



WDOptimizer: Presentation



Available only with this kind of connection

Overview

WDOptimizer

The different operations that can be performed with WDOptimizer are as follows:

- **Optimizing indexes**

This option allows you to perform several types of operations:

1. **Check indexes:** Checks consistency between index and data files.
2. **Optimize index speed (Re-calculate statistics)** Optimize indexes by calculating index statistics. These statistics are used to optimize filters, queries and HFSQL views.
Note: The more the data file is modified, the less the statistics reflect the content of the HFSQL data file.. The more records a data file contains, the less impact the modification of a record has on the statistics.
3. **Reconstruct indexes:** Optimize access to data file records and recalculate statistics. All crossed records are automatically deleted.
4. **Rebuild indexes and memos:** Optimizes the entire data file, its indexes and memos.
5. **Review and compress indexes and memos:** Optimize the entire data file, its indexes and memos. Memos will be compressed. Advanced options are available ("Options for compressing the memos").

- **Viewing the properties of a data file**

Displays the characteristics of a data file (name, extension, format, encryption, etc.).

- **Edit and modify a ".REP" file**

Optimizes the access to the data files.

- **Roll back a transaction or remove records from a transaction**

Rolls back a transaction without interrupting the execution of the program.

Use

Starting WDOptimizer

WDOptimizer can be started in interactive mode via one of the following methods:

- From WINDEV, WEBDEV or WINDEV Mobile, on the "WDOptimizer" tab, in the "Tools" group, click "Database".

- Run "WDOptimizer.EXE" directly.

The different operations that can be performed with WDOptimizer are as follows:

1. Optimize indexes. For more details, see [Optimizing indexes](#).
2. View the properties of a data file. This data file can be selected in the list displayed on the screen or it can be selected via the file picker.
3. Editing a .REP file: Simply select the .REP file you wish to edit. For more details, see [Edit and modify a ".REP" file](#)
4. Handle the transactions. For more details, see [Roll back a transaction or remove records from a transaction](#)

Note: On the development workstation, WDOptimizer can also be launched directly from WDTool.

WDOptimizer can also be run in command line. For more details, see [Starting WDOptimizer in a command line](#).

Use conditions

WDOptimizer can be freely distributed. WDOptimizer can be installed with the applications developed with WINDEV or WEBDEV. The license agreement of WINDEV or WEBDEV is fully enforced.

When creating the setup procedure, WDOptimizer is automatically supplied with your applications.

Reminder: The setup procedure can be created:

- or from the wizard: in the "Project" pane, in the "Generation" group, click on "Setup procedure".
- from the setup editor: On the "Tools" tab, in the "Utilities" group, click "WDInst".

Necessary files

The file required to install WDOptimizer are as follows:

- | | |
|-------------------|-----------------|
| • WDOptimizer.exe | • wd310etat.dll |
| • wd310hf.dll | • wd310html.dll |
| • wd310mat.dll | • wd310obj.dll |
| • wd310pnt.dll | • wd310prn.dll |
| • wd310sql.dll | • wd310std.dll |
| • wd310vm.dll | • wd310xml.dll |

- wd310com.dll
- wd310xtrs.dll
- WDOutil.WDK
- WDOptimizer_FR.PDF
- WDOptimizer_EN.PDF

To uninstall WDOptimizer from a computer, simply delete its directory.

Reminder: Indexing a data file

The index of a data file is a specific file (.NDX). This file is created according to the browse keys defined on the data file. It allows you to quickly find data in a data file.

For a better performance of the searches performed in your data files, the index should be optimized on a regular basis.



WDOptimizer: Index optimization



Available only with these kinds of connection

Overview

WDOptimizer includes multiple modes to optimize indexes:

- 1. Check indexes** Checks consistency between index and data files.
- 2. Optimize index speed (Recalculate statistics)** Optimize indexes by calculating index statistics. These statistics are used to optimize the filters, the queries and the HFSQL views.
Note: The more the data file is modified, the less the statistics reflect the content of the HFSQL data file.. The more records the data file contains, the less the modification of a single record impacts the overall statistics.
- 3. Reconstruct indexes** Optimize access to data file records and recalculate statistics. All the crossed records are automatically deleted.
- 4. Rebuild indexes and memos** Optimizes the entire data file, its indexes and memos.
- 5. Revise and compress indexes and memos** Optimize the entire data file, index and memos. The memos will be compressed. Advanced options are available ("Options for compressing the memos").

Remarks:

- The data file is created again. The last write date of the last record (returned by [HRecordDate](#)) is set to the current date.
- Timestamp items are also modified and are set to the date and time at which the optimization is performed.

Remarks:

- Apart from option 2, all the optimization modes lock the data files during the optimization. The users are informed that the data file is currently under maintenance.
- Once the reindexing is performed, the current HFSQL context is restored (except if the option for compressing memos was chosen).

How to?

Optimizing the indexes of a data file

To optimize the indexes of a data file:

1. Start WDOptimizer:

- Directly from WINDEV, WEBDEV or WINDEV Mobile: in the "Tools" pane, in the "Database" group, click on "WDOptimizer".
- run "WDOptimizer.EXE" directly.

2. Select the data files to process. You can:

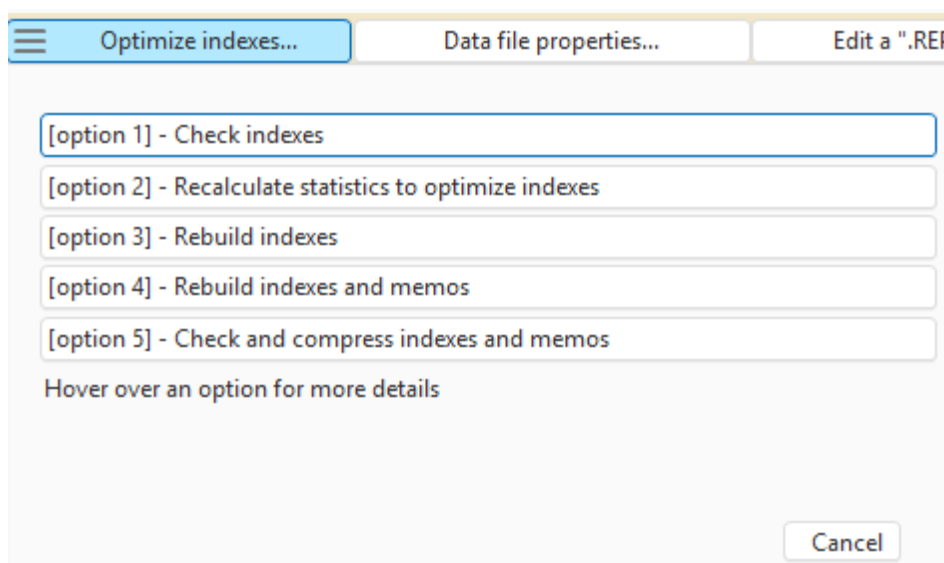
- Drag and Drop the data files from the explorer to WDOptimizer. Dropped data files automatically appear in the list.
- add one or more data files using the "Add a file" button.
- add the data files found in a directory via the "Add a folder" button.

To process the sub-directories, select "When adding a directory, include the files of all the sub-directories".

3. Select the data files to process and indicate (if necessary) the password of each data file.

Note: If the password is identical for all data files, check the "Use the same password for all data files" option.

4. Click the "Optimize indexes" or "Optimize indexes of selected files" button and choose the desired option.



A report is generated if a problem occurs.

Reindexing options

Overview

The reindexing options are displayed in the lower part of the screen:

Advanced reindexing mode

These options are taken into account for the reindexing operations from type 1 to type 4:

- **Delete inactive records (deleted or crossed records)**

If this option is selected, the crossed records are permanently deleted.

Reminder: When a record is crossed, it is logically deleted and may be recovered at a later date. The record is still found in the data file. Deleting the crossed records deletes these records permanently and optimizes the size of data file.

- **Delete damaged records**

If this option is checked, the damaged records are automatically deleted.

- **Reindex without locking the client computers**

If this option is checked, the reindexing operation is performed in background task and the client applications are not stopped.

Note: This option is only taken into account for HFSQL Client/Server data files.

- **Density of the index**

Corresponds to the density rate of the indexes. This rate is set to 80 by default.

A higher rate increases the density of the index and reduces its size. In this case, the browses, searches, filters and queries are faster. Adding and modifying records may take longer.

A smaller rate reduces the density of the index and increases its size. In this case, iterations, searches, filters and queries will be slower. Adding and modifying records will be faster.

Note: This parameter can only be used on HFSQL Classic or Client/Server data files.

- **Charset**

The character set of the data file is kept by default. However, a reindexing operation can be performed by changing the character set of the data file. In this case, the new character set will be taken into account during the reindex operation. Sorts, searches, etc. on string keys (strings, characters, date and time) will be performed according to this character set.

Options for compressing the memos

These options are taken into account during the revision with compression of indexes and memos (option 5):

- **Keep crossed records**

If this option is selected, the crossed records are kept. Otherwise, they are permanently deleted.

- **Try to retrieve data from memo if damaged**

If this option is selected, WDOptimizer tries to retrieve the memo. Otherwise, the damaged records are retrieved without the associated memo.

Attention Memo recovery may be partial. Check your data files.

Options

These options simplify management of the list of data files to be re-indexed:

- **Use the same password for all data files**

If this option is selected, the same password is used for all the data files. All you have to do is specify the password in the "Password" column of the first data file found in the list.

If this option is unchecked, the password will have to be specified in the "Password" column of the table for each data file.

- **When adding a directory, include the files found in all the subdirectories**

If this option is selected, the data files found in the sub-directories are automatically added.

Access rights to the data file

The optimization triggers the recreation of the data file on disk.

Check the rights of the optimized data file. These rights may differ from those of the original data file. In this case, they must be redefined in Windows after the optimization.



WDOptimizer: Rolling back a transaction and freeing records held by a transaction



Available only with this kind of connection

Overview

WDOptimizer is used to:

- Roll back a transaction.
- Free records held by a transaction.

Note: A transaction is used to ensure that updates to one or more data files have been successfully completed. If an error occurs in a transaction (power outage, for example), WDOptimizer automatically restores the files to the state they were at the beginning of the transaction.

Note: WDTrans can also be used to roll back a transaction and/or free records held by a transaction.

Rolling back all changes made to the files held by a transaction

When the operations performed on a transaction file are rolled back:

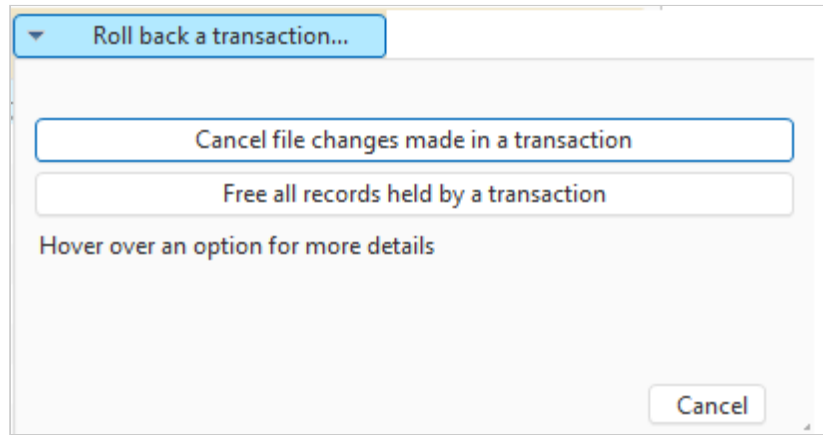
- **If a transaction is active**, WDOptimizer rolls back all changes made to the data files since the beginning of the transaction. In this case, the transaction is rolled back without interrupting the program execution.
- **If no transaction is active**, WDOptimizer restores the integrity of the database and rolls back the transactions that have not been successfully completed (if a power outage occurs, for example).

Rolling back all changes made to the files held by a transaction

To roll back the changes made to a file held by a transaction:

1. Start WDOptimizer.

2. Select "Roll back a transaction..." then "Cancel file changes made in a transaction".



3. Select the transaction file. The list of data files (with their full path) in the transaction is displayed. The identifier of the machine where a transaction operation is running is displayed for each data file.

4. If there are password-protected data files, specify the password. This password is required to roll back the transaction.

5. Click the "Roll back transaction" button. The transaction is rolled back.

Freeing records held by a transaction

Freeing the records held by a transaction restores these records to a normal state (if they are not held by another transaction). If a record in the specified data file is marked as being in a transaction, but does not belong to any active transaction, it is automatically released.

Note: This is an advanced feature. Use this feature when it is not possible to roll back incomplete transactions (e.g. files deleted from a transaction).

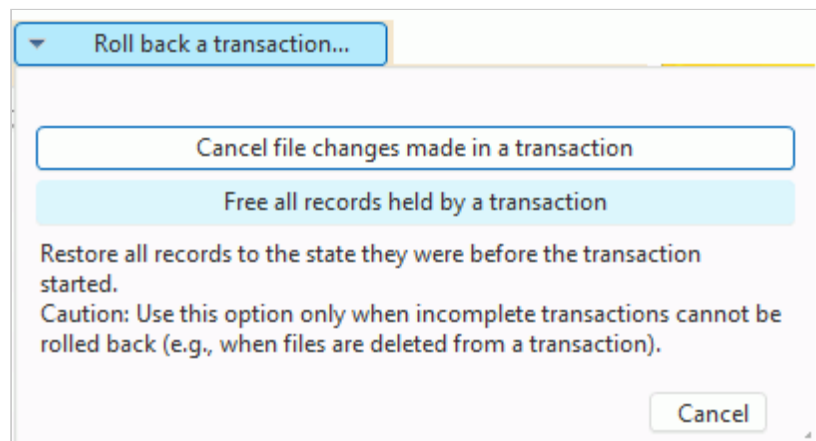
Freeing records held by a transaction

To free the records held by a transaction:

1. Start WDOptimizer:

- Directly from WINDEV, WEBDEV or WINDEV Mobile. Go to the "Tools" tab, "Database" group and click "WDOptimizer".
- run "WDOptimizer.EXE" directly.

2. Select "Roll back a transaction" then "Free all records held by a transaction".



3. Select the directory containing the data files in the active transaction.

Note: No file held by the transaction must be in this directory. The list of data files in the directory is displayed.

Note: If data files are located in subdirectories, check "Include files from all subdirectories".

4. If there are password-protected data files, specify the password. This password is required to free the records held by the transaction.

5. Click "Free all records held by a transaction". The records are released.



Starting WDOptimizer in a command line



Available only with this kind of connection

Syntax

The following syntax enables you to start WDOptimizer in command line

```
WDOptimizer /Fic=<Directory>
/Pwd=<Password>
/Option=<Type of action performed>
/Log=<Log file>
/Mute=<Yes/No>
/ExploreSubDir=<Yes/No>
/CompressIndex=<Yes/No>
/DelIndex=<Yes/No>
/GetMemos=<Yes/No>
/KeepCrossedRec=<Yes/No>
/Charset=<Character set>
/Density=<Density rate>
/Language=<Display language>
/Bck=<Yes/No>
```

The table below presents the different elements that can be found on the command line:

Parameter	Meaning
/Fic=<Directory>	To process a single data file: full path of the data file to be processed. To process a set of data files: - path of a directory, - INI file in export format generated by WDOptimizer. To process transactions: full path of the transaction file. Example c:ASLASH_Temp\file.fic
/Pwd=<Password>	Password associated with the data file to process (single data file)
/Option=<Type of action to perform>	Number corresponding to the option of WDOptimizer to start: 1: Index check.

- 2: Optimize index speed (Recalculate data file statistics).
- 3: Rebuild indexes.
- 4: Rebuild indexes and memos.
- 5: Revise and compress indexes and memos.

/Log=<Log file> Full path of the log file (.log) to create. This file is created only if an option from 1 to 5 is selected.

/Mute=<Yes/No> Yes to automatically validate the report window (No by default).

/ExploreSubDir=<Yes/No> "Yes" to explore subdirectories of the directory specified in the "/Fic" parameter ("No" by default).

/CompressIndex=<Yes/No> Yes to delete inactive records when reindexing (options 3 and 4) (No by default).

/DelIndex=<Yes/No> Yes to delete the damaged records (options 3 and 4) (No by default).

/GetMemos=<Yes/No> Yes to try to retrieve the data from the memo if it is damaged (option 5) (No by default).

/KeepCrossedRec=<Yes/No> Yes to keep the crossed records (option 5) (No by default).

/Charset=<Charset> Used to specify the character set used for the reindex operation. You have the ability to use one of the constants corresponding to the character set to use.

charsetArabic Arabic characters

charsetBaltic Baltic characters

charsetChinese Chinese characters (People's Republic of China)

charsetDefault Uses the computer's default character set. No character set is forced.

charsetEastEurope Eastern European characters (Polish, etc.)

charsetGreek Greek characters

charsetHebrew Hebrew characters

charsetJapanese Japanese characters

charsetKorean Korean characters

charsetOccidental Roman characters in ANSI standard

<i>charsetRussian</i>	Russian characters
<i>charsetThai</i>	Thai characters
<i>charsetTraditionalChinese</i>	Traditional Chinese characters (Republic of Taiwan)
<i>charsetTurkish</i>	Turkish characters
<i>charsetUTF8</i>	Used to manage the countries with two character sets (Hong Kong) and the countries with no character set defined in Windows (Georgian and Armenian).
<i>charsetVietnamese</i>	Vietnamese characters

/Density=<Density rate>

Density rate of indexes. This rate is set to 80 by default.

The higher this rate is, the denser and smaller the index is. In this case, iterations, searches, filters and queries will be faster. The additions of records and the modifications of records may be slower.

The lower this rate is, the less dense and the bigger the index will be. In this case, iterations, searches, filters and queries will be slower. The additions of records and the modifications of records will be faster.

/Language=<Display language>

"US" to start WDOptimizer in English (French by default).

/Bck=<No>

By default, the data files to be processed are saved (only taken into account if /option = 5). No if you don't want to perform this backup.

Examples

The following command line reindexes the data files in the "C:\MyAppli\Data" directory.

`ExeRun("C:\MyDirectory\WDOptimizer.EXE /Fic=C:\MyApp\Data")`



Example of reindex procedure

```
// Global variables of the project  
gsAppName is string = "MyApp"  
gsDataDir is string = CompleteDir(fExeDir()) + "Data\"
```

```

//Procedure global to the project
PROCEDURE gWdOptimizeAnalysis(_OptionNum = 5,_bSave = False)
// WDOPTIMIZER control for all data files in an application
// while taking into account the password, exeActive and
// WDOptimizer is blocking when run.
// After each reindex operation, WDOptimizer displays the message
// "Re-indexing the data file 'C:\.....\MonFic.Fic' was successful".
// The user must click "OK".
// The option 5 of WDOptimizer is used by default
// By default, data files are not saved before optimization
// - Required:
//   - The data files can be relocated in relation to the exe
// (Global variables gsAppName and gsDataDir)
//   - WDOptimizer is always found beside the executable
//   - Data files can have a physical name different from their logical name
// as well as an extension <> ".FIC"

// Variables local to the process
sFileList, sFileName are strings
sSave is string = "False"
IF _bSave = True THEN sSave = "True"
    i is int = 1
    sDir is string = CompleteDir(fExeDir())
    // Physical name of the file (name + extension)
    sPhysicalFileName is string
    // Password of the file
    sPwd is string
    sCommandLine is string

    // Check for WDOptimizer
    IF fDir(sDir + "WDOptimizer.EXE", frFile) = "" _OR_ ...
        fDir(sDir + "WDTool.WDK", frFile) = "" THEN
        Error("WDOptimizer has not been correctly installed")
    RETURN
END

// List the data files found in the analysis
sFileList = HListFile()
sFileName = ExtractString(sFileList, i, CR)
WHILE sFileName <> EOT
    sPhysicalFileName = {sFileName}..PhysicalName + {sFileName}..Extension
    IF fDir(gsDataDir + sPhysicalFileName, frFile) <> "" THEN

```

```

    // Password protection for certain protected data files
SWITCH Upper(sFileName)
    CASE "TOTO": sPwd = "toto"
    OTHER CASE: sPwd = ""
END
IF sPwd <> "" THEN
    sCommandLine =
        sDir + "WDOptimizer.EXE /File=" + ...
        gsDataDir + sPhysicalFileName + " /Pwd=" + sPwd + " /" + ...
        _OptionNum + " /" + sBackup
ELSE
    sCommandLine = sDir + "WDOptimizer.EXE /File=" + ...
        gsDataDir + sPhysicalFileName + " /5 /" + sBackup
END
ExeRun(sCommandLine, exeActive, exeWait)
END
i++
sFileName = ExtractString(sFileList, i, CR)
END
Info("Optimization of data files from '" + gsNomAppli + "' completed")

```

WDOptimizer: Editing a ".REP" file



Available only with this kind of connection

Overview

The file <MonProjet>.REP file contains a list of data files handled by the application (identifier, logical name and full path of the physical file).

The GUID of the analysis is the unique identifier of the analysis linked to the project, containing the description of the data files. This identifier can be found in the data model editor, in the analysis description ("Options" tab).

The GUID of the data file corresponds to the identifier of the logical data file. This identifier can be found in the data model editor, in the description of the data file ("Notes" tab).

This .REP file is automatically created in the application directory and populated by the HFSQL engine.

REP files

What are REP files for?

The .REP file is used to easily locate the data files that have been used by the WINDEV application or by the WEBDEV website.

The WINDEV application or the WEBDEV website automatically updates the .REP file but it does not often use the .REP file.

This file is used by all the tools that handle the data files of the application, and mainly by the automatic update of the data files, etc.

Example: Updating an application while modifying the analysis

When updating a WINDEV application, the automatic data file modification is automatically started if the structure of the database is modified.

This procedure uses the .REP file to find and modify the physical data files used by the application.

Editing and modifying a .REP file

Editing and modifying a .REP file

To edit and modify a REP file:

1. Start WDOptimizer:

- Directly from WINDEV, WEBDEV or WINDEV Mobile: in the "Tools" pane, in the "Database" group, click on "WDOptimizer".
- run "WDOptimizer.EXE" directly.

2. Select "Edit and modify a .REP file".

3. Select the .REP file. The data files contained in the selected .REP file are listed.

4. To delete all data files that don't exist, click on the "Clean" button.

5. To delete the selected data file, click on the "Delete" button.