

# DupScout

## DUPLICATE FILES FINDER



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## User Manual

**Version 15.9**

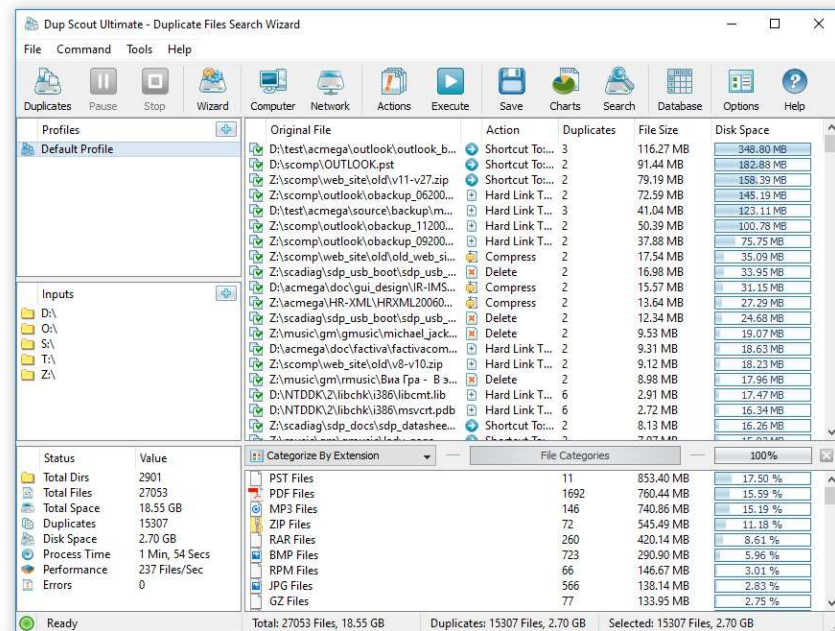
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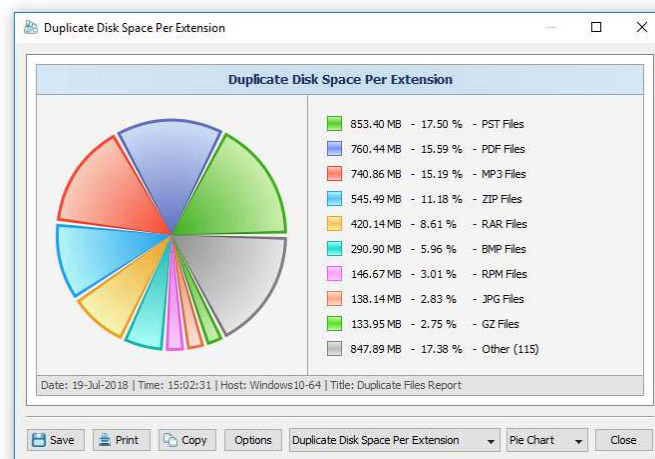
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# 1 Product Overview

DupScout is a duplicate files search and removal solution allowing one to search duplicate files in disks, directories, network shares or NAS storage devices. The user is provided with the ability to review detected duplicate files, generate reports, replace duplicate files with shortcuts or hard links, move duplicate files to another directory, compress and move duplicates or delete all duplicate files.

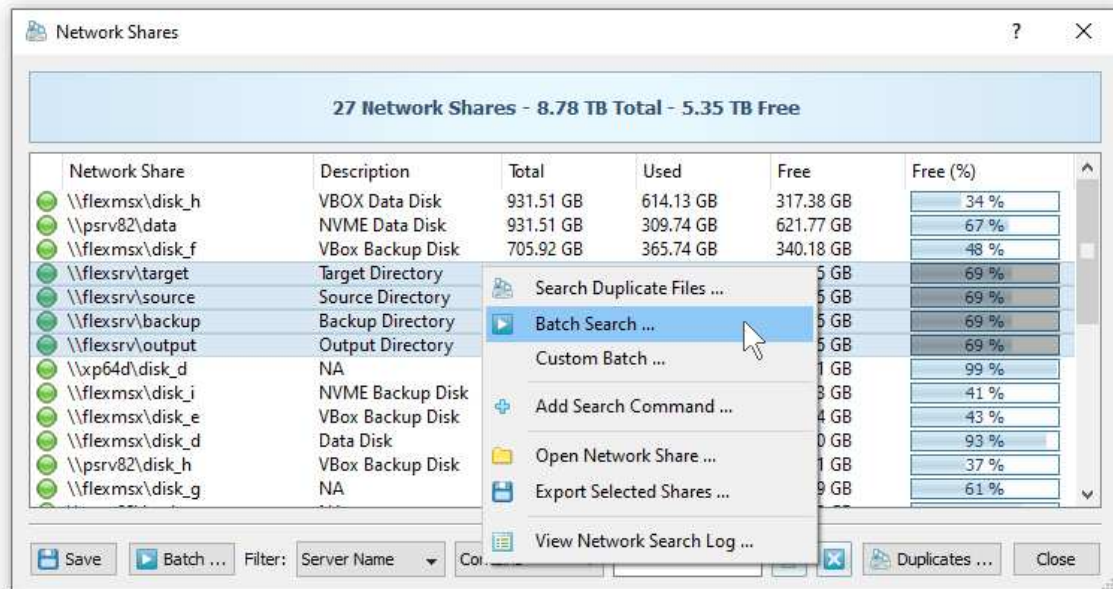


DupScout allows one to save HTML, PDF, Excel, text, CSV and XML reports. Advanced users are provided with the ability to export reports from multiple servers to a centralized SQL database and perform history trend analysis operations. In addition, DupScout Pro and DupScout Server provide a command line utility allowing one to perform automated duplicate files search and removal operations or control one or more DupScout Servers via the network.

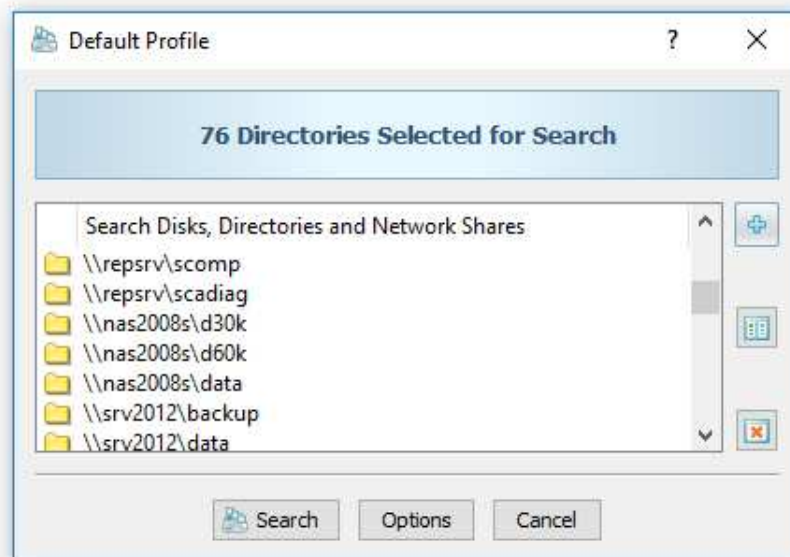


The DupScout command line utility provides a large number of command line options allowing one to search duplicate files, save HTML, PDF, Excel, text, CSV and XML reports, export duplicate files to an SQL database and execute duplicate files removal actions. In addition, the command line utility may be used to execute duplicate file search profiles pre-configured in the DupScout GUI application. Power computer users and IT professionals are provided with the ability to fully-automate duplicate files search and removal operations by integrating the DupScout command line utility into user-custom shell scripts and batch files.

DupScout allows one to scan the network, discover network servers and NAS storage devices, automatically detect all accessible network shares and search duplicate files in hundreds of network servers and NAS storage devices. In addition, the user is provided with the ability to export the list of detected servers and NAS storage devices (including lists of network shares for each server) into HTML, PDF, text and Excel CSV reports.



In order to search duplicate files in one or more servers or NAS storage devices, press the 'Network' button located on the main toolbar and wait while DupScout will scan the network and show a list of detected network servers and NAS storage devices. On the network servers and NAS storage devices dialog, select the required servers and press the 'Duplicates' button.



DupScout will show all network shares hosted on the selected servers and NAS storage devices allowing one to search duplicate files and save various types of charts and reports. In addition, DupScout provides a large number of advanced duplicate files search options allowing one to tune and customize duplicate files search operations for user specific needs and hardware configurations.

In addition, to the desktop product versions, enterprises and IT professionals are provided with DupScout Server, which runs in the background as a service and allows one to search duplicate files in servers and NAS storage devices over the network. DupScout Server is especially optimized for multi-core and multi-CPU servers and can search duplicate files in tens of servers and/or NAS storage devices simultaneously.

```

c:\Program Files\Dup Scout Ultimate\bin>dupsout -search -dir D:\ -save_excel_report C:\Reports
DupScout Version 11.0.28 (Jul 19 2018)
Operation Successfully Completed

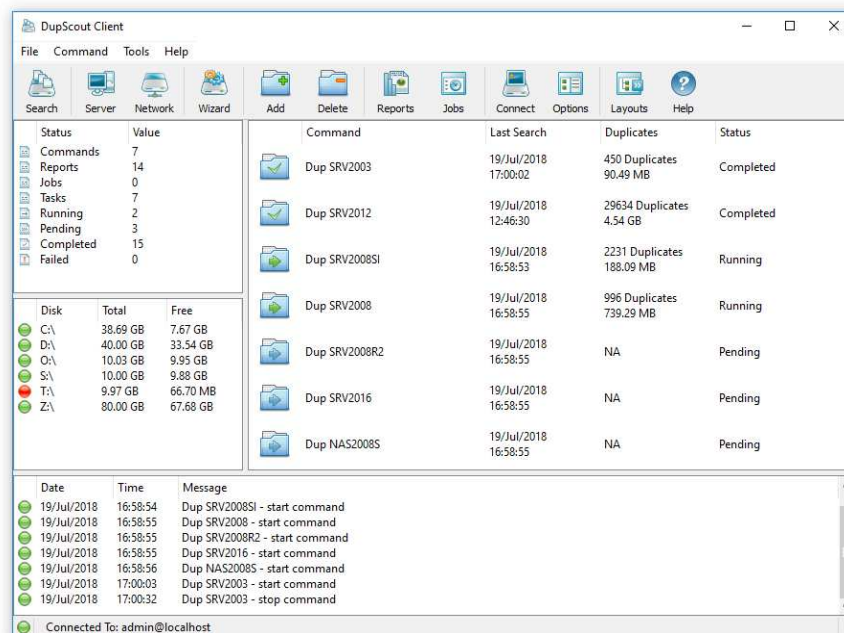
Date                - 2018/07/19
Time                - 15:11:15
Total Dirs          - 2152
Total Files         - 20845
Total Space         - 0.31 GB
Duplicates          - 12485
Disk Space          - 720.23 MB
Performance         - 153 Files/Sec
Process Time        - 2 Mins, 16 Secs
Command Name        - Duplicate Files
Host Name           - Windows10-64
User Name           - alex-s
Input Dirs          - d:\

Saving Duplicate Files Search Report ...
Duplicate Files Search Report Saved To:
C:\Reports\dupsout_report_20180719_151115.xlsx

c:\Program Files\Dup Scout Ultimate\bin>

```

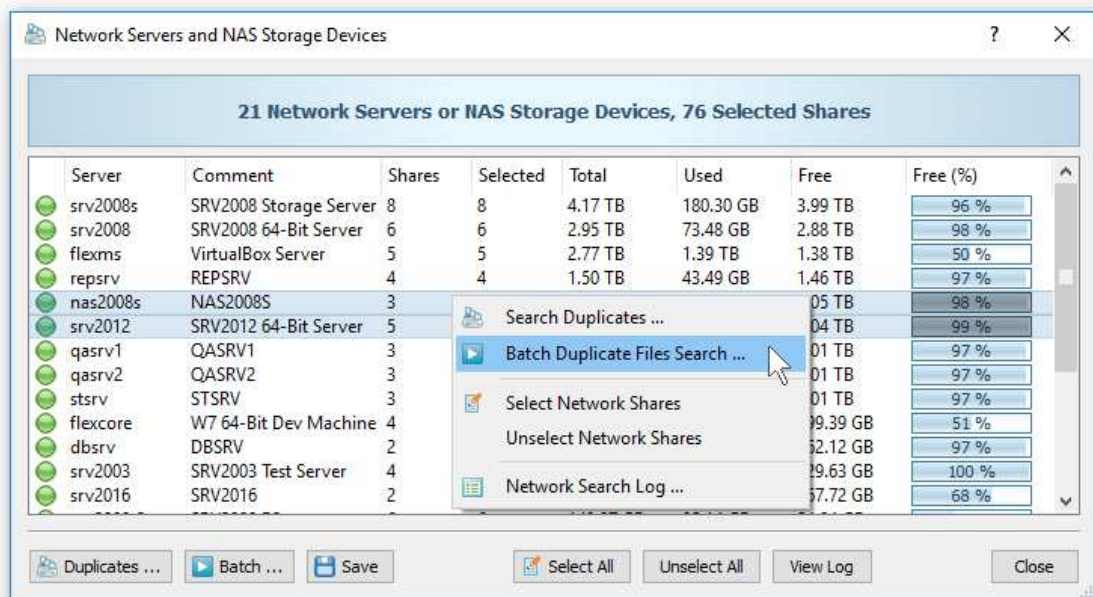
The server product version provides advanced duplicate files search, removal, reporting and history trend analysis capabilities and may be controlled using a full-scale client GUI application and the DupScout command line. The DupScout Server client GUI application provides a full set of features available in the desktop product version and additional capabilities allowing one to perform multiple, parallel duplicate files search operations, schedule periodic duplicate files search operations and perform history trend analysis operations.



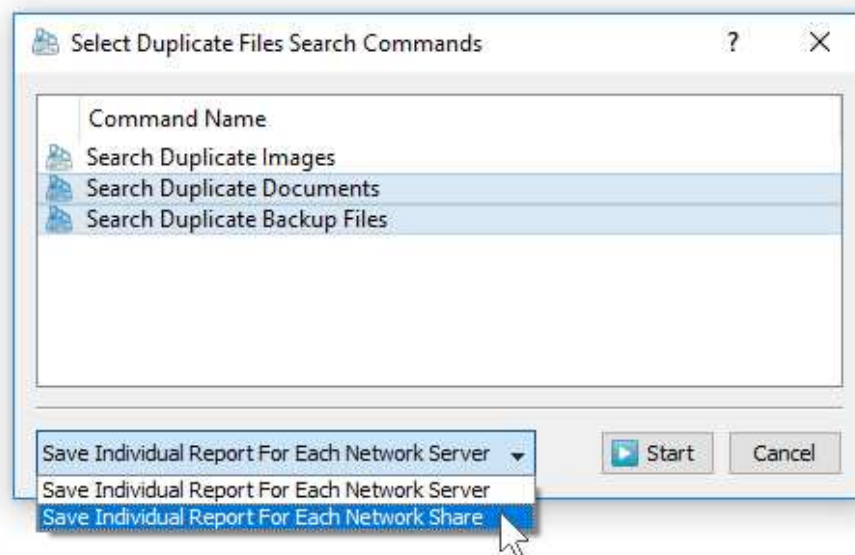
Finally, corporate customers are provided with the DupScout Enterprise product version, which includes a web-based management interface allowing one to control the product using a regular web-browser from any computer on the network. The DupScout Enterprise web-based management interface allows one to control one or more servers using a regular web browser and provides the ability to perform duplicate files search operations, save various types of reports, perform history trend analysis operations, remove duplicate files, schedule periodic duplicate files search operations, etc.



DupScout Server and DupScout Enterprise provide the ability to scan the network, detect all network servers and NAS storage devices, execute one or more pre-configured duplicate files search commands on hundreds of network servers and NAS storage devices and generate an individual duplicate files report for each server, NAS storage device or network share.



In the simplest case, just press the 'Network' button located on the main toolbar, search all network servers and NAS storage devices on the network, select one or more servers, press the right mouse button and select the 'Batch Duplicate Files Search' menu item. DupScout will show a list of pre-configured duplicate files search commands allowing one to select one or more commands to be executed on all selected network servers and NAS storage devices.



Depending on the selected configuration, DupScout will save in the built-in reports database an individual duplicate files report for each network server, NAS storage device or network share. Once the batch duplicate files search operation is completed, the user will be provided with the ability to open saved duplicate files reports, review results, generate various types of pie charts and export reports to a number of standard formats including HTML, PDF, text, Excel CSV and XML.

## 2 DupScout Product Versions

Features	Free	Pro	Server	Enterprise
Maximum Amount of Disk Space	2 TB	25 TB	100 TB	Unlimited
Maximum Number of Files	1 M	25 M	100 M	Unlimited
Maximum Number of Input Directories	10	25	100	Unlimited
Maximum Number of Search Profiles	3	25	100	Unlimited
Support for Unicode File Names	Yes	Yes	Yes	Yes
Support for Long File Names	Yes	Yes	Yes	Yes
Support for UNC Network Path Names	Yes	Yes	Yes	Yes
Pie Charts and Bars Charts	Yes	Yes	Yes	Yes
Option to Delete Duplicate Files	Yes	Yes	Yes	Yes
Option to Move Duplicates to a Directory	Yes	Yes	Yes	Yes
Option to Replace Duplicates with Links	Yes	Yes	Yes	Yes
HTML, PDF, Excel, Text and XML Reports	Yes	Yes	Yes	Yes
Multi-Threaded Duplicate Files Detection	Yes	Yes	Yes	Yes
Search Specific Types of Duplicate Files	No	Yes	Yes	Yes
Rule-Based Duplicates Removal Actions	No	Yes	Yes	Yes
Unattended Duplicates Removal Capabilities	No	Yes	Yes	Yes
SQL Database Integration	No	Yes	Yes	Yes
Command Line Utility	No	Yes	Yes	Yes
Runs as a Service in the Background	No	No	Yes	Yes
DupScout Client GUI Application	No	No	Yes	Yes
Periodic Duplicate Files Search Operations	No	No	Yes	Yes
Analyze Duplicate Files per Host	No	No	Yes	Yes
Analyze Duplicate Files per User	No	No	Yes	Yes
Built-In Disk Space Monitor	No	No	Yes	Yes
Duplicate Files History Charts	No	No	No	Yes
Summary Trend Analysis Reports	No	No	No	Yes
Batch Duplicate Files Search Operations	No	No	No	Yes
Web-Based Management Interface	No	No	No	Yes
Support For Multi-User Configurations	No	No	No	Yes
OS Native User Authentication	No	No	No	Yes
OEM Product Version	No	No	No	Yes
<b>Price</b>	<b>Free</b>	<b>\$125</b>	<b>\$450</b>	<b>\$850</b>

\* Product features, prices and license terms are subject to change without notice.

## 3 Using Desktop Product Versions

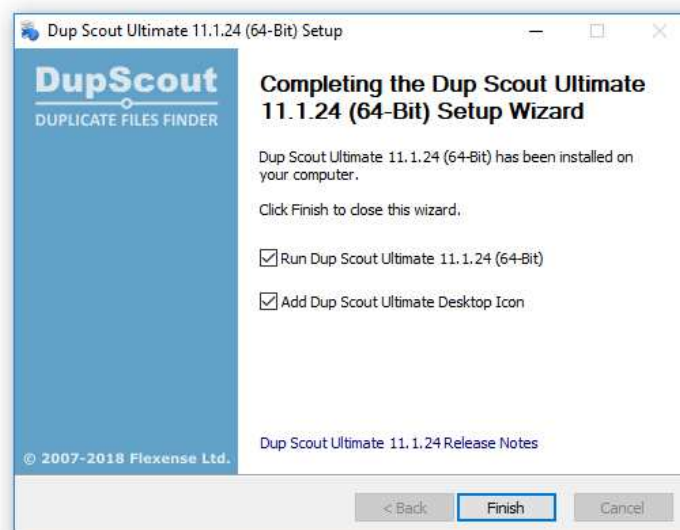
### 3.1 Product Installation Procedure

DupScout is available as a free download on our web site and from a large number of software directories from around the world. To be sure you are getting the latest product version check here: <http://www.dupscout.com/downloads.html>

DupScout is especially designed to be as simple as possible. The installation procedure is very simple, requires no special knowledge and may be completed in less than 20 seconds. There is no need for any additional software. Just download the DupScout installation package, run the setup program and you are done.



On the 'Welcome' screen press the 'Next' button. Read the end-user license agreement and press the 'I Agree' button if you agree with the license terms or the 'Cancel' button to stop the installation process.

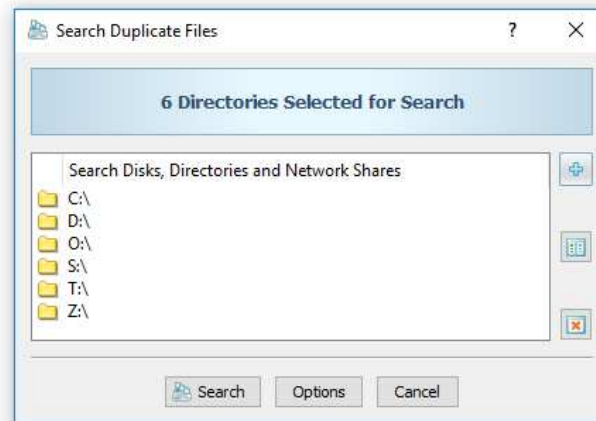


Select the destination directory, press the 'Install' button and wait for the installation process to complete. That's all you need to do to install the DupScout duplicate files finder utility on your computer.

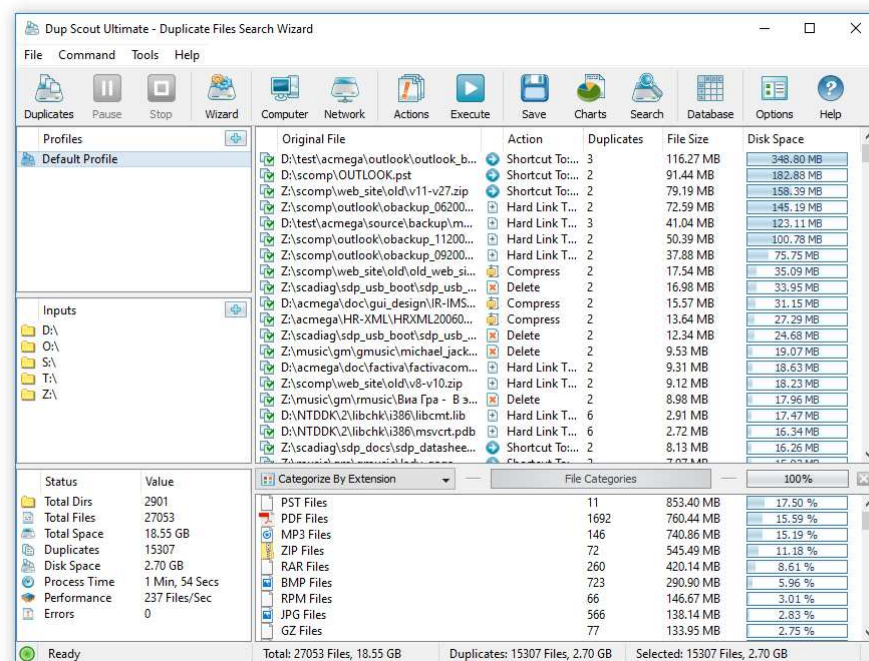


### 3.2 Searching Duplicate Files in a Directory

The simplest way to find duplicate files in a directory is to press the 'Duplicates' button located in the top-left corner of the main toolbar. On the profile dialog enter one or more disks or directories to search in and press the 'Search' button to begin the search process.

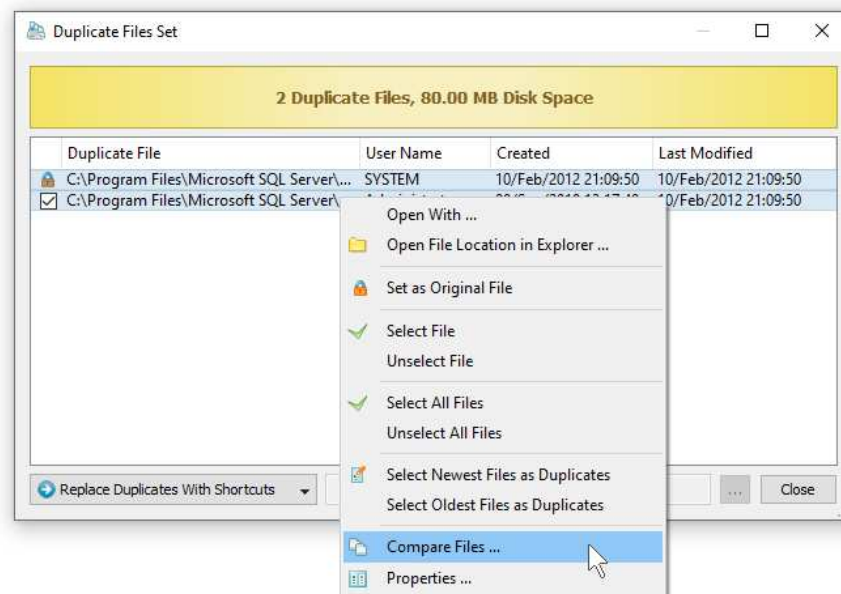


Depending on the amount of files that should be searched, the duplicate files detection process may take from a couple of seconds for tens of files to a few hours for large file systems containing millions of files. During the duplicate files detection process, DupScout will display the process dialog showing the total amount of processed files, the number of detected duplicate files and the amount of the duplicate disk space. Once the detection process is completed, DupScout will display the list of all detected duplicate file sets sorted by the amount of the duplicate disk space. For each duplicate file set, DupScout shows the name of the currently selected original file, the currently selected cleanup action, the number of duplicate files in the set, the size of each file and the amount of duplicate disk space.

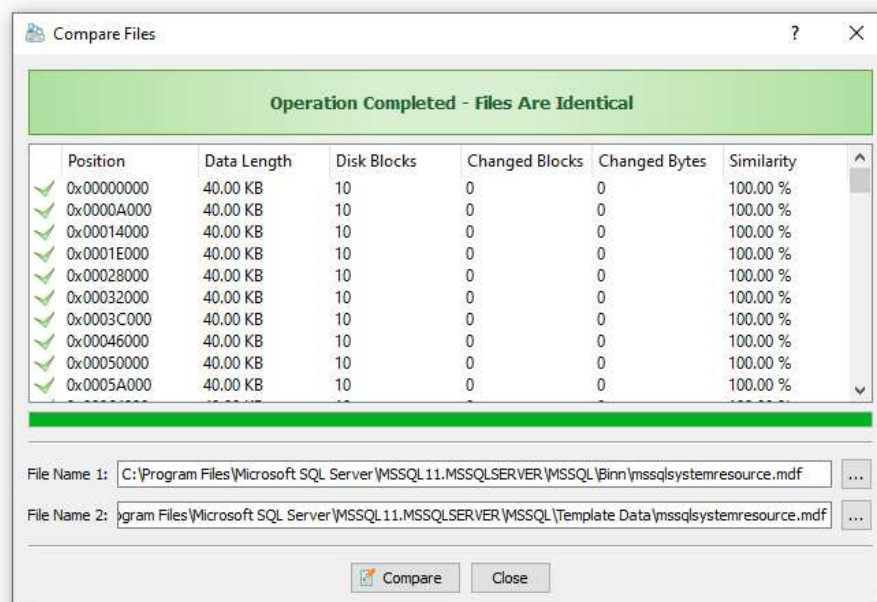


Sometimes, there may be thousands of duplicate files and in order to help the user concentrate on the duplicate files wasting significant amounts of storage space, DupScout by default shows top 10000 duplicate file sets sorted by the amount of the duplicate disk space. In order to change the default amount of displayed duplicate file sets, open the profile dialog, select the 'Advanced' tab and set the 'Max Dup File Sets' option to an appropriate value.

The central view of the DupScout GUI application shows the list of detected sets of duplicate files sorted by the amount of the duplicate disk space. In order to open a set of duplicate files, double click on a set item in the central view. By default, the oldest file in each set is selected as the original file and all other files are selected as duplicate files.



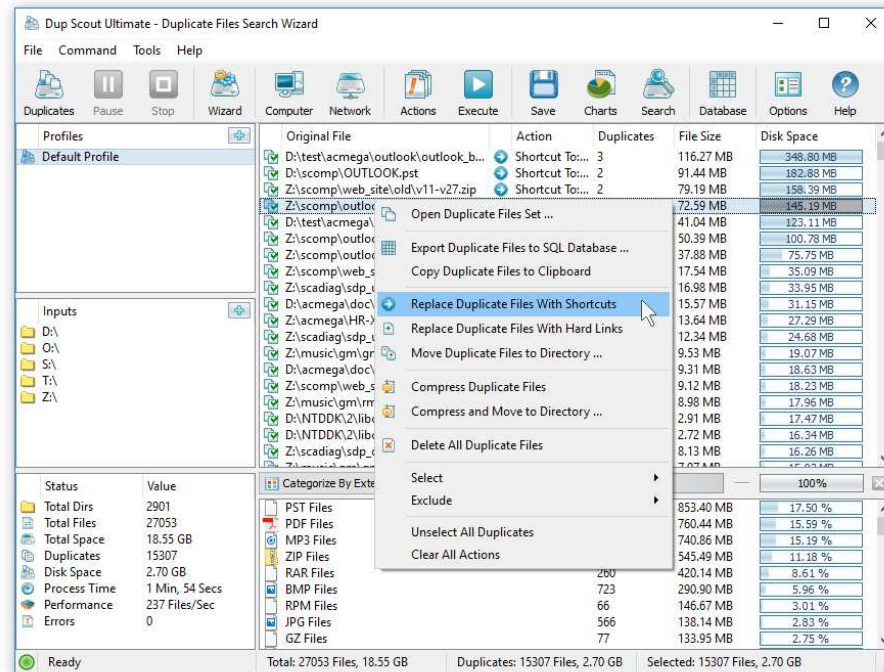
DupScout identifies duplicate files by comparing the SHA-256 hash signatures of files. Files with identical SHA-256 signatures have completely identical contents and therefore are displayed as duplicate files. In order to perform a block-by-block comparison of duplicate files, select two duplicate files, press the right mouse button and select the 'Compare' menu item.



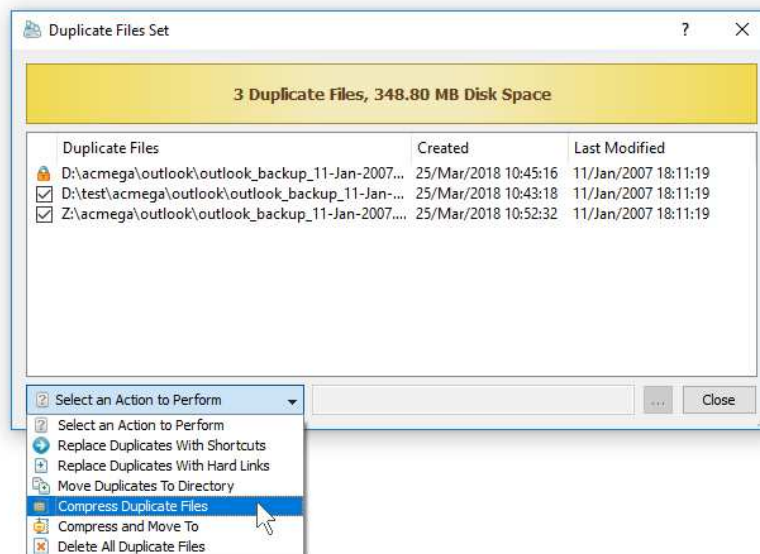
DupScout will display the files comparison dialog showing a list of data blocks and the comparison result for each data block allowing one to easily verify that the detected duplicate files are fully identical. In order to see detailed information about a duplicate file, select the duplicate file, press the right mouse button and select the 'Properties' menu item.

### 3.3 Selecting Duplicate Files Removal Actions

DupScout allows one to select original files that should be kept in place and cleanup duplicate files thus freeing up duplicate disk space. The user is provided with the ability to delete selected duplicate files or to move them to another directory or a backup disk. In addition, DupScout Pro allows one to replace duplicate files with links to the original file in each specific duplicate files set.



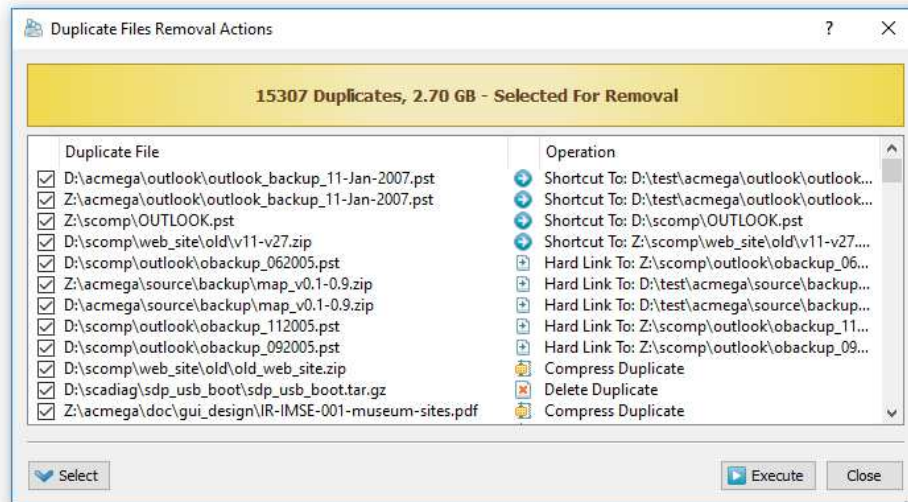
In order to select an appropriate duplicates cleanup action, select one or more duplicate file sets, press the right mouse button and select the required duplicates cleanup action. By default, DupScout selects the oldest file in each duplicate file set as the original file. In addition, the user is provided with the ability to select any arbitrary file in each file set as the original file.



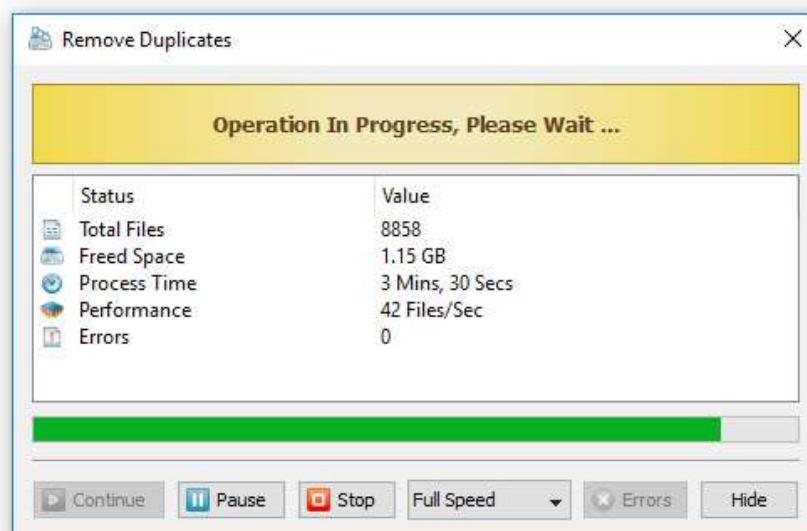
The set dialog shows all duplicate files in a set and allows one to manually select a cleanup action and the original file for the set. In order to manually change the original file for a duplicate files set, click on the set item in the set list, select the file that should be set as the original file, press the right mouse button and select the 'Set as Original' menu item.

### 3.4 Executing Duplicate Files Removal Actions

In order to minimize accidental removals of important files, DupScout implements a three-stage cleanup process with an actions preview dialog allowing one to carefully select and confirm cleanup actions that should be executed. Once finished selecting duplicate files that should be removed and cleanup actions to be used for each specific duplicate files set, press the 'Preview' button located on the main toolbar.



The actions preview dialog will display a list of all cleanup actions that should be performed and allow one to select/unselect each specific cleanup action. After carefully reviewing all the selected cleanup actions, press the 'Execute' button to actually cleanup all the selected duplicate files.

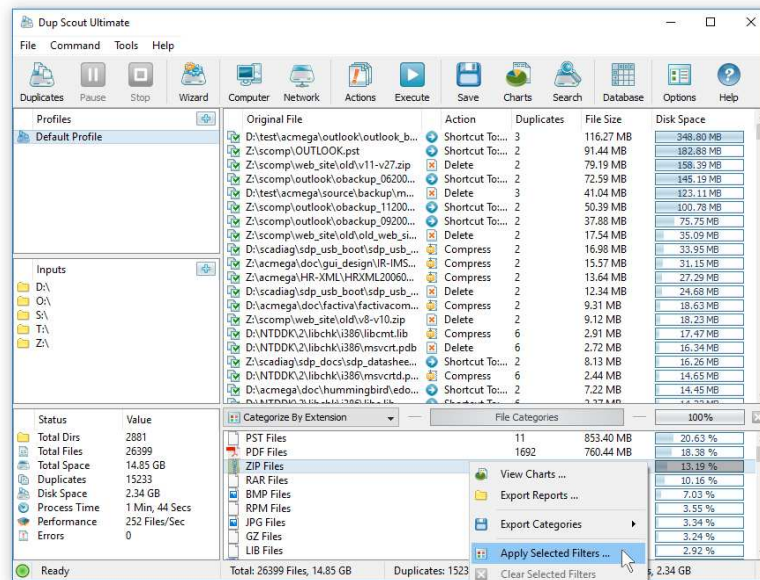


Typically, there are lots of duplicate files in the Windows system directory, which are critical for the proper operation of the operating system. All duplicate files located in the Windows system directory and other application specific directories cannot be removed and it is highly recommended to avoid touching these files.

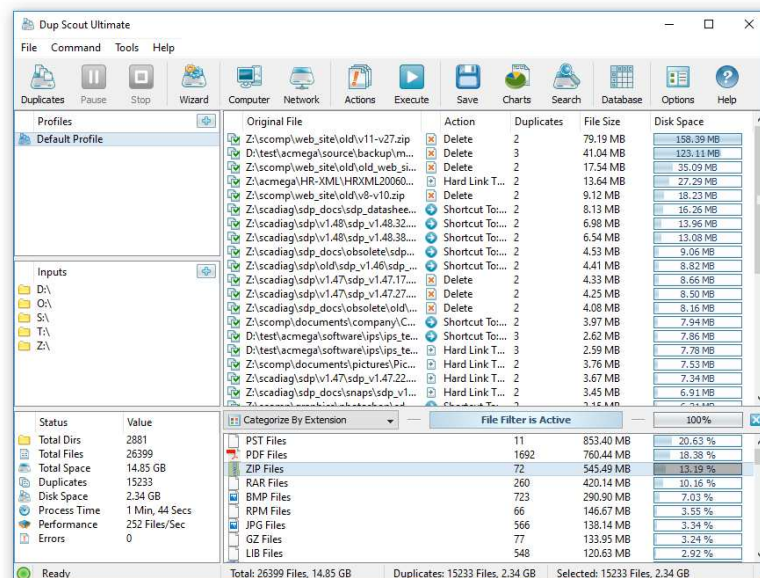


### 3.5 Using File Categories and File Filters

DupScout allows one to categorize detected duplicate files by the file extension, file type, size, user name, last access time, last modification time and file creation time. After finishing scanning the specified disks or directories, DupScout performs automatic file categorization and fills the list of detected file categories, which is located just under the list of the duplicate file sets in the main GUI application.



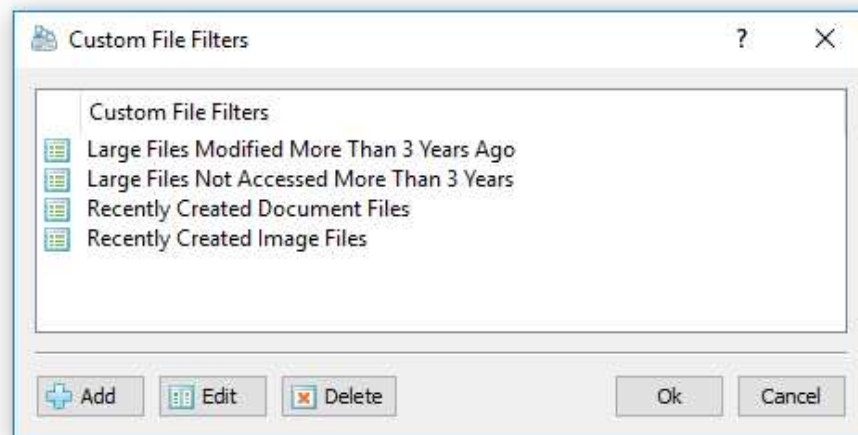
By default, DupScout categorizes all files by the file extension and shows a list of all types of detected file extensions sorted by the amount of used disk space. For each category, DupScout shows the number of files, the amount of used disk space and the percentage of the used disk space relative to other file categories. Use the 'Categories' combo box to categorize files by the file type, last access time, last modification time or creation time.



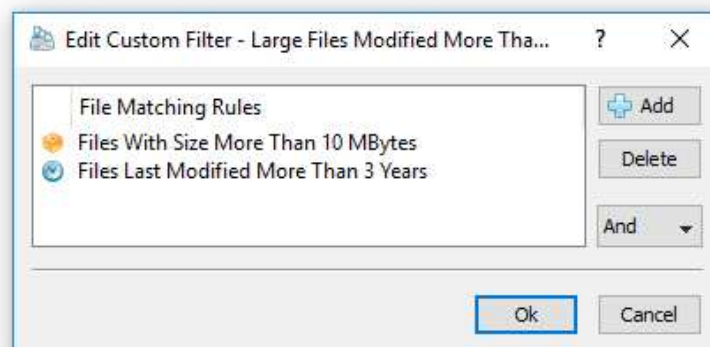
One of the most useful features of DupScout is the ability to browse duplicates by one or more specific file categories using file filters. For example, in order to see all files that were accessed 2-3 months ago, select the access time-based file categorization mode and double-click on the 'Files Last Accessed 2-3 Months Ago' file category. DupScout will filter the currently displayed list of duplicates and show all sets that were accessed 2-3 months ago.



In addition to the built-in file filters, DupScout provides the ability to pre-configure one or more custom file filters according to user-specific needs and requirements. In order to add a custom file filter, select the custom file filters view, press the right mouse button over the filters view and select the 'Edit Custom Filters' menu item.



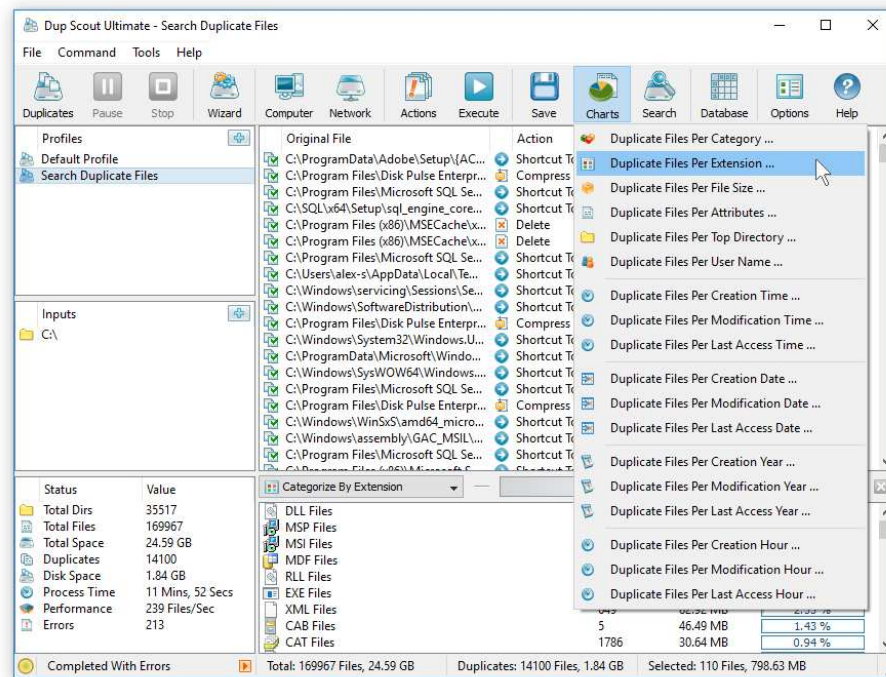
In order to add a new custom file filter, press the 'Add' button, enter a unique filter name and configure one or more file matching rules specifying which types or groups of files to display. In order to edit a custom file filter, select the filter in the custom file filters dialog and press the 'Edit' button.



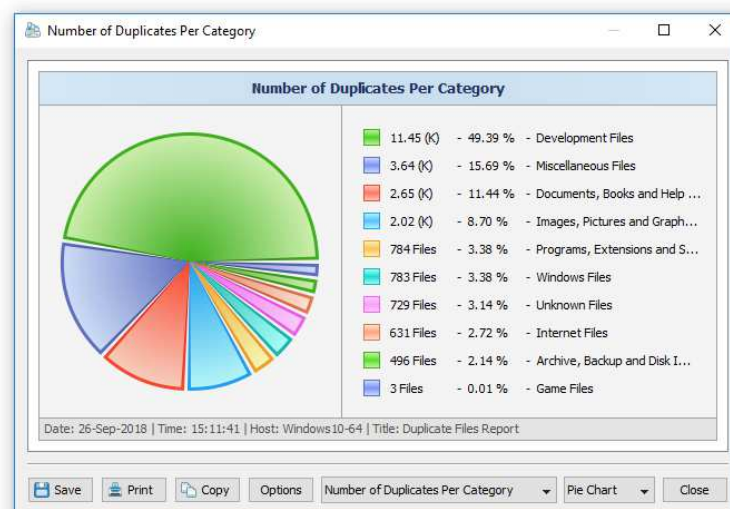
Once finished configuring custom file filters, close the filters dialog and DupScout will analyze the currently displayed duplicate files and show the list of user-specified custom file filters sorted by the amount of data and the number of duplicate files matching the specified file filters. In order to filter the currently displayed duplicate files by one or more custom file filters, select the required custom file filters in the filters view, press the right mouse button and select the 'Apply Selected Filters' menu item. DupScout will apply the selected custom file filters and display duplicate files matching the selected file filters.

### 3.6 Duplicate Disk Space Charts

The DupScout duplicate files finder provides multiple types of statistical pie charts and timeline charts capable of showing the amount of duplicate disk space and the number of duplicate files per directory, file extension, file type, file size, file owner, creation, modification and last access time. In order to open the charts dialog, press the 'Charts' button located on the main toolbar and select an appropriate chart type.

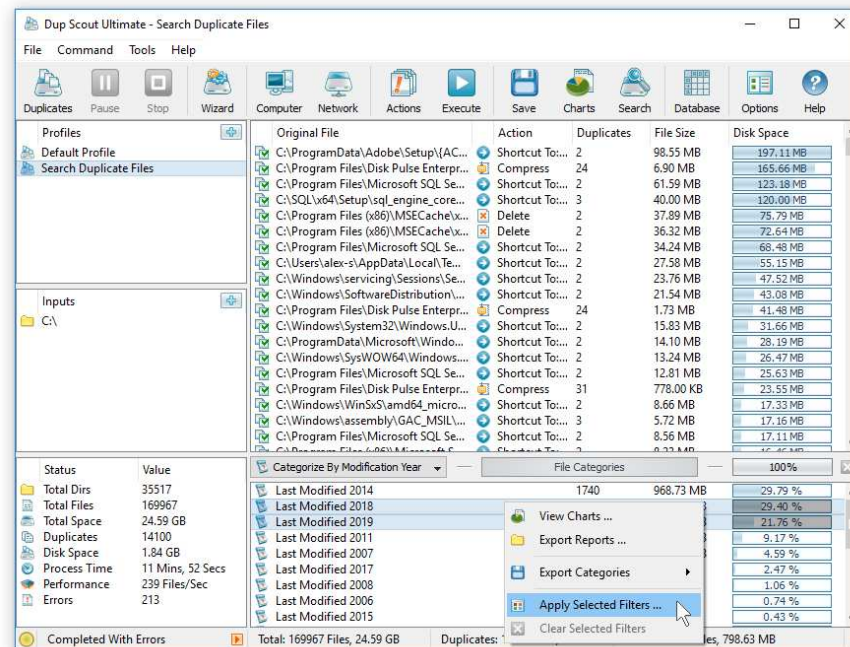


For example, in order to open a chart showing the duplicate disk space and the number of duplicate files per file category, press the 'Charts' button located on the main toolbar and select the 'Duplicate Files Per Category' chart type.

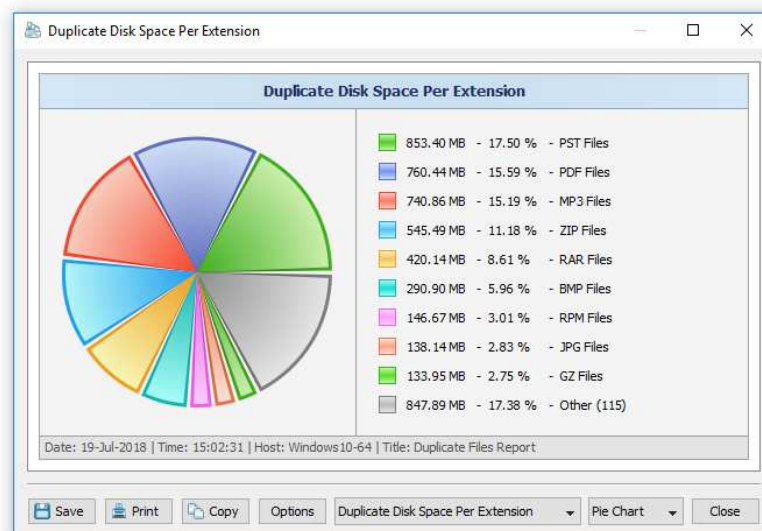


In addition, the charts dialog provides the user with the ability to export the chart data to a number of different formats, export the chart image to the BMP, JPG and PNG image formats and copy the displayed chart image to the clipboard allowing one to easily integrate DupScout charts into user's documents and presentations. In order to customize the chart's description, press the 'Options' button and specify a custom chart title, host name, date or time.

One of the most powerful features of the DupScout duplicate files finder is the ability to filter duplicate files search results using one or more user-specified filters and then categorize filtered results and display statistical pie charts. For example, in order to display a pie chart showing the amount of duplicate disk space per file extension for duplicate files that were modified during the last two years, set the file categorization mode to 'Categorize By Modification Year', select one or more years to show the information for, press the right mouse button over the file filters view and select the 'Apply Selected Filters' menu item.

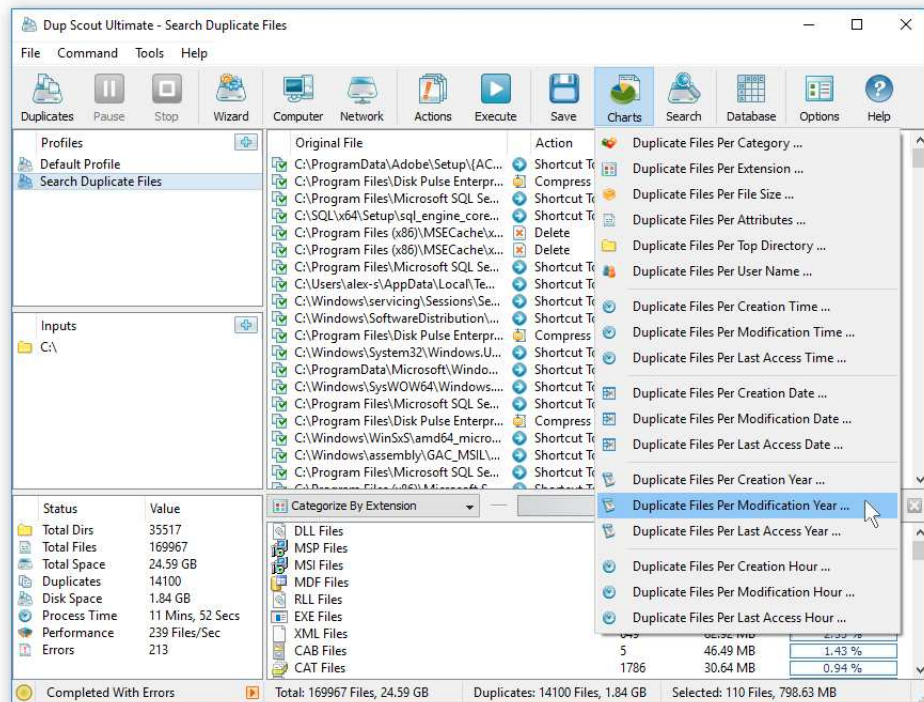


DupScout will filter the duplicate files search results and display duplicate files that were modified during the selected years. Now, press the 'Charts' button located on the main toolbar and select the 'Duplicate Files Per Extension' menu item. DupScout will categorize the filtered duplicate files search results and display a pie chart showing the amount of duplicate disk space per file extension for duplicate files that were modified during the selected years.

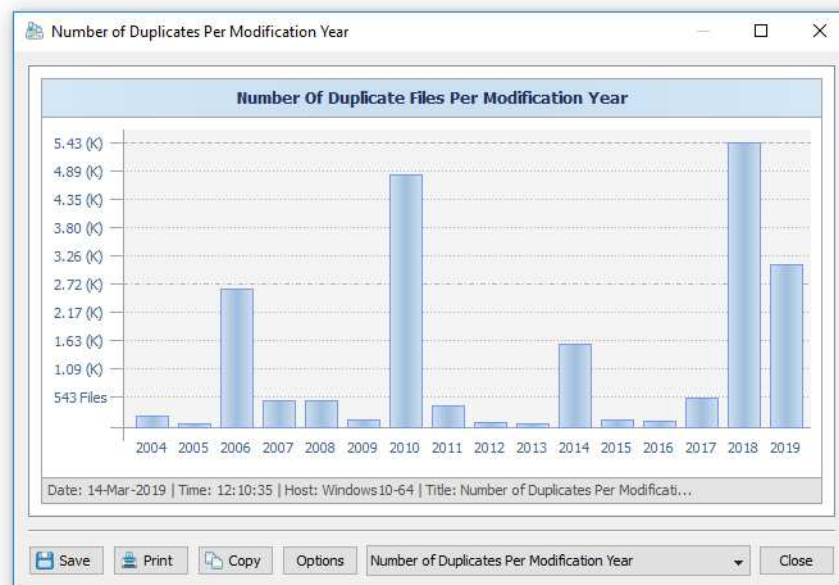


In a similar way, the user can filter duplicate files search results by the file type, size, user name, file attributes, creation, modification and last access dates and then display various types of charts showing the duplicate disk space or the number of duplicate files according to user-specific needs.

Another powerful capability is the ability to display the duplicate disk space timeline charts for all or filtered duplicate files search results. In the simplest case, press the 'Charts' button located on the main toolbar and select the 'Duplicate Files Per Modification Year' menu item.



DupScout will display a time line chart showing how much duplicate data was modified per year. In order to display how many duplicate files were modified per year, set the chart mode to 'Number Of Duplicates Per Modification Year'.

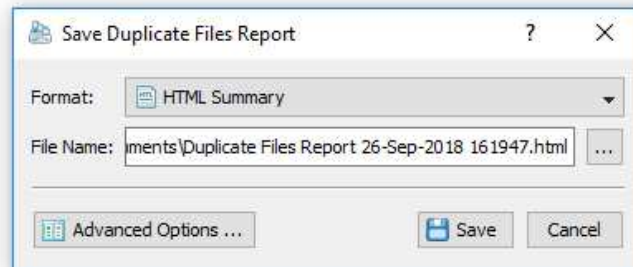


In addition, the user is provided with the ability to display timeline charts for filtered duplicate files search results. For example, in order to display how many duplicate documents were created per year, set the file categorization mode to 'Categorize By File Type', select the 'Documents, Books and Help Files' file category, press the right mouse button and select the 'Apply Selected Filters' menu item. Now, press the 'Charts' button located on the main toolbar, and select the 'Duplicate Files Per Creation Year' menu item.



### 3.7 Saving Duplicate Files Search Reports

DupScout allows one to save duplicate files search reports into a number of standard report formats including HTML, PDF, Excel, XML, text and CSV. In the simplest case, perform a duplicate files search operation and press the 'Save' button located on the main toolbar. On the save report dialog, select an appropriate report format, enter a report file name and press the 'Save' button.



For the HTML, PDF, Excel, text, CSV and XML report formats, the user is provided with the ability to save a short summary report or a longer detailed report, which may be very long for large file systems containing millions of files. By default, DupScout will save a short, summary duplicate files search report in the HTML report format, which will include a list of top 20 duplicate file sets sorted by the amount of duplicate disk space and a list of tables showing the amount of duplicate disk space and the number of duplicate files per file extension, file type, top-level directory, user name, etc.

**10 File Categories**

Category	Files	Space	Space (%)
Archive, Backup and Disk Image Files	496 Files	1.23 GB	30.51 %
Documents, Books and Help Files	2653 Files	0.96 GB	23.71 %
Internet Files	631 Files	860.24 MB	20.80 %
Images, Pictures and Graphic Files	2017 Files	517.62 MB	12.51 %
Development Files	11449 Files	325.82 MB	7.88 %
Programs, Extensions and Script Files	784 Files	127.80 MB	3.09 %
Windows Files	783 Files	31.85 MB	0.77 %
Miscellaneous Files	3638 Files	28.21 MB	0.68 %
Unknown Files	729 Files	1.82 MB	0.04 %
Game Files	3 Files	7.99 KB	< 0.01 %

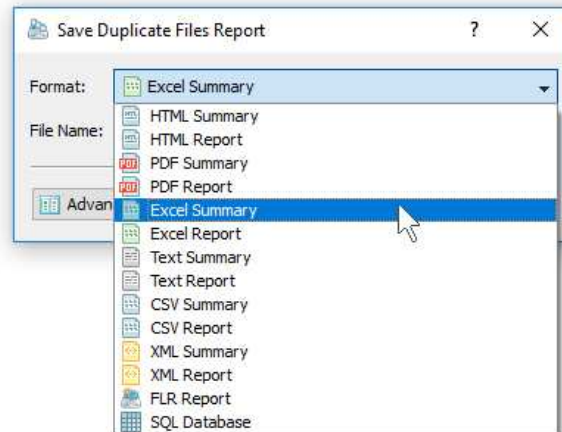
**7950 Duplicate File Sets:**

Original File	Duplicates	Disk Space
D:\test\acmega\outlook\outlook_backup_11-Jan-2007.pst	3	348.80 MB
Z:\scomp\OUTLOOK.pst	2	182.88 MB
Z:\scomp\web_site\old\v11-v27.zip	2	158.39 MB
Z:\scomp\outlook\obackup_062005.pst	2	145.19 MB
D:\test\acmega\source\backup\map_v0.1-0.9.zip	3	123.11 MB
Z:\scomp\outlook\obackup_112005.pst	2	100.78 MB
Z:\scomp\outlook\obackup_092005.pst	2	75.75 MB
Z:\scomp\web_site\old\old_web_site.zip	2	35.09 MB
D:\scadiag\sdp_usb_boot\sdp_usb_boot.tar.gz	2	33.95 MB
Z:\acmega\doc\qui_design\IR-IMSE-001-museum-sites.pdf	2	31.15 MB
Z:\acmega\HR-XML\HRXML200602.zip	2	27.29 MB
D:\scadiag\sdp_usb_boot\sdp_usb_boot_v1.50.39.tar.gz	2	24.68 MB
D:\acmega\doc\factiva\factivacom_all_combinedQRCS.pdf	2	18.63 MB
Z:\scomp\web_site\old\v8-v10.zip	2	18.23 MB
D:\NTDDK\2\libchk\i386\libcmt.lib	6	17.47 MB
D:\NTDDK\2\libchk\i386\msvcrt.pdb	6	16.34 MB
Z:\scadiag\sdp_docs\sdp_datasheet\old\Old.zip	2	16.26 MB
D:\NTDDK\2\libchk\i386\msvcrt.pdb	6	14.65 MB

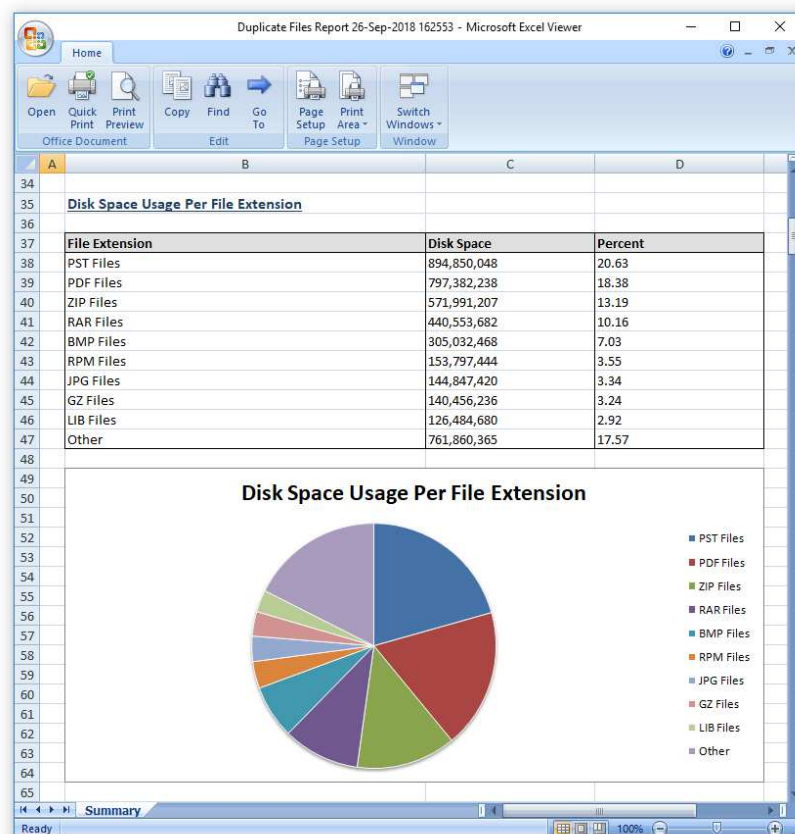
In addition, the user is provided with the ability to save duplicate files search results to the DupScout native report format, which preserves all information related to each specific duplicate files search operation and may be loaded at any time by using the DupScout GUI application.



Sometimes, it may be required to perform additional analysis of duplicate files search results using external tools such as Microsoft Excel. In order to export duplicate files search results to the Excel report format, perform a duplicate files search operation, press the 'Save' button located on the main toolbar, select the 'Excel Summary' report format for a short summary report or the 'Excel Report' format for a detailed duplicate files search report.



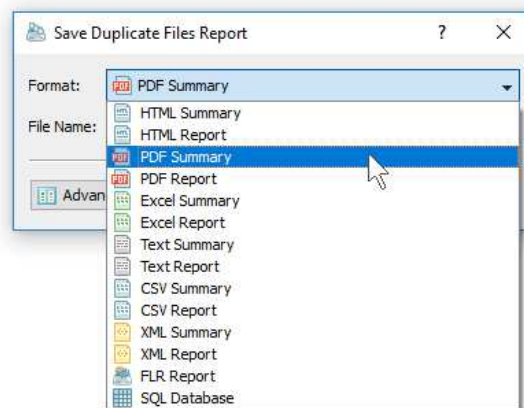
A summary Excel report will include a list of the top 20 duplicate file sets sorted by the amount of duplicate disk space and a number of tables with pie charts showing the amount of duplicate disk space and the number of duplicate files per file extension, file category, file creation time, last modification time, top-level directory, user name, etc.



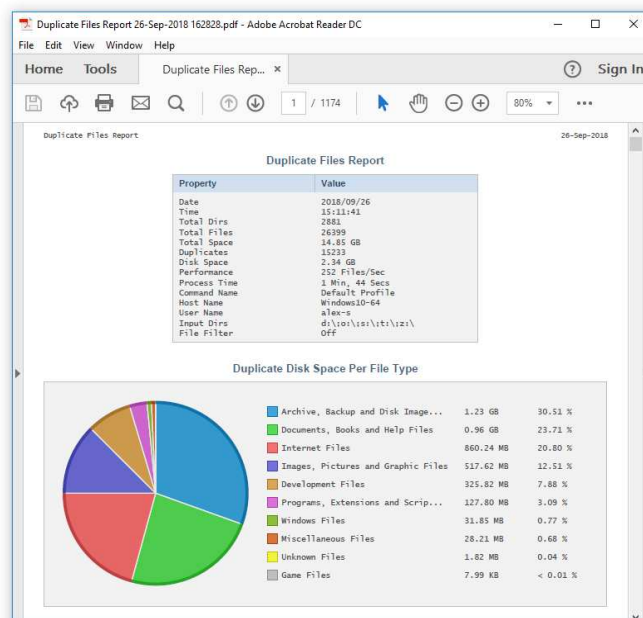
A detailed Excel report will include a full list of duplicate file sets sorted by the amount of the duplicate disk space followed by lists of duplicate files in each set, which may be very long for large file systems containing millions of files. In order to control how many duplicate file sets are exported in the detailed report, press the 'Advanced Options' button located on the 'Save Report' dialog and customize the duplicate files search report for your specific needs.

### 3.8 Saving Graphical PDF Reports

One of the most useful ways to export duplicate files search results is to use the PDF summary or the PDF report formats. Both of these report formats include various types of graphical pie charts showing the amount of duplicate disk space and the number of duplicate files per file extension, file category, creation time, last modification time, user name, etc. In order to save duplicate files search results to a PDF report file, press the 'Save' button located on the main toolbar and select the 'PDF Summary' report format for a short, summary report or the 'PDF Report' format for a detailed duplicate files search report.



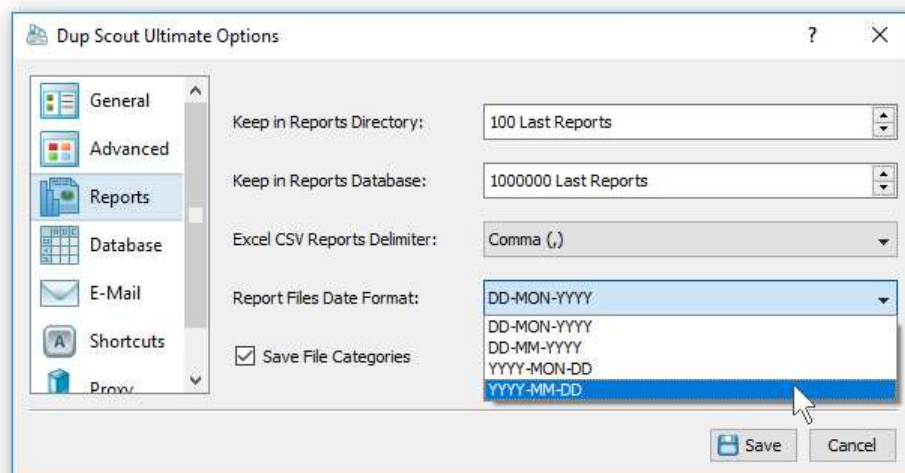
A summary PDF report will include a list of the top 20 duplicate file sets sorted by the amount of the duplicate disk space followed by a number of pie charts showing the amount of duplicate disk space and the number of duplicate files per file extension, file category, file creation time, last modification time, top-level directory name, user name, etc. A detailed PDF report will include a full list of duplicate file sets sorted by to the amount of duplicate disk space followed by lists of duplicate files in each set, which may be very long for large file systems containing millions of files.



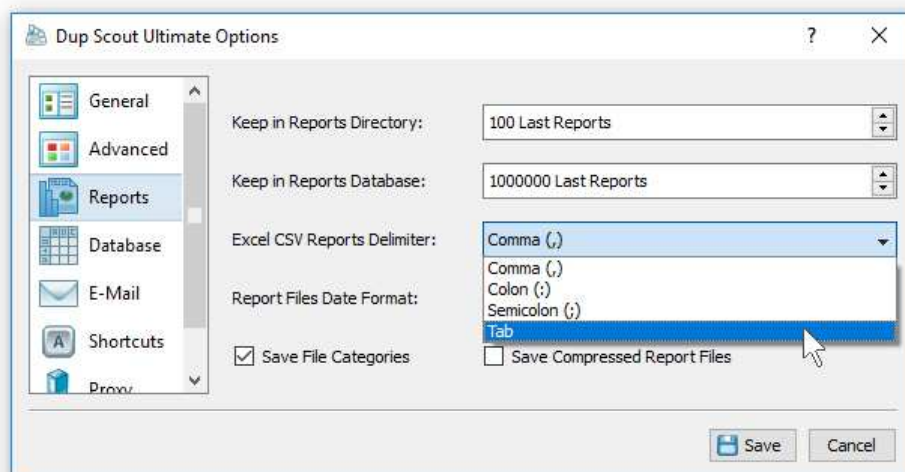
In addition to the list of duplicate file sets sorted by the amount of duplicate disk space, detailed PDF reports include pie charts showing the duplicate disk space per file category and the number of duplicate files per file category according to the currently selected file categorization mode. For example, if the second-level file categories mode is set to categorize duplicate files search results by the file extension, the PDF report will display pie charts showing the amount of duplicate disk space and the number of duplicates per file extension.

### 3.9 Customizing Duplicate Files Search Reports

By default, DupScout saves duplicate files search reports including the last modification date for each duplicate file. The date format used in duplicate files reports is easily readable, but not good for sorting duplicate files by the last modification date in external programs such as Microsoft Excel, etc. In addition to the default date format, DupScout provides a number of alternative date formats allowing one to customize duplicate files reports. In order to change the date format used in duplicate files reports, open the 'Options' dialog, select the 'Reports' tab and set the 'Report Files Date Format' to an appropriate date format.



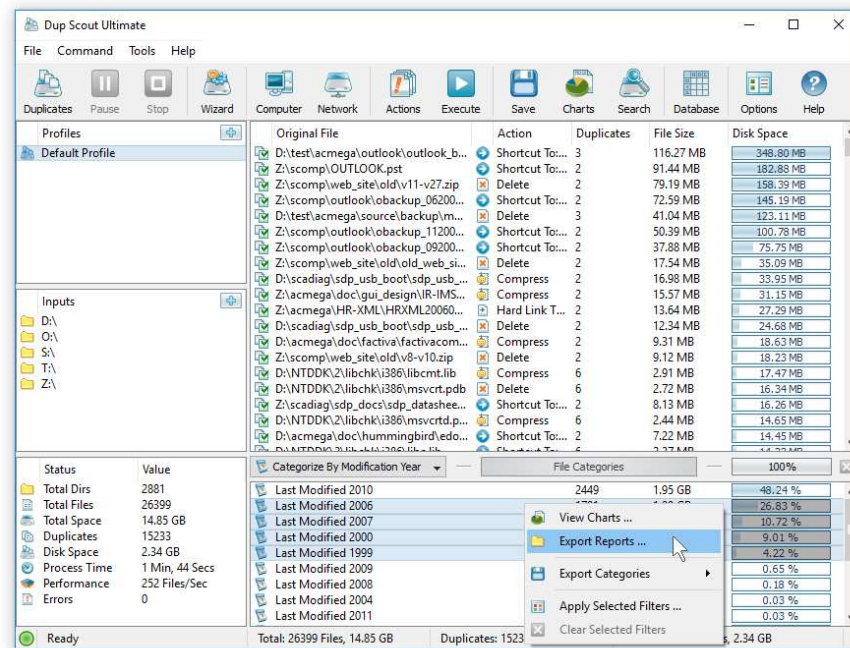
When exporting Excel CSV reports, the user may encounter problems with duplicate files having the comma (,) character in the file or directory name. The comma (,) character is a valid character for file names, but this character is normally used in Excel CSV reports as the delimiter character causing file names containing the comma character to span multiple data fields in Microsoft Excel data sheets.



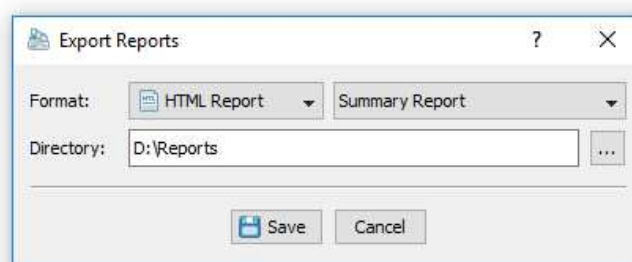
In order to change the CSV reports delimiter character used by DupScout in duplicate files reports, open the 'Options' dialog, select the 'Reports' tab and set the CSV reports delimiter to the 'Tab' character, which cannot be used in file names and therefore will not conflict with file names exported in duplicate files reports. In order to import a tab-delimited duplicate files report to an Excel datasheet, open Microsoft Excel, select the menu 'Data - Import External Data - Import Data', select the duplicate files report file and select the 'Tab' character as the data field delimiter.

### 3.10 Batch Duplicate Files Search Reports

DupScout allows one to save batches of duplicate files search reports according to the currently selected categories of files with each report showing duplicate files and the amount of duplicate disk space for a corresponding category of files. For example, let's assume that we need to save duplicate files search reports for the last 10 years with each report showing duplicate files and the duplicate disk space for all files that were created during each corresponding year.



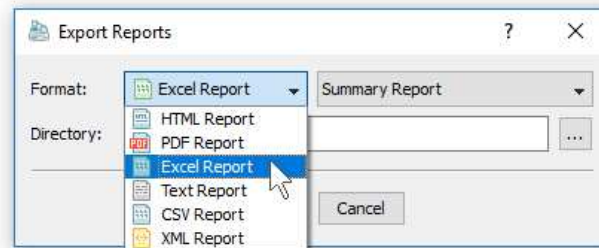
In order to generate such reports, set the file categorization mode to 'Categorize By Creation Year', select all years for which you need to generate duplicate files reports in the file categories view, press the right mouse button and select the 'Export Reports' menu item. On the 'Export Reports' dialog, select an appropriate report format and report mode, specify a destination directory to export reports to and press the 'Save' button.



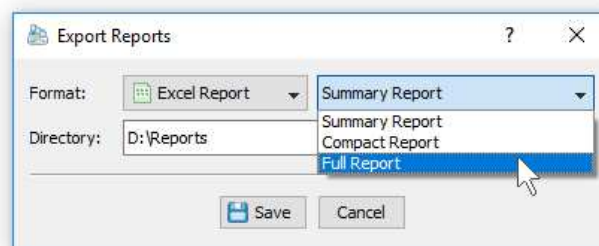
For each selected year, DupScout will filter duplicate files search results by the file creation year and save an individual duplicate files search report in the specified destination directory with each report file name and report title containing the corresponding file creation year. In the same way, the user can generate batches of reports showing duplicate files and the disk space usage per user, last modification date, last access date, file attributes, file size, top directory or custom categories of files pre-configured using flexible file matching rules.

For example, in order to export individual duplicate files search reports for all users, set the file categorization mode to 'Categorize By User Name', select all the required users, press the right mouse button and select the 'Export Reports' menu item. Now, the destination directory will contain a series of duplicate files search reports with each report showing duplicate files and the disk space usage for the corresponding user.

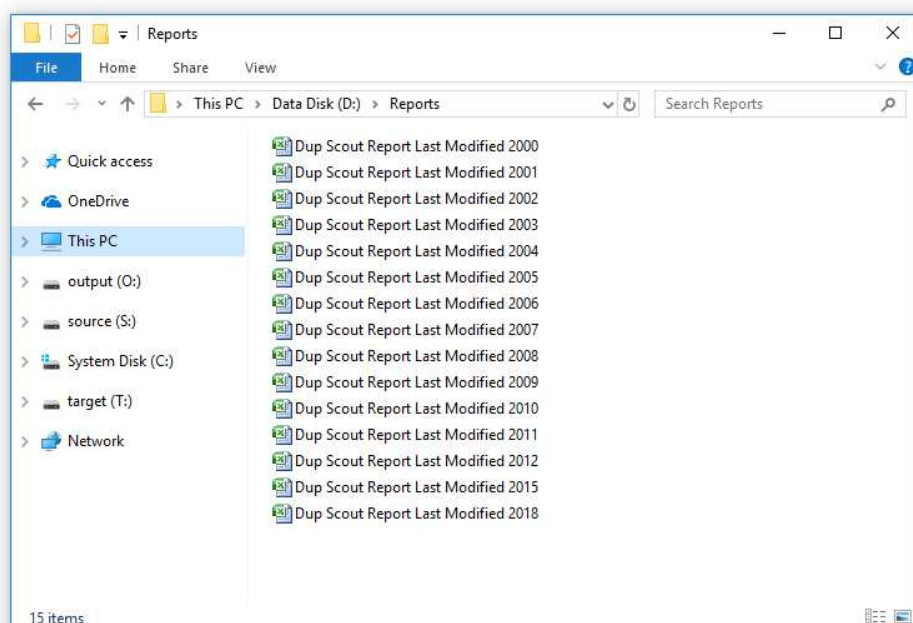
The batch reports dialog provides the ability to export reports to a number of standard report formats including: HTML, PDF, Excel, text, CSV and XML. Depending on the selected report format and report mode, each report will include a summary table showing statistics about the report, a table showing the list of duplicate file sets sorted by the amount of duplicate disk space and lists of duplicate files for each duplicate file set.



In addition, the batch reports dialog allows one to select one of the following report modes: summary report, compact report or full report. When the summary report mode is selected, each report will include a summary table and a list of duplicate file sets sorted by the amount of the used disk space. When the compact report mode is selected, each report will include a summary table and a list of top 100 duplicate file sets sorted by the amount of duplicate disk space. When the full report mode is selected, each report will include a summary table, a full list of duplicate file sets and full lists of duplicate files for each duplicate file set.



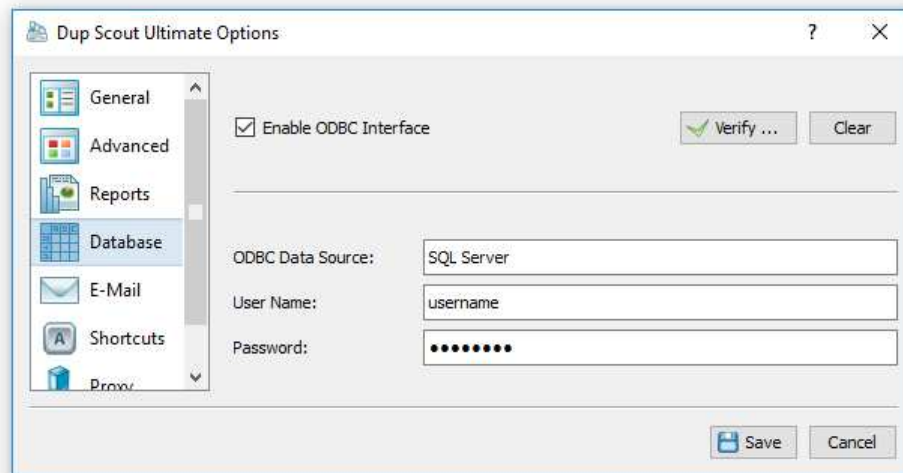
Once the export operation will be completed, the specified destination directory will contain a number of duplicate files search reports according to the selected file categorization mode, selected categories of files and the selected report format.



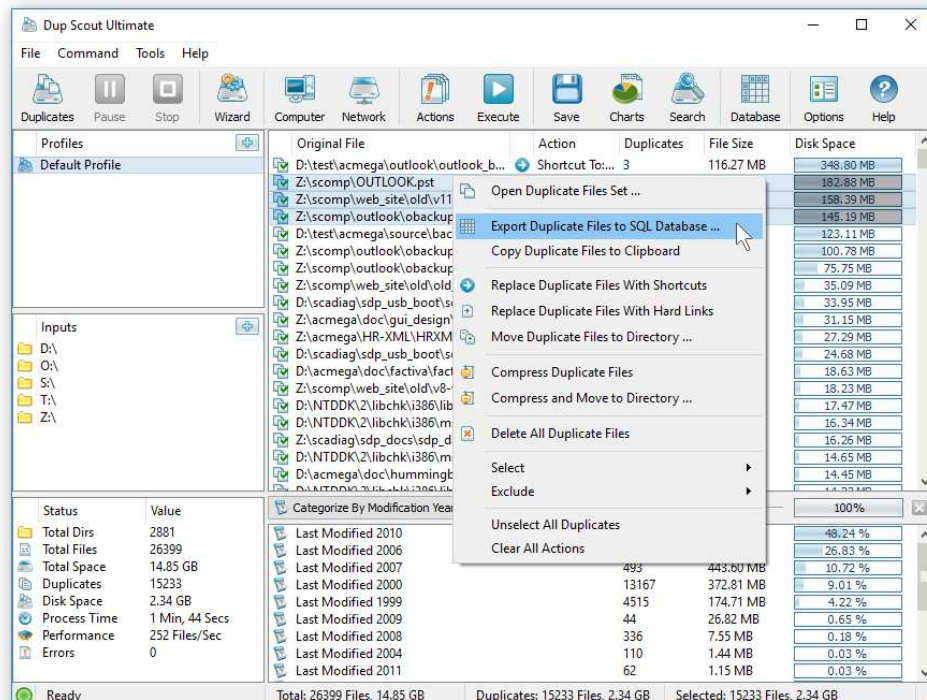


### 3.11 Exporting Duplicate Files to an SQL Database

DupScout Pro and DupScout Server provide the ability to export duplicate files search results to an SQL database via the ODBC database interface. In order to be able to export duplicate files search results to an SQL database, the user need to configure the ODBC database interface on the main options dialog.

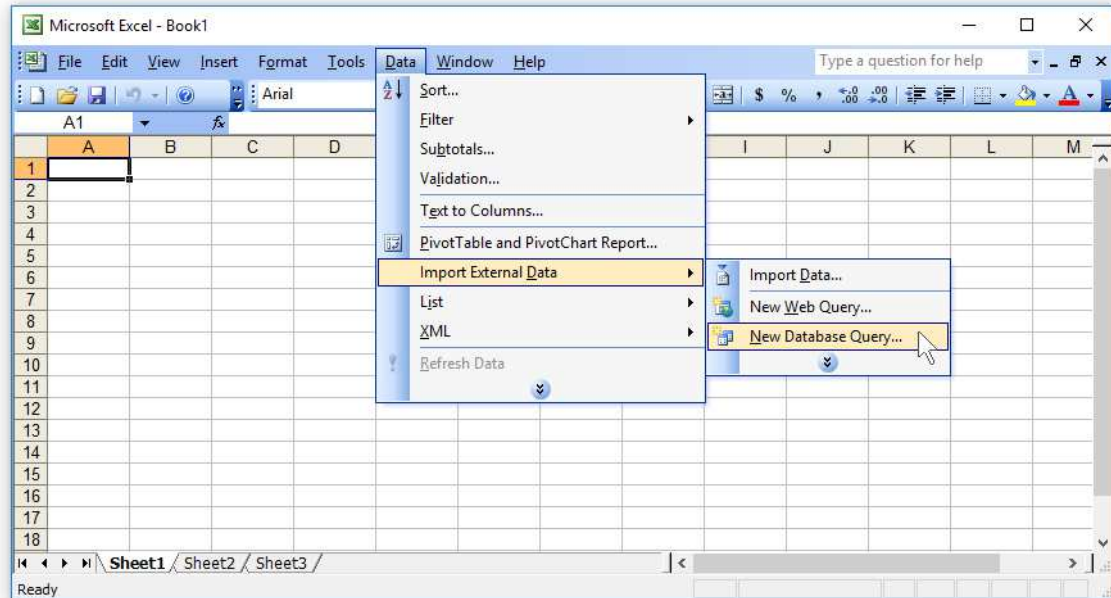


In order to configure the ODBC interface, open the main options dialog, select the 'Database' tab, enable the ODBC database interface, enter the ODBC data source name, the ODBC user name and password to use to connect to the SQL database and then press the 'Verify' button to check the specified ODBC interface.



Once finished configuring the ODBC database interface, select one or more duplicate files sets, press the right mouse button, select the 'Export To SQL Database' menu item and enter the name of the SQL database table to export duplicate files search results to. DupScout will connect to the specified SQL database and export the selected duplicate files search results to the specified SQL database table.

In order to import duplicate files search results from an SQL database to Microsoft Excel, select the menu 'Data - Import External Data - New Database Query' menu item, select the ODBC data source to import the data from, select the SQL database table name that was specified during the export operation, select SQL database table columns to be imported, optionally select the data sorting mode and press the 'Finish' button.



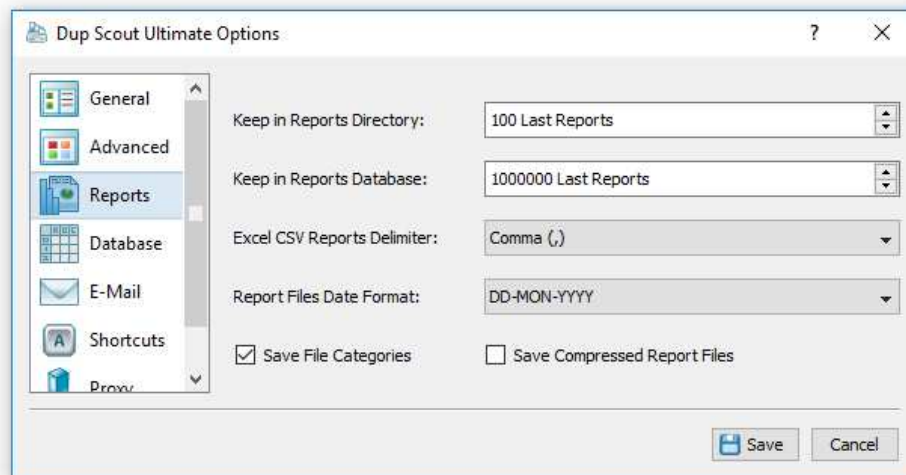
For each duplicate file, DupScout exports to the SQL database the following columns of data: a unique duplicate file ID, a duplicate file set ID, the file creation date, the last modification date, the last access date, the file size, the file user name (should be enabled on the options dialog) and the full file name. Binary identical files will have the same duplicate files set ID.

The screenshot shows the Microsoft Excel interface with a table of duplicate file data. The table has 8 columns: id, setid, cdt, mdt, adt, size, owner, and name. The data is organized into 18 rows, with the first row being a header and the subsequent rows containing file information.

	A	B	C	D	E	F	G	H
	id	setid	cdt	mdt	adt	size	owner	name
1	1	0	3/25/2018 10:52	1/11/2007 18:11	9/26/2018 14:55	121914368	alex-s	Z:\acmega\outlook\outlook_backup_11-Jan-2007.pst
2	2	0	3/25/2018 10:43	1/11/2007 18:11	9/26/2018 14:57	121914368	alex-s	D:\test\acmega\outlook\outlook_backup_11-Jan-2007.pst
3	3	0	3/25/2018 10:45	1/11/2007 18:11	9/26/2018 14:55	121914368	alex-s	D:\acmega\outlook\outlook_backup_11-Jan-2007.pst
4	4	1	3/25/2018 10:49	2/25/2010 0:50	9/26/2018 14:57	95879168	alex-s	D:\scomp\OUTLOOK.pst
5	5	1	3/25/2018 10:52	2/25/2010 0:50	9/26/2018 14:57	95879168	alex-s	Z:\scomp\OUTLOOK.pst
6	6	2	3/25/2018 10:49	2/25/2010 0:50	9/26/2018 14:56	83040246	alex-s	D:\scomp\web_site\oldw11-v27.zip
7	7	2	3/25/2018 10:52	2/25/2010 0:50	9/26/2018 14:56	83040246	alex-s	Z:\scomp\web_site\oldw11-v27.zip
8	8	3	3/25/2018 10:49	2/25/2010 0:50	9/26/2018 14:56	76120064	alex-s	D:\scomp\outlook\obackup_062005.pst
9	9	3	3/25/2018 10:52	2/25/2010 0:50	9/26/2018 14:56	76120064	alex-s	Z:\scomp\outlook\obackup_062005.pst
10	10	4	3/25/2018 10:45	10/11/2006 21:11	9/26/2018 14:55	43030369	alex-s	D:\acmega\source\backup\map_v0.1-0.9.zip
11	11	4	3/25/2018 10:43	10/11/2006 21:11	9/26/2018 14:57	43030369	alex-s	D:\test\acmega\source\backup\map_v0.1-0.9.zip
12	12	4	3/25/2018 10:52	10/11/2006 21:11	9/26/2018 14:55	43030369	alex-s	Z:\acmega\source\backup\map_v0.1-0.9.zip
13	13	5	3/25/2018 10:49	2/25/2010 0:50	9/26/2018 14:56	52839424	alex-s	D:\scomp\outlook\obackup_112005.pst
14	14	5	3/25/2018 10:52	2/25/2010 0:50	9/26/2018 14:56	52839424	alex-s	Z:\scomp\outlook\obackup_112005.pst
15	15	6	3/25/2018 10:49	2/25/2010 0:50	9/26/2018 14:56	39714816	alex-s	D:\scomp\outlook\obackup_092005.pst
16	16	6	3/25/2018 10:52	2/25/2010 0:50	9/26/2018 14:56	39714816	alex-s	Z:\scomp\outlook\obackup_092005.pst
17	17	7	3/25/2018 10:49	2/25/2010 0:50	9/26/2018 14:56	18396114	alex-s	D:\scomp\web_site\old\old_web_site.zip
18	18	7	3/25/2018 10:52	2/25/2010 0:50	9/26/2018 14:56	18396114	alex-s	D:\scomp\web_site\old\old_web_site.zip

### 3.12 Automatic Report Management

DupScout allows one to keep a user-specified number of reports in the reports directory or the reports SQL database while automatically deleting old reports and freeing up the disk space. These features are especially useful for fully automated duplicate files search operations when the user needs to keep a history of report files in a reports directory or a history of reports in an SQL database. By default, for duplicate files search operations configured to automatically save reports, DupScout keeps the last 100 reports.



The '**Keep in Reports Directory**' option is applicable to HTML, PDF, text, Excel CSV, XML and DupScout native reports saved to a reports directory or to the user's home directory using the DupScout command line utility. After saving each new report, DupScout will check if there are too many reports of the same type in the reports directory and delete old reports according to the user-specified configuration.

The '**Keep in SQL Database**' option is applicable to reports submitted to an SQL database using the DupScout GUI application or the DupScout command line utility. After saving each new report to the database, DupScout will check if there are too many reports from the same host computer, for the same set of disks or directories and delete old reports according to the user-specified configuration. For example, if reports from two different servers are submitted to the same SQL database, DupScout will keep in the database X last reports for each server.

The '**Excel CSV Reports Delimiter**' option allows one to specify a custom Excel CSV reports delimiter. By default, data fields in Excel CSV reports are delimited by the comma (,) character. But, the comma (,) character is a valid file name character and therefore file names with the command character will span multiple data fields in CSV reports. In order to properly export such file names to Excel CSV reports, the CSV field delimiter should be changed to the 'Tab' character, which is not allowed in file names, but still recognizable by Microsoft Excel as an optional data field delimiter.

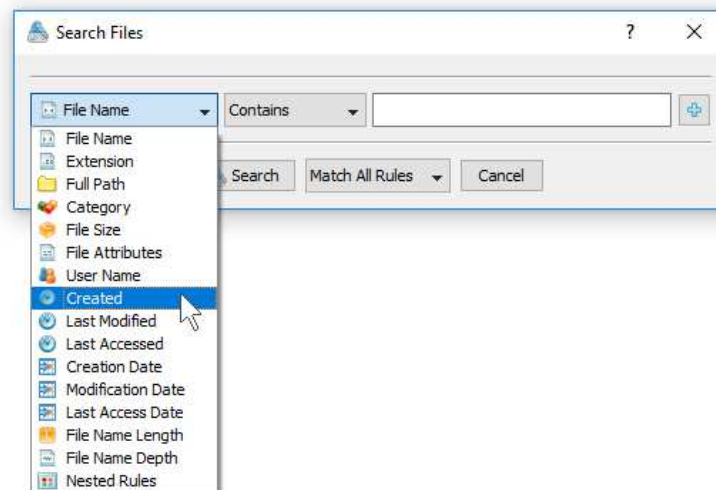
The '**Report Files Date Format**' option provides the ability to customize the date format used in all types of duplicate files reports. In order to enable sorting of duplicate files by the last modification date in Excel datasheets, the date format should be set to **YYYY-MM-DD**.

The '**Save File Categories**' option allows one to enable/disable exporting of file categories to HTML, PDF, text, Excel CSV and XML reports. Second-level file categories are available when reports are manually saved using the DupScout GUI application or DupScout Server client GUI application. Automatically generated reports or reports saved using the DupScout command line utility always saved without file categories.

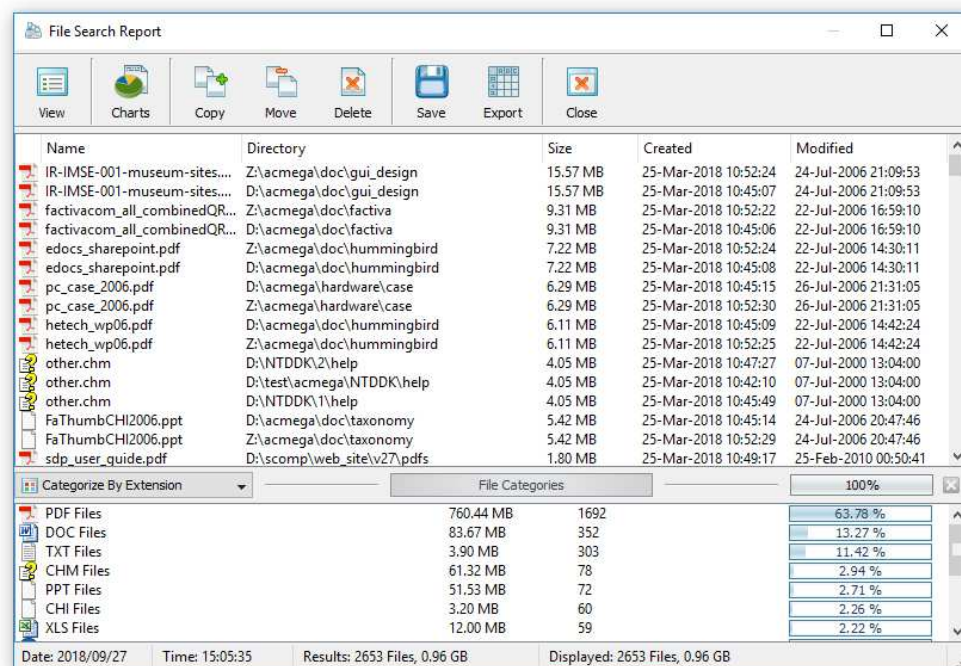
The '**Save Compressed Reports**' option allows one to save automatically generated HTML, text, Excel CSV and XML reports as compressed GZ archive files. PDF Reports and DupScout native reports are always saved in a compressed form.

### 3.13 Searching Files in Duplicate Files Results

DupScout provides the ability to search files in duplicate files results by the file name, extension, full path, file category, file size, file attributes, creation, last modification and last access dates. In order to start a file search operation, search duplicate files in one or more disks or directories and press the 'Search' button located on the main toolbar.



By default, DupScout will search duplicate files matching the user-specified rules in all duplicate file sets in the current duplicate files report. Once the file search operation is completed, DupScout will display the search results dialog showing all duplicate files matching the rules.

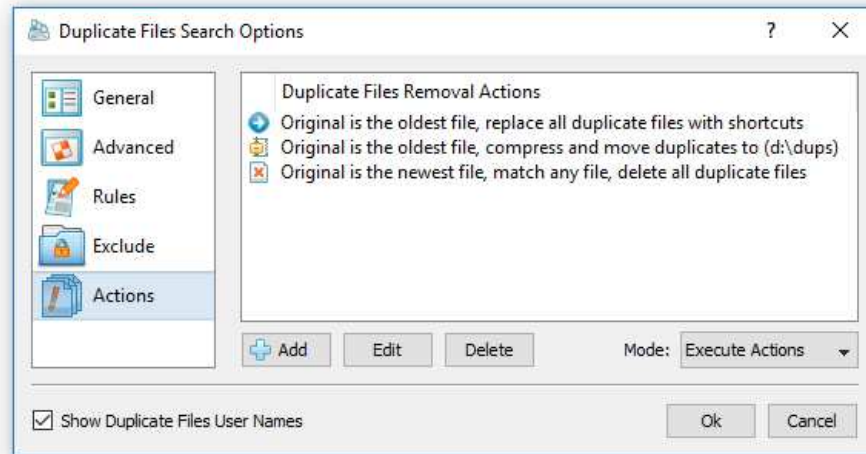


The search results dialog allows one to filter and categorize file search results, display various types of pie charts, copy, move and/or delete files, export file search results to a number of standard report formats including PDF, HTML, text, Excel CSV and XML. In addition, advanced users are provided with the ability to export file search results to an SQL database.

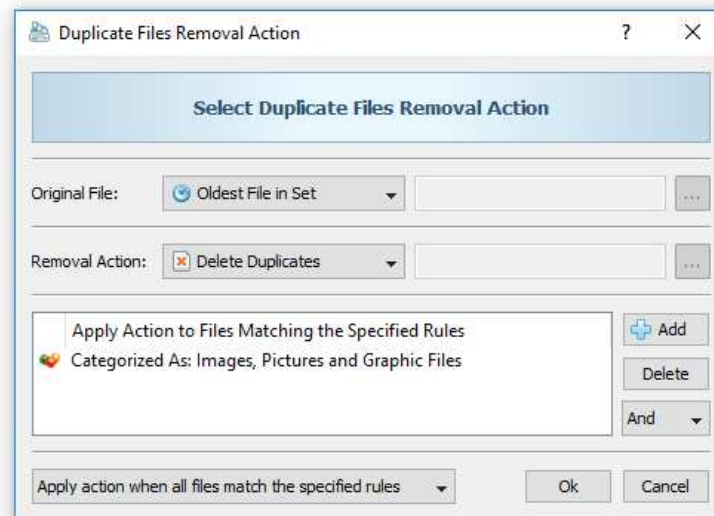


### 3.14 Rule-Based Duplicate Files Removal Actions

DupScout Pro provides power computer users and IT professionals with the ability to define multiple, rule-based duplicate files removal actions capable of automatically detecting the original file and selecting an appropriate duplicates removal action for each specific duplicate files set according to the user-defined rules and policies.



In order to add one or more duplicates removal actions, open the profile dialog, select the 'Actions' tab and press the 'Add' button. By default, the 'Action' dialog shows basic options allowing one to select the original file detection mode and the removal action that should be used for all successfully matched duplicate file sets.

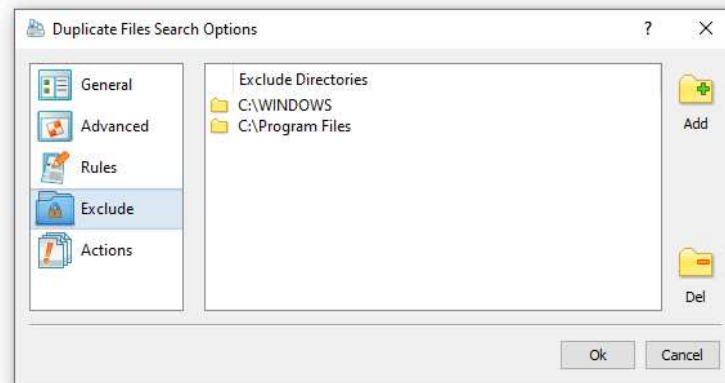


More advanced options may be enabled by pressing the 'More Options' button, which is located in the bottom-left corner of the dialog. In the advanced mode, the dialog allows one to define one or more file matching rules that should be used in order to detect the type of duplicate files that should be processed by this specific duplicates removal action.

In order to apply different duplicate files removal actions for different types of files, specify multiple, rule-based removal actions and select an appropriate actions mode. In the 'Select Actions' mode, DupScout will scan the specified input disks or directories, select the defined removal actions for all duplicate file sets matching the specified rules and show an actions preview dialog allowing one to review the selected actions before execution. Another option is to set the actions mode to 'Execute' and to use the DupScout command line utility to execute the specified duplicate files removal actions fully automatically in an unattended mode.

### 3.15 Excluding Subdirectories From Duplicate Files Search Process

Sometimes, it may be required to exclude one or more subdirectories from the duplicate files detection process. For example, if you need to find all duplicate files on a disk excluding one or two special directories, you may specify the whole disk as an input directory and add the directories that should be skipped to the exclude list.



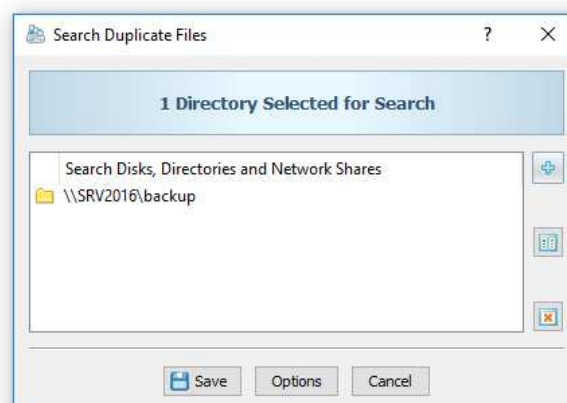
In order to add one or more directories to the exclude list, press the 'Manage Profile' button to open the profile dialog, select the 'Exclude' tab and press the 'Add' button. In addition, advanced users are provided with a number of exclude directories macro commands allowing one to exclude multiple directories using a single macro command.

- **\$BEGINS <Text String>** - excludes directories beginning with the specified string.
- **\$CONTAINS <Text String>** - excludes directories containing the specified string.
- **\$ENDS <Text String>** - excludes all directories ending with the specified text string.
- **\$REGEX <Regular Expression>** - excludes directories matching the specified regular expression.
- **\$DIRLIST <File Name>** - excludes directories listed in the user-specified text file.

For example, the exclude macro command '\$CONTAINS Temporary Files' will exclude all directories with 'Temporary Files' at any place in the full directory path and the exclude macro command '\$REGEX \.(TMP|TEMP)\$' will exclude directories ending with '.TMP' or '.TEMP'.

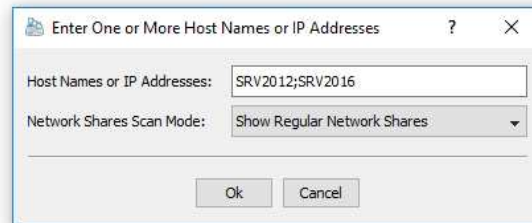
### 3.16 Processing Network Shares Using UNC Path Names

In order to simplify detection of duplicate files in networked computers and/or NAS storage devices, DupScout allows one to specify directories that should be processed using UNC path names without mounting each network share as a local disk. When working with UNC path names, it is important to keep in mind that all duplicate files removal operations such as link, copy, move and delete will be performed using UNC path names and the user should have appropriate permissions on each specific network share and/or NAS storage device.

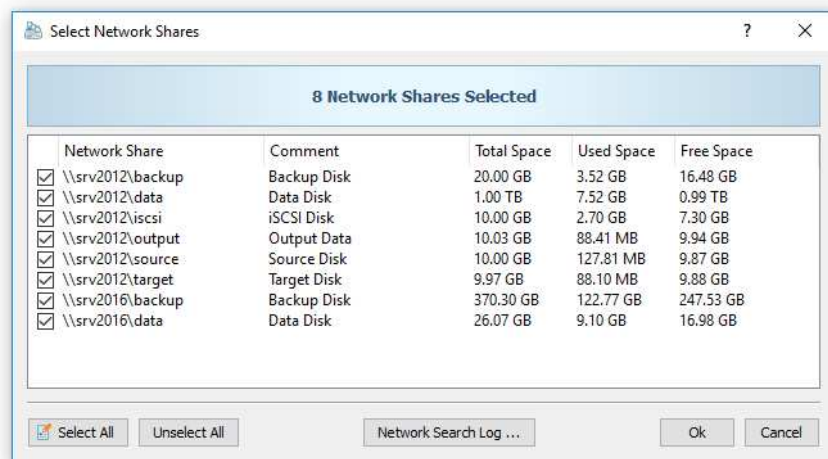


### 3.17 Searching Duplicate Files in Servers and NAS Storage Devices

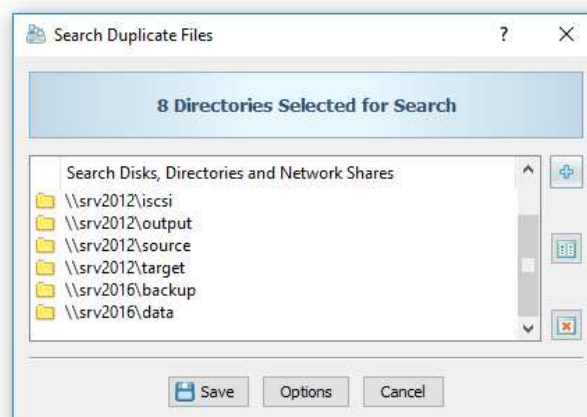
DupScout allows one to search duplicate files in all network shares of one or more servers or NAS storage devices on the network. In order to search duplicates in one or more servers, open the duplicates search dialog, press the 'Add' button located on the right side of the list of search locations, select the 'Servers or NAS Devices' mode and enter one or more host names or IP addresses separated by the semicolon (;) character.



DupScout will scan the network and show a list of network shares detected in the specified servers and NAS storage devices allowing one to select one or more network shares that should be processed. In order to be able to use this feature, the user needs to have permissions to access network shares.

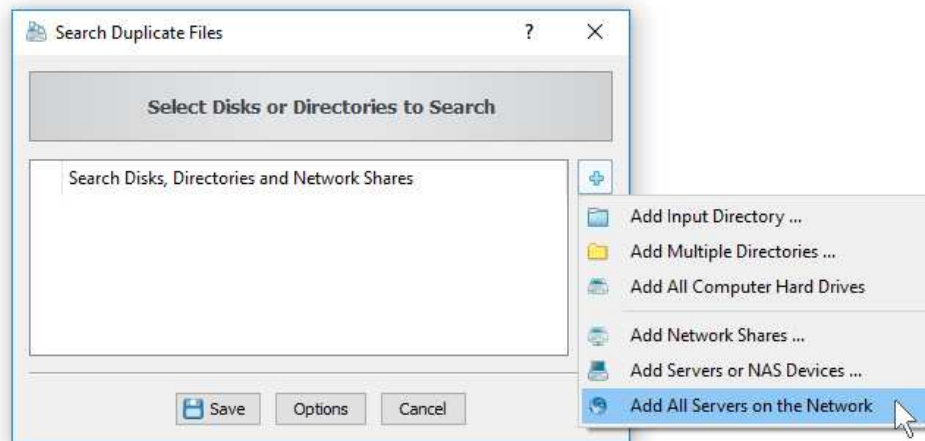


The network shares scanning operation may be performed multiple times for different servers and NAS storage devices and an unlimited number of network shares from different servers may be added to the duplicate files search operation. During runtime, DupScout will search duplicate files in all the specified network shares in parallel using all CPUs and/or CPU-cores available in the host computer DupScout is running on.

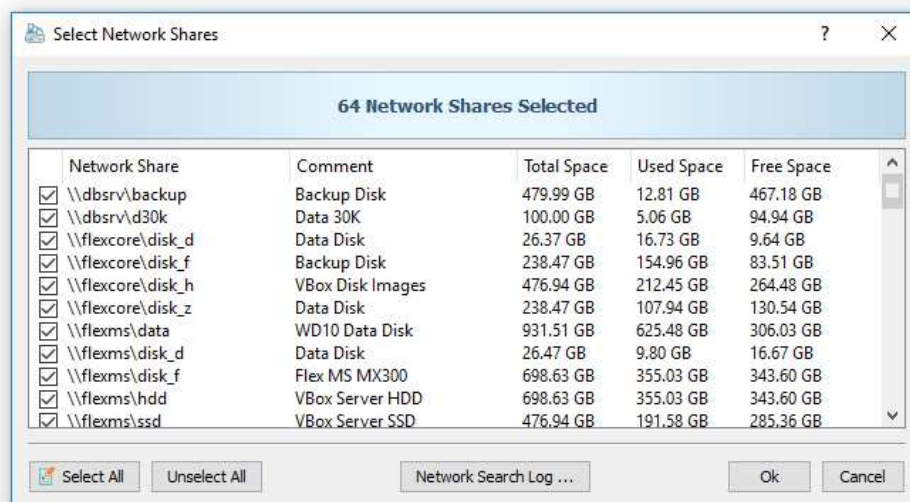


### 3.18 Searching Duplicate Files in All Servers on the Network

Another option is to search duplicate files in all servers and/or NAS storage devices available on the network. In order to search duplicates in all servers on the network, open the duplicate files search dialog, press the 'Add' button located on the right side of the list of search locations, select the 'All Servers on the Network' mode and press the 'Ok' button.



DupScout will scan the network and show a list of servers and NAS storage devices detected on the network. Select one or more servers or NAS storage devices to search duplicate files in and press the 'Ok' button.

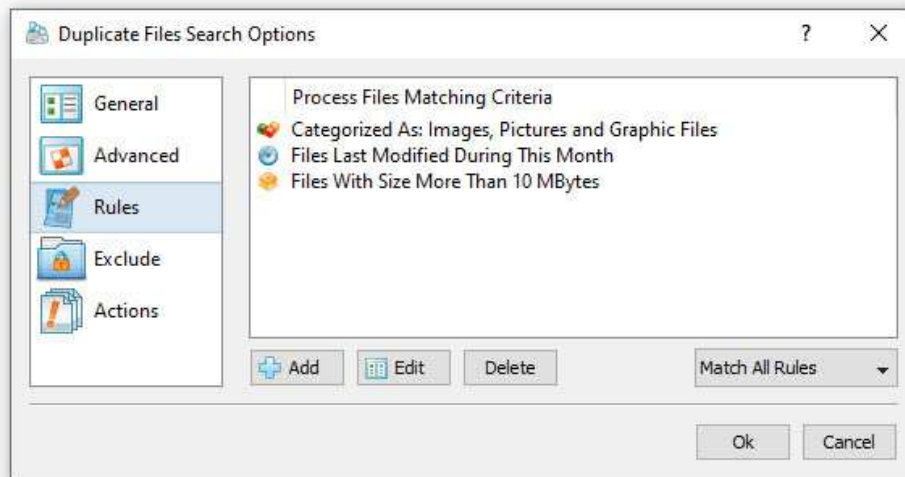


DupScout will scan the selected servers and show a list of network shares detected in the servers and NAS storage devices allowing one to select one or more network shares that should be processed. During runtime, DupScout will process the selected network shares in parallel using all CPUs available in the host computer DupScout is running on. In order to be able to use this feature, the user needs to have permissions to access network shares.

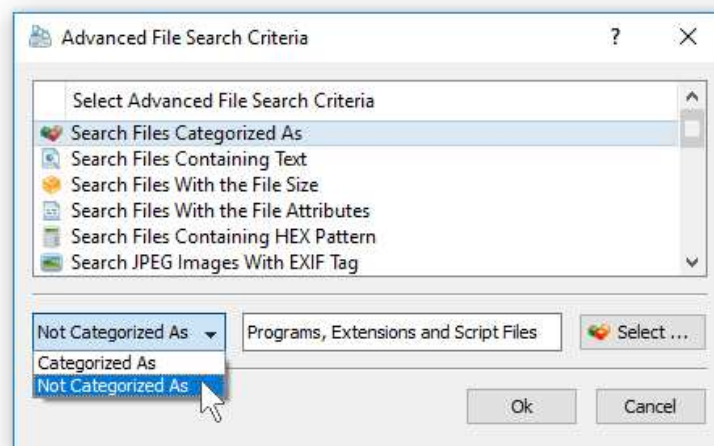


### 3.19 Searching Specific Types of Duplicate Files

DupScout provides the ability to search specific types of duplicate files using an extensive set of file matching rules. For example, the user may search all types of duplicate images with the file size more than 10 MB that were modified during the last month.

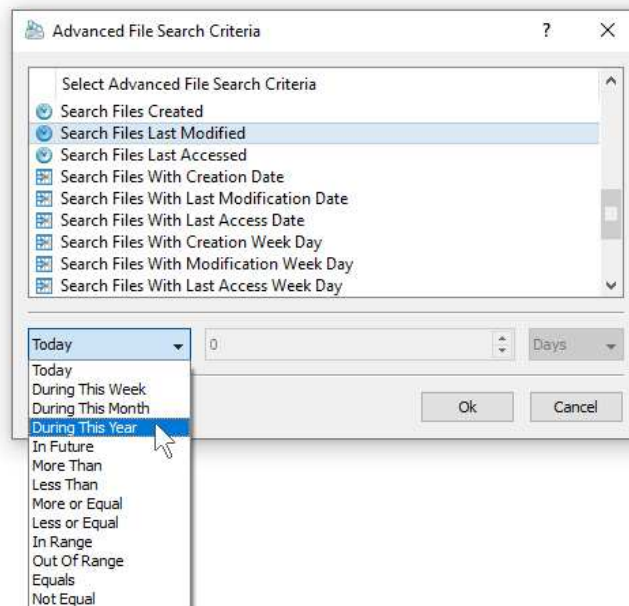


In order to add one or more file matching rules, open the duplicate files search options dialog, select the 'Rules' tab and press the 'Add' button. On the 'Rules' dialog select an appropriate file matching rule type and specify all the required parameters.

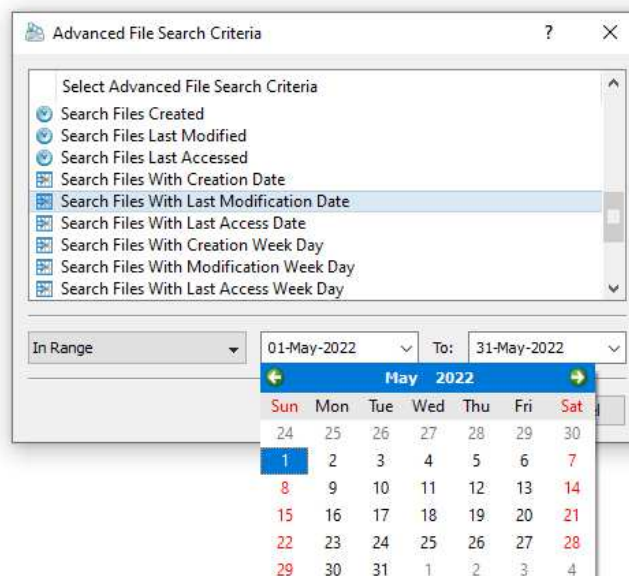


During the duplicate files search process, DupScout will apply the specified file matching rules to all existing files and filter files matching the rules. Files not matching the specified rules will be skipped from the duplicate files search process and the resulting list of duplicate files will contain user-selected files only.

Another very useful search rule provides the ability to search duplicate files by the creation, last modification or the last access date. For example, in order to search duplicate files modified during the last year, select the rule named 'Search Files Last Modified' and set the rule operator to 'During This Year'.



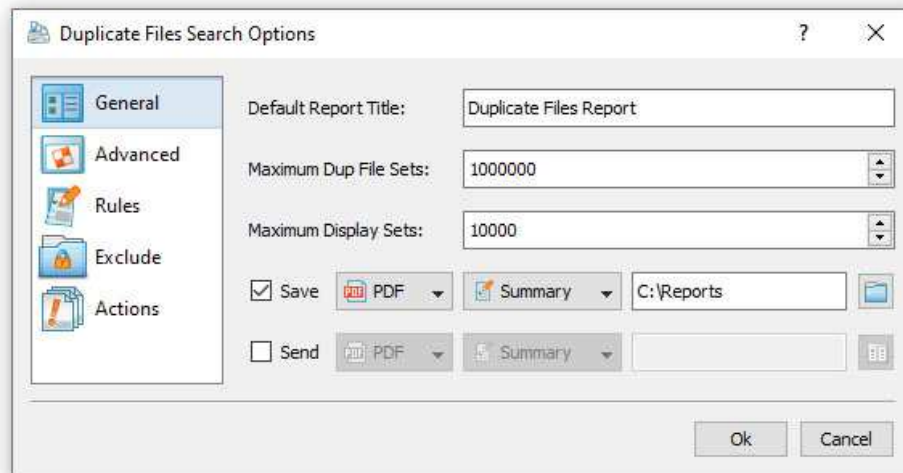
In addition, there are search rules to match files by the number of days, months, years, hours, minutes or seconds since the creation, last modification or the last access time allowing one to precisely select which files to search. Finally, the user is provided with the ability to search duplicate files created, last modified or last accessed before or after a specific date or a date range. For example, in order to search duplicate files by a modification date range, select the rule named 'Search Files With Last Modification Date', set the rule operator to 'In Range' and then select the start date and the end date.



In advanced search operations the date and time rules may be combined with other types of file matching rules allowing one to search duplicate files according to the user-specific needs. For example, in order to free the disk space, the user may search for all types of duplicate images or duplicate document files with the file size more than 50 MB which were created or last modified more than 3 years ago.

### 3.20 Duplicate Files Search Options

By default, DupScout searches duplicate files using generic settings, which should be appropriate for most users. In addition, power computer users are provided with a number of advanced configuration options allowing one to customize duplicates detection process for user specific needs.



In order to customize the duplicate files search process, open the duplicate files search options dialog and select the 'General' options tab. The 'General' options tab allows one to control the default report title, the type of the hash signature used to detect duplicate files, the maximum number of duplicate file sets to report about and provides the ability to enable processing and display duplicate files user names.

**Report Title** - this parameter sets the default report title for HTML, PDF, Excel CSV, text and XML reports. This option is especially useful for automatically generated reports, which are saved without user intervention.

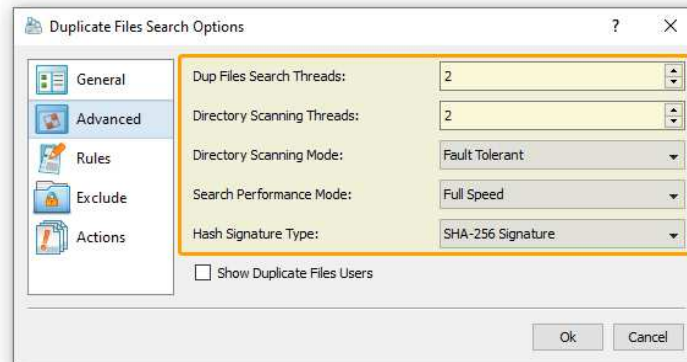
**Signature Type** - this parameter sets the type of the hash signature algorithm that should be used to detect duplicate files, which can be set to one of the following values: MD5, SHA1 or SHA256. The SHA256 algorithm is the most reliable one and it is used by default. The MD5 and SHA1 algorithms are significantly faster, but less reliable.

**Max Dup File Sets** - this parameter controls the maximum number of duplicate file sets displayed in the duplicate files results list. After finishing the search process, DupScout will sort all the detected duplicate file sets by the amount of the duplicate disk space and display the top X duplicate file sets as specified by this parameter (default is 10,000).

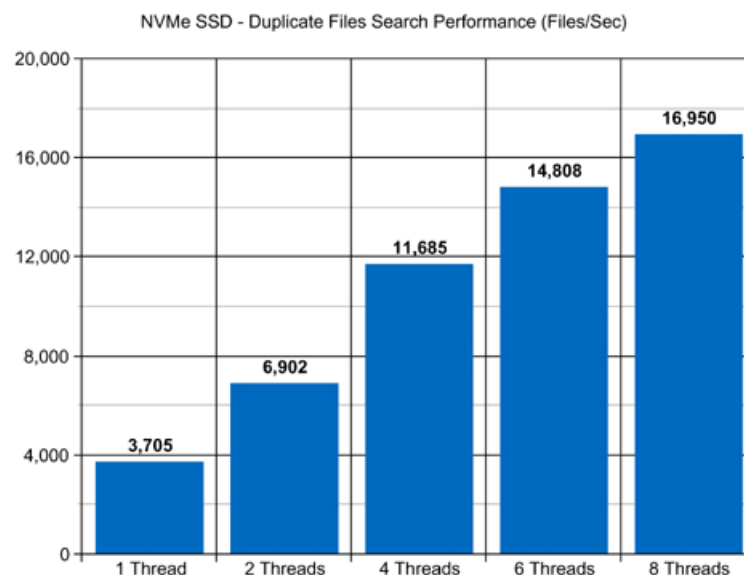
**Process User Names** - this option enables processing and display of duplicate files user names. By default, due to performance considerations, processing and display of duplicate files user names is disabled. Select this option in order to enable categorization and filtering of detected duplicate files by the user name and display the amount of duplicate disk space and the number of duplicate files per user. In order to mitigate potential performance degradation when searching duplicate files over the network with the option to process and display duplicate files user names enabled, it is highly recommended to configure the duplicate files search operation to use at least 4 parallel processing threads.

### 3.21 Duplicate Files Search Performance Options

DupScout is optimized for modern multi-core and multi-CPU systems and is capable of searching duplicate files stored on multiple disks, directories or network shares in parallel using all CPUs installed in the computer. DupScout provides a number of different performance optimization options allowing one to tune the duplicate files search operations for user-specific hardware and storage configurations.



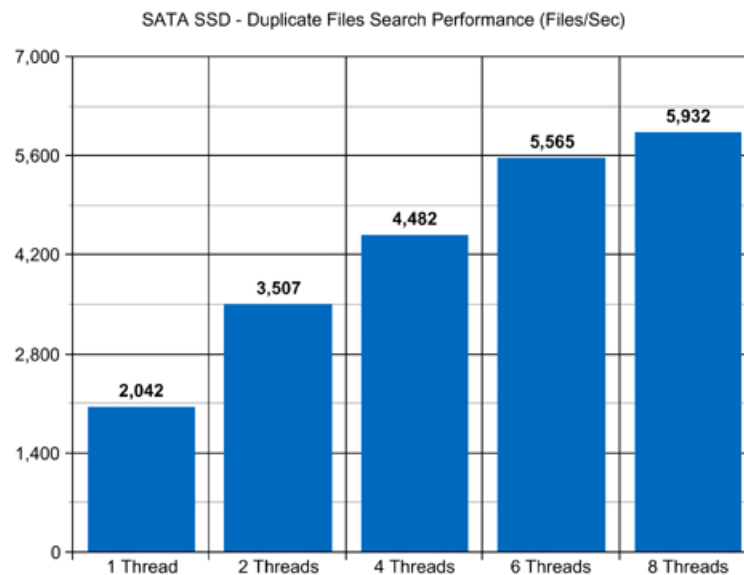
In order to customize the duplicate files search performance optimization options, open the duplicate files search operation dialog, press the 'Options' button and select the 'Advanced' tab. The 'Dup Files Search Threads' option controls how many parallel threads are used to search duplicate files. The 'Directories Scanning Threads' option controls how many parallel threads are used to scan input disks, directories and network shares. In the 'Fault-Tolerant' directory scanning mode, DupScout uses an individual processing thread for each input disk, directory or network share, but limits the maximum number of parallel scanning threads to the specified value. In the high-performance directory scanning mode, DupScout always uses the specified number of parallel directory scanning threads even when processing a single input disk, directory or network share.



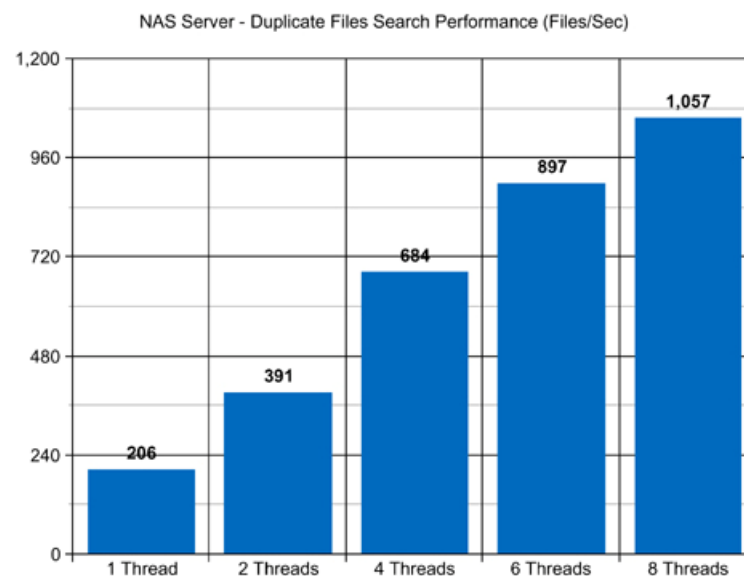
For example, when searching duplicate files stored on a high-speed NVMe SSD disk, DupScout reaches up to 3,000 files/sec using a single search thread. With two parallel search threads, the performance scales up to 6,000 files/sec and with four parallel search threads, the performance increases up to 11,000 files/sec showing a very good level of multi-threaded performance scalability. With six processing threads the duplicate files search performance reaches up to 14,000 files/sec and with eight processing threads the performance increases up to 16,000 files/sec allowing one to quickly process large numbers of files and identify how many files are duplicates and how much duplicate disk space these files are using.



When searching duplicate files stored on regular SATA SSD drives, which are significantly slower than NVMe SSD drives, the performance of the duplicate files search process reaches up to 2,000 files/sec using a single process thread and scales up to 4,400 files/sec with four parallel duplicate files search threads. With eight parallel threads, the performance reaches up to 5,900 files/sec, which allows to process large numbers of files relatively fast.

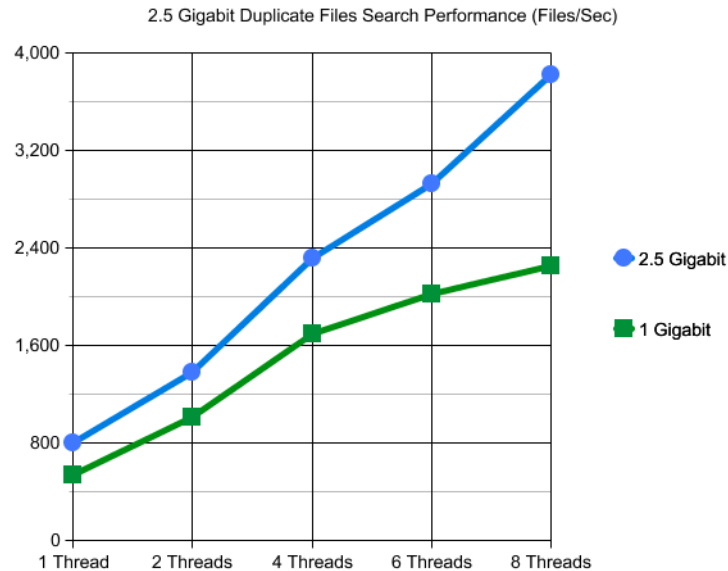


Searching duplicate files stored on a NAS storage device via a network is a more complicated task because the user needs to take into account the speed and the latency of the network. If the computer, on which DupScout is installed, is connected to the NAS storage device via a high-speed, low-latency network, the performance of the duplicate files search operations may reach up to 200 files/sec with one duplicate files search thread, scale up to 684 files/sec with four parallel search threads and increase up to 1,057 files/sec with eight parallel duplicate files search threads.

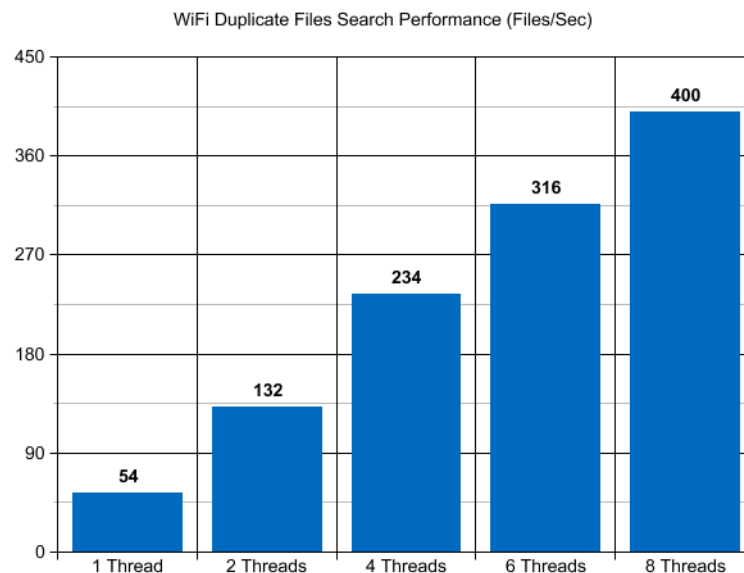


On the other hand, if DupScout will need to access network shares via the Internet or via a long-distance, high-latency network, the performance of the duplicate files search operations will be relatively slow. One of the options to increase the performance of the duplicate files search operations in such configurations is to set the 'High-Performance' directory scanning mode and increase the number of parallel duplicate files search threads to 16 or even 32 disregarding how many CPUs are actually installed on the computer.

Searching duplicate files stored in one or more NAS servers may be a very time consuming operation and one of the ways to speed-up the duplicate files search process is to use a 2.5 Gigabit Ethernet network. With 2.5 Gigabit Ethernet the performance of the DupScout duplicate files search operations continues to scale up to 3,800 Files/Sec with 8 parallel duplicate files search threads, which represents a 69% improvement compared to the standard Gigabit Ethernet.

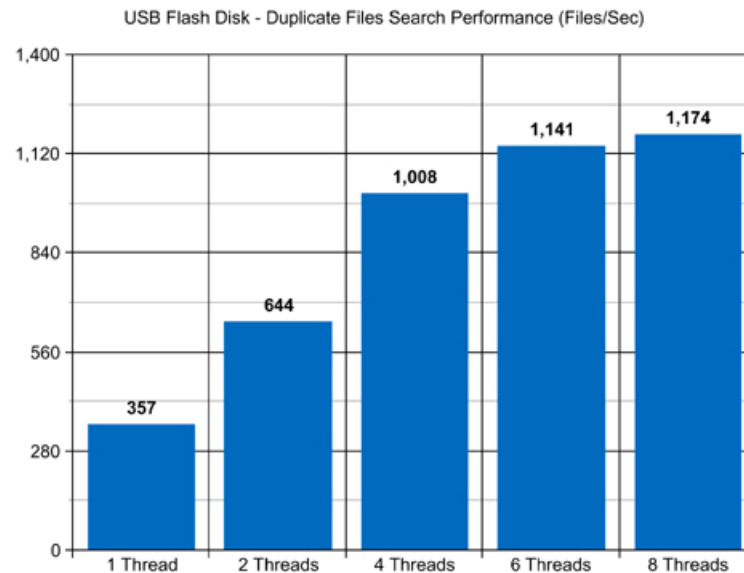


Due to a very wide adoption of laptops and NAS servers with built-in WiFi network interfaces, many users may consider searching duplicate files stored in NAS servers via the wireless network. But, the latency of the wireless network is much higher and therefore it will take much more time to complete the duplicate files search operation via the wireless network. The question is how much longer the user will need to wait and if it will save any significant amount of time to search duplicate files via a wired network.

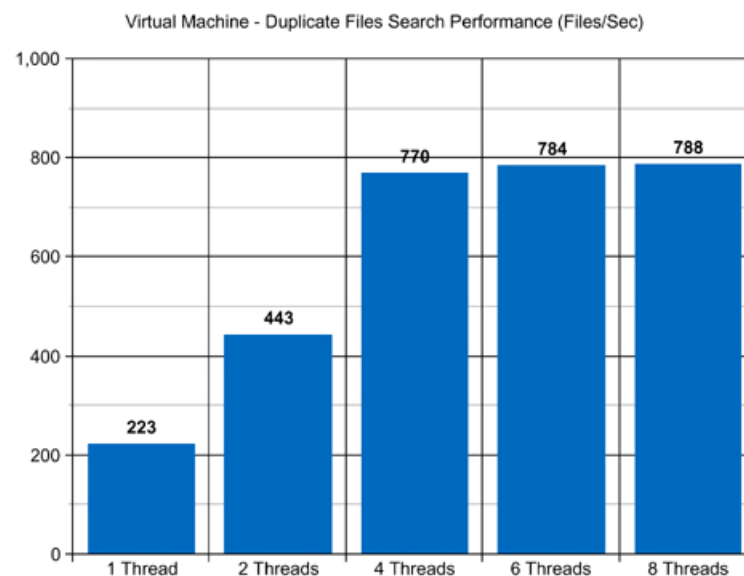


Based on our benchmarks, via a 5 GHz wireless network, DupScout reaches up to 54 Files/Sec with a single duplicate files search thread and scales up to 400 Files/Sec with 8 parallel duplicate files search threads, which is approximately 6 times slower compared to the standard Gigabit Ethernet and approximately 10 times slower when compared to the 2.5 Gigabit Ethernet. So, if the user needs to search duplicate files in a NAS server with 100,000 files or more, a low-latency Gigabit Ethernet or 2.5 Gigabit Ethernet is required.

Modern USB flash drives provide plenty of the storage space and are reasonably fast allowing one to store vast amounts of data for backup purposes. Sometimes, it may be required to search duplicate files on a USB flash drive in order to free the used disk space. When searching duplicate files stored on a USB flash drive, DupScout can reach up to 357 files/sec with a single search thread. With two parallel search threads, the performance increases up to 644 files/sec, with four parallel threads the performance increases up to 1,008 files/sec and with eight parallel duplicate files search threads the performance scales up to 1,174 files/sec.



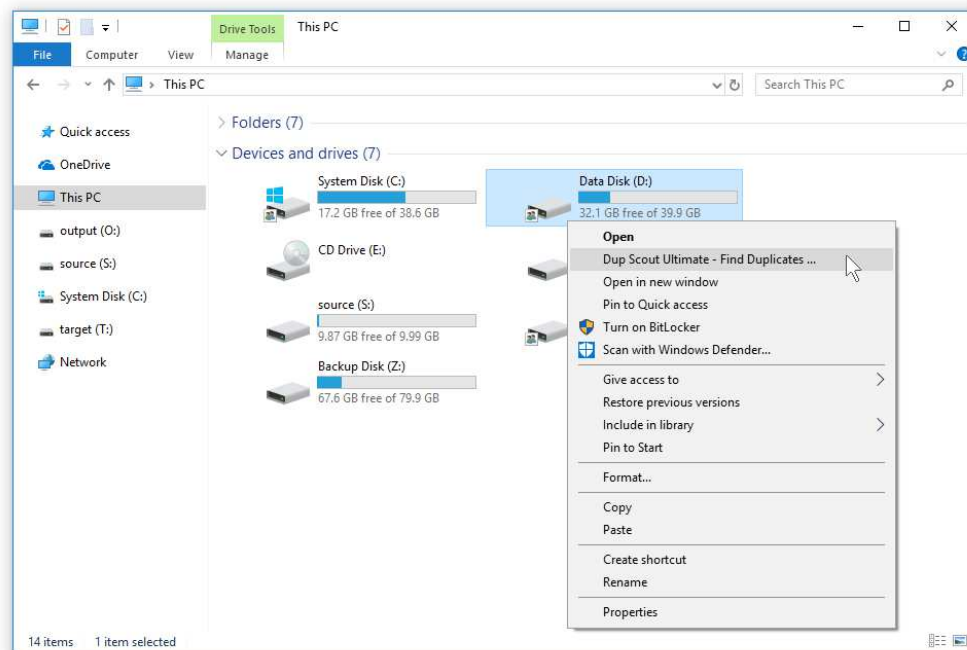
Today, modern IT environments widely deploy virtual servers and/or virtual workstations. Most of the popular virtualization platforms provide a high level of performance, but depending on the target hardware and software platforms, significant performance degradations are inevitable when a duplicate files search operation is executed on a guest virtual machine compared to the same duplicate files search operation executed directly on the host computer.



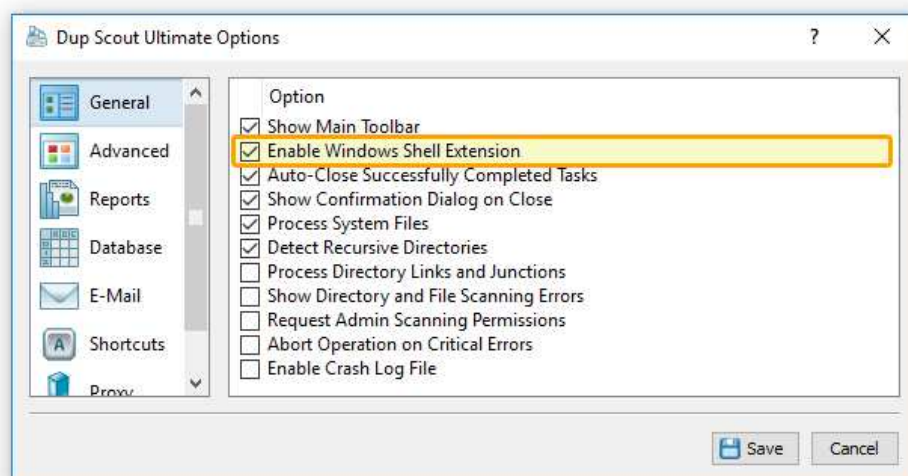
For example, when a virtual machine with 4 virtual CPUs is stored on an SSD disk and searching duplicate files stored on a virtual local disk drive, which is physically stored on the same SSD disk, the performance of the duplicate files search operations reaches up to 223 files/sec using a single search thread. With two parallel search threads, the performance of the duplicate files search operations scales up to 443 files/sec and with four parallel search threads, the performance of the duplicate files search operations increases up to 770 files/sec.

### 3.22 Windows Shell Extension

DupScout provides a Windows shell extension allowing one to search duplicate files directly from the Windows Explorer application. In order to search duplicates in one or more disks or directories, select the required disks or directories in the Windows Explorer application, press the right mouse button and select the 'DupScout - Find Duplicates' menu.



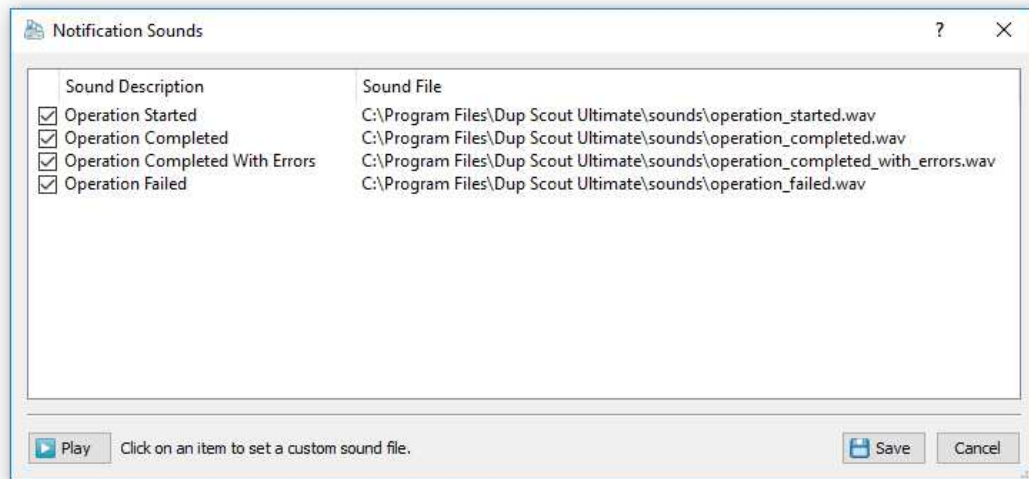
In most cases, the Windows shell extension is a very useful feature, but sometimes, when the user have too many installed shell extensions, the Windows context menu may become too cluttered. In order to remove the DupScout entry from the Windows context menu, open the options dialog, select the 'General' tab and disable the Windows shell extension.



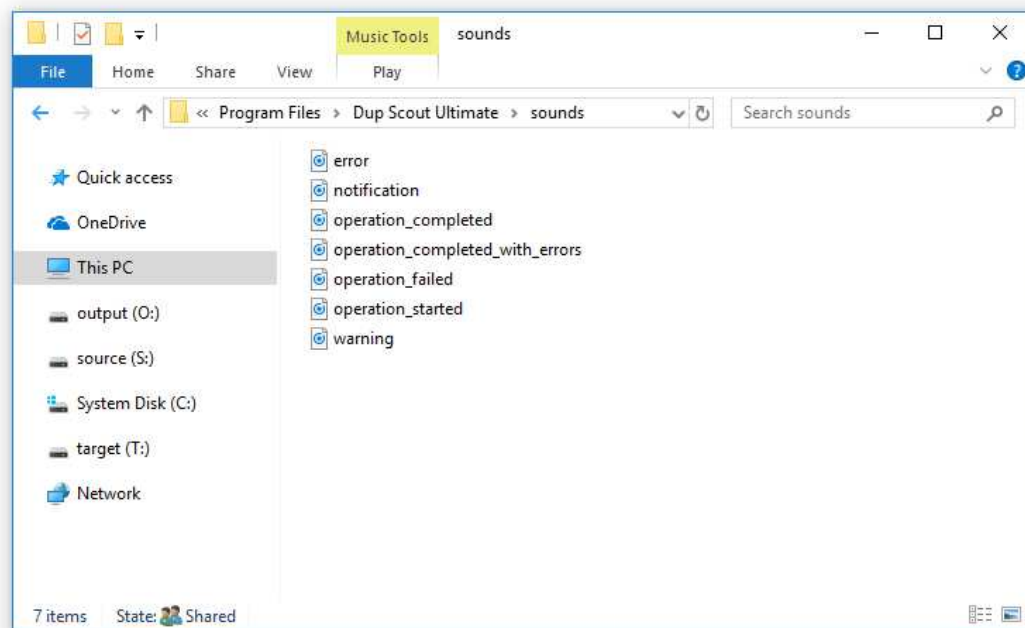


### 3.23 Sound Notifications

DupScout provides the ability to play notification sounds when a duplicate files search operation is started, completed or failed. In addition, the user is provided with the ability to enable, disable or customize all types of sound notifications.



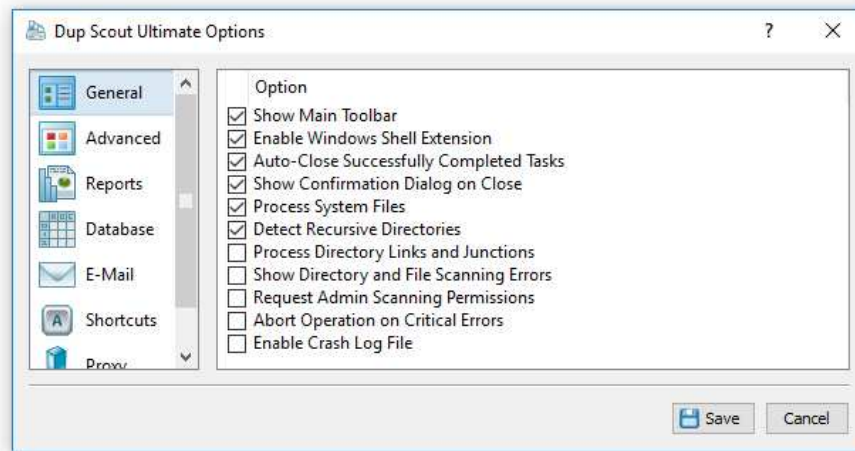
In order to open the 'Notification Sounds' dialog, select the 'Tools - Notification Sounds' menu item. The 'Notifications Sounds' dialog shows all the available sound notifications and allows one to enable or disable specific sound notifications.



In order to select a custom notification sound file, click on a notification sound item in the sounds list and select a custom WAV file. In order to play a notification sound, select the required notification sound in the sounds list and press the 'Play' button.

### 3.24 DupScout Options Dialog

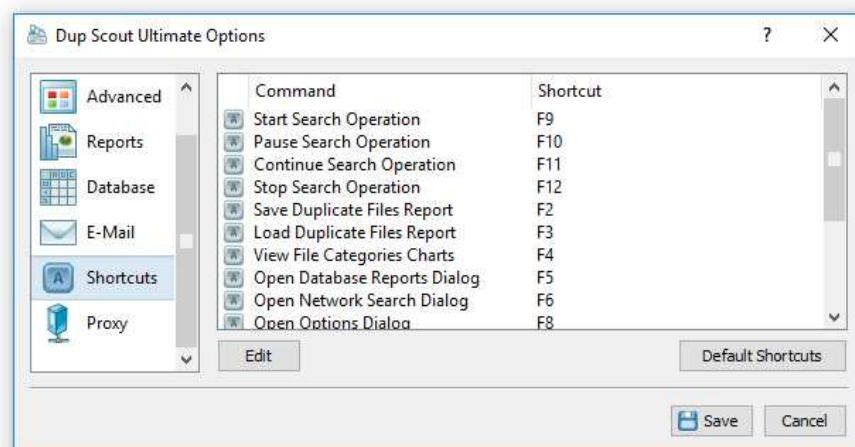
Select the 'Tools - Advanced Options' menu item to open the options dialog.



The '**General**' tab allows one to control the following options:

- Show Main Toolbar - Enables/Disables the main toolbar
- Always Show Profile Dialog Before Start - Instructs DupScout to always show the profile dialog before starting the duplicate files search process.
- Auto-Close Successfully Completed Tasks - select this option to automatically close the process dialog and show duplicate file list.
- Automatically Check For Product Updates - select this option to instruct DupScout to automatically check for available product updates.
- Show Scanning Access Denied Errors - select this option to see error messages when DupScout is prevented to scan files in a directory
- Process System Files - select this option to detect duplicate files among system files.
- Abort Operation On Critical Errors - by default DupScout is trying to process as many files as possible logging non-fatal errors in a process log. Select this option to instruct DupScout to abort operation when encountering a critical error.

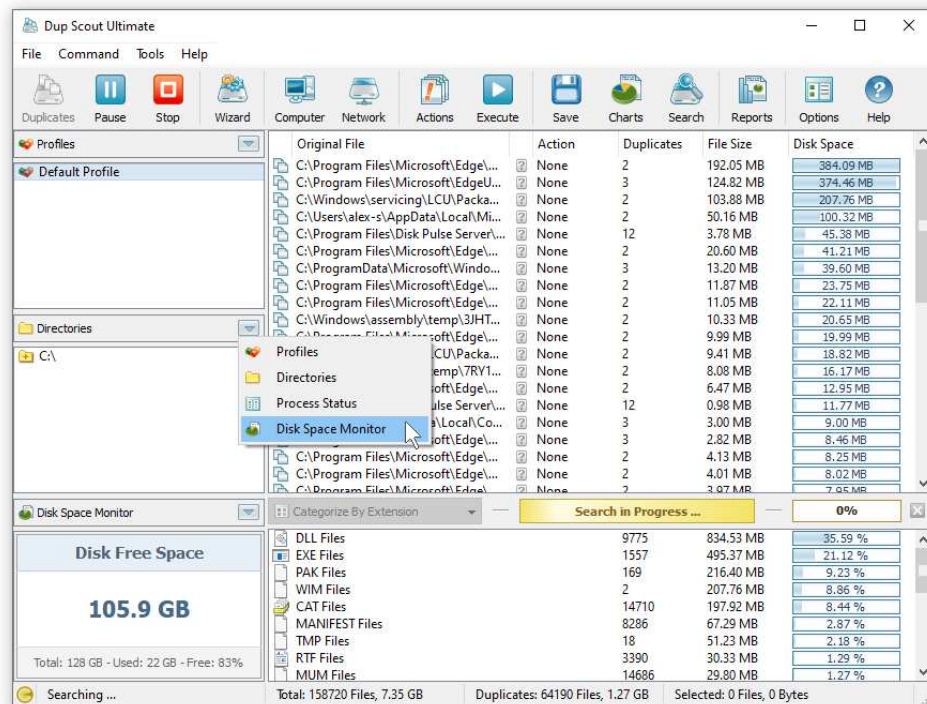
The '**Shortcuts**' tab provides the user with the ability to customize keyboard shortcuts. Click on a shortcut item to edit the currently assigned key sequence. Press the 'Default Shortcuts' button to reset all keyboard shortcuts to default values.



The '**Proxy**' tab provides the user with the ability to configure the HTTP proxy settings. DupScout uses the HTTP protocol in order to inquire whether there is a new product version available on the web site.

### 3.25 Customizing DupScout GUI Application

The main DupScout GUI application includes a side-bar allowing one to select different types of status views and customize the GUI application. The user is provided with the duplicate files search profiles view, the current profile view, the duplicate files search process status view and the disk space monitor status view. In order to select a different status view, click the status menu button located in the top-right corner and select a required status view type.



The duplicate files search profiles status view displays the list of configured duplicate files search profiles and provides the ability to add, edit and delete duplicate files search profiles. In addition, the user is provided with the ability to perform duplicate files search operations, export and/or import duplicate files search profiles. For example, in order to add a new duplicate files search profile, click the right mouse button over the profiles view and select the 'Add Profile' menu item.

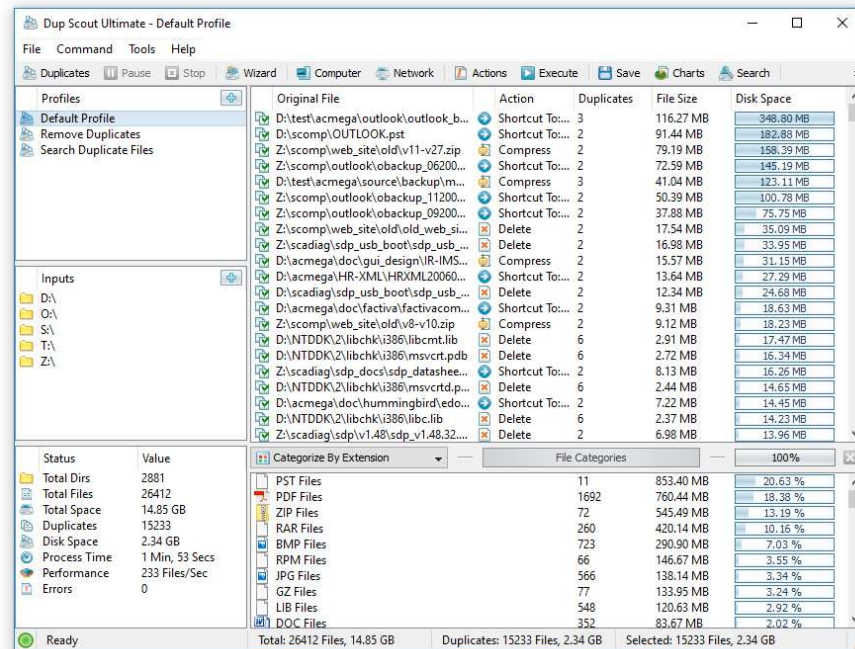
The current duplicate files search profile view, shows the list of disks, directories and network shares configured to be processed during the duplicate files search operation. The current profile view allows one to add, edit and delete input directories, disks and network shares. For example, to add a directory to the current duplicate files search profile, click the right mouse button over the current profile view and select the 'Add Input Directory' menu item.

The disk space monitor status view displays the amount of the free disk space in all disks installed in the computer or a specific disk selected by the user. In addition, the status bar of the disk space monitor shows the total disk space, the used disk space and the percentage of the free disk space. When the amount of the free disk space changes, the disk space monitor displays a disk space change notification showing the amount of the changed disk space. In order to set a specific disk drive to be displayed, click the right mouse button over the disk space monitor and select the required disk.

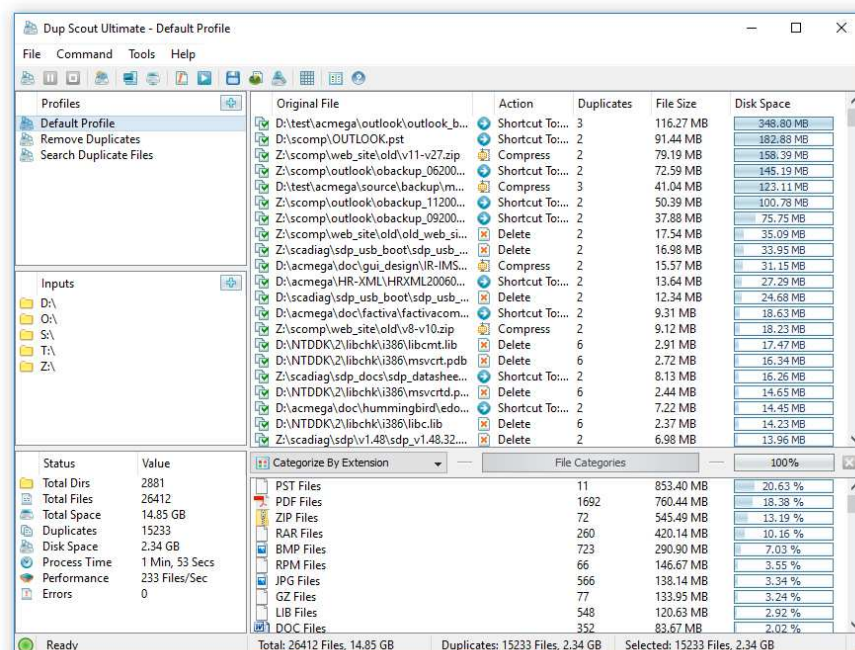
The process status view displays statistics about the current or the last performed duplicate files search operation including the total number of processed directories, the total number of processed files, the total amount of processed disk space, the number of duplicate files, the amount of duplicate disk space, the duplicate files search process time, the performance of the duplicate files search process and the number of directory scanning and duplicate files search errors.

### 3.26 Using DupScout GUI Layouts

In order to improve GUI usability, the DupScout main GUI application provides three user-selectable GUI layouts. Press the 'Layouts' button to switch the GUI application to the next GUI layout.



The first (default) GUI layout displays large toolbar buttons with descriptive text labels under each button and shows the directories entry and the profiles combo box under the main toolbar. The second GUI layout displays small toolbar buttons with descriptive text labels beside each button and shows the directories entry and the profiles combo box under the main toolbar.



The third GUI layout displays small toolbar buttons without descriptive text labels and shows the directories entry and the profiles combo box as a single toolbar.

### 3.27 DupScout Command Line Utility

In addition to the GUI application, DupScout Pro includes a command line utility allowing one to execute duplicate files search and removal operations from an OS shell window. The DupScout command line utility provides power users and system administrators with the ability to integrate duplicate files detection capabilities into batch files and shell scripts. The command line utility is located in the '**<ProductDir>/bin**' directory.

#### Command Line Syntax:

##### **dupscout -execute <Profile Name>**

This command executes the specified duplicate files detection profile.

##### **dupscout -search -dir <Directory 1> [ ... Directory X ]**

This command detects duplicate files in the specified directories, disks or network shares.

##### **dupscout -search -server <HostName1;HostName2;HostNameX>**

This command detects duplicate files in all network shares in the specified servers and/or NAS storage devices.

##### **dupscout -search -network**

This command detects duplicate files in all network shares in all servers on the network.

#### Parameters:

##### **-dir <Directory>**

This parameter specifies an input directory, disk or a network share for the duplicate files detection command. In order to ensure proper parsing of command line arguments, directories containing space characters should be double quoted.

##### **-server <Host Name or IP Address>**

This parameter specifies a host name or an IP address of the server or NAS storage device that should be processed. Multiple host names or IP addresses should be separated by the semicolon (;) character.

#### Options:

##### **-save\_html\_report [ File Name ]**

This option saves an HTML report to the specified file.

##### **-save\_text\_report [ File Name ]**

This option saves a text report to the specified file.

##### **-save\_csv\_report [ File Name ]**

This option saves an Excel CSV report to the specified file.



**-save\_xml\_report [ File Name ]**

This option saves an XML report to the specified file.

**-save\_pdf\_report [ File Name ]**

This option saves a PDF report to the specified file.

**-save\_report [ File Name ]**

This option saves a native DupScout report file.

**-save\_to\_database**

This option saves a report to an SQL Database through the ODBC interface configured on the DupScout GUI options dialog.

**-show\_users**

This option enables processing and display of duplicate files user names.

**-title <Report Title>**

This optional parameter specifies a custom report title.

**-label <Report Label>**

This optional parameter specifies a custom report label.

**-max\_sets <Maximum Number of Sets to Export>**

This parameter sets the maximum number of duplicate file sets to export (default is 10,000).

**-perf <FULL | MEDIUM | LOW>**

This parameter controls the speed of the duplicate files detection process.

FULL - Full-speed duplicate files detection

MEDIUM - Medium-speed duplicate files detection

LOW - Low-speed duplicate files detection

**-scanners <1 ... 16>**

This parameter specifies the maximum number of directory scanning threads.

**-streams <1 ... 16>**

This parameter specifies the number of parallel duplicate files search threads.

**-compress**

This parameter instructs to export a GZ compressed report.

**-v**

This command shows the product's major version, minor version, revision and build date.

**-help**

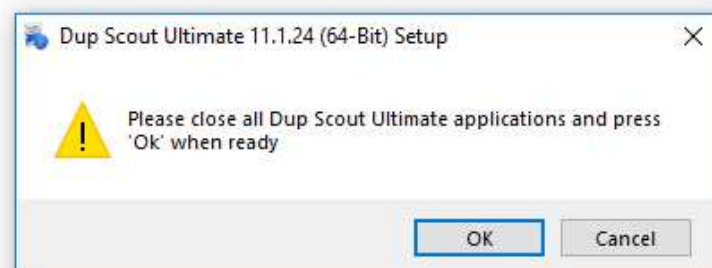
This command shows the command line usage information.

### 3.28 Product Update Procedure

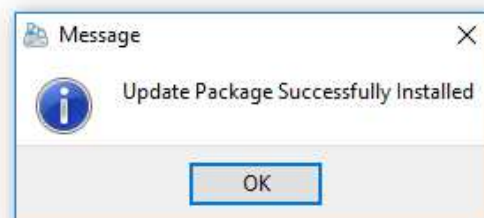
Almost every month, Flexense releases bug-fixes and product updates for the DupScout duplicate files finder. These product updates are uploaded to our web site and may be applied to any installed product version. Each time DupScout is started, the update manager checks if there is a new product version available. If there is a new product update available, the user will see an 'Update' link in the right-most corner of the status bar.



In order to manually verify that the currently installed product version is up-to-date, select menu 'Help - Check For Updates' on the main menu bar. The update manager will connect to the update server and check if there is a newer version of the product available for download. If there is a new product version available, the update dialog will show the version of the new product update and two links: the 'Release Notes' link and the 'Install' link. Click on the 'Release Notes' link to see more information about new features and bug-fixes provided by this specific product version. Click on the 'Install' link to download and install the new product version.



After clicking on the 'Install' link, please wait while the update manager will download the new product version to the local disk. The update package will be downloaded to a temporary directory on the system drive and automatically deleted after the update manager will finish updating the product.



After download is completed, close all open DupScout applications and press the 'Ok' button when ready. If one or more DupScout applications will be open during the update, the operation will fail and the whole update process will need to be restarted from the beginning. After finishing the update process, DupScout will show a message box informing about the successfully completed operation.

### 3.29 Registering DupScout Pro

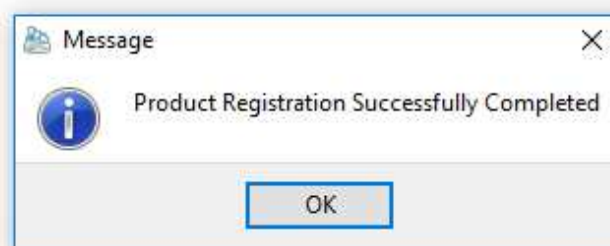
DupScout Pro licenses and discounted license packs may be purchased on the following page:  
<http://www.dupscout.com/purchase.html>



After finishing the purchase process, wait for the following two e-mail messages: the first one with a receipt for your payment and the second one with an unlock key. If you will not receive your unlock key within 24 hours, please check your spam box for e-mail messages originating from support@flexense.com and if it is not here contact our support team.



After you will receive your unlock key, start the DupScout GUI application and press the 'Register' button located in the top-right corner of the window.

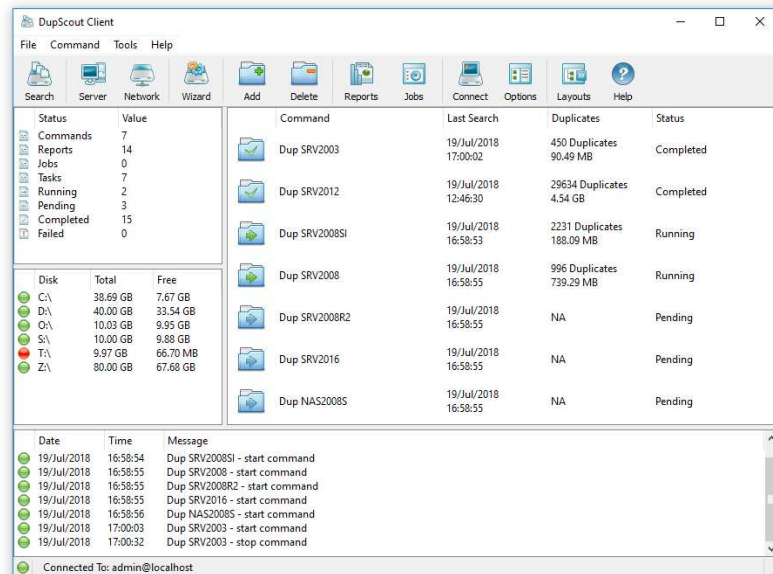


On the register dialog, enter your name and the received unlock key and press the 'Register' button to finish the registration procedure. If the computer is not connected to the Internet, press the 'Manual Registration' button and follow the manual product registration instructions.

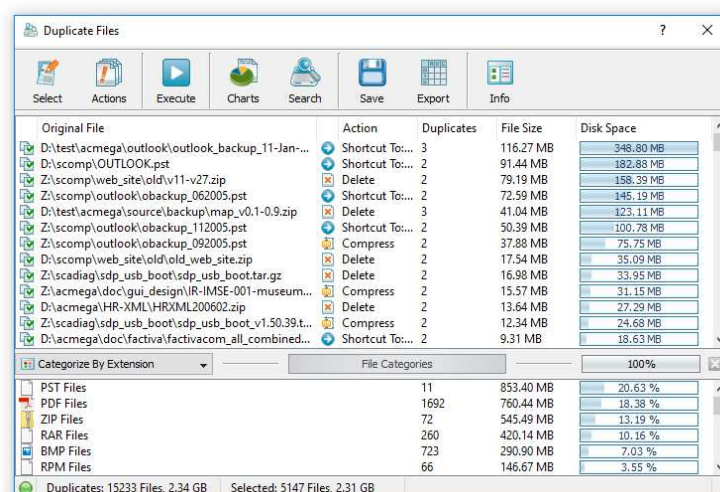
## 4 Using DupScout Server

### 4.1 DupScout Server Overview

DupScout Server is a server-based duplicate files search and removal solution, which runs in the background as a service and allows one to perform duplicate files search operations, review detected duplicate files, save various types of reports, remove duplicate files or schedule fully-automatic, periodic duplicate files search and removal operations. DupScout Server may be controlled using a full-scale client GUI application and the DupScout command line utility locally or via the network.



DupScout Server allows one to configure an unlimited number of duplicate files search operations, with each one capable of detecting duplicate files in one or more disks, directories, network shares or NAS storage devices. The user is provided with the ability to review detected duplicate files, generate HTML, PDF, text, CSV, XML reports or export reports from multiple servers to a centralized SQL database and perform advanced history trend analysis.



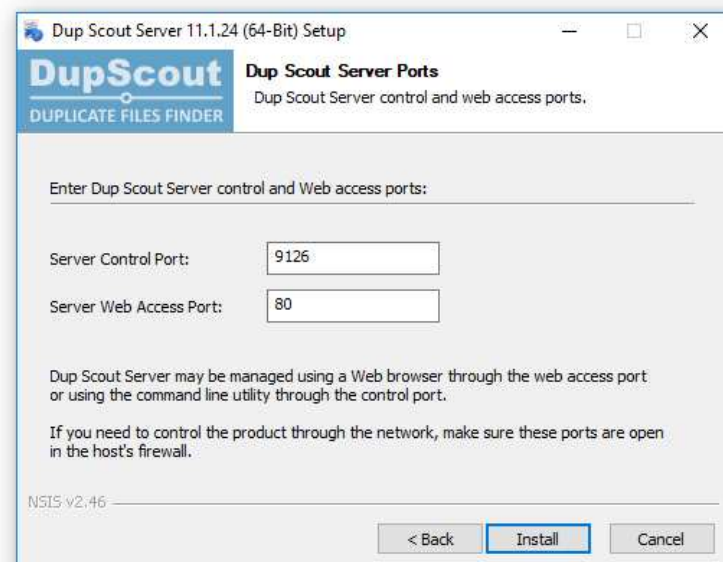
DupScout Server provides a large number of duplicate files removal options including the ability to replace duplicates with shortcuts or hard links, move duplicates to another directory, compress and move duplicates or delete all duplicate files. In addition, users are provided with the ability to schedule periodical duplicate files removal operations capable of removing duplicate files fully automatically according to user-specified rules and policies.

## 4.2 Product Installation Procedure

DupScout Server is especially designed to be as simple as possible. The product does not require any third-party software applications and may be installed and configured within a couple of minutes. A fully functional 30-days trial version of DupScout Server may be downloaded from the following page: <http://www.dupscout.com/downloads.html>.



The installation package is very small, 5MB - 6MB depending on the target operating system, and the product requires just 20MB of the free disk space on the target server. In order to install DupScout Server, start the setup program, select a destination directory and press the 'Next' button.

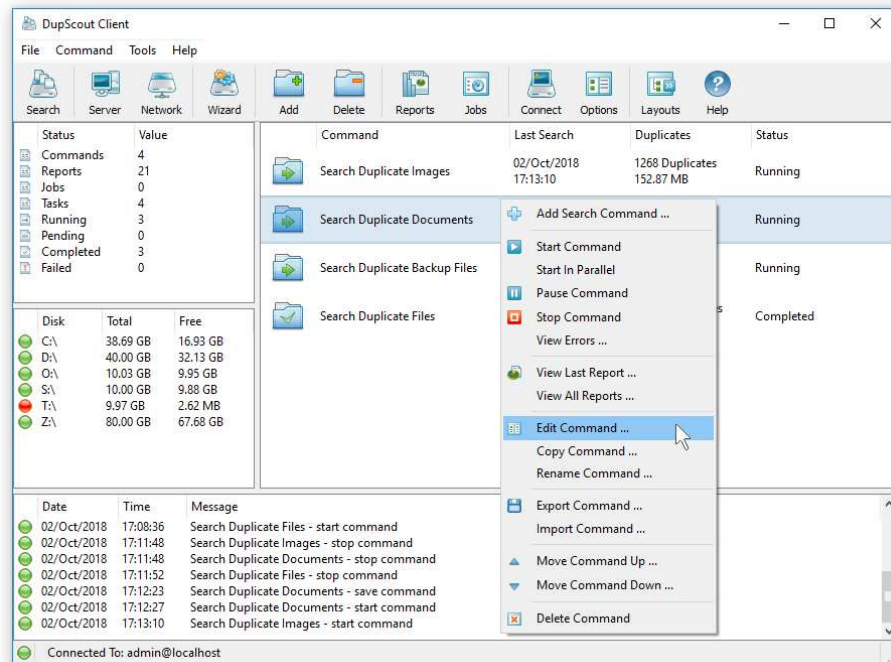


Optionally, enter custom server control and/or web access ports. The server control port is used by the DupScout command line utility and the web access port is the port for the web-based management interface allowing one to control DupScout Server using a standard web browser. If DupScout Server should be controlled remotely through the network, make sure one or both of these ports are open in the server's firewall.

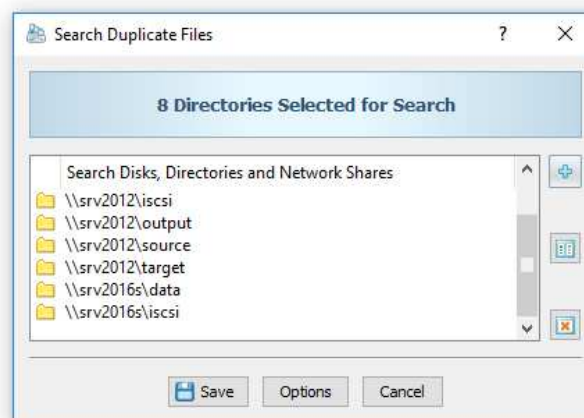


### 4.3 Using DupScout Server Client GUI Application

DupScout Server provides a full-scale client GUI application, which can control one or more DupScout Servers locally or via the network. The client GUI application provides all features available in the desktop product version and additional capabilities allowing one to search duplicate files in a number of servers and NAS storage devices simultaneously, schedule periodic duplicate files search operations, automatically generate various types of reports and perform advanced history trend analysis operations.

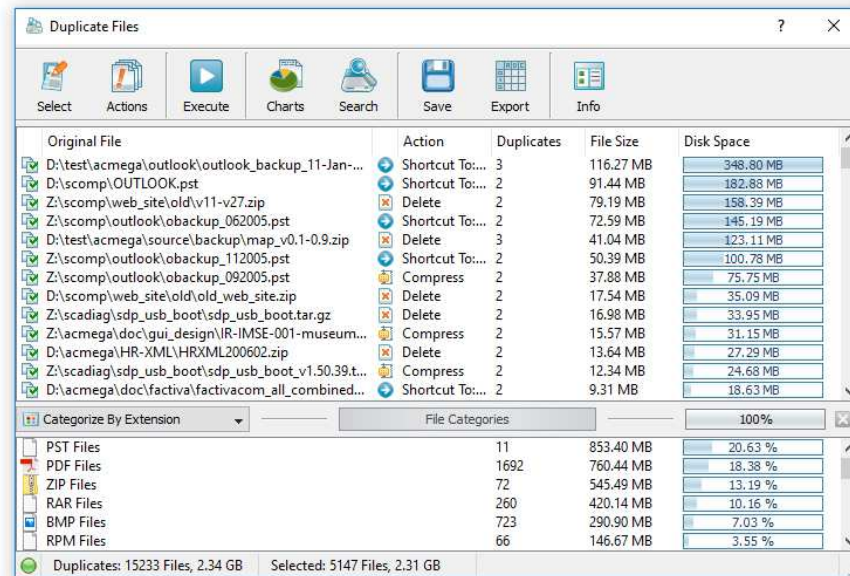


In order to start a simple duplicate files search operation using the client GUI application, just press the 'Search' button located on the main toolbar, specify one or more disks, directories or network shares to search duplicate files in and press the 'Search' button.

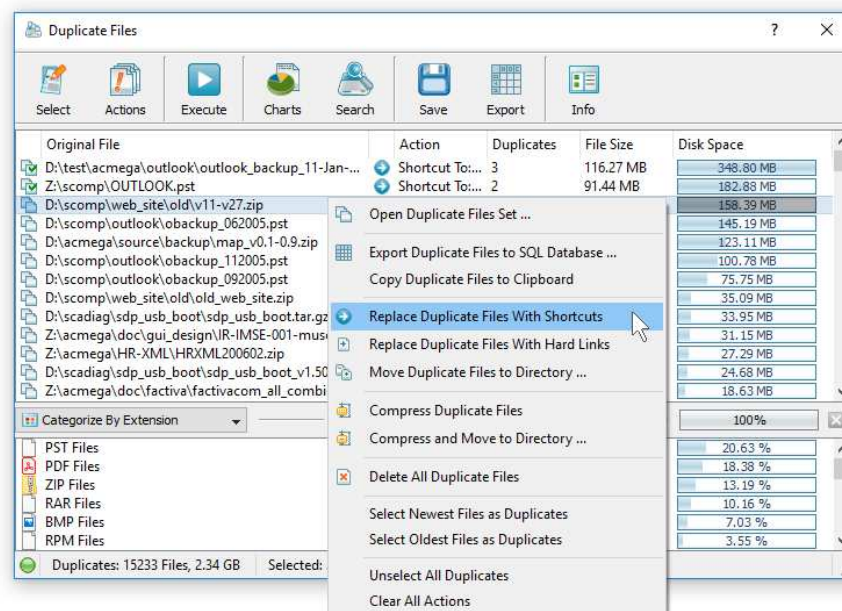


In addition, the search duplicate files dialog allows one to detect servers and NAS storage devices on the network, enumerate all network shares accessible in detected servers and NAS storage devices and then search duplicate files in all or selected network shares. In order to search duplicate files in all network shares of a server or NAS storage device, press the 'Add' button located on the right side of the dialog, select the 'Servers or NAS Devices' inputs mode and specify one or more host names or IP addresses to search network shares in. In order to search duplicate files in all network shares on the network, press the 'Add' button and select the 'All Servers on the Network' inputs mode.

Once the search operation will be completed, the client GUI application will open a duplicate files results dialog showing the list of detected duplicate file sets sorted by the amount of duplicate disk space. For each duplicate files set, the results dialog shows the original file, the currently selected duplicate files removal action, the number of duplicate files, the size of each duplicate file and the total amount of duplicate disk space.



The bottom size of the duplicate files results dialog shows categories of duplicate files according to the currently selected file categorization mode and allows one to filter displayed duplicate files by the file extension, file type, last modification date, file size, user name, etc.

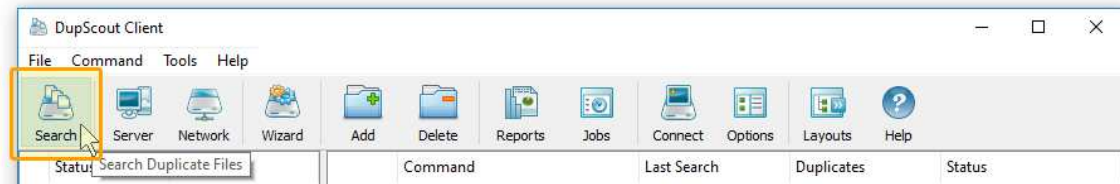


In order to remove duplicate files, select one or more duplicate file sets in the results view, press the right mouse button and select an appropriate duplicate files removal action. DupScout Server provides the ability to replace duplicate files with shortcuts or links, move duplicate files to another directory, compress duplicate files, compress and move duplicates to another directory and delete all duplicate files.

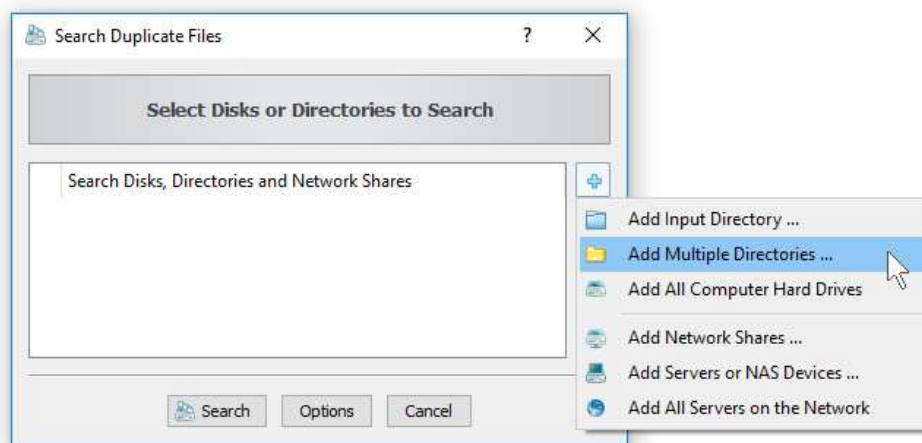
**IMPORTANT:** There are many duplicate files in the Windows system directory, which are critical for the proper operation of the operating system. It is highly dangerous to remove any duplicate files from the Windows system directory.

## 4.4 Quick Duplicate Files Search Operations

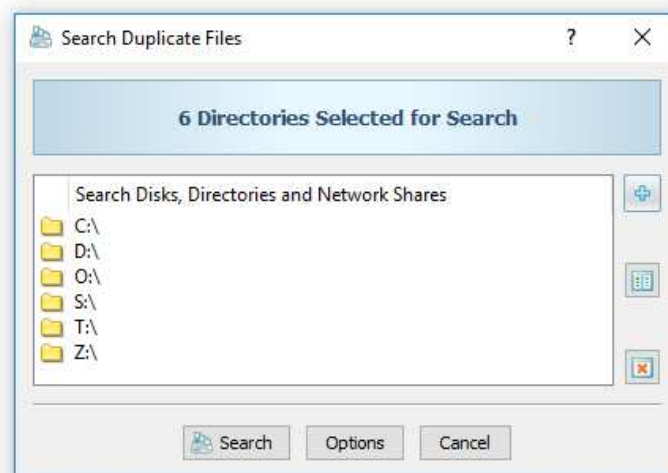
DupScout Server provides the ability to quickly search duplicate files in one or more disks, directories or network shares. In the simplest case, open the DupScout client GUI application and press the 'Search' button located on the main toolbar.



On the duplicate files search command dialog, press the 'Add' button, select the 'Add Input Directory' menu item and specify a disk, directory or network share to search duplicate files in. Alternatively, select the 'Add Multiple Directories' menu item to open a file system browse dialog allowing one to select multiple disks or directories to search in.

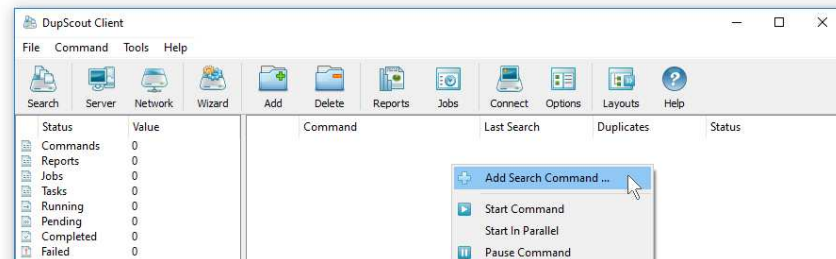


In order to search duplicate files in network shares, press the 'Add' button and select the 'Add Network Shares' menu item. The DupScout client GUI application will scan the network, detect accessible network shares and show the network shares dialog allowing one to select network shares that should be searched. Another option is to select the 'Add Servers or NAS Devices' menu item, which provides the ability to specify one or more host names or IP addresses of servers or NAS storage systems to be searched.

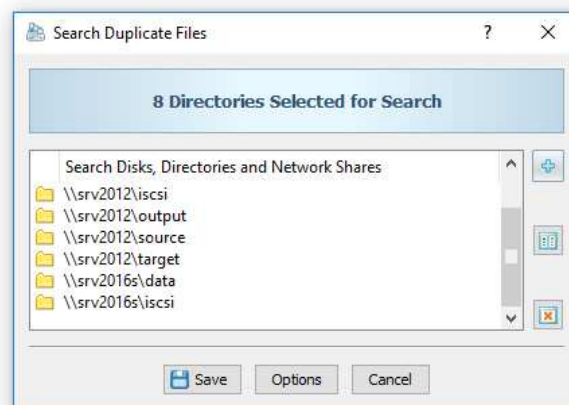


## 4.5 Managing Duplicate Files Search Commands

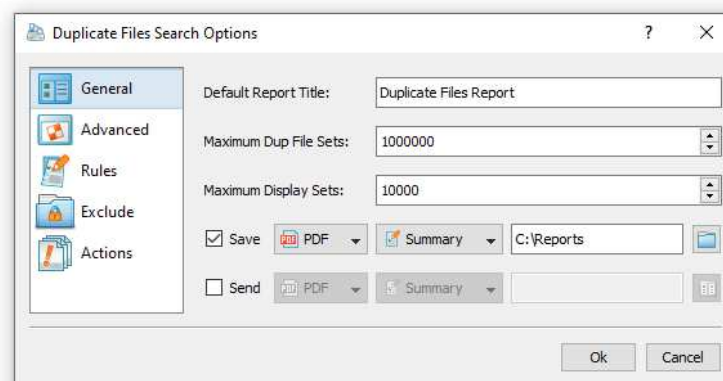
DupScout Server allows one to configure multiple duplicate files search and cleanup commands with each one capable of processing a number of disks, directories, network shares or NAS storage devices. In order to add a new command, press the 'Add' button located on the main toolbar, specify a unique command name, add one or more disks, directories or network shares to search in and press the 'Save' button.



In addition, the user is provided with the ability to configure advanced duplicate files search options, specify which types of duplicate files to search, exclude one or more directories from the duplicate files search process, add one or more automatic duplicate files removal actions allowing one to select original files and duplicate files removal actions fully automatically according to user-specified rules and policies.



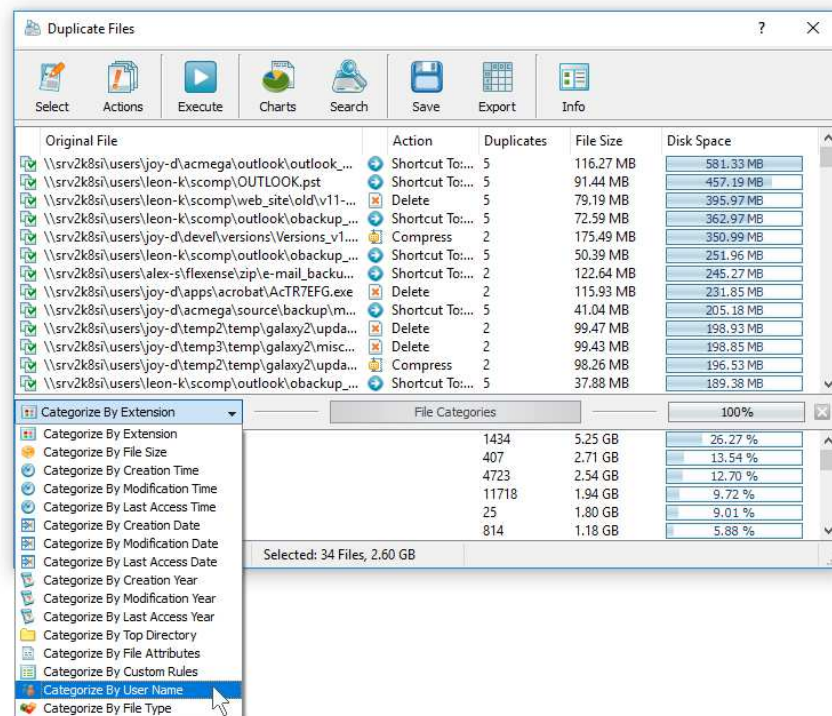
In order to open the duplicate files search options dialog, press the 'Options' button located on the duplicate files search command dialog. The 'General' options tab allows one to set a custom report title, configure how many duplicate file sets to display, select the duplicate files detection mode and/or automatically generate HTML, PDF, XML, Excel CSV or text reports in a user-specified file or directory.



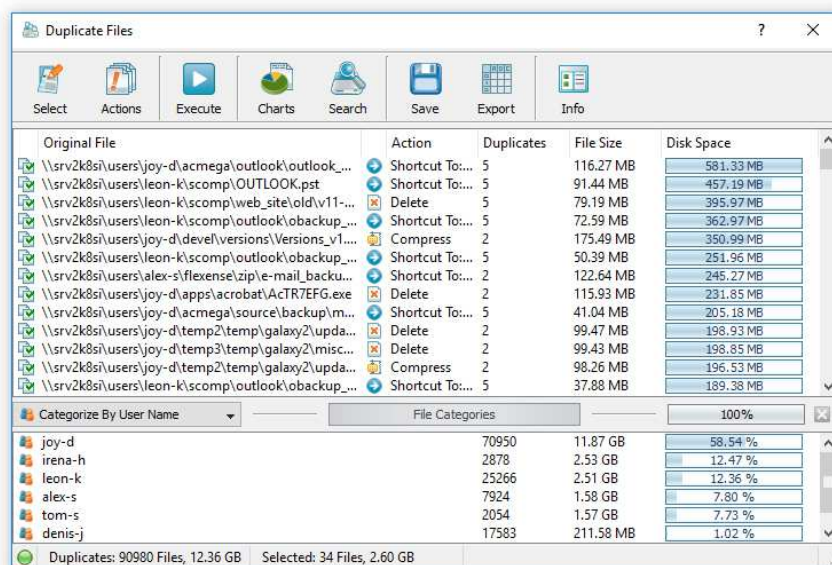


## 4.6 Categorizing Duplicate Files Search Results

DupScout Server provides the ability to categorize duplicate files by the file extension, file type, size, user name, last access time, last modification time and file creation time. After finishing scanning the specified disks or directories, DupScout performs automatic file categorization and fills the list of detected file categories, which is located under the list of the duplicate file sets in the duplicate files search results dialog.



In order to change the duplicate files categorization mode, click on the categories combo box located on the left side of the categories and filters control bar and select an appropriate duplicate files categorization mode.

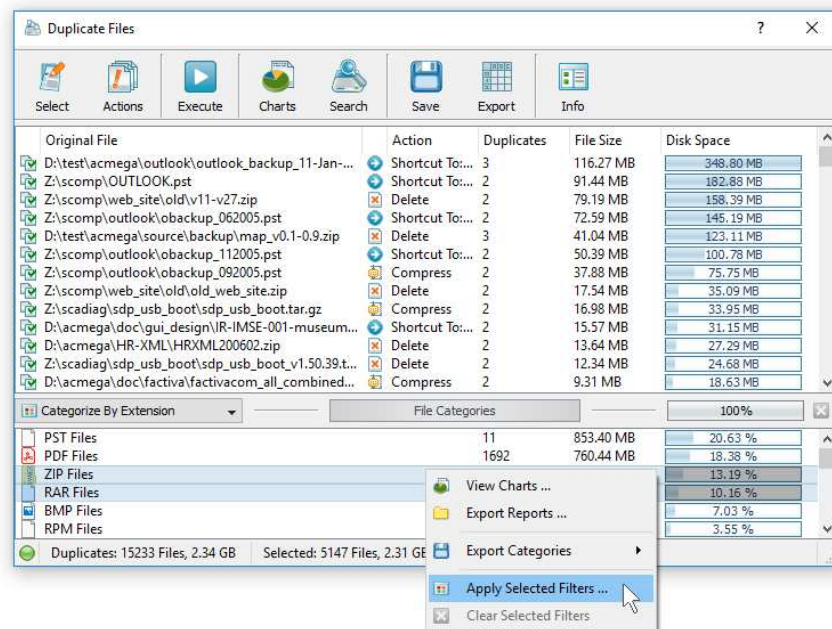


For example, in order to categorize duplicate files by the user name, select the 'Categorize By User Name' duplicate files categorization mode and DupScout will display the number of duplicate files and the amount of duplicate disk space per user.

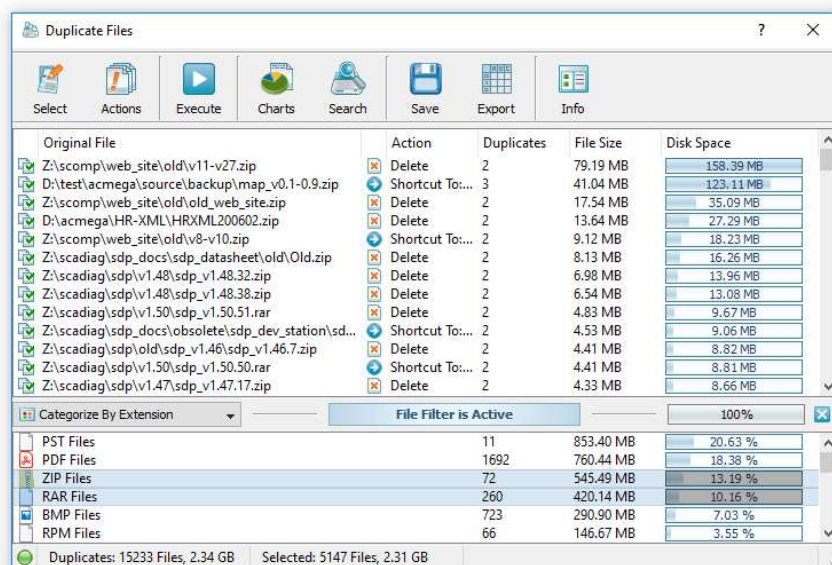


## 4.7 Filtering Duplicate Files Search Results

One of the most powerful capabilities of the DupScout duplicate files finder is the ability to filter duplicate files by the file extension, type, user name, size, creation, last modification date and last access date and then display charts, save reports and perform duplicate files removal actions on filtered duplicate files.



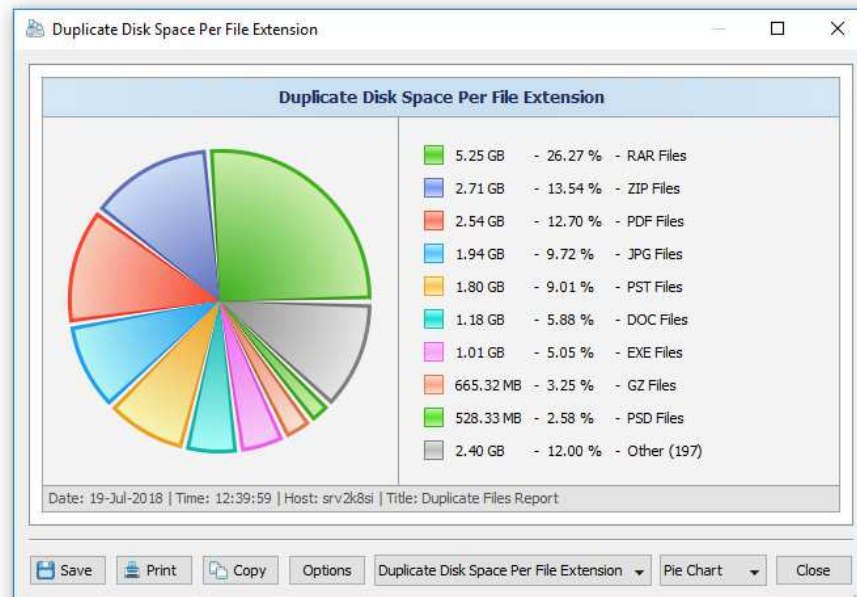
For example, in order to filter duplicate files by one or more file extensions, select the 'Categorize By Extension' duplicate files categorization mode, select one or more file extensions, press the right mouse button and select the 'Apply Selected Filters' menu item. DupScout will filter duplicate files and display in the duplicate files results view duplicate file sets matching the selected duplicate file filters.



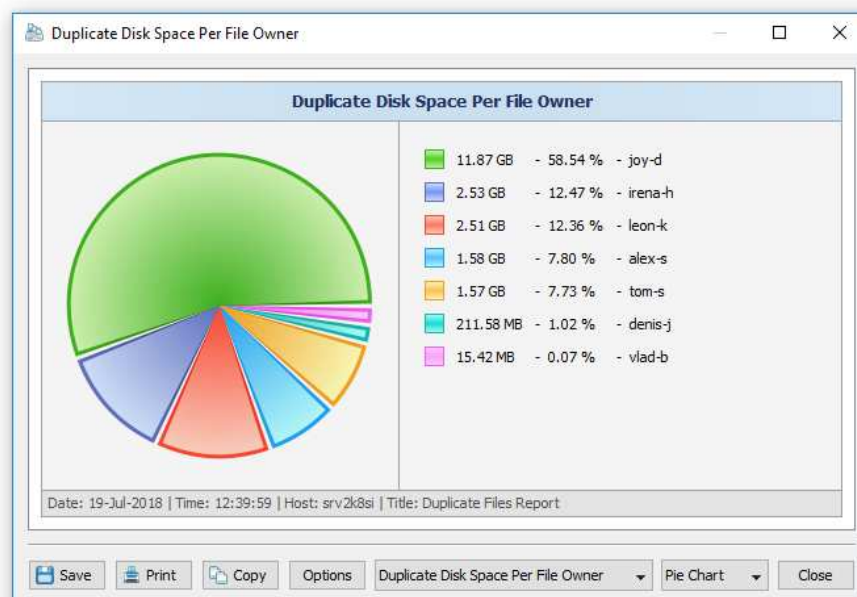
When one or more duplicate files filters are active, all duplicate files search reports will display filtered duplicate files only. In order to reset the duplicate files filter, press the 'Clear Filter' button located on the right side of the categories and filters control bar.

## 4.8 Duplicate Files Search Charts

DupScout Server provides multiple types of pie charts capable of showing the number of duplicates and the amount of duplicate disk space per file extension, file type, file size, user name, creation date, last modification date and last access date. In order to open the charts dialog, press the 'Charts' button located on the duplicate files search results dialog.



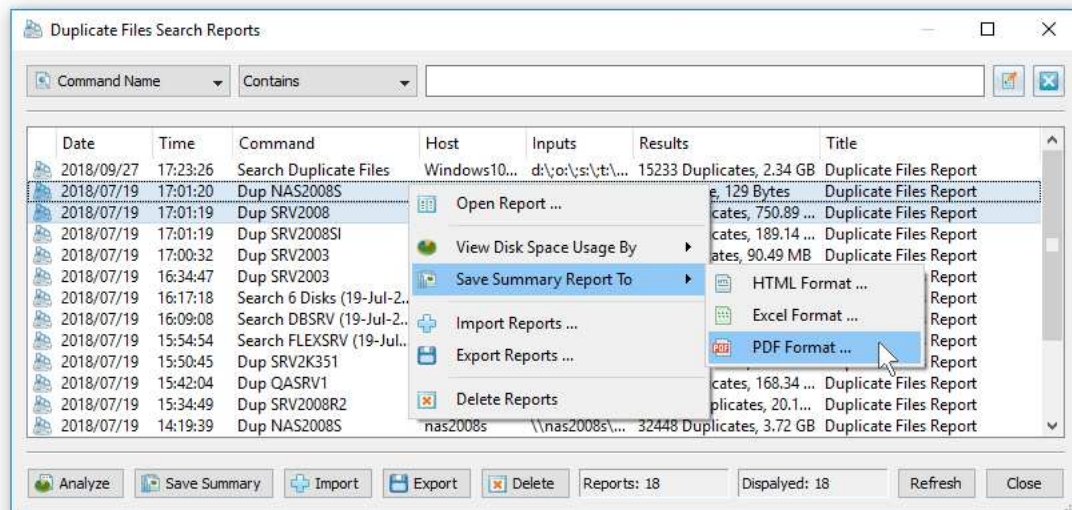
By default, the charts dialog shows the amount of duplicate disk space and the number of duplicate files according to the currently selected duplicate files categorization mode. For example, in order to open a pie chart showing the amount of duplicate disk space per file extension, select the 'Categorize by Extension' duplicate files categorization mode and press the 'Charts' button.



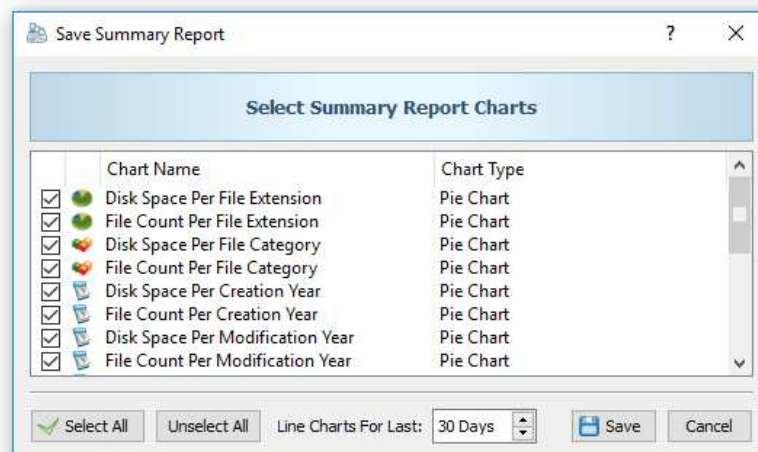
In addition, the charts dialog provides the user with the ability to copy the displayed chart image to the clipboard allowing one to easily integrate DupScout charts into user's custom documents and presentations. In order to edit the chart's description, press the 'Options' button and specify a custom chart date, time or title.

## 4.9 Duplicate Files Search Reports

DupScout Server automatically saves all duplicate files reports to the built-in reports database. In order to open the reports database dialog, press the 'Reports' button located on the main toolbar. The reports dialog shows all previously saved reports and allows one to review detected duplicate files, save HTML, PDF, Excel, XML, text and CSV reports, export reports, import reports, etc.



For each report saved in the reports database, DupScout Server shows the report date and time, the duplicate files search command name, the report title, the host name of the searched server, searched directories, the number of duplicate files and the amount of duplicate disk space. In order to open a previously saved report, just click on the report item in the reports dialog. In order to delete a report, select the report in the reports dialog, press the right mouse button and select the 'Delete' menu item.

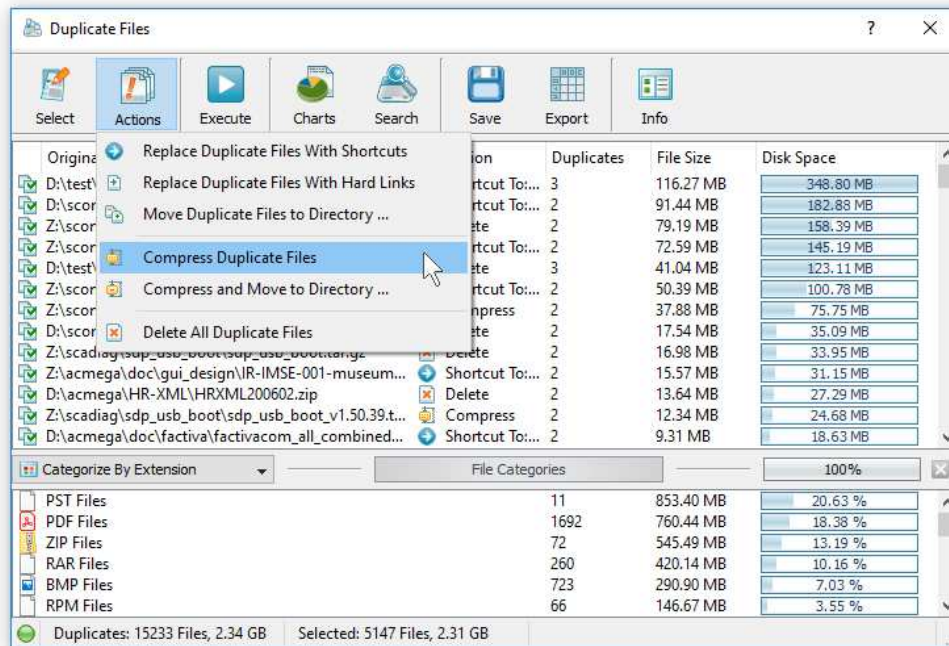


In addition to individual report files, DupScout Server provides the ability to export graphical summary PDF reports with various duplicate files pie charts, history line charts and statistics for a series of reports stored in the reports database. In order to export a graphical summary PDF report, select one or more reports in the reports dialog, press the right mouse button and select the 'Save Summary Report' menu item. On the 'Summary Report Charts' dialog, select types of charts to include in the summary report and press the 'Save' button. For each duplicate files report, the graphical summary PDF report will include the top 25 duplicate file sets and the selected pie charts and history line charts.

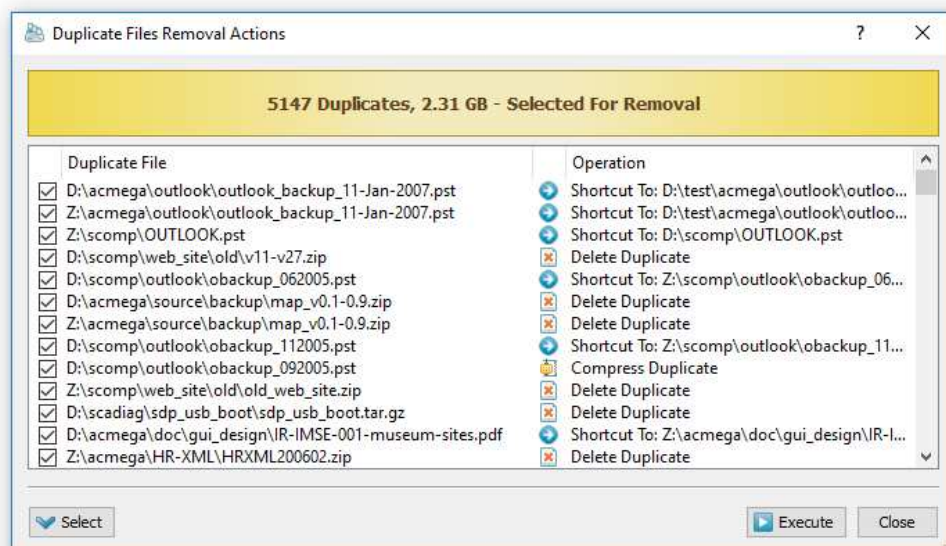


## 4.10 Removing Duplicate Files

DupScout Server allows one to replace duplicate files with shortcuts or hard links, move duplicate files to another directory, compress and move duplicates or delete all duplicate files. In order to select a duplicate files removal action for all duplicate file sets, open the duplicate files search results dialog and press the 'Action' button. In order to select a different duplicate files removal action for one or more specific duplicate file sets, select the required duplicate file sets, press the right mouse button and select an appropriate duplicate files removal action.



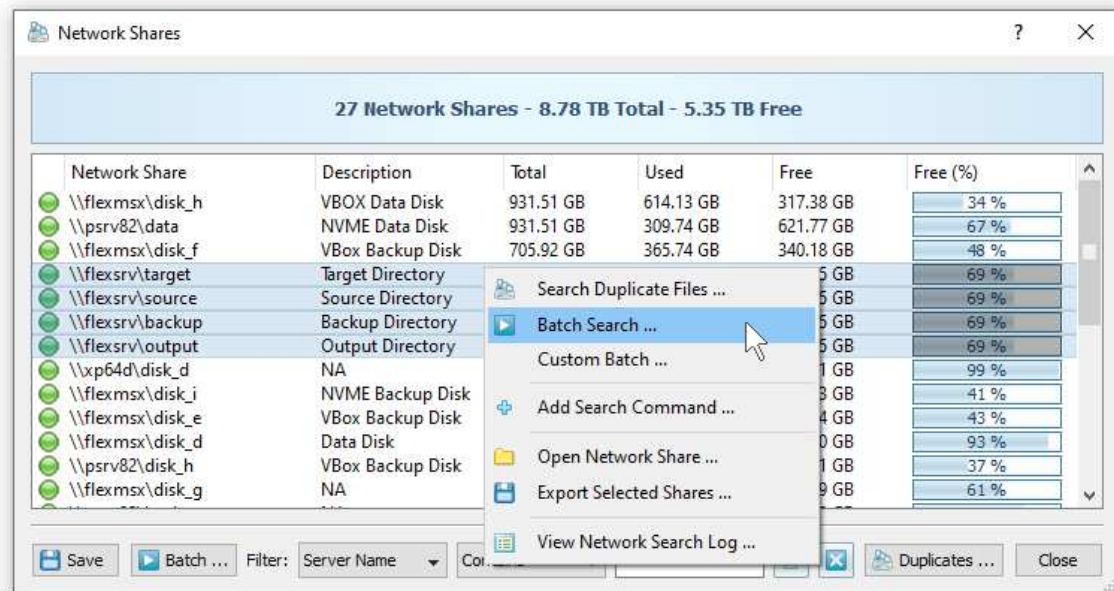
**WARNING:** The Windows system directory contains many duplicate files, which are critical for proper operation of the operating system and removal of any of these files may damage the operating system and make it completely unusable.



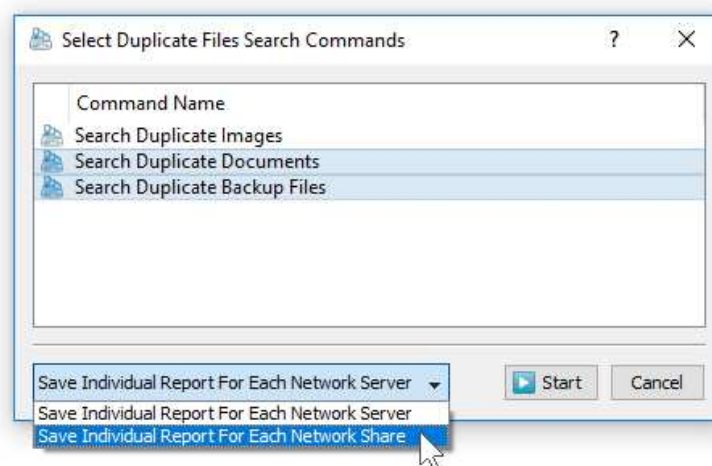
Once finished selecting duplicate files removal actions, press the 'Execute' button on the duplicate files search results dialog, review selected duplicate files removal actions, press the 'Execute' button to confirm the operation and wait for the duplicate files removal process to complete.

### 4.11 Batch Duplicate Files Search Operations

DupScout Server and DupScout Enterprise provide the ability to search the network, detect all network servers and NAS storage devices available on the network, execute one or more pre-configured duplicate files search commands on hundreds of network servers and NAS storage devices and generate an individual report for each network server, NAS storage device or network share.



In the simplest case, open the DupScout client GUI application, press the 'Network' button located on the main toolbar, search all network servers and NAS storage devices on the network, select one or more servers, press the right mouse button and select the 'Batch Duplicate Files Search' menu item. DupScout will show a list of pre-configured duplicate files search commands allowing one to select one or more commands to be executed on all selected network servers and NAS storage devices.

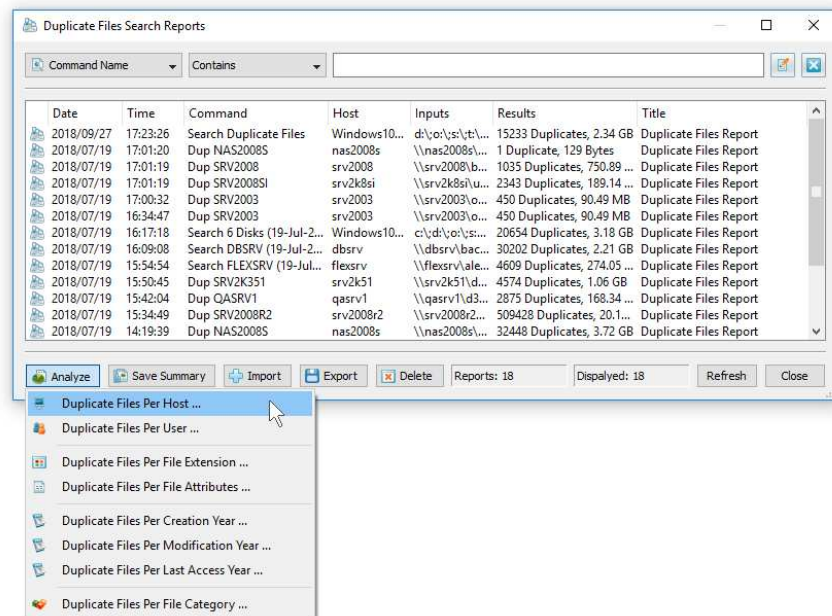


Depending on the selected batch search mode, DupScout Server will save in the built-in reports database an individual duplicate files report for each network server, NAS storage device or network share. Once the batch duplicate files search operation is completed, the user will be provided with the ability to open saved duplicate files reports, review results, generate various types of pie charts and export reports to a number of standard formats including HTML, PDF, Excel, text, CSV and XML.

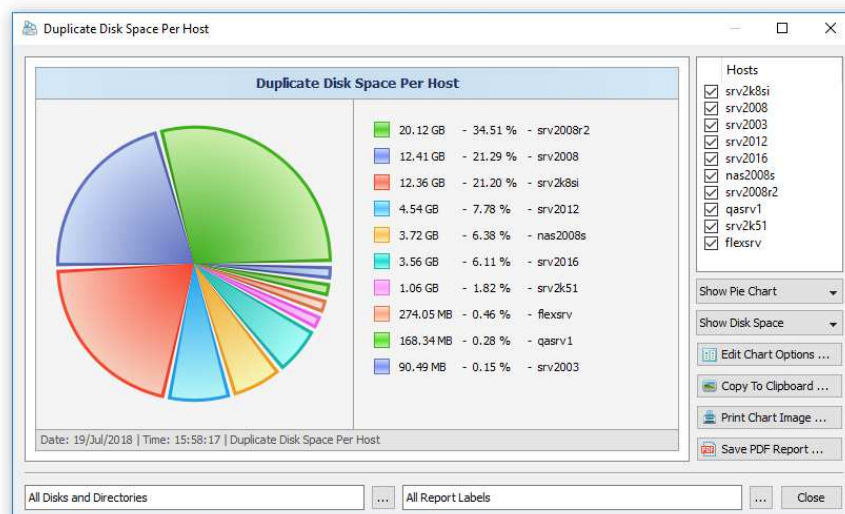


## 4.12 Analyzing Duplicate Files Per Host

DupScout Server and DupScout Enterprise provide the ability to automatically detect all servers and NAS storage devices on the network, search duplicate files in hundreds of servers and/or NAS storage devices via the network, submit reports to the reports database and display charts showing the number of duplicate files and the amount of duplicate disk space per server or NAS storage device across the entire enterprise.



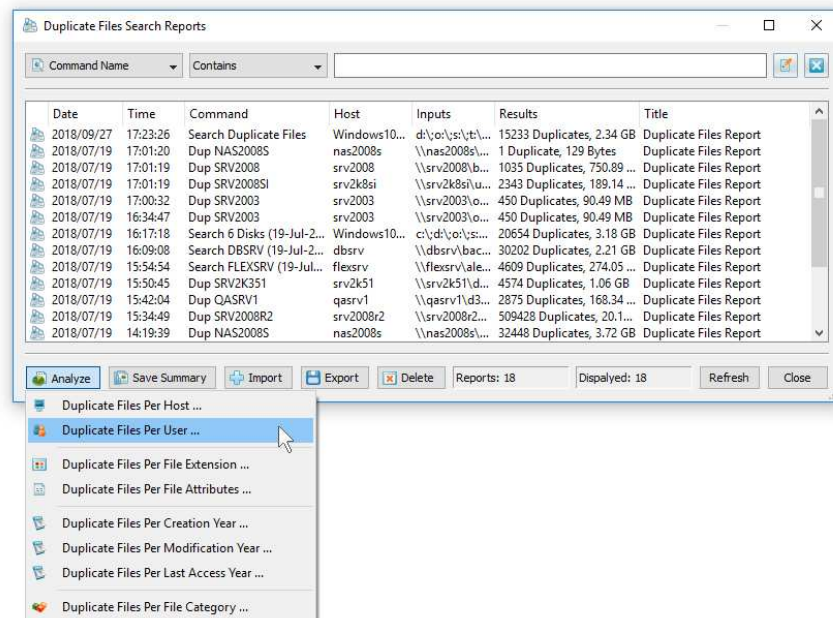
In order to analyze duplicate files per server, perform one or more duplicate files search operations on multiple servers and/or NAS storage devices, open the 'Reports' dialog, press the 'Analyze' button and select the 'Duplicate Files Per Host' menu item. DupScout will analyze all reports saved in the reports database and display the hosts analysis dialog showing the number of duplicate files and the amount of duplicate disk space per host.



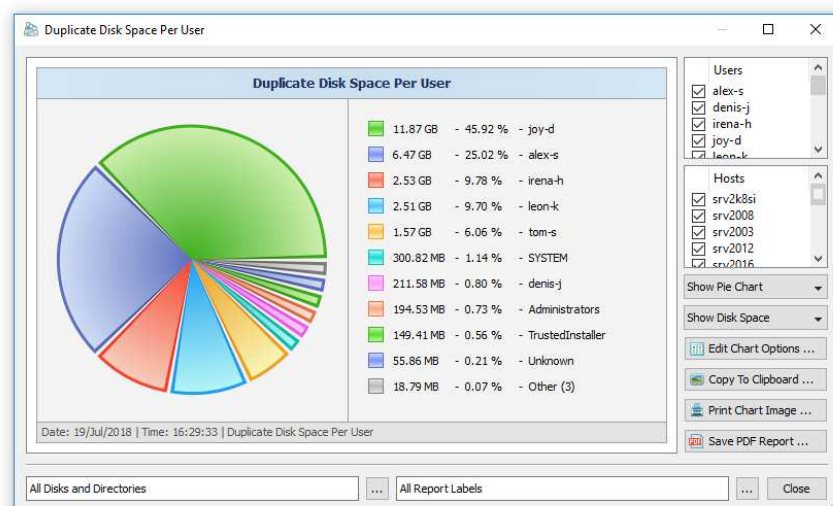
The hosts analysis dialog provides the ability to display pie charts and bars charts showing the number of duplicate files per server or NAS storage device according to duplicate files search reports saved in the reports database. The user is provided with the ability to select the types of duplicate files search operations and file system locations to analyze, edit the chart header and footer, copy the chart image to the clipboard and export graphical PDF reports including pie charts.

### 4.13 Analyzing Duplicate Files Per User

DupScout Server and DupScout Enterprise provide the ability to automatically detect all servers and NAS storage devices on the network, search duplicate files in hundreds of servers and/or NAS storage devices via the network, submit duplicate files search reports to the reports database and display charts showing the number of duplicate files and the amount of duplicate disk space per user across the entire enterprise.



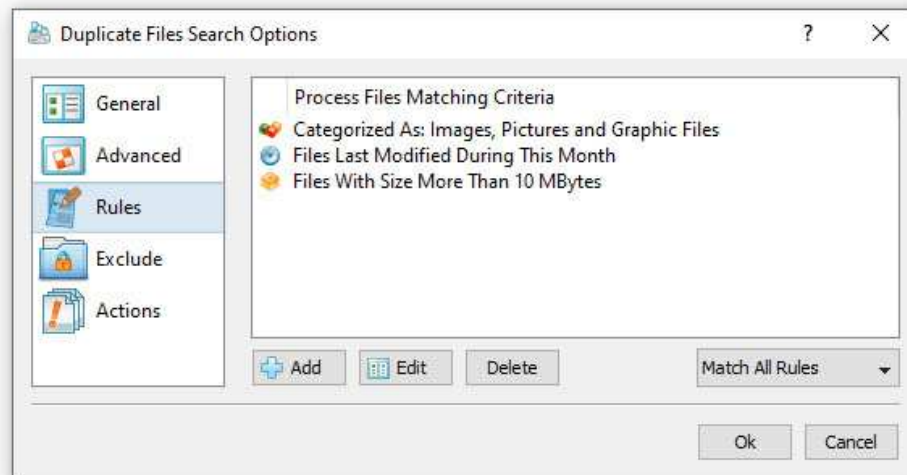
In order to analyze duplicate files per user, perform one or more duplicate files search operations on multiple servers and/or NAS storage devices, open the 'Reports' dialog, press the 'Analyze' button and select the 'Duplicate Files Per User' menu item. DupScout will analyze all reports saved in the reports database and display the users analysis dialog showing the number of duplicate files and the amount of duplicate disk space per user.



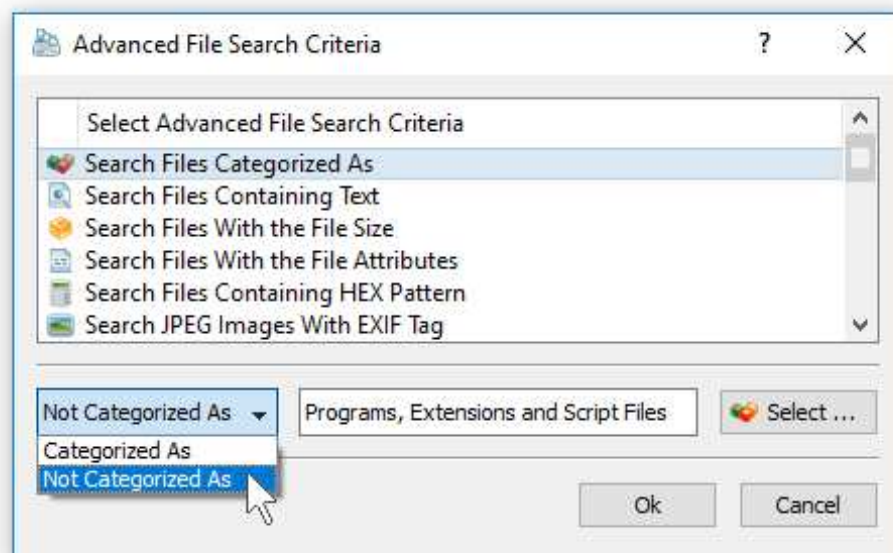
The users analysis dialog provides the ability to display pie charts and bars charts showing the number of duplicate files per user according to duplicate files search reports saved in the reports database. The user is provided with the ability to select the types of duplicate files search operations and file system locations to analyze, edit the chart header and footer, copy the chart image to the clipboard and export graphical PDF reports including pie charts.

#### 4.14 Searching Specific Types of Duplicate Files

DupScout Server provides the ability to search duplicate files among specific types of files or file categories using an extensive set of file matching rules capable of matching files by the file name, extension, directory, file type, file size, creation, last modification or last access dates, etc. In order to add one or more file matching rules to a duplicate files search command, open the duplicate files search command dialog, select the 'Rules' tab and press the 'Add Rule' button.



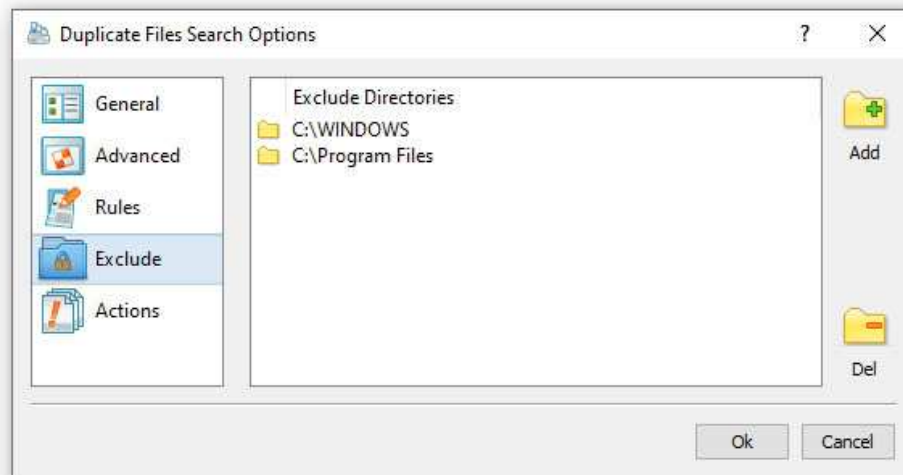
On the file matching rule page, select an appropriate rule type, select an operator, enter a rule value and press the 'Save' button. DupScout Server allows one to add an unlimited number of file matching rules to each duplicate files search command and apply the (AND) or (OR) logical operators. For example, the user is provided with the ability to analyze all types of documents with the file size more than X MB that were modified during the last month.



Finally, DupScout Server allows one to define multi-level, nested file matching rules with different sets of rules and logic operators on each level capable of precisely selecting the subset of files that should be processed.

## 4.15 Excluding Directories from the Duplicate Files Search Process

Sometimes, it may be required to exclude one or more subdirectories from the duplicate files search process. For example, if you need to detect duplicate files stored on a disk excluding one or two special directories, you may specify the whole disk as an input directory and add the directories that should be skipped to the exclude list.



In order to add one or more directories to the exclude list, open the duplicate files search command dialog, select the 'Exclude' tab and specify one or more directories that should be excluded. All files and subdirectories located in the specified exclude directories will be excluded from the duplicate files search process. In addition, advanced users are provided with a number of exclude directories macro commands allowing one to exclude multiple directories using a single macro command.

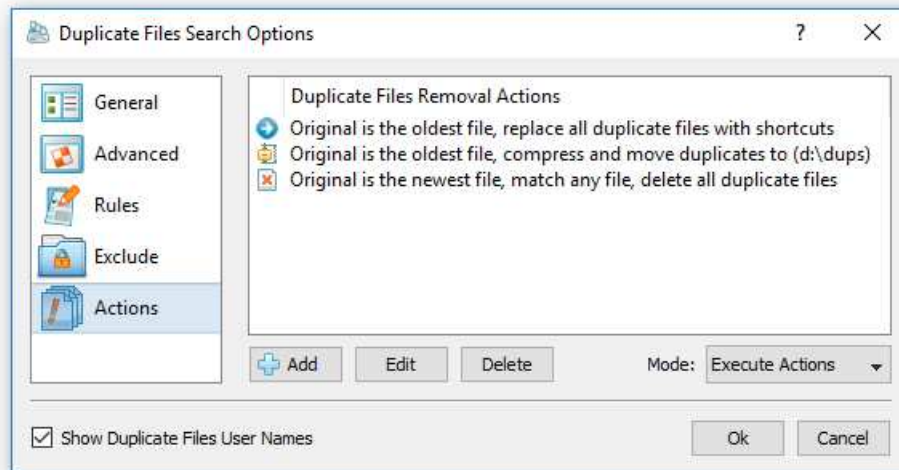
DupScout Server provides the following exclude directories macro commands:

- **\$BEGINS <Text String>** - this macro command excludes all directories beginning with the specified text string.
- **\$CONTAINS <Text String>** - this macro command excludes all directories containing the specified text string.
- **\$ENDS <Text String>** - this macro command excludes all directories ending with the specified text string.
- **\$REGEX <Regular Expression>** - this macro command excludes directories matching the specified regular expression.

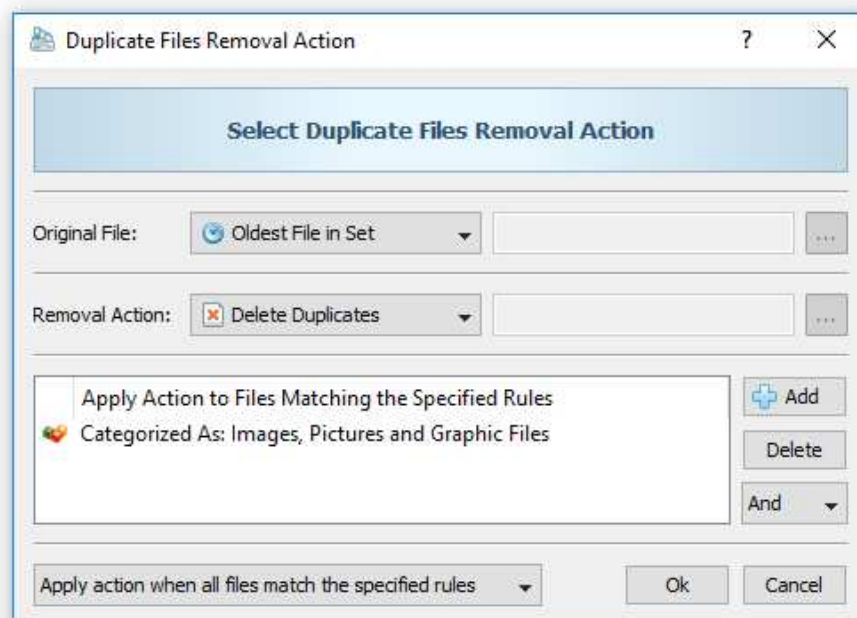
For example, the exclude macro command '\$CONTAINS Temporary Files' will exclude all directories with 'Temporary Files' at any place in the full directory path and the exclude macro command '\$REGEX \.(TMP|TEMP)\$' will exclude directories ending with '.TMP' or '.TEMP'.

## 4.16 Automatic Duplicate Files Removal Actions

DupScout Server provides the ability to automatically select original files and duplicate files removal actions according to user-specified rules and policies. In order to configure automatic duplicate files removal actions, open a duplicate files search command dialog, select the 'Actions' tab and press the 'Add' button.



On the duplicate files removal action dialog, set an appropriate original file selection mode, select a duplicate files removal action type and press the 'Ok' button. In order to edit a previously created duplicate files removal action, double click on the action item in the duplicate files removal actions view.

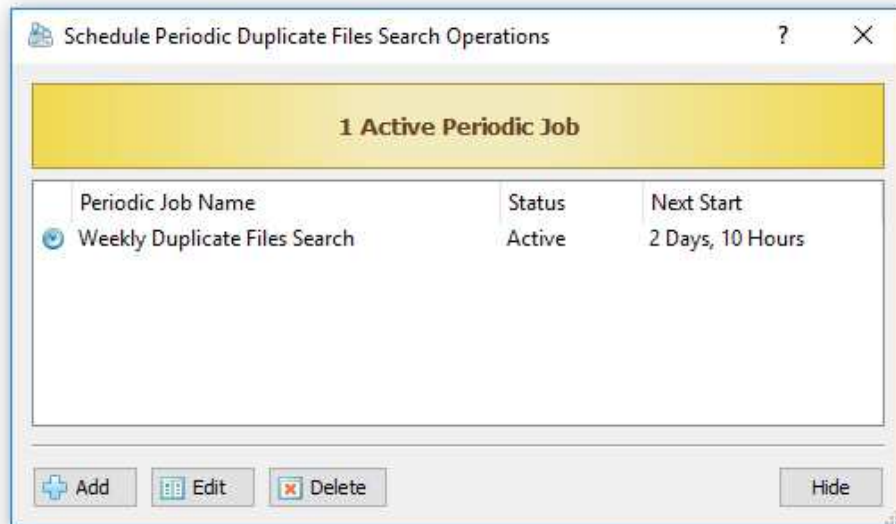


Initially, automatic duplicate files removal actions are created in the 'Select' mode allowing one to review selected actions and make sure everything works as required. Once the configuration is carefully tested, the duplicate files search command may be scheduled to be started periodically and all configured duplicate files removal actions executed automatically. In order to automatically execute configured duplicate files removal actions, open the duplicate files command dialog, select the 'Actions' tab and set the actions mode to 'Execute'.

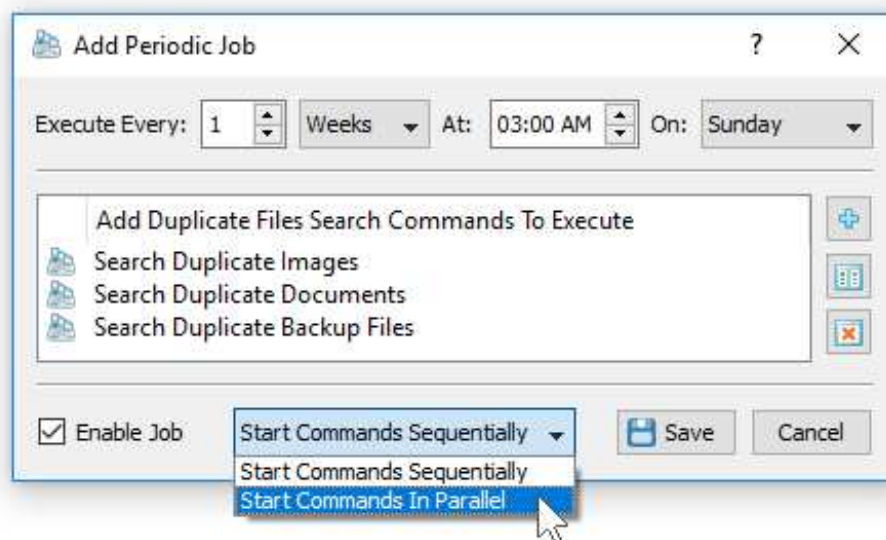


### 4.17 Periodic Duplicate Files Search and Removal Jobs

DupScout Server and DupScout Enterprise allow one to setup a number of periodic jobs with each one configured to perform one or more duplicate files search commands at specific time intervals. In order to add a periodic duplicate files search job, press the 'Jobs' button located on the main toolbar and press the 'Add' button.



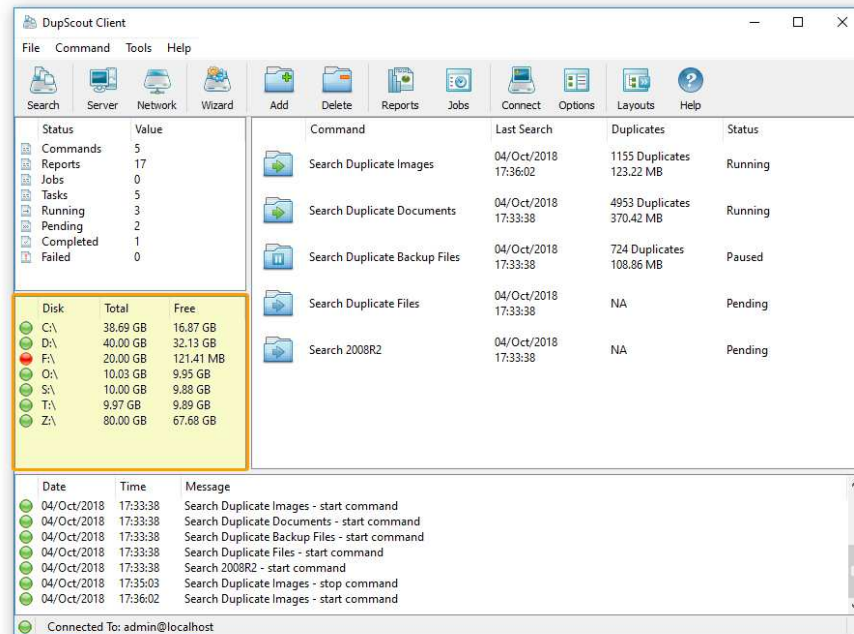
On the periodic job dialog, specify the time interval and add one or more duplicate files search commands to execute. By default, in order to reduce the CPU usage and the memory usage on the server, DupScout Server performs selected duplicate files search operations sequentially, one after one while saving reports and executing automatic duplicate files removal actions. But, if required, the periodic duplicate files search job may be configured to execute all duplicate files search operations in parallel, which is especially useful when searching duplicate files in a number of servers and/or NAS storage devices via the network.



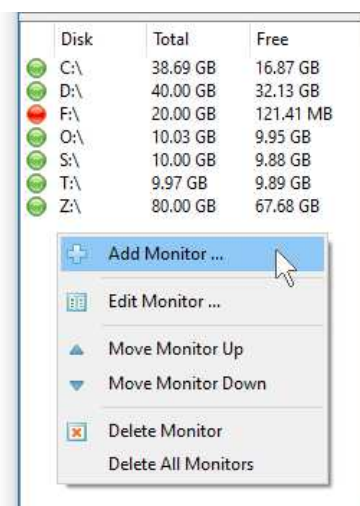
In addition, the user is provided with the ability to intentionally slow down duplicate files search operations, in order to completely eliminate performance impact on production servers. In order to slow down a duplicate files search command, open the duplicate files search command dialog, press the 'Options' button, select the 'Advanced' tab, select the 'Low Speed' performance mode and press the 'Save' button.

## 4.18 Using Built-In Disk Space Monitor

DupScout Server and DupScout Enterprise include a built-in disk space monitor allowing one to monitor the free disk space in a number of disks, directories or network shares and provides the ability to send E-Mail notifications including duplicate files search reports showing recently created or modified duplicate files and/or execute custom actions when the amount of the free disk space drops below or rises above a user-specified limit.

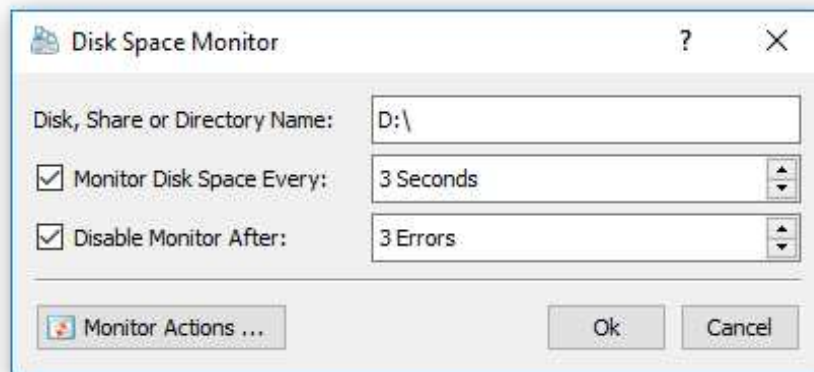


The disk space monitor is located in the bottom-right corner of the DupScout client GUI application. By default, the disk space monitor shows the status of all local disks in the server. For each disk, the disk space monitor shows the disk name, the total amount of the disk space, the amount of the free disk space and the disk status according to the configuration of the disk space monitor.

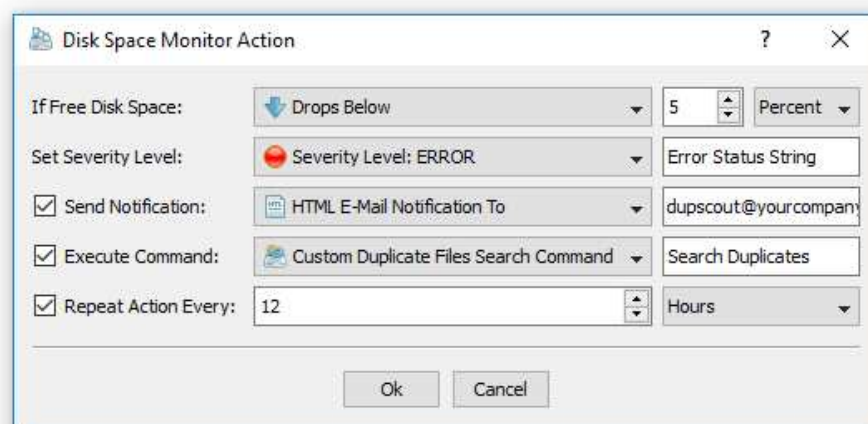


In order to add an additional disk or network share to the disk space monitor, press the right mouse button over the disk space monitor pane, specify the name of a disk, directory or network share to monitor and press the 'Ok' button. In order to change the configuration of a previously created disk space monitor, select the required disk item in the disk space monitor pane, press the right mouse button and select the 'Edit Monitor' menu item.

For each monitored disk, the disk space monitor allows one to control the disk space monitoring frequency, the maximum number of monitoring errors and disk space monitoring actions and/or E-Mail notifications. Sometimes, when monitoring the disk space usage in remote servers or NAS storage devices via the network, a network server or NAS storage device may be temporary offline due to unexpected connectivity or hardware problems. In this case, the disk space monitor will mark such a disconnected device as 'Offline' and continue to monitor the server according to the user-specified maximum number of errors. On the other hand, if a network server or NAS device was permanently disconnected from the network, the disk space monitor will disable monitoring of the disconnected server after the user-specified number of monitoring errors.



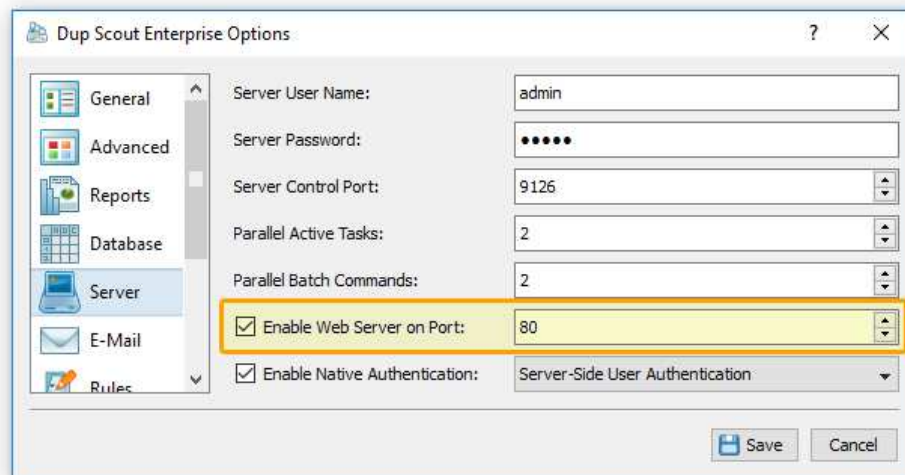
In order to automatically send an E-Mail notification and/or execute a custom action when the amount of the free disk space drops below a user-specified limit, the user needs to configure one or more disk space monitoring actions. Open the disk space monitor dialog, press the 'Monitor Actions' button, specify the minimum amount of the free disk space to trigger the action, select the 'Send Notification' option, select an appropriate notification format and specify an E-Mail address to send the notification to. In addition, in order to enable E-Mail notifications, the user needs to open the main options dialog, select the 'E-Mail' tab and configure an E-Mail server to use to send E-Mail notifications.



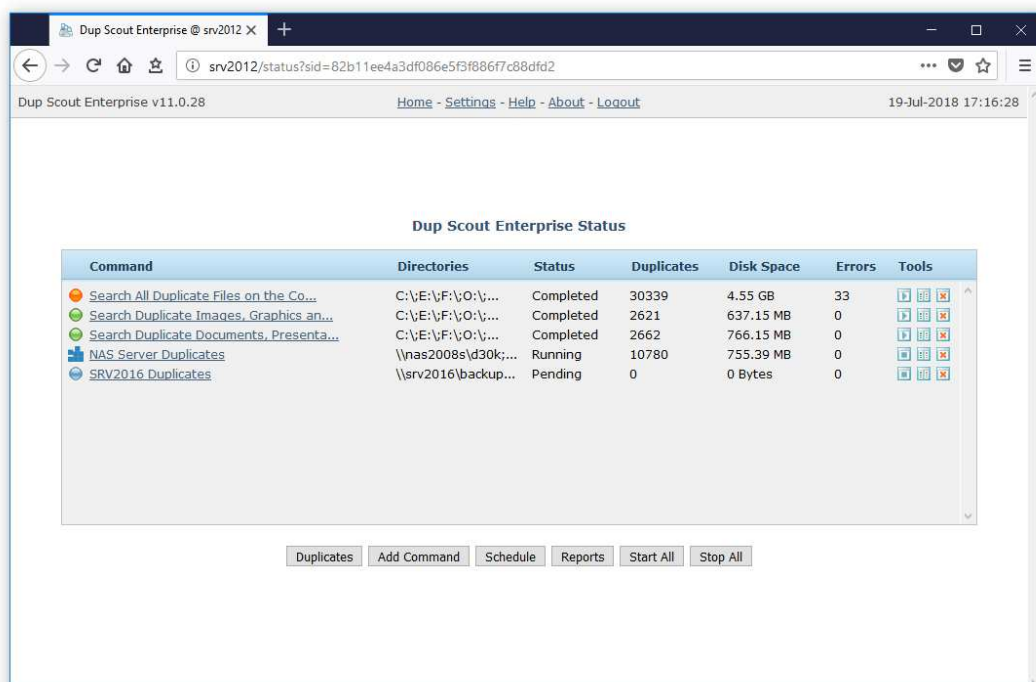
In addition to E-Mail notifications, the user is provided with the ability to automatically search duplicate files that were created or modified during the last 24 hours and send a duplicate files search report showing recent changes in the monitored disk to the specified E-Mail address. If the user selects the 'Default Duplicate Files Search Command' option, the disk space monitor will automatically create a duplicate files search command configured to search duplicate files that were created or modified during the last 24 hours and send the duplicate files search results to the specified E-Mail address. If the user selects the 'Custom Duplicate Files Search Command' option, the disk space monitor will execute the user-configured duplicate files search command. Finally, if the user selects the 'User Command, Script or Batch File' option, the disk space monitor will execute the user-custom command, script or batch file.

## 4.19 Using Web-Based Management Interface

In addition to the DupScout client GUI application and the command line utility, DupScout Enterprise provides a web-based management interface allowing one to control one or more servers using a regular web browser locally or via the network. The web-based management interface allows one to search duplicate files, save various types of reports, remove duplicate files, perform history trend analysis operations and schedule periodic duplicate files search operations.



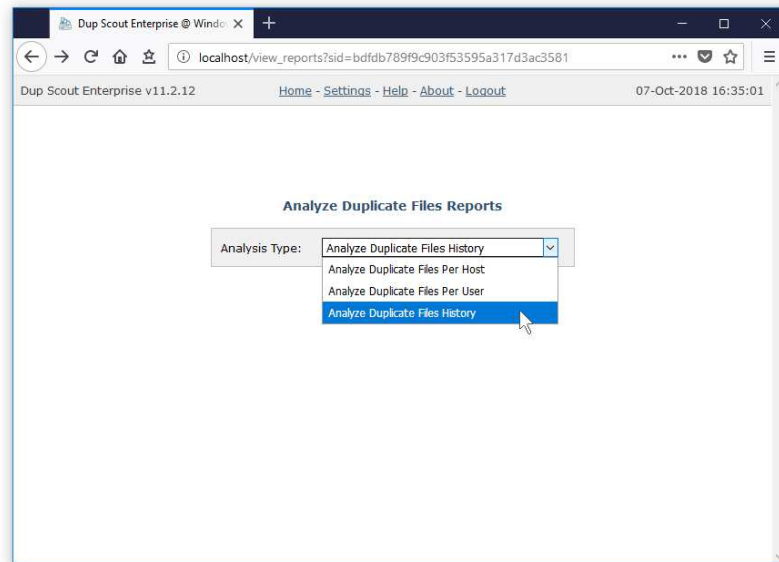
By default, the web-based management interface is disabled and in order to enable the web-based management interface, open the DupScout client GUI application, connect to a server, open the 'Options' dialog, select the 'Server' tab, select the 'Enable Web Server' option and press the 'Save' button.



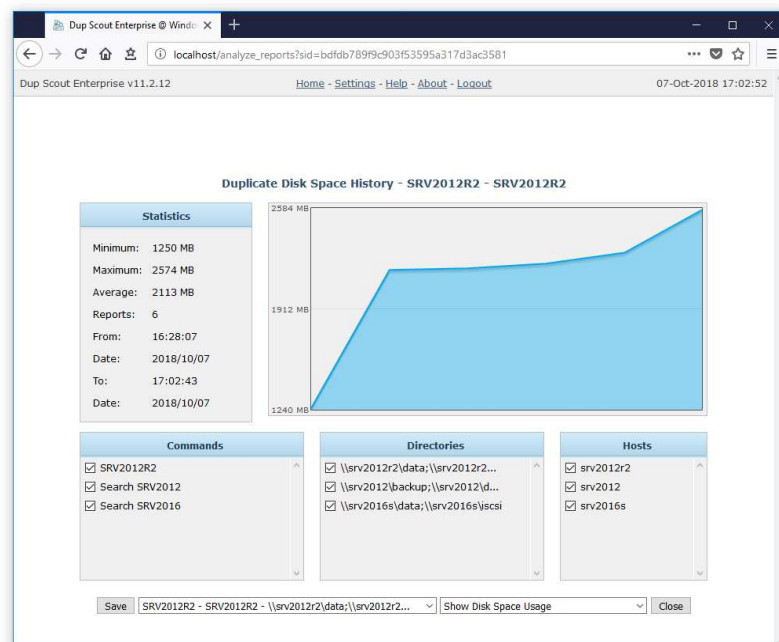
In order to connect to the DupScout Enterprise web-based management interface, open a regular web browser, type the host name or an IP address of the server to connect to and login to the DupScout Server using the default (**admin/admin**) user name and password.

## 4.20 Analyzing Duplicate Files History Trends

System and storage administrators are provided with the ability to analyze how the number of duplicate files is changing over time. In order to be able to perform the duplicate files history trend analysis, the user needs to setup one or more periodic duplicate files search commands or manually perform multiple duplicate files search operations over time.



With multiple duplicate files reports saved in the report database, press the 'Reports' button located on the main status page, press the 'Analyze' button, select the 'Analyze Duplicate Files History' option and press the 'Analyze' button. DupScout Server will generate a list of history charts - one for each set of directories in each analyzed server and/or NAS storage device.



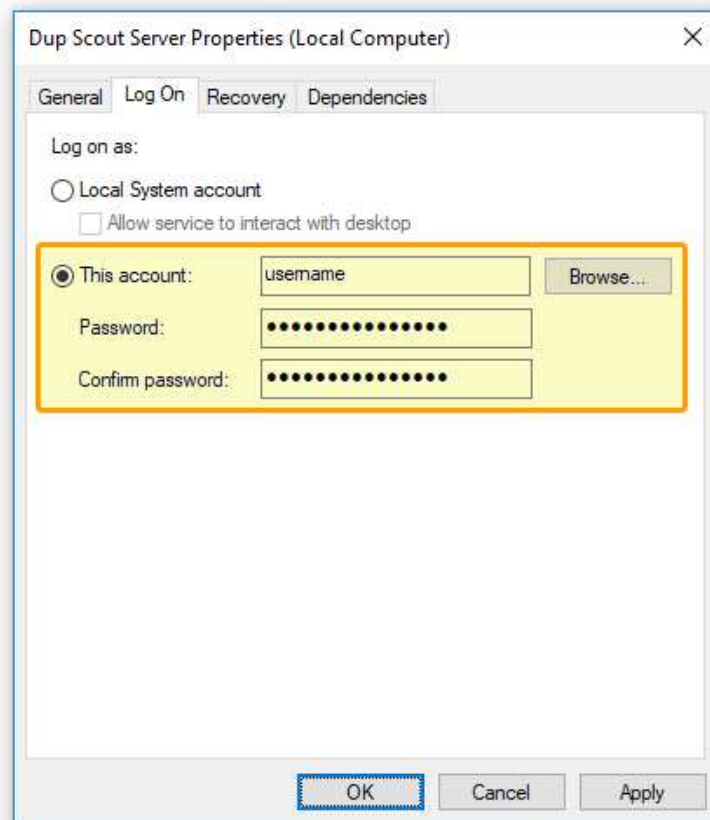
The top-left side of the history analysis page shows the statistics for the currently selected history chart. The top-right side shows the history line chart according to the currently selected chart and chart units. The three bottom-side panes provide the ability to filter charts by the command name, processed directories and/or the host name of the server or NAS storage device. In order to save the currently displayed history chart to a graphical PDF report, press the 'Save' button and then click on the report file link to download the report file.



## 4.21 Searching Duplicate Files in Network Shares

By default, the DupScout service is configured to run under the local system account, which is good to search duplicates in local disks and directories. On the other hand, the local system account does not have permissions to access network shares and NAS storage devices.

In order to enable DupScout Server to search duplicate files in network shares and NAS storage devices, the DupScout service should be configured to run under a user account, which has permissions to access files and directories located on the required network shares.

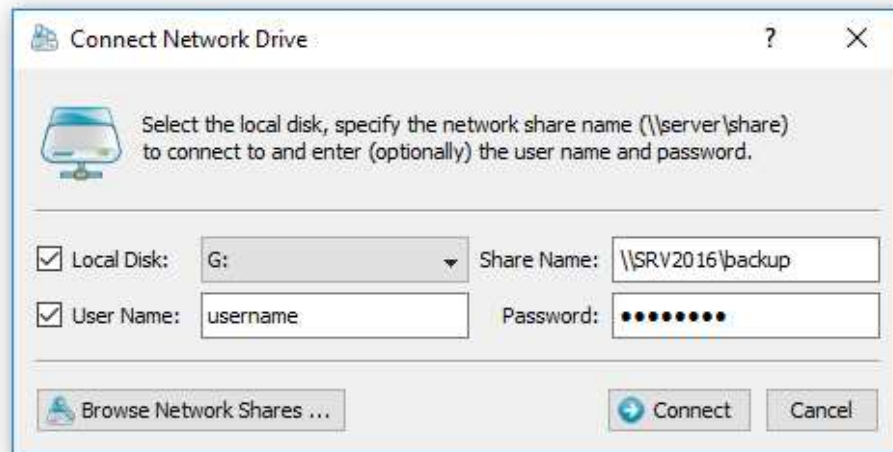


The configuration is very simple and may be performed within a couple of seconds using the following step-by-step guide:

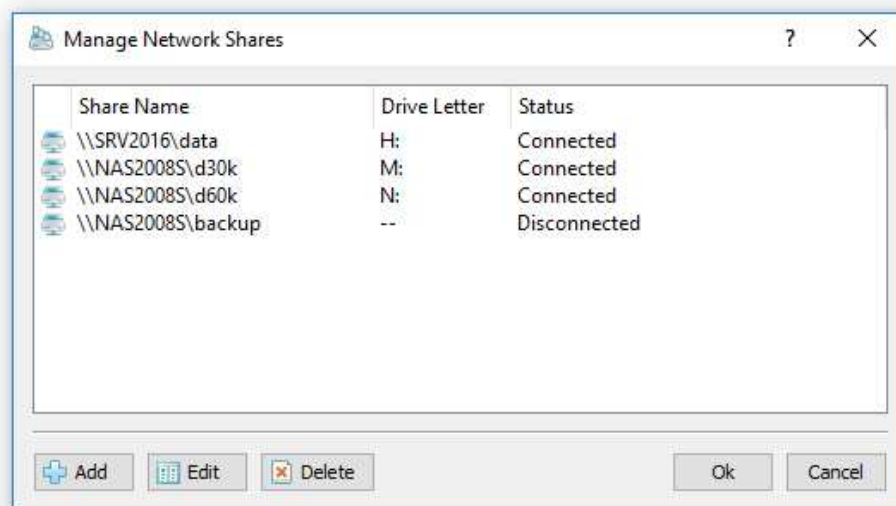
1. Open the Windows control panel and click on the 'Administrative Tools' utility.
2. Open the Services control center and find here the 'Dup Scout Server' service.
3. Open the 'Dup Scout Server' service, select the 'General' tab and stop the service.
4. Select the 'Log On' tab and specify a user account to use for the service.
5. Select the 'General' tab and start the 'Dup Scout Server' service.

Now, the DupScout service will run under the specified user account and will have exactly the same permissions as the specified user account when accessing network shares and NAS storage devices.

Sometimes, it may be required to search duplicate files in multiple network shares and NAS storage devices in different domains using different user accounts. In order to connect to a network share with a custom user name and/or password, select the menu 'Tools - Connect Network Drive', enter the name of the network share to connect to and specify the user name and password to use.



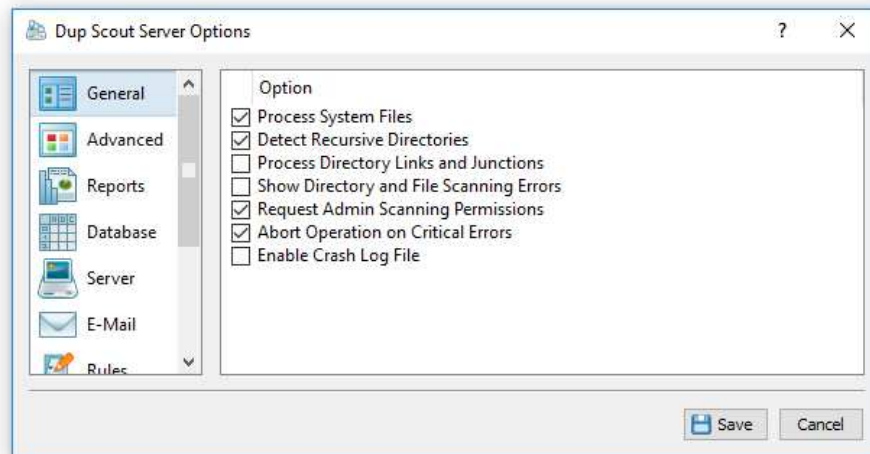
When searching duplicate files in tens of network shares and NAS storage devices, it may be not convenient to assign a drive letter for each connected network share just because there may be not enough letters to assign to all the required network shares. For such cases, the user is provided with the ability to connect network shares without assigning drive letters. In order to connect a network share without assigning a drive letter, unselect the 'Local Disk' check box on the network share configuration dialog.



DupScout Server provides the ability to configure periodic duplicate files search operations to be executed fully automatically in the background. In order to enable automated periodic duplicate files search operations in network shares and NAS storage devices, DupScout allows one to pre-configure a list of network shares to be automatically connected during the server startup. The user is provided with the ability to specify an unlimited number of network shares to connect to and optionally configure custom login credentials for each specific network share. In order to pre-configure one or more network shares, select the 'Tools - Manage Network Shares' menu item, press the 'Add' button and specify all the required parameters.

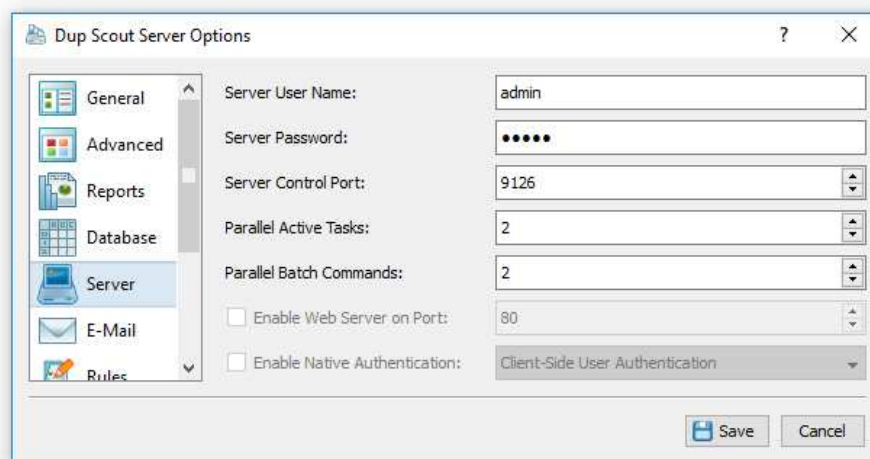
## 4.22 Configuring DupScout Server

DupScout Server provides a variety of configuration options allowing one to easily integrate the product into a user-specific network environment. In order to open the main options dialog, press the 'Options' button located on the main toolbar.



## 4.23 Configuring Custom User Name, Password and Ports

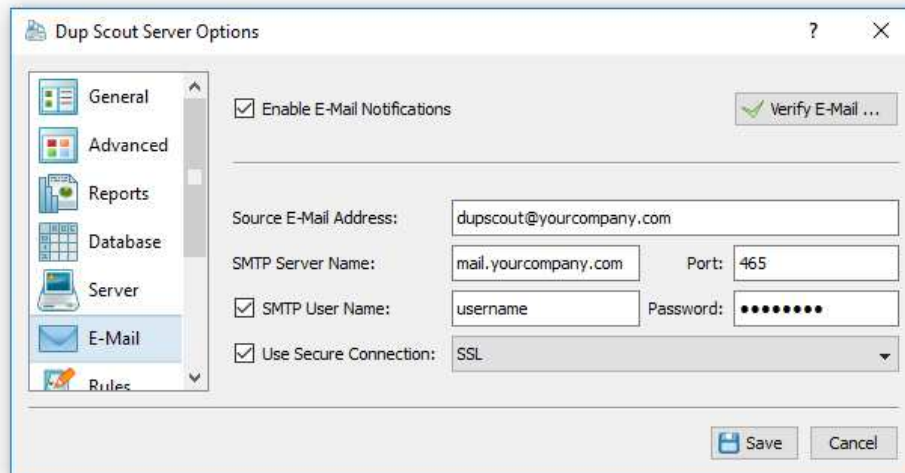
The DupScout client GUI application requires users to login with a DupScout user name and password. The default user name and password is set to **admin/admin**. In addition, DupScout Server provides the ability to set a custom user name and/or password for the DupScout client GUI application, the web-based management interface and the command line utility, which may be used to automate configuration and management tasks. In order to set a custom user name and password, open the main options dialog, select the 'Server' tab, enter a new user name and password and press the 'Save' button.



DupScout Server uses the TCP/IP port 9126 as the default server control port and the TCP/IP port 80 as the default web access port. Sometimes, these ports may be in use by some other software products or system services. If one or both of these ports are in use, DupScout Server will be unable to operate properly and the user needs to change the DupScout server control port and/or web access port. In order to set a custom server control port and/or web access port, open the main options dialog, select the 'Server' tab and enter a custom TCP/IP port number to use. If the DupScout server should be controlled through the network, make sure the custom TCP/IP ports are open in the server's firewall.

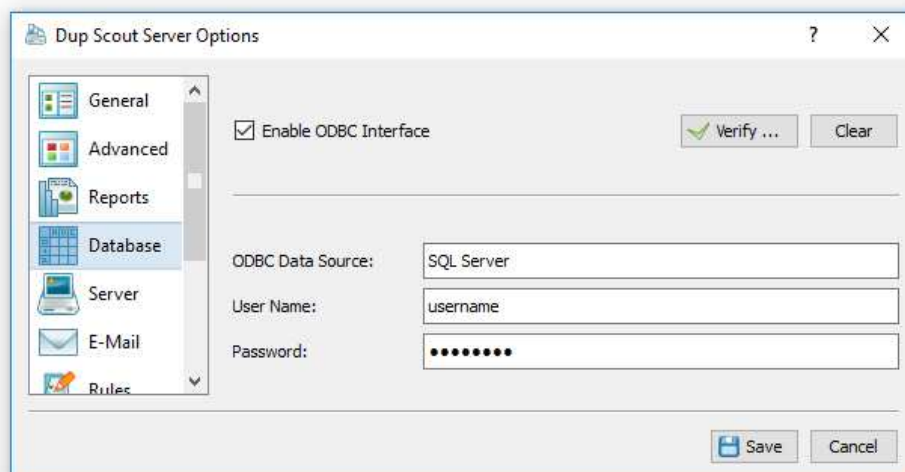
## 4.24 Configuring E-Mail Notifications

DupScout Server provides the ability to send E-Mail notifications when a duplicate files search command is failed. In order to configure an SMTP E-Mail server to use to send E-Mail notifications, open the main options dialog, select the 'E-Mail' tab, enter the SMTP server host name, SMTP server port, SMTP user name, password and the source E-Mail address to use to send E-Mail notifications.



## 4.25 Configuring SQL Database Integration

DupScout Server provides the ability to save duplicate files reports to an SQL database allowing one to keep a history of reports for future review and analysis. In order to enable the SQL database export operations, open a duplicate files search command dialog, press the 'Options' button, select the 'Save' checkbox, select the SQL database report format and press the 'Save' button.



DupScout Server exports SQL database reports through the ODBC database interface, which should be configured to operate properly. In order to configure the ODBC database interface, open the main options dialog, select the 'Database' tab, enable the ODBC database interface, specify the ODBC data source, ODBC user name and password to use to save reports to the SQL database.

## 4.26 DupScout Server Command Line Utility

In addition to the web-based management interface, DupScout Server provides a command line utility allowing one to control one or more DupScout Servers locally or via the network. The DupScout command line utility is located in the **<ProductDir>/bin** directory.

### DupScout Server Command Line Syntax:

#### **dupscout -server\_show\_commands**

Shows duplicate files search commands configured in DupScout Server.

#### **dupscout -server\_start\_command <Command Name>**

Starts the specified duplicate files search command.

#### **dupscout -server\_start\_all\_commands**

Starts all inactive duplicate files search commands.

#### **dupscout -server\_stop\_command <Command Name>**

Stops the specified duplicate files search command.

#### **dupscout -server\_stop\_all\_commands**

Stops all active duplicate files search commands.

#### **dupscout -server\_command\_status <Command Name>**

Shows the current status of a duplicate files search command.

#### **dupscout -server\_command\_errors <Command Name>**

Shows process errors for a duplicate files search command.

#### **dupscout -server\_delete\_command <Command Name>**

Deletes the specified duplicate files search command.

#### **dupscout -server\_delete\_all\_commands**

Deletes all configured duplicate files search commands.

#### **dupscout -server\_show\_reports**

Shows duplicate files search reports saved in the DupScout Server reports database.

#### **dupscout -server\_export\_reports -reports\_dir <Directory>**

Exports duplicate files reports to the specified directory.

#### **dupscout -server\_import\_reports -reports\_dir <Directory>**

Imports duplicate files reports from the specified directory.

#### **dupscout -server\_archive\_old\_reports -reports\_dir <Directory>**

Archives old duplicate files search reports to the specified directory.



**dupscout -server\_archive\_all\_reports -reports\_dir <Directory>**

Archives all duplicate files search reports to the specified directory.

**dupscout -server\_delete\_old\_reports**

Deletes old duplicate files search reports from the DupScout Server reports database.

**dupscout -server\_delete\_all\_reports**

Deletes all duplicate files search reports from the DupScout Server reports database.

**dupscout -server\_status**

Shows the current DupScout Server status.

**dupscout -server\_debug\_log**

Shows the DupScout Server debug log.

**Miscellaneous Commands:****dupscout -v**

Shows the product major version, minor version, revision and build date.

**dupscout -help**

This command shows the command line usage information.

**Command Line Options:****-host <Host Name>**

Specifies the host name or an IP address of DupScout Server to connect to. If not specified, the command line utility will connect to the local host.

**-port <Port Number>**

Specifies the TCP/IP port to connect to. If not specified, the command line utility will connect to the default DupScout Server TCP/IP port 9126.

**-user <User Name>**

Specifies a user name to login to DupScout Server. If not specified, the command line utility will login using the default "**admin**" user name.

**-password <Password>**

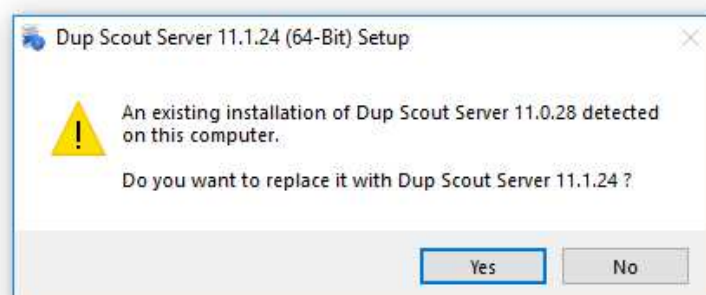
Specifies a password to login to DupScout Server. If not specified, the command line utility will login using the default "**admin**" password.

## 4.27 Updating DupScout Server

Flexense develops DupScout Server using a fast release cycle with minor product versions, updates and bug fixes released almost every month and major product versions released every year. New product versions and product updates are published on the product web site and may be downloaded from the following page: <http://www.dupscout.com/downloads.html>.



Due to the fact that the product is especially designed for servers running in production environments where stability is a major decision factor, DupScout Server updates should be manually installed by the user. In order to update an existing product installation, download the latest product version and just start the setup program.



The DupScout Server setup program will properly shutdown the running DupScout service, update the product and restart the DupScout service after finishing the update procedure. All product configuration files, saved duplicate files search operations, duplicate files reports and product registration will remain valid and there is nothing to reconfigure or manage after the update.

## 4.28 Registering DupScout Server

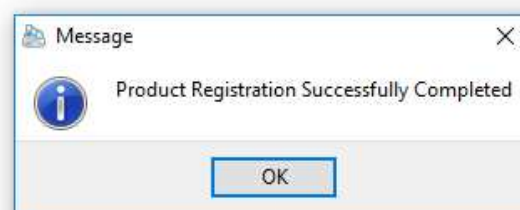
Within a couple of hours after purchasing a product license, the customer will receive two e-mail messages: the first one confirming the payment and the second one containing an unlock key, which should be used to register the product. If you will not receive your unlock key within 24 hours, please check your spam box and if the unlock key is not in the spam box contact our support team: **support@flexense.com**.



If the computer where DupScout Server is installed on is connected to the Internet, login to the DupScout server (default user name and password: **admin/admin**) using a standard web browser, click on the 'About' link located on the top menu bar, press the 'Register' button, enter your name or your company name, enter the received unlock key and press the 'Register' button.



If the computer is not connected to the Internet, press the 'Manual Registration' button, export the product ID file and send the product ID file to **register@dupscout.com** as an attachment. Within a couple of hours, you will receive an unlock file, which should be imported in order to finish the registration procedure.



## 4.29 DupScout Enterprise OEM Version

Flexense provides system integrators, value-added distributors and IT service providers with the ability to resell DupScout Enterprise and/or provide services based on the product under third-party brand names. Resellers and integrators are provided with the ability to change the product name, the product web site address, the product vendor name and the product vendor web site address.

The screenshot shows a web browser window with the title 'OEM Product Name @ win10'. The address bar shows 'localhost/set\_oem\_info?sid=9133891ab848f06034daff14855a33fa'. The page header includes 'OEM Product Name v11.1.26', navigation links 'Home - Settings - About - Logout', and a timestamp '30-Sep-2018 12:00:21'. The main content area displays a 'Set OEM Info' dialog box with the following fields:

Set OEM Info	
OEM Vendor Name:	<input type="text" value="OEM Vendor Name"/>
OEM Vendor URL:	<input type="text" value="http://www.mycompany.com"/>
OEM Product Name:	<input type="text" value="OEM Product Name"/>
OEM Product URL:	<input type="text" value="http://www.myproduct.com"/>

At the bottom of the dialog box are 'Save' and 'Cancel' buttons.

In order to be able to set custom OEM product and vendor information, the user needs to register the product using a special OEM-Enabled unlock key, which may be purchased on the product purchase page. Once the product is registered using an OEM unlock key, open the 'About' page, press the 'Set OEM Info' button, specify your custom OEM product and vendor information and press the 'Save' button.

The screenshot shows the same web browser window, but the address bar now shows 'localhost/about?sid=9133891ab848f06034daff14855a33fa'. The page header timestamp is '30-Sep-2018 12:00:49'. The main content area displays an 'About OEM Product Name' dialog box with the following information:

About OEM Product Name	
Product:	OEM Product Name v11.1.26
Vendor:	OEM Vendor Name
License:	Registered To OEM
Build Date:	Sep 30 2018 10:38:36
Build OS:	Windows (32-Bit) (Release)
Install Date:	30/09/2018
Memory Usage:	9.87 MB

At the bottom of the dialog box are 'Set OEM Info' and 'Close' buttons.

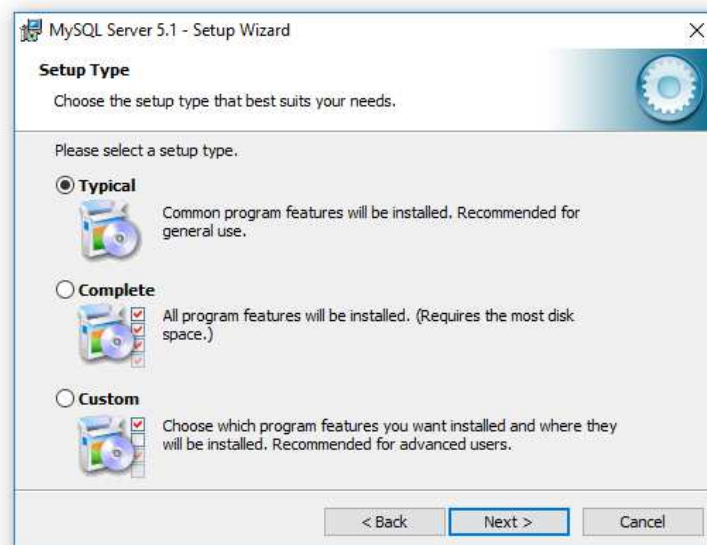
Custom OEM product and vendor information will be displayed on all pages of the DupScout web-based management interface, in all types of reports generated by the product and all notification E-Mail messages sent by DupScout Enterprise.

## 5 Appendix

### 5.1 Installing MySQL Database

DupScout Pro and DupScout Server are capable of saving reports in an SQL database. Reports may be saved manually or automatically using the DupScout command line utility periodically executed by the Windows built-in task scheduler.

In order to configure DupScout to use the MySQL database, the user needs to install the following two components: the MySQL Server and the MySQL ODBC connector. First of all, let's install the MySQL Server. Download the latest version of the MySQL server from the MySQL web site and execute the setup program to start the installation procedure. On the setup type page, select the 'Typical' setup type and press the 'Next' button. By default, the setup will install the MySQL server and a command line utility, which will be used to configure the MySQL server.

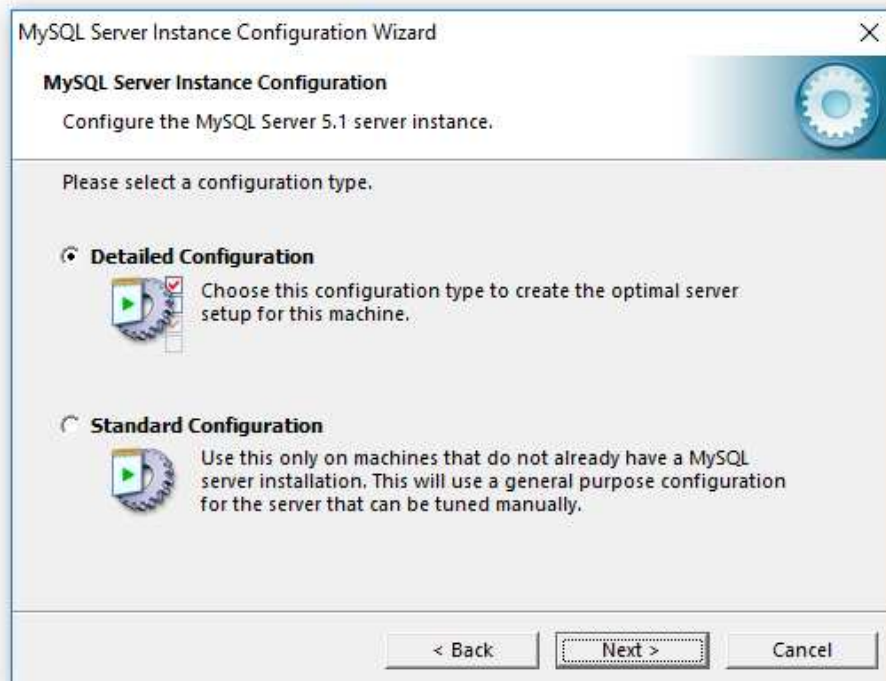


On the next setup page, select the 'Configure the MySQL Server now' option and press the 'Finish' button. The setup program will open a MySQL configuration wizard allowing one to configure basic server settings.

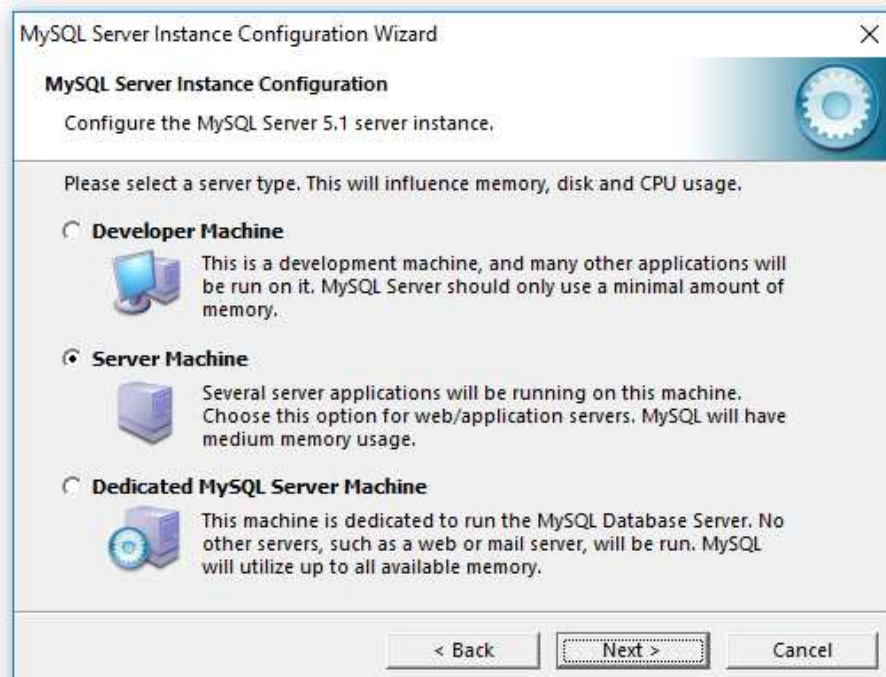




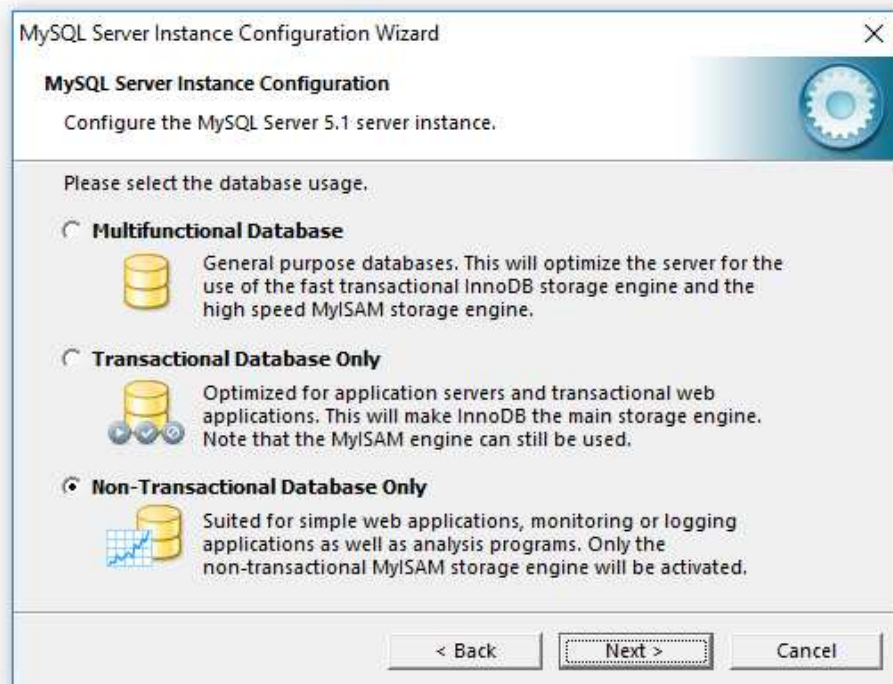
On the next setup page, select the 'Detailed Configuration' option and press the 'Next' button. The detailed configuration mode is required to configure the MySQL server for maximum database performance.



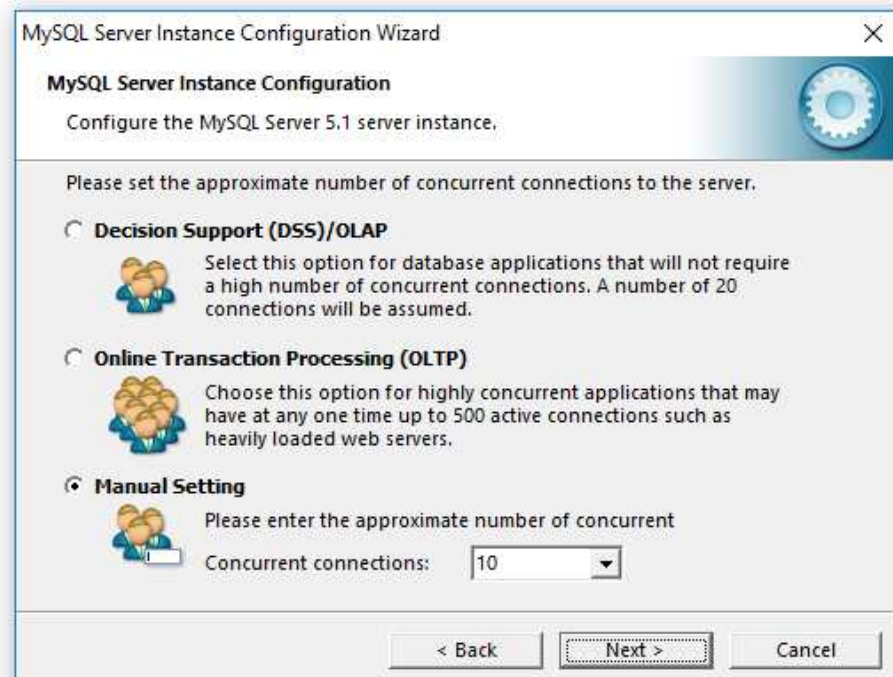
On the next page, select the 'Server Machine' option, which is the most balanced configuration for typical DupScout workloads. If the server is intended to process large volumes of reports and is dedicated for DupScout, select the 'Dedicated Server' configuration option.



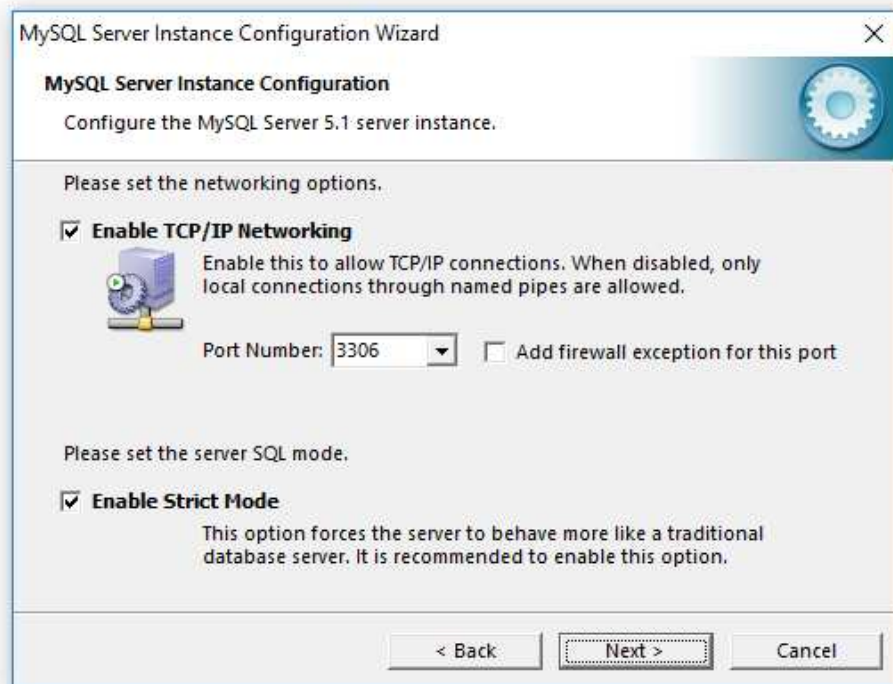
On the next page, select the 'Non-Transactional Database' option. DupScout does not perform concurrent insert or modify operations on the database and a transactional database is not required. Moreover, configuring the MySQL server as a non-transactional database will significantly improve the performance of database import operations.



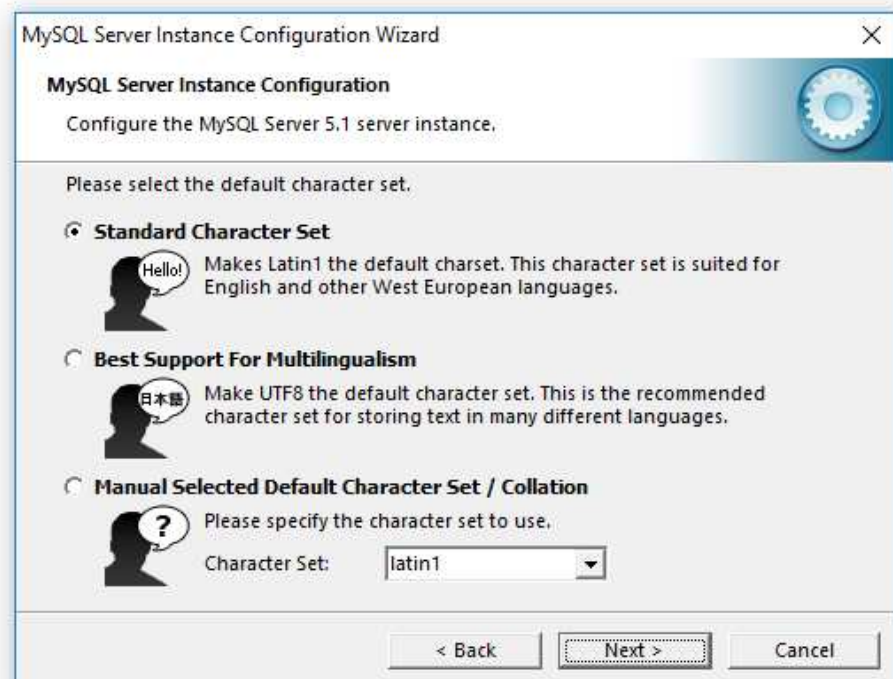
On the next page, select the 'Manual Setting' option and set the number of concurrent database connections to 5, which is the optimal number for typical DupScout installations.



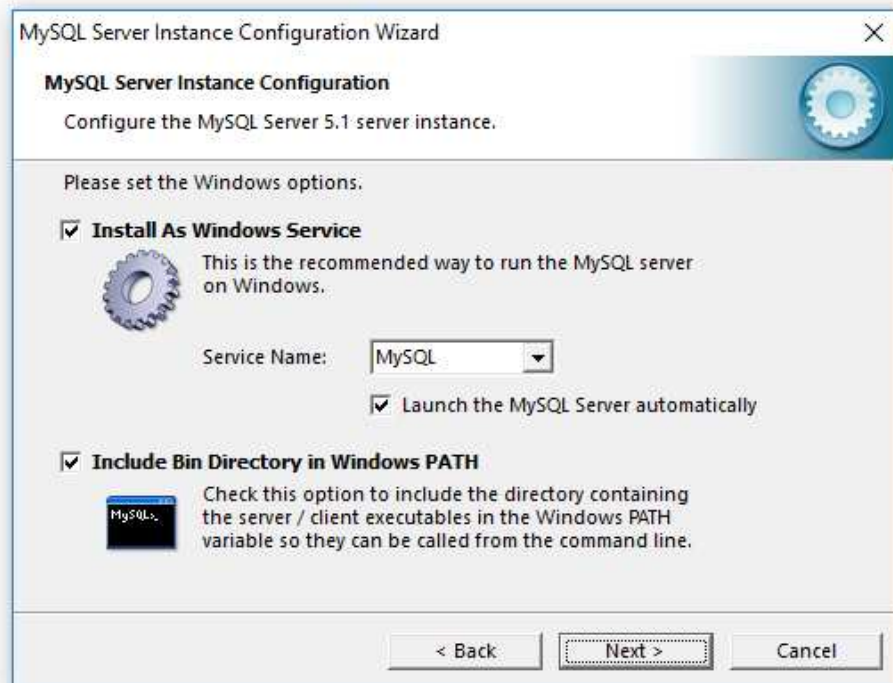
On the next page, enable TCP/IP networking and if the server will be accessed from other computers on the network, add a firewall exception for the MySQL server port. In general, a single MySQL server may be used to collect reports from multiple DupScout installations using remote ODBC connections.



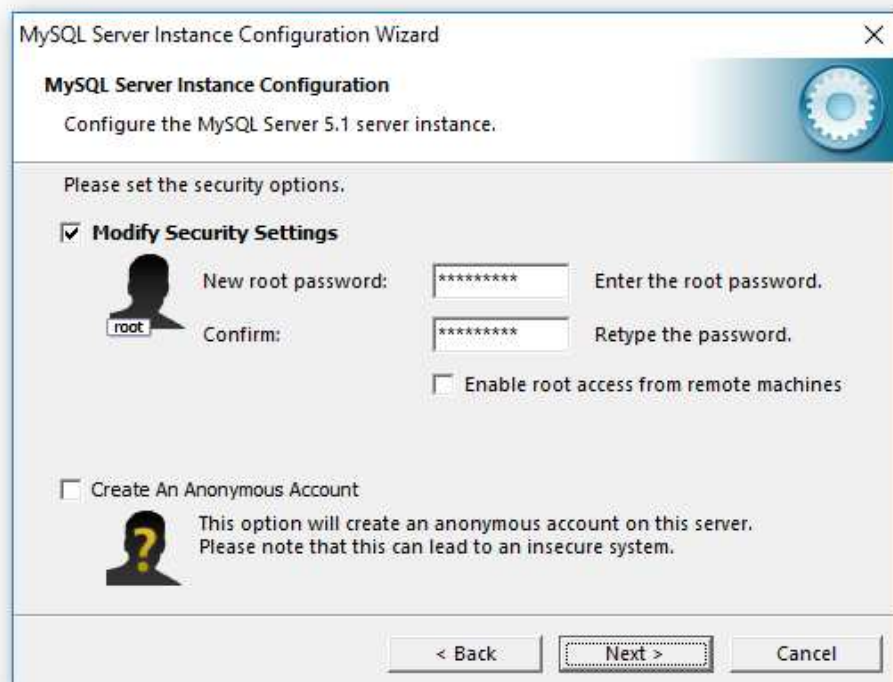
On the next page select an appropriate character set. By default, DupScout uses the UTF-8 character set to store names of files and directories, but if there is no need to process Unicode file names, this option may be set to the standard Latin1 character set.



On the next page, select the 'Install as Windows Service' option and select the 'Include Bin Directory in Windows PATH' option. The PATH option will enable execution of the MySQL command line utility from any location.



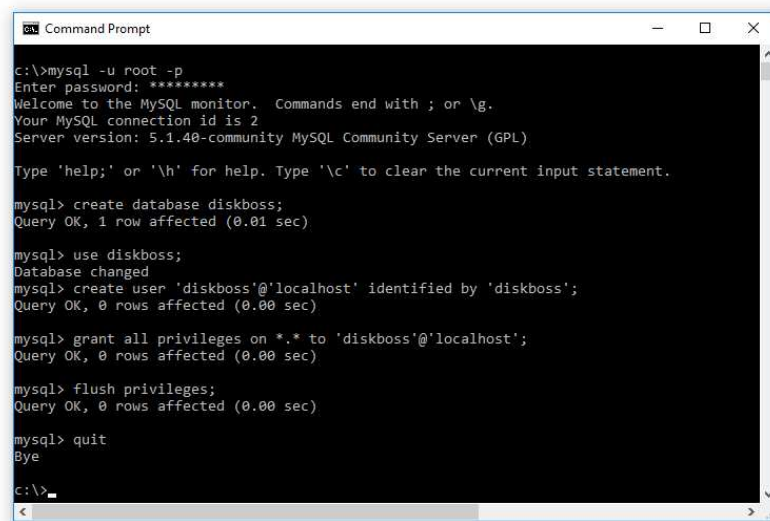
On the next page, select the 'Modify Security Settings' option and specify a root password for the MySQL server, which later will be used to configure regular MySQL users.



That's all. Press the 'Next' button to finish the installation procedure.

## 5.2 Configuring MySQL Database

The MySQL database provides the 'mysql' command line utility, which may be used to configure the database and the user account to be used by DupScout.



```
c:\>mysql -u root -p
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 2
Server version: 5.1.40-community MySQL Community Server (GPL)

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> create database diskboss;
Query OK, 1 row affected (0.01 sec)

mysql> use diskboss;
Database changed
mysql> create user 'diskboss'@'localhost' identified by 'diskboss';
Query OK, 0 rows affected (0.00 sec)

mysql> grant all privileges on *.* to 'diskboss'@'localhost';
Query OK, 0 rows affected (0.00 sec)

mysql> flush privileges;
Query OK, 0 rows affected (0.00 sec)

mysql> quit
Bye
c:\>
```

In order to configure the MySQL database, open the command prompt window and type the following command:

```
mysql -u root -p
```

This command will start the 'mysql' command line utility and login to the MySQL server with root permissions. The user will be asked to provide the root password, which was specified during the MySQL server installation procedure.

Once logged in, the user needs to create a database that will be used by DupScout to store reports. In order to do that, type the following command:

```
create database dupscout;
```

Now, add a user account that will be used by DupScout to submit reports to the database. Single quotes are required and should be specified exactly as displayed.

```
create user 'dupscout'@'localhost' identified by 'password';
```

Now, grant permissions to the user account using the following command:

```
grant all privileges on *.* to 'dupscout'@'localhost';
```

Finally, flush user privileges using the following command.

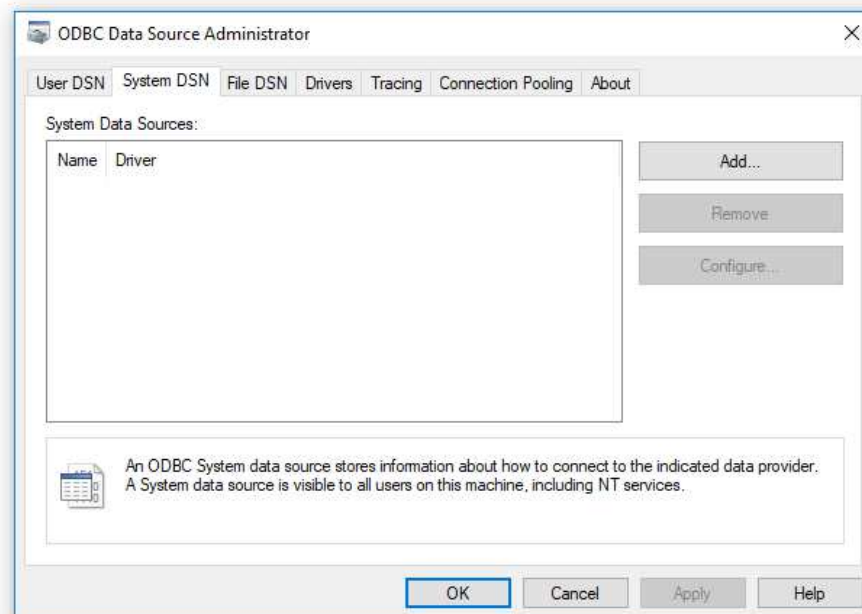
```
flush privileges;
```

That's all. Now the MySQL server is fully configured. In order to disconnect from the MySQL database, just type **'quit'** in the command window.

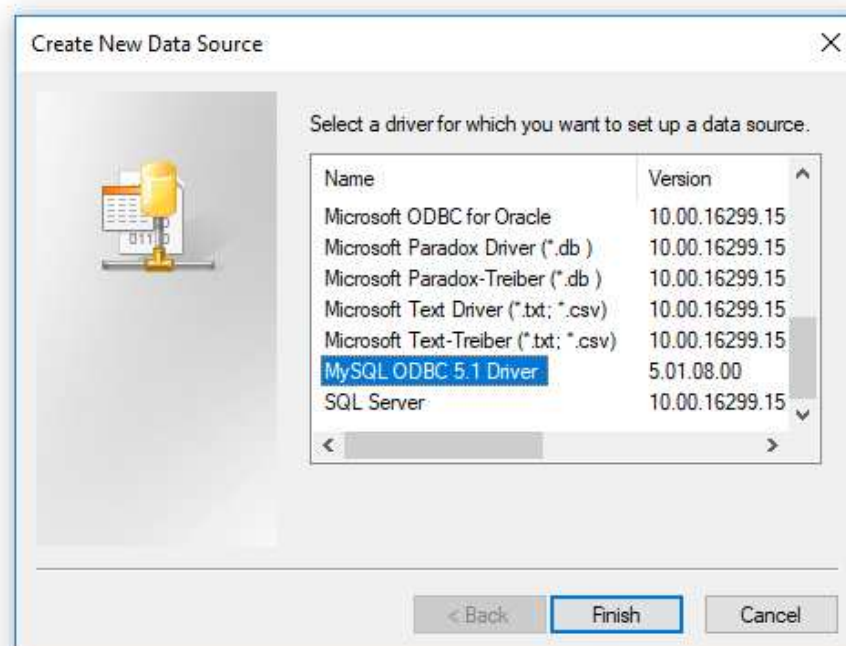


### 5.3 Configuring MySQL ODBC Data Source

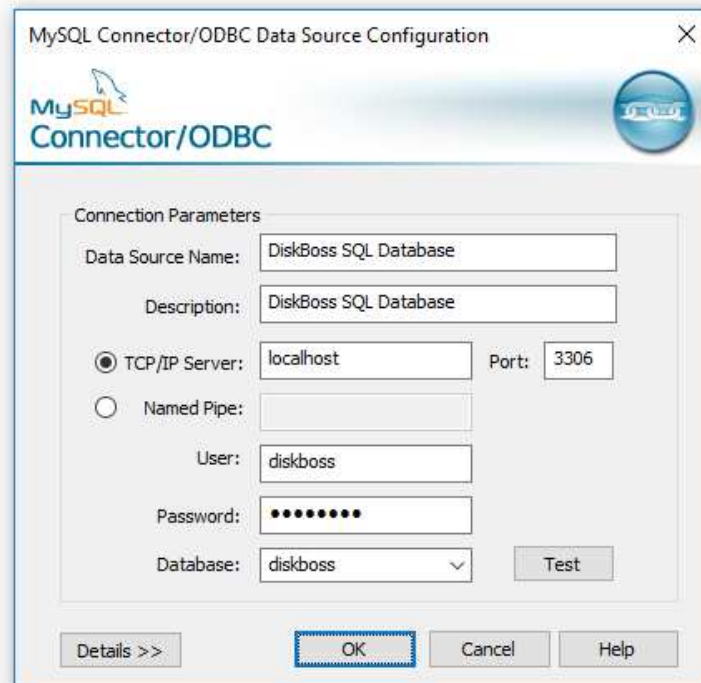
DupScout connects to the MySQL database through the ODBC interface. Download an appropriate version of the MySQL ODBC connector from the MySQL web site and execute the setup program. There are no critical configuration options in the MySQL ODBC connector installation procedure and the user can just press the 'Next' button until the last page keeping the default configuration options.



After finished installing MySQL ODBC Connector, open the Windows control panel and select 'Administrative Tools – Data Sources (ODBC)'. On the ODBC Administrator window, select the 'System DSN' tab and press the 'Add' button. On the next page, select the 'MySQL ODBC Driver' and press the 'Finish' button.

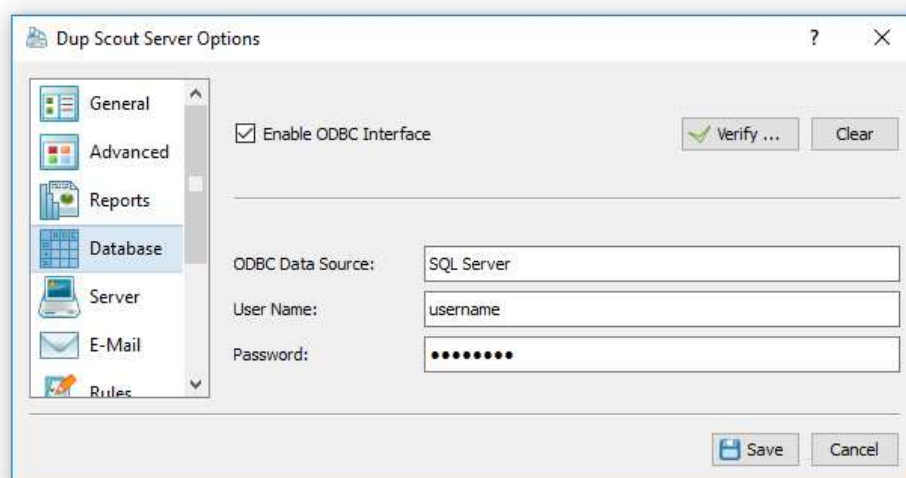


On the next page, enter a new data source name, which will be used by DupScout to connect to the database. Specify the name of the host where the MySQL server is running on and enter the MySQL user name and password that should be used by DupScout to connect to the database. Finally, select the name of the database that should be used to store reports. After finished specifying all the required information, press the 'Test' button to check the database connection.



## 5.4 Configuring DupScout Database Connection

In order to configure DupScout to use the installed MySQL database, open the options dialog and select the 'Database' tab. Enable the ODBC interface and enter the name of the ODBC data source, the database user name and password that were specified for the ODBC data source. Finally, press the 'Verify' button to check the DupScout database connection.



## 5.5 Supported Operating Systems and System Requirements

### Supported Operating Systems

- Windows XP
- Windows Vista
- Windows 7
- Windows 8
- Windows 8.1
- Windows 10
- Windows 11
- Server 2003
- Server 2008
- Server 2008 R2
- Server 2012
- Server 2012 R2
- Server 2016
- Server 2019
- Server 2022

### Minimal System Requirements

- Supported Operating System
- 1 GHz or better CPU
- 1 GB of system memory
- 100 MB of free disk space

### Recommended System Configuration

- Supported 64-Bit Operating System
- 2+ GHz quad-core CPU
- 4 GB of system memory
- 200 MB of free disk space

### DupScout Enterprise System Configuration

- Supported 64-Bit Operating System
- 2+ GHz quad-core CPU
- 8 GB of system memory
- 1 GB of free disk space