

DuplicateFileDetective™

Professional Grade Duplicate File Management



Duplicate File Detective Help

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1 Introduction

1.1 Introducing Duplicate File Detective



Duplicate File Detective is a powerful tool designed to help you find and manage duplicate files on any Windows file system.

Duplicate File Detective will help you to reclaim valuable disk space by providing you with a wealth of tools and reporting options, as described in the remainder of this help file.

As you use Duplicate File Detective, please keep in mind that your feedback is extremely valuable to us. Feel free to [email us](#) at any time. We'd appreciate hearing from you.

1.2 Quick Start

To starting using Duplicate File Detective quickly, please use the following 5 simple steps:

1. Click the Project Wizard button located in the Home section of the application Ribbon Bar. You will be asked to choose a File Matching method. Use the default (Checksum Scan) and click the Next button.
2. The [Project Wizard](#) will ask you to specify which drives or folders you would like to scan. For now, select "My Documents" from the listing on the right and click the blue right arrow button to move "My Documents" to the list of directories to scan. Click the Next button again.
3. The Project Wizard will ask you to specify which types of files you would like to scan. For now, just accept the default file matching pattern (*.*) and click the Next button.
4. The Project Wizard allows you to specify which columns will appear in the final duplicate search results report. Again, accept the defaults for now and click Next.
5. Finally, the Project Wizard will tell you that it's ready to start. Click the Finish button, and the duplicate search process will begin.

Once the duplicate search process completes, you'll be presented with a [report](#) of duplicate files found. The remaining sections of this help file describe how to [mark](#) and [process](#) those duplicates.

Tip: You certainly don't have to use the Project Wizard if you're prefer not to. The remainder of this help file will show you everything you need to know to configure a [project](#) manually.

1.3 How to Buy

Duplicate File Detective is a commercial software product with a 15-day trial period. This means that you have 15 days from the time you install Duplicate File Detective to decide whether or not you find it worth purchasing.

For more information on how to purchase Duplicate File Detective, please visit our product website at <http://www.duplicate-file-detective.com/>. A wide variety of purchasing methods are available.

Also please feel free to contact us with any sales questions you might have. Just send an email to sales@duplicate-file-detective.com, and we'll get back to you promptly.

Thank you for trying Duplicate File Detective.

See also:

[Product Registration](#)

1.4 Product Registration

To continue using Duplicate File Detective beyond the initial 15-day trial period, you must [purchase](#) one or more product licenses.

We offer a variety of licensing options, including single-user, multi-user, site-wide, and enterprise-wide licenses. Please see the "Order" section of our [product website](#) for details.

Once you complete the product license purchase process, you will be provided with a license name and key which you can then enter into Duplicate File Detective to "unlock" it for permanent use. When entering your product license name and key, please keep in mind that they must be entered *exactly* as they were provided to you. The easiest way to ensure correct license entry is to copy and paste these values using the Windows clipboard.

If you have any problems entering your product license details, feel free to contact us at support@duplicate-file-detective.com. We're happy to assist our valued customers.

Upgrade Policy

Upgrades within the same major product version (i.e. from v3.0 to v3.1) are free.

Major version upgrades (i.e. from v3.0 to v4.0) are made available at significant discount to existing product license holders.

See also:

[How to Buy](#)

2 Duplicate File Detective Projects

2.1 What is a Project?

In Duplicate File Detective, a *project* is comprised of all the attributes that define the current duplicate file search. These attributes include the current [filter](#) criteria (such as filename masks, etc.), [search paths](#), [exclusion folders](#), [file matching methods](#), visible duplicate result report columns, and more.

One of Duplicate File Detective's most powerful features is its ability to save and load projects as needed. Duplicate File Detective does this with *project files*, which have a filename extension of .dfd (e.

g. "my-dup-project.dfd"). Double-clicking a project file in Windows Explorer will cause Duplicate File Detective to load the project.

For more information, see the [Managing Projects](#) section of this help file.

See also:

[Managing Projects](#)
[Project Wizard](#)

2.2 Managing Projects

Duplicate File Detective projects are managed (created, opened, and executed) through a range of commands accessible via the application Ribbon Bar. These include:

- **Project Wizard** - Used to quickly create and launch a new Duplicate File Detective project. This is a great way to [get started quickly](#).
- **New Project** - Used to create a new project with default search folders, exclusions (excluded folders), and other project settings. The project can then be modified in whatever way suits your needs.
- **Open Project** - Allows you to open an existing project file (e.g. "my-project.dfd").
- **Save Project** - Used to save the active project. This Ribbon Bar button will appear "enabled" only when unsaved changes to the current project are pending.
- **Run Project** - Used to execute the currently defined duplicate search project.

Tip: You can also load projects by double-clicking on a project filename (a file with a .dfd extension) from outside of Duplicate File Detective (from Windows explorer, for example).

See also:

[What is a Project?](#)
[Project Wizard](#)

2.3 Project Wizard

The Duplicate File Detective Project Wizard is designed to provide you with a quick starting point for duplicate file searches.

Start the Project Wizard by clicking the appropriate button in the application Ribbon Bar.

Step 1 - File Matching

The first screen of the wizard helps you to define the type of scan to execute. There are several types.

- **Quick Search** - Searches the selected drive(s) or folder(s) for duplicates that match by file name, extension and size. This provides quick results with a fair degree of accuracy. We strongly recommend that you review duplicate search results *extra carefully* when using this option.
- **Checksum Search** - Searches the selected drive(s) or folder(s) for duplicates that match by file name, extension, size and 128-bit content checksum. Quick, with a good degree of accuracy.
- **Strong Checksum Search** - Searches the selected drive(s) or folder(s) for duplicates that match by file extension, size and 256-bit content checksum. Slower, with a very strong degree of accuracy, and

does not require that file names match (but does require that extensions match).

- **Duplicate Song Search** - Finds duplicate songs by analyzing the audio tags of supported music file formats, including MP3, Ogg Vorbis, FLAC, MPC, Speex, WavPack TrueAudio, WAV, AIFF, MP4 and ASF.

To select a one of the file matching methods listed above, click the checkbox indicator adjacent its name. Then click the Next button.

Step 2 - Search Paths

The next screen of the Project Wizard allows you to determine which file system paths should be searched for duplicate files. You will be presented a file system tree (on the left) that shows available drives and folders (similar to Windows Explorer), and a listing of search paths (on the right).

To include a drive or folder in the search, select it in the file system browser pane and click the right-pointing blue arrow button.

The Search Paths editor on the right is also a full-fledged path editor; you can use its toolbar buttons to add, edit, or re-order paths that appear in this pane. For example, you can click the New toolbar button in the Search Paths editor and enter a fully qualified UNC network path (e.g. "\\computer\share").

Add as many paths as you require during this step in the project wizard, then click Next.

Step 3 - File Types

The Project Wizard file types screen allows you to specify precisely what kinds of files should be included in the duplicate search process. For example, if you'd like the duplicate search to include only certain types of multimedia files, you can do so here.

The default values on this screen are determined automatically based upon the project type specified in Step 1 (above).

The file types input field uses Duplicate File Detective's [filename masking system](#), which supports both wildcards and regular expressions.

Click Next to proceed.

Step 4 - Results Report

This step of the Project Wizard allows you to specify which data columns will be visible within the final duplicate search results report.

The default values on this screen are determined automatically based upon the project type specified in Step 1 (above). Please note that you can always change the visibility of columns within the duplicate search results report later.

Click Next to proceed.

Step 5 - Ready to Begin

Duplicate File Detective is now ready to begin scanning for duplicates! Click the Finish button, and watch as Duplicate File Detective goes to work!

Note that, depending upon selections made in previous steps (and the size of the file system paths being scanned), the duplicate file identification process can be fairly time consuming. Once you've got the basics down, learn how to use [Search Filtering](#) to limit the files being compared, which can accelerate the process considerably.

Now click Finish to start your duplicate file search.

See also:

[What is a Project?](#)
[Managing Projects](#)

2.4 Search Paths

Duplicate File Detective provides the ability to scan multiple duplicate file search paths in a single pass. These paths are managed via the Search Paths docking window, located (by default) in the upper left hand corner of the Duplicate File Detective application window.

Managing Search Paths

The toolbar buttons near the top of the search paths docking window pane provide the ability to add, delete, protect (more on this in a minute) and alter the position of search path entries. Search paths are processed in the order in which they appear in the search path listing.

Note that each search path in the search path listing has a check box to its left. Duplicate File Detective will only process paths that have a mark in this check box. This provides a quick way to disable or enable paths during search operations without removing and re-adding them.

Right-clicking within the Search Paths window will cause a special context-sensitive menu to appear. This menu provides another means of manipulating search paths, and also allows you to check / uncheck all paths at once. Double-clicking a search path will edit that path.

When a new Duplicate File Detective project is created, the search path listing is populated with a list of default values correlating to the fixed drive on the host computer. This behavior can be altered in the [preferences](#) window.

Search paths are saved and loaded on a per-project basis.

Tip #1: Network paths can be entered into the Search Paths window by clicking the "Add" toolbar button and either selecting a path from the "My Network Places" branch of the file system tree, or by entering a UNC path (e.g. "\\myserver\sharename") directly into the Folder edit box.

Tip #2: You can also drag folder paths from within Windows Explorer and "drop" them on the Search Paths panel.

Protecting Search Paths

Search paths can also be protected from processing by selecting the path in question and clicking the Protect toolbar icon.

When a search path is protected, any duplicate file found within that path (or any of its subfolders) will also be protected. Protected entries will be shown in the duplicate [results report](#) view with a small lock icon in place of the normal check box image that appears adjacent the file name. This effectively prevents such entries from being eligible for [processing](#) by Duplicate File Detective.

Note that search paths can be protected either before or after a duplicate file search is run.

Important: Search paths (and therefore search path protection) is a property of the current Duplicate File Detective [project](#). As such, duplicate search results [imported](#) from an existing XML [export](#) file will *never* be identified as protected unless the associated project is also loaded.

See also:

[Exclusions](#)

2.5 Exclusions

Similar in form and function to the [Search Paths](#) docking window pane, the Exclusions pane allows you to indicate which file system paths should be excluded from duplicate file search operations.

Note that, like the search paths, a default set of excluded paths is provided for you when a new project is created. This behavior can be altered in the [preferences](#) window if desired. Generally speaking, it is recommended that you exclude file system paths that may contain sensitive files such as those used by the Windows operating system or third-party software. This can also dramatically reduce the working file set and produce faster duplicate file search results.

Please review the [Search Paths](#) section of this help file for usage details.

See also:

[Search Paths](#)

2.6 Search Filtering

2.6.1 About Search Filtering

Duplicate File Detective uses Search Filtering to determine which file system objects should be subject to the duplicate comparison process. When a Duplicate File Detective project is run, each file is compared against the current search filter criteria - if the file doesn't match, then it is excluded from the duplicate comparison process.

Search Filtering settings are accessed through the docking panel visible to the right of the Duplicate File Detective user interface (by default). If the panel is not visible, click the View menu and select the Search Filtering menu item.

There are four main search filter criteria types, which are further discussed in other parts of this guide.

- [Filename masks](#) - Compare only the file names and types in which you're interested.
- [File dates](#) - Compare only files of a certain age.

- [File sizes](#) - Compare only files of a certain size.
- [Advanced options](#) - Advanced file scanning / comparison options.

Each of these filter criteria types is contained within its section within the Search Filtering docking panel. Clicking the header text for any section will cause its contents to be expanded or collapsed.

Tip: Whenever possible, use Search Filtering settings to narrow down the number of files that are compared for duplication. Doing so will increase the speed of the duplicate comparison process.

2.6.2 File Names

During the duplicate file search process, every file's name is examined and compared against the settings defined in the **File names** section of the [Search Filtering](#) docking panel.

File name masks can be either inclusive or exclusive (see below for details).

File name masks can be defined using one of two syntaxes: wildcard patterns (the default) or more advanced regular expressions. Use the "Use regular expression matching" switch in the file name masks section of the [search filtering](#) panel to switch between these two modes.

Wildcard Patterns

When operating in wildcard pattern mode, file name masks are comprised of patterns of characters, with multiple sets of masks separated by semicolons. Wildcard characters include '?' and '*', which match either one instance or multiple instances of any character (respectively). Any other (non-wildcard) character matches itself.

Further, any file name mask can be preceded by a tilde character ('~'), which specifies that the mask is **exclusionary**. If a file name matches an exclusionary mask, the file will always be skipped.

Wildcard Pattern Examples

Here are a few examples of wildcard file name masks:

- **mypicture.bmp** - This mask has no wildcard characters, and is therefore a literal match. Only files named "mypicture.bmp" will be included in the duplicate comparison process.
- ***.bmp** - This mask uses the asterisk (*) character to include any files with a ".bmp" extension in their names.
- ***.bmp;*.gif;*.jpg** - This is a compound mask, with separate entries separated by semicolons. This mask will match any ".bmp", ".gif", or ".jpg" files it encounters.
- **~family*;*.bmp** - The first element of this compound mask is preceded by a tilde (~), which means that it will excluded any files that start with "family". It will then include any files with a ".bmp" extension in their names.

The file names section of the Search Filtering docking pane also includes a **Presets** button, which you can click for easy access to a range of built-in masks (called File Groups). These can help you to get started quickly, and can also be [customized](#) to suit your needs.

Important Note: When using wildcards in filename masks, keep in mind that a mask of *.* is subtly different than just *. The former requires that a dot (.) be included in the file name, while the latter does not. In other words, the *.* pattern will *not* match file names that *don't* have an extension - if you wish to match these, use just a single asterisk (*) instead.

Regular Expressions

As noted above, filename masks can also be defined using powerful regular expression syntax. Regular expressions are formulas that can be used to match strings of text that follow some pattern. They allow their users to succinctly express a set of character matching rules that would otherwise require a large number of switches and logical operations.

This help file will not provide an in-depth tutorial on the formation of regular expressions, simply because a large number of such tutorials are freely available on the web (visit your favorite search engine and enter "regular expressions" into the search box to find them).

Please keep in mind, however, that there are subtle differences between the regular expression syntax engines that various applications employ. The charts below provide an overview of the regular expression metacharacters and abbreviations supported by Duplicate File Detective.

Metacharacter	Meaning
.	Matches any single character.
[]	Indicates a character class. Matches any character inside the brackets (for example, [abc] matches "a", "b", and "c").
^	If this metacharacter occurs at the start of a character class, it negates the character class. A negated character class matches any character except those inside the brackets (for example, [^abc] matches all characters except "a", "b", and "c"). If ^ is at the beginning of the regular expression, it matches the beginning of the input (for example, ^[abc] will only match input that begins with "a", "b", or "c").
-	In a character class, indicates a range of characters (for example, [0-9] matches any of the digits "0" through "9").
?	Indicates that the preceding expression is optional: it matches once or not at all (for example, [0-9][0-9]? matches "2" and "12").
+	Indicates that the preceding expression matches one or more times (for example, [0-9]+ matches "1", "13", "666", and so on).
*	Indicates that the preceding expression matches zero or more times.
??, +?, *?	Non-greedy versions of ?, +, and *. These match as little as possible, unlike the greedy versions which match as much as possible. Example: given the input "<abc><def>", <.*?> matches "<abc>" while <.*> matches "<abc><def>".
()	Grouping operator. Example: (d+)*d+ matches a list of numbers separated by commas (such as "1" or "1,23,456").
\	Escape character: interpret the next character literally (for example, [0-9]+ matches one or more digits, but [0-9]\+ matches a digit followed by a plus character). Also used for abbreviations (such as \a for any alphanumeric character; see table below). If \ is followed by a number n, it matches the nth match group (starting from 0). Example: <{.*?}>.*?</0> matches "<head>Contents</head>".
\$	At the end of a regular expression, this character matches the end of the input. Example: [0-9]\$ matches a digit at the end of the input.
	Alternation operator: separates two expressions, exactly one of which matches (for example, T t matches "The" or "the").
!	Negation operator: the expression following ! does not match the input. Example: alb matches "a" not followed by "b".

Abbreviations

\a	Any alphanumeric character: ([a-zA-Z0-9])
\b	White space (blank): ([\t])
\c	Any alphabetic character: ([a-zA-Z])
\d	Any decimal digit: ([0-9])
\h	Any hexadecimal digit: ([0-9a-fA-F])
\n	Newline: (\r \r?\n)
\q	A quoted string: ("[\^"]*\")(\'[\^']*\'')
\w	A simple word: ([a-zA-Z]+)
\z	An integer: ([0-9]+)

Excluding Protected File Types

By default, Duplicate File Detective will exclude [protected file types](#) from the duplicate search process. To manage protected file types, navigate to the Protection tab of the Preferences window.

2.6.3 File Dates

During the duplicate file search process, every file's date/time stamp is examined and compared against the settings defined in the **File dates** section of the [Search Filtering](#) docking panel.

File date comparison options include:

- **Include all dates** - No file date filtering is performed. This is the default.
- **Modified within last week** - Include only files with a date stamp that occurs within the last week.
- **Modified within last month** - Include only files with a date stamp occurring within the last month.
- **Modified with last year** - Include only files with a date stamp occurring within the last year.
- **Specify date range / type** - More info below...

If you select the last option (specify date range / type), a drop-down box will be enabled that allows you to choose the file date / time stamp type used during comparison operations. Choices include date modified, date created, and date accessed. You will also be able to define the specific date range within which file date / time stamps must fall in order to be included in the duplicate comparison process.

2.6.4 File Sizes

During the duplicate file search process, every file's size is noted and compared against the settings defined in the **File sizes** section of the [Search Filtering](#) docking panel.

File size comparison options include:

- **Include all sizes** - No file size filtering is performed. This is the default.
- **Small** - Only small files (those less than 100KB in size) will be included.
- **Medium** - Only medium files (those less than 1MB in size) will be included.
- **Large** - Only large files (those more than 1MB in size) will be included.
- **Specify size** - Allows you to specify that only files that are "at least" or "at most" a specific size should be included. You can also specify that files must be "between" two specific sizes to be included.

2.6.5 Advanced Options

Advanced [Search Filtering](#) options are as follows:

- **Search system files / folders** - Indicates that system files and folders should be included. Off by default.
- **Search hidden files / folders** - Indicates that hidden files and folders should be included. Off by default.
- **Search sub folders** - Indicates that subfolders should be searched recursively. On by default.
- **Case sensitive masks** - Indicates that [filename masks](#) should be treated as case-sensitive. Off by default.
- **Skip zero-length files** - Specifies that zero-length files should be skipped. On by default.

Tip: You should leave the advanced options at their default settings unless you have a good reason to do otherwise.

2.7 Comparison Options

The Comparison Options window provides granular control over how Duplicate File Detective's compares files. The window contains three tabs, as described below.

General Tab

- **Compare file names** - Names must match in order for files to be considered duplicates.
 - **Remove whitespace and special characters during comparison** - Disregards all non-alphanumeric characters during file name comparisons (e.g. "_test.txt" and "test.txt" would be considered the same).
- **Compare file extensions** - Extensions must match in order for files to be considered duplicates.
- **Compare file sizes** - Sizes must match in order for files to be considered duplicates.
 - **Compare file contents** - The contents of files must match in order for files to be considered duplicates.
 - **Byte-for-byte content match confirmation** - Confirms that matches identified by content hashing are identical at the byte level.
- **Compare last modified date / time** - File modified date/time stamps must match in order for files to be considered duplicates.
- **Compare music tags** - The audio tags that you specify (see below) must match in order for files to be considered duplicates.
- **Compare parent folders up to this depth** - When enabled, requires that parent folder names (up to the specified depth) also match. For example, enabling and configuring parent folder comparisons with a depth of "1" would cause "c:\temp\folder1\test.txt" to match "d:\temp2\folder1\test.txt" (because the immediate folder is the same), but would not match "d:\temp2\folder2\test.txt" (because the immediate parent folder is different).

Other options:

- **When hashing zip files, enumerate and hash the files they contain** - Zip files (those with a .zip extension) often contain metadata that prevent them from responding well to normal file content comparisons. Use of this option will cause the archived contents (e.g. the individual files) to be hashed independently of the zip file that contains them, improving comparison potential.

Notes:

- Files will be considered duplicates of one another *only* when *all* the chosen comparison options match.

- Byte-for-byte content matching will slow the overall duplicate search process considerably, and is rarely necessary (see file hashing notes below).
- When using file content comparison, combining it with other match options (such as file name and/or extension) will often improve performance by reducing the number of files that need to be hashed.

Hashing Tab

When "Compare file contents" is selected on the General Tab of the Comparison Options window (see above), this tab can be used to specify precisely which hashing method is used to generate file content checksums.

A file hash is a numerical checksum value, derived through some mathematical formula, that represents the contents of the related file as a whole. Theoretically speaking, stronger file hash algorithms produce checksums that are more unique than weaker ones, and thus are more likely to correctly identify duplicate files. Generally, the stronger the file hashing algorithm, the longer it takes to produce a file checksum.

Duplicate File Detective supports the following file comparison hash types:

- **CRC32** - A quick, 32-bit checksum.
- **ADLER32** - Another 32-bit checksum, similar in accuracy to CRC32.
- **MD5** - A very accurate, slower 128-bit checksum.
- **SHA1** - Even more accurate, slower 160-bit checksum.
- **SHA256** - Even more accurate, slower 256-bit checksum.
- **SHA512** - Even more accurate, slower 512-bit checksum.

Stronger file content hashing algorithms (such as SHA1 and SHA256) are very *unlikely* to produce false positives (e.g. mistakenly identify two files as being identical to one another when they actually differ). Even the smallest differences in file contents will (with overwhelming probability) result in completely different hashes due to a cryptographic concept known as the [avalanche effect](#). If you must be absolutely certain that two files are identical, use the byte-for-byte content match confirmation, which validates file comparisons at the binary level.

File Matching options are project-specific, and are saved and loaded on a per-project basis.

Music Tags Tab

Many types of audio files (including MP3, WMA, OGG, ASF, etc.) contain special data fields called *tags*. Tags were designed to store additional information about an audio file, such as the track title, artist, album name, genre, and more.

Audio tags can also be useful when searching for duplicate songs. File content comparison (through hashing or byte-by-byte analysis) is often ineffective at detecting duplicate audio files because their contents naturally tend to vary depending upon how (and when) the audio itself was captured - meaning that the *files themselves are often not truly identical*. However, we can compare audio tags to great effect - for example, if two music files have identical *title* and *artist* tags, they are very likely to be the same song.

When "Compare music tags" is selected in on the General Tab of the Comparison Options window (see above), this tab is used to specify precisely which tags are used to compare audio files. Duplicate File Detective supports a core set of audio tags which have been broadly adopted within the music industry (including artist, title, album, track, etc.). Audio tag comparisons are always performed in a case-insensitive manner (e.g. upper and lower case are ignored).

Duplicate File Detective supports extraction and comparison of audio tags from the following music file formats: MP3, Ogg Vorbis, FLAC, MPC, Speex, WavPack TrueAudio, WAV, AIFF, MP4 and ASF. Supported audio file extensions: .mp3, .ogg, .flac, .oga, .mpc, .wav, .spx, .tta, .m4a, .m4b, .m4p, .3g2, .mp4, .wma, .asf, .aif, .aiff, and .wav.

Important: Audio files are not *required* to contain tag data (most do), and this duplicate detection method will not work with files that don't.

See also:

[File Checksums](#)

3 Duplicate Results

3.1 Duplicate Search Progress

When a Duplicate File Detective project is run, a progress window will appear for the duration of the duplicate file scan and comparison process.

The progress window shows a variety of information, including the number of folders scanned, folders skipped, files scanned, files compared, and duplicates found. It will also show you the name of the current folder being scanned, or a pair of progress bars that indicate the state of the overall file comparison process.

Duplicate file scanning and comparison operations can be stopped at any time. If a scan is aborted before it completes, the results gathered so far will be displayed.

Note: Folders and / or files are generally "skipped" because of the project [Search Filtering](#) settings currently in effect. If an entire folder is skipped (because it is [excluded](#), for example), then the files contained within the folder will not be counted. For details on what file and folders are skipped, refer to [Logging](#).

3.2 Result Report

The Duplicate File Detective result report provides a group-based listing of duplicate files found on the scanned file system(s).

The result report has a number of powerful features, including:

- [Exporting](#) - Export the duplicate file report in a range of formats, include XML (which can be [re-imported](#)).
- [Printing](#) - Printing, print preview, and printer setup.
- [Groups](#) - Duplicate files are separated into groups to facilitate comparison and management.
- [Sorting](#) - Sort duplicate files (and groups) by any search result report column.
- [Context menu](#) - Right-click to access numerous file and group level functions.
- [Customization capabilities](#) - Used to make the duplicate report work the way you want.
- [File marking](#) - Used to mark files for further processing.
- [Moving, Zipping & Deleting](#) - Built-in duplicate file processing assistance.

Click one of the links above to further explore the capabilities of the Duplicate File Detective result report window.

Note: Many aspects of the duplicate results report display can be customized. See the [Customization](#) section of this help file for additional information.

See also:

[Duplicate Groups](#)

[Sorting](#)

[Context Menu](#)

[Marking Files](#)

[Result Filtering](#)

3.3 Groups

Once duplicate file searching and comparisons are complete, the [result report](#) will provide a group-based display of the results.

Duplicate file groups are separated by lines and are displayed with alternating background colors. You can hover your mouse over any file within a duplicate group to get information about the overall size of that group (along with other information).

Groups also have a unique number (a group index) associated with them, visible (by default) as a column within the result report.

Which Duplicate File Group Entry is the Original?

When viewing and managing duplicate file groups, don't be confused by the concept of duplicate file *originality*. Duplicate File Detective has no way of knowing which duplicate file in any given group is the "original", and it doesn't attempt to make such determinations - it simply shows all files discovered during the duplicate search process. Decisions regarding which files to keep (or otherwise [process](#)) are left entirely up to the user.

See also:

[Marking Files](#)

3.4 Sorting

You can sort the duplicate [result report](#) by clicking any of its column headers. Click once to sort by the column in ascending order, again to sort in descending order.

How Sorting Works

Duplicate File Detective implements a highly specialized approach to sorting duplicate search results. Specifically, sorting is done at the [duplicate file group](#) level in a manner that ensures that duplicate groups are kept together within the results report.

Say, for example, that you sort the current duplicate search results by size in descending order (so that the largest files are near the top of the report). First, the files within each duplicate group will be sorted (by size in descending order), and then the duplicate file groups themselves will be sorted in the same manner, using the size of the first duplicate file within the group (which will be the largest due to the previous step) as the sort key.

If that seems confusing, please spend some time playing with sorting duplicate search results to see how this works. The key concept to remember is that Duplicate File Detective will **always keep duplicate file group entries together** during sorting operations.

3.5 File Checksums

Duplicate File Detective can compare the contents of files by computing the file's content **checksum**. This checksum is a numerical representation of the file's contents derived through a series of mathematical computations - a process known as *hashing*.

Duplicate File Detective offers a range of hashing algorithms:

- **CRC32** - Quick checksum (32 bits)
- **ADLER32** - Quick checksum (32 bits)
- **MD5** - Stronger, slower checksum (128 bits)
- **SHA1** - Even stronger, slower checksum (160 bits)
- **SHA256** - Even stronger, slower checksum (256 bits)
- **SHA512** - Even stronger, slower checksum (512 bits)

Generally speaking, the "stronger" the checksum / hashing method, the more likely it is that two files compared with the resulting checksum will be identical. Stronger hashing algorithms are also generally a bit slower than weaker ones.

Note that stronger file content hashing algorithms such as MD5 and SHA are *extremely unlikely* to produce false positives (e.g. mistakenly identify two files as being identical to one another when they actually differ). Even the smallest differences in file contents will (with overwhelming probability) result in completely different hashes due to a cryptographic concept known as the [avalanche effect](#). If you must be absolutely certain that two files are identical, use the byte-for-byte content match confirmation, which validates file comparisons at the binary level.

Tip: Duplicate File Detective provides a [File Hash Calculator](#) feature that you can use to experiment with the computation of file checksums.

See also:

[File Matching](#)

3.6 Context Menu

Right-clicking within the Duplicate File Detective [result report](#) will cause a context-specific menu to appear. Different context menus will appear depending upon whether you click a [duplicate file group](#), or one of the duplicate files within a group.

Context menu functions include:

- **SmartMark** - These are extensions to our powerful SmartMark technology that are duplicate file

specific. These provide a broad range of marking capabilities such as marking all files in the same group, marking files in the same (or other) folder(s), and more.

- **Open file** - Opens the currently selected file with the default Windows associated file.
 - **Rename file** - Allows the selected file to be renamed.
 - **Explore folder** - Opens Windows explorer and shows the folder containing the currently selected file.
 - **Exclude parent folder from future searches** - Adds the parent folder to the [search exclusions listing](#).
-
- **Move marked item(s)** - Provides a facility for moving any currently marked files.
 - **Zip marked item(s)** - Provides a facility for zipping (e.g. compressing) any currently marked files.
 - **Delete marked item(s)** - Provides a facility for deleting any currently marked files.
-
- **Remove selected item(s) from report** - Prunes selected file entries from the report without removing them from the file system.
-
- **Cmd prompt here** - Opens a command prompt window within the containing folder.
 - **Copy path(s) to clipboard** - Copies the full duplicate file path to the Windows clipboard.
 - **Copy marked path(s) to clipboard** - Copies all marked paths to the Windows clipboard.
-
- **Compute file hash** - Starts the file hash calculator with the selected duplicate file paths.
 - **Properties** - Displays Windows file properties window.
-
- **Filter search results by** - Allows search results to be filtered by various duplicate file properties.

Tip: Multiple duplicate files can be selected by holding down the Ctrl or Shift keys while clicking.

3.7 Marking Files

Before you can take action against one or more files that appears within the Duplicate File Detective result report window, you must *mark* them. You mark a file by placing a mark in the small box near the name of the files you wish to act upon.

The Marking section of the application Ribbon Bar provides a range of functions designed to assist with marking files, including [SmartMark™](#) - our special duplicate file marking assistant technology.

You can also right-click a duplicate file to gain access to numerous file and group level SmartMark functions.

After you've marked one or more duplicate files, Duplicate File Detective can further help you to perform additional processing on them. Duplicate File Detective has integrated facilities for [moving](#), [zipping](#), or [deleting](#) the duplicate files that you've marked.

See also:

[Duplicate Groups](#)
[SmartMark](#)

3.8 SmartMark

Duplicate File Detective supports a concept known as SmartMark™, allowing users to [mark](#) duplicate files using specific patterns. Marked duplicate files are then eligible for [additional processing](#) (e.g. moving, deleting, or zipping).

To use the SmartMark™ facility, click the SmartMark™ button in the application Ribbon Bar. A pop-up menu will appear, providing access to a number of duplicate file marking options.

- **Mark First File in Each Group** - Marks the first file in each duplicate group. Very useful when combined with [result report grouping](#) capabilities.
- **Mark All But First File in Each Group** - Marks all but the *first* file in each duplicate group.
- **Mark All But Last File in Each Group** - Marks all but the *last* file in each duplicate group.

- **Mark Matching File Paths** - Provides a means of marking duplicate files with paths matching a specific pattern.

- **Mark Oldest Files in Each Group** - Marks the oldest files in each duplicate file group.
- **Mark Newest Files in Each Group** - Marks the newest files in each duplicate file group.

- **Mark Largest (by Size) in Each Group** - Marks the largest files in each duplicate group (using raw file size for comparison).
- **Mark Smallest (by Size) in Each Group** - Marks the smallest files in each duplicate group.

- **Mark Longest (by Name) in Each Group** - Marks the longest file names in each duplicate group.
- **Mark Shortest (by Name) in Each Group** - Marks the shortest file names in each duplicate group.

- **Mark By Music Tag**
 - **Mark Shortest (by Duration) in Each Group** - Marks the shortest duration (audio tag) music files in each duplicate group.
 - **Mark Lowest BitRate Files in Each Group** - Marks the lowest bitrate (audio tag) music files in each group.

IMPORTANT: In addition to the SmartMark capabilities outlined above, you will find *additional SmartMark features* by [right-clicking on duplicate files in the duplicate file report](#).

Tip: Some SmartMark™ functions *may not be applicable* to certain duplicate file groups. For example, if all the files within a duplicate group have the same date / time stamp, the "oldest" and "newest" smart marking option will have no effect on that group.

See also:

[Marking Files](#)

3.9 Moving, Zipping & Deleting

Duplicate File Detective allows you to act upon [marked duplicate files](#) in a number of ways. Each of these functions is accessible via the application Ribbon Bar.

- **Move** - Allows you to move marked duplicate files to another file system location.
- **Zip** - Allows you to zip (compress) marked duplicate files.
- **Delete** - Allows you to delete marked duplicate files. Please use extreme caution when exercising this option (see important note at the bottom of this page).

Selecting any of these actions will cause the **Duplicate File Manager** window to appear. This window allows you to review specifically which files will be impacted by the chosen operation. You can also still change your mind at this point and decide, for example, that you'd prefer to zip a set of duplicate files rather than delete them.

Once you've provided the appropriate move, zip, or delete criteria, click the Go button to proceed. Once the selected operations have completed, the Duplicate File Detective results report window will be refreshed to reflect any file system changes that occurred.

Note that the Duplicate Result Manager will enact or enforce whatever options are defined within the [Protection](#) tab of the global options window.

Duplicate Processing Options

The following options are available when moving, zipping, or deleting files using the Duplicate File Manager window:

When zipping duplicates, delete original files after adding them to zip file

When enabled, this option will delete each file that is added to the target zip file. Note that this option will honor the "Always delete to Windows Recycle Bin" switch explained below.

When deleting or moving duplicates, delete parent directories when they become empty

When this option is engaged, each duplicate processing operation that results in the file being moved or deleted will cause that file's parent folder to be evaluated for emptiness. If the parent folder is empty, it will be deleted. The deletion of the folder will honor the "Always delete to Windows Recycle Bin" option described below. Please use this option with care - never assume that a folder is safe to delete *merely* because it may be empty.

Always delete to Windows Recycle Bin

When enabled, this option uses the Windows shell to delete files directly to the Recycle Bin. **Please note the following limitations:**

- Cannot handle extremely long paths (those exceeding 255 characters in length). This is a limitation of the Windows shell.
- Operations are subject to configuration of the system Windows Recycle Bin, including available space. When the Recycle Bin fills up, the oldest entries are (permanently) removed. Configure your system Recycle Bin appropriately.
- Deletions to the Recycle Bin are (far) slower than "normal" (those that do not use the Recycle Bin) file deletions, particularly for large numbers of files.

When moving duplicates, retain folder structure

When enabled, the folder structure of the source files will be re-created as duplicate files are moved into the target directory. **Caution:** use of this feature within deeply nested directory structures can create extremely long paths within the target directory (which, in turn, may be difficult for Windows Explorer and other applications to manipulate effectively).

When moving duplicates, rename files in order to avoid conflicts

When enabled, any computed target file path that already exists will be renamed to avoid conflicts. When in effect, the resulting file names will be appended with incrementing numerical identifiers (as needed).

Replace moved or deleted duplicates with link to unmarked sibling

When enabled, any action that triggers the deletion or movement of a source file will trigger the creation of a link in its place. The resulting link will resolve to the first unmarked file within the same duplicate group. If no such duplicate target exists (e.g. all entries within the same group are marked), this option will have no effect. The following types of links are supported:

- **Shell shortcuts** - Creates .lnk files in place of moved or deleted duplicate files. Such shortcuts can be resolved by most parts of the Windows shell (including Explorer), but some third-party applications may not follow them.

- **Hard links** - Creates hard links in place of moved or deleted duplicate files. Hard links are generally transparent to users and most applications. **The primary limitation of hard links is that they cannot span volumes.** In other words, you cannot hard link a file that resides on one physical volume to a file that resides on another.
- **Symbolic links** - Creates symbolic links in place of moved or deleted duplicate files. **Supported only on Windows Vista / Server 2008 and later.** Use of this feature also requires that Duplicate File Detective be run from an administrative account "as an administrator" (if needed, right-click on your Duplicate File Detective start menu shortcut and choose "Run as administrator"). Such links can be resolved by most applications running on Vista / Server 2008 or later, and can span volumes (they can even resolve to paths on the network).

Halt processing upon occurrence of first duplicate file processing error

By default, errors that occur during duplicate file processing will be accumulated and reported when file processing completes. When this option is engaged, all processing is halted upon the first occurrence of any such error.

Tips for Successful Duplicate File Processing

1. Always back up source files before enacting duplicate file processing that might affect them.
2. Be sure that you always understand the potential impact of moving or deleting items from any file system.
3. Use the option to delete to the Windows Recycle Bin whenever possible, as it adds an additional safeguard.
4. Pay close attention to any warning messages that appear prior to the execution of duplicate file processing.
5. Consider zipping (rather than deleting) duplicate files for an added level of recoverability.
6. On Windows Vista and later, you may need to run Duplicate File Detective "as an administrator" (right click the shortcut you use to start Duplicate File Detective and choose "Run as administrator") in order to gain sufficient security privileges to process files.

Important Notice!

Before you move, zip, or delete any files on your system, please be sure that you understand the potential impact of your actions. Removing critical system files, for example, can render your system inoperable. Make sure you understand the purpose of any file system object before altering or removing it. **Never assume that a file can be safely archived or removed simply because it is a duplicate.**

3.10 Exporting

Once Duplicate File Detective has finished generating the results of a duplicate file search, the Export button in the Results Processing section of the application Ribbon Bar will be enabled.

Duplicate result reports can be exported in three different formats:

- **HTML** - HyperText Markup Language. This option also copies the "style.css" cascading style sheet file from the "template" sub-folder if your Duplicate File Detective installation directory to the file export target path (and links it to the generated HTML file). You can customize the appearance of HTML exports by modifying the "style.css" template file (knowledge of CSS syntax required).
- **CSV** - Comma Separated Values. The resulting report can be opened directly within most spreadsheet applications such as Microsoft Excel.
- **XML** - eXtensible Markup Language, consumable by a large array of third-party applications. Reports exported in XML format can be [re-imported](#) later. Note that XML export files also contain duplicate

report summary data (such as report run time, files scanned, etc.) so that the [Summary Report](#) function will work correctly when data is re-imported.

You can also select precisely which duplicate file report columns you wish to export (applies to CSV and HTML exports). Check the box adjacent to the name of each column you wish to include in the export file. **Importantly**, when exporting duplicate search results in XML file format, *all column data* is exported (regardless of what column selections you make). This behavior is necessary in order to support duplicate search result [importing](#).

Other export options:

- **Open report after generation completes** - Will attempt to open the target file once the export process has completed. Note that processes uses the default Windows operating system file association.
- **Warn if target file path already exists** - When this setting is disabled, the export target file will always be overwritten, without prompting.
- **Close this window when export completes** - Close the export window when the export process completes.
- **Merge CSS template into HTML export file** - Merges the contents of the CSS export template directly into the HTML export file. When disabled, the CSS file will be placed adjacent the HTML file and linked to it.

To export a duplicate results report, simply select the export format, provide a destination file path, and click the Export button.

Note: Report export capabilities are also accessible through the [command line](#) interface.

See also:

[Importing](#)

3.11 Importing

If you [export](#) duplicate file results report in XML format, you can later re-import them via File | Import XML Report.

Provide the path to the XML report export file you created previously and click the Import button. Note that for large XML data files, this process may require some time.

There is also an option to prune the report of stale duplicate entries after import completes. When enabled, this option triggers the [Autoprune](#) feature, which in turn will compare imported duplicate search results with the file system (and remove those that are no longer present).

Important: When report results are re-imported, the project settings (e.g. search paths, exclusions, filter criteria, etc.) associated with the previous report will not be restored automatically. If you need the project and data to match, it is recommended that you load a project file first, then import the corresponding XML data file.

See also:

[Exporting](#)

3.12 Summary Report

The duplicate file Summary Report is designed to give you a quick snapshot of search results. The summary report is accessed through the Results Processing section of the application Ribbon Bar.

The report contains the following information:

- **Report date/time** - The date and time that report generation completed.
- **Search paths** - Listing of paths searched for duplicates.
- **Excluded paths** - Listing of excluded paths, if any.
- **Report run elapsed time** - The amount of time required to generate the duplicate file report.
- **Duplicate files** - Count of duplicate files found, based upon [project search filter criteria](#).
- **Files scanned** - The number of files actually scanned, based upon project filter criteria.
- **Files skipped** - Number of files skipped, based upon project filter criteria.
- **Folders scanned** - Number of folders scanned.
- **Folders skipped** - Number of folders skipped.

If an entire folder is skipped during scanned (perhaps because it was directly [excluded](#), or indirectly through [filter options](#)), the files it contains will **not** be counted as "skipped" files. Skipped files are only those directly encountered during the initial file system scan, but not used for duplicate file comparison purposes for some reason (e.g. filter criteria settings, etc.).

Note that the contents of the summary report window will be restored when XML data files are [imported](#).

The summary window also provides an option to automatically show itself whenever a duplicate scan (or import) completes. You'll find a checkbox for controlling this option on the Summary Report window itself.

3.13 Autoprune

The Autoprune function compares current duplicate file search report entries against the file system to determine if they're still present. If not, the associated report entry is removed (pruned).

By default, Autoprune is triggered automatically after the [Import](#) function is used.

Autoprune is also launched automatically after duplicate files are processed with Duplicate File Detective (using the built-in [moving, zipping & deleting](#) features).

3.14 Printing

Once Duplicate File Detective has finished generating the results of a duplicate file search, the Print button in the application Ribbon Bar will be enabled.

Clicking the Print button will cause a window to appear that allows you to choose the destination printer, to which you can then print the current duplicate report results.

Duplicate File Detective also provides useful print preview and setup functions.

See also:

[Result Report](#)

3.15 Result Filtering

Duplicate search report results can be filtered, so that you see only a specific set of duplicate files that match the specified filter text.

Once the duplicate search process completes (or results are imported), the Results Filtering section of the application ribbon bar (contained with the View tab) will become enabled.

To filter the on-screen [duplicate results](#), type some text into the filter input box and press enter (or select a previously used entry, if applicable, using the adjacent drop arrow). The duplicate results report will be updated to show only entries that contain the filter text you entered.

By default, the filter text entered in the step above will be compared to the filenames of the duplicates in the search results report. But you can elect to filter by other duplicate file properties as well (such as folder, extension, owner, etc.). Use the drop-down box adjacent the filter input box to choose how filtering will be applied.

Filtering also offers two separate modes of operation, one that shows duplicate file group siblings and another that does not. Use the Filter Mode button to choose which mode you prefer.

Click the Clear button in the Results Filtering section of the application Ribbon Bar (in the View tab) to remove the currently applied filter.

3.16 Media Preview

The Media Preview docking panel allows users to preview the contents of supported multimedia files.

The Media Preview window hosts two discrete components:

1. An image viewer, capable of displaying BMP, EMF, GIF, ICO, JPEG, PNG, TIFF, and WMF image files.
2. An embedded instance of Windows Media Player, which is capable of playing a broad range of audio and video file formats.

To preview a supported multimedia file, select it within the main report detail view. If the file format is supported, it will be loaded and displayed (in the case of images) or initialized for playback (in the case of audio or video files).

Important: Because the Media Preview window embeds an instance of Windows Media Player, supported audio / video file formats will depend upon which version of Windows Media Player (and associated codecs) you have installed. If you have explicitly uninstalled Windows Media Player from your system, the associated audio and video preview will not be available.

Note: The Media Preview window will display thumbnails for supported image files with a size less than or equal to that defined in the [advanced tab](#) of the [preferences](#) window.

If the Media Preview window cannot provide a preview of a file (for any reason), it will instead show the file's Windows shell icon.

3.17 Folder View

The Folder View docking panel provides a hierarchical view of folder structures involved in the current duplicate search [result report](#), and also provides a means of controlling their visibility.

When enabled, the Folder View is automatically populated at the completion of a duplicate search process or an [XML import](#). The folder structure shown in the Folder View is always deduced from the records available in the duplicate search results view, and will be updated automatically after any pruning operations occur (through manual removal of records or use of [AutoPrune](#)).

Not every folder shown in the Folder View tree will always directly contain duplicate files. Some nodes are present to better represent the overall folder hierarchy, as well as allow folder tree check boxes to operate in hierarchical manner (see description of Smart Checkboxes feature below). By default, folders that **do directly contain duplicates are shown in bold** and can be quickly navigated through use of the "Next/Previous Folder With Duplicates" commands, described below.

Folder Filtering

The check boxes adjacent each folder name within the Folder View tree indicates whether the corresponding duplicate search results report entries are visible or not. In other words, if you clear the check box associated with a folder in the Folder View tree, it will cause all search result entries in that folder to become hidden.

The effect of folder level filtering is always shown near the bottom of the Folder View docking panel. When no folder tree nodes are unchecked, it will display the text "Hiding: None". When one or more folder tree nodes are unchecked, this area will display the total number of files hidden along with the number of folders that contain them.

Note that if the Folder View docking panel is closed, any folder level filtering currently in effect will be reset.

Folder View Commands

The Folder View panel has its own toolbar, which exposes the following commands:

- **Check All** - Checks all folder tree nodes, effectively resetting any filtering current being applied.
- **Uncheck All** - Unchecks all folder tree nodes, effectively hiding all duplicate file entries in all folders.
- **Next Folder With Duplicates** - Finds and selects the next folder in the tree that contains duplicate files. Uses the current selected folder tree node as the starting point, or the root node if no selection currently exists.
- **Previous Folder With Duplicates** - Find and selects the previous folder in the tree that contains duplicate files.
- **Folder View Tree** - Exposes a pop-up menu with its own set of commands:
 - **Expand All Folders** - Expands the entire folder view tree to full depth.
 - **Collapse All Folders** - Collapse all folder view nodes.
 - **Invert All Checks** - Inverts the state of all tree node check boxes. This function is only enabled if the Smart Checkboxes feature is turned **off**.
 - **Bold Folder Names Containing Duplicates** - Shows the names of folders that directly contain duplicate files in bold.
 - **Enable Smart Checkboxes** - When engaged, causes check boxes to operate in a hierarchical manner. For example, checking a parent folder node will cause all of its children to be checked as well. Note this feature is incompatible with some other commands such as "Invert All Checks".

- **Rebuild Folder Tree** - Causes the folder tree structure to be re-built based upon current duplicate search results.
- **Disable Folder View** - When engaged, causes Folder View to become completely disabled, bypassing automatic folder tree population. You may wish to disable the Folder View (for performance reasons) when managing very large numbers of duplicates.

A subset of these commands is also available on a per-folder basis. To access these commands, right-click a node within the folder tree:

- **Find First Duplicate in Folder** - Finds and selects the first duplicate file (in the duplicate file results view) that is contained within the selected folder.
- **Mark Duplicate Files in Folder** - Marks all duplicate files contained within the selected folder.
- **Unmark Duplicate Files in Folder** - Unmarks all duplicate files contained within the selected folder.
- **Mark Duplicate Files in Folder and All Subfolders** - Marks all duplicate files contained within the selected folder and any of its child folders.
- **Unmark Duplicate Files in Folder and All Subfolders** - Unmarks all duplicate files contained within the selected folder and any of its child folders.
- **Check (Show) Folder and All Subfolders** - Toggles visibility checkbox for current folder and its children, effectively showing them.
- **Uncheck (Hide) Folder and All Subfolders** - Clears visibility checkbox for current folder and its children, effectively hiding them.
- **Expand All Subfolders** - Expands all children of the currently selected folder.
- **Collapse All Subfolders** - Collapses all children of the currently selected folder.
- **Check All But Selected Folder** - Toggles visibility checkbox for all but the currently selected folder, effectively showing them. *This function is available only if Smart Checkboxes (see description above) are disabled.*
- **Uncheck All But Selected Folder** - Clears visibility checkbox for all but the currently selected folder, effectively hiding them. *This function is available only if Smart Checkboxes (see description above) are disabled.*

3.18 File Properties

The File Properties docking panel appears, by default, at the lower left of the main Duplicate File Detective user interface.

To show properties for a file, simply select it in the duplicate report results listing. The File Properties panel will be updated to reflect the properties of the currently selected file.

The following information is displayed:

- **General** - Name, full path, and other basic file information.
- **Size** - File size information.
- **Date & Time** - Shows all date / time file attributes.
- **Attributes** - Shows attributes that apply to this file (e.g. read-only, hidden, etc.).
- **Version** - Shows file version information (appears only for executable file types).
- **Audio Tags** - Shows audio tag fields (for supported audio file formats).

The File Properties docking panel also offers several functions via its integrated toolbar:

- **Save** - Writes a copy of the file properties to a text file in the location of your choosing.
- **Copy** - Places a textual representation of the file properties on the Windows clipboard.
- **Categorize** - Breaks down file property data into a series of logical categories.
- **Alphabetize** - Shows file property data in alphabetical order.

Note: Information displayed within the File Properties docking window is read-only (e.g. modifications to file properties cannot be made from here).

4 File Types

4.1 About File Types

As a duplicate file searched progresses, Duplicate File Detective monitors and classifies all file type information that it encounters. The resulting information is shown in the File Types docking panels (located at the bottom of the main application window by default).

The File Types report views (one list view and two graphs) display the distribution of duplicate files across various types of files. If, for example, most of your duplicate files on a particular searched file system path are .GIF images, you can easily see as much.

File Type Views

- [Report view](#) - shows file type information in tabular form
- [Graph by count](#) - shows distribution of file types by count
- [Graph by size](#) - shows distribution of file types by file size

4.2 File Types Report

The File Types report view shows the distribution of scanned files (including duplicates) across various file types. Available columns include:

- **File type** - The type of file in question (e.g. GIF Image)
- **Extension** - The associated file extension (e.g. .gif)
- **File Count** - The number of files of this type encountered during searching
- **File Space** - The total space consumed by all files of specified type
- **Dup Count** - The number of duplicates of this type found
- **Dup Space** - The total space consumed by duplicate files of specified type
- **% Dup Space** - Percentage of space (for specified file type) consumed by duplicates

Note: When [importing](#) duplicate results from an existing XML export file, the file and duplicate count / space metrics will be equivalent to one another (and the % Dup Space metric will be 100%). This is because duplicate file data exports don't contain any non-duplicate file records.

Toolbar Functions

- **Print** - Print the file types report
- **Save** - Output the file types report data as comma separated values (e.g. CSV format)
- **Show all** - Shows all file types encountered during duplicate scanning, even if no duplicates were found (by default, only file types for which duplicates were found are shown)

Context Menu Functions

You can right-click on any file type row and either mark report entries and:

- **Mark report entries of this type** - Causes all associated file entries in the main application report view to be marked (the check box for the file will be checked)
- **Filter report view by this type** - Implements a main application report view filter in the form of *.ext (only file of the associated type are shown in the main report view)

4.3 File Types Graphs

The File Types Graphs show the "Top N" distribution of scanned and duplicate files by count and file size.

You can control how many entries are displayed in the File Types Graphs within the [Global Preferences](#) window (see the [General](#) tab).

Toolbar Functions

- **Print** - Displays graph print preview window, which allows you to resize the graph output, etc.
- **Save** - Allows you to save the graph image in Bitmap, JPEG, or EPS format
- **Copy** - Copies the graph image to the Windows clipboard (you can then paste the image into another application)

4.4 File Type Researcher

The File Extension Researcher tool helps you to determine the potential function (or application association) of a given file extension (such as ".PDF" or ".DOC").

It's important to understand that there is no central authority governing the use of file extensions by software applications. So even though many file extensions are predominantly associated with a single application (e.g. ".doc" = Microsoft Word Document), such direct associations are absolutely not guaranteed. Further, you will often encounter file extensions for which the operating system has no known software association. The File Extension Researcher helps you to determine the potential origin of such files.

To use the File Extension Researcher, enter a file extension (such as ".pdf" or ".doc") and click the Go button. You will be presented with two distinct pieces of information:

- **Shell Association** - The operating system shell has special, intrinsic knowledge of some file types and their application associations. The shell uses this knowledge to (among other things) open files with specific extensions with a default application.
- **All Potential Associations** - This is a more complete listing of functional / application associations. This list will often yield results even when the Windows shell has no knowledge of a particular file extension.

The "All Potential Associations" listing shown within the File Extension Researcher pulls information from a file extension database contained within Duplicate File Detective. This database contains thousands of mappings between file extensions and application / functional associations, but it can never be entirely complete (because there's no central registry for file extensions from which to cull such data).

You can also click the Research Online button, which will launch your web browser and search for details (and other potential associations) on the file extension you entered.

Finally, you can browse the entire file extension database contained within Duplicate File Detective by clicking the "View All Extensions" button. The resulting window will allow you to browse known file extensions by their first letter, or by numeric / symbolic grouping.

5 Preferences

5.1 About Preferences

In Duplicate File Detective, application Preferences are those not directly associated with the current [project](#). Preferences are not saved and loaded as part of a project, and are in effect regardless of what project is currently loaded.

5.2 General

General Options

- **Re-open last project when program starts** - Indicates whether the last [project](#) will be loaded automatically upon startup. Enabled by default.
- **Follow file system re-parse points** - Causes file system scanning to follow file system reparse points (e.g. symbolic links, mount points and junctions). Disabled by default.
- **Enable typing auto-complete within application drop-down boxes** - Enabling this switch allows the system to automatically complete text being entered into various drop-down combo boxes used throughout the system. Enabled by default.
- **When filtering duplicate search results, show siblings of matching items** - When enabled, [filtering items within the duplicate search result view](#) will also cause all members of the same duplicate file group to be shown.
- **Show top N file types in file type graphs** - Indicates how many "Top N" graph items should be displayed within the [File Types](#) views. Default value is 10.

Prompts & Notifications

- **Never ask if changes to the current project should be saved** - Whenever a project is closed (e.g. when shutting down Duplicate File Detective or starting a new project), you'll be prompted to save any unsaved changes. Use this setting to avoid such prompts. Disabled by default.
- **Show warning when result report filtering is applied through indirect means** - Some right-click menu functions may apply filtering to the current duplicate search result view. When this option is enabled, users will be notified when such filtering has been applied.
- **Show desktop notification window when duplicate scan completes** - Causes a small notification window to appear in the corner of the Windows desktop when a duplicate scan completes. Notifications are never shown if the current duplicate file scan is canceled by the user.
 - **Only if one or more errors occur during scanning** - Causes the notification window mentioned above to appear only if errors occurred during the duplicate file scanning process.

5.3 Protection

The Protection tab within the Global Preferences window provides an additional layer of safety to duplicate file management operations executed through Duplicate File Detective.

Warnings

Duplicate File Detective provides additional protection by *warning* you if you're about to move or delete a file that violates certain safety constraints. For example, if you produce a duplicate file report, [mark](#) one or more duplicate files, and then click the [Delete](#) button in the Results Processing section of the application Ribbon Bar, the resulting [Duplicate Result Manager](#) window will use the Protection options to determine whether or not you're doing something potentially unsafe.

The protection warning options available are generally self-explanatory. Such warnings, if applicable, will be issued after you click the Go button in the [Duplicate Result Manager](#) window.

Protected File Types

Protected file types are represented by an editable list of file extensions, each of which represents a file type that probably should not be manipulated by any duplicate file management process.

Note: By default, the [file name matching](#) section of the [Search Filtering](#) panel will exclude protected file types from duplicate file search operations. Disable the appropriate switch if you wish to search for duplicates of these file types.

5.4 Results Report

File Attribute Colors

Individual file entries in the duplicate [results report window](#) are color-coded according to their file attributes. For example, by default compressed files are displayed in blue and system files are displayed in maroon.

Here, you can change the colors used to display normal, compressed, hidden, read-only, or system files.

Note: When a file has multiple attributes that would affect the display color, the first matching color (in the order specified above) is used. To see all the attributes that apply to a specific file, simply select the file in the report list and refer to the [File Properties](#) docking panel.

Search Results Report

- **Show filename of marked items with strike-through font** - When enabled, any marked report item filenames will be displayed with a line drawn through them.
- **Lighten the color of marked item rows** - When enabled, the color of any marked report items will appear lighter than those that are unmarked. You can also choose the percentage of lightening to apply.
- **Show time (along with date) in date-based report columns** - Shows both date and time in date report fields such as "last modified", "created", and "last accessed". By default, only the date is shown (without the time).
- **Show tooltips when hovering over report fields** - When enabled, tooltips will appear when the user's mouse hovers over any part of a duplicate search report field. Note that these tooltips may

contain additional information about the duplicate file entry in question (such as duplicate group summary information, etc.).

- **Automatically mark all but the first of each duplicate file group** - When enabled, applies a default set of file markings when a duplicate file search process completes and results are shown.
- **Keep duplicate group entries together when sorting** - By default, duplicate files will be clustered into groups at all times - even during sort operations. When disabled, sorting of duplicate results will be performed without regard to group membership - potentially resulting in duplicate file entries being scattered across the search result view. For this reason, duplicate group coloring and bordering are no longer applied. It is *strongly recommended* that this option be left enabled unless you understand the implications of disabling it.
- **Hash encoding type** - Controls how file hash values are displayed within the duplicate search result report.

5.5 Update Checking

Proxy Options

Options presented in the Updates tab of the Global Preferences window allow you to perform update checks via an HTTP proxy server.

To use an HTTP proxy server when performing update checks, select the "Use HTTP proxy server" check box and provide a proxy port and address (either a host name or an IP address).

If your HTTP proxy server requires authentication, please populate the Login and Password fields appropriately. Otherwise, leave these fields blank.

Other Options

- **Automatically check for updates** - When enabled, Duplicate File Detective will check for updates whenever it is started. This will occur in the background, and a small tray notification area window will be shown if a newer version of the application is available.

5.6 New Projects

When a new [project](#) is created within Duplicate File Detective, a default set of search and exclusion paths are added to the project.

Default Search Paths

- **Add fixed disk drives** - Enabled by default.
- **Add remote (mapped) drives** - Disabled by default.
- **Add removable drives** - Disabled by default.

Default Exclusions

- **Exclude Windows folder** - Where operating system and other critical files are kept (e.g. C:\windows).
- **Exclude Program Files folder** - Where installed programs and their supportive files reside.
- **Exclude Common Program Files folder** - As above, only for all users.
- **Exclude Windows System folder** - The Windows system folder (e.g. C:\Windows\System).
- **Exclude Temporary files folder** - Temporary folder location, as determined by environment variables or current user profile.
- **Exclude Temporary Internet files folder** - The directory in which Internet Explorer places temporary

files.

All of the above exclusions are enabled by default.

Note: On 64-bit systems, certain 32-bit path counterparts will also be excluded based upon the choices made above. For example, excluding the "Program Files" folder on a 64-bit system will also result in the exclusion of the "Program Files (x86)" folder, which Windows uses to transparently support the execution of 32-bit applications.

5.7 Caching

Duplicate File Detective provides a file hash caching subsystem that can improve duplicate search execution performance in many scenarios.

When Duplicate File Detective is [configured to compare file contents](#), it will generate content checksum values for files which require it. From a performance perspective, the creation of file checksums (e.g. "hashing") is the most expensive (e.g. the slowest) operation in the duplicate analysis process chain. File hashing requires that files being analyzed are read in full, resulting in performance that is primarily driven by disk (and sometimes network) I/O.

Hash caching can help mitigate the performance impact of file hashing operations for subsequent project runs by storing hash results in memory (and optionally on disk) for later re-use. Before a file is hashed during a duplicate search, Duplicate File Detective queries the cache to see if a hash value for the file already exists. If a cache entry already exists and has the same creation date, modification date, and size as the current file, its hash value can be re-used (as opposed to being recomputed). The resulting performance gain can be dramatic, particularly when the files in question are large.

Hash caching will be most valuable (e.g. provide the greatest performance gain) in scenarios where duplicate search paths are being re-used, and the files these search paths contain are relatively large. For example, if you are regularly searching a common set of user directories for duplicate files (by comparing file contents), the file hash cache can dramatically speed up subsequent searches, particularly when those files are semi-static (e.g. change infrequently).

For projects that do not use [file content comparison](#), the hash cache is not used.

Cache Configuration

The hash cache is limited by size (e.g. a specific number of cache entries) so as to constrain its usage of host system memory. You can adjust the maximum number of hash cache entries to suit your needs - larger values grant the cache more room to grow, while also increasing memory consumption.

You can also specify the minimum cache candidate file size. Files smaller than this value (which is specified in KB) will never have their hash values cached.

When the hash cache becomes full, it will remove (or prune) a percentage of existing entries in order to make room for new ones. Because the expense of file hashing is directly proportional to a file's size, the hash cache prefers larger files (the preference is proportional to the file size). Therefore, entries will be removed based upon a combination of age and corresponding file size.

Users have the option of persisting the hash cache on disk between sessions. When engaged, the cache will be saved to (and loaded) from disk upon program exist and start, respectively.

Users can also clear the hash cache explicitly via the Clear Cache Now button. This might be useful in cases where you know that existing cache entries no longer have value (e.g. previous duplicate file search paths are very unlikely to be used again in the future).

Statistics

The statistics area of the hash cache shows a range of related metrics, including the number of current entries, smallest and largest entry file size, session hits, etc.

Users that become familiar with how hash caching operates may find these metrics useful in fine-tuning available settings.

5.8 Logging

Duplicate File Detective can log various details about duplicate file search operations to the file system.

This logging facility was designed to assist users in understanding and/or troubleshooting duplicate search processes and results. It should be used only as needed, and otherwise left disabled (please see addition comments below).

Events to Log

- **File found** - Logs the path of files found by initial search pass.
- **File skipped** - Logs the path of files skipped during initial search pass. Includes information about why each file was skipped.
- **Folder scanned** - Logs the path of each folder searched.
- **Folder skipped** - Logs the path of each folder skipped. Includes information about why each folder was skipped.
- **File compared** - Logs full path of comparison candidates. Includes a description of the file comparison result.

Important: Use of logging can degrade performance and consume large amounts of disk space. Logging should be enabled only for short durations in support of troubleshooting operations, etc. All log files are written in CSV format to the logging directory specified above, and are overwritten between project runs (even when logging is disabled).

Log File Directory

Allows users to configure where log files are created and stored.

5.9 Advanced

This tab of the Global Preferences window provides access to advanced Duplicate File Detective settings.

Performance

- **Suppress retrieval of file ownership information** - File ownership data is automatically retrieved from duplicate files for display within the duplicate report (upon search completion). Extraction of this information can slow duplicate search performance, especially when scanning remote (network) paths. If you don't care about file ownership, you may engage this switch to suppress its collection (file ownership fields will always be displayed as "unknown").
- **Compress temp files created by this product** - Duplicate File Detective creates temp files in the

current user's temp folder (or system temp folder, if not available), the size and quantity of which are determined by duplicate search project scope. When enabled, this setting applies NTFS compression to those temp files, significantly reducing the amount of disk space they consume. Such compression infers a minor performance penalty. Supported on NTFS file systems only.

- **Skip tests to determine if files resolve to the same physical location** - By default, Duplicate File Detective attempts to determine when duplicate file search candidates resolve to the same physical file system location (in which case they are not duplicates - they're actually the same physical file). Such tests have minor performance implications, but you may wish to disable them when searching over slower network connections, etc.
- **Use low-priority disk I/O for scanning & hashing** - When enabled, allows operating system to prioritize other disk I/O requests over that of Duplicate File Detective. Requires re-start to take affect.
- **Number of threads used during file content hashing operations**
 - **Single threaded** - Recommended for scenarios where you need to limit disk I/O.
 - **Automatic / adaptive** - Based upon analysis of host computer system resources and project configuration. This is the default.
 - **Use this specific number of threads** - Allows for fine-grained control over thread allocation.

Tip: Multiple file content hashing threads are generally *most* effective at speeding up duplicate file comparison operations when the current project is configured to scan multiple, discrete volumes (e.g. paths spanning multiple physical disks or multiple network paths).

Miscellaneous

- **Maximum image preview file size (in KB)** - Image files selected within the report detail view will be previewed only if their file size is less than what's defined here. Default value is 102,400 KB (100 MB).
- **Enable Unicode support when creating zip archives** - Allows for the creation of zip files that support Unicode file paths. Before engaging this option, be sure to confirm that any archive processing applications you might use to open these files also support Unicode.

6 Advanced Features

6.1 Customizing

Duplicate File Detective has a huge variety of functional and user interface customization options.

Ribbon Bar

You can customize the application Ribbon Bar by clicking the round button with the Duplicate File Detective icon, then selecting Customize. The resulting window provides the ability to customize application commands, keyboard shortcuts, and more.

Docking Panels

Any of the panels that appear by default on the right and left of the main application window can be docked, undocked, hidden, or closed entirely. Simply click the caption bar of one of the panels (the *Filter Criteria* panel, for example) and drag the mouse to move the panel. A series of guides will appear that help you to visualize and access the available docking positions. You can even dock a panel *inside* of another docking panel, in which case it appears as an additional tab within the panel frame.

The visibility of Docking Panels can also be manipulated via the View tab of the Ribbon Bar.

Report Options

Right-clicking the duplicate file report column header will allow you to add and remove report columns, alter column alignment, and more. Report columns can also be managed via the View | Report Field Chooser menu item - when the field chooser window appears, you can drag report columns from it and drop them onto the report detail area (the reverse can also be used to remove them).

Duplicate file report columns can also be re-ordered simply by dragging and dropping.

Additional report options can be found by clicking the main View menu, which contains options for controlling how the report displays file sizes, the report grid style, how grouping is performed, shading of report group headers, and more.

Global Preferences

Some report customization options (such as [attribute colors](#)) are located within the global preferences window, accessible via the main Tools menu.

Application Theme

The drop-down selector near the upper right of the main window frame provides a choice of application themes. Each theme affects the application Ribbon Bar, as well as docking panels, etc.

6.2 Command Line Options

Duplicate File Detective provides a command-line interface that you can use to schedule project execution or integrate with an existing file management process.

Command line instructions (known as *arguments*) are passed in using a specific syntax which must be followed carefully. Here's an example:

```
dfd.exe /project:"c:\temp\test-project.dfd" /html:"c:\temp\export.html" /exit
```

Note that the arguments passed to the command line actions are surrounded by quotes; this is a requirement, as it allows the argument to contain spaces and still be parsed correctly.

You can also access the Duplicate File Detective executable using an absolute path, which is generally what you'll want to do when creating batch files, etc. Example:

```
"C:\Program Files\Duplicate File Detective\dfd.exe" /project:"c:\temp\test-project.dfd"
```

Notice how, in the example above, the path to the Duplicate File Detective executable is also contained in quotes. This helps to ensure that spaces in the path name are handled correctly by the Windows command interpreter.

Important: Use of command line options within Duplicate File Detective is [project-oriented](#). You execute a project by providing its name to the Duplicate File Detective program executable. You must create and save a project to disk before you can execute it in this fashion. This is a very powerful concept which effectively provides you with access to *every project setting* from the command line.

Available Command Line Switches

- **/project** - provides the full path to the Duplicate File Detective project file to execute. This flag is **required**; without it, any other command line options are ignored.
- **/html** - [Exports](#) the duplicate file results in HTML format when project execution completes.
- **/csv** - [Exports](#) the duplicate file results in CSV (comma separated values) format when project execution completes.
- **/xml** - [Exports](#) the duplicate file results in XML format when project execution completes.
- **/exit** - Causes Duplicate File Detective to terminate once all other command line options have been processed.
- **/date** - Appends the current date to the specified export filename; this applies only when using the `"/html"`, `"/csv"`, or `"/xml"` flags. Allows for unique daily export filenames within the same parent folder.

Tip: To schedule the execution of a Duplicate File Detective project, first create a batch (.bat) file that calls the Duplicate File Detective executable with the correct command line arguments. Then use the integrated Windows scheduler to invoke the batch file on a scheduled basis.

6.3 File Hash Calculator

Duplicate File Detective provides a simple File Hash Calculator that you can use to compute the checksum of one or more files.

Using the File Hash Calculator is a good way to get familiar with [file checksum](#) concepts, and can also provide you with a rough sense of the time differences required to perform each type of hashing computation. This information can help you make better decisions on what types of [file matching](#) options to use in your projects.

To use the File Hash Calculator, select the [hash types](#) you wish to have produced, enter one or more file paths, and click the Compute File Hashes button. The file hash results area will show the requested hash type for each file.

6.4 Managing File Groups

Clicking the Presets button within the [File Names](#) section of the [Search Filtering](#) docking panel will reveal the File Groups selection window. Double-clicking any entry in this list will select it for use.

You can also manage these preset values by clicking the Manage button within the File Groups window. Doing so will reveal a window through which you can add, edit, and delete file groups.

To add a new type group, fill in the group name and file name mask fields, then click the OK button. To edit an existing entry, select it and click Edit. Finally, you can delete an entry by selecting it in the list and clicking the Delete button.

Important: Some file groups are *built-in*, in which case they are required for normal product operations. The File Group Manager window will not allow built-in entries to be removed. However, the file name masks associated with built-in entries may be edited. You are also free to delete any new file group entries that you add yourself.

Clicking the Save button at the bottom of the screen will cause your changes to be committed. If you cancel rather than save, your edits will be discarded.

6.5 Event Log

During duplicate file search and processing operations, Duplicate File Detective records information about exceptional events in its Event Log.

Event log entries have three distinct severity levels:

- **Error** - Events that may potentially halt file search or processing, or otherwise interfere with it.
- **Warning** - Events that may cause problems or alter search / processing results, but do not halt it.
- **Informational** - Events of general interest, usually not requiring any user intervention. May potentially impact search or processing results.

Access Denied Errors

Of all the potential errors that Duplicate File Detective may log during a given file system analysis process, **access denied** is perhaps the most commonly encountered. It means that the underlying Windows operating system denied Duplicate File Detective access to the specified file system path.

When this error is encountered, it is important to first consider the Windows user account under which Duplicate File Detective is running. If you started Duplicate File Detective via a normal desktop or start menu shortcut, the application will inherit the permissions associated with your current Windows user account. If your Windows user account is prohibited from accessing a given file system branch, then so will be Duplicate File Detective. In such cases, someone (perhaps you or your company's system administrator) will need to alter the security settings of the file system object(s) in question in order to grant your Windows user account access to them.

On **Windows Vista or later**, there is an additional consideration - User Account Control (UAC). When enabled, UAC attempts to mitigate various security risks by limiting Windows user account permissions during program execution. This behavior can be at odds with your need to process duplicate files with Duplicate File Detective, which often requires a higher level of permissions. In such cases, users may need to explicitly [run Duplicate File Detective as an administrative user](#).

6.6 Run As Admin

In certain cases, users running **Windows Vista or later** may need to run Duplicate File Detective as an administrator. Doing so increases the level of permissions available to the application, potentially improving access to system resources.

To run Duplicate File Detective as an administrator, right-click the shortcut you normally use to launch Duplicate File Detective and choose "Run as administrator" from the resulting pop-up menu.

Depending upon your operating system configuration, running an application as an administrator may result in the display of a Windows UAC (User Account Control) dialog window. This consent dialog is a normal part of Windows Vista or later security model, and may require authentication with administrative user account security credentials before proceeding.

Use Cases

Instances where you may need to run Duplicate File Detective as an administrator:

- You are seeing *access denied* (or other file system access error) entries in the event log during duplicate search operations

- You are processing (e.g. deleting, moving, or zipping) duplicate files and are seeing *access denied* (or other file system access error) errors in the [event log](#)
- You are using [symbolic link support](#) during duplicate file processing operations

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