documents for Microsoft Word file comparison. The two Microsoft Word documents to be compared must be opened subsequently in the panes of the comparison window.

19.2.4 Compare XML Schemas

The **Compare XML Schemas** command opens a new empty window for XML Schema comparison. The two XML Schemas to be compared must be opened subsequently in the components of the comparison window.

19.2.5 Compare Database Data

The **Compare Database Data** command opens a new empty window for database data comparison. The two databases to be compared must be opened and the tables to be compared must be selected separately in each component.

19.2.6 Compare Database Schemas

The **Compare Database Schema** command opens a new empty window for database schema comparison. The two databases to be compared must be opened and the schemas to be compared must be selected separately in each component.

19.2.7 Open...

Ctrl+O

The **Open...** command enables you to open a File Comparison window or Directory Comparison window with the files or directories already selected. This is in contrast with the **Compare Files** and **Compare Directories** commands, which open empty comparison windows.

Note that the layout of the dialog box changes depending on whether you choose `Compare files` or `Compare directories` in the Mode group box.

Database data comparison files (*.dbdif) cannot be opened with this command, you have to use the **Open Database Data Comparison File...** command.

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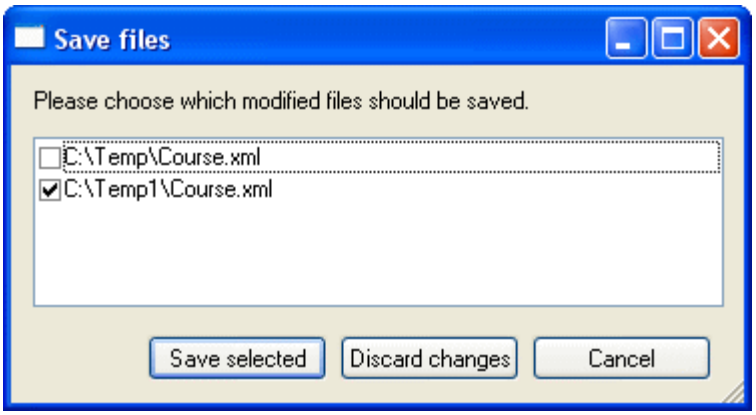
19.2.8 Open Comparison File...

The **Open Comparison File...** command enables you to open a Database Data Comparison window, Database Schema window, or XML Schema Comparsion window with the data sources and tables or XML Schemas, respectively, already selected. This is in contrast with the **Compare Database Data**, **Compare Database Schema**, or **Compare XML Schema** commands, which open an empty Comparison window.

19.2.9 Close

The **Close** command closes the active comparison window. If you have unsaved changes in either document of a file comparison being closed, the **Save files** dialog box appears (*screenshot below*). Both files in the file comparison are displayed. If a file contains unsaved changes, it is checked.



To close a comparison window:

1. Click the tab of the comparison window you want to close.
2. Select the menu option **File | Close** or click the **Close** ☒ button in the upper right corner of the comparison window.
3. If a file contains unsaved changes, the **Save files** dialog box appears. Do one of the following:
   - If you wish to save changes in a file, make sure that its check box is selected and click **Save selected**.
   - Click **Discard changes** to not save changes.
   - Click **Cancel** to not close the comparison window.

19.2.10 Close All

The **Close all** command closes all open comparison windows. If a document in a file comparison contains unsaved changes, the **Save files** dialog box (*see screenshot above*) appears for that file comparison. Directory comparisons are closed without any prompt.

If more than one file comparison contains document/s with unsaved changes, a **Save files** dialog box is displayed for each File Comparison window before the window is closed.

19.2.11 Save

Ctrl+S

The **Save** command is available only for file comparisons and database data comparisons. For file comparisons, it pops up the **Save files** dialog box (*see screenshot above*). Both files are displayed in the dialog. If a file contains unsaved changes, the file is listed with a check mark.

Note: Clicking the **Save** icon of an **individual pane** in a File Comparison window causes the document in that pane to be saved without further prompting. The **Save As** icon enables you to save the document in that pane with a different filename.

19.2.12 Save As

The **Save As...** command pops up the familiar Windows **Save As** dialog box, in which you enter the name and location of the file you wish to save the active file as.

19.2.13 Export Differences...

The **Export differences...** command allows you to export differences to a file. This menu option is available only for file and directory comparisons.

19.2.14 Print...

Ctrl+P

The **Print...** command pops up the Windows **Print** dialog box, in which you enter details about the print job. Note that this command prints the **active document**, that is, the document in which the cursor is when the command is invoked.

Note: You can print the active document from both Text View and Grid View. The output will be a printout of the selected view.

19.2.15 Print Preview

The **Print Preview** command displays a preview of how the active document will be printed.

19.2.16 Print Setup...

The **Print Setup...** command pops up the Windows **Print Setup** dialog, in which you can change printer settings for the print job and other printer properties. Settings include page orientation, paper size, and paper source. After you exit the Print Setup dialog, you must still use the **Print** command to print a document.

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19.2.17 Exit

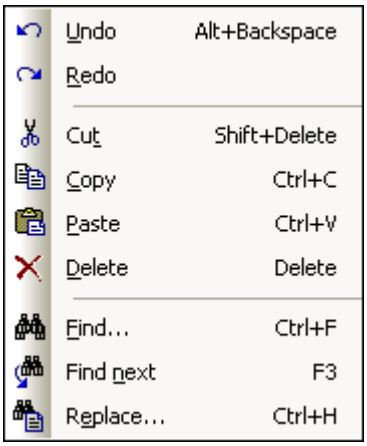
This command exits the DiffDog application. If documents in one or more File Comparison windows contain unsaved changes, DiffDog pops up the **Save files** dialog box separately for each file comparison containing an unsaved change.

If you have not saved a database data comparison to a database data comparison file (*.dbdif) when you close DiffDog, a message box appears and prompts you to save the Database Data Comparison window.

After you have answered the prompts, DiffDog closes.

19.3 Edit Menu

In DiffDog, you can edit documents displayed in a File Comparison window. You edit a document either by typing directly into it, and/or by using keyboard shortcuts or commands in the **Edit** menu.



The commands in the **Edit** menu include standard editing functions, such as Undo, Cut, Copy, Paste, and a powerful Find and Replace function. These commands are described in the sub-sections of this section.

Please note that editing commands are document-specific and that **Edit** menu commands are not available when a directory comparison or a Database Data Comparison Result window is active.

19.3.1 Undo

Alt+Backspace, **Ctrl+Z**

The **Undo** command enables you to undo an unlimited number of previous actions for each document separately. To undo previous actions in any document, place the cursor in that document and select the **Undo** command. You can switch among documents in multiple open file comparisons. In each document, the Undos will continue from the point where it was last left.

Please consider the following when using the **Undo** and **Redo** commands:

- The **Undo** and **Redo** commands also undo and redo merged differences an unlimited number of times.
- It is important to place the cursor in the document that has been changed. For example, if you merge a difference from the Left Pane to the Right Pane, then the **Undo** for this action will only be available if the cursor is placed in the Right Pane (because this pane contains the document that has been changed).
- The Undo and Redo history is lost when the view is switched from Text View to Grid View, or vice versa.
- The **Edit** menu and the **Undo** and **Redo** commands are not available in Directory Comparison and Database Data Comparison Result windows.

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19.3.2 Redo

Ctrl+Y

The **Redo** command reverses a previous **Undo** command, and can be executed as many times as an Undo was performed. Like the **Undo** command, the **Redo** command is also document-specific, and you can switch among documents.

Note that the **Edit** menu and, therefore, this command are not available in Directory Comparison and Database Data Comparison Result windows.

19.3.3 Cut

Shift+Delete, **Ctrl+X**

The **Cut** command copies the selected text to the clipboard and deletes it from its present location.

Note that the **Edit** menu and, therefore, this command are not available in Directory Comparison and Database Data Comparison Result windows.

19.3.4 Copy

Ctrl+C

The **Copy** command copies the selected text to the clipboard. This can be used to duplicate data within DiffDog or to move data to another application.

Note that the **Edit** menu and, therefore, this command are not available in Directory Comparison and Database Data Comparison Result windows.

19.3.5 Paste

Ctrl+V

The **Paste** command inserts the contents of the clipboard at the current cursor position of any document you make active in DiffDog. You can also paste text from the clipboard into any other document in an application that supports pasting from the clipboard.

Note that the **Edit** menu and, therefore, this command are not available in Directory Comparison and Database Data Comparison Result windows.

19.3.6 Delete

Delete

The **Delete** command enables you to delete a selection in the document.

Note that the **Edit** menu and, therefore, this command are not available in Directory Comparison and Database Data Comparison Result windows.

19.3.7 Find...

Ctrl+F

The **Find...** command pops up the **Find** dialog box, in which you can specify the string you want to find and other options for the search.

Note that the **Edit** menu and, therefore, this command are not available in Directory Comparison and Database Data Comparison Result windows.

19.3.8 Find next

F3

The **Find next** command repeats the last **Find...** command to search for the next occurrence of the requested text. Clicking this command when the **Find** dialog box is open, closes the **Find** dialog box before taking you to the next occurrence of the search string.

Note that the **Edit** menu and, therefore, this command are not available in Directory Comparison and Database Data Comparison Result windows.

19.3.9 Replace...

Ctrl+H

The **Replace...** command enables you to find and replace one text string with another text string. It features the same options as the **Find...** command. You can replace each item individually or you can use the **Replace All** button to perform a global search-and-replace operation.

Note that the **Edit** menu and, therefore, this command are not available in Directory Comparison and Database Data Comparison Result windows.

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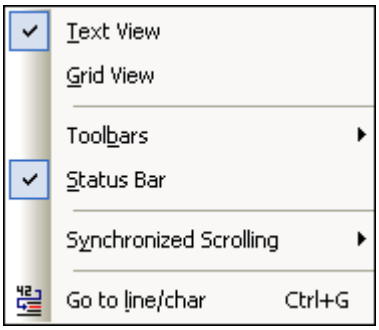
19.4 View Menu

The **View** menu contains commands to customize and organize the display of the DiffDog interface. It also contains the Go to line/char command, which takes you directly to a given line and character.



19.4.1 Text View

The **Text View** command is available in File Comparison windows (not Directory Comparison or Database Data Comparison windows), and switches **both files** of the active File Comparison window to Text View. Note that **both** files are always displayed in the same view. To switch the view, you can also use the Text View tab of either pane; the tabs are located at the bottom of each pane.

Note that this command is not available in Database Data Comparison and Database Data Comparison Result windows.

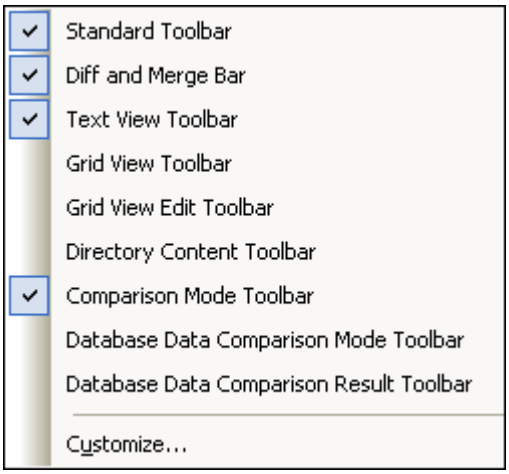
19.4.2 Grid View

The **Grid View** command is available in File Comparison windows (not Directory Comparison or Database Data Comparison windows), and switches **both files** of the active File Comparison window to Grid View. Note that **both** files are always displayed in the same view. To switch the view, you can also use the Grid View tab of either pane; the tabs are located at the bottom of each pane.

Note that this command is not available in Database Data Comparison and Database Data Comparison Result windows.

19.4.3 Toolbars

The **Toolbars** menu item is available in File Comparison, Directory Comparison, and Database Data Comparison windows, and contains a submenu which looks something like this:



The submenu items are toolbars that can be toggled on and off (by clicking the submenu item). In the screenshot above, the Standard Toolbar, Diff and Merge Toolbar, Text View Toolbar, and Comparison Mode Toolbar are toggled on, and are displayed in the GUI.

Toolbar settings are made for file comparisons, directory comparisons, and database data comparisons separately. If toolbar settings are made with a File Comparison window open, the settings apply to all File Comparison windows that are currently open and that will be opened subsequently. The same applies for Directory Comparison and Database Data Comparison windows.

Clicking the **Customize...** submenu item pops up the **Customize** dialog box. (For a description of customization options, see the **Tools | Customize** section.) The Toolbars tab lists all the available toolbars.

19.4.4 Status Bar

The Status Bar, located at the bottom of the DiffDog application window, displays the following application-level information:

- A description of menu command and toolbar icon actions; displayed when the mouse cursor is placed over the command or icon. This information is on the left side in the Status Bar.
- Position of the cursor in a document, in terms of line number and character number. (At right in Status Bar.)
- Status of the Caps Lock, Num Lock and Scroll Lock keys. (At right in Status Bar.)
- If you are using the 64-bit version of DiffDog, this is indicated in the status bar with the suffix (x64) after the application name. There is no suffix for the 32-bit version.

You can toggle the Status Bar on and off using the **Status Bar** command in File Comparison, XML Schema Comparison, Directory Comparison, Database Data Comparison, and Database Schema Comparison windows.

Note: Do not confuse the Application Status Bar described here with the File Comparison and Directory Comparison Status Bars, which are located at the bottom of Comparison Windows and contain information about that comparison. Comparison Window status bars are described in the DiffDog Interface section.

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19.4.5 Synchronized Scrolling

The **Synchronized Scrolling** command opens a sub-menu, where you can set this option separately for horizontal and vertical scrolling.

Synchronized scrolling is available in File Comparison windows. If documents extend over a horizontal or vertical length greater than the size of its containing pane, horizontal and vertical scrollbars, respectively, appear at the bottom and right of the pane, respectively. When synchronized scrolling is enabled, both documents can be scrolled simultaneously so that corresponding sections of the two documents are displayed simultaneously.

If you scroll through one document (by moving the scrollbar, clicking the scroll arrows, or using the mouse wheel) when synchronized scrolling is toggled on, the document in the other pane will also scroll (horizontally or vertically) so that the corresponding part of the document is displayed.

Please note that synchronized scrolling is possible only after a file comparison has been carried out (since the correspondence of sections in the two documents can only be determined after a comparison is made).

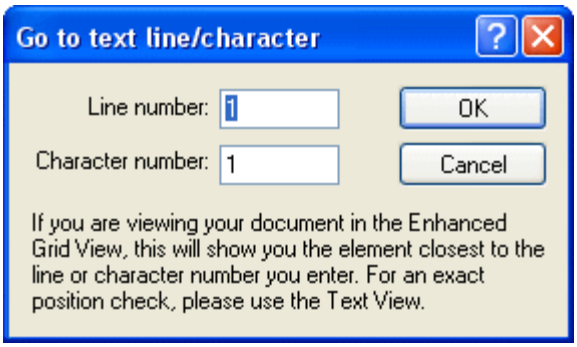
Settings for synchronized scrolling apply to the application as a whole, and take effect immediately for all open File Comparison windows and subsequently opened File Comparison windows.

Note that this command is not available in Database Data Comparison and Database Data Comparison Result windows.

19.4.6 Go to line/char

Ctrl+G

The **Go to line/char** feature is available in File Comparison windows only, and enables you to go to a particular location in the active document using line and character coordinates. The command pops up the **Go to text line/character** dialog (*screenshot below*).



Enter the required line and character numbers in the respective text boxes, and click **OK**. This positions the cursor at the specified location.

Note: In Grid View, the Go to line/char feature highlights the grid cell closest to the line or character number you enter.

Note that this command is not available in Database Data Comparison and Database Data Comparison Result windows.

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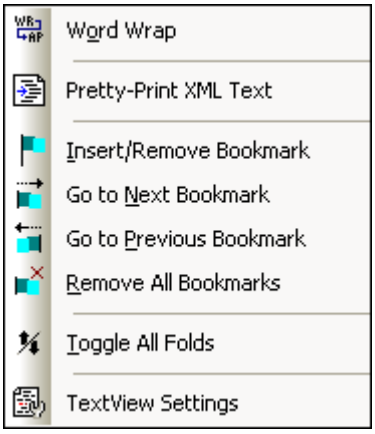
19.5 Text View Menu

The **Text View** menu contains commands that apply to the Text View display of documents in File Comparison windows. They enable you to customize the display of documents.



19.5.1 Word Wrap

The **Word Wrap** command enables or disables word wrapping in Text View.

19.5.2 Pretty-Print XML Text

The **Pretty-Print XML Text** command reformats the active XML document in Text View to give a structured display of the document. Each child node is offset from its parent by four space characters.

Note: The Pretty-Print XML Text command is not a toggle command. Once the command is executed, the pretty-printed format cannot be undone by clicking the Pretty-Print XML Text command again. To undo the pretty-printed format, you must use the **Undo** (**Ctrl+Z** or **Alt+Backspace**) command.

19.5.3 Insert/Remove Bookmark

The **Insert/Remove Bookmark** command is available in Text View only. It inserts a bookmark at the current cursor position, or removes the bookmark if the cursor is in a line that has been bookmarked previously.

Bookmarked lines are displayed in one of two ways: If the bookmarks margin has been enabled, then a solid cyan-colored ellipse appears to the left of the text in the bookmark margin. If the bookmarks margin has **not** been enabled, then the complete line containing the cursor is highlighted in cyan.

Tip: You can assign a keyboard shortcut for this command in the Keyboard tab of the **Customize** dialog box.

19.5.4 Go to Next Bookmark

The **Go to Next Bookmark** command is available in Text View only. It places the text cursor at the beginning of the next bookmarked line.

Tip: You can assign a keyboard shortcut for this command in the Keyboard tab of the **Customize** dialog box.

19.5.5 Go to Previous Bookmark

The **Go to Previous Bookmark** command is available in Text View only. It places the text cursor at the beginning of the previous bookmarked line.

Tip: You can assign a keyboard shortcut for this command in the Keyboard tab of the **Customize** dialog box.

19.5.6 Remove All Bookmarks

The **Remove All Bookmarks** command is available in Text View only. It removes all currently defined bookmarks in the active document. Note that the **Undo** command does not undo the effects of this command.

Tip: You can assign a keyboard shortcut for this command in the Keyboard tab of the **Customize** dialog box.

19.5.7 Toggle All Folds

The **Toggle All Folds** command toggles the active document between two states: (i) all nodes expanded, and (ii) all nodes collapsed.

19.5.8 Text View Settings

The **Text View Settings** command opens the **Text View Settings** dialog box where you can define settings for the display of line number, bookmark, and source folding margins, specify the tab size, and define which visual aids are available in Text View.

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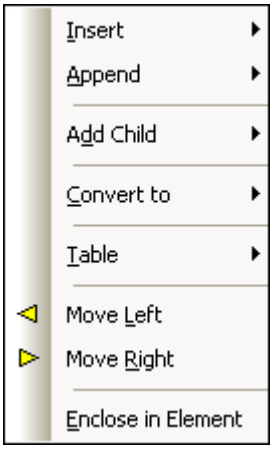
19.6 Grid View Menu

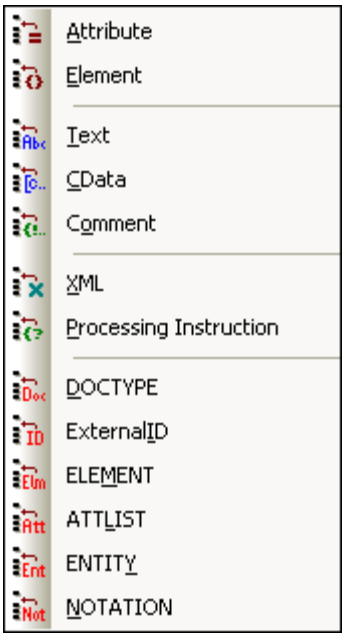
The **Grid View** Menu contains commands for working with documents in the Grid View of File Comparison windows.



These commands are not available in Text View.

19.6.1 Insert

Placing the cursor over the **Insert** command pops up a sub-menu which contains the items that can be inserted. The submenu items of the **Insert** command are enabled only in Grid View. Items that cannot be inserted for the current selection are grayed out.



The commands of the **Insert** sub-menu can be used to insert (i) the XML declaration and node types (Attribute, Element, Text, CDATA, Comment, Processing Instruction) in XML documents, (ii) DOCTYPE declarations and external DTD declarations in XML documents, and (iii) DTD declarations (ELEMENT, ATTLIST, ENTITY, and NOTATION) in DTD documents and internal DTD declarations of XML documents.

Insert | Attribute

The **Insert | Attribute** command is available in Grid View only, and inserts a new attribute before the selected item. Sometimes, an inserted attribute may appear a few lines before the current item in Grid View. This is because attributes immediately follow their parent element in Grid View and precede all child elements of that parent element.

Insert | Element

The **Insert | Element** command is available in Grid View only, and inserts a new element before the selected item. If the current selection is an attribute, the new element is inserted before the first child element of the attribute's parent element.

Insert | Text

The **Insert | Text** command is available in Grid View only, and inserts a new text row before the selected item. If the current selection is an attribute, the text row is inserted after the attribute and before the first child element of the attribute's parent element.

Insert | CData

The **Insert | CData** command is available in Grid View only, and inserts a new CDATA block before the selected item. If the current selection is an attribute, the CDATA block is inserted after the attribute and before the first child element of the attribute's parent element.

Insert | Comment

The **Insert | Comment** command is available in Grid View only, and inserts a new comment before the selected item. If the current selection is an attribute, the new comment row is inserted after the attribute and before the first child element of the attribute's parent element.

Insert | XML

The **Insert | XML** command is available in Grid View only, and inserts a row for the XML declaration before the selected item. You must insert the child attributes of the XML declaration and the values of this attribute. An XML declaration must look something like this:

```
<?xml version="1.0" encoding="UTF-8"?>
```

Note: Since an XML document may only contain one XML declaration at the very top of the file, this command should only be used with the topmost row selected and if an XML declaration does not already exist.

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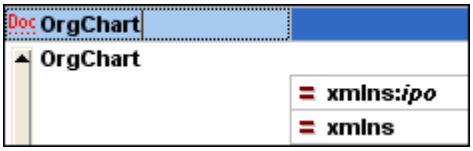
Insert | Processing Instruction

The **Insert | Processing Instruction** command is available in Grid View only, and inserts a new processing instruction (PI) before the selected item. If the current selection is an attribute, the PI is inserted after the attribute and before the first child element of the attribute's parent element.

Insert | DOCTYPE

The **Insert | DOCTYPE** command is available in the Grid View of an XML file when a top-level node is selected. It appends a DOCTYPE declaration at the top of the XML document. You must enter the name of the DOCTYPE, and this name must be the same as the name of the document element.

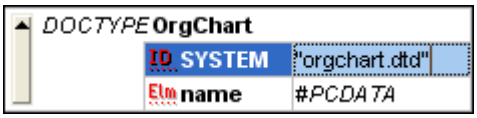


After you have entered the name of the DOCTYPE, you can enter the declarations you wish to use in the internal DTD subset.

Note: A DOCTYPE declaration may only appear between the XML declaration and the XML document element.

Insert | ExternalID

The **Insert | ExternalID** command is available when a child item of the DOCTYPE declaration in an XML file is selected in Grid View. This command inserts a Grid View row for an external identifier (`PUBLIC` or `SYSTEM`). You must enter the type of identifier and its value.



The Text View corresponding to the screenshot of the Grid View shown above looks like this:

```
<!DOCTYPE OrgChart SYSTEM "orgchart.dtd" [
   <!ELEMENT name (#PCDATA)>
]>
```

Note: A row for ExternalID can be added as a child when the DOCTYPE item is selected, or it can be inserted or appended when one of the child items of the DOCTYPE item is selected, for example, the ELEMENT declaration `name` in the example above.

Referencing external resources

A DOCTYPE declaration in an XML file can contain a reference to an external resource containing DTD declarations. This resource is referenced either through a public or system identifier. For example:

```
<! DOCTYPE doc_element_name PUBLIC "publicID" "systemID">
<! DOCTYPE doc_element_name SYSTEM "systemID">
```

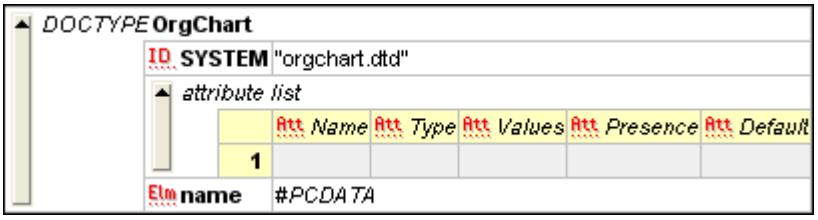
A system identifier is a URI that identifies the external resource. A public identifier is location-independent and can be used to dereference the location of an external resource. For example, in your XMLSpy installation, URIs for popular DTDs and XML Schemas are listed in a catalog file called `MainCatalog.xml`. A public identifier in an XML document can be used to dereference a DTD listed in `MainCatalog.xml`.

Insert | ELEMENT

The **Insert | ELEMENT** command is available in Grid View only, for DTD documents or when an item in the DOCTYPE declaration of an XML document is selected. It inserts an ELEMENT declaration before the selected declaration.

Insert | ATTLIST

The **Insert | ATTLIST** command is available in Grid View only, for DTD documents or when an item in the DOCTYPE declaration of an XML document is selected. It inserts an ATTLIST declaration before the selected declaration.



Insert | ENTITY

The **Insert | ENTITY** command is available in Grid View only, for DTD documents or when an item in the DOCTYPE declaration of an XML document is selected. It inserts an ENTITY declaration before the selected declaration.

Insert | NOTATION

The **Insert | NOTATION** command is available in Grid View only, for DTD documents or when an item in the DOCTYPE declaration of an XML document is selected. It inserts a NOTATION declaration before the selected declaration.

19.6.2 Append

Placing the cursor over the **Append** command pops up a submenu which contains the items that can be inserted for a given selection. The submenu items of the **Append** command are enabled only in Grid View. Items that cannot be inserted for the current selection are grayed out.

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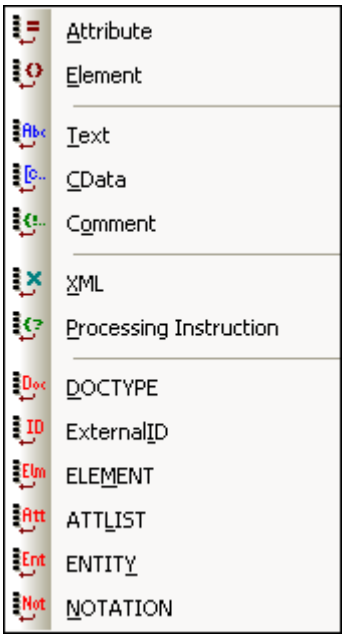


The commands of the **Append** sub-menu can be used to append (i) the XML declaration and node types (Attribute, Element, Text, CDATA, Comment, Processing Instruction) in XML documents, (ii) DOCTYPE declarations and external DTD declarations in XML documents, and (iii) DTD declarations (ELEMENT, ATTLIST, ENTITY, and NOTATION) in DTD documents and internal DTD declarations of XML documents.

Append | Attribute

The **Append | Attribute** command is available in Grid View only, and appends a new attribute.

Append | Element

The **Append | Element** command is available in Grid View only, and appends an element node after the last sibling element of the selected element. If an attribute node is selected, then the element node is appended after the last child of the selected attribute's parent element.

Append | Text

The **Append | Text** command is available in Grid View only, and appends a text block after the last sibling element of the selected element. If an attribute node is selected, then the text block is appended after the last child of the selected attribute's parent element.

Append | CData

The **Append | CData** command is available in Grid View only, and appends a CDATA node after the last sibling of any selected node other than an attribute node. If an attribute node is selected, then the CDATA section is appended after the last child of the selected attribute's

parent element.

Append | Comment

The **Append | Comment** command is available in Grid View only, and appends a comment node after the last sibling of any selected node other than an attribute node. If an attribute node is selected, then the comment node is appended after the last child of the selected attribute's parent element.

Append | XML

The **Append | XML** command is available in Grid View only, and inserts a row for the XML declaration as the first item in a document. You must insert the child attributes of the XML declaration and the values of this attribute. An XML declaration must look something like this:

```
<?xml version="1.0" encoding="UTF-8"?>
```

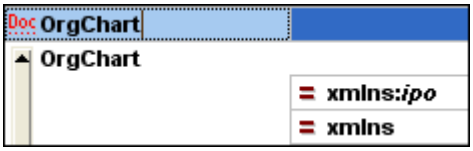
Note: Since an XML document may only contain one XML declaration at the very top of the file, this command should only be used with the topmost row selected and if an XML declaration does not already exist.

Append | Processing Instruction

The **Append | Processing Instruction** command is available in Grid View only, and appends a processing instruction node after the last sibling of any selected node other than an attribute node. If an attribute node is selected, then the processing instruction node is appended after the last child of the selected attribute's parent element.

Append | DOCTYPE

The **Append | DOCTYPE** command is available in the Grid View of an XML file when a top-level node is selected. It appends a DOCTYPE declaration at the top of the XML document. You must enter the name of the DOCTYPE, and this name must be the same as the name of the document element.



After you have entered the name of the DOCTYPE, you can enter the declarations you wish to use in the internal DTD subset.

Note: A DOCTYPE declaration may only appear between the XML declaration and the XML document element.

Append | ExternalID

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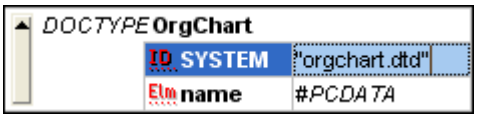
The **Append | ExternalID** command is available when a child item of the DOCTYPE declaration in an XML file is selected in Grid View. This command inserts a Grid View row for an external identifier (`PUBLIC` or `SYSTEM`). You must enter the type of identifier and its value.



The Text View corresponding to the screenshot of the Grid View shown above looks like this:

```
<!DOCTYPE OrgChart SYSTEM "orgchart.dtd" [
  <!ELEMENT name (#PCDATA)>
]>
```

Note: A row for ExternalID can be added as a child when the DOCTYPE item is selected, or it can be inserted or appended when one of the child items of the DOCTYPE item is selected, for example, the ELEMENT declaration `name` in the example above.

Append | ELEMENT

The **Append | ELEMENT** command is available in Grid View only, for DTD documents or when an item in the DOCTYPE declaration of an XML document is selected. It appends an ELEMENT declaration to the list of declarations.

Append | ATTLIST

The **Append | ATTLIST** command is available in Grid View only, for DTD documents or when an item in the DOCTYPE declaration of an XML document is selected. It appends an ATTLIST declaration to the list of declarations.

Append | ENTITY

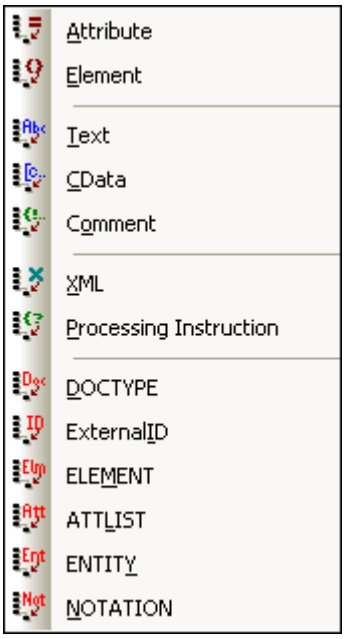
The **Append | ENTITY** command is available in Grid View only, for DTD documents or when an item in the DOCTYPE declaration of an XML document is selected. It appends an ENTITY declaration to the list of declarations.

Append | NOTATION

The **Append | NOTATION** command is available in Grid View only, for DTD documents or when an item in the DOCTYPE declaration of an XML document is selected. It appends a NOTATION declaration to the list of declarations.

19.6.3 Add Child

Placing the cursor over the **Add Child** command pops up a submenu which contains the items that can be inserted for a given selection. The submenu items of the **Add Child** command are enabled only in Grid View. Items that cannot be inserted for the current selection are grayed out.



The commands of the **Add Child** sub-menu can be used to add child nodes for (i) the XML declaration and node types (Attribute, Element, Text, CDATA, Comment, Processing Instruction) in XML documents, (ii) DOCTYPE declarations and external DTD declarations in XML documents, and (iii) DTD declarations (ELEMENT, ATTLIST, ENTITY, and NOTATION) in DTD documents and internal DTD declarations of XML documents.

Add Child | Attribute

The **Add Child | Attribute** command is available in Grid View only and when an element node is selected. It inserts a new attribute as a child of the selected element node.

Add Child | Element

The **Add Child | Element** command is available in Grid View only. It inserts a new element as a child of the selected node.

Add Child | Text

The **Add Child | Text** command is available in Grid View only, and inserts new text content as a child of the selected item.

Add Child | CData

The **Add Child | CData** command is available in Grid View only, and inserts a new CDATA section as a child of the selected item.

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Add Child | Comment

The **Add Child | Comment** command is available in Grid View only, and inserts a new Comment node as a child of the selected item.

Add Child | XML

The **Add Child | XML** command is available in Grid View only and when the file is **empty**. It inserts a row for the XML declaration. You must insert the child attributes of the XML declaration and the values of this attribute. An XML declaration must look something like this:

```
<?xml version="1.0" encoding="UTF-8"?>
```

Add Child | Processing Instruction

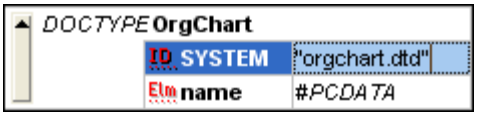
The **Add Child | Processing Instruction** command is available in Grid View only and inserts a new Processing Instruction (PI) as a child of the selected item.

Add Child | DOCTYPE

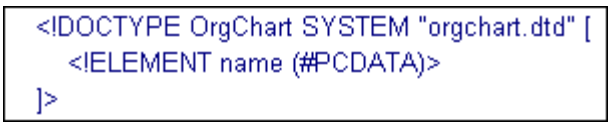
The **Add Child | DOCTYPE** command is available in the Grid View of an **empty** document. It inserts a DOCTYPE declaration in an XML document. The DOCTYPE declaration can be used to declare an internal DTD subset.

Add Child | ExternalID

The **Add Child | ExternalID** command is available when the DOCTYPE declaration in an XML file is selected in Grid View. This command inserts a Grid View row for an external identifier (`PUBLIC` or `SYSTEM`). You must enter the type of identifier and its value.



The Text View corresponding to the screenshot of the Grid View shown above looks like this:



Note: A row for ExternalID can be added as a child when the DOCTYPE item is selected, or it can be inserted or appended when one of the child items of the DOCTYPE item is selected, for example, the ELEMENT declaration `name` in the example above.

Add Child | ELEMENT

The **Add Child | ELEMENT** command is available in Grid View only, for DTD documents or when the DOCTYPE declaration of an XML document is selected. It appends an ELEMENT declaration to the list of declarations.

Add Child | ATTLIST

The **Add Child | ATTLIST** command is available in Grid View only, for DTD documents or when the DOCTYPE declaration of an XML document is selected. It appends an ATTLIST declaration to the list of declarations.

Add Child | ENTITY

The **Add Child | ENTITY** command is available in Grid View only, for DTD documents or when the DOCTYPE declaration of an XML document is selected. It appends an ENTITY declaration to the list of declarations.

Add Child | NOTATION

The **Add Child | NOTATION** command is available in Grid View only, for DTD documents or when the DOCTYPE declaration of an XML document is selected. It appends a NOTATION declaration to the list of declarations.

19.6.4 Convert to

The **Convert to** command converts a selected item in Grid View to a different item type. This operation is available only in Grid View on individual items that do not contain any child node. Placing the cursor over the **Convert to** command pops up a submenu which contains the items to which the selected item can be converted.

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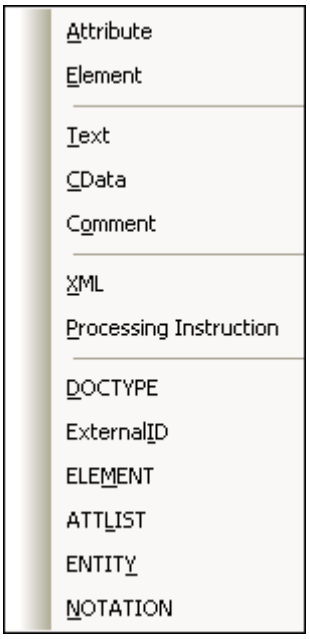
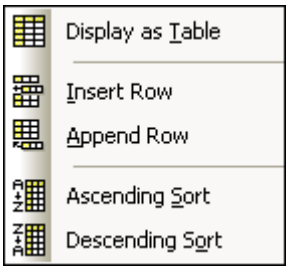


If the operation would result in a loss of data (for example, converting an attribute to a comment would result in a loss of the attribute name), a warning dialog box will appear.

19.6.5 Table

The **Table** menu command can be used only in Grid View. It pops out a sub-menu with commands that enable you to edit the selection as a table.



Display as Table

The **Display as Table** command allows you to switch between the standard Grid View and Table View of an element in the document.

Insert Row

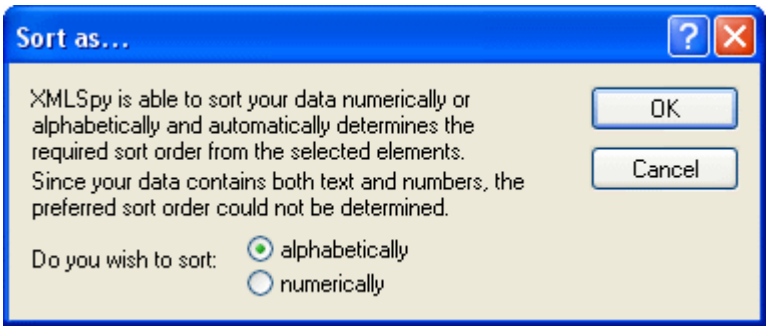
The **Insert Row** command is enabled in Table View when a row or cell is selected. It inserts a new row before the selected row. The new row corresponds to an occurrence of the table element. Mandatory child elements are created for the new element.

Append Row

The **Append Row** command is enabled in Table View when a row or cell is selected. It appends a new row after the last row of the table. The new row corresponds to an occurrence of the table element. Mandatory child elements are created for the new element.

Ascending Sort

The **Ascending Sort** command is enabled in Table View when a column or cell is selected. It sorts the table on the basis of the contents of the selected column, in ascending order. DiffDog tries to automatically determine what kind of data is used in the column, and sorts on alphabetic or numeric order, as required. In case of uncertainty, you will be prompted for the sort method to use (*screenshot below*).



Descending Sort

The **Descending Sort** command is enabled in Table View when a column or cell is selected. It sorts the table on the basis of the contents of the selected column, in descending order. DiffDog tries to automatically determine what kind of data is used in the column, and sorts on alphabetic or numeric order, as required. In case of uncertainty, you will be prompted for the sort method to use (*For a screenshot see chapter Ascending Sort above*).

19.6.6 Move Left

The **Move Left** command is available in Grid View only. It moves the selected node to the left by one level, thereby changing a child element into a sibling of its parent.

19.6.7 Move Right

The **Move Right** command is available in Grid View only. It moves the selected node to the right by one level, thereby turning it into a child element of the preceding sibling element.

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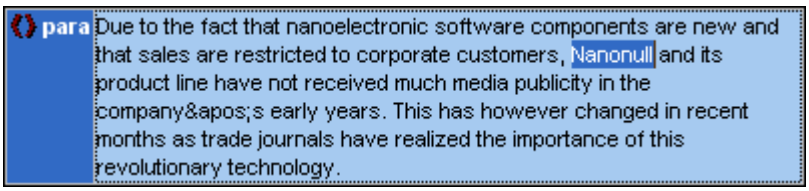
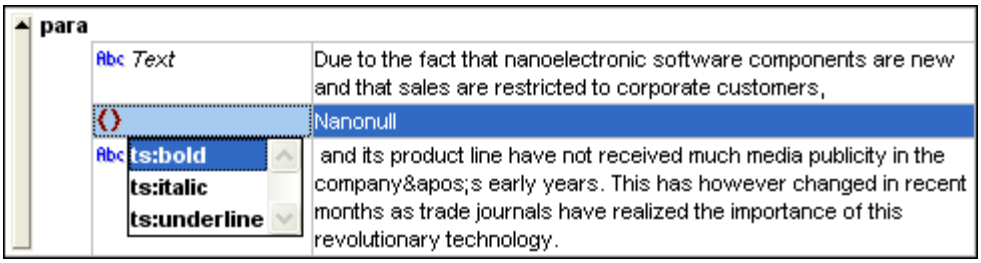
19.6.8 Enclose in Element

The **Enclose in Element** command is enabled in Grid View only. It encloses a selected text range in a new element. The new element is created inline around the selected text. If you are editing a document based on a Schema or DTD, you will automatically be presented with a list of valid choices for the name of the element in which the text is to be enclosed.

For example, in the screenshot below, the text `Nanonull` in the `para` element is highlighted.



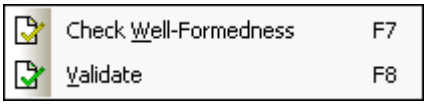
When you select the command **Grid View | Enclose in Element**, the text "Nanonull" is enclosed in a newly created inline element and a list appears offering a choice for the name of the element. These elements are defined in the schema as children of `para`.



The selection you make will be the name of the new element. Alternatively, you can enter some other name for the element.

19.7 XML Menu

The **XML** menu contains commands that relate to XML documents opened in File Comparison windows.



19.7.1 Check Well-Formedness

F7

The **Check Well-Formedness** command checks the active document for well-formedness by the definitions of the XML 1.0 specification. This command is available in both the Text View and Grid View of File Comparison windows. On running the well-formedness check, a message box displays the result of the check: whether successful or not.

Note: This command is available for all files with extensions that have been set as XML-conformant in the File Types tab of the **DiffDog Options** dialog box.

19.7.2 Validate

F8

The **Validate** command is available in both the Text View and Grid View of File Comparison windows. It enables you to validate the active XML document against a DTD, XML Schema, or other schema. The associated schema must be declared in the file being validated. On validating the document, a message box displays the result of the validation: that is, whether successful or not.

Note: This command is available for all files with extensions that have been set as XML-conformant in the File Types tab of the **DiffDog Options** dialog box.

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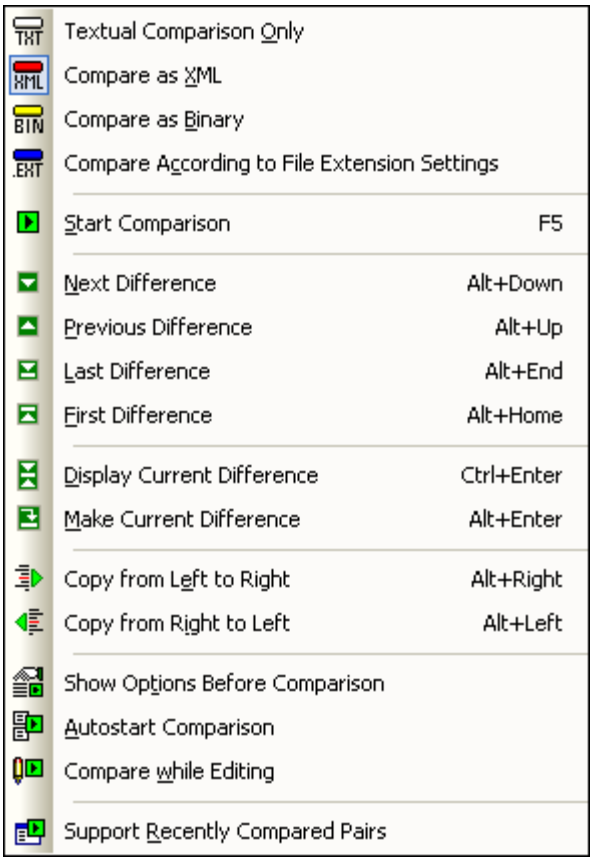
19.8 Diff and Merge Menu

The **Diff and Merge Menu** lists commands to manage file, XML Schema, directory, Microsoft Word document, database data, and database schema comparisons. Depending on the active comparison window, commands to set the comparison mode, navigate compared documents in the comparison windows and merge differences in them, as well as commands to synchronize directories, generate merge scripts, or to map, expand and collapse database items are also available in this menu.

Please note that the content of the **Diff and Merge** menu changes dynamically, depending on whether a file comparison, XML Schema comparison, a directory comparison, a Microsoft Word document comparison, a database data comparison, or a database schema comparison is active.

19.8.1 File Comparison

The **Diff and Merge Menu** for **file comparisons** lists commands to (i) set comparison modes, (ii) start a comparison, (iii) navigate compared documents and display differences in File Comparison windows, (iv) merge differences in them, and (v) set the comparison management options.



Textual Comparison Only

The **Textual Comparison Only** command changes the comparison mode of a file or directory

comparison to textual comparison. Note that this command is not available if the Quick Comparison mode is active. To change to the Text Comparison mode in that case, you have to deactivate the Quick Comparison mode first.

Compare as XML

The **Compare as XML** command changes the comparison mode of a file or directory comparison to XML comparison. Note that this command is not available if the Quick Comparison mode is active. To change to the XML Comparison mode in that case, you have to deactivate the Quick Comparison mode first.

Compare as Binary

The **Compare as Binary** command changes the comparison mode of a file or directory comparison to binary comparison. Note that this command is not available if the Quick Comparison mode is active. To change to the Binary Comparison mode in that case, you have to deactivate the Quick Comparison mode first.

Compare According to File Extension Settings

The **Compare According to File Extension Settings** command changes the comparison mode of a file or directory comparison dynamically according to the settings on the File types tab of the **DiffDog Options** dialog box. Note that this command is not available if the Quick Comparison mode is active. To change to the File Extension mode in that case, you have to deactivate the Quick Comparison mode first.

Start Comparision

F5

This command starts comparison for the active comparison window.

Next Difference

Alt+Down

This command selects the next difference as the current difference.

Previous Difference

Alt+Up

This command selects the previous difference as the current difference.

Last Difference

Alt+End

This command selects the last difference as the current difference.

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First Difference

Alt+Home

This command selects the first difference as the current difference.

Display Current Difference

Ctrl+Enter

This command scrolls through the document to display the current difference.

Make Current Difference

Alt+Enter

This command makes the selected difference the current difference, and sets it as the difference from which to navigate.

Copy from Left to Right

Alt+Right

This command copies text of the selected difference from the document in the left pane to the document in the right pane.

Copy from Right to Left

Alt+Left

This command copies text of the selected difference from the document in the right pane to the document in the left pane.

Show Options Before Comparison

When this command is toggled on for a Comparison Window, the **Comparison Options** dialog box is displayed each time a comparison is made in that window. Note that the **Comparison Options** dialog box is not displayed before comparisons made dynamically by DiffDog while you edit a document.

Autostart Comparison

When toggled on, this command automatically starts a comparison when both files or both directories are selected and opened in the comparison window. If this option is toggled off, then a comparison (file or directory) must be explicitly started (by clicking **Diff and Merge | Start Comparison**).

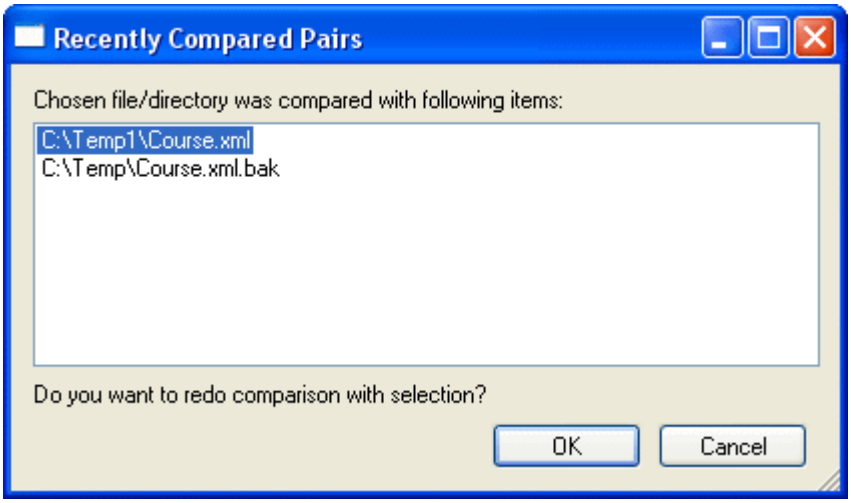
Compare while Editing

This command is a toggle to compare or not compare documents in File Comparison windows while editing. If toggled on, differences are highlighted as you edit. If toggled off, highlighting of

differences is turned off in both documents as soon as you start typing in either document; to highlight differences after editing, you must run a comparison (by clicking **Diff and Merge | Start Comparison**).

Support Recently Compared Pairs

This command is a toggle that switches on and off the option of suggesting recently compared files or directories each time a file or directory is selected in one pane. When you click this command, the **Recently Compared Pairs** dialog box is displayed (*screenshot below*). The dialog box shows the previous five files/directories with which the selected file/directory has been compared.



19.8.2 XML Schema Comparison

The **Diff and Merge Menu** for **XML Schemas** lists commands to (i) start the XML Schema mapping, (ii) generate results, XLST, or MapForce mappings, (iii) unmap or, (iv) expand or collapse items, (v) enable Autolayout, and (vi) automatically map items on loading.

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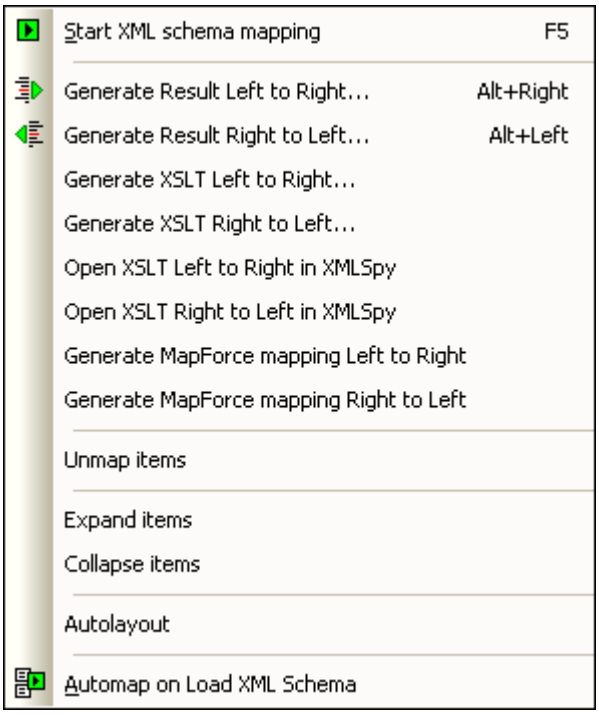

Start XML Schema mapping

F5

This command creates a mapping for the active XML Schema comparison window.

Generate Result Left to Right...

Alt+Right

This command opens the **Generate result Left to Right** dialog box, where you can choose to generate and save an XSLT Style Sheet, generate an XSLT Style sheet and open it in XMLSpy (if installed), or generate a MapForce Mapping.

Generate Result Right to Left...

Alt+Left

This command opens the **Generate result Right to Left** dialog box, where you can choose to generate and save an XSLT Style Sheet, generate an XSLT Style sheet and open it in XMLSpy (if installed), or generate a MapForce Mapping.

Generate XSLT Left to Right

This command generates an XSLT Style Sheet that reflects the changes resulting from a left-to-right merge of the compared XML Schemas, and can be used to transfer these changes to XML files that have been generated using this XML Schema. The XSLT will not be displayed; the command opens the **Generate XSLT** dialog box where you have to define a location where the file is saved.

Generate XSLT Right to Left

This command generates an XSLT Style Sheet that reflects the changes resulting from a right-to-left merge of the compared XML Schemas, and can be used to transfer these changes to XML files that have been generated using this XML Schema. The XSLT will not be displayed; the command opens the **Generate XSLT** dialog box where you have to define a location where the file is saved.

Open XSLT Left to Right in XMLSpy

This command generates an XSLT Style Sheet that reflects the changes resulting from a left-to-right merge of the compared XML Schemas and opens the XSLT in XMLSpy (if installed). In XMLSpy, the file can be used to transfer changes to XML files that have been generated using this XML Schema.

Open XSLT Right to Left in XMLSpy

This command generates an XSLT Style Sheet that reflects the changes resulting from a right-to-left merge of the compared XML Schemas and opens the XSLT in XMLSpy (if installed). In XMLSpy, the file can be used to transfer changes to XML files that have been generated using this XML Schema.

Generate MapForce Mapping Left to Right

This command generates a MapForce Mapping for the active root element. In MapForce, the left component is used as source and the right component is used as target.

Generate MapForce Mapping Right to Left

This command generates a MapForce Mapping for the active root element. In MapForce, the right component is used as source and the left component is used as target.

Unmap Items

The **Unmap items** command deletes all mappings in the active comparison window. If one or more items are selected in the components, only the mapping of the selected item will be deleted.

Expand Items

The **Expand items** command expands all items in both components of the active comparison window.

Collapse Items

The **Collapse items** command collapses all items in both components of the active comparison window.

Autolayout

The **Autolayout** command fits the components into the visible part of the comparison window, tries to avoid horizontal scrollbars in the components, and alignsthe top and bottom borders of the components.

Automap on Load XML Schema

This command automatically maps the items in the comparison component when an XML Schema is loaded.

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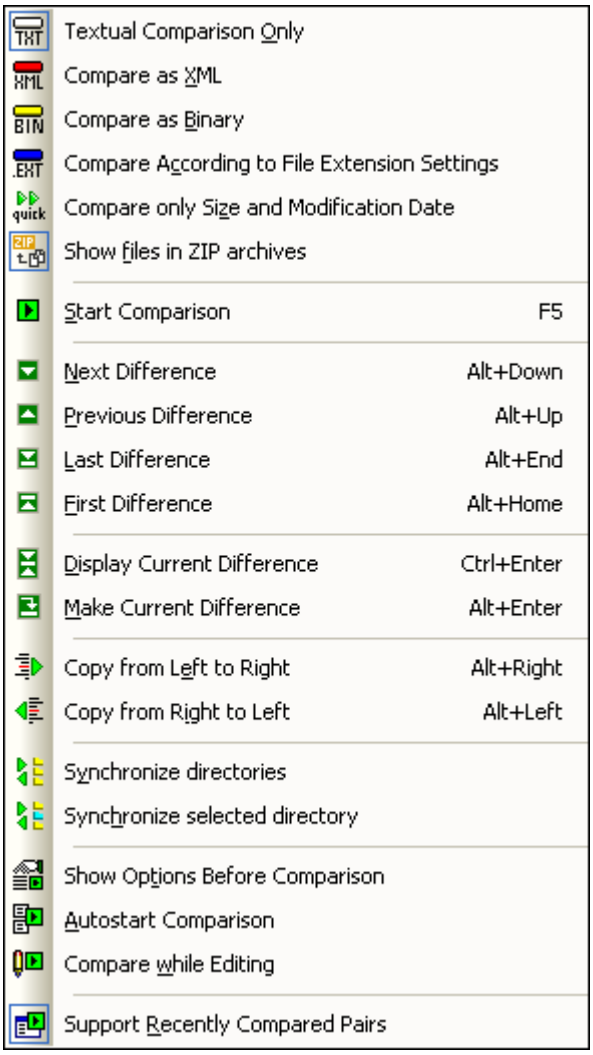
19.8.3 Directory Comparison

The **Diff and Merge Menu** for **directory comparisons** lists commands to (i) set comparison modes, (ii) start a comparison, (iii) navigate compared documents and display differences in Directory Comparison windows, (iv) merge differences in them, (v) synchronize directories, and (vi) set the comparison management options.



Show Files in ZIP Archives

The **Show files in ZIP archives** option is deactivated by default, therefore only the file itself will be shown in directory comparisons. To be able to expand the file and view its content you must activate the **Show files in ZIP archives** option.

Compare Only Size and Modification Date

The **Compare only Size and Modification Date** command compares files within directories

and subdirectories by size and date modified. This mode is either toggled on or off. When toggled off, the four file comparison modes become available. Selecting one of the file comparison modes causes directories to be compared in terms of their contents as text, XML, or binary files.

Copy from Left to Right

Alt+Right

This command copies the selected non-equal file from the (directory in the) left pane to the (directory in the) right pane.

Copy from Right to Left

Alt+Left

This command copies the selected non-equal file from the (directory in the) right pane to the (directory in the) left pane.

Synchronize Directories

This command opens the **Synchronize directories** dialog box and populates it with all non-equal files that are present in at least one of the directories.

Synchronize Selected Directory

This command is only available if at least one of the compared directories contains a sub-directory which is selected. It opens the **Synchronize directories** dialog box and populates it with all non-equal files that are present in the selected sub-directory.

19.8.4 Database Data Comparison

The **Diff and Merge Menu** for **database data comparisons** lists commands to (i) set comparison modes and XML comparison comparisons, (ii) start a comparison, (iii) navigate compared documents and display differences in Database Data Comparison windows, (iv) merge differences in them, (v) show results, (vi) sort tables (vii) map and unmap or, (viii) expand or collapse items, (ix) enable Autolayout, and (x) show the comparison options before comparison.

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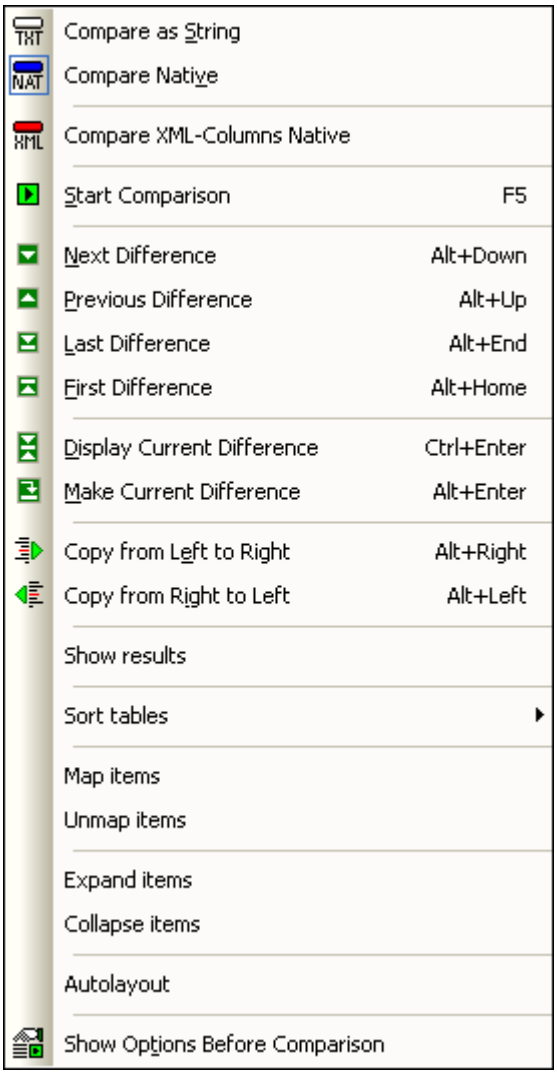


Compare as String

The **Compare as String** command changes the comparison mode of a database data comparison to string comparison.

Compare Native

The **Compare Native** command changes the comparison mode of a database data comparison to native comparison.

Compare XML Columns Native

The **Compare XML Columns Native** command changes the comparison mode for XML columns to native XML comparison. Note that this command is only available if the comparison mode of a database data comparison is set to native comparison.

Copy from Left to Right

Alt+Right

This command copies the selected table's data from the (table in the) left component to the (table in the) right component.

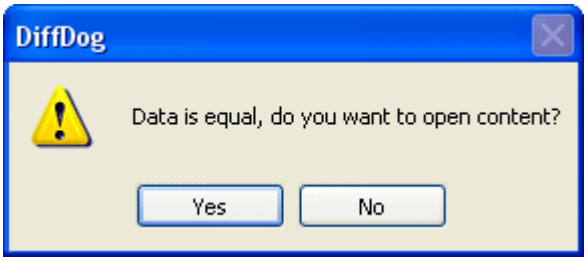
Copy from Right to Left

Alt+Left

This command copies the selected table's data from the (table in the) right component to the (table in the) left component.

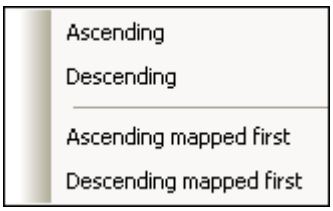
Show Results

The **Show Results** command opens the Database Data Comparison Result window for (i) the selected table or (ii) all tables if no table is selected. If some of the tables do not contain differences or if you select a table with equal data in both databases, DiffDog displays a message box and you can still abort the operation.



Sort Tables

The **Sort Tables** sub-menu of the **Diff and Merge** menu provides options for sorting the tables that are included in the components of a database comparison.



The commands always affect both sides of the comparison (i.e., you cannot sort just one component).

Ascending

The **Ascending** command sorts all tables in ascending order.

Descending

The **Descending** command sorts all tables in descending order.

Ascending Mapped First

The **Ascending Mapped First** command sorts all tables and displays the mapped tables in ascending order first (*see screenshot*).

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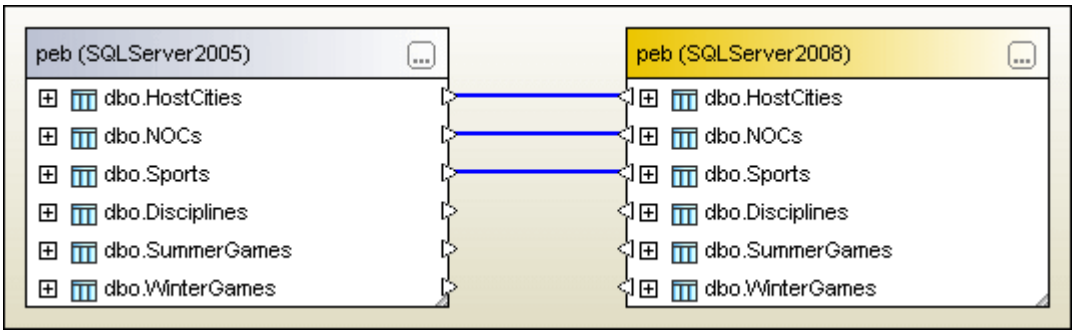
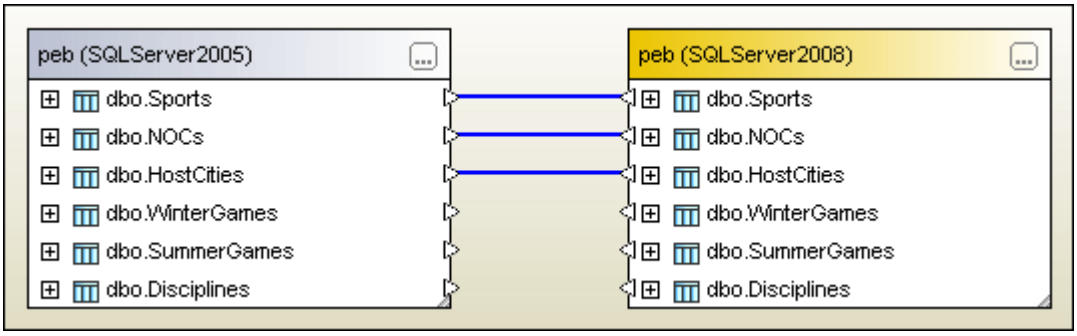


Descending Mapped First

The **Descending Mapped First** command sorts all tables and displays the mapped tables in descending order first (*see screenshot*).

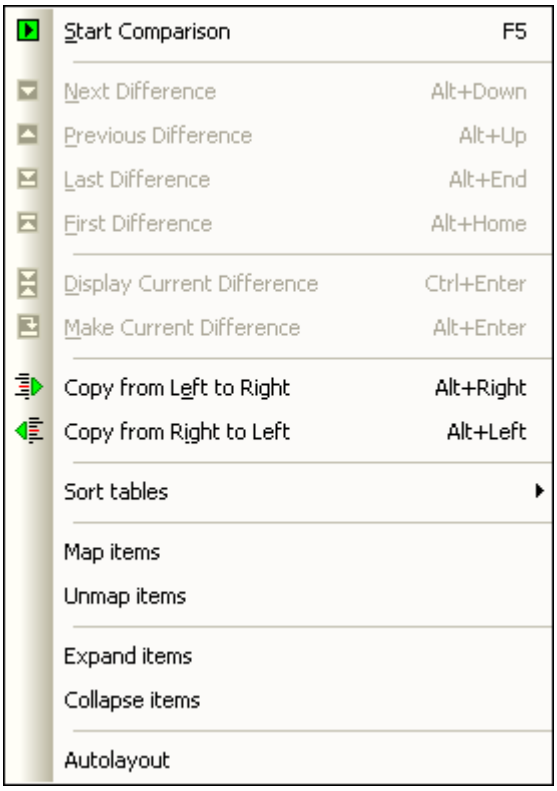


Map Items

The **Map items** command tries to map all tables in the Database Data Comparison window using the settings defined in the Database comparison tab of the **DiffDog Options** dialog box.

19.8.5 Database Schema Comparison

The **Diff and Merge Menu** for **database schema comparisons** lists commands to (i) start a comparison, (ii) merge differences in them, (iii) sort tables, (iv) map and unmap or, (v) expand or collapse items, and (vi) enable Autolayout.



Copy from Left to Right

Alt+Right

This command opens the **Merge Schema Left to Right** dialog box which displays the SQL merge script that has to be executed to merge the schemas.

Copy from Right to Left

Alt+Left

This command opens the **Merge Schema Right to Left** dialog box which displays the SQL merge script that has to be executed to merge the schemas.

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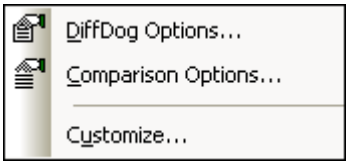
19.9 Tools Menu

The **Tools Menu** contains commands that enable you to set the application and comparison options and to customize the appearance of DiffDog.



19.9.1 DiffDog Options...

This command opens the **DiffDog Options** dialog box where you can set the options for the application, file comparison, directory comparison, database comparison, and the database data result view, and define the file types that can be compared.

19.9.2 Comparison Options...

This command opens the **Comparison Options** dialog box which provides separate tabs to set the comparison options for file comparison, directory comparison, XML Schema comparison, Microsoft Word document comparison, and database data comparison.

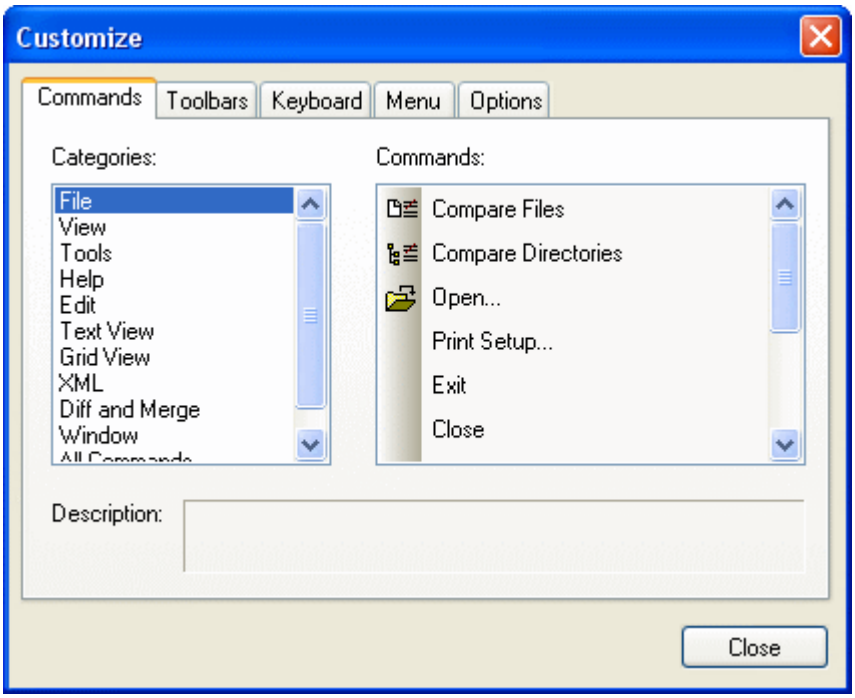
Please note that in file, directory, Microsoft Word document, and database data comparisons the **Comparison Options** dialog box is displayed automatically before a comparison is started if the **Show Options Before Comparison** option is toggled on in the **Diff and Merge** menu.

19.9.3 Customize...

The **Customize...** command lets you customize DiffDog to suit your personal needs.

Commands

The **Commands** tab allows you customize your menus or toolbars.



To add a command to a toolbar or menu:

1. Select the menu option **Tools | Customize**.
   The **Customize** dialog box appears.
2. Select the `All Commands` category in the Categories list box.
   The available commands appear in the Commands list box.
3. Click on a command in the Commands list box and drag it to an existing menu or toolbar.
   An **I**-beam appears when you place the cursor over a valid position to drop the command.
4. Release the mouse button at the position you want to insert the command.

   - A small button appears at the tip of mouse pointer when you drag a command. The "x" below the pointer means that the command cannot be dropped at the current cursor position.
   - The "x" disappears whenever you can drop the command (over a tool bar or menu).
   - Placing the cursor over a menu when dragging opens it, allowing you to insert the command anywhere in the menu.
   - Commands can be placed in menus or toolbars. If you created you own toolbar you can populate it with your own commands/icons.

Please note: You can also edit the commands in the context menus (right-click anywhere to open the context menu), using the same method. Click the Menu tab and then select the specific context menu available in the Context Menus combo box.

Toolbars

The **Toolbars** tab allows you to activate or deactivate specific toolbars, as well as create your own specialized ones.

DiffDog toolbars contain symbols for the most frequently used menu commands. For each symbol you get a brief "tool tip" explanation when the mouse cursor is directly over the item and

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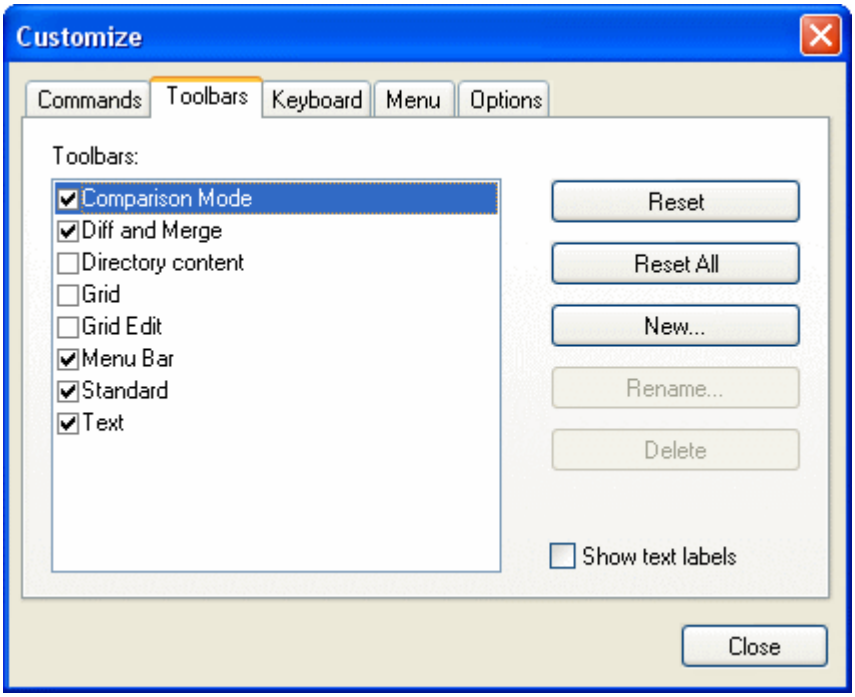
the status bar shows a more detailed description of the command.

You can drag the toolbars from their standard position to any location on the screen, where they appear as a floating window. Alternatively, you can also dock them to the left or right edge of the main window.



Show text labels:
This option displays explanatory text below toolbar icons when activated. You can activate or deactivate this option for each toolbar individually.

To activate or deactivate a toolbar:

- Click the check box to activate (or deactivate) the specific toolbar.

To create a new toolbar:

1. Click the **New...** button, and give the toolbar a name in the **Toolbar Name** dialog box that appears.
2. Drag commands to the toolbar in the Commands tab of the **Customize** dialog box.

To reset the Menu Bar:

1. Click the Menu Bar entry.
2. Click the **Reset** button, to reset the menu commands to the state they were in when DiffDog was installed.

To reset all toolbar and menu commands:

1. Click the **Reset All** button to reset all the toolbar commands to the state they were when the program was installed.
   A prompt appears stating that all toolbars and menus will be reset.
2. Click **Yes** to confirm the reset.

To change a toolbar name:

- Click the **Rename...** button to edit the name of the toolbar.

This option is available only for user-defined toolbars.

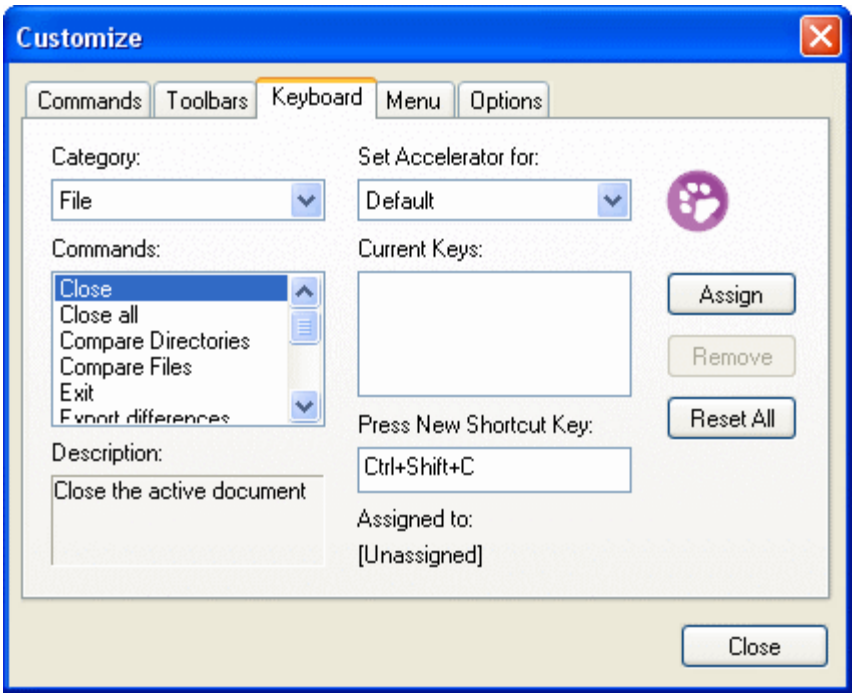
To delete a toolbar:

1. Select the toolbar you want to delete in the Toolbars list box.
2. Click the **Delete** button.
   A prompt appears, asking if you really want to delete the toolbar.
3. Click **Yes** to confirm the deletion.

This option is available only for user-defined toolbars.

Keyboard

The **Keyboard** tab allows you to define (or change) keyboard shortcuts for any DiffDog command.



In the `Set accelerator for` drop-down list, you can differentiate between shortcuts that are valid in the Default menu or in the DiffDog Design menu.

To assign a new Shortcut to a command:

1. Select the All Commands category using the `Category` combo box.
2. Select the command you want to assign a new shortcut to, in the `Commands` list box.
3. Click in the `Press New Shortcut Key` text box, and press the shortcut keys that are to activate the command.
   The shortcuts appear immediately in the text box. If the shortcut was assigned previously, then that function is displayed below the text box.
4. Click the **Assign** button to assign the shortcut.
   The shortcut now appears in the `Current Keys` list box.

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(To clear this text box, press any of the control keys, **CTRL**, **ALT** or **SHIFT**).

To de-assign or delete a shortcut:

1. Click the shortcut you want to delete in the `Current Keys` list box.
2. Click the **Remove** button.
3. Click the **Close** button to confirm.

To reset all shortcut keys:

1. Click the **Reset All** button to reset all the shortcut keys to the state they were when the program was installed.
   A prompt appears stating that all toolbars and menus will be reset.
2. Click **Yes** to confirm the reset.

Currently assigned keyboard shortcuts

Hotkeys by key

Ctrl+C	Copy
Ctrl+F	Find
Ctrl+G	Go to Line/Char
Ctrl+H	Replace
Ctrl+O	Open
Ctrl+P	Print
Ctrl+S	Save
Ctrl+V	Paste
Ctrl+X	Cut
Ctrl+Z	Undo
F1	Table Of Contents
F3	Find Next
F5	Start Comparison
F7	Check Well-Formedness
F8	Validate
Alt+Enter	Make Current Difference
Ctrl+Enter	Display Current Difference
Delete	Delete
Shift+Delete	Cut
Alt+Backspace	Undo
Ctrl+Insert	Copy
Shift+Insert	Paste
Alt+Down	Next Difference
Alt+Up	Previous Difference
Alt+Home	First Difference
Alt+End	Last Difference

Alt+Left	Copy from Right to Left
Alt+Right	Copy from Left to Right

Hotkeys by function

Check Well-Formedness	F7	
Copy	Ctrl+C	Ctrl+Insert
Copy from Left to Right	Alt+Right	
Copy from Right to Left	Alt+Left	
Cut	Ctrl+X	Shift+Delete
Delete	Delete	
Display Current Difference	Ctrl+Enter	
Find	Ctrl+F	
Find Next	F3	
First Difference	Alt+Home	
Go to Line/Char	Ctrl+G	
Last Difference	Alt+End	
Make Current Difference	Alt+Enter	
Next Difference	Alt+Down	
Open	Ctrl+O	
Paste	Ctrl+V	Shift+Insert
Previous Difference	Alt+Up	
Print	Ctrl+P	
Replace	Ctrl+H	
Save	Ctrl+S	
Start Comparison	F5	
Table Of Contents	F1	
Undo	Ctrl+Z	Alt+Backspace
Validate	F8	

Menu

The **Menu** tab allows you to customize the main menu bars as well as the context menus.

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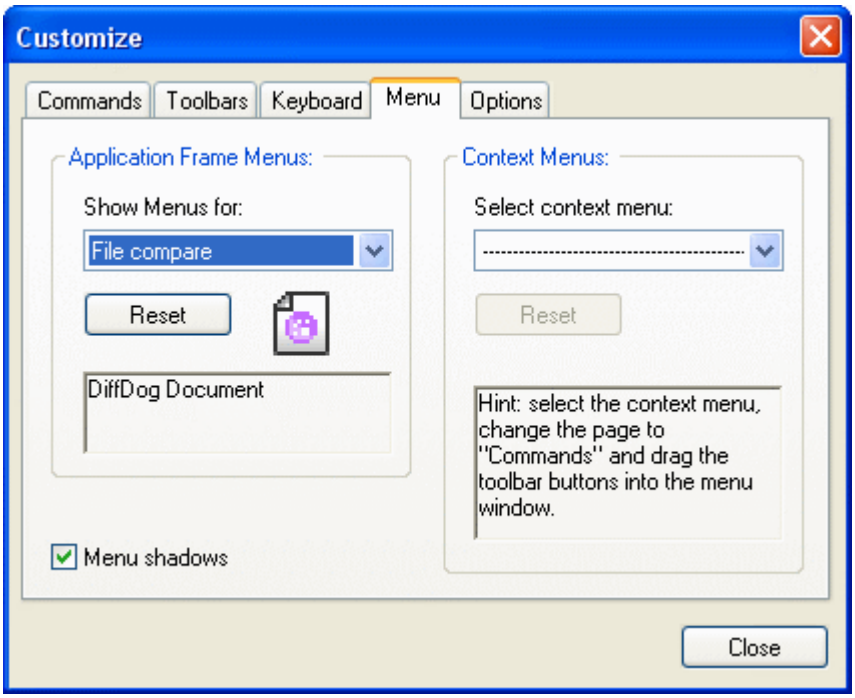
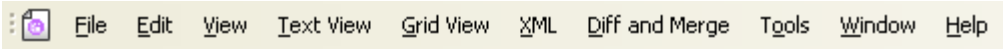


You can customize the Default, the file compare, the Directory compare, the Microsoft Word comparison, the Database Data comparison, the Database Data compare result, the Database Schema Comparison, and the XML Schema Comparison menu bars.

The Default menu is the one visible when no comparison windows are open in DiffDog.

The File compare menu is the menu bar that is displayed when at least one File Comparison window has been opened and is active.



The Directory compare menu is the menu bar visible when at least one Directory Comparison window has been opened and is active.

The Database Data compare result menu is the menu bar visible when at least one Database Data Comparison Result window has been opened and is active.

The Database Data Comparison menu is the menu bar visible when at least one Database Data Comparison window has been opened and is active. The Database Schema Comparison menu is the menu bar visible when at least one Database Schema Comparison window has been opened and is active. The XML Schema Comparison menu is the menu bar visible when at least one XML Schema Comparison window has been opened and is active. The Microsoft Word Comparison menu is the menu bar visible when at least one Word Comparison window has been opened and is active.

Menu shadows

The `Menu shadows` check box, which is checked by default, can be deactivated if you do not

want all your menus to have shadows.

To customize a menu:

1. Select the menu bar you want to customize from the `Show Menus for` combo box.
2. Click the Commands tab, and drag the commands to the menu bar of your choice.

To delete commands from a menu:

1. Select the menu option **Tools | Customize** to open the **Customize** dialog box.
2. Do one of the following:
   - Right-click the command or icon representing the command and select the **Delete** option from the context menu.
   - Drag the command away from the menu, and drop it as soon as the check mark icon appears below the mouse pointer.

To reset either of the menu bars:

1. Select either the Default, the File compare, the Directory compare, the Microsoft Word compare, the Database Data compare, the Database Data compare result, the Database Schema compare, and the XML Schema compare entry in the `Show Menus for` combo box.
2. Click the **Reset** button just below the menu name.
   A prompt appears asking if you are sure you want to reset the menu bar.
3. Click **Yes**.

To customize any of the context menus (right-click menus):

1. Select the context menu from the `Select context menu` combo box.
   The context menu you selected appears.
2. Click the Commands tab, and drag the commands to the context menu.

To delete commands from a context menu:

1. Select the menu option **Tools | Customize** to open the **Customize** dialog box.
2. Do one of the following:
   - Right-click on the command or icon representing the command and select the **Delete** option from the context menu.
   - Drag the command away from the context menu, and drop it as soon as the check mark icon appears below the mouse pointer.

To reset any of the context menus:

1. Select the context menu from the combo box.
2. Click the **Reset** button just below the context menu name.
   A prompt appears asking if you are sure you want to reset the context menu.

To close a context menu window:

Do one of the following:

- Click on the **Close icon** at the top right of the title bar.
- Click the **Close** button of the **Customize** dialog box.

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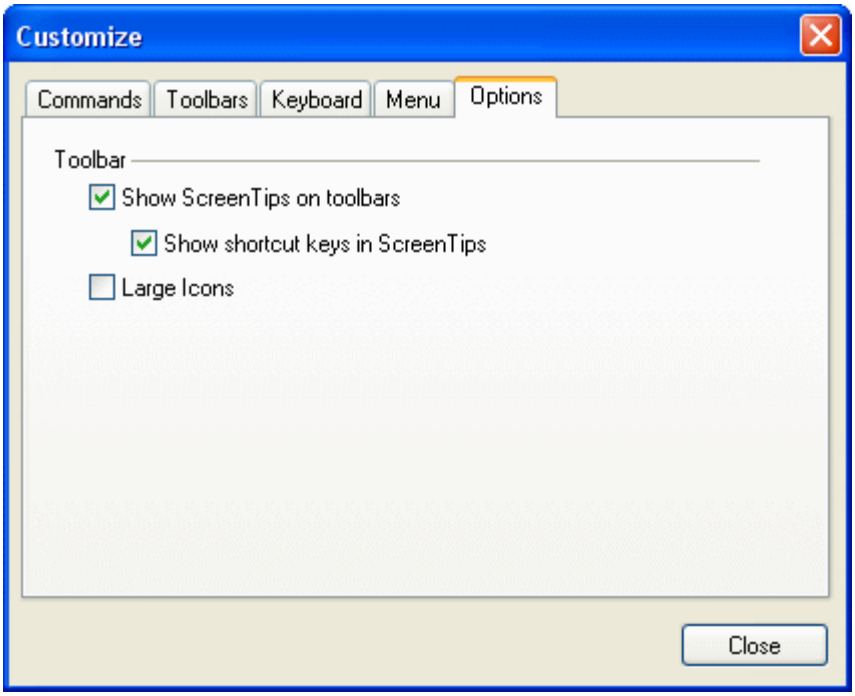
To change the appearance of menus:

- If required, deactivate the `Menu shadows` check box.

Options

The **Options** tab allows you to set general environment settings.



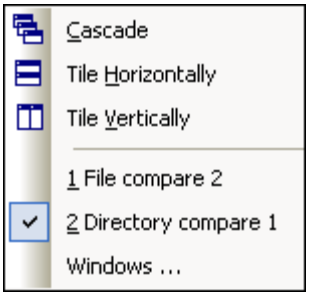
Toolbar
When active, the `Show ScreenTips on toolbars` check box displays a popup when the mouse pointer is placed over an icon in any of the icon bars. The popup contains a short description of the icon function, as well as the associated keyboard shortcut, if one has been assigned.

The `Show shortcut keys in ScreenTips` check box allows you to decide whether or not you want to have the shortcut displayed in the tooltip.

When active, the `Large icons` check box switches between the standard size icons, and larger versions of the icons.

19.10 Window Menu

The **Windows** menu provides commands to arrange and organize the display of open windows.



You can cascade the open windows, tile them horizontally or vertically, or arrange document icons once you have minimized them. You can also switch to an open document window directly from the menu.

19.10.1 Cascade

The **Cascade** command rearranges all open document windows so that they are all cascaded (i.e., staggered) on top of each other.

19.10.2 Tile Horizontally

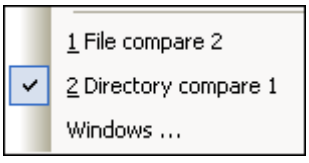
The **Tile horizontally** command rearranges all open document windows as **horizontal tiles**, making them all visible at the same time.

19.10.3 Tile Vertically

The **Tile vertically** command rearranges all open document windows as **vertical tiles**, making them all visible at the same time.

19.10.4 Currently Open Windows List

This list shows all currently open windows and lets you quickly switch between them.



The list is ordered in the sequence in which windows were opened. The active window is indicated with a check mark.

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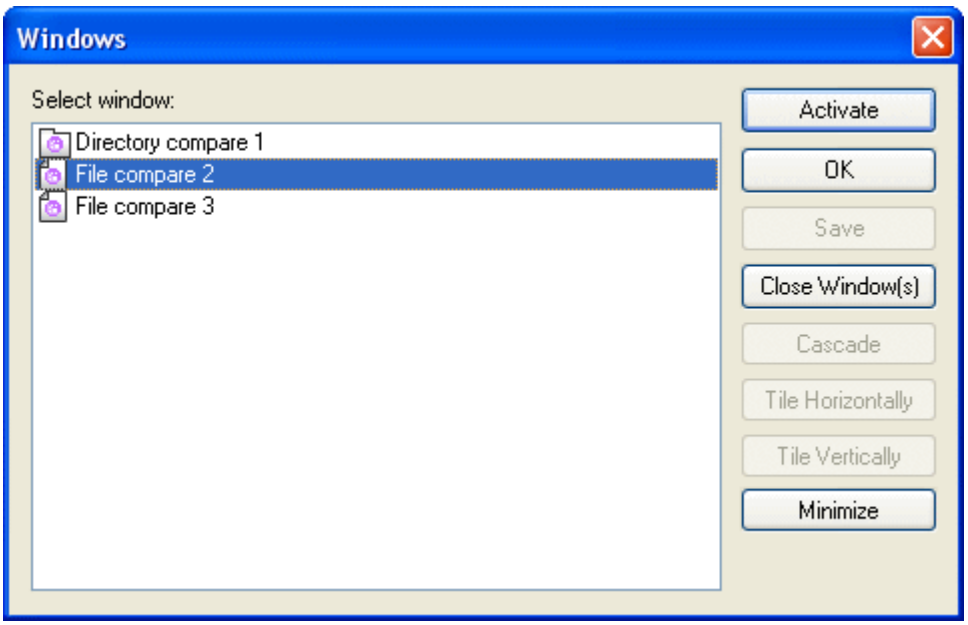
You can also use the **Ctrl+TAB** or **Ctrl+F6** keyboard shortcuts to cycle through the open windows.

19.10.5 Windows...

At the bottom of the list of open windows is the **Windows...** command. Clicking this entry opens the **Windows** dialog box, which displays a list of all open windows and provides commands that can be applied to the selected window(s). A window is selected by clicking on its name.

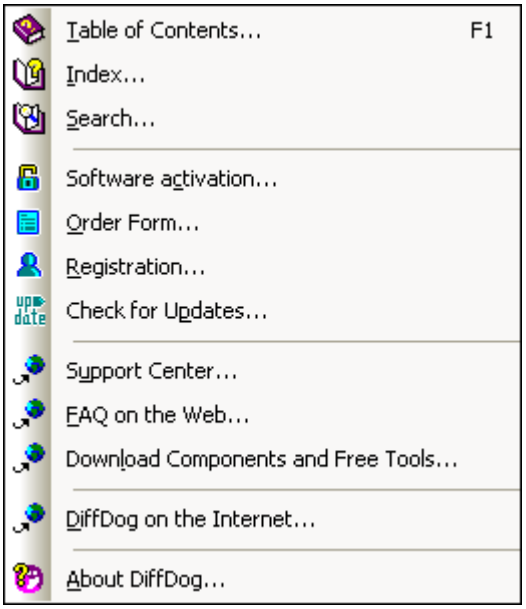


The **Cascade** and **Tile** options are available only when more than one window is selected. The **Activate** option is enabled only when a single window is selected.

Warning: To exit the **Windows** dialog box, click **OK**; do **not** click the **Close Window(s)** button in the dialog box. The **Close Window(s)** button closes the window(s) currently selected in the **Windows** dialog box.

19.11 Help Menu

The **Help** menu contains commands required to get help or more information on DiffDog, as well as links to information and support pages on our web server.



The **Help** menu also contains the Registration dialog box, which lets you enter your license key-code once you have purchased the product.

19.11.1 Table of Contents...

F1

The **Table of Contents...** command displays a **hierarchical representation** of all chapters and topics contained in the online help system. Use this command to jump to the table of contents directly from within DiffDog.

Once the help window is open, use the three tabs to navigate between the table of contents, index, and search panes. The Favorites tab lets you bookmark certain pages within the help system.

19.11.2 Index...

The **Index...** command accesses the **keyword index** of the Online Help. You can also use the Index tab in the left pane of the online help system.

The index lists all relevant keywords and lets you navigate to a topic by double-clicking the respective keyword. If more than one topic matches the selected keyword, you are presented a list of available topics to choose from.

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19.11.3 Search...

The **Search...** command performs a **full-text search** on the entire online help system.

1. Enter your search term in the query field and press **Enter**.
   The online help system displays a list of available topics that contain the search term you've entered.
2. Double-click on any item in the list to display the corresponding topic.

19.11.4 Software Activation...

After you download your Altova product software, you can activate it using either a free evaluation key or a purchased permanent license key.

- ***Free evaluation key.*** When you first start the software after downloading and installing it, the **Software Activation** dialog box will pop up. In it is a button to request a free evaluation key-code. Enter your name, company, and e-mail address in the dialog that appears, and click **Request Now!** The evaluation key is sent to the e-mail address you entered and should reach you in a few minutes. Now enter the key in the key-code field of the **Software Activation** dialog box and click **OK** to start working with your Altova product. The software will be unlocked for a period of 30 days.
- ***Permanent license key.*** The **Software Activation** dialog box contains a button to purchase a permanent license key. Clicking this button takes you to Altova's online shop, where you can purchase a permanent license key for your product. There are two types of permanent license: single-user and multi-user. Both will be sent to you by e-mail. A single-user license contains your license-data and includes your name, company, e-mail, and key-code. A multi-user license contains your license-data and includes your company name and key-code. Note that your license agreement does not allow you to install more than the licensed number of copies of your Altova software on the computers in your organization (per-seat license).

Note: When you enter your license information in the **Software Activation** dialog box, ensure that you enter the data exactly as given in your license e-mail. For multi-user licenses, each user should enter his or her own name in the `Name` field.

The **Software Activation** dialog box can be accessed at any time by clicking the **Help | Software Activation...** command.

19.11.5 Order Form...

When you are ready to order a licensed version of the software product, you can use either the **Order license key** button in the **Software Activation** dialog box (*see Software Activation*) or the **Help | Order Form...** command to proceed to the secure Altova Online Shop.

19.11.6 Registration...

The first time you start your Altova software after having activated it, a dialog box appears asking whether you would like to register your product. There are three buttons in this dialog:

- **OK:** Takes you to the Registration Form
- **Remind Me Later:** Pops up a dialog box in which you can select when you wish to be next reminded.
- **Cancel:** Closes the dialog box and suppresses it in future. If you wish to register at a later time, you can use the **Help | Registration...** command.

19.11.7 Check for Updates...

Checks with the Altova server whether a newer version than yours is currently available and displays a message accordingly.

19.11.8 Support Center...

If you have any questions regarding our product, please feel free to use this command to send a query to the Altova Support Center at any time. This is the place where you'll find links to the FAQ, support form, and e-mail addresses for contacting our support staff directly.

19.11.9 FAQ on the Web...

To help you in getting the best support possible, we are providing a list of Frequently Asked Questions (FAQ) on the Internet, that is constantly updated as our support staff encounters new issues that are raised by our customers.

Please make sure to check the FAQ before contacting our technical support team. This will allow you to get help more quickly.

We regret that we are not able to offer technical support by phone at this time, but our support staff will typically answer your e-mail requests within one business day.

If you would like to make a feature suggestion for a future version of DiffDog or if you wish to send us any other general feedback, please use the questionnaire form.

19.11.1 Download Components and Free Tools...

This command is a link to the Components Download page at the Altova website, from where you can download components, free tools, and third-party add-ins. Such software ranges from

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XSLT and XSL-FO processors to Application Server Platforms.

19.11.1 DiffDog on the Internet...

The **DiffDog on the Internet...** command takes you directly to the Altova web-server where you can find out about news, product updates and additional offers from the Altova team.

19.11.1 About DiffDog...

The **About DiffDog** command shows the DiffDog splash screen and copyright information dialog box, which includes the version number of your product and the DiffDog logo. If you are using the 64-bit version of DiffDog, this is indicated with the suffix (x64) after the application name. There is no suffix for the 32-bit version.

19.12 Status and Result Messages

For **file and directory comparisons**, status and result messages for comparisons appear in the Comparison Window Status Bar, which is located at the bottom of each Comparison Window.

In **database data comparisons**, the status as well as the result of a comparison is indicated by comparison result icons in the Database Data Comparison window.

Status messages
Status messages indicate the status of that particular comparison, essentially whether files/directories have been selected; whether a comparison has been carried out; and what kind of comparison was carried out (that is, which Comparison Mode was used).

Result messages
If differences are found, a summary of the comparison results is provided by result messages in the Status Bar. If no differences are found, this is also reported in the Status Bar. The result message lists number and type of differences in the form:

```
Result: n differences  n in left pane only  n in right pane only
```

In File Comparison windows, Text Comparison counts differences in terms of blocks of contiguous differences, even if the Show Differences within Lines option is selected. So if there are six differences in four lines, four differences are reported. If two or more lines with differences appear consecutively, without being interrupted by a line that is equal in both files, only one difference is counted in the result message. In XML comparisons, differences are counted in terms of nodes. Note that a difference is counted when the node exists in both documents but is different. If the node does not exist in one document, such a node is listed as being either present **in Left Only** or **in Right Only**. In Binary Comparisons, it is only stated whether or not the file pair is different; no details concerning the number or location of differences are available.

Comparison result icons
As long as no comparison has been started yet, no icons are displayed in the database data comparison window. For each compared table, however, an icon indicating whether or not the two tables are equal is displayed. By clicking such a comparison result icon, you can display the detailed differences of a comparison in an extra result window.

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Chapter 20

Command Line Options

20 Command Line Options

DiffDog can be used from the command line either in Quiet Mode or in GUI Mode.

Quiet Mode

In Quiet Mode, directories or files, respectively, can be specified from the command line. The comparison mode and comparison options for such comparisons are defined on the command line. When the command is executed, a comparison is carried out, and the results of the comparison are either displayed on the command line or can be written to a file.

For **file comparisons**, the two files are listed and are followed by the result of the comparison. Examples:

- `c:\workarea\a\1.sps c:\workarea\add_element\1.sps equal`

  The two files are equal.

- `c:\workarea\a\1.sps c:\workarea\add_element\1.sps different`

  The two files are different.

For **directory comparisons**, each item or pair of items in the directories (that is, files and subdirectories) is/are listed, followed by the comparison result. For example:

- `c:\workarea\a\subdir_a\team.xml`
  `c:\workarea\add_element\subdir_a\team.xml different`

  The two files are different.

- `c:\workarea\add_element\subdir_addelem\team.xml rightonly`

  The file is present in the directory in the right pane only.

- `c:\workarea\a\1.sps c:\workarea\add_element\1.sps equal`

  The two files are equal.

The default comparison mode for directory comparisons is Quick Comparison Mode. To compare directories on the basis of the content of their files, use the Comparison Mode option.

GUI Mode

In GUI Mode, directories or files can be opened in a Directory Comparison window or File Comparison window, respectively, from the command line. The comparison mode and comparison options for such comparisons are specified on the command line. When the command is executed, the directories or files are opened in the appropriate comparison window, a comparison is carried out, and the results are displayed in the GUI.

If the `Allow Multiple Instances` option is selected in the Application tab of the **DiffDog Options** dialog box (menu option **Tools | DiffDog Options**), and an instance of DiffDog is already running, then a new instance of DiffDog will be started. If the `Allow Multiple Instances` option is not checked, then the new comparison is opened in a new comparison window of an already running DiffDog instance.

To run a comparison from the command line:

1. Be sure to start the command line processing from the same directory where Altova DiffDog is installed.
2. Enter `DiffDogBatch` into the command line window and add the required options. Do not use `DiffDog` since this would start the normal DiffDog application.

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20.1 Command Line Syntax

The command line options are simple switches and are optional. If not specified, the switch is off. Although they are organized into groups, the options listed can appear in any order. Note (i) that the options are not case-sensitive, and (ii) that you can use both the minus sign (-) and the slash (/) before options. The command line syntax is as follows:

```
DiffDogBatch [source name1 name2] [general options] [compare mode] [
compare options] [filter filtername] [directory compare options] [
file-filter file filtername] [export result] [>filename.txt]
```

source:
/cd compare directories
/cf compare files

name1 name2:
names of files or directories to compare

general options:
/h or /? output this information
/g show GUI

compare mode:
/mE compare according to extension settings
/mX compare as XML
/mT compare as text
/mB compare binary

compare options:
/dD detailed differencing
/dL show differences within lines
/iB ignore blank lines
/iC ignore case but not in node names
/iCN ignore case
/iD ignore node depth
/iN ignore namespace
/iNT A CD C PI D X
ignore node types (**A**ttributes, **CD**ata, **C**omments, **P**rocessing **I**nstructions, **D**octype, **X** ML declaration)
/iOA ignore order of attributes
/iOC ignore order of child nodes
/iOC A G groupname T
ignore order of child nodes and add attributes as comparison criteria (**A**ll Attributes, Specific Attributes as defined in **G**roup groupname, Add Element **T**ext as Comparison Criteria)
/iP ignore prefixes
/iT ignore text (XML)
/e resolve entities
/wN normalize whitespaces
/wS strip all whitespaces

filter:
/f filter out specific elements/attributes

filtername:
name of predefined filter

directory compare options:
/iS ignore sub-directories

file-filter:
/fD filter out specific files/directories in directory comparison

file filtername:
name of predefined file-filter

export:
/rT export differences in text format
/rX export differences in XML format

This switch must be followed by the "result" parameter (*see below*). In text comparisons, both the /rX and the /rT switches can be used; in XML comparisons, only the /rX switch is allowed. When exporting differences to text files, differences within lines (/dL) will not be exported.

result:
name of export file

> filename.txt
Filename.txt is the name of the file to which the results of the comparison is to be written. Note that it must be preceded by a greater than sign and must be the last parameter of the command. Do not use this option together with the `export` parameter.

Note: Some Comparison Options apply to XML Comparison Mode only (for example, `/iN` and `/iNT`). These options will therefore be ignored if the Comparison Mode option is not `/mX`.

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20.2 Command Line Samples

Always be sure to start the command line processing from the same directory where Altova DiffDog is installed!

File Comparison

File comparisons in batch mode are indicated by the /cF switch following the DiffDogBatch command. If no further options are specified, DiffDogBatch will run in Quiet Mode. The command

```
c:\...\DiffDog2011\DiffDogBatch /cF c:\workarea\DDIntroEnt.txt c:
\workarea\DDIntroPro.txt
```

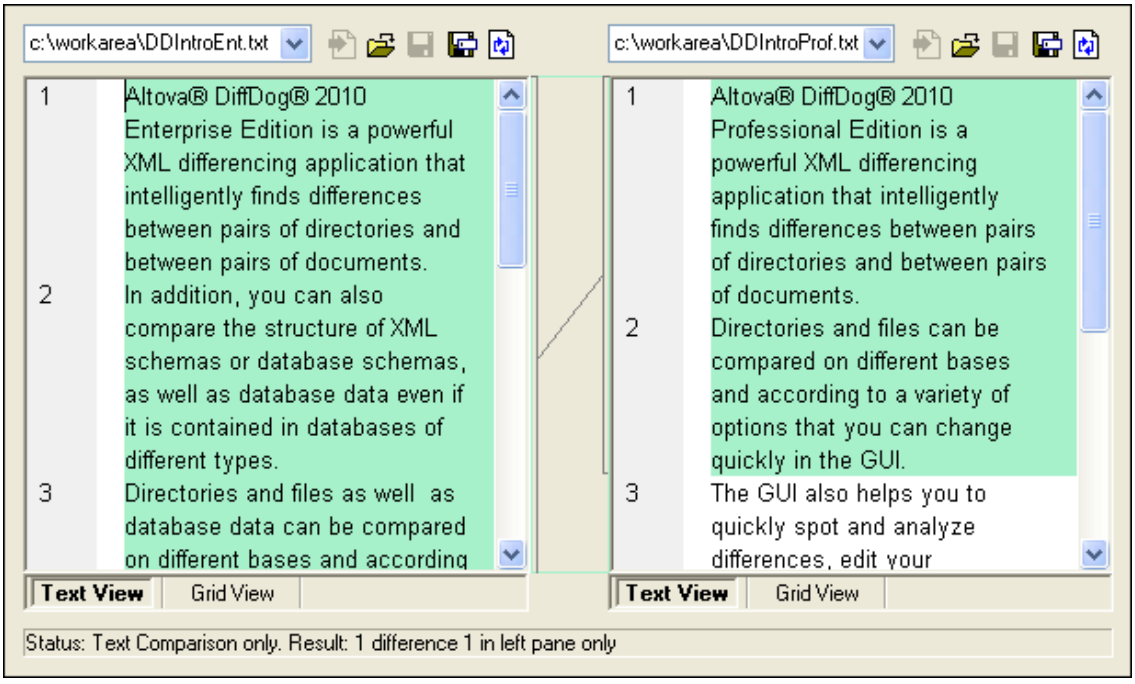
which compares text versions of the Welcome Pages of DiffDog's Enterprise and Professional Editions, will result in the following output:

```
c:\workarea\DDIntroEnt.txt c:\workarea\DDIntroPro.txt different
```

To have the **comparison result displayed in DiffDog** rather than in the command line window, use the /g switch to specify the GUI Mode:

```
c:\...\DiffDog2011\DiffDogBatch /cF c:\workarea\DDIntroEnt.txt c:
\workarea\DDIntroPro.txt /g
```

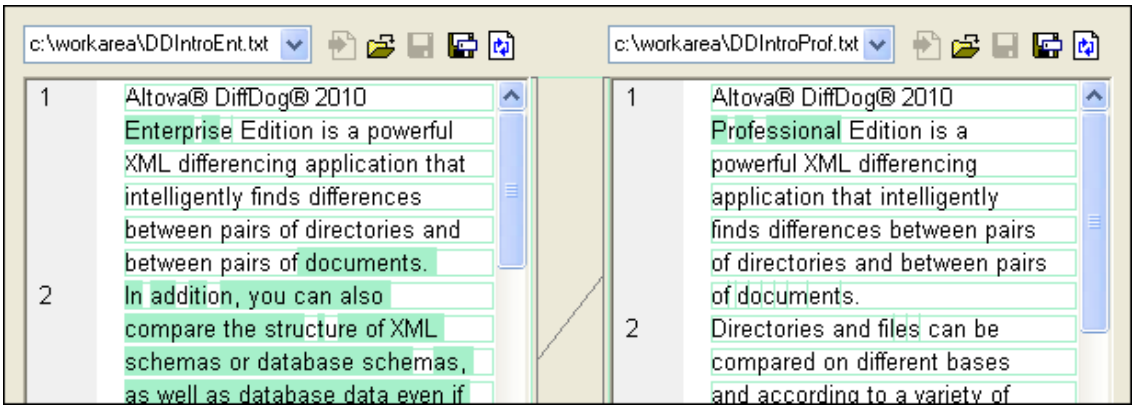
The comparison result is displayed in a new instance (or a new comparison window of the same instance if the `Allow Multiple Instances` option is not checked) of DiffDog. Note that all comparison options are deactivated by default if you run DiffDog from the command line. Any option that you want to use has to be activated by entering the appropriate switch in the command line.



To **display differences within lines**, add the /dL switch to the command:

```
c:\...\DiffDog2011\DiffDogBatch /cF c:\workarea\DDIntroEnt.txt c:
\workarea\DDIntroPro.txt /g /dL
```

This will result in the following output:



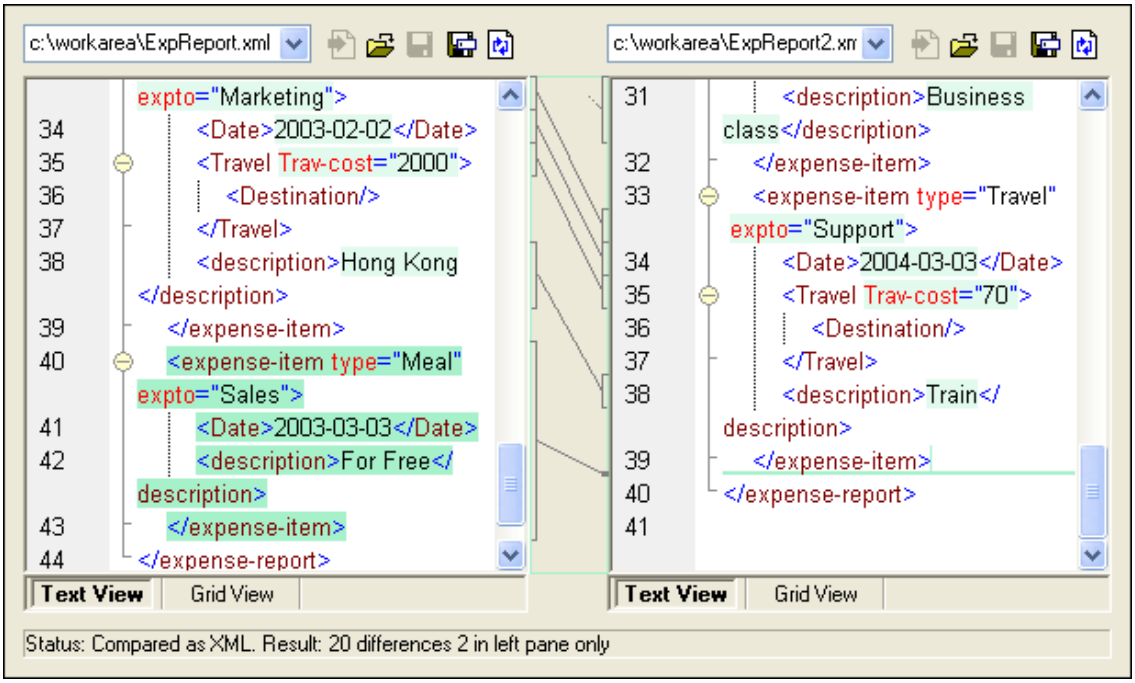
If you want to keep it for your records, you can **write the comparison result to a text file**. Add the file name (and path if you prefer a folder other that DiffDog's installation directory) to the command:

```
c:\...\DiffDog2011\DiffDogBatch /cF c:\workarea\DDIntroEnt.txt c:
\workarea\DDIntroPro.txt /dL >c:\workarea\IntroDiffs.txt
```

The content of this file will be equal to the command line output in Quiet Mode, so be sure to disable GUI Mode if you want to generate a result file, since otherwise the file will be created but remain empty because the result is not written to the command line but displayed in DiffDog in this case.

In order to compare two **XML files in XML mode with detailed differencing** enabled, you will have to add both the /mX and /dD switches:

```
c:\...\DiffDog2011\DiffDogBatch /cF c:\workarea\ExpReport.xml c:
\workarea\ExpReport2.xml /g /mX /dD
```



If you want to compare only the XML structure of the files and **ignore text**, add the /iT switch to

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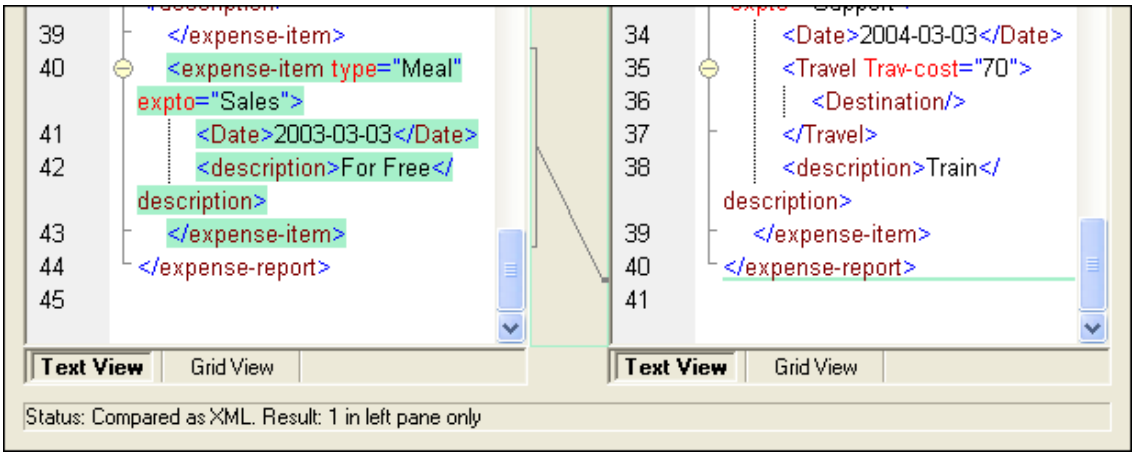
the command:

```
c:\...\DiffDog2011\DiffDogBatch /cF c:\workarea\ExpReport.xml c:
\workarea\ExpReport2.xml /g /mX /iT
```



To generate and **export a detailed differencing report** in XML format, add the /rX switch and a file name (and path) to the command. If you do not specify a path, the file will be saved in DiffDog's installation directory.

```
c:\...\DiffDog2011\DiffDogBatch /cF c:\workarea\ExpReport.xml c:
\workarea\ExpReport2.xml /mX /dD /rX c:\workarea\xmldiffs.xml
```

An XML file with the name and at the location that you have specified will be generated:

```
<diff_result>
  <diff_info comparison_mode="xml">
    <source_left name="c:\workarea\ExpReport.xml" uri="
file:///c:/workarea/ExpReport.xml"/>
    <source_right name="c:\workarea\ExpReport2.xml" uri="
file:///c:/workarea/ExpReport2.xml"/>
  </diff_info>
  <xml_diff>
    <left_location>
      <parent xpath="/expense-report"/>
      <position>1</position>
    </left_location>
    <right_location>
      <parent xpath="/expense-report"/>
      <position>1</position>
    </right_location>
    <left_content>
      <attribute currency="USD"/>
```

Directory Comparison

Directory comparisons in batch mode are indicated by the /cD switch following the DiffDogBatch command. The default comparison mode for directory comparisons is Quick Comparison Mode. To compare directories on the basis of the content of their files, use the Comparison Mode option.

If no options are specified, the comparison will run in Quiet mode and the result will be output to the command line window. The command

```
c:\...\DiffDog2011\DiffDogBatch /cD c:\workarea c:\work-backup
```

which compares the following directories

Name	Size	Type	Date Modified
DDIntroEnt.txt	2 KB	Text...	16/09/2009 09:06
DDIntroProf.txt	1 KB	Text...	16/09/2009 13:16
ExpReport2.xml	2 KB	XML ...	16/09/2009 10:29
ExpReport.xml	2 KB	XML ...	16/09/2009 10:29
IntroDiffs.txt	0 KB	Text...	16/09/2009 10:18
karli.txt	1 KB	Text...	16/09/2009 14:15
xmldiffs.xml	10 KB	XML ...	16/09/2009 13:17

Name	Size	Type	Date Modified
DDIntroEnt.txt	2 KB	Text...	16/09/2009 09:06
DDIntroProf.txt	1 KB	Text...	16/09/2009 09:06
ExpReport.xml	2 KB	XML ...	16/09/2009 10:29
xmldiffs2.xml	10 KB	XML ...	16/09/2009 11:46
xmldiffs.xml	10 KB	XML ...	16/09/2009 11:41

will result in the following output:

```
C:\workarea\DDIntroEnt.txt C:\work-backup\DDIntroEnt.txt equal
C:\workarea\DDIntroProf.txt C:\work-backup\DDIntroProf.txt different
C:\workarea\ExpReport.xml C:\work-backup\ExpReport.xml equal
C:\workarea\ExpReport2.xml  leftonly
C:\workarea\IntroDiffs.txt  leftonly
C:\workarea\xmldiffs.xml C:\work-backup\xmldiffs.xml different
C:\work-backup\xmldiffs2.xml  rightonly
```

You can apply a **predefined filter** to your directory comparison by adding the /fD switch and specifying the name of the filter (use quotes if the name contains spaces!). New filters cannot be created from the command line.

```
c:\...\DiffDog2011\DiffDogBatch /cD c:\workarea c:\work-backup /mX /fD
"xml conformant files"
```

Only files that match the filter criteria are considered in the comparison:

```
C:\workarea\ExpReport.xml C:\work-backup\ExpReport.xml equal
C:\workarea\ExpReport2.xml  leftonly
C:\workarea\xmldiffs.xml C:\work-backup\xmldiffs.xml different
C:\work-backup\xmldiffs2.xml  rightonly
```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20.3 Exit Codes

DiffDog provides exit codes to allow for conditional batch processing of file or directory comparisons. DiffDogBatch can complete with the following codes:

0 **Equal**: The file or directory that has been compared shows no differences.

1 **Different**: The two files or directories that have been compared are not equal.

2 **Error**: An error occurred while comparing the file or directory.

Chapter 21

Source Control

21 Source Control

Since implements the Microsoft Source Code Control Interface (MSSCCI) v1.1 – v1.3, multiple source control systems, including Microsoft SourceSafe and other compatible repositories, are supported.

Note: The **64-bit** version of automatically supports any of the supported 32-bit source control programs mentioned in this documentation. When using a 64-bit version of with a 32-bit source control program, the "Perform background status updates every... ms" option (Tools | Options) is automatically **grayed-out** and cannot be selected!

Registry entry and plug-ins
Microsoft has defined a Registry entry, where all Source Control-compatible programs can register themselves. This is the entry for DiffDog:

```
HKEY_LOCAL_MACHINE\SOFTWARE\SourceCodeControlProvider\InstalledSCCProviders
```

Note that Source Control (SC) plug-ins are not automatically installed by all SC products. Please read the documentation supplied with your specific SC software for more information about plug-ins.

In this section
This section as organized as follows:

- Supported Source Control Systems lists the Source Control Systems (SCSs) that are supported by DiffDog. Systems are listed alphabetically by server, and for each server the supported clients are also listed.
- Installing Source Control Systems contains notes about how to install the various SCSs.
- SCSs and Altova DiffDog Differencing describes how various Source Control Systems can be set up to carry out differencing with Altova DiffDog.

Resource / Speed issues
Very large source control databases might be introducing a speed/resource penalty when automatically performing background status updates.

You might be able to speed up your system by disabling (or increasing the interval of) the "Perform background status updates every xxx seconds" field in the Source Control tab accessed through **Tools | Options**.

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21.1 Supported Source Control Systems

The list below shows the Source Control Servers (SCSs) supported by DiffDog, together with their respective Source Control Client/s (SCCs). The list is organized alphabetically by SCS. Please read the notes following the list for information about support levels.

AccuRev

Version: AccuRev 4.7.0 Windows

Clients:
- AccuBridge for Microsoft SCC 2008.2

Bazaar

Version: Bazaar 1.9 Windows

Clients:
- Aigenta Unified SCC 1.0.6

Borland StarTeam 2008

Version: StarTeam 2008 Release 2

Clients:
- Borland StarTeam Cross-Platform Client 2008 R2

Codice Software Plastic SCM

Version: Codice Software Plastic SCM Professional 2.7.127.10 (Server)

Clients:
- Codice Software Plastic SCM Professional 2.7.127.10 (SCC Plugin)

Collabnet Subversion 1.5

Version: 1.5.4

Clients:
- Aigenta Unified SCC 1.0.6
- PushOK SVN SCC 1.5.1.1
- PushOK SVN SCC x64 version 1.6.3.1
- TamTam SVN SCC 1.2.24

ComponentSoftware CS-RCS (PRO)

Version: ComponentSoftware CS-RCS (PRO) 5.1

Clients:
- ComponentSoftware CS-RCS (PRO) 5.1

Dynamsoft SourceAnywhere for VSS

Version: Dynamsoft SourceAnywhere for VSS 5.3.2 Standard/Professional Server

Clients:
- Dynamsoft SourceAnywhere for VSS 5.3.2 Client

Dynamsoft SourceAnywhere Hosted

Version: Server hosted in a Bell Data Center

Clients:
- Dynamsoft SourceAnywhere Hosted Client (22252)

Dynamsoft SourceAnywhere Standalone

Version: SourceAnywhere Standalone 2.2 Server

Clients:
- Dynamsoft SourceAnywhere Standalone 2.2 Client

IBM Rational ClearCase 7

Version: 7.0.1 (LT)

Clients:
- IBM Rational ClearCase 7.0.1 (LT)

March-Hare CVSNT 2.5

Version: 2.5.03.2382

Clients:
- Aigenta Unified SCC 1.0.6

March-Hare CVS Suite 2008

Version: Server 2008 [3321]

Clients:
- Jalindi Igloo 1.0.3
- March-Hare CVS Suite Client 2008 (3321)
- PushOK CVS SCC NT 2.1.2.5
- PushOK CVS SCC x64 version 2.2.0.4
- TamTam CVS SCC 1.2.40

Mercurial

Version: Mercurial 1.0.2 for Windows

Clients:
- Sergey Antonov HgSCC 1.0.1

Microsoft SourceSafe 2005

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Version: 2005 with CTP

Clients:
- Microsoft SourceSafe 2005 with CTP

Microsoft Visual Studio Team System 2008 Team Foundation Server

Version: 2008

Clients:
- Microsoft Team Foundation Server 2008 MSSCCI Provider

Perforce 2008

Version: P4S 2008.1

Clients:
- Perforce P4V 2008.1

PureCM

Version: PureCM Server 2008/3a

Clients:
- PureCM Client 2008/3a

QSC Team Coherence Version Manager

Version: QSC Team Coherence Server 7.2.1.35

Clients:
- QSC Team Coherence Client 7.2.1.35

Qumasoft QVCS Enterprise

Version: QVCS Enterprise 2.1.18

Clients:
- Qumasoft QVCS Enterprise 2.1.18

Qumasoft QVCS Pro

Version: 3.10.18

Clients:
- Qumasoft QVCS Pro 3.10.18

Reliable Software Code Co-Op

Version: Code Co-Op 5.1a

Clients:
- Reliable Software Code Co-Op 5.1a

Seapine Surround SCM

Version: Surround SCM Client/Server for Windows 2009.0.0

Clients:
- Seapine Surround SCM Client 2009.0.0

Serena Dimensions

Version: Dimensions Express/CM 10.1.3 for Win32 Server

Clients:
- Serena Dimensions 10.1.3 for Win32 Client

Softimage Alienbrain

Version: Alienbrain Server 8.1.0.7300

Clients:
- Softimage Alienbrain Essentials/Advanced Client 8.1.0.7300

SourceGear Fortress

Version: 1.1.4 Server

Clients:
- SourceGear Fortress 1.1.4 Client

SourceGear SourceOffsite

Version: SourceOffsite Server 4.2.0

Clients:
- SourceGear SourceOffsite Client 4.2.0 (Windows)

SourceGear Vault

Version: 4.1.4 Server

Clients:
- SourceGear Vault 4.1.4 Client

VisualSVN Server 1.6

Version: 1.6.2

Clients:
- Aigenta Unified SCC 1.0.6
- PushOK SVN SCC 1.5.1.1
- PushOK SVN SCC x64 version 1.6.3.1
- TamTam SVN SCC 1.2.24

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Note the following:

- Altova has implemented the Microsoft Source Code Control Interface (MSSCCI) v1.1 – v1.3 in DiffDog, and has tested support for the drivers and revision control systems listed above. It is expected that DiffDog will continue to support these products if, and when, they are updated.
- Source Control plugins not listed in the table above, but that adhere to the MSCCI 1.1-1.3 specification, should also work together with DiffDog.

21.2 Installing Source Control Systems

This section gives information on how to install and set up the various supported Source Control Systems.

AccuBridge for Microsoft SCC 2008.2
http://www.accurev.com/

1. Install AccuRev client software, run the installer and specify the server you want to connect to (hostname and port) then create a workspace.
2. Install the AccuBridge SCC provider. Extract the ZIP archive into the <AccuRev installation dir>\bin directory.

   Register the AccuRev.dll and SccAcc.dll as follows:
3. Open a command prompt window (if you work with Vista, start Windows Explorer, go to C:\Windows\System32, right click and run cmd.exe "As administrator").
4. Go to the <installation AccuRev dir>\bin directory.
5. Enter the following command at the command prompt:
   - Regsvr32 AccuRev.dll
   - Regsvr32 SccAcc.dll
6. Run the SwitchScc.exe program and set AccuRev as the provider.
7. Perform a Windows log off and log in again.

Aigenta Unified SCC 1.0.6
http://aigenta.com/products/UnifiedScc.aspx

Requirements: source control client. Aigenta Unified SCC works with:

- subversion command line client 1.5.4 at http://subversion.tigris.org
- CVSNT 2.5 (client) at http://www.cvsnt.org
- Bazaar 1.9 Windows (and related pre-requisites)at http://bazaar-vcs.org/ (http://bazaar-vcs.org/WindowsInstall)

A standard installation will work correctly with Altova products.

Borland StarTeam Cross-Platform Client 2008 R2
http://www.borland.com/us/products/starteam

To install the Borland StarTeam Microsoft SCC integration run the setup program and choose to install the SCC API Integration. Altova products can now connect to the repository by specifying the server address, the end point, user and password to log on, your project and working path.

Codice Software Plastic SCM Professional 2.7.127.10 (SCC Plugin)
http://www.codicesoftware.com/xpproducts.aspx

A standard installation will work correctly with Altova products. It is sufficient to install the "client" and the "Visual Studio SCC plug-in" components.

ComponentSoftware CS-RCS (PRO) 5.1
http://www.componentsoftware.com/Products/RCS

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1. To install ComponentSoftware CS-RCS (PRO) start the setup and choose the option “Workstation Setup”.
2. Specify your repository tree root and when the installation is finished, restart your machine as requested.
3. Use the “ComponentSoftware RCS Properties” to choose, or create, a project and to specify a work folder.

Dynamsoft SourceAnywhere for VSS 5.3.2 Client
http://www.dynamsoft.com/Products/SAW_Overview.aspx

A standard installation will work correctly with Altova products. To integrate with Altova products you do not need to install the plug-in for Adobe DreamWeaver CS3. After the installation, establish a server connection and set a working folder.

Dynamsoft SourceAnywhere Hosted Client (22252)
http://www.dynamsoft.com/Products/SourceAnywhere-Hosting-Version-Control-Source-Control.aspx

A standard installation will work correctly with Altova products. To integrate with the Altova products you do not need to install the plug-in for Adobe DreamWeaver CS3.

Dynamsoft SourceAnywhere Standalone 2.2 Client
http://www.dynamsoft.com/Products/SourceAnywhere-SourceSafe-VSS.aspx

A standard installation will work correctly with Altova products. To integrate with the Altova products you do not need to install the plug-in for Adobe DreamWeaver CS3. After the installation, establish a server connection and set a working folder.

IBM Rational ClearCase 7.0.1 (LT)
http://www-01.ibm.com/software/awdtools/clearcase/

To install IBM Rational ClearCase LT run the setup.

- You will be asked to update the version of the InstallShield scripting engine if it is older than version 10.5, choose “Update it if necessary”. The update runs prior to the installation starting.
- Choose the default option “Enterprise deployment, create a network release area and customize it using Siteprep”.

To integrate with Altova products, it is sufficient to install only the client. Check only the client check box.

- Provide a server name and the license server element(s) following the examples provided by the installer (port@server_name).
- Provide a configuration description name by editing a name you like and insert the path to a Release area. This path must specify a shared folder.
- You can create a new folder on your machine, share it, and use it as a Release Area. (In Vista, you must set the Network discovery to "on" in Network and Sharing Center to set this path.) The Release Area is now created, some files are copied into it and a shortcut is created with the name **sitedefs.lnk**.
- When all files are copied, continue by clicking the shortcut from Windows Explorer. A

new setup will start to install the client.
- When setup starts, choose the option “Install IBM Rational ClearCase LT”.
- Keep clicking “Next”, accept the “Software License Agreement” and start the installation.

In **Vista**, the second setup could generate the internal error: 2739. In this case, start Windows Explorer and go to C:\Windows\System32.
- Right click and run “cmd.exe” “As Administrator”. A command window pops up.
- Type “regsvr32 jscript.dll”.
- Launch the setup again.

To work with files stored in ClearCase, you should create a view that points to your ClearCase project.

Jalindi Igloo 1.0.3
http://www.jalindi.com/igloo/

To use Jalindi Igloo with Altova products it is sufficient to run the setup to install Jalindi Igloo. Note that if you uninstall Jalindi Igloo, all other installed SCC Provider Windows registry keys (if any) are deleted as well and are not longer available.

When working with Altova products, setting the “Auto Commit” Mode is recommended.
- Auto Commit Mode is found in the advanced Source Control options.
- After defining a workspace, you can start to work.

March-Hare CVS Suite Client 2008 (3321)
http://www.march-hare.com/cvsnt/en.asp

A “typical” installation will work correctly with Altova products.

Mercurial
see under Sergey Antonov HgScc 1.0.1

Microsoft SourceSafe 2005 with CTP
http://msdn.microsoft.com/en-us/vstudio/aa718670.aspx

A standard installation of Microsoft Source Safe 2005 will work correctly with Altova products.

Microsoft Team Foundation Server 2008 MSSCCI Provider
http://www.microsoft.com/downloads

Requirements: Visual Studio 2008 Team Explorer, or Visual Studio 2008 with Team Explorer 2008. A standard installation will work correctly with Altova products.

Perforce P4V 2008.1

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http://www.perforce.com/

The Perforce Visual Client (P4V) offers a choice:

- To install all client features (default behavior)
- To install only the “SCC Plug-in (P4SCC)” feature.

The default installation will work correctly with all Altova products.

If the “SCC Plug-in (P4SCC)” feature is chosen:

- Two SCC functions “Show differences” and “Source control manager” will not work.
- The “Show differences” functionality and the possibility to launch the source control manager will not work, because they rely on the non-installed features” Visual Merge Tool” and “Visual Client (P4V)” respectively.
- The differencing functionality will need 3rd party software, while the launch of the source control manager will only be possible after the explicit installation of the “Visual Client (P4V)".
- After starting your Perforce Visual Client installation, specify your own client configuration settings (server name, Text Editing Application, User Name).
- When the installation is finished, do not forget to create a new workspace or to select an existing one.

PureCM Client 2008/3a

http://www.purecm.com/

A standard installation will work correctly with Altova products. After the installation, start the PureCM client to register a server.

PushOK CVS SCC NT 2.1.2.5

http://www.pushok.com/soft_cvs.php

A standard installation is sufficient for using PushOK CVS SCC NT.

- After installation is complete, make sure your copy of the CVS proxy plug-in is correctly registered.
- After defining a workspace, you can start to work.

PushOK CVS SCC x64 version 2.2.0.4

http://www.pushok.com/soft_cvs.php

A standard installation is sufficient for using PushOK CVS SCC.

- After installation is complete, make sure your copy of the CVS proxy plug-in is correctly registered.
- After defining a workspace, you can start to work.

PushOK SVN SCC 1.5.1.1

http://www.pushok.com/soft_svn.php

A standard installation of PushOK SVN SCC is sufficient for use with Altova products. When installing under Vista, it is possible that the COM library **svncom.dll** cannot be registered. In this case, finish the installation, and then register the library manually by following these steps:

1. Start a command window using the option "Run as administrator".
2. Enter: cd “C:\Program Files\PushOK Software\SVNSCC\svn”

3. Type the command > regsvr32 svncom.dll.

PushOK SVN SCC x64 version 1.6.3.1
http://www.pushok.com/soft_svn.php

A standard installation of PushOK SVN SCC is sufficient for use with Altova products. When installing under Vista, it is possible that the COM library **svncom.dll** cannot be registered. In this case, finish the installation, and then register the library manually by following these steps:

1. Start a command window using the option "Run as administrator".
2. Enter: cd "C:\Program Files\PushOK Software\SVNSCC\svn"
3. Type the command > regsvr32 svncom.dll.

QSC Team Coherence Client 7.2.1.35
http://www.teamcoherence.com

A standard installation will work correctly with Altova products.

- If the server is installed on the client machine, a default connection is created after the client installation.
- If the server resides on a different machine, you need to change the "HOSTNAME" property in the Connection Properties dialog of Team Coherence client, to point to the relevant machine.

Qumasoft QVCS Enterprise 2.1.18
http://www.qumasoft.com/

Requirements: J2SE 1.5 or later http://java.sun.com/j2se/downloads.html

To install Qumasoft QVCS-Enterprise client, run the installer. If your operating system is **Vista**, you must modify the installation directory from the default value "C:\Program Files\QVCS-Enterprise Client" to "C:\QVCS-Enterprise Client". This must be done as Vista does not let applications write to the C:\Program Files area. Edit the "**setEnv.cmd**" file that resides in the installation directory so that the JAVA_HOME environment variable points to the location of your JVM.

If you work with **Vista** you might have problem when saving the file.

1. If this is the case, start Windows Explorer and go to C:\Windows\System32.
2. Right click and run "cmd.exe" "As Administrator".
3. A command window pops up.
4. Type "cd <installation folder of the QVCS –Enterprise client>"
5. Type "Notepad setEnv.cmd" and then edit the file and save it.
6. From the installation directory of the Qumasoft QVCS-Enterprise client run the batch file "gui.bat".
7. Add a server from the "Server menu" specifying the requested name, IP address and ports, log in and define a local workspace.

Qumasoft QVCS Pro 3.10.18
http://www.qumasoft.com/

To install Qumasoft QVCS-Pro run the installer.

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- If your operating system is **Vista**, you must modify the installation directory from the default value “C:\Program Files\QVCSBin“ to “C:\QVCSBin”. This must be done as Vista does not let applications write to the C:\Program Files area.
- After installation is finished, launch the QVCS 3.10 client, create a new user and enable **Ide integration** by selecting the submenu “Ide Integration” in the Admin menu and adding QVCS as a Version Control Tool.
- Create a project and set a workspace.

Reliable Software Code Co-Op 5.1a
http://www.relisoft.com/co_op/index.htm

A standard installation will work correctly with Altova products.

Seapine Surround SCM Client 2009.0.0
http://www.seapine.com/surroundscm.html

A standard installation will work correctly with Altova products. After installation, a server connection must be established.

Serena Dimensions 10.1.3 for Win32 Client
http://www.serena.com/Products/dimensions/

Supported Versions: Dimensions Express/CM 10.1.3 for Win32 Client

- Perform a “Typical” installation of the Serena Dimension client.
- Specify the WEB client hostname and port number as requested.

Sergey Antonov HgSCC 1.0.1 for Mercurial SCS
http://www.newsupaplex.pp.ru/hgscc_news_eng.html

A standard installation will work correctly with Altova products.

Softimage Alienbrain Essentials/Advanced Client 8.1.0.7300
http://www.alienbrain.com/

- Perform a “typical” installation of the Alienbrain Client Software, then install the Alienbrain Microsoft Visual Studio Integration. To work with Altova products you do not need to install Microsoft Visual Studio.
- The first time you try to open a project from VCS, or to add a project to VCS you will be asked to enter some user settings, e.g. to specify your server and choose the project database you want to connect to.

SourceGear Fortress 1.1.4 Client
http://www.sourcegear.com/fortress

A standard installation of SourceGear Fortress client will work with Altova products.

SourceGear SourceOffsite Client 4.2.0 (Windows)
http://www.sourcegear.com/sos/

A standard installation of SourceOffsite client will work with Altova products.

SourceGear Vault 4.1.4 Client
http://www.sourcegear.com/vault

A standard installation of SourceGear Vault client will work correctly with Altova products.

TamTam CVS SCC 1.2.40
http://www.daveswebsite.com/software/tamtam

Requirements: CVSNT 2.5 (client) at http://www.cvsnt.org. A standard installation will work correctly with Altova products.

- To connect to the CVS repository you need to install CVSNT.
- In the Altova product open the "Source control" Advanced options and enter the path to the **cvs.exe** executable.

TamTam SVN SCC 1.2.24
http://www.daveswebsite.com/software/tamtamsvn

Requirements: subversion command line client 1.5.4 at http://subversion.tigris.org . A standard installation will work correctly with Altova products.

- To connect to the SVN repository you need to install the subversion command line client and specify the path to the executable **svn.exe** in the Altova product Source control options.
- After starting DiffDog, you must register the SCC provider.

On a **Vista** machine the SCC registration could fail.

- If this is the case, use Windows explorer and browse to the directory that contains the Altova application executable.
- Right click and run the Altova executable "As Administrator".
  The SCC registration will now be successful.

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21.3 SCSs and Altova DiffDog Differencing

You can configure certain Source Control Systems so that they use Altova DiffDog as their differencing tools. The systems that support this feature are listed below, together with the setup steps for each.

DiffDog can easily be integrated with source control systems that provide a possibility to set up a path to the DiffDog executable. If a path to the DiffDog executable can be set up, the source control system can execute a DiffDog command via the command line. No checking in or out is required in order to make a comparison. All that is needed is for DiffDog to be able to see a difference between two versions of a file.

Aigenta Unified SCC 1.0.6
http://aigenta.com/products/UnifiedScc.aspx

The following steps will integrate Altova DiffDog into Aigenta Unified SCC:
1. Click the **Advanced** button of the Source Control tab.
2. Select the *Comparison and merging tab* and specify the full DiffDog filepath as comparison tool.

Borland StarTeam Cross-Platform Client 2008 R2
http://www.borland.com/us/products/starteam

The following steps integrate Altova DiffDog into Borland Star Team:
1. Use the StarTeam client personal options (**Tools | Personal options | File | Alternate applications**)
2. Compare utility: Enter the DiffDog full path.
3. Compare utility options: `$file1 $file2.`

ComponentSoftware CS-RCS (PRO) 5.1
http://www.componentsoftware.com/Products/RCS

The following steps will integrate Altova DiffDog into ComponentSoftware CS-RCS (Pro):
1. Go to the ComponentSoftware CS-RCS Properties.
2. In the *File Types* tab, choose a file extension and edit it.
3. Enter/select the value *Custom Tool* for the “Difference Analysis Tool“, and browse to insert the DiffDog full path.

Dynamsoft SourceAnywhere for VSS 5.3.2 Client
http://www.dynamsoft.com/Products/SAW_Overview.aspx

The following steps will integrate Altova DiffDog into Dynamsoft SourceAnywhere for VSS:
1. Go to the Dynamic SourceAnywhere For VSS client Options.
2. Specify the DiffDog full path as External application for diff/merge, with the arguments: `%FIRST_FILE%” “%SECOND_FILE%.`

Warning: Do not perform these settings from the Altova product options, as there is no possibility of inserting the external application parameters.

Dynamsoft SourceAnywhere Hosted Client (22252)
http://www.dynamsoft.com/Products/SourceAnywhere-Hosting-Version-Control-Source-Control.aspx

Dynamsoft SourceAnywhere Standalone 2.2 Client
http://www.dynamsoft.com/Products/SourceAnywhere-SourceSafe-VSS.aspx

The following steps will integrate Altova DiffDog into Dynamsoft SourceAnywhere Hosted and Dynamsoft SourceAnywhere Standalone:

1. Click the **Advanced** button of the Source Control tab.
2. Specify the DiffDog full path as External program application for diff/merge with arguments `%FIRST_FILE%" "%SECOND_FILE%`.

Jalindi Igloo 1.0.3
http://www.jalindi.com/igloo/

The following steps will integrate Altova DiffDog into Jalindi Igloo:

1. Start the **Show differences** command in DiffDog.
2. Open the **Show Differences or Merge Files** panel.
3. Set the *External Diff Command* by entering the DiffDog full file path as the External Diff EXE path.

Warning: When using the default diff editor CvsConflictEditor, you might have problems comparing files with excessively long lines. We recommended that you "pretty print" all files (particularly `.ump` files) before storing them in the repository. This limits the line length, thus avoiding problems with the CVSConflictEditor.

March-Hare CVS Suite Client 2008 (3321)
http://www.march-hare.com/cvsnt/en.asp

The following steps will integrate Altova DiffDog into Marc-Hare CVS Suite 2008:

1. Go to the TortoiseCVS Preferences and choose the Tools tab.
2. Specify the DiffDog full path as Diff application, and the parameters `%1 %2` as two-way differencing parameters.

Mercurial
see under Sergey Antonov HgScc 1.0.1

Microsoft SourceSafe 2005 with CTP
http://msdn.microsoft.com/en-us/vstudio/aa718670.aspx

The following steps will integrate Altova DiffDog into Microsoft SourceSafe 2005:

1. Click the **Advanced** button of the Source Control tab.
2. Click the Custom Editors tab and enter `C:\Program Files\Altova\DiffDog2011\DiffDogexe %1 %2` in the Command Line field.
3. In the Operation combo box, select *File Difference*.

Microsoft Team Foundation Server 2008 MSSCCI Provider
http://www.microsoft.com/downloads

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Requirements: Visual Studio 2008 Team Explorer *or* Visual Studio 2008 *with* Team Explorer 2008. The following steps will integrate Altova DiffDog into Microsoft Visual Studio Team System 2008 Team Foundation Server MSSCCI Provider:

1. In the manager (Visual Studio 2008 Team Explorer or Visual Studio 2008) options, configure Altova DiffDog as new user tool
2. Choose Visual Studio Team Foundation Server source as the plug-in.
3. Configure a new user tool specifying: (i) the extensions of the files you wish to compare with DiffDog; and (ii) the DiffDog full file path.

Perforce P4V 2008.1
http://www.perforce.com/

The following steps will integrate Altova DiffDog into Perforce 2008:

1. Click the **Advanced** button of the Source Control tab.
2. Choose the tab Diff in the Preferences panel.
3. Check as default differencing application the field “Other application” and enter the DiffDog full file path.

PushOK CVS SCC NT 2.1.2.5,
PushOK SVN SCC 1.5.1.1
PushOK CVS SCC x64 version 2.2.0.4
PushOK SVN SCC x64 version 1.6.3.1
http://www.pushok.com/soft_cvs.php

The following steps will integrate Altova DiffDog into PushOK CVS NT and PushOK SVN SCC:

1. Click the **Advanced** button of the Source Control tab.
2. Choose the CVS Executables tab.
3. Select the value *External merge/compare tool* into the Diff/Merge field.
4. Insert the DiffDog full file path.
5. Edit the value `%first %second` into the "2 way diff cmd" field.

Warning: When using the default differencing editor CvsConflictEditor, you might have problems comparing files with excessively long lines. We recommended that you "pretty print" all files (particularly `.ump` files) before storing them in the repository. This limits the line length, thus avoiding problems with the CVSConflictEditor.

QSC Team Coherence Client 7.2.1.35
http://www.teamcoherence.com

The following steps will integrate Altova DiffDog into Team Coherence Version Manager:

1. Go to Team Coherence client Options “Difference Viewer”.
2. Specify as the Default Difference Viewer application, the DiffDog full file path.
3. Specify as parameters: `"$LF $RF"`.

Warning: It is possible that the new settings will only be applied after a Windows log off.

Qumasoft QVCS Enterprise 2.1.18
http://www.qumasoft.com/

The following steps will integrate Altova DiffDog into Qumasoft QVCS-Enterprise:

1. Add the Qumasoft QVCS-Enterprise installation directory to the Path environment variable.
2. Use the QVCS Enterprise User Preferences.
3. In Utilities, enable the checkbox, Use External Visual Compare Tool.
4. Specify as Visual Compare Command Line:
   `<DiffDog full path> "file1Name file2Name"`

Qumasoft QVCS Pro 3.10.18
http://www.qumasoft.com/

The following steps will integrate Altova DiffDog into Qumasoft QVCS-Pro:

1. Use the QVCS 3.10 client preferences.
2. In Utilities, specify the DiffDog full path as the visual compare utility with parameters "%s %s ".

Seapine Surround SCM Client 2009.0.0
http://www.seapine.com/surroundscm.html

The following steps will integrate Altova DiffDog into Seapine Surround SCM:

1. Go to the Surround SCM client user options (Diff/Merge) section.
2. Edit the Diff/Merge settings to compare with a selected application.
3. Enter the DiffDog full path with the parameters "%1" "%2".
4. Restart the Surround SCM client and the Altova products.

Sergey Antonov HgSCC 1.0.1
http://www.newsupaplex.pp.ru/hgscc_news_eng.html

The following steps will integrate Altova DiffDog into Mercurial:

1. Click the **Advanced** button of the Source Control tab.
2. Select differencing tool "custom", and specify the DiffDog full path.

SourceGear Fortress 1.1.4 Client
http://www.sourcegear.com/fortress

SourceGear Vault 4.1.4 Client
http://www.sourcegear.com/vault

The following steps will integrate Altova DiffDog into SourceGear Fortress and SourceGear Vault:

1. Click the **Advanced** button of the Source Control tab.
2. Set the Diff/Merge Vault options by specifying as the differencing program the DiffDog full path and using the Arguments:
   /ro1 /ro2 /title1:"%LEFT_LABEL%" /title2:"%RIGHT_LABEL%" "%LEFT_PATH%" "%RIGHT_PATH%"

SourceGear SourceOffsite Client 4.2.0 (Windows)
http://www.sourcegear.com/sos/

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The following steps will integrate DiffDog into SourceGear SourceOffsite:

1. Click the **Advanced** button of the Source Control tab.
2. Specify as “External Programs”, “Application for comparing files” the DiffDog full path.

TamTam CVS SCC 1.2.40,
TamTam SVN SCC 1.2.24
http://www.daveswebsite.com/software/tamtamGo

The following steps will integrate Altova DiffDog into TamTam CVS SCC and TamTam SVN SCC:

1. Click the **Advanced** button of the Source Control tab.
2. Specify the DiffDog full file path as the external tool for Diff/Merge and Conflict.

Warning: The default differencing editor CvsConflictEditor, has problems comparing files with excessively long lines. We recommended that you "pretty print" all files (particularly `.ump` files) before storing them in the repository. This limits the line length, avoiding problems with the CVSConflictEditor.

Chapter 22

License Information

22 License Information

This section contains:

- Information about the distribution of this software product
- Information about the intellectual property rights related to this software product
- The End User License Agreement governing the use of this software product

Please read this information carefully. It is binding upon you since you agreed to these terms when you installed this software product.

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- When you place an online order, you always get the latest version of our software.
- The product package includes a comprehensive integrated onscreen help system. The latest version of the user manual is available at www.altova.com (i) in HTML format for online browsing, and (ii) in PDF format for download (and to print if you prefer to have the documentation on paper).

30-day evaluation period
After downloading this product, you can evaluate it for a period of up to 30 days free of charge. About 20 days into this evaluation period, the software will start to remind you that it has not yet been licensed. The reminder message will be displayed once each time you start the application. If you would like to continue using the program after the 30-day evaluation period, you have to purchase an Altova Software License Agreement, which is delivered in the form of a key-code that you enter into the Software Activation dialog to unlock the product. You can purchase your license at the online shop at the Altova website.

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If you wish to distribute the evaluation version within your company network, or if you plan to use it on a PC that is not connected to the Internet, you may only distribute the Setup programs, provided that they are not modified in any way. Any person that accesses the software installer that you have provided, must request their own 30-day evaluation license key code and after expiration of their evaluation period, must also purchase a license in order to be able to continue using the product.

For further details, please refer to the Altova Software License Agreement at the end of this section.

22.2 Software Activation and License Metering

As part of Altova's Software Activation, the software may use your internal network and Internet connection for the purpose of transmitting license-related data at the time of installation, registration, use, or update to an Altova-operated license server and validating the authenticity of the license-related data in order to protect Altova against unlicensed or illegal use of the software and to improve customer service. Activation is based on the exchange of license related data such as operating system, IP address, date/time, software version, and computer name, along with other information between your computer and an Altova license server.

Your Altova product has a built-in license metering module that further helps you avoid any unintentional violation of the End User License Agreement. Your product is licensed either as a single-user or multi-user installation, and the license-metering module makes sure that no more than the licensed number of users use the application concurrently.

This license-metering technology uses your local area network (LAN) to communicate between instances of the application running on different computers.

Single license
When the application starts up, as part of the license metering process, the software sends a short broadcast datagram to find any other instance of the product running on another computer in the same network segment. If it doesn't get any response, it will open a port for listening to other instances of the application.

Multi license
If more than one instance of the application is used within the same LAN, these instances will briefly communicate with each other on startup. These instances exchange key-codes in order to help you to better determine that the number of concurrent licenses purchased is not accidentally violated. This is the same kind of license metering technology that is common in the Unix world and with a number of database development tools. It allows Altova customers to purchase reasonably-priced concurrent-use multi-user licenses.

We have also designed the applications so that they send few and small network packets so as to not put a burden on your network. The TCP/IP ports (2799) used by your Altova product are officially registered with the IANA (*see* http://www.isi.edu/in-notes/iana/assignments/port-numbers *for details*) and our license-metering module is tested and proven technology.

If you are using a firewall, you may notice communications on port 2799 between the computers that are running Altova products. You are, of course, free to block such traffic between different groups in your organization, as long as you can ensure by other means, that your license agreement is not violated.

You will also notice that, if you are online, your Altova product contains many useful functions; these are unrelated to the license-metering technology.

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