

# Altova DiffDog Server 2024



## User & Reference Manual

# **Altova DiffDog Server 2024 User & Reference Manual**

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# 1 Introduction

DiffDog Server is a powerful differencing software solution that enables you to compare files, directories (including ZIP format), URLs, as well as tabular data from CSV files and databases. DiffDog Server runs on Windows, Linux, and macOS systems.



## Main Features

- *Command-line Interface.* DiffDog Server runs as a service. You can run comparisons by invoking DiffDog Server either from the command line interface or through executable scripts.
- *Run comparisons remotely.* You can compare files either directly on the server machine where DiffDog Server is installed, or call a comparison remotely from a client machine. The DiffDog Server installation includes a portable DiffDog Command Line Client, which can be copied to multiple machines within your organization, thus enabling you to call a running DiffDog Server remotely.
- *Cross-platform:* Both DiffDog Server and DiffDog Command Line Client run on Linux, macOS, and Windows.
- *URL Comparisons.* In addition to files and directories, you can also compare URLs. For example, you can compare a page like **<http://www.example.org/page1.html>** with **<http://www.example.org/page2.html>**. Combinations between URL and files are also possible, for example, **<http://www.example.org/page1.html>** with **<C:\page2.html>**.
- *Three-way comparisons.* In addition to standard two-side comparisons that involve a "left" file and a "right" side, you can also perform three-way comparisons (when comparing files). This is useful, for example, when two different versions exist of the same original file, and you need to cross-compare all versions.
- *Word document comparisons.* Comparison of Microsoft Word 2003 or later documents (.docx, .dotx) is also supported. Microsoft Word is not required to be installed in order to perform such comparisons.
- *Binary, text, and XML.* Depending on the kind of files you are comparing, you can choose between any of the following comparison modes: binary, text, or XML. Alternatively, you can let the application detect the comparison mode automatically based on file extension. For even more advanced needs, you can create custom rules to choose a specific mode automatically based on file extension.
- *Advanced filters and comparison options.* You can flexibly include or exclude files or directories from a comparison by means of filters. Additional options are available that help you deal with case-sensitive versus insensitive comparisons, ignoring files based on size or modification time, as well as various ways to treat special characters like spaces, tabs, or carriage returns.
- *Comparison of database data.* You can perform comparisons of recordsets originating from a database table, view, or a custom SQL query. The source databases can be of different kinds and may be local file-based databases such as SQLite or databases running on a remote database server, such as SQL Server. You can configure multiple such data comparisons by defining all the database connection details and other parameters in an .ini configuration file. You can then supply named data comparison jobs as arguments to the `data-diff` command and run multiple comparisons in a single call of the executable.
- *Comparison of CSV files.* You can perform side-by-side comparisons of tabular data from comma-separated or tab-separated values (CSV and TSV) files. You can also compare a CSV file with a database table, view or recordset.
- *Integration with DiffDog desktop.* If you have already created comparison files (.filedif, .dirdif) in DiffDog (<https://www.altova.com/diffdog>), and if DiffDog Server runs on Windows, you can compare them at the

command line as well. This enables you to automate or integrate frequently-used comparisons into your custom scripts or processes. On Windows, any custom XML or directory filters that you have created in DiffDog can also be invoked as command line options when you run a comparison. Running database comparison files (.dbdif) is possible on Linux and macOS with limitations, see below.

- *Get comparison results as text, XML, SQL, or HTML.* When performing a comparison, you can choose the format in which comparison results are reported: text, XML, or SQL. The latter is applicable when the right side of the comparison is a database and it consists of SQL statements that merge differences from the left side to the right side of the comparison (INSERT, UPDATE, and DELETE statements).

## Limitations

- The connection between client and server is currently unencrypted (plain HTTP).
- Running file and directory comparison files (.filedif, .dirdif) created with DiffDog desktop is supported only on Windows. This limitation does not apply if you configure the comparison job directly in DiffDog Server.
- Running database data comparison files (.dbdif) created with DiffDog desktop is supported only on Windows, if CSV files are involved in the comparison. This limitation does not apply if you configure the comparison job directly in DiffDog Server. For the support details applicable when running database comparisons, see [Supported Databases](#)<sup>65</sup>.

## System Requirements

Windows	Windows 10, Windows 11
Windows Server	Windows Server 2016 or newer
Linux	<ul style="list-style-type: none"> <li>• Red Hat Enterprise Linux 7 or newer</li> <li>• CentOS 7, CentOS Stream 8</li> <li>• Debian 10 or newer</li> <li>• Ubuntu 20.04, 22.04, 24.04</li> <li>• AlmaLinux 9.0</li> <li>• Rocky Linux 9.0</li> </ul>
macOS	macOS 12 or newer

On Windows, DiffDog Server is available both as a 32-bit and 64-bit package.

*Last updated: 8 April 2024*

## 1.1 How It Works

After installation, the DiffDog Server files are copied to the default program installation directory (see *table below*).

<i>Windows</i>	C:\Program Files\Altova\DiffDogServer2024\ C:\Program Files (x86)\Altova\DiffDogServer2024\
<i>Linux</i>	/opt/Altova/DiffDogServer2024/
<i>macOS</i>	/usr/local/Altova/DiffDogServer2024/

### DiffDog Server executables

The program installation directory (*table above*) contains two executables that you will work with: the DiffDog Server executable in the `bin` subdirectory and the DiffDog Command Line Client executable in the `cmdlclient` subdirectory (see *details below*). In the descriptions of [commands](#)<sup>84</sup> that are the same for both executables, the executables are referred to as `<executable>`.

#### DiffDog Server executable

The DiffDog Server executable in the `bin` subdirectory provides configuration-related commands, including commands for licensing DiffDog Server, starting it as a service, resetting it to the default configuration, etc. It also provides data differencing commands. For more information about commands that you can run in the `bin` directory, see [DiffDog Server Command Line](#)<sup>84</sup>. To run commands in the `bin` directory, use the following syntax:

```
diffdogserver [options] <command> [arguments]
```

#### DiffDog Command Line Client

The DiffDog Command Line Client executable in the `cmdlclient` subdirectory provides general and data-differencing commands. For information about commands that you can run in this directory, see [DiffDog Client Command Line](#)<sup>84</sup>. To run commands in the `cmdlclient` directory, use the following syntax:

```
DiffDogCmdlClient [options] <command> [arguments]
```

#### Important points

Note the following points:

- To call the executable (client or server) just by name, without the full path, add the program installation directory to your system's PATH variable.
- DiffDog Command Line Client can run on the same machine as DiffDog Server or on a different machine. Having the Client and DiffDog Server on different machine allows you to compare a client-side file/directory with a remote server-side file/directory, or vice versa.
- The client and the server can be on different operating systems. The advantage of such a setup is that it enables you to run comparisons from virtually any client configured to communicate with the server. For information about how to configure the server to accept calls from remote clients, see [Configuring the Server](#)<sup>33</sup>.
- On Linux, use an all-lowercase to call the executable. In addition, on Linux and macOS, you might need to add the prefix `./` before the name of the executable when calling it from the current directory of the command shell.





## 2 Installation and Licensing

This section describes installation, licensing and other setup procedures. It is organized into the following sections:

- [Setup on Windows](#) <sup>11</sup>
- [Setup on Linux](#) <sup>21</sup>
- [Setup on macOS](#) <sup>26</sup>
- [Upgrade DiffDog Server](#) <sup>31</sup>
- [Migrate DiffDog Server to a New Machine](#) <sup>32</sup>

## 2.1 Setup on Windows

This section describes the [installation](#)<sup>11</sup> and [licensing](#)<sup>17</sup> of DiffDog Server on Windows systems.

### System requirements (Windows)

Note the following system requirements:

- Windows 10, Windows 11
- Windows Server 2016 or newer

### Prerequisites

Note the following prerequisites:

- Perform installation as a user with administrative privileges.
- From version 2021 onwards, a 32-bit version of DiffDog Server cannot be installed over a 64-bit version, or a 64-bit version over a 32-bit version. You must either (i) remove the older version before installing the newer version or (ii) upgrade to a newer version that is the same bit version as your older installation.

### 2.1.1 Install on Windows

DiffDog Server is available for installation on Windows systems. The broad installation and setup procedure is described below. For detailed information about specific parts of the installation procedure, see their respective topics.

#### Installing DiffDog Server

To install DiffDog Server, download the installation package from the Altova Download Center (<http://www.altova.com/download.html>), run it and follow the on-screen instructions. You can select your installation language from the box in the lower left area of the wizard. Note that this selection also sets the default language of DiffDog Server. You can change the language later from the command line.

#### *Installing LicenseServer*

In order for DiffDog Server to work, it must be registered and licensed with an [Altova LicenseServer](#) on your network. When you install DiffDog Server on Windows systems, you can install LicenseServer together with DiffDog Server. For details, see [Install LicenseServer](#)<sup>15</sup>.

After installation, the DiffDog Server executable will be located by default at the following path:

```
<ProgramFilesFolder>\Altova\DiffDogServer2024\bin\DiffDogServer.exe
```

#### Installing on Windows Server Core

Windows Server Core has no GUI and must be installed via the command line. See the section [Installing on Windows Server Core](#)<sup>12</sup> for information about how to do this.

## Uninstalling DiffDog Server

Uninstall DiffDog Server as follows:

1. Right-click the Windows **Start** button and select **Settings**.
2. Open the Control Panel (start typing "Control Panel" and click the suggested entry).
3. Under *Programs*, click **Uninstall a program**.
4. In Control Panel, select DiffDog Server and click **Uninstall**.

## Evaluation license

During the installation process, you will be given the option of requesting a 30-day evaluation license for DiffDog Server. After submitting the request, an evaluation license will be sent to the email address you registered.

### 2.1.2 Install on Windows Server Core

Windows Server Core is a minimal Windows installation that does not use a number of GUI features. You can install DiffDog Server on a Windows Server Core machine as follows:

1. Download the DiffDog Server installer executable from the Altova website. This file is named `DiffDogServer.exe`. Make sure to choose the executable matching your server platform (32-bit or 64-bit).
2. On a standard Windows machine (not the Windows Server Core machine), run the command `DiffDogServer.exe /u`. This unpacks the `.msi` file to the same folder as the installer executable.
3. Copy the unpacked `.msi` file to the Windows Server Core machine.
4. If you are updating an earlier version of DiffDog Server, shut down DiffDog Server before carrying out the next step.
5. Use the `.msi` file for the installation by running the command `msiexec /i DiffDogServer.msi`. This starts the installation on Windows Server Core.

**Note:** When upgrading to a major version, you can retain your DiffDog Server settings by using the properties listed in the subsections of this section: (i) [Webserver Properties](#)<sup>14</sup>, (ii) [SSL-Webserver Properties](#)<sup>14</sup>, and (iii) [Service Properties](#)<sup>15</sup>.

#### Important: Keep the MSI file!

Note the following points:

- Keep the extracted `.msi` file in a safe place. You will need it later to uninstall, repair, or modify your installation.
- If you want to rename the MSI file, do this before you install DiffDog Server.
- The MSI filename is stored in the registry. You can update its name there if the filename has changed.

## Register DiffDog Server with LicenseServer

If you are installing DiffDog Server for the first time or are upgrading to a **major version**, you will need to register DiffDog Server with an Altova LicenseServer on your network. If you are upgrading to a non-major version of DiffDog Server, then the previous LicenseServer registration will be known to the installation and there is no need to register DiffDog Server with LicenseServer. However, if you want to change the LicenseServer that is used by DiffDog Server at any time, then you will need to register DiffDog Server with the new LicenseServer.

To register DiffDog Server with an Altova LicenseServer during installation, run the installation command with the `REGISTER_WITH_LICENSE_SERVER` property, as listed below, providing the name or address of the LicenseServer machine as the value of the property, for example:

```
msiexec /i DiffDogServer.msi REGISTER_WITH_LICENSE_SERVER="localhost"
```

To register DiffDog Server with an Altova LicenseServer after installation, run the following command:

```
msiexec /r DiffDogServer.msi REGISTER_WITH_LICENSE_SERVER="<MyLS-IPAddress>"
```

## Useful commands

Given below are a set of commands that are useful in the installation context.

To test the return value of the installation, run a script similar to that below. The return code will be in the `%errorlevel%` environment variable. A return code of 0 indicates success.

```
start /wait msiexec /i DiffDogServer.msi /q
echo %errorlevel%
```

For a silent installation with a return code and a log of the installation process:

```
start /wait msiexec /i DiffDogServer.msi /q /L*v! <pathToInstallLogFile>
```

To modify the installation:

```
msiexec /m DiffDogServer.msi
```

To repair the installation:

```
msiexec /r DiffDogServer.msi
```

To uninstall DiffDog Server:

```
msiexec /x DiffDogServer.msi
```

To uninstall DiffDog Server silently and report the detailed outcome in a log file:

```
start /wait msiexec /x DiffDogServer.msi /q /L*v! <pathToUninstallLogFile>
```

To install DiffDog Server using another language (available language codes are: German=`de`; Spanish=`es`; French=`fr`):

```
msiexec /i DiffDogServer.msi INSTALLER_LANGUAGE=<languageCode>
```

**Note:** On Windows Server Core, the charts functionality of DiffDog Server will not be available.

### 2.1.2.1 Webserver Properties

You can configure the DiffDog Server web server by using the properties given below. To set a property, run the installation command with the property setting appended, like this:

```
msiexec /i DiffDogServer.msi DD_WebServer_Host=127.0.0.1
```

#### List of properties

Properties of the DiffDog Server web server:

**DD\_WebServer\_Host=<IP4 Address>**

Use 127.0.0.1 if you want to access the web server from this machine only. Use 0.0.0.0 to make the web server accessible globally.

**DD\_WebServer\_Port=<Port Number>**

Specifies the port that is used to access the web server.

**DD\_WebServer\_Enabled=<0 or 1>**

Select 1 to enable listening at the currently set port. Select 0 to disable listening at this port.

### 2.1.2.2 SSL-Webserver Properties

You can configure the DiffDog Server SSL web server by using the properties given below. To set a property, run the installation command with the property setting appended, like this:

```
msiexec /i DiffDogServer.msi DD_SSLWebServer_Host=127.0.0.1
```

#### List of properties

To configure the DiffDog Server SSL web server, use the following properties:

**DD\_SSLWebServer\_Host=<IP4 Address>**

Use 127.0.0.1 if you want to access the SSL web server (for encrypted transmission) from this machine only. Use 0.0.0.0 to make the SSL web server accessible globally.

**DD\_SSLWebServer\_Port=<Port Number>**

Specifies the port that is used to access the SSL web server (for encrypted transmission).

**DD\_SSLWebServer\_Enabled=<0 or 1>**

Select 1 to enable listening at the currently set port. Select 0 to disable listening at this port.

**DD\_SSLWebServer\_Certificate=<Path-to-certificate-file>**

Full path to a SSL certificate, enclosed in double-quotes.

**DD\_SSLWebServer\_PrivateKey=<Path-to-private-key-file>**

Full path to a private key file, enclosed in double-quotes.

### 2.1.2.3 Service Properties

You can configure the DiffDog Server service by using the properties given below. To set a property, run the installation command with the property setting appended, like this:

```
msiexec /i DiffDogServer.msi DD_Service_DisplayName=DiffDogServer
```

#### List of properties

To configure DiffDog Server services, use the following properties:

`DD_Service_DisplayName=<Service Display Name>`

Name that will be displayed for the service. Enclose the name in double quotes.

`DD_Service_StartType=<Startup Type>`

Specifies how the service is started during a system start-up. Values can be one of: `auto` | `auto-delayed` | `demand` | `disabled`.

`DD_Service_Username=<UserName>`

Specifies the log-on user for the service. Use one of: `LocalSystem` | `NT Authority\LocalService` | `NT Authority\NetworkService` | `<any user with relevant rights>`.

`DD_Service_Password=<Password>`

The password of the service's start user in plain text. (Hint: Use the installer's user interface to avoid entering plain text passwords.) No password is required if the user name is any of: `LocalSystem` | `NT Authority\LocalService` | `NT Authority\NetworkService`.

## 2.1.3 Install LicenseServer (Windows)

In order for DiffDog Server to work, it must be licensed via an [Altova LicenseServer](#) on your network. When you install DiffDog Server on Windows systems, you can install LicenseServer together with DiffDog Server. If a LicenseServer is already installed on your network, you do not need to install another one—unless a newer version of LicenseServer is required. (See *next point*, [LicenseServer versions](#).)

During the installation process of DiffDog Server, check or uncheck the option for installing LicenseServer as appropriate. Note the following points:

- If you have not installed LicenseServer yet, leave the default settings as is. The wizard will install the latest version on the computer where you are running the wizard.
- If you have not installed LicenseServer yet and want to install Altova LicenseServer on another computer, clear the check box *Install Altova LicenseServer on this machine* and choose **Register Later**. In this case, you will need to install LicenseServer separately and register DiffDog Server afterwards.
- If LicenseServer has already been installed on your computer but is a lower version than the one indicated by the installation wizard, leave the default setting (for upgrading to the newer version) as is.

In this case, the installation wizard will automatically upgrade your LicenseServer version. The existing registration and licensing information will be carried over to the new version of LicenseServer.

- If LicenseServer has already been installed on your computer or network and has the same version as the one indicated by the wizard, do the following:
  - Clear the check box *Install Altova LicenseServer on this machine*.
  - Under *Register this product with*, choose the LicenseServer with which you want to register DiffDog Server. Alternatively, choose **Register Later**. Note that you can always select **Register Later** if you want to ignore the LicenseServer associations and carry on with the installation of DiffDog Server.

For information about how to register and license DiffDog Server with [Altova LicenseServer](#), see the section [License DiffDog Server](#)<sup>17</sup>.

## LicenseServer versions

- Altova products must be licensed either (i) with a version of LicenseServer that corresponds to the installed DiffDog Server version or (ii) with a later version of LicenseServer.
- The LicenseServer version that corresponds to the current version of DiffDog Server is [3.14](#).
- On Windows, you can install the corresponding version of LicenseServer as part of the DiffDog Server installation or install LicenseServer separately. On Linux and macOS, you must install LicenseServer separately.
- Before a newer version of LicenseServer is installed, any older one must be de-installed.
- At the time of LicenseServer de-installation, all registration and licensing information held in the older version of LicenseServer will be saved to a database on your server machine. This data will be imported automatically into the newer version when the newer version is installed.
- LicenseServer versions are backwards compatible. They will work with older versions of DiffDog Server.
- The latest version of LicenseServer available on the Altova website. This version will work with any current or older version of DiffDog Server.
- The version number of the currently installed LicenseServer is given at the bottom of the [LicenseServer configuration page](#) (all tabs).

## 2.1.4 Network and Service Configuration (Windows)

During the installation of DiffDog Server, you can configure settings for accessing DiffDog Server via the network and for running DiffDog Server as a Windows service (*screenshot below*).

The settings listed below are available. Leave the default settings as they are if they are acceptable to you or if you are not sure about them. If you wish to change a setting, select its **Change** button (*see screenshot above*).

- The port to use for unencrypted communication with DiffDog Server.
- Windows service settings. These include:
  - The way DiffDog Server should start as a Windows service: automatic, on demand, delayed automatic, or disabled.
  - The user account to be used by DiffDog Server for the Windows service: *Local System*, *Local Service*, *Network Service*, or *Other User*. If you select *Other User*, you can set the username and password of this user, similar to how this is done in the Windows Services management console. Note that the selected user must have read/write access to `C:\ProgramData\Altova`. Otherwise, the installation or startup could fail.



You can change the settings after installation. To modify the Windows service configuration, open the Windows Services management console (by typing `services.msc` in a command line window) and change the required service from there.

## 2.1.5 License DiffDog Server (Windows)

In order to use DiffDog Server, it must be licensed with Altova LicenseServer. Licensing is a two-step process:

1. **Register DiffDog Server** with LicenseServer. Registration is done from DiffDog Server.
2. **Assign a license** to DiffDog Server from LicenseServer. Download the latest version of LicenseServer from the [Altova website](#), and install it on your local machine or a machine on your network.

These two steps are described in this section. For detailed information, see the [LicenseServer user manual](#) at the [Altova website](#).

### 2.1.5.1 Start LicenseServer, DiffDog Server

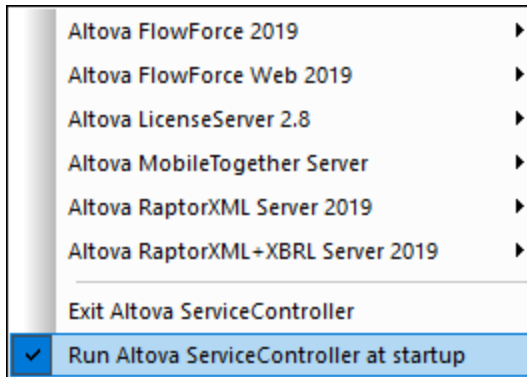
Altova LicenseServer (LicenseServer for short) and DiffDog Server are both started via Altova ServiceController.

#### Altova ServiceController

Altova ServiceController (ServiceController for short) is an application for conveniently starting, stopping and configuring Altova services **on Windows systems**. ServiceController is installed with Altova LicenseServer and with Altova server products that are installed as services (DiffDog Server, FlowForce Server, Mobile Together Server, and RaptorXML(+XBRL) Server). ServiceController can be accessed via the system tray (*screenshot below*).

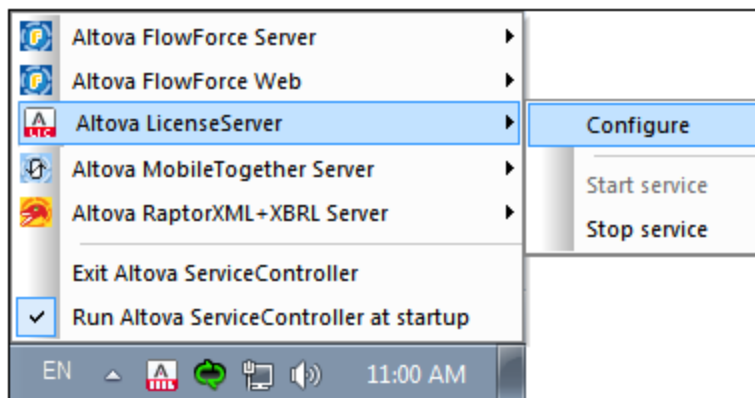


To specify that ServiceController starts automatically on logging in to the system, click the **ServiceController** icon in the system tray to display the **ServiceController** menu (*screenshot below*), and then toggle on the command **Run Altova ServiceController at Startup**. (This command is toggled on by default.) To exit ServiceController, click the **ServiceController** icon in the system tray and, in the menu that appears (see *screenshot below*), click **Exit Altova ServiceController**.



## Start LicenseServer

To start LicenseServer, click the **ServiceController** icon in the system tray, hover over **Altova LicenseServer** in the menu that pops up (see *screenshot below*), and then select **Start Service** from the LicenseServer submenu. If LicenseServer is already running, then the *Start Service* option will be disabled. You can also stop the service via ServiceController.



## Start DiffDog Server

To start DiffDog Server, click the **ServiceController** icon in the system tray, hover over **Altova DiffDog Server** in the menu that pops up, and then select **Start Service** from the DiffDog Server submenu. If DiffDog Server is already running, the *Start Service* option will be disabled. You can also stop the service via ServiceController.

### 2.1.5.2 Register DiffDog Server

To be able to license DiffDog Server from Altova LicenseServer, DiffDog Server must be registered with LicenseServer.

To register DiffDog Server from the command line interface, use the `licenseserver` command and supply the address of the LicenseServer machine (see *below*).

```
DiffDogServer licenseserver [options] ServerName-Or-IP-Address
```

For example, if `localhost` is the name of the server on which LicenseServer is installed, use the following command:

```
DiffDogServer licenseserver localhost
```

After successful registration, go to the [Client Management tab of LicenseServer's configuration page](#) to assign a license to DiffDog Server.

For more information about registering Altova products with LicenseServer, see the [LicenseServer user manual](#).

### 2.1.5.3 Assign License

After successfully registering DiffDog Server, it will be listed in the Client Management tab of the configuration page of LicenseServer. Go there and [assign a license](#) to DiffDog Server.

The licensing of Altova server products is based on the number of processor cores available on the product machine. For example, a dual-core processor has two cores, a quad-core processor four cores, a hexa-core processor six cores, and so on. The number of cores licensed for a product must be greater than or equal to the number of cores available on that server machine, whether the server is a physical or virtual machine. For example, if a server has eight cores (an octa-core processor), you must purchase at least one 8-core license. You can also combine licenses to achieve the core count. So, two 4-core licenses can also be used for an octa-core server instead of one 8-core license.

If you are using a computer server with a large number of CPU cores but only have a low volume to process, you may also create a virtual machine that is allocated a smaller number of cores and purchase a license for that number. Such a deployment, of course, would have less processing speed than if all available cores on the server were utilized.

**Note:** Each Altova server product license can be used for only one client machine at a time, even if the license has unused licensing capacity. (A client machine is the machine on which the Altova server product is installed.) For example, if a 10-core license is used for a client machine that has 6 CPU cores, then the remaining 4 cores of licensing capacity cannot be used simultaneously for another client machine.

#### Single-thread execution

If an Altova server product allows single-thread execution, an option for *Single-thread execution* will be available. In these cases, if an Altova server-product license for only one core is available in the license pool, a machine with multiple cores can be assigned this one-core license. In such a case, the machine will run that product on a single core. Processing will therefore be slower, because multi-threading (which is possible on multiple cores) will not be available. The product will be executed in single thread mode on that machine.

To assign a single-core license to a multiple-core machine in LicenseServer, select the *Limit to single thread execution* check box for that product.

#### Estimate of core requirements

There are various external factors that influence the data volumes and processing times your server can handle (for example: the hardware, the current load on the CPU, and memory allocation of other applications running

on the server). In order to measure performance as accurately as possible, test the applications in your environment with data volumes and in conditions that approximate as closely as possible to real business situations.

## 2.2 Setup on Linux

This section describes the [installation](#)<sup>21</sup> and [licensing](#)<sup>23</sup> of DiffDog Server on Linux systems (Debian, Ubuntu, CentOS, RedHat).

### System Requirements (Linux)

- Red Hat Enterprise Linux 7 or newer
- CentOS 7, CentOS Stream 8
- Debian 10 or newer
- Ubuntu 20.04, 22.04, 24.04
- AlmaLinux 9.0
- Rocky Linux 9.0

### Prerequisites

- Perform installation either as **root** user or as a user with **sudo** privileges.
- The previous version of DiffDog Server must be uninstalled before a new one is installed.
- The following libraries are required as a prerequisite to install and run the application. If the packages below are not already available on your Linux machine, run the `yum` command (or `apt-get` if applicable) to install them.

CentOS, RedHat	Debian	Ubuntu
krb5-libs	libgssapi-krb5-2	libgssapi-krb5-2

### 2.2.1 Install on Linux

DiffDog Server is available for installation on Linux systems. Do the installation either as `root` user or a user with `sudo` privileges.

#### Uninstall DiffDog Server

Before you install DiffDog Server, you should uninstall any older version.

To check which Altova server products are installed:

```
[Debian, Ubuntu]:  dpkg --get-selections | grep Altova
[CentOS, RedHat]:  rpm -qa | grep server
```

To uninstall an old version of DiffDog Server:

```
[Debian, Ubuntu]:  sudo dpkg --remove diffdogserver
[CentOS, RedHat]:  sudo rpm -e diffdogserver
```

On Debian and Ubuntu systems, it might happen that DiffDog Server still appears in the list of installed products after it has been uninstalled. In this case, run the `purge` command to clear DiffDog Server from the list. You can also use the `purge` command *instead* of the `remove` command listed above.

```
[Debian, Ubuntu]: sudo dpkg --purge diffdogserver
```

## Download the DiffDog Server Linux package

DiffDog Server installation packages for the following Linux systems are available at the [Altova website](#).

Distribution	Package extension
Debian	.deb
Ubuntu	.deb
CentOS	.rpm
RedHat	.rpm

After downloading the Linux package, copy it to any directory on the Linux system. Since you will need to license DiffDog Server with an [Altova LicenseServer](#), you may want to download LicenseServer from the [Altova website](#) at the same time as you download DiffDog Server.

## Install DiffDog Server

In a terminal window, switch to the directory where you copied the Linux package. For example, if you copied it to a user directory called `MyAltova` that is located in the `/home/User` directory, switch to this directory as follows:

```
cd /home/User/MyAltova
```

Install DiffDog Server using the relevant command:

```
[Debian]: sudo dpkg --install diffdogserver-2024-debian.deb
[Ubuntu]: sudo dpkg --install diffdogserver-2024-ubuntu.deb
[CentOS]: sudo rpm -ivh diffdogserver-2024-1.x86_64.rpm
[RedHat]: sudo rpm -ivh diffdogserver-2024-1.x86_64.rpm
```

You may need to adjust the name of the package above to match the current release or service pack version.

The DiffDog Server package will be installed in the following folder:

```
/opt/Altova/DiffDogServer2024
```

## 2.2.2 Install LicenseServer (Linux)

In order for DiffDog Server to work, it must be licensed via an [Altova LicenseServer](#) on your network. Download LicenseServer from the [Altova website](#) and copy the package to any directory. Install it just like you installed DiffDog Server (see [previous topic](#)<sup>21</sup>).

```
[Debian]: sudo dpkg --install licenseserver-3.14-debian.deb
[Ubuntu]: sudo dpkg --install licenseserver-3.14-ubuntu.deb
[CentOS]: sudo rpm -ivh licenseserver-3.14-1.x86_64.rpm
[RedHat]: sudo rpm -ivh licenseserver-3.14-1.x86_64.rpm
```

The LicenseServer package will be installed at the following path:

```
/opt/Altova/LicenseServer
```

For information about how to register and license DiffDog Server with [Altova LicenseServer](#), see the section [License DiffDog Server](#)<sup>23</sup>. Also see the [LicenseServer documentation](#) for more detailed information.

### LicenseServer versions

- Altova products must be licensed either (i) with a version of LicenseServer that corresponds to the installed DiffDog Server version or (ii) with a later version of LicenseServer.
- The LicenseServer version that corresponds to the current version of DiffDog Server is **3.14**.
- On Windows, you can install the corresponding version of LicenseServer as part of the DiffDog Server installation or install LicenseServer separately. On Linux and macOS, you must install LicenseServer separately.
- Before a newer version of LicenseServer is installed, any older one must be de-installed.
- At the time of LicenseServer de-installation, all registration and licensing information held in the older version of LicenseServer will be saved to a database on your server machine. This data will be imported automatically into the newer version when the newer version is installed.
- LicenseServer versions are backwards compatible. They will work with older versions of DiffDog Server.
- The latest version of LicenseServer available on the Altova website. This version will work with any current or older version of DiffDog Server.
- The version number of the currently installed LicenseServer is given at the bottom of the [LicenseServer configuration page](#) (all tabs).

## 2.2.3 License DiffDog Server (Linux)

In order to use DiffDog Server, it must be licensed with Altova LicenseServer. Licensing is a two-step process:

1. **Register DiffDog Server** with LicenseServer. Registration is done from DiffDog Server.
2. **Assign a license** to DiffDog Server from LicenseServer. Download the latest version of LicenseServer from the [Altova website](#), and install it on your local machine or a machine on your network.

These two steps are described in this section. For detailed information, see the [LicenseServer user manual](#) at the [Altova website](#).

### 2.2.3.1 Start LicenseServer, DiffDog Server

Start Altova LicenseServer and DiffDog Server either as `root` user or a user with `sudo` privileges.

#### Start LicenseServer

To correctly register and license DiffDog Server with LicenseServer, LicenseServer must be running as a daemon on the network. Start LicenseServer as a daemon with the following command:

```
sudo systemctl start licenseserver
```

If at any time you need to stop LicenseServer, replace `start` with `stop` in the command above. For example:

```
sudo systemctl stop licenseserver
```

#### Start DiffDog Server

Start DiffDog Server as a daemon with the following command:

```
sudo systemctl start diffdogserver
```

If at any time you need to stop DiffDog Server, replace `start` with `stop` in the command above. For example:

```
sudo systemctl stop diffdogserver
```

#### Check status of daemons

To check if a daemon is running, run the following command, replacing `<servicename>` with the name of the daemon you want to check:

```
sudo service <servicename> status
```

### 2.2.3.2 Register DiffDog Server

To be able to license DiffDog Server from Altova LicenseServer, DiffDog Server must be registered with LicenseServer.

To register DiffDog Server, use the `licenseserver` command:

```
sudo /opt/Altova/DiffDogServer2024/bin/diffdogserver licenseserver [options]  
ServerName-Or-IP-Address
```

For example, if `localhost` is the name of the server on which LicenseServer is installed:

```
sudo /opt/Altova/DiffDogServer2024/bin/diffdogserver licenseserver localhost
```

In the command above, `localhost` is the name of the server on which LicenseServer is installed. Notice also that the location of the DiffDog Server executable is:

```
/opt/Altova/DiffDogServer2024/bin/
```



After successful registration, go to the [Client Management tab of LicenseServer's configuration page](#) to assign a license to DiffDog Server.

For more information about registering Altova products with LicenseServer, see the [LicenseServer user manual](#).

### 2.2.3.3 Assign License

After successfully registering DiffDog Server, it will be listed in the Client Management tab of the configuration page of LicenseServer. Go there and [assign a license](#) to DiffDog Server.

The licensing of Altova server products is based on the number of processor cores available on the product machine. For example, a dual-core processor has two cores, a quad-core processor four cores, a hexa-core processor six cores, and so on. The number of cores licensed for a product must be greater than or equal to the number of cores available on that server machine, whether the server is a physical or virtual machine. For example, if a server has eight cores (an octa-core processor), you must purchase at least one 8-core license. You can also combine licenses to achieve the core count. So, two 4-core licenses can also be used for an octa-core server instead of one 8-core license.

If you are using a computer server with a large number of CPU cores but only have a low volume to process, you may also create a virtual machine that is allocated a smaller number of cores and purchase a license for that number. Such a deployment, of course, would have less processing speed than if all available cores on the server were utilized.

**Note:** Each Altova server product license can be used for only one client machine at a time, even if the license has unused licensing capacity. (A client machine is the machine on which the Altova server product is installed.) For example, if a 10-core license is used for a client machine that has 6 CPU cores, then the remaining 4 cores of licensing capacity cannot be used simultaneously for another client machine.

#### Single-thread execution

If an Altova server product allows single-thread execution, an option for *Single-thread execution* will be available. In these cases, if an Altova server-product license for only one core is available in the license pool, a machine with multiple cores can be assigned this one-core license. In such a case, the machine will run that product on a single core. Processing will therefore be slower, because multi-threading (which is possible on multiple cores) will not be available. The product will be executed in single thread mode on that machine.

To assign a single-core license to a multiple-core machine in LicenseServer, select the *Limit to single thread execution* check box for that product.

#### Estimate of core requirements

There are various external factors that influence the data volumes and processing times your server can handle (for example: the hardware, the current load on the CPU, and memory allocation of other applications running on the server). In order to measure performance as accurately as possible, test the applications in your environment with data volumes and in conditions that approximate as closely as possible to real business situations.

## 2.3 Setup on macOS

This section describes the [installation](#)<sup>26</sup> and [licensing](#)<sup>28</sup> of DiffDog Server on macOS systems.

### System Requirements (macOS)

Note the following system requirements:

- macOS 12 or newer

### Prerequisites

Note the following prerequisites:

- Ensure that Altova LicenseServer has been installed and is running.
- Perform installation either as the `root` user or as a user with `sudo` privileges.
- The previous version of DiffDog Server must be uninstalled before a new one is installed.
- The macOS machine must be configured so that its name resolves to an IP address. This means that you must be able to successfully ping the host name from the Terminal using the command `ping <hostname>`.

### 2.3.1 Install on macOS

This topic describes the installation and setup of DiffDog Server on macOS systems.

#### Uninstall DiffDog Server

Before uninstalling DiffDog Server, stop the service with the following command:

```
sudo launchctl unload /Library/LaunchDaemons/com.altova.DiffDogServer2024.plist
```

To check whether the service has been stopped, open the Activity Monitor in Finder and make sure that DiffDog Server is not in the list. In the Applications folder in Finder, right-click the DiffDog Server icon and select **Move to Trash**. The application will be moved to Trash. You will, however, still need to remove the application from the `usr` folder. Do this with the following command:

```
sudo rm -rf /usr/local/Altova/DiffDogServer2024/
```

If you need to uninstall an old version of Altova LicenseServer, you must first stop it running as a service. Do this with the following command:

```
sudo launchctl unload /Library/LaunchDaemons/com.altova.LicenseServer.plist
```

To check whether the service has been stopped, open the Activity Monitor in Finder and make sure that LicenseServer is not in the list. Then proceed to uninstall in the same way as described above for DiffDog Server.

## Install DiffDog Server

To install DiffDog Server, do the following:

1. Download the disk image (.dmg) file of DiffDog Server from the Altova website (<http://www.altova.com/download.html>).
2. Click to open the downloaded disk image (.dmg). This causes the DiffDog Server installer to appear as a new virtual drive on your computer.
3. On the new virtual drive, double-click the installer package (.pkg).
4. Go through the successive steps of the installer wizard. These are self-explanatory and include one step in which you have to agree to the license agreement before being able to proceed. See also [Licensing DiffDog Server](#)<sup>28</sup>.
5. To eject the drive after installation, right-click it and select **Eject**.

The DiffDog Server package will be installed in the folder:

```
/usr/local/Altova/DiffDogServer2024 (application binaries)
/var/Altova/DiffDogServer (data files: database and logs)
```

The DiffDog Server server daemon starts automatically after installation and a re-boot of the machine. You can always start DiffDog Server as a daemon with the following command:

```
sudo launchctl load /Library/LaunchDaemons/com.altova.DiffDogServer2024.plist
```

### 2.3.2 Install LicenseServer (macOS)

Altova LicenseServer can be downloaded from the Altova website (<http://www.altova.com/download.html>). Carry out the installation as described [here](#)<sup>26</sup>.

The LicenseServer package will be installed in the following folder:

```
/usr/local/Altova/LicenseServer
```

For information about how to register DiffDog Server with [Altova LicenseServer](#) and license it, see [Licensing on macOS](#)<sup>28</sup>.

#### LicenseServer versions

- Altova products must be licensed either (i) with a version of LicenseServer that corresponds to the installed DiffDog Server version or (ii) with a later version of LicenseServer.
- The LicenseServer version that corresponds to the current version of DiffDog Server is **3.14**.
- On Windows, you can install the corresponding version of LicenseServer as part of the DiffDog Server installation or install LicenseServer separately. On Linux and macOS, you must install LicenseServer separately.
- Before a newer version of LicenseServer is installed, any older one must be de-installed.
- At the time of LicenseServer de-installation, all registration and licensing information held in the older version of LicenseServer will be saved to a database on your server machine. This data will be imported automatically into the newer version when the newer version is installed.
- LicenseServer versions are backwards compatible. They will work with older versions of DiffDog Server.

- The latest version of LicenseServer available on the Altova website. This version will work with any current or older version of DiffDog Server.
- The version number of the currently installed LicenseServer is given at the bottom of the [LicenseServer configuration page](#) (all tabs).

### 2.3.3 License DiffDog Server (macOS)

In order to use DiffDog Server, it must be licensed with Altova LicenseServer. Licensing is a two-step process:

1. **Register DiffDog Server** with LicenseServer. Registration is done from DiffDog Server.
2. **Assign a license** to DiffDog Server from LicenseServer. Download the latest version of LicenseServer from the [Altova website](#), and install it on your local machine or a machine on your network.

These two steps are described in this section. For detailed information, see the [LicenseServer user manual](#) at the [Altova website](#).

#### 2.3.3.1 Start LicenseServer, DiffDog Server

Start Altova LicenseServer and DiffDog Server either as `root` user or a user with `sudo` privileges.

##### Start LicenseServer

To correctly register and license DiffDog Server with LicenseServer, LicenseServer must be running as a daemon. Start LicenseServer as a daemon with the following command:

```
sudo launchctl load /Library/LaunchDaemons/com.altova.LicenseServer.plist
```

If at any time you need to stop LicenseServer, replace `load` with `unload` in the command above.

##### Start DiffDog Server

DiffDog Server server daemon starts automatically after installation and a re-boot of the machine. You can start DiffDog Server as a daemon with the following command:

```
sudo launchctl load /Library/LaunchDaemons/com.altova.DiffDogServer.plist
```

If at any time you need to stop DiffDog Server, use the following command:

```
sudo launchctl unload /Library/LaunchDaemons/com.altova.DiffDogServer.plist
```

#### 2.3.3.2 Register DiffDog Server

To be able to license DiffDog Server from Altova LicenseServer, DiffDog Server must be registered with LicenseServer.

To register DiffDog Server from the command line interface, use the `licenseserver` command:

```
sudo /usr/local/Altova/DiffDogServer2024/bin/DiffDogServer licenseserver [options]
ServerName-Or-IP-Address
```

For example, if `localhost` is the name of the server on which LicenseServer is installed:

```
sudo /usr/local/Altova/DiffDogServer2024/bin/DiffDogServer licenseserver localhost
```

In the command above, `localhost` is the name of the server on which LicenseServer is installed. Notice also that the location of the DiffDog Server executable is:

```
/usr/local/Altova/DiffDogServer2024/bin/
```

After successful registration, go to the [Client Management tab of LicenseServer's configuration page](#) to assign a license to DiffDog Server.

For more information about registering Altova products with LicenseServer, see the [LicenseServer user manual](#).

### 2.3.3.3 Assign License

After successfully registering DiffDog Server, it will be listed in the Client Management tab of the configuration page of LicenseServer. Go there and [assign a license](#) to DiffDog Server.

The licensing of Altova server products is based on the number of processor cores available on the product machine. For example, a dual-core processor has two cores, a quad-core processor four cores, a hexa-core processor six cores, and so on. The number of cores licensed for a product must be greater than or equal to the number of cores available on that server machine, whether the server is a physical or virtual machine. For example, if a server has eight cores (an octa-core processor), you must purchase at least one 8-core license. You can also combine licenses to achieve the core count. So, two 4-core licenses can also be used for an octa-core server instead of one 8-core license.

If you are using a computer server with a large number of CPU cores but only have a low volume to process, you may also create a virtual machine that is allocated a smaller number of cores and purchase a license for that number. Such a deployment, of course, would have less processing speed than if all available cores on the server were utilized.

**Note:** Each Altova server product license can be used for only one client machine at a time, even if the license has unused licensing capacity. (A client machine is the machine on which the Altova server product is installed.) For example, if a 10-core license is used for a client machine that has 6 CPU cores, then the remaining 4 cores of licensing capacity cannot be used simultaneously for another client machine.

#### Single-thread execution

If an Altova server product allows single-thread execution, an option for *Single-thread execution* will be available. In these cases, if an Altova server-product license for only one core is available in the license pool, a machine with multiple cores can be assigned this one-core license. In such a case, the machine will run that product on a single core. Processing will therefore be slower, because multi-threading (which is possible on multiple cores) will not be available. The product will be executed in single thread mode on that machine.

To assign a single-core license to a multiple-core machine in LicenseServer, select the *Limit to single thread*

*execution* check box for that product.

*Estimate of core requirements*

There are various external factors that influence the data volumes and processing times your server can handle (for example: the hardware, the current load on the CPU, and memory allocation of other applications running on the server). In order to measure performance as accurately as possible, test the applications in your environment with data volumes and in conditions that approximate as closely as possible to real business situations.

## 2.4 Upgrade DiffDog Server

The simplest way to carry over a license from the previous version of DiffDog Server to a newer version is via the installation process. The key steps during installation are:

1. Register the new version of DiffDog Server with the LicenseServer that holds the license of the older version of DiffDog Server.
2. Accept the license agreement of DiffDog Server. (If you do not accept the agreement, the new version will not be installed.)

**Note:** If you do not register DiffDog Server with LicenseServer during the installation process, you can do this later and then complete the licensing process.

## 2.5 Migrate DiffDog Server to a New Machine

If you want to migrate DiffDog Server from one machine to another (including across supported platforms), follow the guidelines below.

Migrating DiffDog Server to a new machine consists of re-assigning the license from the old machine to the new machine. Do this as follows:

1. Install DiffDog Server on the new machine. If it has already been installed as part of FlowForce Server installation, ignore this step.
2. On the new machine, register DiffDog Server with Altova LicenseServer.
3. On the old machine, make sure no clients are using the server.
4. Open the Altova LicenseServer administration page. Deactivate the license from the old DiffDog Server machine and re-assign it to the new machine.

**Note:** Migrate the server configuration file in order to keep your previous configuration settings.



## 3 Configuring the Server

Configuration of DiffDog Server involves setting the server configuration file—one such file in .ini format exists on the server machine in the application data directory:

<i>Linux</i>	<code>/var/opt/Altova/DiffDogServer</code>
<i>Mac</i>	<code>/var/Altova/DiffDogServer</code>
<i>Windows</i>	<code>C:\ProgramData\Altova\DiffDogServer</code>

For typical scenarios where configuration of the server is required, see [Configuring the Server for Remote Comparisons](#)<sup>34</sup> and [Restricting Access to Server Paths](#)<sup>36</sup>.

In addition, if you want to use DiffDog Server for remote comparisons, a client configuration file, also in .ini format, must be configured on each client machine that connects to DiffDog Server remotely.

You can change the settings available in configuration files by editing the files in a text editor. For reference to all settings available in these files, see:

- [Server Configuration File](#)<sup>37</sup>
- [Client Configuration File](#)<sup>40</sup>

After editing the server configuration file, restart DiffDog Server as a service.

For information about restarting DiffDog Server as a service, see:

- [Starting and Stopping Services \(Linux\)](#)<sup>47</sup>
- [Starting and Stopping Services \(macOS\)](#)<sup>48</sup>
- [Starting and Stopping Services \(Windows\)](#)<sup>49</sup>

## 3.1 Configuring the Server for Remote Comparisons

To enable remote DiffDog Clients to call DiffDog Server, take the following steps:

1. On the server machine, make sure that DiffDog Server is installed, licensed and running (see [Setup on Windows](#)<sup>11</sup>, [Setup on Linux](#)<sup>21</sup> and [Setup on macOS](#)<sup>26</sup>).
2. On the server machine, define the HTTP host and port where DiffDog Server should be listening for client requests. By default, DiffDog Server is configured to listen to HTTP connections on the address and port specified in a [server configuration file](#)<sup>37</sup>. By editing the server configuration file, you can specify a different address and port. To make DiffDogServer accept incoming connections from other machines, ensure that the `http.socket-host` parameter is set to **0.0.0.0**.

Ensure that the host and port on the server machine are not blocked by the firewall. For example, on a Windows server, you can let an application through the firewall by editing the rules available in **Control Panel\All Control Panel Items\Windows Defender Firewall\Advanced Settings\Inbound Rules**.

3. Restart DiffDog Server as a service. For instructions, see:
  - [Starting and Stopping Services \(Linux\)](#)<sup>47</sup>
  - [Starting and Stopping Services \(macOS\)](#)<sup>48</sup>
  - [Starting and Stopping Services \(Windows\)](#)<sup>49</sup>
4. Do one of the following:
  - a. If the client machine runs on the same operating system and platform as the server machine, locate the **cmdlclient** subdirectory of the program installation directory and copy it to the client machine. You will find this directory at the following path:

<i>Windows</i>	<code>C:\Program Files\Altova\DiffDogServer2024\cmdlclient</code>
<i>Linux</i>	<code>/opt/Altova/DiffDogServer2024/cmdlclient</code>
<i>macOS</i>	<code>/usr/local/Altova/DiffDogServer2024/cmdlclient</code>

At minimum, you should copy the executable and the .ini configuration file available in the same directory; other files are optional. If you intend to call DiffDog Server remotely from more than one client machine, then copy the **cmdlclient** directory to each client machine that needs to call DiffDog Server.

- b. If the client machine runs on a different operating system or platform than the server machine, take the following steps:
  - a) Download the server installation package from the Altova download page (<https://www.altova.com/download>) and install it on the client operating system. After installation, you will find the client files in the **cmdlclient** subdirectory relative to the program installation directory.
  - b) Copy the **cmdlclient** subdirectory to another location and uninstall the server package from the client machine.

- On the client machine, edit the [client configuration file](#)<sup>40</sup> so that it points to the address and port where DiffDog Server listens for HTTP requests. For example, let's assume that DiffDog Server listens on **192.0.2.0** and port **29800**. In this case, edit the client configuration file so that `server.host` and `server.port` parameters have these respective values.

On the client machine, you are now ready to call the remote DiffDog Server in order to compare some files or directories. For example, the command below will compare `path\to\my\file1.txt` on the client with `path\to\my\file2.txt` on the server, using text comparison mode. Note that, in order for the `diff` command to work correctly, these file paths must actually exist on the client and server machine, respectively.

```
diffdogcmdlclient diff --client-left=path\to\client\file.txt --server-
right=path\to\server\file.txt --mode=text
```

When you run the command, DiffDog Client reads the connection details from the client configuration file, connects to DiffDog Server, and performs the comparison. As stated before, the configuration file must point to a host and port where DiffDog Server is up and running, and listens for HTTP requests.

## Troubleshooting

The following table lists common problems that you might encounter, and their solution.

Problem	Solution
On running the <b>DiffDogCmdlClient.exe</b> on Windows, an error message is displayed at the command line: "This version is not compatible with the version of Windows you're running. Check your computer's system information and then contact the software publisher".	This may occur if you run a 64-bit executable on a 32-bit operating system. See step 4b above for a solution.
On running the <code>diff</code> command, an error message is displayed at the command line: "Unknown error processing the command line".	Ensure that paths on the server are supplied with the help of <code>--server-left</code> or <code>--server-right</code> options. Likewise, ensure that paths on the client are supplied with the <code>--client-left</code> or <code>--client-right</code> options.
On running the <code>diff</code> command, an error message is displayed at the command line: "Server is restricting file access to aliases, but client didn't specify an alias name".	Specify the <code>--alias</code> <sup>97</sup> command line option.
On running the <code>diff</code> command, an error message is displayed at the command line: "[ERROR] FatalError: I/O operation on file 'file:///home/altova/Documents/Address.xsd' failed. Details: System Error 13: Permission denied [ERROR] [PH] Failed to prepare path for comparison. Check log for more info"	Make sure that you have read-write access to the necessary paths on the remote server.

## 3.2 Restricting Access to Server Paths

For security reasons, administrators can optionally configure DiffDog Server to restrict server paths accessible to clients that connect to the server machine. For example, if server paths are restricted, a comparison such as the one below (which compares a file on the client with one on the server) would no longer be allowed by default:

```
diffdogcmdlclient diff --client-left=path\to\client\file.txt --server-  
right=path\to\server\file.txt --mode=text
```

When server paths are restricted, clients must always specify the option `--alias` when running a comparison that includes server paths. An alias is a designated directory on the server machine where remote comparisons are allowed. Any server paths outside of the alias directory are not accessible to remote clients and cannot be included in comparisons.

On the server machine, administrators can restrict server paths as follows:

1. Open the [server configuration file](#) <sup>37</sup>.
2. Set the option `restrict-to-aliases = true`.
3. For each directory that must be considered an alias, add an **[alias]** configuration key, for example:

```
restrict-to-aliases = true  
  
[alias:sandbox1]  
path = C:\Public\Comparisons  
  
[alias:sandbox2]  
path = D:\Comparisons
```

4. Restart DiffDog Server as a service.

Clients can now run a comparison that include either **sandbox1** or **sandbox2** as command line option. Specifically, if the path `C:\Public\Comparisons\file.txt` exists on the server, a client can refer to it as follows:

```
diffdogcmdlclient diff --client-left=path\to\client\file.txt --server-right=file.txt --  
mode=text --alias=sandbox1
```

A client can always view the list of aliases available on the server by running the [aliases](#) <sup>86</sup> command.

### 3.3 Server Configuration File

After installation, DiffDog Server contains a server configuration file called **server\_config.ini** located in the application data directory. The application data directory depends on the operating system:

*Linux*            /var/opt/Altova/DiffDogServer  
*Mac*                /var/Altova/DiffDogServer  
*Windows*        C:\ProgramData\Altova\DiffDogServer

To create a DiffDog Server configuration file with the default configuration settings, run the [createconfig](#)<sup>89</sup> command.

The server configuration file includes the following options.

Option	Description
address	Defines the address (HTTP interface) on which DiffDog Server should listen for HTTP requests. This should be an IP address from one of the network interfaces configured at the machine or the name <b>localhost</b> . To have DiffDog Server listen on all interfaces, set this value to <b>0.0.0.0</b> . If it should listen for local requests only, set this value to <b>127.0.0.1</b> .
hide-alias-paths	An alias is a directory path on the server that clients are allowed to access when performing remote comparisons. This option controls the level of detail that clients can see when they run the <a href="#">aliases</a> <sup>86</sup> command. It is meaningful if the <code>restrict-to-aliases</code> option is set to <b>true</b> . Valid values: <p><b>False</b>            Allow clients to view the list of aliases defined on the server along with the paths to which each alias points.</p> <p><b>True</b>                Allow clients to view just the list of aliases defined on the server; do not show any paths.</p> <p>See also: <a href="#">Restricting Access to Server Paths</a><sup>36</sup></p>
jvm-location	This option lets you specify the path to a Java VM (Virtual Machine) required for Java-specific tasks such as connecting to a database through JDBC. <p>Note that adding a custom Java VM path is typically not necessary. By default, the application attempts to detect the Java VM path automatically based on the <code>JAVA_HOME</code> environment variable. On Windows, the Java VM path is determined by reading (in this order) the Windows registry and the <code>JAVA_HOME</code> environment variable.</p> <p>The custom path added in the <code>jvm-location</code> option will take priority over any other Java VM path detected automatically. If set, the path must point to the <b>jvm.dll</b> (Windows), <b>jvm.so</b> (Linux), or <b>libjvm.dylib</b> (macOS) file found in the JDK installation directory.</p>

Option	Description
language	Specifies the language of the command line interface. Valid values are <code>en</code> , <code>de</code> , <code>es</code> , <code>fr</code> , <code>ja</code> (English, German, Spanish, French, and Japanese).
port	Defines the port on which DiffDog Server should listen for HTTP requests.
restrict-to-aliases	Restricts access to server paths for remote clients connecting to DiffDog server. Valid values:  <b>True</b> Access to server paths is restricted. If you set this value, then at least one <b>[alias:&lt;identifier&gt;]</b> must be defined in the configuration file as well, see below. Any server paths outside of the alias directory are not accessible to remote clients and cannot be included in comparisons.  <b>False</b> Access to server paths is not restricted.
server.log-file	Defines the name and location of the server's log file. This file contains general activity events logged by the server, including licensing events.
server.output-root-dir	Specifies the directory where the output of all submitted jobs is saved.
server.unrestricted-filesystem-access	When set to <b>True</b> (the default value), output files are written directly to the location specified by the user (possibly overwriting existing files of the same name). Setting the value to <b>True</b> is meaningful if the client and server are on the same machine and you want to write the output files to any directory on that machine.  When set to <b>False</b> , output files are written to the output directory (see the <code>server.output-root-dir</code> option).

### [alias:<name>]

An alias is a directory path on the server that clients are allowed to access when performing remote comparisons. Creating aliases is meaningful if the option `restrict-to-aliases=true`. When `restrict-to-aliases=true`, clients must always specify the `--alias`<sup>97</sup> option when running a comparison that includes server paths. For an example, see [Restricting Access to Server Paths](#)<sup>36</sup>.

You can create multiple aliases, for example `[alias:name1]`, `[alias:name2]`, and so on. The name of each alias must be unique. An alias can have only one option: `path`.

Option	Description
path	The path to the directory that DiffDog Command Line clients are allowed to access on the server.

For example, the following configuration creates an alias called **sandbox** for the directory **C:\Public**.

```
[alias:sandbox]
path = C:\Public
```

```
restrict-to-aliases = true
```

### [datasource:<name>]

A [datasource] section defines the connection details to a database, and specifies various other parameters applicable when performing database comparisons. You can create multiple data sources if necessary. For more information, see [Setting up Data Sources](#)<sup>68</sup>.

## 3.4 Client Configuration File

A client-side configuration file defines various configuration settings that affect comparisons and connectivity between DiffDog Command Line Client and a remote DiffDog Server. You must typically edit the client configuration file in order to achieve the following:

- Set up the communication between DiffDog Command Line Client and a remote DiffDog Server. In this case, the `server.address` and `server.port` parameters in the client configuration file must point to the machine where DiffDog Server runs.
- Change the language of the command line interface (for the client).
- Set default values for various options when you run a comparison. For example, if you don't specify a comparison mode (binary, text) when comparing files, the application will use the default comparison mode as it is configured in the client configuration file.
- Define XML filters. An XML filter is useful when you are comparing XML files. It lets you ignore attributes or elements with a specific name during comparison.
- Define directory filters. When you compare directories, a directory filter lets you include or ignore files or directories that follow a specific pattern.
- Define connections to data sources such as databases or CSV files.
- Other configuration options, as further described below.

If you do not need the functionality above, there is no need to set up a client configuration file. Otherwise, you can find a sample client configuration file in the **cmdlclient** subdirectory relative to the program installation directory; it is called **client\_config.ini.sample**. To set up your custom configuration file, create a copy of **client\_config.ini.sample** and remove the **.sample** part from the file name.

When you run a comparison, you can set the path to the custom configuration file by setting the `--c` option. If you do not set the `--c` option, the DiffDog Command Line Client executable attempts to read the client configuration file from the same directory. If there is no configuration file in the same directory as the executable, the default values as described in the command line help and this documentation apply.

To view the current configuration, run the [showcfg](#)<sup>116</sup> command.

The client configuration file includes the options listed below.

### [general]

Option	Description
<code>jvm-location</code>	<p>This option lets you specify the path to a Java VM (Virtual Machine) required for Java-specific tasks such as connecting to a database through JDBC.</p> <p>Note that adding a custom Java VM path is typically not necessary. By default, the application attempts to detect the Java VM path automatically based on the <code>JAVA_HOME</code> environment variable. On Windows, the Java VM path is determined by reading (in this order) the Windows registry and the <code>JAVA_HOME</code> environment variable.</p> <p>The custom path added in the <code>jvm-location</code> option will take priority over any other Java VM path detected automatically. If set, the path must point to the <b>jvm.dll</b> (Windows), <b>jvm.so</b> (Linux), or <b>libjvm.dylib</b> (macOS) file found in the JDK installation directory.</p>



Option	Description
language	Specifies the language of the command line interface (for the client). Valid values are en, de, es, fr, ja (English, German, Spanish, French, and Japanese).
server.address	Specifies the address of the remote host where DiffDog Server is listening for HTTP requests.
server-alias	<p>If the server administrator has restricted access to server paths for security reasons, you can no longer run comparisons that refer server file paths directly, see also <a href="#">Restricting Access to Server Paths</a><sup>36</sup>. Instead, you need to specify the name of an alias by means of the <code>--alias</code><sup>97</sup> option.</p> <p>Alternatively, you can set the <code>server-alias</code> option in the client configuration file, so that you don't have to enter it at the command line. For example, the following configuration defines a default alias called <b>sandbox</b>:</p> <pre>server-alias=sandbox</pre> <p><b>Note:</b> If you set the <code>--alias</code> option at the command line, it takes precedence over the value in the configuration file.</p>
server.port	Specifies the remote port where DiffDog Server is listening for HTTP requests.
zip-as-dir	When you run the <code>diff</code> command without setting the <code>--zip-as-dir</code> <sup>108</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
whitespace-mode	When you run the <code>diff</code> command without setting the <code>--whitespace-mode</code> <sup>103</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.

### [file-types]

When you run the `diff`<sup>96</sup> command without specifying a comparison mode through the `--mode` option (text, binary, or XML), the application decides the comparison mode automatically for each file based on extension (that is, `--mode=auto`). In the options below, you can define what file extensions should be treated as text, binary, or XML, whenever the comparison mode is not explicitly set.

Option	Description
text	A comma-separated list of file extensions that are treated as text by default.
xml	A comma-separated list of file extensions that are treated as XML by default.
binary	A comma-separated a list of file extensions that are treated as binary by default.

## [xml]

Option	Description
ignore-namespace	When you run the <code>diff</code> command without setting the <a href="#">--xml-ignore-namespace</a> <sup>105</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
ignore-prefixes	When you run the <code>diff</code> command without setting the <a href="#">--xml-ignore-prefixes</a> <sup>105</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
resolve-entities	When you run the <code>diff</code> command without setting the <a href="#">--xml-resolve-entities</a> <sup>107</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
ignore-text	When you run the <code>diff</code> command without setting the <a href="#">--xml-ignore-text</a> <sup>105</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
ignore-case-in-names	When you run the <code>diff</code> command without setting the <a href="#">--xml-ignore-case-in-names</a> <sup>104</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
ignore-case-in-text	When you run the <code>diff</code> command without setting the <a href="#">--xml-ignore-case-in-text</a> <sup>104</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
ignore-markup-attributes	When you run the <code>diff</code> command without setting the <a href="#">--xml-ignore-markup-attributes</a> <sup>104</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
ignore-markup-cdata	When you run the <code>diff</code> command without setting the <a href="#">--xml-ignore-markup-cdata</a> <sup>104</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
ignore-markup-comments	When you run the <code>diff</code> command without setting the <a href="#">--xml-ignore-markup-comments</a> <sup>104</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
ignore-markup-processing-instructions	When you run the <code>diff</code> command without setting the <a href="#">--xml-ignore-markup-processing-instructions</a> <sup>105</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
ignore-markup-doctype-decls	When you run the <code>diff</code> command without setting the <a href="#">--xml-ignore-markup-doctype</a> <sup>105</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
ignore-markup-xml-decls	When you run the <code>diff</code> command without setting the <a href="#">--xml-ignore-markup-xml</a> <sup>105</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.

Option	Description
<code>order-by-elements</code>	When you run the <code>diff</code> command without setting the <a href="#">--xml-order-by-elements</a> <sup>106</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
<code>order-by-attributes</code>	When you run the <code>diff</code> command without setting the <a href="#">--xml-order-by-attributes</a> <sup>105</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
<code>order-by-text</code>	When you run the <code>diff</code> command without setting the <a href="#">--xml-order-by-text</a> <sup>107</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
<code>order-by-list</code>	When you run the <code>diff</code> command without setting the <a href="#">--xml-order-by-attribute-list</a> <sup>106</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option. This must be a named list of attributes defined in the <code>[xml.orderby&lt;name-of-my-list&gt;]</code> group (see below).

### `[xml.orderby:<identifier>]`

This option group represents a named list of XML attributes. When an XML comparison takes place, such a list will cause the XML elements to be ordered by specific attributes before comparison. For an example, see the [--xml-order-by-attribute-list](#)<sup>106</sup> option. You can create multiple attribute lists, for example `[xml.orderby:list1]`, `[xml.orderby:list2]`, and so on. The name of each attribute list must be unique.

Option	Description
<code>attributes</code>	Enter here the attribute by which XML elements must be ordered before comparison, for example:  <code>attributes = myattribute</code>  You can also specify a comma-separated list of XML attributes, for example:  <code>attributes = attr1, attr2, attr3</code>

### `[xml.filter:<identifier>]`

This option group represents a filter that lets you ignore attributes or elements with a specific name during comparison. You can create multiple such option groups, for example `[xml.filter:filter1]`, `[xml.filter:filter2]`, and so on. The name of each option group must be unique.

Option	Description
<code>ignore-elements</code>	Enter here a comma-separated list of XML elements that should be ignored when this filter is active.
<code>ignore-attributes</code>	Enter here a comma-separated list of XML attributes that should be ignored when this filter is active.

Option	Description
ignore-both	Enter here a comma-separated list of XML elements or attributes that should be ignored when this filter is active.

Once you define a filter in the configuration file, you can supply it at the command line using the [--xml-filter](#)<sup>103</sup> option.

#### [text]

Option	Description
ignore-case	When you run the <code>diff</code> command without setting the <a href="#">--ignore-case</a> <sup>100</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
ignore-blank-lines	When you run the <code>diff</code> command without setting the <a href="#">--ignore-blank-lines</a> <sup>100</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.

#### [dir]

Option	Description
ignore-case	When you run the <code>diff</code> command without setting the <a href="#">--dir-ignore-case</a> <sup>98</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
compare-file-content	When you run the <code>diff</code> command without setting the <a href="#">--dir-compare-contents</a> <sup>97</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
compare-sizes	When you run the <code>diff</code> command without setting the <a href="#">--dir-compare-sizes</a> <sup>98</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
compare-modification-times	When you run the <code>diff</code> command without setting the <a href="#">--dir-compare-mod-times</a> <sup>98</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.
ignore-modtime-interval	When you run the <code>diff</code> command without setting the <a href="#">--dir-compare-mod-times-ignore-seconds</a> <sup>98</sup> option, the executable will look for it in this configuration file. Set here the default preferred value for this option.

#### [dir.filter:<identifier>]

This option group represents a filter that lets you include or ignore files or directories that follow a specific pattern. At the command line, you can specify directory filters using the [--directory-filter](#)<sup>97</sup> option. In the configuration file, you can create multiple such option groups, for example `[dir.filter:filter1]`, `[dir.filter:filter2]`, and so on. The name of each option group must be unique. Each option group can contain one or more of the following options:

Option	Description
ignore-files	A list of file extensions that should be excluded from the comparison (ignored) when this filter is active.
ignore-dirs	A list of directory names that should be excluded from the comparison (ignored) when this filter is active.
include-dirs	A list of directory names that should be included in the comparison when this filter is active.
include-files	A list of file extensions that should be included in the comparison when this filter is active.
include-archive-files	Windows-specific. Set this value to <b>true</b> if archive files should be included in the filter; <b>false</b> otherwise.
include-hidden-dirs	Windows-specific. Set this value to <b>true</b> if hidden directories should be included in the filter; <b>false</b> otherwise.
include-hidden-files	Windows-specific. Set this value to <b>true</b> if hidden files should be included in the filter; <b>false</b> otherwise.
include-readonly-files	Windows-specific. Set this value to <b>true</b> if read-only files should be included in the filter; <b>false</b> otherwise.
include-system-dirs	Windows-specific. Set this value to <b>true</b> if system directories should be included in the filter; <b>false</b> otherwise.
include-system-files	Windows-specific. Set this value to <b>true</b> if system files should be included in the filter; <b>false</b> otherwise.

Note that the application contains a few built-in directory filters (and you don't need to create them since they will be recognized even if you didn't define them in the configuration file). You can however alter the definition of these filters in the configuration file, in which case your filter will override the built-in configuration. The built-in filters are as follows:

Filter identifier	Purpose
xml	<p>When this filter is active and a directory comparison is performed, files with the following extensions are included in the comparison: *.biz, *.cml, *.dcd, *.dtd, *.ent, *.fo, *.math, *.mml, *.mtx, *.rdf, *.smil, *.svg, *.tld, *.tsd, *.vml, *.vxml, *.wml, *.wsdl, *.xbrl, *.xdr, *.xhtml, *.xml, *.xsd, *.xsl, *.xslt.</p> <p>On Windows, read-only and archive files are included in the comparison.</p>
text	<p>When this filter is active and a directory comparison is performed, only files with the following extensions are included in the comparison: *.asp, *.c, *.cc, *.cpp, *.cs, *.css, *.cxx, *.h, *.hpp, *.htm, *.html, *.java, *.jsp, *.rc, *.tlh, *.tli, *.txt.</p>

Filter identifier	Purpose
	On Windows, read-only and archive files are included in the comparison.
nobinary	When this filter is active and a directory comparison is performed, files with the following file extensions are ignored: a.out, *.a, *.avi, *.bmp, *.chm, *.com, *.dll, *.doc, *.docm, *.docx, *.dot, *.dotm, *.dotx, *.exe, *.gif, *.gz, *.hlp, *.ico, *.ilk, *.jar, *.jpeg, *.jpg, *.lib, *.mdb, *.mid, *.mp2, *.mp3, *.mp4, *.mpeg, *.msi, *.o, *.obj, *.ogg, *.pdb, *.pdf, *.png, *.pps, *.ppt, *.pptx, *.rar, *.snd, *.so, *.tar, *.tif, *.tiff, *.tlb, *.ttf, *.wav, *.wma, *.wmf, *.wmv, *.xls, *.xlsx, *.zip
cvs	When this filter is active and a directory comparison is performed, files with the following file extensions are ignored: .#*, .cvsignore, .cvsrc, .cvswrappers, .cvspass, .rhosts. Also, any directory with the name cvs is ignored.  On Windows, read-only and archive files are also included in the comparison.
svn	When this filter is active and a directory comparison is performed, any directory with the name .svn is ignored.  On Windows, read-only and archive files are included in the comparison.
git	When this filter is active and a directory comparison is performed, any directory with the name .git is ignored. Also, any file with the name .gitignore is ignored.  On Windows, read-only and archive files are included in the comparison.

### [datasource:<name>]

A [datasource] section defines the connection details to a database, and specifies various other parameters applicable when performing database comparisons. You can create multiple data sources if necessary. For more information, see [Setting up Data Sources](#) <sup>68</sup>.

### [datadiff:<name>]

A [datadiff] section defines the parameters of a database data comparison job that will be run with the [data-diff](#) <sup>90</sup> command. You can create multiple [datadiff] sections if necessary. For more information, see [Setting up CSV and Database Comparisons](#) <sup>74</sup>.

## 3.5 Starting and Stopping Services (Linux)

To start the service:

```
sudo systemctl start diffdogserver
```

To stop the service:

```
sudo systemctl stop diffdogserver
```

## 3.6 Starting and Stopping Services (macOS)

To start the service:

```
sudo launchctl load /Library/LaunchDaemons/com.altova.DiffDogServer.plist
```

To stop the service:


```
sudo launchctl unload /Library/LaunchDaemons/com.altova.DiffDogServer.plist
```




## 3.7 Starting and Stopping Services (Windows)

By default, the DiffDog Server services are automatically started when Windows starts. Follow the instructions below if you need to manage services manually.

### To start the service:

- Click the ServiceController icon (  ) in the system notification area, and then select **Altova DiffDog Server > Start service**.

### To stop the service:

- Click the ServiceController icon (  ) in the system notification area, and then select **Altova DiffDog Server > Stop service**.

You can also start or stop the DiffDog Server services using the Microsoft Management Console (found under Control Panel > Administrative Tools > Services).

## 4 Running Comparisons

To compare only local files or directories, supply them as arguments to the [diff](#)<sup>96</sup> command. In this case, if you supply two arguments (for example, two file paths) to the `diff` command, the arguments will be interpreted in the following order: left side of the comparison, right side of the comparison.

```
<executable>8 diff file1.txt file2.txt --mode=text
```

If you specify three arguments, a three-way comparison takes place, and the arguments are interpreted in this order: left side of the comparison, middle side, and then right side.

```
<executable> diff file1.xml file2.xml file3.xml --mode=xml
```

**Note:** While not mandatory, for best results it is recommended to explicitly set the `--mode` option to either `text`, `binary`, or `xml`. Otherwise, the application would need to determine automatically whether you are comparing files or directories, which may lead to undesired results. In the first example above, the comparison mode is set to `text` since two text files are being compared. In the second example, it is set to `xml` since three XML files are being compared.

Alternatively, you can specify the left and right side of the comparison through options instead of arguments. For example, the command below compares two XML files on the machine where DiffDog Client runs, and both file paths are supplied as options (not arguments):

```
<executable> diff --client-left=file1.xml --client-right=file2.xml
```

When the comparison paths are set as options, you can compare not only files local to the client machine, but also remote files on the machine where DiffDog Server runs. For example, the command below compares two text files where the left one is on the client and the right one is on the server.

```
<executable> diff --client-left=file1.txt --server-right=file2.txt
```

**Note:** The path syntax must be valid for the operating system where the file is. For example, if the client runs on Windows and the server runs on Linux, then a Windows-style path must be used for `--client-left`. Conversely, a Linux-style path must be used for `--server-right`.

To perform a three-way comparison, add a third option (either `--client-middle` or `--server-middle`, depending on where the common ancestor file is). In the example below, the common ancestor file `file2.csv` is on the server machine while the left and right files (`file1.csv`, `file3.csv`) are on the client machine.

```
<executable> diff --client-left=file1.csv --server-middle=file2.csv --client-right=file3.csv
```

If the server administrator has restricted access to server paths for security reasons, you can no longer run comparisons that refer server file paths directly, see also [Restricting Access to Server Paths](#)<sup>36</sup>. Instead, you need to specify the name of an alias by means of the `--alias`<sup>97</sup> option.

For example, the command below compares a file on the client with a file on the server. It is assumed that an alias called "public" has already been defined by an administrator on the server.

```
<executable> diff --client-left=file1.txt --server-right=file2.txt --mode=text --  
alias=public
```

To query the list of aliases defined on the server, run the [aliases](#)<sup>86</sup> command. To save an alias as default, set the `server-alias` option in the [Client Configuration File](#)<sup>40</sup>. This way, you will no longer need to specify an alias at the command line.

**Note:** Alias names are case-sensitive.

## 4.1 Comparing Word Documents

You can use DiffDog Server to compare Microsoft Word 2003 or later documents (.docx, .dotx). Microsoft Word is not required to be installed in order to perform such comparisons.

To compare Word documents, invoke the [diff](#)<sup>96</sup> command similar to how this is done for plain or XML text files, for example:

```
<executable>8 diff "C:\Reports.docx" "C:\ReportsWithFeedback.docx" --mode=doc
```

As best practice, set the `--mode=doc` option in order to instruct DiffDog Server to treat the compared files as Word documents.

When comparing Word documents, you can choose whether formatting information such as bold, italic, font size and color should be ignored or taken into account. The `diff` command provides the following options for that purpose:

- [--doc-format-bold, --dfb](#)<sup>98</sup>
- [--doc-format-font-color, --dfc](#)<sup>99</sup>
- [--doc-format-font-name, --dff](#)<sup>99</sup>
- [--doc-format-font-size, --dfs](#)<sup>99</sup>
- [--doc-format-italic, --dfi](#)<sup>99</sup>
- [--doc-format-underline, --dfu](#)<sup>99</sup>

When set to **true**, any of the options above will take into account text with the respective formatting.

In addition, you can set the following options when comparing Word documents:

- [--doc-ignore-blank-lines, --dib](#)<sup>99</sup>
- [--doc-ignore-case, --doc](#)<sup>99</sup>
- [--doc-whitespace-mode, --dws](#)<sup>100</sup>

For Word documents, the comparison outcome is reported by the exit status code, like with other comparison kinds. In addition, if differences exist, a detailed XML report is available. For more information, see [Viewing Comparison Results](#)<sup>55</sup>.

**Note:** Along with .docx files created in MS Office, .docx files generated in Text Control are now also fully compatible with DiffDog Server.

## 4.2 Comparing Directories

To compare two local directories side-by-side, call the `diff`<sup>96</sup> command and supply the directory paths as arguments, for example:

```
<executable>8 diff "C:\Reports" "C:\ReportsNew"
```

The example above runs a quick but not exact comparison (which would report just the new or missing files in both directories). This is because the option `--dir-compare-contents`<sup>97</sup> was not specified, so the default value `false` is assumed.

To run a deep comparison which would also check the contents of all files and sub-directories within the compared directories, set the `--dir-compare-contents=true`, for example:

```
<executable> diff "C:\Reports" "C:\ReportsNew" --dir-compare-contents=true --mode=auto
```

If both directories contains files of similar type, you might want to set the `--mode`<sup>101</sup> option to indicate which comparison mode you would like to use, for example, `--mode=binary`, `--mode=text`, or `--mode=xml`. Otherwise, set `--mode=auto`, like in the example above. In this mode, the program will compare directory files according to their extension.

Like other comparison kinds, the compared directories can be either on the server or on the client machine. To specify if the directories are on the server or on the client, set the `--server-left`, `--server-right` or `--client-left`, `--client-right` options. For example, in the comparison below, the first directory is on the server and the second one is on the client machine:

```
<executable> diff --server-left="/home/altova/reports" --client-right="C:\ReportsNew"
```

There are various other options applicable to directories that you can set at the command line, namely:

- `--directory-filter`, `--df`<sup>97</sup> lets you include or exclude certain files or sub-directories from the comparison based on criteria you define.
- `--dir-compare-mod-times`, `--dt`<sup>98</sup> adds as comparison criterion the time when the compared directories or files were last modified.
- `--dir-compare-mod-times-ignore-seconds`, `--di`<sup>98</sup> when comparing modification times (see previous option), this option ignores file or directory modifications made within the specified number of seconds.
- `--dir-compare-sizes`, `--ds`<sup>98</sup> adds the directory size as comparison criterion.
- `--dir-ignore-case`, `--dic`<sup>98</sup> ignores case in file and directory names
- `--output-file`, `--o`<sup>101</sup> lets you set the name of the report file (text or XML) where the comparison results will be saved.
- `--output-mode`, `--om`<sup>101</sup> lets you choose a format for the comparison report (XML or text).

The option `--output-mode=text` is not supported if the compared directories include XML files, and if `--dir-compare-contents=true`. The result of comparing XML files can be reported only in XML format.

In addition, when `--dir-compare-contents=true`, you can use all the file comparison options (such as those that begin with `--doc`, `--text`, or `--xml`, see the [diff](#)<sup>96</sup> command reference). For example, if directories containing text files are compared, you can ignore blank lines or case inside the text files with a command like:

```
<executable> diff "C:\Reports" "C:\ReportsNew" --dir-compare-contents=true --mode=auto --text-ignore-case=true
```

## 4.3 Viewing Comparison Results

When you run a comparison, the outcome of the comparison is reported by the exit status (return code) of the command that called the DiffDog Server (or DiffDogCmdlClient) executable. For example, the following Windows batch script runs a comparison between two files and gets the exit code from the `%ERRORLEVEL%` environment variable:

```
SET DIFFDOGSERVER="C:\Program Files\Altova\DiffDogServer2024\bin\DiffDogServer.exe"
%DIFFDOGSERVER% diff book1.xml book2.xml --mode=xml
ECHO %ERRORLEVEL%
```

*Windows batch script*

On a Linux machine, the equivalent script could look like:

```
#!/bin/bash
DIFFDOGSERVER=/opt/Altova/DiffDogServer2024/bin/diffdogserver
${DIFFDOGSERVER} diff book1.xml book2.xml --mode=xml
echo $?
```

*Linux shell script*

The exit code can have one of the following values:

Exit code	Meaning
0	No differences exist
1	Differences exist
2	An error has occurred

When differences exist (exit code = 1), you can also view a detailed comparison report directly at the command line, or output it to a report in XML or text format. To specify the output format as **text** or **xml**, set the `--output-mode` <sup>101</sup> option. For example, the following command compares two text files using text comparison mode (that is, `--mode=text`) and displays the output as text at the command line:

```
<executable> 8 diff a.txt b.txt --mode=text --output-mode=text
```

To redirect the output to a file, set the `--output-file` <sup>101</sup> option. For example, the following command compares two text files using text comparison mode (that is, `--mode=text`). The output report will be in XML format and it will be redirected to **out.xml** file:

```
<executable> diff a.txt b.txt --mode=text --output-mode=xml --output-file=out.xml
```

**Note:** The option `--output-mode=text` is not supported when comparing XML files or Word documents.

By default, the report containing comparison results is displayed at the command line. To suppress the output, set the option `--quiet=true` <sup>101</sup>, for example:

```
<executable> diff a.txt b.txt --mode=text --output-mode=text --quiet=true
```

The following table lists the supported report formats for various comparison kinds.

Type of comparison	XML report	Text report	Notes
Text (non-binary) files	Yes	Yes	
XML files	Yes	No	
Word documents	Yes	No	
Binary files	No	No	To view the comparison outcome for binary files, check the exit code after running a comparison, as described in <a href="#">Binary Files</a> <sup>60</sup> .
Directories	Yes	Yes	

The following sections describe the structure of the comparison report files produced for each of the scenarios above. This information is meant to help you understand the reported differences and might also be useful if you intend to process the report in an automated way.

### 4.3.1 Text Files

When comparing files in text mode, you can view the comparison result in either text or XML format. To understand how DiffDog Server reports differences between text files, let's assume that the following two text files must be compared side-by-side.

apples peaches grape bananas strawberries	apples nuts peaches grapes bananas
<i>file1.txt</i>	<i>file2.txt</i>

**Note:** The files used in this example are text files with .txt extension; however, they can be any other non-binary file kinds, such as .html, .json, .js, .cs, and so on.

When compared with a graphical differencing tool like DiffDog, the differences between the two files are represented as shown below. As shown below, there are three differences in total: one line was added, one was changed, and one was deleted.



1	apples	1	apples
2	peaches	2	nuts
3	grape	3	peaches
4	bananas	4	grapes
5	strawberries	5	bananas

### DiffDog comparison report

In DiffDog Server, you can compare these two files with the command:

```
<executable> diff file1.txt file2.txt --mode=text --output-mode=text --output-file=report.txt
```

**Note:** The `--mode` option instructs the program to treat the compared files as text (not as XML or binary). The `--output-mode` option lets you specify the format the comparison report (text or XML).

In the text report produced after running the comparison, the differences are reported as follows:

```
1a2
> nuts
3c4
< grape
---
> grapes
5d5
< strawberries
```

### DiffDog Server comparison report (text)

In the report above, "a" indicates an addition, "c" indicates a change, and "d" indicates a deletion. The character ">" points to the right side of the comparison. "<" points to the left side of the comparison. The results must be understood as instructions that one would need to follow in order to make both files equal, namely:

- **1a2** means "After line 1 in the left file, add some text to make it equal with line 2 from the right file". The next line shows the exact text to be added, in this case, the text "nuts" from the right file.
- **3c4** means "Replace line 3 from the left file with line 4 from the right file". The next lines shows the relevant content from both files, separated by "---".
- **5d5** means "Delete line 5 of the left file to make it equal with the line 5 from the right file". The next line shows exactly the text to be deleted (in this case, "strawberries").

## XML report

You can also compare the same two files and get the report as XML file, by running the command:

```
<executable> diff file1.txt file2.txt --mode=text --output-mode=xml --output-file=report.xml
```

In you choose XML as reporting format, then the same report is represented as follows:

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- Differencing export generated by Altova DiffDog Server -->
<diff_result>
  <diff_info comparison_mode="text">
    <source_left name="c:\file1.txt" uri="file:///c:/file1.txt"/>
    <source_right name="c:\file2.txt" uri="file:///c:/file2.txt"/>
  </diff_info>
  <text_diff left_location="1" right_location="2">
    <right_content>
      <line>nuts</line>
    </right_content>
  </text_diff>
  <text_diff left_location="3" right_location="4">
    <left_content>
      <line>grape</line>
    </left_content>
    <right_content>
      <line>grapes</line>
    </right_content>
  </text_diff>
  <text_diff left_location="5" right_location="5">
    <left_content>
      <line>strawberries</line>
    </left_content>
  </text_diff>
</diff_result>

```

*DiffDog Server comparison report (XML)*

In the XML report above, there is a **diff\_info** element at the very top. The **diff\_info** element supplies information about files that were compared (including the comparison mode used, and the path of the compared files). This element occurs only once. The **comparison\_mode** attribute indicates what was the value of the `--mode` option when running the comparison; this is also useful if you need to know the default comparison mode used by DiffDog Server when no `--mode` option was specified at the command line.

Next, the same three differences are listed as in the text report. The information about the differences involved is presented with the help of the **left\_location** and **right\_location** attributes, while the actual content is enclosed within **left\_content** or **right\_content** elements. In this example, each location is a line. However, a location is not always a single line; it can consist of multiple lines in some cases—in such cases there would be multiple consecutive **line** elements in the report.

### 4.3.2 XML Files

For XML files, you can view the comparison results as XML report only. To understand how differences are reported in XML format, let's assume that the following two XML files must be compared side-by-side:

<pre> &lt;book id="1"&gt;   &lt;author&gt;Mark Twain&lt;/author&gt; &lt;/book&gt; </pre>	<pre> &lt;book id="2"&gt;   &lt;author&gt;Franz Kafka&lt;/author&gt; &lt;/book&gt; </pre>
--	---

If you compare these two files with the command

```
<executable>8 diff file1.xml file2.xml --mode=xml --output-mode=xml --output-  
file=report.xml
```

then the resulting XML report would look similar to the one below:

```
<?xml version="1.0" encoding="UTF-8"?>  
<!-- Differencing export generated by Altova DiffDog Server -->  
<diff_result>  
  <diff_info comparison_mode="xml">  
    <source_left name="c:\file1.xml" uri="file:///c:/file1.xml"/>  
    <source_right name="c:\file2.xml" uri="file:///c:/file2.xml"/>  
  </diff_info>  
  <xml_diff>  
    <left_location>  
      <parent xpath="/book"/>  
      <position>1</position>  
    </left_location>  
    <right_location>  
      <parent xpath="/book"/>  
      <position>1</position>  
    </right_location>  
    <left_content>  
      <attribute id="1"/>  
    </left_content>  
    <right_content>  
      <attribute id="2"/>  
    </right_content>  
  </xml_diff>  
  <xml_diff>  
    <left_location>  
      <parent xpath="/book/author"/>  
      <position>1</position>  
    </left_location>  
    <right_location>  
      <parent xpath="/book/author"/>  
      <position>1</position>  
    </right_location>  
    <left_content>  
      <element>Mark Twain</element>  
    </left_content>  
    <right_content>  
      <element>Franz Kafka</element>  
    </right_content>  
  </xml_diff>  
</diff_result>
```

*DiffDog Server comparison report (for XML files)*

At the very top, the XML report contains a **diff\_info** element. The **diff\_info** element supplies information about files that were compared (including the comparison mode used, and the path of the compared files). This element occurs only once.

Next, all the encountered differences (two, in this example) are listed by means of multiple **xml\_diff** elements. In the context of each difference, the **left\_location** (and **right\_location**, correspondingly) inform you where the difference was encountered, as an XPath expression. The **left\_content** (and **right\_content**, correspondingly) inform you about the exact element or attribute that is changed.

### 4.3.3 Binary Files

When you compare files in binary mode (that is, when the option `--mode=binary`), DiffDog Server creates no output report, since listing differences is not meaningful for binary files. In such cases, check the exit code to view the comparison outcome.

Exit code	Meaning
0	No differences exist
1	Differences exist
2	An error has occurred

For example, the following Windows batch script compares two PDF files in binary mode. The `%ERRORLEVEL%` environment variable provides the exit code with the comparison outcome.

```
SET DIFFDOGSERVER="C:\Program Files\Altova\DiffDogServer2024\bin\DiffDogServer.exe"
%DIFFDOGSERVER% diff book1.pdf book2.pdf --m=binary
ECHO %ERRORLEVEL%
```

*Windows batch script*

On a Linux machine, the equivalent script could look as follows:

```
#!/bin/bash
DIFFDOGSERVER=/opt/Altova/DiffDogServer2024/bin/diffdogserver
${DIFFDOGSERVER} diff book1.pdf book2.pdf --mode=binary
echo $?
```

*Linux shell script*

### 4.3.4 Directories







For directories, you can view the comparison result in either text or XML format, by setting the `--output-mode=text`, or `--output-mode=xml`, respectively. The `--output-mode` option lets you specify the format of the comparison report (text or XML), while the `--output-file` option lets you specify the name of the report file.

The option `--output-mode=text` is not supported if the compared directories include XML files, and if `--dir-compare-contents=true`. The result of comparing XML files can be reported only in XML format.

To understand how DiffDog Server reports differences between directories, let's assume that the following two directories must be compared side-by-side.

<pre>dir1/  -- documents/  -- Don Quixote.txt  -- Metamorphosis.txt</pre>	<pre>dir2/  -- Don Quixote.txt  -- img1.png  -- Metamorphosis.txt</pre>
<i>dir1</i>	<i>dir2</i>

When compared with a graphical differencing tool like DiffDog (using the quick comparison mode), the differences between the two directories are represented as shown below. As shown below, the sub-directory **documents** was deleted and the file **img1.png** was added in the right directory. Also, the file **Metamorphosis.txt** has a different modification time.

Name	Size	Last modified		Name	Size	Last modified
 documents		2018-03-27 16:38				
 Don Quixote.txt	1	2019-04-02 11:41	=	 Don Quixote.txt	1	2019-04-02 11:41
				 img1.png	1802	2019-03-20 11:23
 Metamorphosis.txt	13	2019-04-02 11:37	≠	 Metamorphosis.txt	13	2019-04-02 11:36

*DiffDog comparison report*

In DiffDog Server, you can run a quick comparison between these two directories with the command:

```
<executable> diff dir1 dir2 --output-mode=text --output-file=report.txt --dir-compare-sizes=true --dir-compare-mod-times=true
```

**Note:** The comparison above is also "quick" because no directory contents were compared, only the size and modification date of files inside the two directories. To perform a thorough comparison which also takes the file contents into account, add the option `--dir-compare-contents=true`.

In the text report produced after running the comparison, the differences are reported as follows:

```
< documents/
! Metamorphosis.txt
> img1.png
```

*DiffDog Server comparison report (text)*

The "<" character indicates the left side of the comparison, while the ">" character indicates the right side. The trailing forward slash denotes a directory (as opposed to a file). The "!" character indicates differences in the corresponding file.

Like with file reports, the information above should be interpreted as instructions that one should follow to make both directories equal. In this example, the instructions must be understood as follows:

1. Add the **documents** sub-directory in the "left" directory
2. Copy the **Metamorphosis.txt** file either from left to right directory, or vice versa.
3. Add the **img1.png** file to the "right" directory.

**Note:** The verb "add" must be changed to "delete" depending on the intended merge direction. In this example, to merge changes from left to right, the first instruction is "add" and the second is "delete". If the merge direction is from right to left, the first instruction is "delete" and the second instruction is "add".

## XML report

Let's now run the same comparison, and change only the format of the report file from text to XML. In other words, the differencing command has now become:

```
<executable> diff dir1 dir2 --output-mode=xml --output-file=report.xml --dir-compare-sizes=true --dir-compare-mod-times=true
```

In the XML report produced after running the comparison, the differences are reported as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- Differencing export generated by Altova DiffDog Server -->
<diff_result>
  <diff_info comparison_mode="quick">
    <source_left name="c:\dir1" uri="file:///c:/dir1"/>
    <source_right name="c:\dir2" uri="file:///c:/dir2"/>
  </diff_info>
  <file_diff location="">
    <left_content>
      <directory name="documents"/>
    </left_content>
    <changed_content>
      <file name="Metamorphosis.txt"/>
    </changed_content>
    <right_content>
      <file name="img1.png"/>
    </right_content>
  </file_diff>
</diff_result>
```

*DiffDog Server comparison report (XML)*

The **diff\_info** element supplies information about directories that were compared (including the comparison mode used, and the path of the compared files). This element occurs only once.

In directory comparison reports, the **file\_diff** element occurs only once. It can have multiple occurrences of any of the following child elements: **left\_content**, **changed\_content**, and **right\_content**. These are equivalents of "<", ">", and "!" in text reports and have the same meaning as mentioned above.

## 5 Comparing CSV and Database Data

With DiffDog Server, you can compare database tables, views, or custom recordsets retrieved with the help of SQL queries. In addition, you can add CSV files as data sources and compare them with other CSV files or with database tables, views, or custom recordsets, see [CSV Comparisons](#) <sup>81</sup>.

There are two ways to run tabular comparisons in DiffDog Server:

1. Set up a database comparison job in the client configuration file. Once the comparison job is set up, you can run it from the command line by invoking the `data-diff` command, for example:

```
<executable> 8 data-diff <named_datadiff>
```

Where `<named_datadiff>` refers to a `[datadiff]` section configured previously in the configuration file.

2. Run an existing database data comparison file (`.dbdif`) previously created with DiffDog Enterprise Edition. For more information about creating database data comparison files, refer to the documentation of DiffDog, see <https://www.altova.com/documentation>. When you have a `.dbdif` file, you can run it with the following command:

```
<executable> run <dbdif-file>
```

If you run the `.dbdif` file with DiffDog Server on a different machine or operating system, the database drivers required by the connection must be installed on the target operating system as well. Note that some database connections methods supported on Windows are not supported on Linux and macOS, see also [Supported Databases](#) <sup>65</sup>.

The steps below provide an overview of how you can set up and run database comparisons in DiffDog Server (the first approach above). For more information about the second approach, see the [run](#) <sup>113</sup> command.

### Step 1: Configure the data sources

First, you define two data sources in the client or server configuration file. For each data source, you must specify all the details required to connect to a database and retrieve a table, view, or some custom recordset that will take part in the comparison. For example, you might want to compare the view `VWEMPLOYEEEDATA` from an Oracle database with the table `EMPLOYEES` from a SQLite database. Consequently, you would need to create two data sources: the first one to connect to the Oracle database, and the second one to connect to the SQLite database.

You can define data sources on the machine where DiffDog Command Line client runs, on the server machine, or both. For more information about this step, see [Setting up Data Sources](#) <sup>68</sup>.

### Step 2: Configure the database comparison job (datadiff)

Next, you define a `[datadiff]` section (a database comparison) in the configuration file. A database comparison consists of a "left" side and a "right" side. Consequently, in the `datadiff` section, you specify which of the data sources defined earlier must represent the "left" and "right" side of the comparison. It is also recommended that the `datadiff` section should specify all the mappings between the left and the right columns. For example, you may want to compare data as follows:

- Column `ID` from the left with column `SERNO` from the right
- Column `FULLNAME` from the left with column `NAME` from the right
- Column `JOBTITLE` from the left with column `TITLE` from the right.

For more information about this step, see [Setting up CSV and Database Comparisons](#)<sup>74</sup>.

### Step 3: Run the comparison

Once the previous steps are done, you can run the comparison using the `data-diff` command, for example:

```
<executable> data-diff <named_datadiff>
```

Where `<named_datadiff>` refers to a **[datadiff]** section configured previously in the configuration file. For more information, see the reference to the [data-diff](#)<sup>90</sup> command.



## 5.1 Supported Databases

The following table lists the database connection types supported for each platform.

Connection Type	Linux	macOS	Windows
ADO	-	-	Yes
ADO.NET	-	-	Yes, with some limitations, see <a href="#">ADO.NET Support Notes</a> <sup>66</sup>
JDBC	Yes	Yes	Yes
ODBC	-	-	Yes
PostgreSQL	Yes	Yes	Yes
SQLite	Yes	Yes	Yes

For a database connection to be possible, the required database drivers must be installed on the operating system, namely:

- For ADO.NET connections, the .NET Framework must be installed. Also, the ADO.NET provider of the database vendor must be installed if not already available on your operating system. Note that the ADO.NET providers of certain databases are not supported, see [ADO.NET Support Notes](#) <sup>66</sup>.
- For JDBC connections, the JDBC drivers must be added to the CLASSPATH variable. Also, the JRE (Java Runtime Environment) or Java Development Kit (JDK) must be installed. This may be either Oracle JDK or an open source build such as Oracle OpenJDK. As an alternative to changing the CLASSPATH variable, you can add values to the Java class path by configuring the data source with the [extend-classpath](#) <sup>69</sup> option.
- For ODBC connections, the ODBC driver of the respective database vendor must be installed.

The 32-bit or 64-bit platform of DiffDog Server should match that of the database driver.

PostgreSQL and SQLite connections are supported natively and do not require any drivers.

You can view at a glance all the database drivers detected on your machine by DiffDog Server by running the [db-drivers](#) <sup>95</sup> command.

The table below lists all the supported databases. If your Altova application is a 64-bit version, ensure that you have access to the 64-bit database drivers needed for the specific database you are connecting to.

Database	Notes
Firebird 2.x, 3.x, 4.x	
IBM DB2 8.x, 9.x, 10.x, 11.x	

Database	Notes
IBM Db2 for i 6.x, 7.4, 7.5	Logical files are supported and shown as views.
IBM Informix 11.70 and later	
MariaDB 10 and later	MariaDB supports native connections. No separate drivers are required.
Microsoft Access 2003 and later	At the time of writing (early September 2019), there is no Microsoft Access Runtime available for Access 2019. You can connect to an Access 2019 database from Altova products only if Microsoft Access 2016 Runtime is installed and only if the database does not use the "Large Number" data type.
Microsoft Azure SQL Database	SQL Server 2016 codebase
Microsoft SQL Server 2005 and later Microsoft SQL Server on Linux	
MySQL 5 and later	MySQL 5.7 and later supports native connections. No separate drivers are required.
Oracle 9i and later	
PostgreSQL 8 and later	PostgreSQL connections are supported both as native connections and driver-based connections through interfaces (drivers) such as ODBC or JDBC. Native connections do not require any drivers.
Progress OpenEdge 11.6	
SQLite 3.x	SQLite connections are supported as native, direct connections to the SQLite database file. No separate drivers are required.
Sybase ASE 15, 16	
Teradata 16	

## ADO.NET Support Notes

The following table lists known ADO.NET database drivers that are currently not supported or have limited support in DiffDog Server.

Database	Driver	Support notes
All databases	<b>.Net Framework Data Provider for ODBC</b>	Limited support. Known issues exist with Microsoft Access connections. It is recommended to use ODBC direct connections instead.
	<b>.Net Framework Data Provider</b>	Limited support. Known issues exist with

Database	Driver	Support notes
	<b>for OleDb</b>	Microsoft Access connections. It is recommended to use ADO direct connections instead.
Firebird	<b>Firebird ADO.NET Data Provider</b>	Limited support. It is recommended to use ODBC or JDBC instead.
Informix	<b>IBM Informix Data Provider for .NET Framework 4.0</b>	Not supported. Use <b>DB2 Data Server Provider</b> instead.
IBM DB2 for i (iSeries)	<b>.Net Framework Data Provider for i5/OS</b>	Not supported. Use <b>.Net Framework Data Provider for IBM i</b> instead, installed as part of the <i>IBM i Access Client Solutions - Windows Application Package</i> .
Oracle	<b>.Net Framework Data Provider for Oracle</b>	Limited support. Although this driver is provided with the .NET Framework, its usage is discouraged by Microsoft, because it is deprecated.
PostgreSQL	-	No ADO.NET drivers for this vendor are supported. Use a native connection instead.
Sybase	-	No ADO.NET drivers for this vendor are supported.

## 5.2 Setting up Data Sources

Before you can perform comparison of tabular data originating from a database, a data source which includes the database connection details and other configuration parameters must be configured. One data source must exist for each database table, view, or custom SQL query that you want to include in the comparison. If CSV files are involved in the comparison, then a data source must exist for each CSV file as well.

To configure a data source, open the [client configuration file](#)<sup>40</sup> and add a new `[datasource:<name>]` section, where `<name>` is the unique name by which you want to identify this data source. The parameters that may be present in a `[datasource]` section are listed below.

You can also add data sources to the [server configuration file](#)<sup>37</sup>. This is useful if you need to connect to the data source from the machine where DiffDog Server (not the DiffDog Command Line Client) runs. However, note that server-side connections that require Windows authentication for databases like SQL Server may encounter issues in this case, because the DiffDog Server service runs as a separate user who may not have access to the database. The workaround in that case is to define the data source in the client configuration file—the DiffDog Command Line Client runs as the user running the `data-diff` command.

As stated previously, each data source must provide one table, view or some custom named recordset retrieved by a SQL query. To specify this, set the `table` or `sql` options below (they are mutually exclusive). Importantly, for each table, view, or recordset, there should be at least one column which guarantees the uniqueness of each row. This column (or multiple columns) are subsequently referred to as the "key" columns. If the table has a primary key, a key column already exists and the uniqueness of the row is guaranteed. Otherwise, it is recommended that you specify one or more columns that should be treated as "key" columns. You can do this by setting the `key-columns-by-name` and `key-columns-by-ordinal` options below.

### type

Mandatory parameter. Specifies the type of the database connection. Valid values are **ado**, **adonet**, **csv**, **jdbc**, **odbc**, **postgresql**, and **sqlite**. Example:

```
type=sqlite
```

Connections of type **csv**, **postgresql** and **sqlite** are built-in and do not require any drivers. For other database kinds, choose a database connection method that is suitable for the machine that will be running the comparison job. Such connections require that the corresponding database drivers be installed on the machine. For more information, see [Supported Databases](#)<sup>65</sup>.

### path

This parameter specifies the path to the database file. It is applicable for CSV files and SQLite databases. Do not set this parameter if you set the `connection` parameter, because they are mutually exclusive.

```
path=C:\Articles.sqlite
```

*SQLite*

```
path=C:\data.csv
```

## CSV

### connection

Conditional parameter. Specifies the database connection string. Do not set this parameter if you set the `path` parameter, because they are mutually exclusive.

```
connection=Data Source=DBSQLSERV;User
ID=altova_user;Password=dhjdf84h;Provider=SQLNCLI11.1;Initial Catalog=NANONULL;Persist
Security Info=true
```

### SQL Server (ADO)

```
connection=jdbc:db2://mydb2-105:50000/NANONULL
```

### DB2 (JDBC)

```
connection=jdbc:oracle:thin:@dbora12c:1521:orcl12c
```

### Oracle (JDBC)

```
connection=my.dbserver.com
```

### PostgreSQL (Native)

**Note:** For native PostgreSQL connections, the `connection` can also be the IP address of the database server, for example, `127.0.0.1`. The database and port of a native PostgreSQL connection are specified in the `database` and `port` options.

Call the [db-drivers](#) <sup>95</sup> command to view connections available on the local machine, displayed in a format that you can copy-paste. Also, if you have licensed DatabaseSpy, you can create a database connection from there, and then reuse the connection details as displayed in the Properties window.

### extend-classpath

This parameter is applicable only for JDBC connections. It is optional and enables you to extend the Java class path on the machine where DiffDog Server runs. This could be useful, for example, when you do not have the means or privileges to change the operating system's `CLASSPATH` environment variable. Note that there is no need to set this value if all the class paths required by the JDBC connection are already set via the `CLASSPATH` environment variable.

If you set this value, then it will be taken in consideration in addition to the value that may already be set in the `CLASSPATH` environment variable. For example, the following value adds two `.jar` files to the class path in order to establish a connection to an IBM DB2 database:

```
extend-classpath=C:\jdbc\db2\db2jcc.jar;C:\jdbc\db2\db2jcc_license_cu.jar
```

The JDBC driver paths defined in the CLASSPATH variable, as well as any .jar file paths specified in the **extend-classpath** parameter are all supplied to the Java Virtual Machine (JVM). The JVM then decides which drivers to use in order to establish a connection. It is recommended to keep track of Java classes loaded into the JVM so as not to create potential JDBC driver conflicts and avoid unexpected results when connecting to the database.

### database

Mandatory and applicable only for native PostgreSQL connections. Specifies the database of the PostgreSQL connection.

```
database = ZooDB
```

### port

Specifies the port of the PostgreSQL database connection. Applicable only for native PostgreSQL database connections.

### separator

Optional parameter. Applicable only for CSV data sources. It indicates the field separator used in the CSV file. If not specified, the default separator is assumed to be comma. Valid values are **comma** (default), **tab**, and **semicolon**.

```
separator=comma
```

### table

Conditional parameter. Specifies the full name of the database table or view to be used in the left or right part of the comparison. If you configure this parameter, do not set the `sql` parameter, because they are mutually exclusive. Examples:

```
table=[HR].[dbo].[Employees]
```

*SQL Server*

```
table="ALTOVA_ADMIN"."customers"
```

*IBM DB2*

**Tip:** If you have DatabaseSpy installed, you can easily obtain the full table name by right-clicking the table in Online Browser, and then selecting **Show in new SQL Editor | Path** from the context menu.

### key-columns-by-name

For each table, view, or recordset, there should be at least one column which guarantees the uniqueness of each row. This column (or multiple columns) are subsequently referred to as the "key" columns. If the table has a primary key, a key column already exists and the uniqueness of the row is guaranteed. Otherwise, it is

recommended that you specify one or more columns that should be treated as "key" columns. These don't necessarily have to be columns that are part of an actual primary or unique key on the table. Examples:

```
key-columns-by-name="guid"
```

```
key-columns-by-name="first_name","last_name","email"
```

Defining "key" columns is optional but should be done as best practice. If you don't define the "key" columns, the application will determine them automatically, but this may not work consistently across all database drivers. Also, detection works for tables or views only, so it is recommended that you define the "key" columns explicitly if you are using SQL queries that return computed values or results returned by stored procedures.

If you specify key columns, then the number of key columns must be the same for the "left" and "right" data source. For example, if you specify two key columns for the left data source and only one key column for the right data source, the comparison will fail with an error.

In case of CSV files, you can refer to key columns by name as follows:

- If the first row of the CSV file contains the column names, you can use the column name, for example:

```
key-columns-by-name="first","last"
```

- If there is no header row in the CSV file, you can use the conventional names **c1**, **c2**, **c3**, and so on, where each number identifies that respective column, for example:

```
key-columns-by-name=c1,c2
```

### key-columns-by-ordinal

You can specify a "key" column either by name (see above) or by its ordinal number in the table, starting with 1. This option lets you specify key columns by their ordinal number. Examples:

```
key-columns-by-ordinal=1
```

```
key-columns-by-ordinal=1,2,5
```

If you specify key columns, then the number of key columns must be the same for the "left" and "right" data source.

### user

Conditional parameter. Specifies the username required to connect to the database. This parameter is not necessary if the database accepts anonymous connections, or if the connection string already includes the username (see the `connection` parameter).

### pass

Conditional parameter. Specifies the password required to connect to the database. This parameter is not necessary if the database accepts anonymous connections, or if the connection string already includes the password (see the `connection` parameter).

### assembly

This option is mandatory for ADO.NET connections. Examples:

```
assembly=System.Data.SqlClient.SqlClientFactory, System.Data, Version=4.0.0.0,  
Culture=neutral, PublicKeyToken=b77a5c561934e089
```

*.NET Framework Data Provider for SQL Server*

```
assembly=IBM.Data.DB2.iSeries.iDB2Factory, IBM.Data.DB2.iSeries, Version=12.0.0.0,  
Culture=neutral, PublicKeyToken=9cdb2ebf1f93a26
```

*.NET Framework Data Provider for IBM i*

Run the [db-drivers](#)<sup>95</sup> command to view .NET assemblies available on the local machine, displayed in a format that you can copy-paste.

### class

This option is mandatory for ADO.NET and JDBC connections. Examples:

```
class=com.ibm.db2.jcc.DB2Driver
```

*IBM DB2 via JDBC*

```
class=com.mysql.jdbc.Driver
```

*MySQL via JDBC*

```
class=System.Data.SqlClient
```

*SQL Server via ADO.NET*

Run the [db-drivers](#)<sup>95</sup> command to view the JDBC drivers available on the local machine, displayed in a format that you can copy-paste.



## sql

Conditional parameter. Specifies a SELECT query in the syntax of the current database. The recordset retrieved by the SELECT query may be used as the left or right part of the comparison. If you set this parameter, do not set the `table` parameter, because they are mutually exclusive. Examples:

```
sql="SELECT * FROM employees WHERE a > 5 and b < 6 ORDER BY c"
```

*SELECT query*

```
sql="EXEC dbo.uspGetEmployeeManagers @BusinessEntityID = 50"
```

*Stored procedure*

If you specify a stored procedure call, it is expected that the stored procedure returns a recordset, not just output parameters.

## has-header-row

Optional parameter. Applicable only for CSV files. Valid values are **true** or **false**. If set to true, the first row of the CSV file is treated as a header column and does not take part in the comparison.

```
has-header-row=true
```

## 5.3 Setting up CSV and Database Comparisons

A database data comparison involves comparing a "left" data source (table, view, or recordset retrieved by a SQL query) with a "right" one.

To configure a data comparison, open the [client configuration file](#)<sup>40</sup> and add a new `[datadiff:<name>]` section, where `<name>` is the unique name by which you want to identify this database comparison. In the database comparison job, you essentially specify what should be "left" data source and what should be the "right" one. It is assumed that you have already created two or more data sources as described in [Setting up Data Sources](#)<sup>68</sup>.

The parameters that may be present in a `[datadiff]` section are listed below.

### enable-driver-logging

Optional parameter. Turn it on if you need the database driver to return more detailed information in case of errors. Example:

```
enable-driver-logging=true
```

Note that enabling this option may slow down execution.

### server-left, server-right

Conditional parameter. This option lets you specify that the left or right data source of the comparison is defined in the server configuration file (not the client configuration file). The option must point to a named data source as it is defined in the server configuration file on the machine where DiffDog Server runs. Example:

```
server-left=products
server-right=resourcesdb
```

To point to a data source on the machine where the DiffDog Command Line Client runs, use the `left` and `right` options instead (see below).

### left, right

Conditional parameter. This option sets the left or right side of the comparison. The option must refer to a named data source `[datasource:<some_name>]` as it was defined in the client configuration file on the machine where the comparison runs. Example:

```
left=hr
right=testdb
```

If you don't set these options, then the `server-left` or `server-right` options must be set instead. Combined comparison between client data sources and server data sources are also possible, for example:

```
left=hr
server-right=testdb
```

In the example above, the data source "hr" is on the machine where DiffDog Command Line client runs (without a server). The data source "testdb" is defined in the server configuration file on the machine where DiffDog Server runs.

## map

Optional parameter. This option specifies which columns from the left side of the comparison should be compared to those from the right side of the comparison. For example, you might want to compare columns **col1**, **col2**, **col3** from the "left" table with columns **colA**, **colB**, **colC** from the "right" recordset. To indicate a column, you can specify either the ordinal number of the column, starting with 1, or the column name. If you use the column name, the name must be enclosed within quotes. Example:

```
map = 1 => "col 2", 2 => "col1", "h" => 6, "i" => "x"
```

For each pair of columns shown above, the part before "=>" means "on the left side" and the part after "=>" means "on the right side".

In case of CSV files, you can refer to columns by using either the column name (if the first row is a header), or by using **c1**, **c2**, and so on, where the number corresponds to the column index, starting with 1.

```
map=1=>c1,2=>c2
```

If you don't define column mappings, the application will attempt to map columns automatically based on the name and data type. However, this is not guaranteed to work correctly if the columns on the left and right have different names and types.

## xml-aware

Optional parameter. When enabled, this option performs XML (not text) comparison for database fields of XML type. This applies only to fields whose data type is recognized by the driver as XML. Database fields which store XML as `varchar` or `clob` are not affected by this option. If you need to treat such fields as XML type, use the `sql` option instead of `table` and perform type conversion to XML by means of SQL queries.

If you set this option, any XML comparison options present in the configuration file or specified at the command line will apply as well. On Windows, if DiffDog is installed on the same machine as the DiffDog Command Line Client, then XML options present in the registry will apply as well. DiffDog Server does not read the Windows registry options. You can always view the current configuration options of the client by running the [showcfg](#)<sup>116</sup> command. To view the configuration options of the server, run the `showcfg` command of the server executable.

For reference to all XML comparison options, see the [diff](#)<sup>113</sup> command.

## whitespace-mode

Optional parameter. Applicable only for database fields of text type such as `varchar`, `clob`, and so on. The option defines how whitespace characters should be treated for comparison. Whitespace characters are any of the following: space, tab, carriage return, and line feed.

<b>normalize</b>	Text A is equal to Text B if, after normalization, characters in Text A correspond to those in Text B. "Normalization" means that multiple consecutive occurrences of
------------------	---

	whitespace characters are replaced by a single space character. In addition, the leading and trailing whitespace characters are trimmed for each line of text.
<b>strip</b>	Text A is considered equal to Text B if, after stripping whitespace characters, characters in Text A correspond to those in Text B. In other words, any whitespace characters are stripped from the text and considered not relevant for comparison.

### ignore-case

Optional parameter. Applicable only for database fields of text type such as `varchar`, `clob`, and so on. Valid values:

<b>true</b>	Perform a case-insensitive comparison (for example, "A" and "a" are treated as equal).
<b>false</b>	(Default) Perform a case-sensitive comparison (for example, "A" and "a" are not treated as equal).

### server-output-path

Optional parameter. Specifies the path to which the comparison results will be saved on the server machine, for example:

```
server-output-path=/path/on/server.xml
```

If DiffDog Command Line Client and DiffDog Server run both on the same machine, you can use `server-output-path` and `client-output-path` interchangeably.

If this parameter not set, the comparison output will be displayed at the command line (assuming that you did not set the option `-quiet=true`).

### client-output-path

Optional parameter. Specifies the path to which the comparison results will be saved on the client machine, for example:

```
client-output-path=/path/on/client.xml
```

If this parameter not set, the comparison output will be displayed at the command line (assuming that you did not set the option `-quiet=true`).

### output-mode

Optional parameter. Specifies the output format of the comparison result. Valid values are **text**, **xml**, and **sql**, for example:

```
output-mode=xml
```

When this option is not set, the default value is **text**.

Note that the value **sql** is meaningful only when the right side of the comparison is a database. When `output-mode=sql`, the comparison report will include SQL scripts required to merge data from the left to the right side.

### `treat-null-as-empty`

Optional parameter. Enable this option only if you need to treat `NULL` database values as empty strings.

```
treat-null-as-empty=false
```

For example, by default, a comparison between the two recordsets illustrated below will result in a difference, because the second row on the left is empty and *not* equal to the second row on the right. However, if you set the `treat-null-as-empty` option to **true**, both recordsets will be considered equal.

data
[NULL]
[NULL]

data
[NULL]
[NULL]
[NULL]

## 5.4 Data Source Examples

The following are some example data sources illustrative for various file or database kinds and connection methods. Use this syntax to create a [datasource] section in a client or server configuration .ini file. Note that there may be more than one way to connect to the same database. For example, on Windows, you can connect to a MySQL database using any of the following connections methods: ADO.NET, JDBC, or ODBC.

### Access (ADO)

```
[datasource:access_data]
type = ado
connection = Data Source=C:
\Users\altova\Documents\ZooDB.mdb;Provider=Microsoft.Jet.OLEDB.4.0
table = [ZooDB].[tblAnimals]
```

### CSV

```
[datasource:csv_data]
type=csv
path=C:\data.csv
separator=comma
key-columns-by-ordinal=1
has-header-row=false
```

### IBM DB2 (JDBC)

```
[datasource:db2_data]
type = jdbc
connection = jdbc:db2://db2server:50000/PRODUCTSDB
class = com.ibm.db2.jcc.DB2Driver
user = dbuser
pass = 75gfljh9
table = "DB_USER"."PRODUCTS"
```

### IBM DB2 for i (JDBC)

```
[datasource:db2_i_data]
type = jdbc
connection = jdbc:as400://127.0.0.1
class = com.ibm.as400.access.AS400JDBCDriver
user = DBUSER
pass = 75gfljh9
table = "DBUSER"."PRODUCTS"
```

### MariaDB (ODBC)

```
[datasource:mariadb_data]
type = odbc
```

```
connection = Dsn=datasource_mariadb
database = nanonull
user = dbuser
pass = 75gfljh9
table = `nanonull`.`products`
```

## MySQL (ODBC)

```
[datasource:mysql_data]
type = odbc
connection = Dsn=datasource_mysql;
database = zoo
user = dbuser
pass = 75gfljh9
table = `zoo`.`products`
```

## Oracle (JDBC)

```
[datasource:oracle_data]
type = jdbc
connection = jdbc:oracle:thin:@ora12c:1521:orcl12c
class = oracle.jdbc.driver.OracleDriver
user = dbuser
pass = 75gfljh9
table = "DBUSER"."PRODUCTS"
```

## PostgreSQL (Native)

```
[datasource:postgresql_data]
type = postgresql
connection = localhost
database = zoo
user = dbuser
pass = 75gfljh9
table = "zoo"."public"."animals"
```

## SQLite (Native)

```
[datasource:sqlite_data]
type = sqlite
path = c:\comparisons\db\Nanonull.sqlite
table = "main"."products"
```

## SQL Server (ADO.NET)

```
[datasource:sqlserver_data]
type = adonet
```

```
connection = Data Source=SQLSERV16;Initial
Catalog=NANONULL;MultipleActiveResultSets=True;Password=7hiu57;Persist Security
Info=True;User ID=altova
assembly = System.Data.SqlClient.SqlClientFactory, System.Data, Version=4.0.0.0,
Culture=neutral, PublicKeyToken=b77a5c561934e089
class = System.Data.SqlClient
table = [NANONULL].[dbo].[PRODUCTS]
```

## Teradata (JDBC)

```
[datasource:teradata_data]
type = jdbc
connection = jdbc:teradata://teradata16/database=nanonull
class = com.teradata.jdbc.TeraDriver
user = dbuser
pass = 75gfljh9
table = "nanonull"."products"
```



## 5.5 Comparing CSV Data

DiffDog Server can compare data that originates from comma-, semicolon-, and tab- separated files (CSV, TSV). Specifically, files that meet the following criteria are eligible for comparison:

- Each line (row) must contain the same number of fields throughout the file. The file extension is not important.
- The field separators must be one of the following: comma, semicolon, and tab.

Since CSV files are in fact tabular data, you can compare them with data from a database table, view, or custom recordset.

Comparing CSV files in DiffDog Server works in the same way as database comparisons. Namely, you set up the comparison job by editing the DiffDog Server .ini files. An alternative approach, supported only on Windows, is to create the comparison jobs from the graphical user interface of DiffDog Enterprise desktop application, save them as .dbdif files, and then run them on the server. Both approaches are described in more detail below.

### Creating comparisons in DiffDog Server

Setting up a comparison job in DiffDog Server involves the following steps:

1. Add a data source that represents the "left" side of comparison to the configuration file. This can be done in either the client or the server configuration file. For CSV files, a typical data source could look as shown below. For more information about the possible keys and their meaning, see [Setting up Data Sources](#)<sup>68</sup>.

```
[datasource:left_data]
type=csv
path=C:\left.csv
separator=comma
key-columns-by-ordinal=1
has-header-row=false
```

2. Add the second data source (the "right" side of the comparison).

```
[datasource:right_data]
type=csv
path=C:\right.csv
separator=comma
key-columns-by-ordinal=1
has-header-row=false
```

3. Add a data comparison job where you indicate what is the left and right data source, the columns to be compared, and other parameters. The `map` option lets you specify which columns take part in the comparison (the first and second columns, in this example).

```
[datadiff:reports]
left=left_data
right=right_data
map=1=>1,2=>2
output-mode=xml
```

In this example, the output of the CSV comparison is reported as XML, as shown by the `output-mode=xml` option. Another option is `output-mode=text`. If the right side of the comparison is a database, you can also use `output-mode=sql`, and in this way you can obtain SQL scripts to merge data from the left to the right side. By default, the report is displayed at the command line, but you can optionally redirect it to a file, by adding the `client-output-path` option:

```
client-output-path=/home/report.xml
```

For more information, see [Setting up CSV and Database Comparisons](#)<sup>74</sup>.

4. Call the executable and run the `data-diff`<sup>90</sup> command. In the code listing below, the configuration file is supplied using the `--c` option and the job name is supplied as argument:

```
<executable>8 data-diff --c=client_config.ini reports
```


You can also set or override the output format for the comparison report at the command line, by adding the `--output-mode`<sup>91</sup> option, for example:

```
<executable> data-diff --c=client_config.ini reports --output-mode=xml
```

## Running comparisons created in DiffDog Enterprise (Windows only)

To use this approach, a DiffDog Enterprise license is required. Note that this approach is supported only if DiffDog Server runs on Windows, because the comparison `.dbdif` files created with the DiffDog desktop application store paths using Windows syntax.

### To create the comparison job in DiffDog desktop:

1. On the **File** menu, click **Compare Database Data**.
2. Using the connection wizard, add a data source for the left and right side of the comparison, respectively. This can be either a database or a CSV file.
3. Add the connections (mappings) between columns that you would like to include in the comparison.
4. Optionally, run the comparison by invoking the **Diff and Merge | Start Comparison** menu command, or by clicking , or by pressing **F5**.
5. On the **File** menu, click **Save**, and choose a destination folder for the `.dbdif` file.

For more information about creating `.dbdif` files, refer to Altova DiffDog Enterprise documentation (<https://www.altova.com/documentation>).

On the server side, you can run a `.dbdif` file by calling the `run`<sup>113</sup> command of either the server or client executable, for example:

```
<executable> run <dbdiff-file>
```

**Notes:**

- For the comparison to run successfully, all the CSV file paths that were added on the desktop machine must be valid on the server machine.
- If database connections are involved, the server machine must be configured and capable to handle the connection. For example, if the .dbdif file includes a connection that requires an ODBC driver from the database vendor, that driver must be installed on the server machine as well, see also [Supported Databases](#) <sup>65</sup>.

## 6 DiffDog Command Line

This section describes the commands available in the [DiffDog Server executable](#)<sup>8</sup> and the [DiffDog Command Line Client](#)<sup>8</sup>. In the descriptions of commands that are the same for both executables, the executables are referred to as `<executable>`.

### *Important point*

On Linux, use an all-lowercase to call the executable. In addition, on Linux and macOS, you might need to add the prefix `./` before the name of the executable when calling it from the current directory of the command shell.

### DiffDog Server executable

The DiffDog Server executable allows you to run the following commands:

- [aliases](#)<sup>86</sup>, `list-aliases`
- [assignlicense](#)<sup>88</sup>
- [createconfig](#)<sup>89</sup>
- [data-diff](#)<sup>90</sup>, `compare-data`
- [datasources](#)<sup>93</sup>, `list-datasources`
- [db-drivers](#)<sup>95</sup>, `list-db-drivers`
- [diff](#)<sup>96</sup>, `compare`
- [foreground](#)<sup>109</sup>
- [help](#)<sup>110</sup>
- [install](#)<sup>111</sup>
- [licenseserver](#)<sup>112</sup>
- [run](#)<sup>113</sup>, `import`, `load`
- [showcfg](#)<sup>116</sup>
- [uninstall](#)<sup>117</sup>
- [verifylicense](#)<sup>118</sup>
- [version](#)<sup>119</sup>

Some of the commands listed above have two or three versions (e.g., `aliases`, `list-aliases`). The first command is a short version, and the others are longer versions. You can use these commands interchangeably. To run any of these commands, use the following syntax:

```
diffdogserver [options] <command> [arguments]
```

### DiffDog Command Line Client

The [DiffDog Command Line Client](#)<sup>8</sup> supports the following commands:

- [aliases](#)<sup>86</sup>
- [data-diff](#)<sup>90</sup>
- [datasources](#)<sup>93</sup>
- [db-drivers](#)<sup>95</sup>
- [diff](#)<sup>96</sup>
- [run](#)<sup>113</sup>
- [help](#)<sup>110</sup>
- `showcfg` (*see description below*)
- [version](#)<sup>119</sup>

Most of the commands listed above are the same as the ones in the DiffDog Server executable (*subsection above*). To run the DiffDog Client commands, use the following syntax:

```
DiffDogCmdlClient [options] <command> [arguments]
```

### showcfg

The `showcfg` command lists all the current DiffDog Client settings in a human readable form. The settings are grouped into the following categories:

- *Application:* This group lists settings you have defined in the [client configuration file](#)<sup>40</sup>.
- *Registry (Windows-specific):* This group lists settings that exist in the Windows Registry Editor. Any custom XML or directory filters that you have created in DiffDog will also appear here (see the [--directory-filter](#)<sup>97</sup> and [--xml-filter](#)<sup>103</sup> options). Any `order by attribute` lists you have created in DiffDog will also appear here (see the [--xml-order-by-attribute-list](#)<sup>106</sup> option).
- *Built-In:* This group lists settings that are built into the executable. The application will default to these settings if no other settings exist.

## 6.1 aliases

The `aliases` command applies to both the [DiffDog Server executable and DiffDog Command Line Client](#)<sup>8</sup>.

If the server administrator has restricted access to server paths for security reasons, you can no longer run comparisons that refer server file paths directly, see also [Restricting Access to Server Paths](#)<sup>36</sup>. Instead, you need to specify the name of an alias by means of the `--alias`<sup>97</sup> option.

This command outputs all the aliases defined on the server side. The output of this command depends on the value of the `hide-alias-paths` option in the [server configuration file](#)<sup>37</sup>. If `hide-alias-paths=false`, the output displays all aliases along with the paths they reference. Otherwise, the command returns just the list of configured aliases.

You can also call this command by typing `list-aliases` instead of `aliases`.

**Note:** The `--server` and `--port` options do not apply if this command is run for the DiffDog Server (not client) executable.

### Syntax

```
<executable>84 aliases [options]
```

### Options

#### `--config, -c`

This option specifies the path to a client configuration file where the connection details to DiffDog Server are defined.

If you do not set the `-c` option, the DiffDog Command Line Client executable attempts to read the client configuration file from the same directory. If there is no configuration file in the same directory as the executable, the default values as described in the command line help and this documentation apply.

#### `--loglevel, -L`

Sets the reporting level for information, warning, and error messages. Valid values:

<b>none</b>	Suppress all logging.
<b>info</b>	Report information, warning, and error messages.
<b>warning</b>	Report error and warning messages.
<b>error</b>	(Default) Report only error messages.

#### `--port`

This option specifies the port on which DiffDog Server listens for requests. Setting this option is meaningful if DiffDog Server runs on a port other than the default **29800**. As an alternative to setting this option at the command line, you can set it in the [Client Configuration File](#)<sup>40</sup>. Note that, if you set this value at the command line, it takes precedence over the one defined in the configuration file.

***--server***

This option specifies the server address on which DiffDog Server listens for requests. Setting this option is meaningful if DiffDog Server runs on a server other than the default **localhost**. As an alternative to setting this option at the command line, you can set it in the [Client Configuration File](#)<sup>40</sup>. Note that, if you set this value at the command line, it takes precedence over the one defined in the configuration file.

## 6.2 assignlicense

The `assignlicense` command applies only to the [DiffDog Server executable](#) <sup>8</sup>.

### Syntax and description

The `assignlicense` command uploads a license file to the Altova LicenseServer with which DiffDog Server is registered (see the `licenseserver` command), and assigns the license to DiffDog Server. It takes the path of a license file as its argument. The command also allows you to test the validity of a license.

```
diffdogserver assignlicense [options] FILE
```

- The `FILE` argument takes the path of the license file.
- The `--test-only` option uploads the license file to LicenseServer and validates the license, but does not assign the license to DiffDog Server.

For details about licensing, see the LicenseServer documentation (<https://www.altova.com/manual/en/licenseserver/3.14/>).

### Examples

Examples of the `assignlicense` command:

```
diffdogserver assignlicense C:\licensepool\mylicensekey.altova_licenses
diffdogserver assignlicense --test-only=true C:\licensepool\mylicensekey.altova_licenses
```

- The first command above uploads the specified license to LicenseServer and assigns it to DiffDog Server.
- The last command uploads the specified license to LicenseServer and validates it, without assigning it to DiffDog Server.

### Options

Options are listed in short form (if available) and long form. You can use one or two dashes for both short and long forms. An option may or may not take a value. If it takes a value, it is written like this: `--option=value`. Values can be specified without quotes except in two cases: (i) when the value string contains spaces, or (ii) when explicitly stated in the description of the option that quotes are required. If an option takes a Boolean value and no value is specified, then the option's default value is `TRUE`. Use the `--h, --help` option to display information about the command.

#### ▼ test-only [t]

```
--t, --test-only = true|false
```

Values are `true|false`. If `true`, then the license file is uploaded to LicenseServer and validated, but not assigned.



## 6.3 createconfig

The `createconfig` command applies only to the [DiffDog Server executable](#)<sup>8</sup>. This command creates a [server configuration file](#)<sup>37</sup> with default settings for all options. Note that running this command without specifying the `--force` option will overwrite any existing configuration file. If you do not want that, set the `--force` option to `false`.

### Syntax

```
diffdogserver createconfig [options]
```

### Options

#### `--force, --f`

Values are `true|false`. If `true`, then any existing server configuration file will be overwritten. If `false`, then a new server configuration file will be created only if one doesn't exist already. The default value is `true`.

#### `--lang=VALUE`

Sets the value of the `language` parameter in the configuration file. Valid values are `en`, `es`, `de`, `fr`, `ja`.

### Examples

To create a default configuration file and set the command line interface language to German, use:

```
diffdogserver createconfig --lang=de
```

## 6.4 data-diff

The `data-diff` command applies to both the [DiffDog Server executable and DiffDog Command Line Client](#)<sup>8</sup>. The `data-diff` command runs one or more database data comparison jobs configured previously. By default, the comparison result is displayed at the command line in XML format. You can control the output kind (text, XML) by setting the `output-mode` option from the configuration file. The path of the output file is set from either the `client-output-path` or `server-output-path` options. For more information about setting up database comparison jobs, see [Comparing CSV and Database Data](#)<sup>63</sup>.

Running `*.dbdif` files with DiffDog Server is most convenient if DiffDog Server runs either on the same computer as DiffDog desktop, or on a Windows machine. If DiffDog Server runs on a different machine or operating system, the following limitations apply:

- If the comparison involves CSV files, running `.dbdif` files is supported only on Windows servers. For the comparison to be successful, all the CSV file paths that were valid on the desktop machine must be valid on the server machine.
- If database connections are involved, the server machine must be configured and capable to handle the database connection. Namely, the database drivers and any other prerequisites required by the connection must be present on the target operating system as well. For example, if the `.dbdif` file includes a connection that requires an ODBC driver from the database vendor, that driver must be installed on the server machine as well. Note that some database connection methods supported on Windows are not supported on Linux and macOS. For more information, see [Supported Databases](#)<sup>65</sup>.

If you set up comparison jobs directly in DiffDog Server (as opposed to using `*.dbdif` files), you can run them regardless of the platform.

To get the comparison outcome as a numeric value, check the value of the `%ERRORLEVEL%` environment variable after running this command. The possible values are:

Exit code	Meaning
0	No differences exist
1	Differences exist
2	An error has occurred

**Note:** The `--server` and `--port` options do not apply if this command is run for the DiffDog Server (not client) executable.

### Syntax

```
<executable>84 data-diff [options] {job} ...
```

Where `job` refers to a `[datadiff]` section defined in the client configuration file. You can specify the `job` argument more than once in order to run multiple database comparison jobs in one run of the command.

This command can also be called using the `compare-data` alias. You can use `compare-data` and `data-diff` interchangeably.

## Options

The options of the `data-diff` command are listed below.

### `--config, --c`

This option specifies the path to a configuration file where the `<named_datadiff>` was defined.

If you do not set the `--c` option, the DiffDog Command Line Client executable attempts to read the client configuration file from the same directory. If there is no configuration file in the same directory as the executable, the default values as described in the command line help and this documentation apply.

### `--loglevel, --L`

Sets the reporting level for information, warning, and error messages. Valid values:

<b>none</b>	Suppress all logging.
<b>info</b>	Report information, warning, and error messages.
<b>warning</b>	Report error and warning messages.
<b>error</b>	(Default) Report only error messages.

### `--port`

This option specifies the port on which DiffDog Server listens for requests. Setting this option is meaningful if DiffDog Server runs on a port other than the default **29800**. As an alternative to setting this option at the command line, you can set it in the [Client Configuration File](#)<sup>40</sup>. Note that, if you set this value at the command line, it takes precedence over the one defined in the configuration file.

### `--quiet, --q`

Prevents the standard output from being displayed at the command line. Valid values:

<b>true</b>	Do not display standard output in the terminal window.
<b>false</b>	(Default) Display standard output in the terminal window.

### `--output-mode, --om`

This option specifies the output format of the generated report. The following values are available: `text`, `sql`, `xml`, `html`.

Note the following information about the `sql` value:

Output the report in SQL format. This value is meaningful when the right side of the data comparison is a database. It contains SQL statements that merge data from the left to the right side of the comparison. For example, if there are missing rows on the right, INSERT statements are generated. Conversely, if there are extra rows on the right, DELETE statements are generated. For changed values, UPDATE statements are generated.

The default option is `sql`. However, when the left side of the comparison is a database and the right side is a CSV file, the default option is `text`.

### `--server`

This option specifies the server address on which DiffDog Server listens for requests. Setting this option is meaningful if DiffDog Server runs on a server other than the default **localhost**. As an alternative to setting this option at the command line, you can set it in the [Client Configuration File](#)<sup>40</sup>. Note that, if you set this value at the command line, it takes precedence over the one defined in the configuration file.

## Example

The following command runs a single database data comparison job called "reports".

```
diffdogserver data-diff reports
```

It is assumed that the client configuration file contains a `[datadiff:reports]` section, for example:

```
[datasource:left_data]
type = sqlite
path = c:\comparisons\db\Nanonull_Left.sqlite
table = "main"."products"

[datasource:right_data]
type = adonet
connection = Data Source=SQLSERV16;Initial
Catalog=NANONULL;MultipleActiveResultSets=True;Password=7hiu57;Persist Security
Info=True;User ID=altova
assembly = System.Data.SqlClient.SqlClientFactory, System.Data, Version=4.0.0.0,
Culture=neutral, PublicKeyToken=b77a5c561934e089
class = System.Data.SqlClient
table = [NANONULL].[dbo].[PRODUCTS]

[datadiff:reports]
left = left_data
right = right_data
map = 1 => 1, 2 => 2, 3 => 3
output-mode=text
client-output-path=c:\comparisons\db\result.txt
```

In the configuration file above, the `[datasource:left_data]` and `[datasource:right_data]` are two data sources that provide data for the left and right side of the comparison. The **left\_data** points to table "products" from a local SQLite database. The **right\_data** points to table "PRODUCTS" of a SQL Server database. Both tables have a primary key, so it is not necessary to specify a key column using the option `key-column-by-name`.

The `[datadiff:reports]` section sets both data sources above as the left and right side of the comparison. In addition, it maps the columns that are to be compared. In this example, the first, second, and third columns from the left are mapped with the first, second, and third columns from the right, respectively. The comparison result is set to be in text format and it will be saved to a local text file.

This is not an exhaustive list of options; for reference to all the options you can define in a data source, see [Setting up Data Sources](#)<sup>68</sup>. For options you can define in a database comparison job, see [Setting up CSV and Database Comparisons](#)<sup>74</sup>.

## 6.5 datasources

The `datasources` command applies to both the [DiffDog Server executable and DiffDog Command Line Client](#)<sup>8</sup>. The `datasources` command lists all the data sources defined in the server configuration file on the machine where DiffDog Server is installed. For more information about data sources, see [Setting up Data Sources](#)<sup>68</sup>.

**Note:** The `--server` and `--port` options do not apply if this command is run for the DiffDog Server (not client) executable.

### Syntax

```
<executable>84 datasources [options]
```

This command can also be called using the `list-datasources` alias. You can use `datasources` and `list-datasources` interchangeably.

### Options

The options applicable to the `datasources` command are listed below.

#### *--config, -c*

This option specifies the path to a client configuration file where the connection details to DiffDog Server are defined.

If you do not set the `-c` option, the DiffDog Command Line Client executable attempts to read the client configuration file from the same directory. If there is no configuration file in the same directory as the executable, the default values as described in the command line help and this documentation apply.

#### *--loglevel, -L*

Sets the reporting level for information, warning, and error messages. Valid values:

<b>none</b>	Suppress all logging.
<b>info</b>	Report information, warning, and error messages.
<b>warning</b>	Report error and warning messages.
<b>error</b>	(Default) Report only error messages.

#### *--port*

This option specifies the port on which DiffDog Server listens for requests. Setting this option is meaningful if DiffDog Server runs on a port other than the default **29800**. As an alternative to setting this option at the command line, you can set it in the [Client Configuration File](#)<sup>40</sup>. Note that, if you set this value at the command line, it takes precedence over the one defined in the configuration file.

#### *--server*

This option specifies the server address on which DiffDog Server listens for requests. Setting this option is meaningful if DiffDog Server runs on a server other than the default **localhost**. As an alternative to setting this option at the command line, you can set it in the [Client Configuration File](#)<sup>40</sup>. Note that, if you set this value at

the command line, it takes precedence over the one defined in the configuration file.

## 6.6 db-drivers

The `db-drivers` command applies to both the [DiffDog Server executable and DiffDog Command Line Client](#)<sup>8</sup>. The `db-drivers` command is typically useful when you need to perform database data comparisons. This command displays all ADO, ADO.NET, JDBC, and ODBC drivers detected on the local machine. The displayed driver information is INI-file friendly, in the sense that it is in the syntax required for creating database connections in the server or client `.ini` configuration files, see [Setting up Data Sources](#)<sup>68</sup>.

The output of the command is grouped in the following sections:

- **ADO.NET** - Displays all detected .NET providers
- **ADO** - Displays all detected ADO providers
- **JDBC** - Displays all JDBC drivers detected automatically from the `CLASSPATH` environment variable.
- **ODBC** - Displays all detected ODBC data source names (DSNs). These are the same data sources that are displayed when you run the ODBC Data Source Administrator (**Odbcad32.exe**). Note that the 32-bit version of the **Odbcad32.exe** file is in the `C:\Windows\SysWoW64` directory. The 64-bit version of the **Odbcad32.exe** file is in the `C:\Windows\System32` directory.
- **Built-in** - Displays those database connection methods that have built-in support in DiffDog Server and do not require drivers.

Only drivers that correspond to the platform of DiffDog Server (64-bit or 32-bit) are listed. For example, if the currently installed Java Virtual Machine is 64-bit, the JDBC drivers will be detected only when the command is run by DiffDog Server 64-bit. The same is true for ODBC data source names (DSNs).

### Syntax

```
<executable>84 db-drivers [options]
```

This command can also be called using the `list-db-drivers` alias. You can use `db-drivers` and `list-db-drivers` interchangeably.

### Options

The options applicable to the `db-drivers` command are listed below.

#### ***--config*** ***--c=VALUE***

This option specifies the path to a client configuration file where the connection details to DiffDog Server are defined.

If you do not set the `--c` option, the DiffDog Command Line Client executable attempts to read the client configuration file from the same directory. If there is no configuration file in the same directory as the executable, the default values as described in the command line help and this documentation apply.

#### ***--extend-classpath=VALUE***

Use this option to specify Java class paths in addition to any class paths that are already set in the `CLASSPATH` environment variable. The `--extend-classpath` option has the same usage and purpose as the [extend-classpath](#)<sup>69</sup> parameter in the server or client configuration file.

## 6.7 diff

The `diff` command applies to both the [DiffDog Server executable and DiffDog Command Line Client](#)<sup>8</sup>. The `diff` command performs a side-by-side comparison of two files, directories, or URLs. The entities to be compared can be of different kinds (for example, you can compare a URL like `http://server/file.txt` to a file path like `C:\file.txt`). Note that it is valid to compare files with URLs, for example, but not files and directories (or URLs and directories).

Comparison of Microsoft Word 2003 or later documents (.docx, .dotx) is also supported, see [Comparing Word Documents](#)<sup>52</sup>.

Most often, a comparison involves a "left" side and a "right" side to compare; however, three-way comparisons are also possible when comparing files or URLs (not directories). The files or directories to be compared can be on a machine where DiffDog Client runs or on the remote machine where DiffDog Server runs. A combined approach (comparison of local files or directories with remote ones) is also possible. For examples, see [Running Comparisons](#)<sup>50</sup>.

**Note:** If you get an empty output file, try setting the `--mode`<sup>101</sup> parameter that specifies what type of comparison must be performed.

**Note:** The `--server` and `--port` options do not apply if this command is run for the DiffDog Server (not client) executable.

### Syntax

```
<executable>84 diff [options] {path path [path]}
```

This command can also be called using the `compare` alias. You can use `compare` and `diff` interchangeably.

### Arguments

#### *path*

A *path* may be a file or directory path, or a URL path in the format `http://server/segment`.

Supplying paths as arguments is just one of the two ways to pass input paths to the `diff` command. The second way to supply paths is by setting the options `--client-left`, `--client-right`, or `--server-left`, `--server-right`. Use the second approach if DiffDog Client does not run on the same machine as DiffDog Server.

In other words, if you set the options `--client-left`, `--client-right`, or `--server-left`, `--server-right`, then no paths must be specified as arguments. Otherwise, two paths exactly must be supplied as argument. (To perform a three-way comparison, three paths can be specified as arguments.)

### Options

The options applicable to the `diff` command are listed below.

You can specify defaults for most of the options below in the [client configuration file](#)<sup>40</sup>. If you use a client configuration file, note the following:



- When an option is set at the command line but it is commented out in client configuration file, the command line option applies.
- When an option is set both at the command line and in client configuration file, the command line option applies.
- When an option is not set at the command line but is set (uncommented) in configuration file, the configuration file option applies.
- When an option is set neither at the command line nor in the configuration file, it takes the default value as described in the command line help and in the documentation below.

#### --alias, --a

If the server administrator has restricted access to server paths for security reasons, you can no longer run comparisons that refer server file paths directly, see also [Restricting Access to Server Paths](#)<sup>36</sup>. Instead, you need to specify the name of an alias by means of the [--alias](#)<sup>97</sup> option.

This option is meaningful if the comparison involves a server path (that is, if options `--server-left` or `--server-right` are set). Valid values for this option are aliases as defined in the [Server Configuration File](#)<sup>37</sup>. To output the list of available aliases, run the [aliases](#)<sup>86</sup> command. For more information, see [Restricting Access to Server Paths](#)<sup>36</sup>.

#### --config, --c

This option specifies the path to a client configuration file. For more information, see [Client Configuration File](#)<sup>40</sup>.

If you do not set the `--c` option, the DiffDog Command Line Client executable attempts to read the client configuration file from the same directory. If there is no configuration file in the same directory as the executable, the default values as described in the command line help and this documentation apply.

#### --client-left, --cl

This option specifies the left side of the comparison (must be a path to a local file or directory).

#### --client-middle, --cm

This option is applicable in a 3-way comparison. It specifies the local path to the "middle" file (also known as the "common ancestor").

#### --client-right, --cr

This option specifies the right side of the comparison (must be a path to a local file or directory).

#### --dir-compare-contents, --dc

This option specifies if directory comparison should compare file contents in addition to any other options that might be set separately (such as file size and modification date). When this option is **false**, the comparison ignores file contents (this will result in a faster, though less accurate, comparison). By default, this option is **false**.

#### --directory-filter, --df

This option is applicable for directory comparisons. Directory filters enable you to include or exclude certain files or sub-directories from the comparison based on criteria you define. Valid values for this option are directory filters as they are defined in the [Client Configuration File](#)<sup>40</sup>, in the `[dir.filter]` group. For example, if the configuration file defines a filter `[dir.filter:svn]`, use the following syntax to set the filter at the command line:

```
--directory-filter=svn
```

On Windows, when DiffDog is installed on the same machine as DiffDog Server, you can specify as option value any directory filter that already exists in DiffDog (either built-in or custom). For example, to set the built-in filter "No SVN directories" at the command line, use the following syntax:

```
--directory-filter="No SVN directories"
```

To view or create a directory filter in DiffDog:

1. On the **Tools** menu, click **DiffDog Options**.
2. Click the **Directory Comparison** tab.

For more information about creating directory filters with DiffDog, refer to DiffDog documentation (<https://www.altova.com/documentation>).

If the filter cannot be found, an error occurs and no comparison takes place.

#### --dir-compare-mod-times-ignore-seconds, --di

This option is applicable for directory comparisons. It specifies that directory comparison should ignore the given number of seconds (+/-) when comparing modification times. By default, it is set to **0**, which means the comparison will not ignore modification time differences.

#### --dir-ignore-case, --dic

This option is applicable for directory comparisons. By default, this value is **false**, which means that a case sensitive comparison is performed. For example, the directories below would be treated as not equal (since the file name is different in the right directory).

source/  -- README.txt	source/  -- readme.txt
---------------------------	---------------------------

To ignore the case and perform a case-insensitive comparison, set this option to **true**. In this case, a directory called "SomeDir" would be equal to "somedir", or a file "file.TXT" would be equal to "file.txt".

#### --dir-compare-sizes, --ds

This option is applicable for directory comparisons. When set to **true**, it specifies that directory comparison should compare files by size. Otherwise, this comparison criterion is ignored. By default, this option is **false**.

#### --dir-compare-mod-times, --dt

This option is applicable for directory comparisons. When set to **true**, it specifies that directory comparison should compare files within a directory by modification time. Otherwise, this comparison criterion is ignored. By default, this option is **false**.

#### --doc-format-bold, --dfb

This option is applicable for comparison of Word documents. Valid values:

<b>true</b>	Take bold formatting into account during comparison.
<b>false</b>	(Default) Ignore bold formatting.

*--doc-format-font-color, --dfc*

This option is applicable for comparison of Word documents. Valid values:

<b>true</b>	Take font color into account during comparison.
<b>false</b>	(Default) Ignore font color.

*--doc-format-font-name, --dff*

This option is applicable for comparison of Word documents. Valid values:

<b>true</b>	Take font name into account during comparison.
<b>false</b>	(Default) Ignore font name.

*--doc-format-font-size, --dfs*

This option is applicable for comparison of Word documents. Valid values:

<b>true</b>	Take font size into account during comparison.
<b>false</b>	(Default) Ignore font size.

*--doc-format-italic, --dfi*

This option is applicable for comparison of Word documents. Valid values:

<b>true</b>	Take italic formatting into account during comparison.
<b>false</b>	(Default) Ignore italic formatting.

*--doc-format-underline, --dfu*

This option is applicable for comparison of Word documents. Valid values:

<b>true</b>	Take underline formatting into account during comparison.
<b>false</b>	(Default) Ignore underline formatting.

*--doc-ignore-blank-lines, --dib*

This option is applicable when comparing Word documents or directories containing Word documents. In case of directory comparisons, the option will apply only to Word documents in that directory. Valid values:

<b>true</b>	(Default) Ignore blank lines.
<b>false</b>	Take blank lines into account during comparison.

*--doc-ignore-case, --doc*

This option is applicable when comparing Word documents or directories containing Word documents. In case of directory comparisons, the option will apply only to Word documents in that directory. Valid values:

<b>true</b>	Perform a case-insensitive comparison (for example, "A" and "a" are treated as equal).
<b>false</b>	(Default) Perform a case-sensitive comparison (for example, "A" and "a" are not treated as equal).

**--doc-whitespace-mode, --dws**

This option is applicable when comparing Word documents or directories containing Word documents. In case of directory comparisons, the option will apply only to Word documents in that directory.

The option defines how whitespace characters should be treated for comparison. Whitespace characters are any of the following: space, tab, carriage return, and line feed.

<b>asis</b>	(Default) Treat whitespace characters as is (that is, do not apply normalization or stripping). This means that whitespace characters are always relevant for comparison.
<b>normalize</b>	Text A is equal to Text B if, after normalization, characters in Text A correspond to those in Text B. "Normalization" means that multiple consecutive occurrences of whitespace characters are replaced by a single space character. In addition, the leading and trailing whitespace characters are trimmed for each line of text.
<b>strip</b>	Text A is considered equal to Text B if, after stripping whitespace characters, characters in Text A correspond to those in Text B. In other words, any whitespace characters are stripped from the text and considered not relevant for comparison.

**--ignore-blank-lines**

This option specifies if blank lines should be ignored in comparison. Valid values are **true** and **false**. By default, this value is **false**.

The option applies depending on the current `--mode` option. If `--mode=text`, it applies to text files, and is equivalent to the `--text-ignore-blank-lines` option. If `--mode=xml`, it does not affect the comparison. If `--mode=doc`, it applies to Word documents and is equivalent to `--doc-ignore-blank-lines` option. If you do a directory comparison, it applies to each kind of comparison that might occur in that directory.

**--ignore-case**

This option is applicable to both file and directory comparisons. The option applies depending on the current `--mode` option. If `--mode=text`, it applies to text files, and is equivalent to the `--text-ignore-case` option. If `--mode=xml`, it applies to XML files and is equivalent to `--xml-ignore-case-in-names` and `--xml-ignore-case-in-text` options. If `--mode=doc`, it applies to Word documents and is equivalent to the `--doc-ignore-case` option. If you do a directory comparison, it applies to each kind of comparison that might occur in that directory. Valid values:

<b>true</b>	Perform a case-insensitive comparison (for example, "A" and "a" are treated as equal).
<b>false</b>	(Default) Perform a case-sensitive comparison (for example, "A" and "a" are not treated as equal).

**--loglevel, --l**

Sets the reporting level for information, warning, and error messages. Valid values:

<b>none</b>	Suppress all logging.
-------------	-----------------------

<b>info</b>	Report information, warning, and error messages.
<b>warning</b>	Report error and warning messages.
<b>error</b>	(Default) Report only error messages.

**--mode, -m**

This option specifies the comparison type to be performed. Valid values:

<b>auto</b>	(Default) Let the application determine if the supplied arguments are files or directories and set the comparison mode automatically based on file extension. For example, if files are detected to be XML, then an XML comparison is performed. You can always view or change the default mapping between specific file extensions and comparison modes, see <a href="#">Client Configuration File</a> <sup>40</sup> .
<b>binary</b>	Treat files as binary.
<b>doc</b>	Treat files as Microsoft Word documents.
<b>text</b>	Treat files as text.
<b>xml</b>	Treat files as XML.

**--output-file, -o**

This option enables you to write the command output to a text file on the client machine. The value must specify a valid file path on the client machine. Use the `--om` option to set the output file format.

**--output-mode, -om**

This option lets you specify the output format of the generated report. The following values are available: `auto` (default option), `text`, `xml`, `html`.

**Note:** The option `--output-mode=text` is not supported when comparing XML files or Word documents.

**--port**

This option specifies the port on which DiffDog Server listens for requests. Setting this option is meaningful if DiffDog Server runs on a port other than the default **29800**. As an alternative to setting this option at the command line, you can set it in the [Client Configuration File](#)<sup>40</sup>. Note that, if you set this value at the command line, it takes precedence over the one defined in the configuration file.

**--quiet, -q**

Prevents the standard output from being displayed at the command line. Valid values:

<b>true</b>	Do not display standard output in the terminal window.
<b>false</b>	(Default) Display standard output in the terminal window.

**--server-output-file, -s**

This option enables you to write the command output to a text file on the server machine. The value must specify a valid file path on the server machine. Use the `--om` option to set the output file format.

**--server**

This option specifies the server address on which DiffDog Server listens for requests. Setting this option is meaningful if DiffDog Server runs on a server other than the default **localhost**. As an alternative to setting this option at the command line, you can set it in the [Client Configuration File](#)<sup>40</sup>. Note that, if you set this value at the command line, it takes precedence over the one defined in the configuration file.

**--server-left, --sl**

This option enables you to add a remote path to the comparison. It specifies the left side of the comparison (a path to a file or directory accessible to the server).

**--server-middle, --sm**

This option enables you to add a remote path to the comparison. It specifies the middle side of the comparison (applicable in a 3-way comparison). The value must be a path to a file or directory accessible to the server.

**--server-right, --sr**

This option enables you to add a remote path to the comparison. It specifies the right side of the comparison (a path to a file or directory accessible to the server).

**--text-ignore-case, --ic**

This option is applicable when comparing text documents or directories containing text documents. In case of directory comparisons, the option will apply only to text files in that directory. Valid values:

<b>true</b>	Perform a case-insensitive comparison (for example, "A" and "a" are treated as equal).
<b>false</b>	(Default) Perform a case-sensitive comparison (for example, "A" and "a" are not treated as equal).

**--text-ignore-blank-lines, --ib**

This option is applicable when comparing text documents or directories containing text documents. In case of directory comparisons, the option will apply only to text files in that directory. The option specifies if blank lines should be ignored in comparison, when comparing text files. Valid values are **true** and **false**. By default, this value is **false**.

**--text-whitespace-mode, --tws**

This option is applicable when comparing text documents or directories containing text documents. In case of directory comparisons, the option will apply only to text files in that directory.

The option defines how whitespace characters should be treated for comparison. Whitespace characters are any of the following: space, tab, carriage return, and line feed.

<b>asis</b>	(Default) Treat whitespace characters as is (that is, do not apply normalization or stripping). This means that whitespace characters are always relevant for comparison.
<b>normalize</b>	Text A is equal to Text B if, after normalization, characters in Text A correspond to those in Text B. "Normalization" means that multiple consecutive occurrences of whitespace characters are replaced by a single space character. In addition, the leading and trailing whitespace characters are trimmed for each line of text.
<b>strip</b>	Text A is considered equal to Text B if, after stripping whitespace characters, characters in Text A correspond to those in Text B. In other words, any

	whitespace characters are stripped from the text and considered not relevant for comparison.
--	--

**--whitespace-mode, --ws**

This option is applicable to file and directory comparisons. The option applies depending on the current `--mode` option. If `--mode=text`, it applies to text files, and is equivalent to the `--text-whitespace-mode` option. If `--mode=xml`, it applies to XML files. If `--mode=doc`, it applies to Word documents and is equivalent to `--doc-whitespace-mode` option. If you do a directory comparison, it applies to each kind of comparison that might occur in that directory based on the file extension.

The option defines how whitespace characters should be treated for comparison. Whitespace characters are any of the following: space, tab, carriage return, and line feed.

<b>asis</b>	(Default) Treat whitespace characters as is (that is, do not apply normalization or stripping). This means that whitespace characters are always relevant for comparison.
<b>normalize</b>	Text A is equal to Text B if, after normalization, characters in Text A correspond to those in Text B. "Normalization" means that multiple consecutive occurrences of whitespace characters are replaced by a single space character. In addition, the leading and trailing whitespace characters are trimmed for each line of text.
<b>strip</b>	Text A is considered equal to Text B if, after stripping whitespace characters, characters in Text A correspond to those in Text B. In other words, any whitespace characters are stripped from the text and considered not relevant for comparison.


If the compared files are XML, normalization and stripping affects whitespace characters that are inside attribute or element values. Other whitespace characters are disregarded.

**--xml-filter, --xf**

This option is applicable for XML comparisons. An XML filter contains rules that ignore specific XML attributes or elements for comparison. Valid values for this option are XML filters as they are defined in the [Client Configuration File](#)<sup>40</sup>, in the `[xml.filter]` group. For example, if the configuration file defines a filter `[xml.filter:ignore-abc-elems]`, use the following syntax to set the filter at the command line:

```
--xml-filter=ignore-abc-elems
```

On Windows, when DiffDog is installed on the same machine as DiffDog Server, you can specify as option value any XML filter created with DiffDog. To view or define an XML filter in DiffDog, take the following steps:

1. On the **Tools** menu, click **Comparison Options**.
2. Click the **XML** tab.
3. Locate the option **Filter out specific elements/attributes**, and click the **Ellipsis**  button.

For more information about creating XML filters with DiffDog, refer to DiffDog documentation (<https://www.altova.com/documentation>).

If the filter cannot be found, an error occurs and no comparison takes place.

*--xml-ignore-case-in-names, --xicin*

This option is applicable when comparing XML files or directories containing XML files. In case of directory comparisons, the command will apply only to XML files in that directory.

When set to **true**, a case-insensitive comparison of XML identifier names will be performed. For example, let's assume that you want to compare the following XML files:

<code>&lt;book ID="1" /&gt;</code>	<code>&lt;book id="1" /&gt;</code>
------------------------------------	------------------------------------

In the listing above, the attribute **ID** is uppercase in the left file and lowercase in the right file. If `--xml-ignore-case-in-names=true`, case is ignored, so the files above are treated as equal. By default, this option is **false**, which means files such as the ones above are not equal.

*--xml-ignore-case-in-text, --xicit*

This option is applicable when comparing XML files or directories containing XML files. In case of directory comparisons, the command will apply only to XML files in that directory.

When set to **true**, a case-insensitive comparison of non-markup text will be performed. For example, let's assume that you want to compare the following XML files:

<code>&lt;book hardcover="yes"&gt;   &lt;genre&gt;fiction&lt;/genre&gt; &lt;/book&gt;</code>	<code>&lt;book hardcover="Yes"&gt;   &lt;genre&gt;Fiction&lt;/genre&gt; &lt;/book&gt;</code>
--	--

In the listing above, the value of attribute **hardcover** is lowercase in the left file and capitalized in the right file. The same is true for the value of the **genre** element. To treat these two files as equal, set `--xml-ignore-case-in-text=true`. By default, this option is **false**, which means files such as the ones above are not equal.

*--xml-ignore-markup-attributes, --xima*

This option is applicable when comparing XML files. Valid values:

<b>true</b>	Ignore XML attributes when comparing.
<b>false</b>	(Default) Take XML attributes into account when comparing.

*--xml-ignore-markup-comments, --ximc*

This option is applicable when comparing XML files. Valid values:

<b>true</b>	Ignore XML comments when comparing.
<b>false</b>	(Default) Take XML comments into account when comparing.

*--xml-ignore-markup-cdata, --ximcd*

This option is applicable when comparing XML files. Valid values:

<b>true</b>	Ignore XML character data (CDATA) when comparing.
<b>false</b>	(Default) Take XML CDATA into account when comparing.



*--xml-ignore-markup-doctype, --ximd*

This option is applicable when comparing XML files. Valid values:

<b>true</b>	Ignore XML DOCTYPE declaration when comparing.
<b>false</b>	(Default) Take XML DOCTYPE declaration into account when comparing.

*--xml-ignore-markup-processing-instructions, --ximpi*

This option is applicable when comparing XML files. Valid values:

<b>true</b>	Ignore XML processing instructions when comparing.
<b>false</b>	(Default) Take XML processing instructions into account when comparing.

*--xml-ignore-markup-xml, --ximx*

This option is applicable when comparing XML files. Valid values:

<b>true</b>	Ignore XML declarations when comparing.
<b>false</b>	(Default) Take XML declarations into account when comparing.

*--xml-ignore-namespace, --xins*

This option is applicable when comparing XML files. When set to **true**, XML namespaces will be ignored. By default, this option is **false**.

*--xml-ignore-prefixes, --xip*

This option is applicable when comparing XML files. When set to **true**, XML prefixes will be ignored. For example, let's assume that you want to compare the XML files below. Both files contain identical elements but the prefixes are different.

<pre>&lt;left:table&gt;   &lt;left:tr&gt;     &lt;left:td&gt;Name&lt;/left:td&gt;   &lt;/left:tr&gt; &lt;/left:table&gt;</pre>	<pre>&lt;right:table&gt;   &lt;right:tr&gt;     &lt;right:td&gt;Name&lt;/right:td&gt;   &lt;/right:tr&gt; &lt;/right:table&gt;</pre>
--	--

By default, the `--xml-ignore-prefixes` option is **false**, which means the files will not be considered equal. However, if the option `--xml-ignore-prefixes` is set to **true**, then prefixes will be ignored and the files will be considered equal.

*--xml-ignore-text, --xit*

This option is applicable when comparing XML files. When set to **true**, the text content of XML nodes will be ignored for comparison. This is useful if you want to compare only the structure of two XML files, disregarding the actual node content. By default, this option is **false**.

*--xml-order-by-attributes, --xoba*

This option is applicable when comparing XML files. Set this option to **true** if you want all XML attributes to be ordered before comparison. For example, let's assume that you want to compare the following two XML files:

<code>&lt;book author="Franz Kafka" title="The Metamorphosis" /&gt;</code>	<code>&lt;book title="The Metamorphosis" author="Franz Kafka" /&gt;</code>
--	--

In the listing above, the order of attributes is different in both files, although the attributes are the same. If you set the option `--xml-order-by-attributes` to **true**, the application will order attributes before comparison, and, consequently, the files will be reported as equal. The default value is **false**, meaning that files are not equal if the order of attributes is not the same.

#### `--xml-order-by-elements`, `--xobe`

This option is applicable when comparing XML files. Set this option to **true** if you want all XML elements to be ordered before comparison. For example, let's assume that you want to compare the following two XML files:

<code>&lt;book&gt;   &lt;author&gt;Franz Kafka&lt;/author&gt;   &lt;title&gt;The Metamorphosis&lt;/title&gt; &lt;/book&gt;</code>	<code>&lt;book&gt;   &lt;title&gt;The Metamorphosis&lt;/title&gt;   &lt;author&gt;Franz Kafka&lt;/author&gt; &lt;/book&gt;</code>
---	---

In the listing above, the left and right files contain exactly the same elements, only in a different order. If you set the option `--xml-order-by-elements` to **true**, the application will order all elements before comparison, and consequently, the files will be reported as equal. The default value is **false**, meaning that files are different if the order of elements is different.

#### `--xml-order-by-attribute-list`, `--xobl`

This option is applicable when comparing XML files. There are instances where multiple elements have exactly the same name and attributes, but attribute values are different. To sort by specific attributes before comparing, set this option to a named list of attributes created in the [Client Configuration File](#)<sup>40</sup>, in the `[xml.orderby:<name_of_your_list>]` group.

For example, let's assume that you want to compare the following two XML files:

<code>&lt;data&gt;   &lt;phone type="work" ext="111" /&gt;   &lt;phone type="work" ext="222" /&gt;   &lt;phone type="work" ext="333" /&gt; &lt;/data&gt;</code>	<code>&lt;data&gt;   &lt;phone type="work" ext="333" /&gt;   &lt;phone type="work" ext="111" /&gt;   &lt;phone type="work" ext="222" /&gt; &lt;/data&gt;</code>
---	---

In the listing above, the left and right files are not equal. However, if you ordered all **phone** elements by **ext** attribute, then the files would become equal. To make such comparisons possible, first modify the client configuration file as follows:


```
;; an example attributes list
[xml.orderby:mylist]
attributes = ext
```

You can now run the `diff` command with the option `--xml-order-by-attribute-list=mylist`. When you do this, the application orders elements by **ext** attribute, and, as a result, the files are reported as equal. If the option `--xml-order-by-attribute-list` is not set, files such as the ones above would be reported as NOT equal.

As an alternative, to order by all attributes, set the option `--xml-order-by-attributes=true` instead of setting this option.

**Note:** If you set the `--xml-order-by-attribute-list` option, make sure to also set the `--xml-order-by-elements=true`.

On Windows, when DiffDog is installed on the same machine as DiffDog Server, you can set this option to a custom attribute list created in DiffDog. To view or create a custom attribute list in DiffDog:

1. On the **Tools** menu, click **Comparison Options**.
2. Click the **XML** tab.
3. Select the **Ignore order of child nodes** check box.
4. Click **Specific attributes**, and then click the **Ellipsis**  button.

For more information about creating custom attribute lists with DiffDog, refer to DiffDog documentation (<https://www.altova.com/documentation>).

#### `--xml-order-by-text`, `--xobt`

This option is applicable when comparing XML files. There are instances where multiple elements have exactly the same name and attributes; only the text of elements is different. Set this option to **true** if you want to order such elements by their inner text before comparison. For example, let's assume that you want to compare the following files:

<pre>&lt;data&gt;   &lt;phone type="mobile"&gt;111&lt;/phone&gt;   &lt;phone type="mobile"&gt;222&lt;/phone&gt; &lt;/data&gt;</pre>	<pre>&lt;data&gt;   &lt;phone type="mobile"&gt;222&lt;/phone&gt;   &lt;phone type="mobile"&gt;111&lt;/phone&gt; &lt;/data&gt;</pre>
---	---

In the listing above, the left and right files are not equal. However, if you set the option `--xml-order-by-text` to **true**, the application would order elements by their text, and, as a result, the files would be reported as equal. The default value is **false**, meaning that ordering of elements by text does not take place, and files such as the ones above are not equal.

**Note:** If you set the `--xml-order-by-text` option, make sure to also set the `--xml-order-by-elements=true`.

#### `--xml-resolve-entities`, `--xre`

This option is applicable when comparing XML files. When set to **true**, then all entities in the document are resolved. Otherwise, the files are compared with the entities as is. By default, this option is **false**.

#### `--xml-whitespace-mode`, `--xws`

This option is applicable when comparing XML documents or directories containing XML documents. In case of directory comparisons, the option will apply only to XML files in that directory.

The option defines how whitespace characters should be treated for comparison. Whitespace characters are any of the following: space, tab, carriage return, and line feed. This option specifically affects whitespace characters that are inside element and attribute values. Whitespace characters that are outside attribute or element values are disregarded for comparison.

<b>asis</b>	(Default) Treat whitespace characters as is (that is, do not apply normalization or stripping). This means that whitespace characters are always relevant for
-------------	---

	comparison.
<b>normalize</b>	Text A is equal to Text B if, after normalization, characters in Text A correspond to those in Text B. "Normalization" means that multiple consecutive occurrences of whitespace characters are replaced by a single space character. In addition, the leading and trailing whitespace characters are trimmed for each line of text.
<b>strip</b>	Text A is considered equal to Text B if, after stripping whitespace characters, characters in Text A correspond to those in Text B. In other words, any whitespace characters are stripped from the text and considered not relevant for comparison.

**--zip-as-dir, --zd**

This option is applicable when comparing ZIP files. When set to true, ZIP files will be treated as directories instead of binary files. By default, this option is **false**.

## 6.8 foreground

The `foreground` command applies only to the [DiffDog Server executable](#)<sup>8</sup>. Not for general use. This command runs the server in console mode (as a command line app, not as a service). This is also the default start-up mode if you invoke the executable without specifying a command. To stop running DiffDog Server in this mode, press **Ctrl+C**.

### Syntax

```
diffdogserver foreground [options]
```

### Options

#### *--config, -c*

This option specifies the path to a server [configuration file](#)<sup>37</sup>.

#### *--loglevel, -L*

Sets the reporting level for information, warning, and error messages. Valid values:

<b>none</b>	Suppress all logging.
<b>info</b>	Report information, warning, and error messages.
<b>warning</b>	Report error and warning messages.
<b>error</b>	(Default) Report only error messages.

#### *--port*

This option specifies the port on which DiffDog Server listens for requests. Setting this option is meaningful if DiffDog Server runs on a port other than the default **29800**. As an alternative to setting this option at the command line, you can set it in the [configuration file](#)<sup>37</sup>. Note that, if you set this value at the command line, it takes precedence over the one defined in the configuration file.

### Examples

To start the executable in console mode, use:

```
diffdogserver foreground
```

## 6.9 help

The `help` command applies to both the [DiffDog Server executable and DiffDog Command Line Client](#)<sup>8</sup>. The `help` command provides contextual help about commands available in the corresponding executable.

### Syntax

```
<executable>84 help [command]
```

The `[command]` argument is an optional argument which specifies any valid command name.

## 6.10 install (Windows only)

The `install` command applies only to the [DiffDog Server executable](#)<sup>8</sup>. The `install` command installs DiffDog Server as a service on the server machine. To uninstall DiffDog Server as a service, use the [uninstall](#)<sup>117</sup> command.

### Syntax

```
diffdogserver install
```

## 6.11 licenseserver

The `licenseserver` command applies only to the [DiffDog Server executable](#) <sup>8</sup>.

### Syntax and description

The `licenseserver` command registers DiffDog Server with the Altova LicenseServer specified by the `Server-Or-IP-Address` argument. For the `licenseserver` command to be executed successfully, the two servers (DiffDog Server and LicenseServer) must be on the same network and LicenseServer must be running. You must also have administrator privileges in order to register DiffDog Server with LicenseServer.

```
diffdogserver licenseserver Server-Or-IP-Address
```

- The `Server-Or-IP-Address` argument takes the name or IP address of the LicenseServer machine.

Once DiffDog Server has been successfully registered with LicenseServer, you will receive a message to this effect. The message will also display the URL of the LicenseServer. You can now go to LicenseServer to assign DiffDog Server a license. For details about licensing, see the LicenseServer documentation (<https://www.altova.com/manual/en/licenseserver/3.14/>).

### Examples

Examples of the `licenseserver` command:

```
diffdogserver licenseserver DOC.altova.com
diffdogserver licenseserver localhost
diffdogserver licenseserver 127.0.0.1
```

The commands above specify, respectively, the machine named `DOC.altova.com`, and the user's machine (`localhost` and `127.0.0.1`) as the machine running Altova LicenseServer. In each case, the command registers DiffDog Server with the LicenseServer on the machine specified. The last command calls the server-executable to execute the command.



## 6.12 run

The `run` command applies to both the [DiffDog Server executable and DiffDog Command Line Client](#)<sup>8</sup>. The `run` command runs a comparison and accepts the following arguments:

- `*.dirdif` (directory comparison)
- `*.filedif` (file comparison)
- `*.dbdif` (database data comparison)

You can create `.filedif` and `.dirdif` files with Altova DiffDog desktop application (<https://www.altova.com/diffdog>), by saving any file or directory comparison as a file. Database data comparisons (`.dbdif`) can be created only in DiffDog Enterprise edition.

Running `*.filedif` and `*.dirdif` files with DiffDog Server is supported only on Windows. For the comparison to be successful, all the file or directory paths that were valid on the desktop machine must be valid on the server machine. If you set up the comparison jobs directly in DiffDog Server (as opposed to using `*.filedif` or `*.dirdif` files), you can run them regardless of the platform.

Running `*.dbdif` files with DiffDog Server is most convenient if DiffDog Server runs either on the same computer as DiffDog desktop, or on a Windows machine. If DiffDog Server runs on a different machine or operating system, the following limitations apply:

- If the comparison involves CSV files, running `.dbdif` files is supported only on Windows servers. For the comparison to be successful, all the CSV file paths that were valid on the desktop machine must be valid on the server machine.
- If database connections are involved, the server machine must be configured and capable to handle the database connection. Namely, the database drivers and any other prerequisites required by the connection must be present on the target operating system as well. For example, if the `.dbdif` file includes a connection that requires an ODBC driver from the database vendor, that driver must be installed on the server machine as well. Note that some database connection methods supported on Windows are not supported on Linux and macOS. For more information, see [Supported Databases](#)<sup>65</sup>.

If you set up comparison jobs directly in DiffDog Server (as opposed to using `*.dbdif` files), you can run them regardless of the platform.

After executing the `run` command, DiffDog Server reports the outcome of the comparison using a return status code (**0** = no differences, **1** = differences, **2** = error), similar to how it works with the `diff` command. The output is displayed directly at the command line, unless you suppress it with the `--quiet` option.

For `.filedif` or `.dirdif` comparisons, you can optionally redirect the output (the comparison result) to a report file in XML or text format. The path of the report file is defined from the graphical user interface of DiffDog desktop application. Namely, in DiffDog, you can set the output path of a `.filedif` or `.dirdif` comparison as follows:

1. Open an existing `.dirdif` or `.filedif` file (or create a new comparison) in DiffDog.
2. On the **Tools** menu, click **Comparison Document Options**.
3. Do one of the following:
  - a. To use no redirection to a file, click **No Export** (this is the default option).
  - b. To redirect the report to a text file, click **Text file**, and then enter the path in the adjacent text box.

- c. To redirect the report to an XML file, click **XML file**, and then enter the path in the adjacent text box.
4. On the **File** menu, click **Save As**, and then save the comparison as .filedif (or .dirdif, if applicable).

For **.dbdif** comparisons, the outcome of the comparison is available only in XML format. Use the command shell redirection to redirect the output to a file, for example:

```
<executable>84 run comparison.dbdif >"C:\result.xml"
```

**Note:** The `--server` and `--port` options do not apply if this command is run for the DiffDog Server (not client) executable.

## Syntax

```
<executable> run [options] {FILES}
```

The `run` command can also be called using the `import` or `load` aliases. Therefore, you can use `run`, `import` or `load` interchangeably.

## Arguments

### *comparison-file*

Specifies the path to a comparison file in `.dirdif`, `.filedif`, or `.dbdif` format. The path of the comparison file can be absolute or relative to the current working directory. You can supply as many comparison files as arguments as required. This is limited only by the number of input characters supported by your command shell.

## Options

### *--config, --c*

This option specifies the path to a client configuration file where the connection details to DiffDog Server are defined.

If you do not set the `--c` option, the DiffDog Command Line Client executable attempts to read the client configuration file from the same directory. If there is no configuration file in the same directory as the executable, the default values as described in the command line help and this documentation apply.

### *--port*

This option specifies the port on which DiffDog Server listens for requests. Setting this option is meaningful if DiffDog Server runs on a port other than the default **29800**. As an alternative to setting this option at the command line, you can set it in the [Client Configuration File](#)<sup>40</sup>. Note that, if you set this value at the command line, it takes precedence over the one defined in the configuration file.

### *--quiet, --q*

Prevents the standard output from being displayed at the command line. Valid values:

<b>true</b>	Do not display standard output in the terminal window.
<b>false</b>	(Default) Display standard output in the terminal window.

**--loglevel, --L**

Sets the reporting level for information, warning, and error messages. Valid values:

<b>none</b>	Suppress all logging.
<b>info</b>	Report information, warning, and error messages.
<b>warning</b>	Report error and warning messages.
<b>error</b>	(Default) Report only error messages.

**--output-mode, --om**

This option specifies the output format of the generated report. The following values are supported: `auto` (default), `text`, `sql`, `xml`, `html`.

Note the following point about the `sql` value:

Output the report in SQL format. This value is meaningful when the right side of the data comparison is a database. It contains SQL statements that merge data from the left to the right side of the comparison. For example, if there are missing rows on the right, `INSERT` statements are generated. Conversely, if there are extra rows on the right, `DELETE` statements are generated. For changed values, `UPDATE` statements are generated.

**--server**

This option specifies the server address on which DiffDog Server listens for requests. Setting this option is meaningful if DiffDog Server runs on a server other than the default **localhost**. As an alternative to setting this option at the command line, you can set it in the [Client Configuration File](#)<sup>40</sup>. Note that, if you set this value at the command line, it takes precedence over the one defined in the configuration file.

**--alias**

Specifies which alias to use then the server is running in restricted mode.

## Examples

The command below calls the DiffDog Client executable to run the comparison file `c:`

`\DiffDog\Comparison1.filedif`:

```
DiffDogCmdlClient run C:\DiffDog\Comparison1.filedif
```

The command below calls the DiffDog Client executable to run the comparison files `Comparison1.filedif` and `Comparison2.dirdif`:

```
DiffDogCmdlClient run C:\DiffDog\Comparison1.filedif C:\DiffDog\Comparison2.dirdif
```

## 6.13 showcfg

The `showcfg` command described in this topic applies only to the DiffDog Server executable. For information about the `showcfg` command in the DiffDog Client executable, see [DiffDog Command Line Client](#)<sup>84</sup>. The `showcfg` command outputs all the current configuration settings in a human readable form. The settings are grouped into the following categories:

- *Global*: This group lists settings that you have defined in the [configuration file](#)<sup>37</sup>.
- *Registry* (Windows-specific): This group lists settings that exist in the Windows Registry Editor. Any custom XML or directory filters that you have created in DiffDog will also appear here (see the [--directory-filter](#)<sup>97</sup> and [--xml-filter](#)<sup>103</sup> options). Any order by attribute lists that you have created in DiffDog will also appear here (see the [--xml-order-by-attribute-list](#)<sup>106</sup> option).
- *Built-In*: This group lists settings that are built into the executable. The application will default to these settings when no other settings exist.

### Syntax

```
diffdogserver showcfg
```

## 6.14 uninstall (Windows only)

The `uninstall` command applies only to the [DiffDog Server executable](#)<sup>8</sup>. The `uninstall` command uninstalls DiffDog Server as a service on the server machine. To re-install DiffDog Server as a service, use the [install](#)<sup>111</sup> command.

### Syntax

```
diffdogserver uninstall
```

## 6.15 verifylicense

The `verifylicense` command applies only to the [DiffDog Server executable](#) <sup>8</sup>.

### Syntax and description

The `verifylicense` command checks whether the current product is licensed. Additionally, the `--license-key` option enables you to check whether a specific license key is already assigned to the product.

```
diffdogserver verifylicense [options]
```

- To check whether a specific license is assigned to DiffDog Server, supply the license key as the value of the `--license-key` option.

For details about licensing, see the LicenseServer documentation (<https://www.altova.com/manual/en/licenseserver/3.14/>).

### Examples

Example of the `verifylicense` command:

```
diffdogserver verifylicense
diffdogserver verifylicense --license-key=ABCD123-ABCD123-ABCD123-ABCD123-ABCD123-ABCD123
```

- The first command checks whether DiffDog Server is licensed.
- The second command checks whether DiffDog Server is licensed with the license key specified with the `--license-key` option.

### Options

Options are listed in short form (if available) and long form. You can use one or two dashes for both short and long forms. An option may or may not take a value. If it takes a value, it is written like this: `--option=value`. Values can be specified without quotes except in two cases: (i) when the value string contains spaces, or (ii) when explicitly stated in the description of the option that quotes are required. If an option takes a Boolean value and no value is specified, then the option's default value is `TRUE`. Use the `--h, --help` option to display information about the command.

#### ▼ license-key [!]

```
--l, --license-key = Value
```

Checks whether DiffDog Server is licensed with the license key specified as the value of this option.

## 6.16 version

Depending on the executable you are using, the `version` command displays the version of the [DiffDog Server executable](#) or [DiffDog Command Line Client](#)<sup>8</sup>. This command takes no options or arguments.

### Syntax

```
<executable>84 version
```

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