

Welcome

IMATCH

photools.com

User Manual and Reference

Version 3.4



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Introduction

This user manual contains the complete reference for IMatch. It explains every feature in detail and allows you to get the maximum out of this application.

Quick Start

[This section](#) shows you how to setup your database and how to index your image collection with IMatch

System Overview

In order to get used to IMatch quickly, you should first read the [System Overview](#) section. This section explains how IMatch works and how IMatch differs from other browser-like applications you may have used before.

Help Overview

[Click here](#) to get an overview about this online help and the main modules in IMatch

Creating your Database

The tutorial section [Creating an IMatch Database](#) contains a step-by-step example on how to create your first IMatch database.

Follow this example to create a database to hold all your images. After you have completed this tutorial, your database will be up and running, and you can start to work with IMatch.

Categories

One of the first things you should do is to think about a category structure that fits your personal needs. The [Dynamic Category Concept](#) implemented in IMatch is much more flexible than simple keywords or albums used in other catalog applications.

Support

[This page](#) contains support addresses and links to interesting sections at www.photools.com

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IMATCH IS DEVELOPED BY A SINGLE PERSON, ME (MARIO M. WESTPHAL). I DO THIS ALL ON MY OWN AND IN MY SPARE TIME. FOR ME, IMATCH IS A HOBBY. FOR YOU, IMATCH IS A GREAT APPLICATION THAT CAN SAVE YOU TIME AND MONEY.

GIVE IT A TRY. IF YOU DON'T LIKE IT, SIMPLY REMOVE IT FROM YOUR DISK. IF YOU LIKE IT, PLEASE REGISTER AND BECOME A LICENSED CUSTOMER.

The IMatch Home Page and Forum

If you find a problem, have an idea or need information about IMatch, visiting the IMatch home page at <http://www.photools.com> is always a first choice.

Here you find up-to-date information about IMatch, news, the IMatch Frequently Asked Questions document and much more.

To **register IMatch** and to become a registered customer, please click on the *Register Now* link at the top of the entry page.

The **IMatch User Forum** is a place to ask questions, and to share information about IMatch related issues, ideas and suggestions with hundreds of other users. Please see the photools.com home page for the link to the user forum.

If you need help with IMatch, or you have any other question regarding IMatch or another photools.com product, send an email to support@photools.com.

Restrictions in the 30-day trial version

The unregistered version may be used for a **30-day trial period only**. After this period you must either register IMatch and pay the shareware fee or remove IMatch completely from your computer system.

Note Please see <http://www.photools.com> for more information about registration benefits and the registration process.

After the 30-day trial period, IMatch will open your databases only in read-only mode. No modifications can be made to such databases, but you can still use all non-mutating commands.

Additionally, in the trial version, some of the features may be disabled, work differently, or are restricted in other ways. Some of the export filters also may create documents that contain additional messages or graphics.

Registration Benefits

When you register your copy of IMatch, you will receive a personal user key and password or another token of authorization. This token entitles you to receive free support via email, access the protected forums on the photools.com home page and for discounts on future versions.

You will also receive a fully functional version of IMatch and intermediate versions for free.

All versions and updates are delivered **via Electronic Software Distribution (ESD) only**. There are no physical media or printed manuals. If you want a printed manual, print this ;-)

Please be fair and register your copy when you continue to use it after the 30-day trial period. Your payment will allow me to continue with the development of IMatch and to make it even better over time.

More information about the registration process is available at www.photools.com

Provide Feedback

I'm really awaiting your feedback. You are the user! Let me know what you need in a software application like IMatch to work faster and better. How you can save time with IMatch? What functionality do you need to serve your customers better?

I know that there are image management solutions out there that cost 50,000 US\$ for an initial license and can easily get up to 200,000 US\$ for multiple users. What can these system do what IMatch can't?

Send your ideas, comments, suggestions, bug reports and usage descriptions to the email addresses found in the support section at www.photools.com. You usually will receive an answer within 48 hours.

How to report bugs and ideas

Send your bug reports, suggestions, ideas and questions to support@photools.com

Please include as much information in your email as possible:

- Exact description of the error, problem, idea or suggestion
- Please clearly state the type of message in the subject, e.g. *Error, Idea or Suggestion*
- If you include log files or parts of log files, please ZIP them with a WinZip (PKZIP) compatible packer (I don't have RAR or something like that). Please send only short log files (1 MB or less packed)
- If you include screen shots, please make them **as small as possible**. Don't send screen shots of your 24-Bit Windows desktop with a tiny little message box on it. Use PhotoShop, PaintShop Pro or something like that to decrease the color depth to 256 or 16 colors (this will save a lot space. Crop the image to contain only the required parts, e.g. the message box with an error message or the part of the IMatch screen showing the problem.
- Add all other information that may be of use to identify the problem.

Always keep in mind that I must be able to reproduce the problems you're describing on one of my machines to provide a solution. You can expect an answer within 48 hours.

Errors and Problems

The possibility of hard errors that affect the integrity of your database is very low. However, if it happens, make sure that you send me the relevant parts of the log file so I have a chance to correct the problem.

Save the log file before you continue to repair the database. The information in the log file will be probably lost otherwise.

The IMatch log file is located in your TEMP folder, e.g. C:\WINDOWS\TEMP. It is a normal text file, you can view it with Windows NotePad or Write. Please extract only the sections beginning with an E> or an W> plus about 100 lines above and below these lines.

Tip You can also access the log file via the HELP menu in IMatch. Choose TECHNICAL SUPPORT OPTIONS, and then VIEW APPLICATION LOG FILE.

Then use the DATABASE WIZARD and run the DIAGNOSIS AND OPTIMIZE task (Second choice in the wizard). This special process can repair almost any damage or corruption on an IMatch database. The worst thing that can happen is that you need to rescan your folders in the database to update / replace some missing links.

Typos and strange language

As you might have noticed, I'm not a *native English speaker*. If you find some typing errors or other kind of strange language, please drop me a line. Any suggestions and help appreciated!

ASP Ombudsman Statement

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IMatch Database Backup

IMatch comes with a handy database backup tool that allows you to create backups of one or more databases, including all your scripts, presets, personal workspaces and other preferences files.

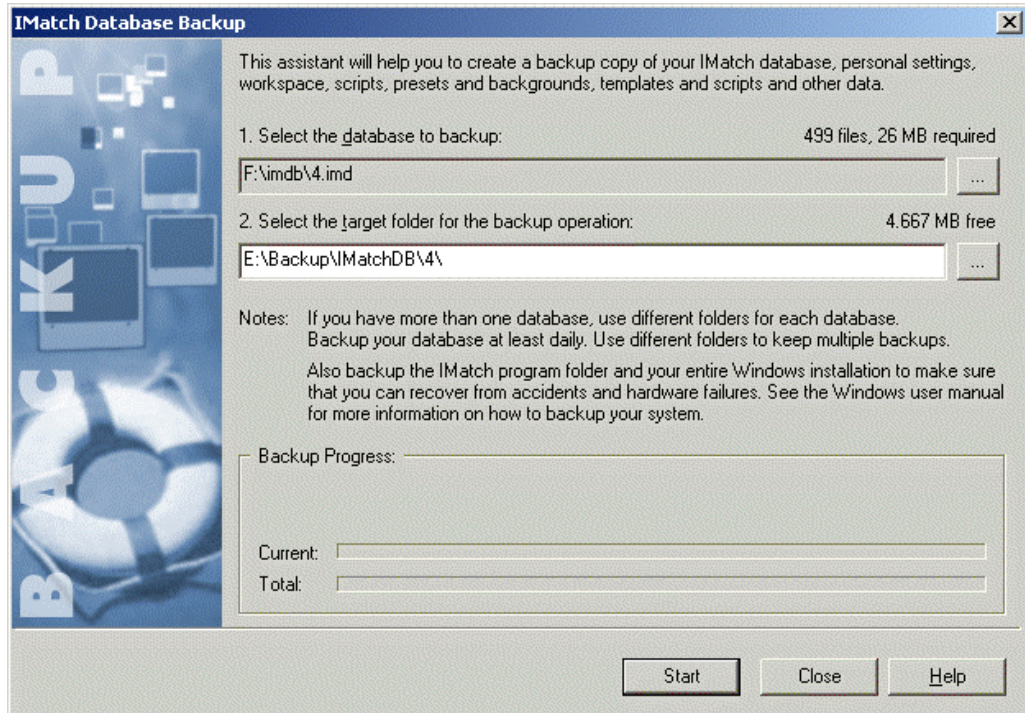


Figure 208: The IMatch Database Backup Tool

The backup wizard is rather simple. It just copies all the files of the selected database, your presets, templates, workspace and IPTC tag files into a new folder. The files are verified using a checksum algorithms to ensure that the copies are binary identical.

The output folder created during the backup process looks similar to the folder shown in the next image:

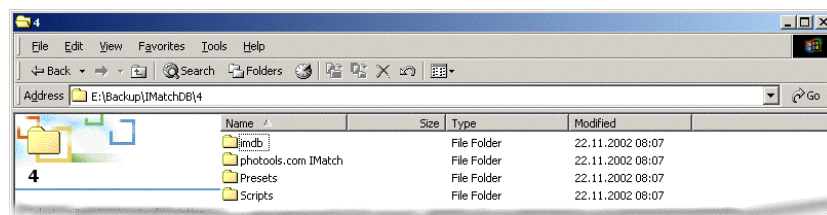


Figure 209: The backup folder

There is one folder for the database, one folder that holds the contents of your *personal folder*, one folder for presets and one folder for scripts.

This structure allows you to restore your database and other IMatch files in case of a bad error or hard disk crash.

Note: There is no built-in restore tool in IMatch. If something bad happens, just copy the contents of the backup folders back into the corresponding folders of your IMatch installation

Important

Also make backups of your Windows installation and your Program folder containing your IMatch installation. **At least daily!**

Installation and Setup

Installation and Setup

Download the IMatch setup executable and run it from the Windows file manager. An assistant will guide you through necessary steps to install IMatch on your computer.

IMatch utilizes the latest Windows Installer Technology for clean installations, updates and uninstalls. The IMatch installer contains the latest Windows Installer version and updates your system automatically.

Managed installations on Windows XP are fully supported.

IMatch includes an auto-repair feature that automatically will re-install corrupted or missing parts of IMatch – in case another application damages your Windows installation (which unfortunately happens)

Installing Updates

IMatch updates are delivered either as self-installing executables or as ZIP files. If you receive a self-installing executable, follow the directions on screen. Make sure that you install the update into the same folder as your original IMatch installation.

Updates are available in the **download** section at <http://www.photools.com>

If you receive a ZIP file, unpack the contents of the ZIP file into the original IMatch program folder, overwriting the existing files. If the update is an executable, it will automatically install on your system.

Note Make backup copies of all files in your IMatch folder before applying the update, just in case something goes wrong. In case of failure, just restore the original files and contact the program author for assistance.

Note Make backup copies of all files in your IMatch folder before applying the update, just in case something goes wrong. In case of failure, just restore the original files and contact the program author for assistance.

You can use the **Check for Update** command in the Help menu to let IMatch check for updates automatically.

Folders used by IMatch

IMatch stores all user-related contents in the default folder as specified by Windows. This folder is referred to as the *Personal* folder.

Backgrounds, Bitmaps, Brushed and other files common to all users are located below the IMatch program folder.

- ❑ The *Preset* folder contains pre-build Batch Converter Settings, Contact Sheet Builder templates, and other presets for various modules in IMatch.
- ❑ The *Bitmap* folder contains bitmaps and textures to be used with the Contact Sheet Builder, the Batch Converter and the Frame Builder. If you want to use your own backgrounds, copy these into this folder.
- ❑ The *Scripts* folder contains all your Basic Scripts.
- ❑ The *PlugIns* folder contains all plug-ins. Valid plug-ins in this folder are automatically registered during program startup. If you receive a new plug-in, just copy it into this folder (*XCOPY Deployment*)

During installation, these folders are created automatically and filled with pre-build files contained in the IMatch distribution. The location of these folders on your hard disk can be adjusted via the OPTIONS\PREFERENCES menu from within IMatch.

IMatch stores your personal preferences, IPTC presets and other configuration files in your personal folder. Under older versions, this folder is located below \Windows\Profiles\\My Documents. In both cases, the folder is named *photools.com IMatch*.

Planning your Databases

Depending on the number of images you want to manage in a database, the IMatch database and additional files may become rather large. You can expect the database and all related files to be between 5% and 15% of the total size of all image files contained in your database. For example, if you add 10,000 image files to a database, and these files have together a size of 2 GB (2000 MB), the IMatch database will be between 100 and 250 MB, depending on the size of your thumbnails and some other variables.

It is a good idea to create databases on a hard disk with sufficient space and in a separate folder for each database. If you want to move your database to another hard disk, you only need to move the complete folder and you're done.

Tip IMatch needs to access your hard disk frequently. It is a good idea to save IMatch databases on your fastest hard disk.

As any other application dealing with huge data volumes, IMatch will become slower when the database size increases. It is no problem to manage up to 50,000 images in a single database on a normal computer. When you want to manage 50,000 to 150,000 images in a single database, you should plan to add some extra RAM to your system. I would say that 256 MB of RAM is good for databases with up to 200,000 images. The more RAM you have, the better. IMatch can use RAM to cache database contents. This reduces disk access and hence results in much (!) better performance. I have redesigned the internal multidimensional data structures to hold data in compressed form, thus saving disk space and memory when cached. However, **IMatch is a high-end image database application** with complex algorithms. Strictly speaking, it is a **database server** combined with a user interface, target at managing **large and huge image collections**.

If you have several 100,000 images, you should split your collection into some smaller segments and manage each of these segments separately. This approach will also aid the matching process, since it is very difficult to filter out similar images in databases with several 100,000 images. There are simply too many similar images in such large databases ☺

Note Create backup copies of your IMatch databases and all the other data on your computer for your own security! There's always the chance for a computer virus or a physical defect of your hard disk. Be safe; make backups of your data!

All database files used in IMatch and the internal core have been developed to provide maximum data security. IMatch also has a built-in database repair and tuning facility (accessible via the Database Wizard) that can repair most common errors and tune your database for optimal performance. In the case of a hard disk crash, however, there's no chance to get your database back if you have no backup copy of it.

Make Backups!

Regular backups are important. They protect you against data loss due to hard disk damage, disk failure or program errors.

To backup your IMatch databases, simply copy all database files to another disk, an external media or a tape streamer. A database consists of a number of files, all sharing the same name, but different extensions.

Tip You can use the built-in backup tool in IMatch (In the DATABASE menu) to backup your database and personal settings. But you also need backups of your Windows installation and the IMatch program folder to recover your system in case of a hard disk problem or computer virus.

IMatch is very safe and uses the latest technology to prevent damage to your database files. Even in case of a hard system shutdown or power failure your databases are usually safe. **BUT**, there is never a guarantee, and a hard disk failure can happen every minute. Secure your databases by creating backup copies **at least daily**.

IMatch stores your personal preferences, IPTC presets and other configuration files in your personal folder. Under older versions, this folder is located below \Windows\Profiles\\My Documents. In both cases, the folder is named *photoools.com IMatch*.

You should also backup your Windows installation, including the system registry. IMatch stores user- and machine-depended configuration settings in the system registry. However, if you need to install IMatch on a fresh Windows version, this information can be easily recovered by re-installing IMatch.

Restoring IMatch on a new PC / Windows installation

If you need to re-install IMatch or if you buy a new PC, you can re-install IMatch with some easy steps:

- Download and install the latest IMatch evaluation version. Go to www.photoools.com, and then open the *download* section.
- Install the latest update for registered users into the same folder to convert the evaluation version to the full product again. If you are asked for your **user name and password**, use the credentials supplied in your registration email.

- Restore your databases
- Optionally restore the contents of your personal photools.com IMatch folder
- Run IMatch and adjust your workspace settings, windows positions, and other configuration options

After performing these steps, you can continue to work with IMatch and your databases.

Mobile IMatch

If you work with more than one PC (for example, a desktop PC at home and a laptop when you are in the field), you can move your database between these two PCs. This allows you to manage your images in the field on your laptop and to restore this updated database when you're back at home.

All you need to do is to install a second copy of IMatch on your laptop computer (don't forget to apply the latest service pack).

Then copy the folder containing your database to your mobile computer system. If you work with IPTC, don't forget to copy the contents of your personal program folder so your IPTC presets will be ready.

IMatch stores your personal preferences, IPTC presets and other configuration files in your personal folder. Under older versions, this folder is located below \Windows\Profiles\\My Documents. In both cases, the folder is named photools.com IMatch.

When you're back at home, just copy the database back to your desktop system. In addition, restore your personal settings.

Tip Most laptops allow you to automate this process with a feature called *replication*. Consult your system manual and the Windows documentation for details.

Overview

System Overview

IMatch 3 introduces a couple of new concepts to the world of digital image management. Please keep always in mind that IMatch is not another thumbnailing application. It is a framework for digital image management, image processing and image matching.

To make it easier for you to follow the explanations in this tutorial, we introduce all the rather unfamiliar terms used within this document here...

Database	<p>A database contains all the information about your images, the user-defined property sets, the categories and the multidimensional data structures used to perform the image analysis and matching.</p> <p>An image database is composed from several files with the same name but different extensions on your hard disk. You can create any number of databases with IMatch</p>
Image	<p>Any type of image (bitmap or vector image) that is supported by IMatch</p>
Thumbnail	<p>The graphical representation of images in an IMatch database. IMatch uses a reduced version of the original image to represent images in result sets, categories or the database viewer</p>
Image Attributes	<p>the properties associated with each image in the database. For example, the <i>image file name</i> and <i>folder</i>, the <i>dimensions of an image</i>, the <i>file size</i>, <i>date</i> and <i>time</i> are all image attributes</p>
User-defined Properties	<p>You can create and associate any number of properties with each image in your database. This allows you to store information like "Title", "Description", "Camera used", "Location" etc. with your images. IMatch fully integrates these user-defined properties and allows you to perform selections based on these properties or to use these properties with the export functionality or HTML generation</p>
Property Set	<p>A collection of properties. IMatch has a built-in property set called <i>Image</i> which collects the properties you create related to specific images in your database. Additionally, you may create additional property sets, e.g. for "Camera", "Location" or "Photographer". Each of these property sets may have any number of properties, and you can create links between property sets</p>
Category	<p>One of the most amazing features of IMatch are it's Dynamic Categories. You can create any number of categories, and each category can have any number of sub-categories. You then assign your images to one or more of these categories and the intelligent mechanism behind the category concept will do the rest.</p> <p>Since categories can depend on other categories, even based on <i>formulas</i>, the category concept of IMatch is superior to the simple process of assigning <i>Keywords</i> used by other thumbnail applications.</p>

Selection	<p>a selection is a <i>set of rules</i> and criteria, which are used by IMatch to query your database and creates a result set containing all the images adhering to the rules and limits given in the selection. IMatch supports over <i>50 different criteria</i> to create results sets, from simple things like "<i>Find all files named like beach*</i>" or "<i>Find file smaller than 200KB</i>" to the most complex combinations of several rules and matching algorithms. Although being very powerful, it is remarkably easy to create selections with IMatch</p>
Result Set	<p>A result set is the <i>result</i> of running a selection (a search) against the images in your database. A result set is basically a list of images, presented in form of thumbnails. All image manipulation operations and functions available in IMatch work on result sets. If you like, the contents of a folder on your hard disk is also a result set, containing all the images in that folder</p>
Persistent Result Set	<p>IMatch can now store result sets on your hard disk, making them persistent over program runs. You can access any of these persistent result sets within seconds, saving the time to re-run the selection.</p> <p>IMatch automatically monitors all modifications in your database and keeps the persistent results sets up-to-date. If you copy, move, or delete image files, all persistent result sets are updated automatically. Only when you add new images to your database, IMatch will need to re-run the selections to refresh the persistent result sets</p>
Result Set History	<p>The result set history contains all result sets created during the current session. You can access any of the results within seconds to compare it to new results or use them as the start for a new selection</p>
Bookmarks	<p>when you view your image collection, you may assign bookmarks to any of your images. IMatch maintains a special result set, named "My Bookmarks". The options available for bookmarks are the same as for normal images, e.g. you can copy, move, delete images directly from the bookmark view, or you can convert your bookmarks into a category.</p>
Variable	<p>A named storage location that is controlled and maintained by IMatch. IMatch provides a complete set of global and local variables that can be used with various modules and Import/Export filters</p>
Script	<p>A text document that contains commands for the internal scripting language. IMatch contains a powerful BASIC scripting language that allows you to automate frequent tasks, perform all type of image operations in batch and to enhance the built-in functionality of IMatch in many ways</p>
Script Manager	<p>The Script Manager displays all your scripts and enables you to create, execute, modify and delete scripts</p>
Scripting IDE	<p>The Scripting Integrated Development Environment allows you to edit and debug scripts. This IDE is full-featured with an integrated debugger and gives you maximum control over script execution</p>
Color Coding	<p>IMatch allows you to assign colors to any of your <i>categories</i>. The thumbnail windows in IMatch can be set to show you these colors,</p>

providing visual feedback about the categories of an image. You may use this feature to visually rank your image based on priority, urgency, resolution, quality and any other criteria

Plug-In	IMatch supports external plug-in modules that contain new image matching algorithms. This feature is very useful for researchers in the field of image matching and pattern matching because they can use IMatch as a framework for developing and testing new algorithms
IPTC	The IPTC metadata standard is a standard for describing images. Image files with embedded IPTC information are widely used in the press and newswire business. See section IPTC Support for more information about IPTC support in IMatch.
EXIF	The EXIF metadata standard allows camera vendors to add information about the image into the image file. This metadata standard is used by digital cameras to record things like lens settings, lighting conditions, and other camera settings within the image. EXIF information is supported for JPEG, TIFF, PSD and CRW files with accompanying THM files.

System Architecture

IMatch uses an object-oriented approach to manage your images. The internal database architecture has been specifically developed for optimal storage and retrieval of image data. The property database that holds non-image data is based on XML, UNICODE™-aware and extremely fast and secure.

IMatch is an Open System in a sense that it can [import and export](#) data and information in a variety of formats. You can use the information contained in an IMatch database easily with other applications by using one of the built-in Export Modules. If you have data stored in another application, it's also rather easy to import that data into IMatch. If there is no built-in import/export module that can handle you specific data format, you can write (or let write) an import/export module with the built-in scripting language.

This object-oriented framework that is the core of IMatch is also the basis for the internal scripting language. With this scripting capability, IMatch becomes even more powerful. Users are able to extend the available functionality of IMatch with very little effort by creating new functions in form of scripts, based on the IMatch object model. If you have ever written a script in VBA, VBScript or JScript you will immediately able to use the IMatch scripting language.

Scripting is used to perform imaging operations, like file format conversion, in batch mode. Scripting is also used to import / export data to from IMatch, e.g. to load data from external databases or text files. The dynamic creation of HTML documents, including scripting, Cascading Style Sheets and custom color and layout can also be done via some simple, yet powerful scripting objects.

The following figure shows the internal object structure of an IMatch Image Database. See the list of terms above for explanation of the objects in this drawing.

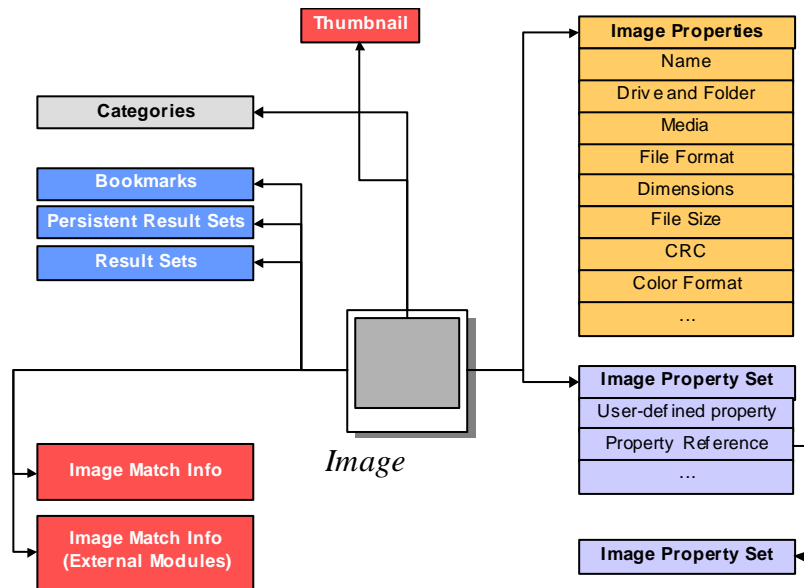


Figure 1: The IMatch object model

The IMatch Workspace

The IMatch Workspace Window

Figure 2 shows the IMatch workspace window with the different views. On the left side, you see the **database view** with all folders currently indexed by the IMatch database. On the right side you have the **thumbnail viewer** with the thumbnails for the highlighted folder on the left.

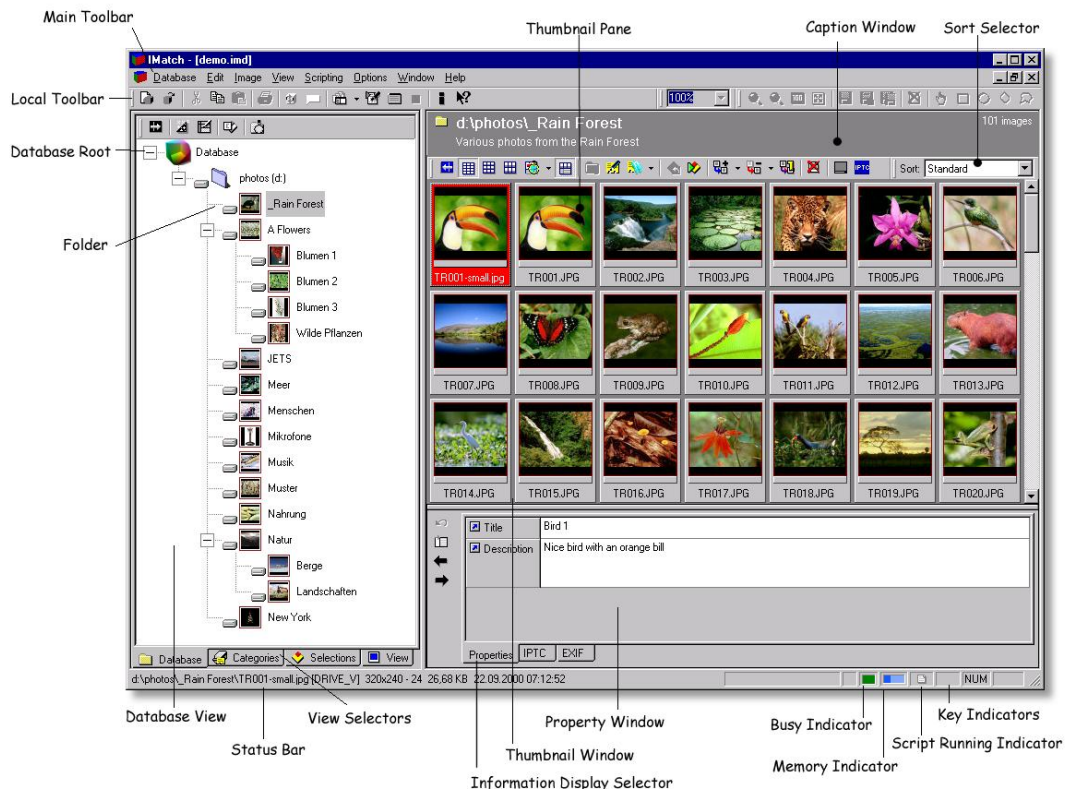


Figure 2: The IMatch workspace window

The Database View

The DATABASE VIEW contains all drives, media and folders currently indexed by your database, starting with the database root node. This view resembles the view you have when you use the Windows Explorer. The Database view is related to the physical side of your database, because it works with things like *drives*, *media*, *folders* and *image files*.

In the tree control, a folder icon or a *folder thumbnail* represents each physical folder. Beneath each folder icon a second icon is displayed, indicating the *folder type* and *online state* of the folder. IMatch can handle all types of drives, external storage media and network folders.

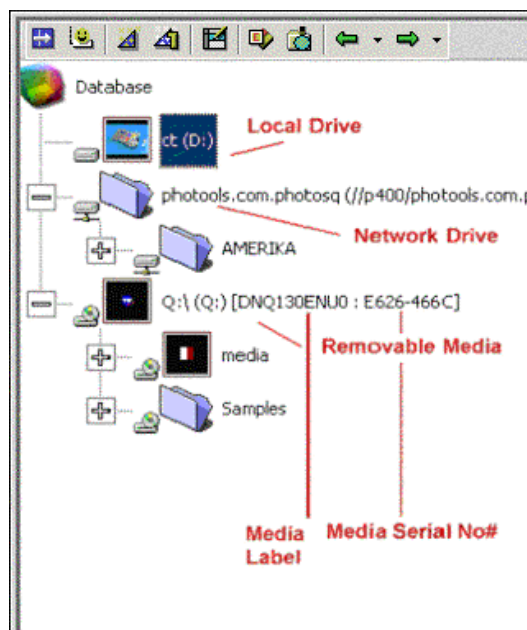


Figure 3: The Database View represents the physical (device-oriented) view on your images

Since IMatch only requires access to the original image when the image needs to be displayed in the preview or slide show, it can handle removable storage media like CD-ROM, JAZZ™ media or DVD drives gracefully even if they are currently off-line.

Note You can add any number of *media* (CD-ROM) from a single *drive* into an IMatch database. IMatch keeps the media separated using the media label and media serial number, so you and IMatch will always know which media to insert to view a specific image.

When you add images from external media to your database, IMatch saves the unique media id together with your other drive and folder information. Whenever IMatch needs to access the drive, it hence cannot only check if the drive is ready but also if the correct media is inserted (e.g. the correct CD-ROM). If not, IMatch will flag all folders from that media with a special icon, indicating the offline status of the media.

If you want to view an image from such a media, IMatch will prompt you for the correct media, giving you additional information like the Media Id, the Media Name and the comments you assigned to this media.

Folder State Icons

The following table contains a list of all folder state icons and their meaning:

Internal storage media
Off-line

External disk media
Off-line

CD-ROM drive
Off-line

Network drive
Off-line

HTTP, FTP or other Internet Connection (currently not supported)
Off-line

This graceful handling of external media is very unique and allows you to **add all your CD-ROMs to a single IMatch database**. You can perform most of the operations in IMatch without ever changing the media in the drive. Only when you want to display or edit the original image, IMatch will prompt for the correct media.

Furthermore, IMatch automatically *monitors* all your drives. If you change a CD-ROM or DVD, it takes only a couple of seconds (or a press on <F5>) to refresh the folder states. IMatch always is able to recognize the media in the drive and to map it to the current database.

If you have 50 CD-ROMs with images and only a single CD-ROM drive in your computer, you will love this powerful feature. If you have more than one physical CD-ROM drive in your PC, IMatch can handle them as well.

Tip Even if you insert a CD into a drive different drive than the drive you originally scanned the CD, IMatch can handle this situation. Click on the root folder for that media in the DATABASE VIEW and then choose **Relocate** from the context menu of that folder to change the physical location of that folder in the database to point to the new drive.

For CD-ROMs and other removable media, IMatch will normally automatically detect that the media has been inserted into a different drive. IMatch will ask you if you want to relocate the media to the new drive.

Friendly Names

IMatch allows you to give each folder in your database a user-defined name: The *friendly name*. Using the second button in the **local toolbar** of the Database View (or the corresponding option in the context menu) you can switch between two view modes:

Normal View Mode

In this mode, IMatch displays the real, physical folder names. For removable media, IMatch appends the media label and serial number to the topmost folder of that media

Friendly Name Mode

When you switch to this mode, IMatch displays the friendly names of your folders. If this mode is on, the database view uses a different display color to indicate that friendly names are displayed

Per default, IMatch sets the friendly name of a folder to the physical name of that folder. You can change the friendly name by switching to friendly name mode, and then entering a different name: Click on the folder label and rest the mouse for a second. Then enter a new descriptive friendly name.

You can use any characters you want. Changing the friendly name of a folder does not change the physical name of that folder on disk. Friendly names are stored in your IMatch database only.

Note To rename a folder, you need to switch to normal view mode. As long as you are in friendly name mode, you can only change the friendly name.

Auto-Scan



IMatch automatically scans the folders indexed by your database from time to time. If the contents of a folder have been changed outside of IMatch, a small red box is shown next to the folder state icon to indicate that a *Rescan* operation is required. Just issue a rescan operation from the context menu of that folder to update your database.

If you work with FAT or FAT32 formatted drives, IMatch cannot tell that the contents of a folder have been modified from outside of IMatch, because this file system does not update the date/time stamp of a folder when the contents of the folder change. Under these circumstances, you need to run the rescan command manually to update your IMatch database.

If you are using NTFS formatted drives (Windows NT, Windows 2000 and Windows XP only), IMatch can tell from the date/time stamp of a folder if the contents of that folder have been changed while IMatch was not running and hence IMatch will prompt you to update the contents of the folder.

Note If you want to move, copy, rename or delete images that are indexed by an IMatch database, please perform these operations from within IMatch, using the comfortable functions provided. This allows IMatch to stay in sync with the modifications you make and you don't need to re-sync your database manually.

Automatic Folder Refresh

IMatch always monitors the currently selected folder for modifications. If you modify a file from an external application, or you delete files in the folder, IMatch will automatically update the database.

Depending on the options you set under OPTIONS/PREFERENCES, IMatch will also automatically add new images to your database whenever you add new files to the folder from outside of IMatch.

Per default, IMatch will only update existing images, or remove deleted images.

Folder Commands

From the content menu of the database view you have access to all folders and media related functionality implemented in IMatch:

New Folder	Creates a new folder as a sub-folder of the selected folder
Rename	<p>Renames the selected folder or changes the Friendly Name of that folder.</p> <p>You may also click on the label to rename a folder</p>
Rescan	<p>Runs a rescan operation on the folder. This will add or update all new or modified images in that folder. Deleted files are automatically removed from the database.</p> <p>Note: You only need to run a rescan when you modify the contents of a folder outside of IMatch, e.g. when you copy images from Windows Explorer. When you move, copy, rename or delete images within IMatch, the database is updated automatically</p>
One-click Rescan	Runs a rescan on the selected folder with the options defined in the last normal rescan. To define the settings for the One-click rescan, choose the corresponding option on the last step of the Scan or Rescan wizard
Run Selection	Runs a selection operation on all files in that folder
Context Scripts	This command allows you to access all scripts from the Context Menu group
Relocate	<p>When you move or rename a folder outside of IMatch, you need to relocate it in your databases. This operation tells IMatch the new location of the folder.</p> <p>When you handle external media in your database and you insert the media into a different drive (e.g. scanned from E: and now the media is in drive F:) you also need to tell IMatch the new location.</p>
Windows Properties	Opens the standard Windows folder properties dialog
Explore	Opens the Windows Explorer for the selected folder
Smart Rename	<p>Opens the Smart Rename dialog and allows you to rename all images in that folder in batch.</p> <p>See section Smart Rename for more information about Smart Renaming</p>
Review	Opens the Review dialog box. This dialog allows you to quickly review all images in a folder. See section The Review Module for more information
Off-line Caching	Allows you to control the off-line caching settings for the selected folder.
Remove Folder from Database	Removes the folder from the database. Only the folder in the database is removed, <u>not</u> the folder on your hard disk.
Delete Folder	Physically deletes the folder and all sub-folders. Warning: This will also delete all physical contents (files and sub-folders on your DISK)
Slide Show	Runs a slide show on all files in the folder. See the section

[Slide Show](#) for more information about the Slide Show feature

Toggle Friendly Names Switches between physical folder name mode and [Friendly Name](#) mode

Hint You can control the display options and size of the folder thumbnails from the [OPTIONS\PREFERENCES](#) menu. You may want to turn off the folder thumbnails or use a different size to see more folders at a time.

Moving and Copying Folders

You can move or copy folders within the database view by just dragging the folder you want to move/copy, and drop it at the folder you want to use as the target folder.

IMatch will bring up a dialog box asking you what operation you want to perform.

Folder History

The local toolbar for the Database View has two arrow buttons that allow you to move forwards and backwards through the folder history.

Note: [This feature is also available for Categories](#)



IMatch records each of your movements in the folder list, and allows you to jump forwards and backwards to the 20 most recently visited folders.

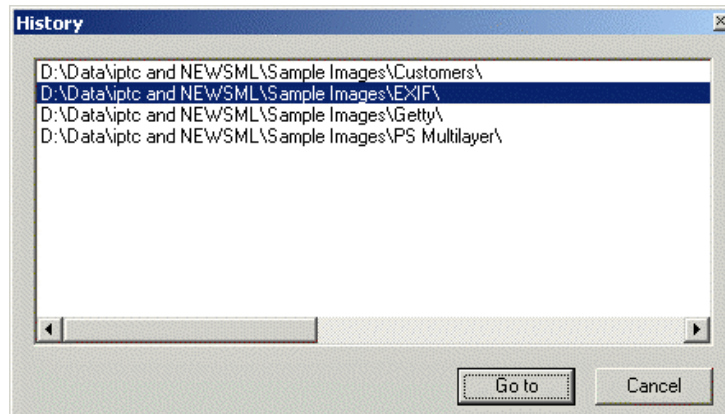


Figure 4: The Folder History Dialog

This feature allows you to navigate quickly in your database folder hierarchy. By clicking on one of the down arrows next to the arrow buttons, you can open the HISTORY dialog. This dialog contains the last 20 folders visited. By selecting a folder, and then by either double-clicking on the folder name, or by pressing the GO TO button, you can jump right to that folder.

The Category View

The Category View displays the category hierarchy of your IMatch database. The *Dynamic Category concept* is one of the major features of IMatch. It allows you to create a **virtual view** on all the images in your database, using any type of topic or theme.

It works basically like assigning *keywords* to images, or like putting your images into a boxes or folders on your desk. You can put any number of images into a category, and you can create any number of categories. At any time, you can move images from one category to another, or even copy images, thus ending up with *the same image in more than one category*.

Having an image in more than one category is very useful. For example, you may want to add an image to a category *Beach*, and a category *Family*. You can later then combine these two categories into a third category, showing only *family members at the beach*.

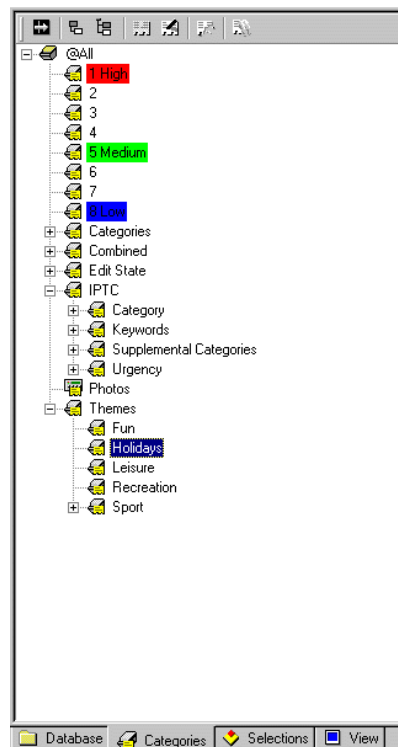


Figure 5: The Category View with some categories

You can create categories for themes, customers, clients, topics, persons, locations and whatever you like. If you are used to manage your images by *keywords*, you can continue to work this way, using categories instead of keywords. However, categories allow you to manage your images much easier and with greater flexibility than the simple keywords used by other applications.

Note [Read more about categories in section Categories.](#)

The Preview View

The PREVIEW VIEW allows you to view the currently selected image in the Thumbnail Window with various zoom factors. You can either fit the image to the available space, or view it in original size. The preview allows you to view the thumbnails in your current folder or category at a whole, and the currently selected image side by side.

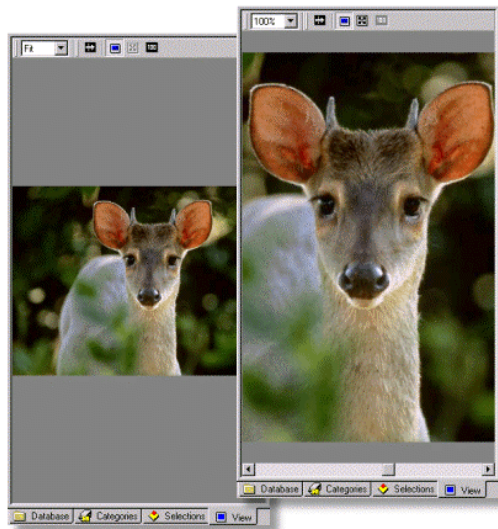


Figure 6: The Preview

If the image in the preview does not fit to the screen, you can scroll it with the scroll bars or with the mouse. Just point into the window, press the left mouse button and pan the image as you wish.

With the buttons in the *local toolbar* of the Preview Window you can select the zoom mode and toggle the preview display on and off.

The blue arrow button allows you to resize the preview to fit into the available space in the current database window. This allows you to view the image in its full size. You can toggle the size of the preview with this button at any time.

The Selection View

Selections are the core of the IMatch query process. By *running* selections, you can find images based on a variety of criteria, including file format, size, date and time, location, dimension, IPTC and EXIF data, color, shape, texture and much more.

The central point of management for selections is the Selection View. Here you can create new selections, manage existing selections and access the *selection history*.

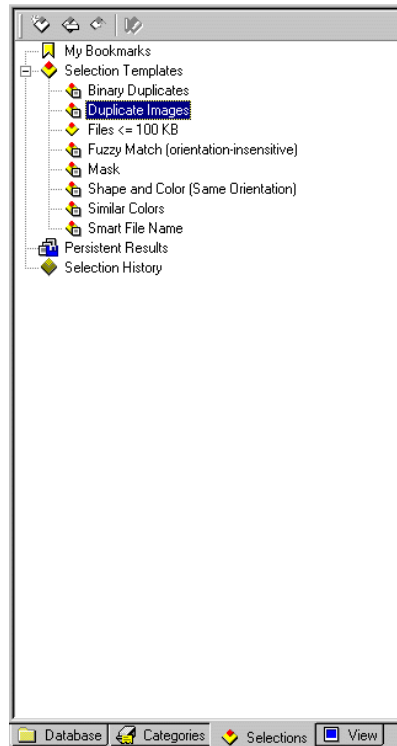


Figure 7: The Selection View. Here you create, edit, and delete selections. This window also contains your bookmark collection and the Selection History

You can run a selection (search your database for images) using the Ad-hoc search features from the SEARCH menu or by pressing <Ctrl>+<M> anywhere in iMatch.

Note The Selection View is used to manage selections. To Run/Execute a selection (perform a search against your database), you normally switch to the Database or Category View.

You can only run selections from the Selection View directly *if they do not require a set of original images*. Other selections require you to select one or more images first.

For example, the standard selector *Files <= 100 KB* can be executed directly from the selection view, because it works on the entire database. *To run other selectors*, like *Duplicate Images*, you need to select a folder, a category or some thumbnails first, because this selector needs some original images to work with.

Tip You can also use the SEARCH menu to run the most frequently used searches against your database. See Search for File Names and related topics in this online help.

The Status Bar

The iMatch status bar informs you about various states of iMatch and your system.

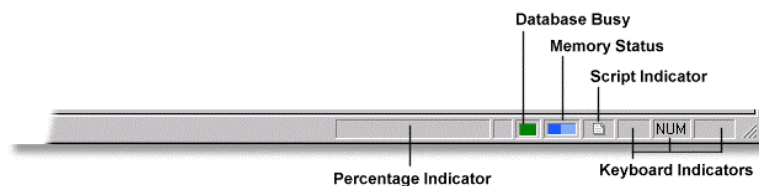


Figure 8: The iMatch Status Bar

The **Percentage** indicator is used to show you the progress of specific operations, e.g. database updates, file copy operations and the like.

The **Database Busy** indicator flashes when the database is busy.

The **Memory Status** indicator allows you to control the available system resources. If this indicator turns red or even light red, you'll need to free some system resources by closing other applications. If the indicator is red, IMatch will suffer from the resource shortage of your system. To get the best possible performance, try to keep this indicator blue.

Note The memory indicator reflects the amount of available memory that is reported by Windows. Depending on your Windows version and your configuration, the indicator may not reflect the real amount of memory available.

The **Script indicator** flashes when a script is executed.

The **key indicators** show the state of various system keys.

Some Notes on Memory Usage

On a machine with 128 MB of RAM an IMatch database can handle about 100,000 images if no other applications are running. On a 512 MB system, IMatch can handle about 500,000 to 750,000 images per database.

If the memory indicator is always red on your system, disable the database full caching option. Run the Database Wizard, choose the third option MODIFY DATABASE OPTIONS and disable the ENABLE IN-MEMORY CACHING OF DATABASE OBJECTS:

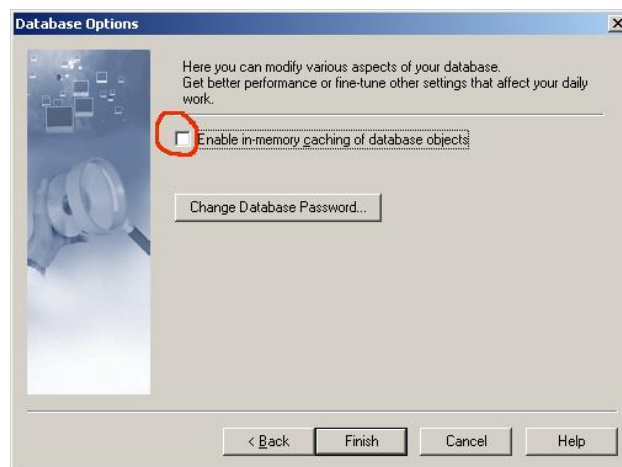


Figure 9: Disabling database caching

Toolbars

IMatch uses a main toolbar on top of the main window and several *local toolbars* for each of the different windows. The main toolbar contains buttons to execute all frequently used operations that work on a database or application level.

Local toolbars contain buttons to specific functions associated with a given window. Each toolbar button is associated with a short description that will show up when you point on the button and rest the mouse for a second.

These so-called tool tips also contain descriptions of available keyboard shortcuts for many of the available commands.

The Thumbnail Window

The Thumbnail Window

The thumbnail window (*or thumbnail viewer*) represents the contents of iMatch collections: Folders, Categories, Bookmarks and Result Sets. It gives you to access all image related functionality implemented in iMatch and allows you to view your images at various levels of detail.

The thumbnail viewer is a specialized window, presenting you a view of the contents of your database. Whether you're looking at the contents of a folder, a category, your bookmarks or the results of a match operation, iMatch displays the contents of the collection in form of thumbnails. The number of images that can be displayed at a time is virtually unlimited; the speed of the thumbnail viewer is outstanding.

By creating and using *Sort Presets* (see [Smart Sorting with Sort Presets](#)) you can order your images based on date and time, name, size and many other criteria.

By choosing an appropriate level of detail you can either view as many thumbnails as possible at once or show more information about each image. See [Image Panels](#) for more details.

With the [thumb lens](#) you can shrink or enlarge your thumbnails.

With the [thumbnail property window](#) allows you to view Property, EXIF, and IPTC data for the selected image.

You can also perform various [file operations](#) from the thumbnail window, like *Copy*, *Move*, *Rename*, and [Smart Rename](#) (Batch Rename).

To edit or convert your images, open images in the [image editor](#) right from the thumbnail window.

To open your files with other applications, use the Open command, or one of the commands from the Tools menu or the Shell menu.

You can also run a [slide show](#) on all currently selected images.


Image Panels

The thumbnail viewer represents each image with an *image panel*. An image panel contains a thumbnail of your images and optionally additional information items. The amount of information displayed next to each thumbnail depends on the current level of detail (LOD) selected in the thumbnail viewer toolbar.

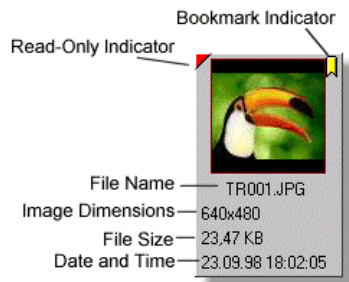


Figure 35: Image Panels in the Thumbnail Viewer window

By changing the level of detail, you can choose between a maximum of information displayed for each image and the maximum number of visible thumbnails.

If you want to see even more thumbnails at once, you can use the  button to switch to **full-screen mode**. This command will cause the thumbnail view to occupy the maximum space available, thus displaying more thumbnails at the same time.

Depending on your current level of detail, each image panel shows a different amount of information. In the modus with the least level of detail, you will see only the thumbnail itself, which leaves maximum room to show as many thumbnails as possible. In the intermediate level, you will see the thumbnail and the file name. The third modus



will show all the information available about an image, resulting in a much larger image panel:

In the upper left corner, the panel will display a red triangle, if the image is **write protected** or resides on a **read-only** media like CD-ROM. If you have defined a **bookmark** for the image, a bookmark indicator will be shown in the upper right corner.

Below the thumbnail of the image, IMatch displays the file name. To rename a file, just click on the file name. IMatch will automatically update the database and the image files on your hard disk when you rename a file. Of course, you can only change the file name if the image is not write-protected or on a read-only media.

In the Result Window (see **Error! Reference source not found.** on page 36) the image panels have some additional status icons

Below the file name, the panel shows the image dimensions (Width x Height, in pixels). If the image is in one of the formats FlashPix, PhotoCD or JBIG, which support multiple resolutions, IMatch will display the text *MultiPage* instead of numeric image dimensions.

Below the dimensions, IMatch displays the file size of the image in Kilobytes and the date and time of the last modification of the file.

As you can see, all the interesting information is displayed right where it belongs. With the FILE PROPERTIES command from the context menu, or <Ctrl+Enter> you can directly access the Windows file properties dialog.

If you enable Color-Coding (see section [Color-Coding Categories](#)), the thumbnail panels also show a Color-Coding bar below the thumbnail:

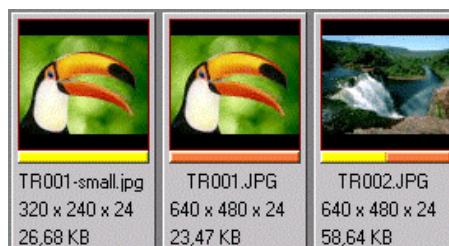


Figure 36: Color-Coding display in thumbnail panels (color A, B and A+B)

This color bar allows you to see which images belong to which color coded categories at the first sight. You can use color-coding to prioritize images, or to mark images as "work in progress" or whatever you like. Up to 9 colors can be displayed simultaneously per image panel.


Tip You can configure which information items are displayed in each of the three levels of detail modes in the PREFERENCES / THUMB VIEW dialog box. Here you can also enable or disable the Color-Coding display.

Image Dimension Units

IMatch allows you to display the dimensions (width and height) of your images in several units. You can choose which unit you prefer (Centimeter, Inches, Millimeter) via the [Options menu](#).

Automatic width adjustment

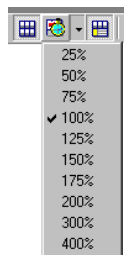
IMatch will adjust the width of image panels automatically based on the font used and the amount of information displayed. Under normal circumstances, this works pretty well. However, if you have images with very long file names, IMatch will display only the beginning of the file name, followed by an ellipse (...) indicating that the file name has been shortened.

If you want to adjust the image panels so that all file names are shown in full length, you must disable the Auto-Fit mode by activating the  button in the local toolbar. IMatch will expand all image panels to the width required to display all file names in full length.

This automatic adjustment will not hinder you to rename the file. When you click on the file name, IMatch will allow you to scroll within the file name to see it completely.

This button also controls the [Thumb Lens](#) settings.

Thumb Lens



The size of the thumbnails stored by your database is set once during the creation of the database and cannot be changed later. This allows IMatch to create optimal access strategies for thumbnail images. IMatch can handle databases with several 100,000ths of images and adding the ability to change the size of the thumbnails on the fly would cause an enormous overhead and hence is not supported.

However, you can change the *display size* of the thumbnails using the Thumb Lens accessible via the local toolbar of all thumbnail windows.

If you use the 100% setting, the thumbnails are displayed in their original size as stored in the database. All other settings either enlarge or shrink the thumbnail display:

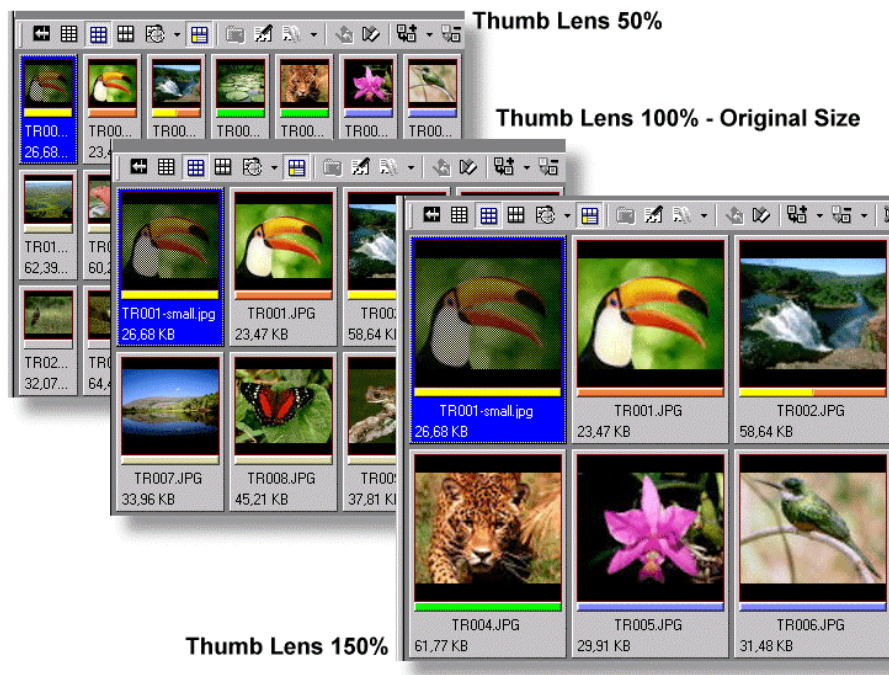


Figure 37: Different Thumb Lenses

The quality of the magnified thumbnails is not optimal, especially if you use factors of 200% or above, but larger thumbnails give you a better impression on the image without the need to load the original image from disk.

If you use a thumb lens with a factor less than 100%, you can see more thumbnails within the available space for a better overview.

Image File Commands

Most of the functionality in the thumbnail viewer is accessible via the *context menu* (right mouse button), the local toolbar in the thumbnail viewer and the IMAGE menu in the main menu bar.

Run Selection

Runs a selection based on the current selection. See section [Selections \(Finding Images\)](#) for more information about selections. This command is also available via the SEARCH menu in the main toolbar.

Categories

Opens the Category Assignments dialog and allows you to assign the current selected images to one or more categories (see section [Categories](#)).

Category Splasher

Gives you access to the Category Splasher. This feature allows you to assign images to multiple categories at one mouse click.

Goto Folder

Opens the folder of the current image in the Database View. This command is only available in the Category View, the Bookmark View and in Result Windows

Visual Browse	This command allows you browse the contents of the folder that contains the currently selected image
Toggle Bookmark	allows you to add or remove bookmarks for the current selection
Quick Copy / Quick Move	contains the history of the last 20 folders to which you copied or moved image files. Just select an entry from the sub menus to copy or move the current selection to the same folder
Context Scripts	allows you to access all scripts from the Context Menu group
Copy / Move	these commands copy or move image files to any drive on your local computer or a network connection. If you choose one of these commands, IMatch will display a dialog box that allows you to select the target folder or choose a folder from the list of recently used folders. You can also create new folders right out this dialog box
Edit	<p>opens the current image in the internal <i>Image Editor</i>. See The Image Editor for more information</p> <p>There are two modes available for opening images in the image editor. In single-edit mode, each selected image will be opened in a single editor window.</p> <p>In multi-edit mode, all images will be opened in a single editor window. You can then use the navigate buttons in the image editor toolbar to jump forwards and backwards between all currently selected images.</p>
Rename	You can control which mode you use renames the current image. You can also click on the file name in the <i>image panel</i> (see below) to rename a file
Smart Rename	allows you to rename groups of images with many options. See section Smart Rename for an explanation of the <i>Smart Rename</i> feature
Review	Opens the Review dialog box. This dialog allows you to quickly review all images in a folder. See section The Review Module for more information
Delete	this command will delete all currently selected files. IMatch will display a warning message before it actually performs the delete. If you hold down the <Ctrl> key while you select this command, IMatch will immediately delete the selected files without further warnings. See also section General Settings for further info about deleting files.

IPTC Editor	Opens the IPTC Editor for the selected files.
EXIF Editor	Opens the EXIF Editor for the selected files
Read-Only toggle	is a convenient way to add or remove the write protection for your images
Invert Selection	<p>inverts the current selection by removing the selection from all selected images and selecting all unselected images.</p> <p>If you hold down the <Ctrl> key while you select this command, IMatch will select all images in the thumbnail viewer</p>
Select All	Selects all images in the thumbnail window
Slide Show	<p>Starts the Slide Show for all selected images. If you want to run a slide show for all images in a folder or category, use the SLIDE SHOW command from the context menu of the folder or category instead.</p> <p>Note: If you have selected only a single image when you choose this command, the slide show works as follows: All images are "in" the slide show, but the slide show will start with the currently selected image.</p>
Copy to Clipboard	copies the current image to the Windows clipboard. This also copies image attributes like <i>file name</i> , <i>IPTC fields</i> , and the <i>categories</i> of the image to the clipboard. You can use Paste Attributes to copy these attributes to another image.
Copy Name	copies the name and full path of the current image to the Windows clipboard
Copy Attributes	<p>This command copies all image attributes (name, IPTC information, categories, properties) to the Windows clipboard. Use it with <i>Paste Attributes</i> below.</p> <p><i>The bitmap data is not copied, which makes this command faster than the regular Copy command.</i></p>
Paste Attributes	<p>Use this command to apply all the attributes from the IMatch image currently in the clipboard to all images in the current selection. If this command is disabled, make sure that you first copy an image from the thumbnail window to the clipboard.</p>
Set as folder thumbnail	sets the current image as the folder thumbnail for the current folder. IMatch will use this image to represent the folder in the DATABASE VIEW
Transform	Allows you to transform (Rotate, Mirror, Flip)

your images and thumbnails (virtual transforms).

Note: Transforming JPEG files is lossless, the images are not re-compressed by applying transformations. You won't lose any image quality when you transform images using these commands.

See also [Transforming Images](#) for more information

Transform/Batch Convert

Allows you to run the batch processor (see section [The Batch Processor](#)) on the currently selected images

Shell Submenu...

Explorer Context Menu

Displays the same menu as Windows Explorer for the selected item. This menu gives you access to all context commands available for the selected image, and all tools which you have added to your context menu (ZIP Managers, Conversion Tools, ...)

Open

opens the selected images with their associated application

Open with...

allows you to choose the application, which you want to use to open files of the selected type

File properties

displays the (Windows) file properties for the current image

How to select images

There are several ways to select files in the thumbnail viewer. Clicking with the mouse on an image panel is the simplest way to select images. This will first clear the current selection and then select the image on which you clicked.

To select more than one file, you can use the <Ctrl> or the <Shift> key:

<Ctrl>

if you hold down the <Ctrl> key while you click on images, the clicked image will be added to the selection if it's currently not selected or removed from the selection otherwise. **The <Ctrl> key toggles the selection of images.**

<Shift>

Select an image in the thumbnail viewer. This image will automatically become the *focused image (anchor image)*. Then hold down the <Shift> key and select another image. IMatch will select all images *between* the anchor image and the image clicked last. **<Shift> selects a range of images.**

You can also use the mouse to select a range of images. Click somewhere *between* the image panels (on the thumbnail viewer background). Hold down the left mouse button and resize the *selection rectangle* until you selected all images that you want to become part of your current selection.

You can use the INVERT SELECTION command from the context menu (or the EDIT menu) to **invert your current selection**. To **select all images**, use <Ctrl>+<A> or the corresponding command from the menu.

Tip To rename a file, just click on the file name. To select images click somewhere on the panel, but outside the area occupied by the file name.

Selecting files by name

You can search for a specific file name within the thumbnails by typing one or more characters of the file name. IMatch will select the first file that matches your search string. If you type follow-up characters within 2 seconds, IMatch will combine all typed characters to a search string.

For example, to find all files starting with bea, type B – E – A. When you typed the B, IMatch selects the first file name starting with a B. When you type E and A, the selection will move to the first file starting with BE or BEA respectively.

Tip The same technique works also for Tree Controls and all other thumbnail windows in IMatch.

You can also create a selector that searches for *similar file names* in the *active folder only*. See section [Selections \(Finding Images\)](#) for more information about this subject.

Smart Sorting with Sort Presets

Smart Sorting with Sort Presets

The thumbnail viewer allows you to sort the images based on a variety of criteria and all combinations hereof. The local toolbar of the thumbnail viewer contains a combo box with all *Sort Presets* currently defined. When you select an entry from this sort-preset combo, IMatch will sort the thumbnails using the selected preset.



Figure 38: The Sort Preset Control

IMatch's sorting capabilities are very flexible. Instead of being limit by a set of fixed sort types, you can create new sort presets that best fit your needs at any time. To create new sort presets or to modify existing presets, open the SORT PRESET DIALOG via the OPTIONS menu.

[You can also create manual sort orders using the Light Table sort](#)

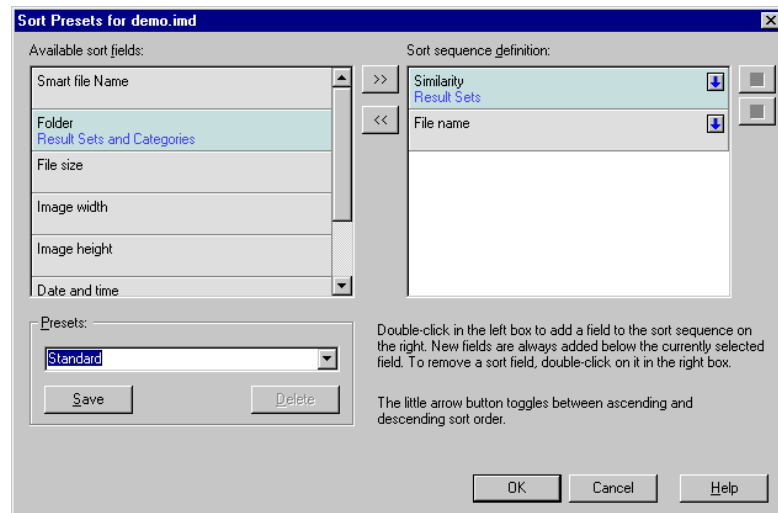


Figure 39: The Sort Presets dialog

In this dialog box, you can see all the AVAILABLE SORT FIELDS (sort criteria) on the left side. The right side contains the criteria used for the current sort preset selected in the PRESETS combo box on the lower left. Each sort preset can contain any number of sort criteria; the effective sort order is defined by the sequence of the criteria in the SORT SEQUENCE DEFINITION list on the right.

Figure 39 displays the default profile named "Standard". This sort preset is always in place and is used whenever no other sort presets are defined. You cannot delete this profile, but you can modify it.

Hint The *Standard* sort profile is used for the SLIDE SHOW or the REVIEW dialog when you select a folder or category and execute one of these commands. Since folders and categories have no sort order themselves, IMatch automatically applies the Standard sort preset in these cases.

If you want to run your slide show or review with the same sort order as it is used for the thumbnail window, select all images in the thumbnail window and then run the SLIDE SHOW command from the context menu of the thumbnail window.

Creating a new sort preset

The easiest way to create a new sort preset is to first empty the list on the right. By **double-clicking** on an entry, you can remove it from the list and put it back into the list on the left. Use this method to empty the list on the right. Then add the fields after which you want to sort by double-clicking the appropriate field in the list on the left. This will move the field into the SORT SEQUENCE DEFINITION list.

By default, all fields sort in ascending order, thus resulting in a "smallest first" sort. For example, if you sort by file name, the thumbnails will be sorted in ascending order, A-Z. If you want to sort in reverse order, click on the little arrow button show within each field. This button toggles the sort order between ascending and descending.

You can add any number of fields to create complex sort sequences, e.g. *"Sort first by similarity and then by file name"*, or *"Sort by file size, then by date and time"*.

With the arrow buttons on the right you can move the selected field up and down to modify the sort sequence.

To **save** your preset, enter a new name in the PRESETS combo box on the lower left and press SAVE to make it persistent.

Tip 1 For displaying result sets, it is often useful to have a "Similarity and Smart File Name" preset. This will sort all images that are considered similar to your original and within images with the same similarity the images will be sorted by file name.

Tip 2 It may also be very useful to create a sort preset based on one or more of your *Image Property Set* properties.

Modifying existing presets

Select the preset you want to modify in the Preset combo box. Then add or remove fields in the right list or change the sort order between ascending and descending. Finally, press SAVE to make the changes persistent.

Changes in the sort preset definitions become current as soon as you close this dialog box with OK. IMatch will automatically update the user interface to adjust to the new sort presets.

Some Tips about Sorting

You should create at least sort presets for *Date and Time*, *Smart File Name* and *File Size*. Besides these basic presets, you can create presets that fit your needs by combining any number of sort criteria.

If you often need to catalog files that have been downloaded from the Internet, it is useful to have a Smart File Name sort preset. This preset ignores the usual numbering series used in file names and hence sorts images named beach01 and beach 009 nearby.

If you use *properties* (see section [Image Property Sets](#)) to associate text with your images, you should create a sort preset based on one or more image properties. This allows you to sort images with the same or similar properties.

If you import and use information from ACDSee description files into your property database, it is useful to create a sort preset on the associated property.

Light Table Sort - Manual sort orders

Light Table Sort

In addition to sort orders based on attributes and properties, IMatch also allows you to create customized sort orders with a special sort option named *Light Table* sort.

The Light Table sort preset is special, because it allows you to *manually reorder* your images using your mouse and drag and drop. You can just drag images around in the thumbnail view until you have exactly the sequence you want. IMatch will store this sort sequence together with the folder or category in your database, and you can recall the sequence at any time by selecting the *Light Table sort preset* in the sort preset combo box.

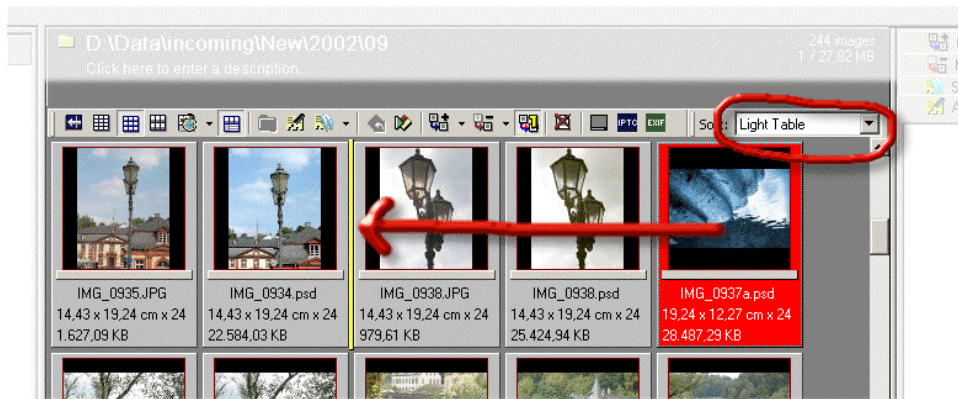


Figure 40: Reorder images by dragging

To sort your images manually, first select the Light Table sort preset in the thumbnail window. Then select one or more images, press the left mouse button and, while holding down the left mouse button, move them to their new position. A *yellow indicator* will show you the new insertion position.

IMatch saves the positions of the images together with their folder or category, and restores them automatically when you choose the Light Table sort preset again.

Note Light table sort orders are only available for folders, categories and your bookmark collections. Result sets have no manual sort order

Resetting the Light Table sort order

You can reset the light table sort order to the order currently displayed with the RESET LIGHT TABLE SORT ORDER command in the thumbnail window context menu.

This is also a comfortable way to setup an initial light table sort order: Just use a sort preset of your liking to sort the images in the current folder or category.

Then choose the RESET LIGHT TABLE SORT ORDER command from the context menu to take over the current sort order into your light table sort order. Finally, switch to the light table sort order preset, and reorder the images as you wish using drag and drop.

Note: The Reset light table sort order command is only available when the light table sort preset is not selected/active

Handling Off-line Media (Removable Media)

Handling Off-line Media (Removable Media)

IMatch internally stores the location of your images with so-called *URI (Universal Resource Identifiers)*. These special descriptors contain all information required to find, access and load an image from any type of media. Whether your files are on one of your hard disks, a **CD-ROM**, a **DVD** drive or another external storage media like **Iomega JAZ™** or **ZIP™** drives, IMatch can index and manage the images on these media.

Note IMatch makes it very easy to work with off-line or removable media. IMatch always knows where your image files are located, and if you perform an action that requires the physical image file, IMatch will prompt you to insert the media.

Definitions:

- Drive** A physical disk, CD-ROM, DVD, Network drive or another external storage device. You can have any number of physical storage devices or network drives connected to your computer. If it works for Windows, it works for IMatch.
- Media** A disk, CD-ROM, DVD, Iomega JAZ™ or ZIP™ drive, or any other suitable storage media. IMatch uses the Window standard *Media Identifier (Media Label)* and *Media Serial Number* information to keep track of the media in each drive indexed by your current database.
- Physical File** An image file on physical media, e.g. a TIFF file on one of your hard disks

The techniques used to handle external or temporarily unavailable media are proprietary to IMatch. No other application available today allows you to treat offline media this easy. Since image collections grow larger and larger today, and storage media like DVD allows collecting huge amounts of images, the comfortable handling of offline media becomes more and more important for image management applications. IMatch is really a step ahead here...

Tip The Off-line cache allows you to view a 'screen-size' preview of your images and the embedded IPTC and EXIF information even if the media is not in the drive. Read section [The Off-line Cache](#) about the Off-line Cache to learn how to enable off-line caching.

How IMatch links images and media

When you add images to your database, IMatch keeps track of the drive from which you've scanned the image, the media in that drive (if it is a removable media) and some other information required to access that image later. This information is stored in so-called *media nodes* within the object oriented IMatch database repository.

Whenever IMatch needs access to a physical file, it verifies that the correct media is in the correct drive. If this is not the case, IMatch handles this situation in one of two ways:

- If the offline image is visible in the thumbnail viewer, IMatch disables commands like MOVE, COPY, RENAME or DELETE and marks the file as offline. You can only use commands of this group when the affected images are online.
- If IMatch needs access to physical file because you want to open it in the IMAGE EDITOR, or it is needed during a BATCH PROCESSOR or a CONTACT SHEET BUILDER operation, IMatch will bring up the *Offline File Handler* dialog box and prompt you to insert the correct media in the correct drive.

Note If you index file from a media and you insert that media into a different drive later, you need to **relocate** the corresponding folder node in the Database View. Use the RELOCATE command from the context menu of that folder and select the new drive for that folder. This tells IMatch that the media is now in a new drive and updates the database accordingly.

Removable Media

To copy, move, delete, rename, or preview an image that is currently offline, insert the media and wait for a few seconds. IMatch will automatically recognize that you've changed the media in that drive and will reload the drive information. You can also press the <F5> after you have activated the DATABASE VIEWER (click somewhere on the window) to force an immediate update.

IMatch will verify that the correct media is in the drive and will reset the state of all images on that media back to *online*.

If you switch to the preview for an image that is currently offline, the preview will display a message like the following:

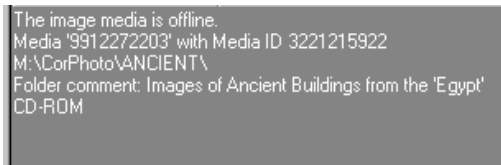


Figure 10: Trying to preview an image that is offline

Using the information given here you should be able to find and insert the right media quite easily. After you have inserted the media, press <F5> or click on the image again to open it in the preview window.

Even if you have added several CD-ROMs to your database and you have only a single CD-ROM drive, this schema works fine. IMatch always is able to identify which media is in the drive, and it also knows, which files in your database are on that media. Whenever you need access to the file, just insert the media and let IMatch do the rest.

Tip Use folder comments to identify your media. The root folder of the media (or the first folder you've scanned) is the right place for a folder comment that also includes some information about the CD-ROM or DVD.
The Offline File Handler will display this comment to help you identify the media.

How to identify the correct media

The root node of each drive/media combination in the Database Viewer also displays the *Media Identifier (Media Id, Media Label)* and the *Media Serial Number* as it was set at time of scanning that media. Additionally, you can enter a folder comment in the caption bar of the Thumbnail Viewer when you selected that folder in the Database Viewer.

This information is always visible, even if the media is not loaded or the drive is offline.



Figure 11: Two media loaded from the same drive

Figure 11 shows a database that contains references to two different media from the same drive. The drive identifier is *M:* in both cases, but the media identifier and media serial numbers differ:

Following the drive identifier (*M:*) the media identifier and the media serial number are shown in parentheses:

Media Id **Media Serial Number**
[9912272203 : 3221215922]

Note Under Windows, whenever a media is formatted or a CD is burned, a unique number, *the media serial number*, is assigned by the operating system. This number, combined with the media Id (the label you entered while formatting the media)

[creates a fairly unique identifier for IMatch.](#)

As you can see in Figure 11, the first media is currently marked offline, because the second media is in the drive. You now can work with the images from the second media. If you want to work with the images on the first media, you must first change the CD-ROM in drive M:

The Offline File Handler

This schema works fine as long as you can change the media in your drives before you actually access the images in IMatch. But what happens if you want to open an offline image in the built-in *Image Editor*? Or if you want to create *Contact Sheets (Index Prints)* for all images in a category and this category contains references to images from different media, some of them currently offline?

In these situations, the IMatch *Offline File Handler* comes into play. Figure 12 shows the dialog box that pops up whenever the Offline File Handler is triggered by one of your actions.

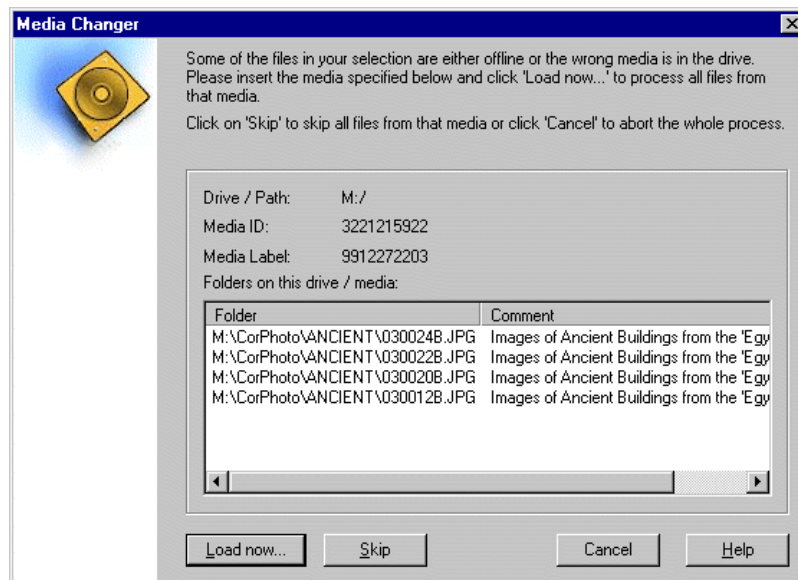


Figure 12: The Offline File Handler dialog box

Here we've tried to open four images in the Image Editor, and these files are currently unavailable because the wrong CD-ROM is in the drive. As you can see, the dialog prompts you to insert a specific media into drive M:. From the media id and the media serial number, the file names of the requested files and the folder comment displayed next to each file, you should be able to select and insert the correct media.

The Offline File Handler continuously monitors the drive and automatically detects media changes. If you have inserted the correct media, the dialog box will indicate this with a green check mark behind the drive identifier (see Figure 13 below).

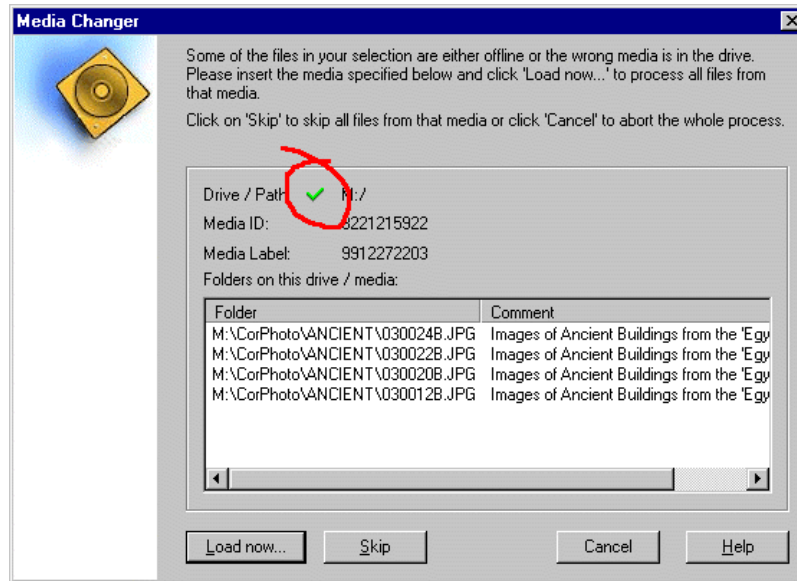


Figure 13: The correct media has been inserted

To load the images, press the LOAD NOW button. If you want to skip all images from that media, press SKIP. To abort the whole process, press CANCEL at any time.

Selections which span multiple drives and/or media

If your selection contains files from multiple media from the same drive, the Offline File Handler will prompt you once for each media. Say, for example, your selection contains files from three CD-ROMs which have been scanned from the same CD-ROM drive. If you perform an action that needs access to all images, the Offline File Handler will prompt you up to three times, once for each media.

Note If you skip one media in the Offline File Handler, IMatch will continue with the files on the remaining media. So, if you can't find a specific media at the moment, you nevertheless can continue with the images from the available media.

The Off-line Cache

The Off-line Cache

The Off-line cache allows you to store 'screen-size' previews of images stored on removable media. This enables you to use features like the **Slide Show**, the Image Preview, and the IPTC and EXIF Quick View even if your images are off-line and the media is not in the drive.

The Off-line uses your hard disk to store resampled previews of your images, and hence treats disk space for comfort. Depending on your Off-line cache settings, each image in the Off-line Cache takes between 10 KB and about 50 KB, so you get 20 to 100 image previews per MB of disk space.

The Off-line cache works fully automatic, and is kept in sync with your images automatically. IMatch takes care that the cache is updated when you modify images, or if you move, copy or delete files. If Off-line caching is enabled for a folder, and you perform a Rescan, IMatch will automatically remove cache contents of deleted images, and create cache images for new or updated files.

Note Off-line cache folders are displayed with a special blue frame in the Database View.

Off-Line Cache Settings

First you need to define the disk location for the cache. This location is a folder on one of your hard disks, which will be maintained by IMatch. You should select a large hard disk with plenty of free space if you want to work with removable media extensively.

To define the Off-line cache folder, go to the OPTIONS/PREFERENCES menu and select the OFF-LINE CACHE tab.

Define the folder you want to use for temporary cache storage here. IMatch will create a sub-folder for each database that you use with off-line caching enabled.

Note You can delete the images in the cache folder at any time. IMatch will automatically regenerate the images if they are gone. However, until you re-generate the images during a Rescan operation or explicitly from the Off-line Cache properties dialog, IMatch will not be able to use Off-line cache features.

Image Quality

The image quality has a great impact on the total size of the off-line cache images on your hard disk. Higher quality needs more disk space. You should try the NORMAL quality first. If the results are unsatisfactory for your images, try MEDIUM and then HIGH quality. Cache images will be saved in JPEG format, so the disk space requirements will be fair even if you decide to use HIGH quality.

Preview Size

You can either choose a fixed size for your off-line cache preview images, or a size relative to the size of the original images. For most uses, a fixed size of about 400 pixels (both width and height) is sufficient. If you have a large screen resolution, you can also use 600 or more pixels. Please keep in mind that the size of the images also has an influence of the total disk space used for the Off-Line cache.

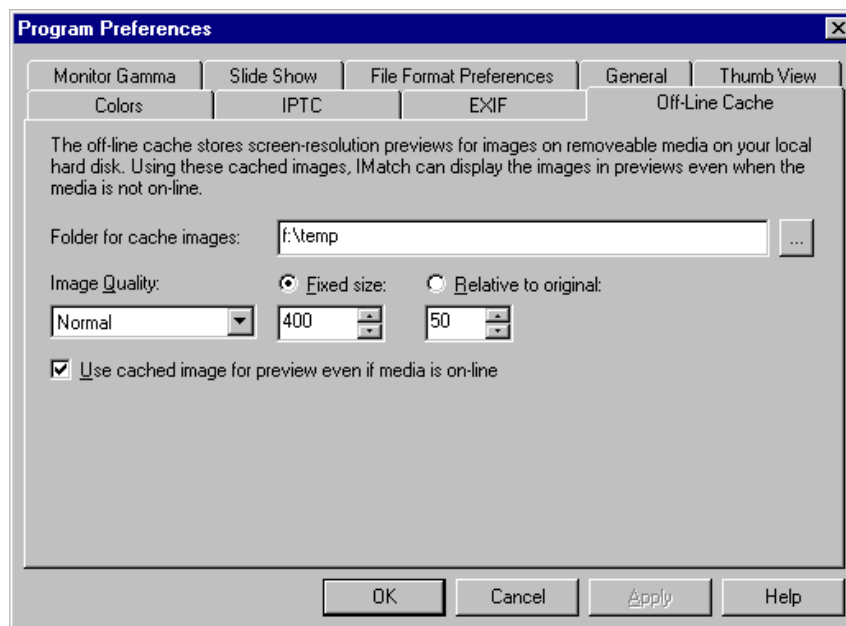


Figure 14: The Off-line Cache settings

Enabling the Off-line Cache

Off-Line caching is enabled on a folder/media basis. This allows you to enable off-line caching for specific folders, or an entire media.

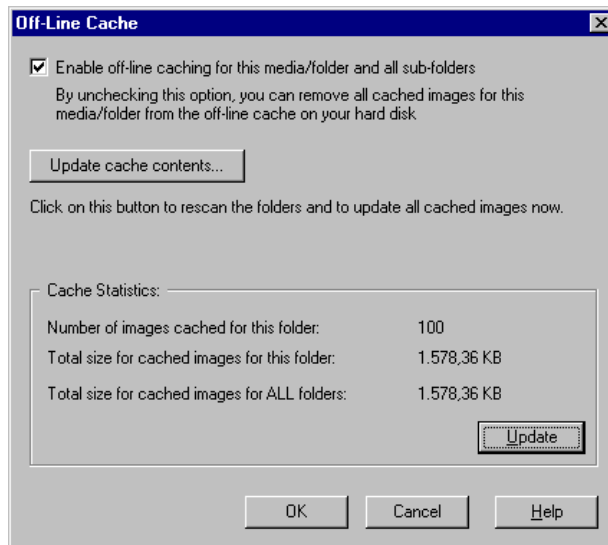


Figure 15: The Off-line Cache dialog box

To enable Off-line Caching, select the folder you want to be cached, and choose the OFF-LINE CACHING command from the context menu of this folder.

In the dialog box, check the check box at the top of the dialog box. Since this folder is currently not cached, press the button labeled UPDATE CACHE CONTENTS to create the preview images for all images in this folder.

Note If you enable caching for a folder, this includes all sub-folders of this folder, recursively.

IMatch will scan all images in this folder and create cache images. After a couple of seconds (or minutes, depending on the number of images in this folder), the initial set of cache images will be ready to use. From now on, IMatch will automatically maintain the contents of the cache.

To get a measure of the disk space used for the cache images in this folder, and the total size of all cache images in all cached folders, press on the UPDATE button at the bottom of the dialog box. IMatch will calculate the size of the cached images for this folder, and all other folders with off-line caching in the current database.

Disabling/Removing the Off-line Cache for a folder

To disable the Off-line caching for a folder, open the Off-line Cache dialog box and uncheck the first check box. Then click on OK. IMatch will ask you if you want to remove all cached images, and if you answer YES, all cached images for that folder are removed.

Using Off-line Cache images

If a media is off-line, and you request a preview for one of the images on that media, IMatch will check if a cached preview image exists in the Off-line Cache. If a cached image is found, IMatch will display it in the preview. If no image is found, you will get the usual *Media off-line* message in the preview instead.

The Slide Show will also use the contents of the off-line cache for display if the media is off-line. This enables you to browse through your images even if the media is not in the drive.

Using Off-line cache images even if the media is on-line

You can choose to use the Off-line cache images even if the media is on-line (See OPTIONS/PREFERENCES/OFF-LINE CACHING). If you work with large images, it may take a while to load them in the preview or the Slide Show.

If you want to be able to preview images faster, you can define that you want to see always the Off-line cache version of the image, even if the image is on-line.

This setting can be defined for all preview windows under OPTIONS/PREFERENCES/OFF-LINE CACHE and for the Slide Show under OPTIONS/PREFERENCES/SLIDE SHOW.

Managing Files With IMatch

Managing Files With IMatch

IMatch contains sophisticated functions to move, copy, delete, and rename single or multiple image files in your collection. All of these functions are intelligent in a sense that they promote all changes in the file system to the current IMatch database and hence automatically keep the database up-to-date. These functions are usually also much more powerful than Windows Explorer, so it is a good idea to manage your image files from within IMatch.

Note IMatch actively manages the Files contained in folders indexed by your current database. IMatch needs to know when files are moved, updated, renamed, deleted or otherwise modified.

If you use the built-in file commands in IMatch, your database will stay in synch with all modifications you make to your image files.

However, if you use *external applications* to modify image contents, or move files and folders with Windows Explorer, you need to re-sync your database afterwards by *rescanning* the folders in your database. Just select the folder in the Database View, and choose **Rescan** from the context menu.

In normal operation mode, IMatch automatically monitors the folders in your database for modifications. If you click on a folder, IMatch checks the date/time of that folder on disk. If the folder contents have changed since this folder has been scanned the last time, IMatch prompts you to update the folder contents by performing a rescan operation.

Note This works only with NTFS drives. Drives formatted using FAT or FAT32 file systems don't update the folder timestamp when a file in the folder is changed. If you use these file systems, you need to rescan your folders manually when you have made modifications to their contents from outside of IMatch.

The currently selected folder in the database is also monitored continuously. If you for example choose the OPEN command to open an image in an external editor, modify it there and save it back, IMatch will recognize this and automatically update the thumbnail image in your database.

As long as IMatch runs, IMatch also recognizes modifications made on FAT or FAT32 drives, because it monitors these folders. However, if you make modifications in folders other than the folder currently selected, you'll need to issue a rescan operation to re-sync your database manually.

Tip Do all your file management operations from within IMatch, using the powerful built-in commands. This keeps your database up-to-date automatically and without extra effort.

Copying Files

All image file commands work on the *current selection* (see above) of images in the thumbnail viewer. To copy all selected files to a specific folder, choose the COPY command from the context menu. This will open the *Copy* dialog box from which you can choose a folder from the list of recently used folders, browse for a folder and even create a new folder:

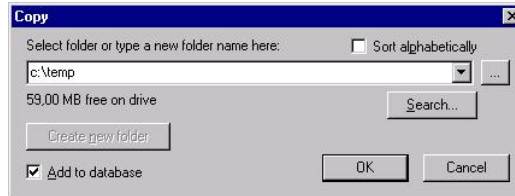


Figure 41: The Copy dialog box

The SORT ALPHABETICALLY option allows you to sort the list of recently used folders alphabetically for easier finding. If this option is unchecked, the folders are presented in the LRU (last recently used) sequence.

To **create a new folder**, type in the name of the new folder in the edit field, and then press the corresponding button. If you don't want to add this folder to your current database, make sure that the ADD TO DATABASE OPTION is unchecked.

With the SEARCH button you can easily locate a folder in your database by typing the first few characters of its name. IMatch will show you all folders containing this search term in a list.

After you have made your selection, press OK to start the copy process.

You may also use **drag and drop** to copy files within your database. Make a selection and then drag the selection, **while holding down the <Ctrl> key**, to a folder in the DATABASE VIEW on the left. IMatch will copy the images to the target folder and automatically update the database. If you don't press the <Ctrl> key, IMatch will move the images instead.

The context menu of the thumbnail viewer keeps a list of folders recently used for Copy operations. So if you need to copy individual files to the same folder, you can simply select one of these folders with the QUICK COPY command.

Moving Files

Make your selection. Then choose the MOVE command from the context menu. This will open the *Move* dialog box from which you can choose a folder from the list of recently used folders, browse for a folder and even create a new folder as the target for your move operation.

You may also use **drag and drop** to move files within your database. Make a selection and then drag the selection to a folder in the DATABASE VIEW on the left. IMatch will move the images to the target folder and automatically update the database.

The context menu of the thumbnail viewer keeps a list of folders recently used for Move operations. So if you need to move individual files to the same folder, you can simply select one of these folders with the QUICK MOVE command.

Deleting Files

Make your selection. Then choose the DELETE command from the context menu of the thumbnail viewer. You may also press the key on your keyboard. IMatch will ask you if you are sure to delete all selected files. If you confirm, IMatch will delete all files in the

current selection. If one or more files in the selection are *read-only*, IMatch will prompt you again to confirm your command.

Depending on the setting in the GLOBAL OPTIONS (see section [General Settings](#)), IMatch will delete the files physically or move them into the *Windows Recycle Bin*.

To skip the confirm message when you delete files, hold down the <Ctrl> key while you press the key. IMatch will now only prompt for confirmation if one or more files in the current selection are read-only.

Hint Wherever in IMatch you can delete files with the key or the mouse, you can press <Ctrl> at the same time to avoid additional requester dialogs.

Smart handling for files with duplicate names

If you move or copy a file to a folder and that folder already contains a file with the same name, IMatch will bring up a dialog box indicating this situation.

This dialog allows you to skip the current file, or rename either the source or the target of the move/copy operation. Two preview images show you the source and the target file for easier identification. To view both files side by side, press the VIEW IMAGES... button.

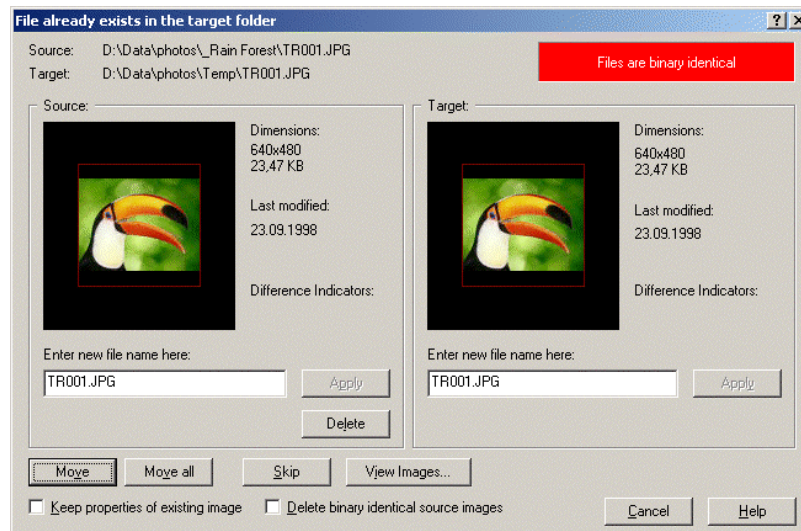


Figure 42: A binary duplicate file has been identified. The red box at the top of the dialog box indicates that both files are binary identical, so you can overwrite or delete one of the files

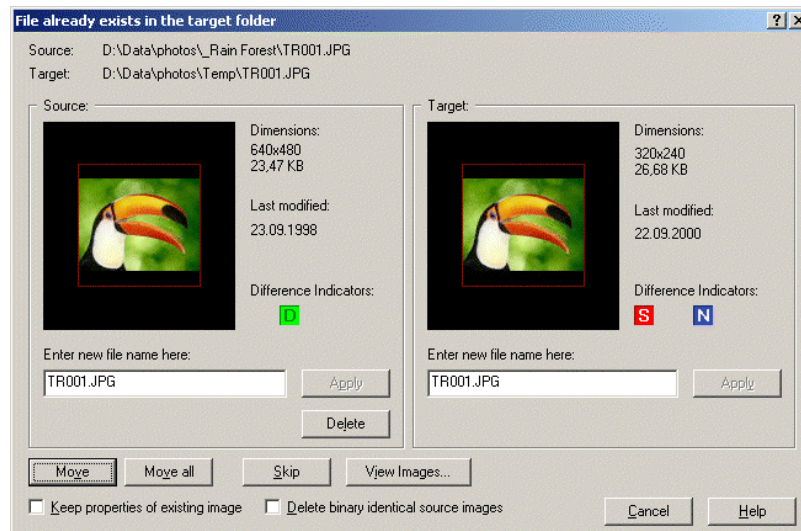


Figure 43: A file with the same name exists in the target folder. The file in the target folder (right) is smaller and newer (red S and blue N). The source file is 'bigger', in either width, height or both dimensions

In the above figure, IMatch indicates that the two files are binary identical. These indicators, together with the difference indicators shown next to each image are in place to help you making a quicker decision.

The image with the larger file size

The 'bigger' image (width or height or both)

The newer image (date/time stamp on disk)

Renaming Files

To rename a file, simply click on its name in the thumbnail viewer. IMatch works exactly the way as the Windows Explorer does. You may also choose the rename command from the context menu. If there is more than one file selected, IMatch will rename only the file that has the focus.

To rename more than one file, use the *Smart Rename* feature. See section [Smart Rename](#) for more information about this powerful feature.

Tip Don't enter a file extension when you rename a file. Just enter the new name and IMatch will automatically append the original file extension for you.

Faster Moving and Copying

IMatch keeps the last 50 folders for move and copy operations in the *move* and *copy history*. From the context menu you can access the last 20 of these **history folders** using the QUICK COPY and QUICK MOVE commands.

From the FILE MOVE and FILE COPY dialog boxes (accessible via the MOVE and COPY commands) you can access the full list of 50 history entries.

You can also use the Thumbnail Viewer toolbar to quickly move and copy files.

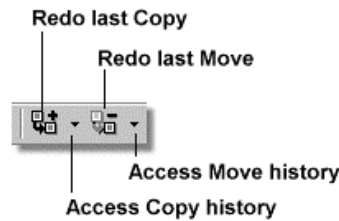


Figure 44: Quick Move and Quick Copy toolbar buttons

Note Some file operations may be unavailable if one or more files in the current selection are read-only. You can use the `READ ONLY TOGGLE` command from the context menu to remove the write-protection from these files.

Transforming Images

The TRANSFORM sub-menu in thumbnail windows allows you to

- Transforming thumbnails
- Transforming images
- Perform Batch conversions

Transforming Thumbnails

The ability to rotate thumbnails may be convenient when your original images are rotated, but stored on a read-only medium. To protect your neck ;-)

IMatch allows you to rotate thumbnails independent from the orientation of the original image.

All thumbnail transformations are *virtual*. This means that IMatch just records the transformation operation. No physical modification is made to the image or the thumbnail. Hence thumbnail transformations are *reversible*.

When you for example rotate a thumbnail by 90° clockwise, IMatch saves this transformation with the image in your database. Whenever the thumbnail needs to be displayed, IMatch performs the rotation on the fly, before the thumbnail is shown.

IMatch **automatically applies thumbnail transformations on images** shown in the slide show (optional) or the image preview. You can also enable transformations in the Contact Sheet Builder and the Batch Processor.

Without ever actually changing your original images, IMatch can display and process your images using virtual transformations.

To rotate, mirror or flip your original images, use the **Transform Image** command.

Resetting Transformations

You can undo / reset all transformations with the `RESET TRANSFORMATIONS` command. This command removes all the transformations from the image.

Rotating Images

IMatch allows you *rotate*, *mirror* and *flip* all images in your current selection (except read-only images) using the TRANSFORM IMAGES command from the context menu of the thumbnail window.

Note For JPEG images, the rotation is lossless. The image will not be recompressed during the rotation, so the quality of the image will be the same after the rotation as before. In addition, for JPEG files, the width / height fields of the EXIF metadata record will be updated accordingly.

Batch Converting Images

From the TRANSFORM menu, you have also access to the BATCH PROCESSOR (see also section [The Batch Processor](#)). This allows you to process the currently selected image(s) using any of your batch processor presets without actually running the batch processor.

Drag and Drop Support

The thumbnail viewer is fully Drag and Drop enabled. To open one or more images with another application, just select the images and drag them to the other application's icon on the Windows task bar. You can also drag images from IMatch to other running applications and drop them. Please note that this feature only works if the other application is itself drag and drop enabled (which is true for most Windows applications).

Tip You can also *move* or *copy* images by dragging them to the folder tree in the Database Viewer. If you hold down the <Ctrl> key while dragging, IMatch will create a copy of the image in the target folder; else the image file is moved.

The One-Click Dialog Bar

If you add large batches of images to your database, or you have a large number of files that needs to be categorized and distributed, the One-Click dialog bar will be a **great time saver** for you.

With the One-Click dialog bar (OC) you can arrange any number of target folders for Move and Copy operations for quick access, next to the thumbnail viewer. It also allows you to access your most frequently used *categories* and *category splashers* with only one single mouse click.

Showing and Hiding the One Click Dialog Bar

To open the One Click dialog bar, click on the associated toolbar button in the local toolbar of the Thumbnail Viewer window. It is the button with the "I" on it, next to the QUICK MOVE and QUICK COPY toolbar buttons.



Toolbar Button for the One-Click dialog bar

The dialog bar will automatically *dock* itself to the right side of the thumbnail window.



Figure 45: The One Click window with the Configure button at the bottom and the *Move* shortcuts visible (colored)

Note Some panels in the One-click bar have **context menus** (right mouse button) with additional options.

Configuring the One Click Dialog Bar

When you open the OC bar for the first time, it will be empty. You need to add the folders, categories, splashers and scripts you want to use from this bar by clicking the CONFIGURE button at the bottom of the dialog bar.

The OC bar maintains two separate lists of folders: one for copying files and one for moving files. When you click on the CONFIGURE button, IMatch will open the CONFIGURE dialog box for the currently selected list, set by the tab control at the top of the window.

In the CONFIGURE dialog box you can ADD, EDIT, REMOVE and REARRANGE folders for the One Click window. The operation is straightforward and should be no problem for you. Start by adding a couple of folders to the COPY list by using the ADD button.

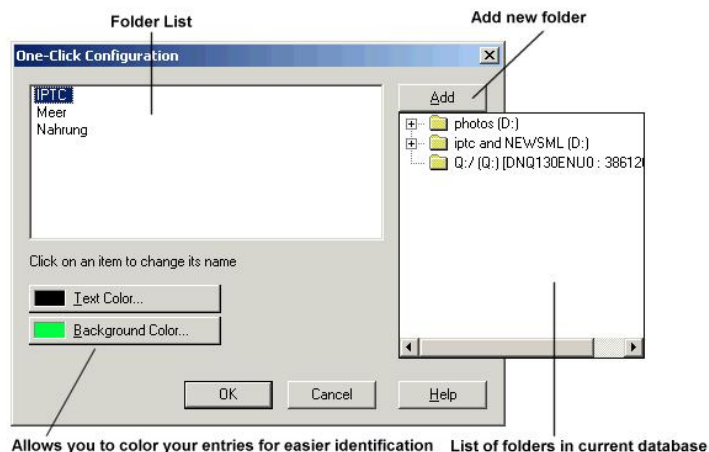


Figure 46: The One Click Configuration Dialog

As you can see, after adding a folder to the list, IMatch automatically uses the last part of the folder path (the target directory) as the name of the list item. You can change this name by

clicking once on the name in the list. Type in something that has makes more sense to you or that allows you to associate the name faster.

Tip Use colors to differentiate the items in the OC bar, or to mark special or important folders, categories or splashers.

The configuration dialogs for *categories*, *splashers* and *scripts* look and work similar. They allow you to add the most frequently used categories or splashers to the OC bar, thus allowing you to assign images to categories with a single mouse click.

A New Concept: Dynamic Categories

A New Concept: Dynamic Categories

IMatch extends the core concepts of *keywords* by supporting *dynamic categories*. Dynamic categories allow you to create a *virtual view* on all your images, independent from the *actual physical location*. You can create any number of categories in your database and also any number of *links* and *dependencies* between such categories. When you once get used to this new concepts, you will be pretty amazed how simple but powerful it really is.

Note Categories allow you to create a virtual order on top of your database. Categories store links (references) to images, and moving an image from one category to another does not move the image on your disk or removable media.

Images can be in as many categories as you want. Adding an image to outdoors, family, beach, birthday allows you to lookup the image under all these categories.

Assigning images to categories is like adding a *link* (or *reference*) to the image to the category. The physical location of the images plays no role here. By assigning images to categories you can create a *virtual hierarchy* of all the images in your database, without ever moving the images around on your disk. Even if all images are in a single folder, or located on 20 different CD-ROM's, you can move the images around in your categories as you like. Categories are independent from the actual storage location of the images, and they work equally well with images stored on your disk or on your bookshelf.

For example, you may create a category *Animals* in your database. Below this category, you add several sub-categories: *Fish*, *Insects* and *Mammals*. The category *Mammals* has a sub-category *Bears*. The resulting structure will then look like this:

```
Animals
  Birds
  Fish
  Insects
  Mammals
    Bears
```

There is obviously a natural hierarchy within these categories; we *model the real world* so to speak. The category *Animals* 'contains' the contents of all its sub-categories. For example, if you click on the *Animals* category, IMatch will display all images from the categories *Birds*, *Fish*, *Insects*, and *Mammals*. Since *Mammals* also contains the contents of the category *Bears*, the images assigned to this category will also be shown. If you click on the category *Birds*, IMatch will display only the images that have been added to this category (see Figure 19).

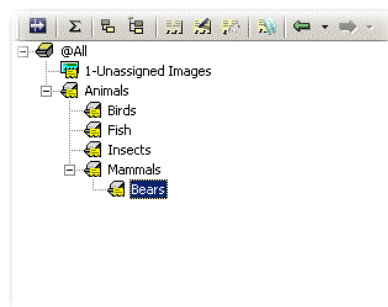


Figure 17: The Animals hierarchy in the *category view*

Note A parent category always 'contains' the images of all its sub-categories, so when you click on a parent category, you see not only the images in that category, but also the images contained in any of its child categories. Each image is shown only once, even if it is contained in more than one child category.

An image can be added to multiple categories at the same time. Consider a second category, *Location*, which is added to the category hierarchy above:

```
Animals
  Birds
  ...
Location
  Afrika
  America
    North
    South
  Australia
  Pacific
  Europe
```

For example, if you have taken a photo of a Bird in Northern America, you will add this image to both the category *Animals.Birds* and *Location.Amerika.North*. To see all images shot in America, just click on the America category. To see all photos of Birds, just click on this category. The photo of our Bird will show up in both categories, because it's a *Bird*, and the photo was taken in *Northern America*.

But what if you want to see all images showing Birds that have been taken in North America? This can easily be done by using categories with formulas, explained below.

Instead of using old-fashioned keywords, with IMatch you create categories in the virtual image view **that mimic the real world** or your specific requirements. Then, while browsing your images within IMatch, you add images to one or more categories with a couple of mouse clicks or by using the *Category Splasher* explained in section [Category Splashers](#). IMatch automatically keeps track of all category assignments and updates the links and relations between your categories whenever needed.

Tip If you want to create your own categories now, switch to the category view in IMatch with <Ctrl>+<2> and press the <INS> key. See the section [The Category View for more information](#)

Example: Modeling a Client and Project History

Good examples for category hierarchies are customers or clients. You may want to create categories based on your customers, clients, or projects:

```
Client
  House of Images
    Projects
    Stocks
    Old Houses
    Feb 2001
  Foster
    Projects
    Mill Photos
    Initiative
  Mullik Imaging
    Projects
    Stocks
    Brewery Images
    Caribbean Impressions 2001
  Photo Netzwerk
    Projects
    Samples
    Autumn 200
```

This hierarchy contains the top level Customer. For each customer, all projects are added as sub-categories. Within each project, you arrange your images.

Using such a hierarchy makes it very easy to track your work for a specific customer or project. Of course, you can combine such a hierarchy with a theme-based hierarchy or other hierarchies. The possibilities are endless.

By clicking on Foster, for example, you get all images for all projects you have ever done for this customer. By using a sort preset for the thumbnail view you can arrange this images by various criteria.

You can also create a second category hierarchy that orders your images based on their topic, their location or their contents. Since you can add a single image into any number of categories, this allows you to create *different views on your images*.

Example: Category Hierarchy for Image Workflow

Consider you have an original for each of your images. This original is the image you originally shot with your camera in CRW format.

For work, you create a TIFF file from this image, and then create some additional derivative images, for publishing, layout, and web.

Such a hierarchy can be modeled in two different ways (at least):

```
My Images
  Mountain Beach
    Originals
    TIFFs
    Layout Versions
    Web-ready
```

This hierarchy has a "Title Category" on top ("Mountain Beach"), and then arranges the different versions of the images below.

You could also create a hierarchy as the following, with a different approach:

```
My Images
  Originals
    Mountain Beach
  TIFFs
    Mountain Beach
  Layout Versions
    Mountain Beach
  Web-ready
    Mountain Beach
```

Here, all original images are kept below a single parent category, and below that, each shooting gets its own category, with a descriptive name.

Then there are separate categories for TIFF, Layout and Web versions of the images, again with a sub-category per shot.

Tip You should enable one of the auto un-assign options for these categories. This will enforce that the image will be in only one of your workflow categories.

Example: Category Hierarchy for Family Photos

If you want to manage your private photo collection with IMatch, you can model a family hierarchy in IMatch in several ways.

Note Categories in IMatch are *unidirectional*, and have only one parent. You cannot model a category that has two parents to resemble a natural ancestor hierarchy.

```
My Family
  Peter
    Children
  Paul
    Children
  Mary
    Children
```

This hierarchy allows you to add images from *Peter*, *Paul* and *Mary* to your database. If you have images of Peters, Paul's, and Mary's children, you put them into the *Children* sub-categories below each Persons name. Since you can add images to any number of categories, if a Child both belongs to *Paul* and *Mary*, you put the child's photos into the *Children* sub-categories of *Paul* and *Mary*.

But what if you have a photo that shows both *Mary* and *Paul*? You can add the photo to both categories. Or you create a new category named "*Mary and Paul*" and put the images there. Or both. Categories are very flexible and allow you to do almost everything you want.

Example: Category Hierarchy for Image Workflow

Consider you have an original for each of your images. This original is the image you originally shot with your camera in CRW format.

For work, you create a TIFF file from this image, and then create some additional derivative images, for publishing, layout, and web.

Such a hierarchy can be modeled in two different ways (at least):

```
My Images
  Mountain Beach
    Originals
    TIFFs
    Layout Versions
    Web-ready
```

This hierarchy has a "Title Category" on top ("Mountain Beach"), and then arranges the different versions of the images below.

You could also create a hierarchy as the following, with a different approach:

```
My Images
  Originals
    Mountain Beach
  TIFFs
    Mountain Beach
  Layout Versions
    Mountain Beach
  Web-ready
    Mountain Beach
```

Here, all original images are kept below a single parent category, and below that, each shooting gets its own category, with a descriptive name.

Then there are separate categories for TIFF, Layout and Web versions of the images, again with a sub-category per shot.

Example: Category Hierarchy for Family Photos

If you want to manage your private photo collection with IMatch, you can model a family hierarchy in IMatch in several ways.

Note Categories in IMatch are unidirectional, and have only one parent. You cannot model a category that has two parents to resemble a natural ancestor

[hierarchy.](#)

```
My Family
  Peter
    Children
  Paul
    Children
  Mary
    Children
```

This hierarchy allows you to add images from *Peter*, *Paul* and *Mary* to your database. If you have images of Peters, Paul's, and Mary's children, you put them into the *Children* sub-categories below each Person's name. Since you can add images to any number of categories, if a Child both belongs to *Paul* and *Mary*, you put the child's photos into the *Children* sub-categories of *Paul* and *Mary*.

But what if you have a photo that shows both *Mary* and *Paul*? You can add the photo to both categories. Or you create a new category named "*Mary and Paul*" and put the images there. Or both. Categories are very flexible and allow you to do almost everything you want.

Category Formulas - Powerful!

But IMatch does not stop here. It even allows you to create *category formulas* to specify complex **dependencies** between categories. For example, you may create a category named "*Animals, but not fish*" by combining the contents of the category *Animals* with the contents of the category *Fish* using a formula like this:
"Animals **NOT** Fish"

When you click on the category "*Animals, but not fish*", IMatch will automatically evaluate the formula and will show only the images that are in the category *Animals* (including its sub-categories) but which are not in the category *Fish*.

Category formulas can also refer to categories from totally different segments of your virtual image view. Consider the following categories:

```
Location
  Beach
  City
  Mountain

People
  Female
  Male

Cars
  Porsche
  BMW
  Audi
  GM
  Ford
```

If you would like to create a category "*People at the beach*", you could combine the contents of *Beach* (all images related to the topic "Beach") with the contents of *People* (all images showing people) by defining a formula like this:

```
People at the beach := Beach AND People
```

If you display the contents of this category, IMatch will show only the images that are in the category *Beach* and in the category *People*.

To create a category that contains all images from *Beach* and all images from the category *People*, you would use the Boolean OR operator:

```
People or beach := Beach OR People
```

Consider an image with two persons (male and female) and a car at the beach. This images is assigned to the categories *People.Female*, *People.Male*, *Location.Beach* and *Cars.Ford*.

Category formulas allow you to create powerful combinations of the images contained in several, even remote, categories. By combining several categories using formulas you will get the maximum out of your dynamic categories. You should definitely play with this exiting feature.

Remember the example from the introduction of this section: Birds in North America? How to create a category that contains all photos of Birds taken in North America?

Animals

Birds

...

Location

Afrika

America

North

South

Australia

Pacific

Europe

```
Birds_In_North_America := "Animals.Birds" AND "Location.America.North"
```

Note If a category has a formula, it first evaluates the images assigned directly to it, then evaluates the formula and combines the result with the images in the sub-categories. All three results are combined via OR, so no images are duplicated in this process.

Formulas for Folders

You can create categories that refer to folders in your database, basically like saying: *"This category contains all images in Folder X"*. You can of course also combine several folders in a single category, for example, all images on two different CD-ROM's or images contained in folders on different drives.

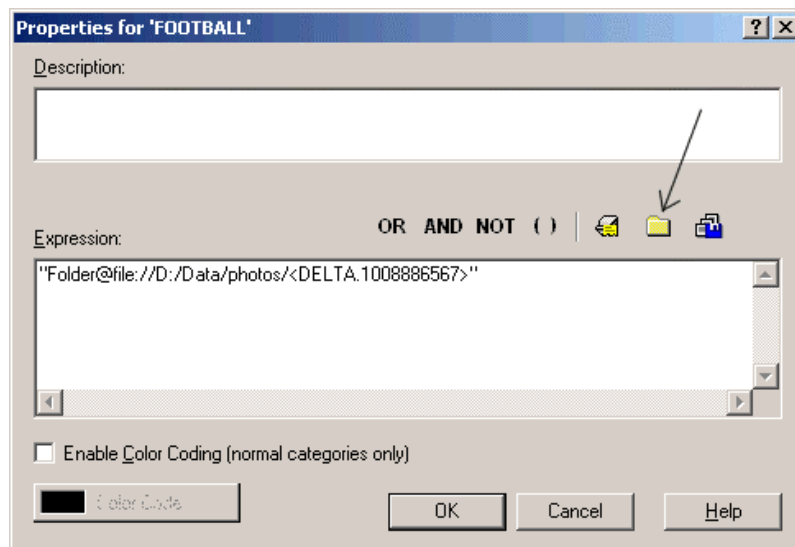


Figure 18: Folder Formulas

You create a folder formula the same way as other formula categories, but instead of combining other category names, you combine folder names. In Figure 18 you see the category properties dialog with a folder formula. It starts with *"Folder@file..."*, followed by the name of the folder, the *media label* and *media serial number*. This is an URI, unique

resource identifier as it is used by IMatch internally to uniquely identify an resource like a file or folder.

```
"Folder@file:///c:/photos/<Label.Serial>"
```

If you close this dialog with OK, IMatch will store this formula with the category. Whenever the contents of the category need to be calculated (for example, if you want to view them), IMatch will query the database for all files in that folder, and use the result of this query as the 'contents' of the category.

If the folder used in this example has sub-folders, the images in these folders are not considered as part of the result set. To include the sub-folders of a given folder (recursively) in a formula, use "*RFolder@...*" instead of "*Folder@...*" in the expression:

```
"RFolder@file:///c:/photos/<Label.Serial>"
```

The toolbar in the category properties dialog box allows you to select folders to be included in your expression (see Figure 18). It also contains a checkbox that allows you to make the expression recursive.

Of course you can combine folder expressions with normal category expressions, for example, to get all images in a folder which are not already contained in the category "BEACH":

```
"Folder@file:///c:/photos/<Label.Serial>" AND NOT "BEACH"
```

Formulas using Persistent Result Sets

You can even include persistent result sets in formulas (see section [Persistent Result Sets](#) for more information about Persistent Result Sets). This allows you to use the actual result of a selection as the content of a category.

Whenever IMatch needs to calculate the contents of the category, it will query the persistent result set for the set of images to use.

For example, you may create a selection that finds all images containing the phrase *beach* in the file name. You make the result of this query persistent (save it) and then you can use this result as the content of a category.

When you add/rename images in your database, IMatch will take care that the content of the result set are updates (automatically or manually) and hence your category will always show all images in your database with the phrase *beach* in the file name.

More Formula Examples

How to create a category that contains (and shows) all my images?

Just create a category with this formula:

```
"@All"
```

However, please note that this category really links to all your images, and if you click on it, it can take a while for IMatch to retrieve and load the images. I have tested this up to 50,000 images without problems.

Tip You can also enable the option **Show @All category images** under [Options/Preferences/Thumb View](#)

How to create a category that shows me all uncategorized images?

Just create a category with the formula

@Unassigned

This category will show you all images not yet assigned to a category.

The Category View

The second view on the left (use the tab at the bottom to switch views) is the **CATEGORY VIEW**. This view shows all the categories that you have defined for your database. This is the central point of management for categories; here you create new categories, delete or rename existing categories or move categories around.

At the top of the list, the virtual category *@All* represents *all images* in your database.

Note The *@All* category is special in that it *virtually* contains all the images in your database. However, when you click on it, no images will be shown per default in the thumbnail window. Since there are databases with 100,000 or more images out there, showing all images in a single thumbnail window would be a bad idea.

You can also enable the option **Show @All category images** under [Options/Preferences/Thumb View](#)

Below this root node, the categories follow in alphabetically order, arranging the sub-categories below their parent category. Figure 19 shows a pretty detailed category list for the demo database used within this tutorial.

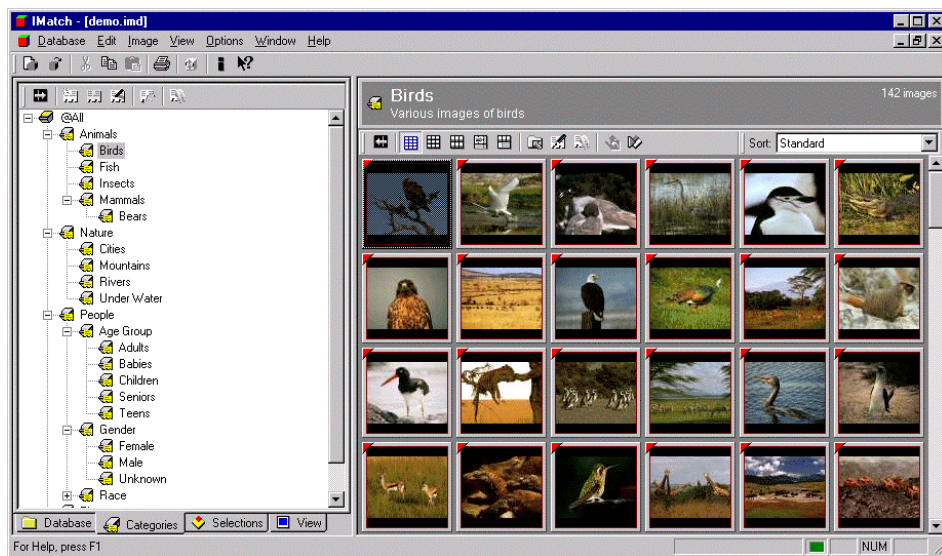


Figure 19: The Category View

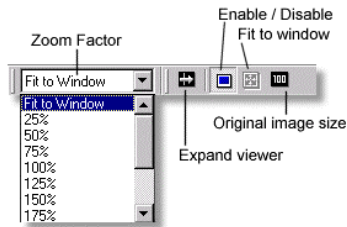
The category *Birds* is currently selected. This category contains 142 images, shown in the thumbnail viewer on the right. The thumbnail viewer is set to a minimum level of detail, showing only the thumbnails, but no other information.

All operations on categories can either be performed using the local toolbar on top of the category view or the context menu (right mouse button).

See section [Categories](#) for more information on categories and the category view.

The Image Viewer

By clicking on the tab labeled VIEW you can preview the image currently selected in the thumbnail viewer. If the image is on-line, IMatch will load and display the original image. If the image is off-line, IMatch will prompt you to insert the media containing the image, showing some helpful hints like the media name and label, and the description you entered for that media and folder.



The preview is capable to display any of the image formats supported by IMatch. It supports various zoom factors and an auto-fit mode, to display the images with the correct aspect ratio in the available space.

You can unfold the preview at any time to occupy the available space. This full-screen modus allows you to display the image in its original size, and to inspect image details using various zoom factors.



Figure 20: The thumbnail preview



Figure 21: The thumbnail preview showing an image in full size

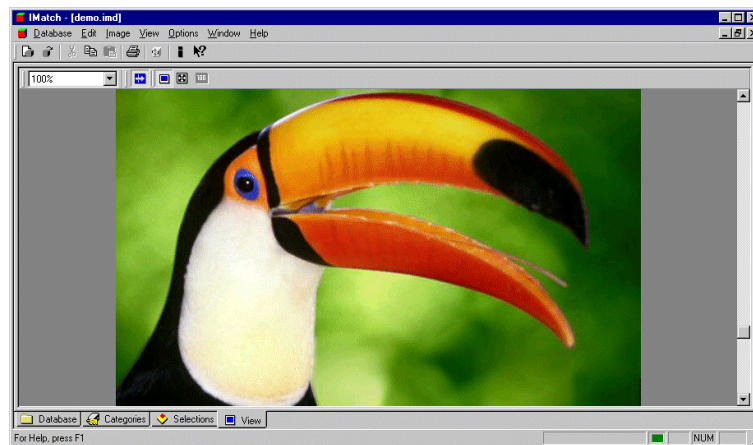


Figure 22: The image preview in full-screen mode

The Selection View

The feature that differentiates IMatch most from thumbnailing applications is the ability to perform selections (queries) based on various criteria, including *image analysis* and *image matching* operations.

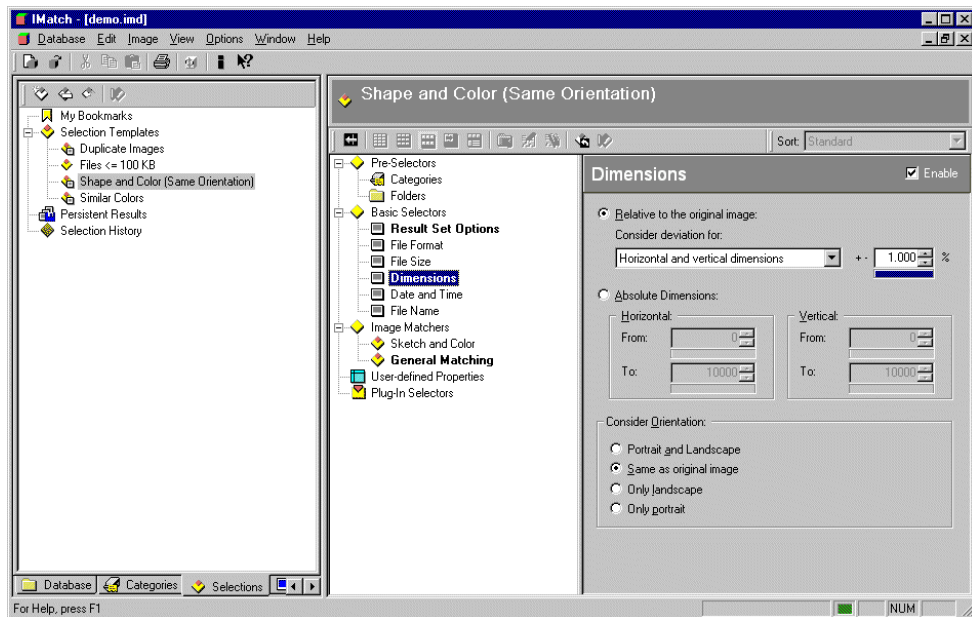


Figure 23: The Selection View with a highlighted selection

A *selection* is basically a sub-set of your database, containing all the images that match one or more specific criteria. iMatch allows you to perform selections based on over 40 different criteria:

- File Format** Selections based on the file format of images
"Show all BMP and JPG images". "All images, except TIFF files"
- File Size** Selections based on the file size of the image, with various options
"Show all image files smaller than 200 KB". "Include only files larger than one Megabyte"
- Dimensions** Selections based on image dimensions (Width and Height), also with a number of options:
"Show only images up to 640 x 480"
- Date and Time** Selections based on the file date and time, with a variety of options for even the most complex cases:
"Show images from May 1999". "Show images one week older or newer than the selected image"
- File Name** Selections based on the file name of the image, including wildcard matches like the well known * and ? operators, smart *file name matches* based on the actual similarity between file names and sub-string matches:
"Show images like a", "Show images like beach0001"*
- Category** Selections based on categories
"Only include images from category people". "Only images that are not in the category Animals."
- Folder** Selections based on the physical location of images
"Show only images from c:\photos"
- Properties** Selections based on user-defined properties. Any number of properties and all data types (Text, Date, Time, Boolean, Reference) are supported.
"Show all images which contain the text 'New York' or 'Manhattan' in the property 'Image Description' "
- Duplicates** Finds duplicate images. This is a specialized selector that finds duplicate images very fast. Use it to scan your database for duplicates.
- Color Similarity** Find image with similar colors

Color and Shape Find images with similar colors and shape. The most complex algorithm, performs image matching based on the color, texture and shape information contained in images

Sketch Match Find images based on a user-drawn sketch or color distribution. Very good for finding images based on a specific requirement, like *"Images with a red object in the middle"* or *"Images with a green bottom and a blue top"* or *"find images that are mostly red"*

Plug-In Selectors These selectors are external match modules written by researchers or other companies. See the documentation of the installed plug-in modules for more information.

Creating an IMatch Database

This section explains how to create and setup a new database with IMatch. You will also learn how to add images to your database and how to use the Database Wizard to perform frequent tasks.

Creating a database is a simple process, but requires a bit of thinking upfront. You usually keep the database for a long time, while you add new images to it, and arrange the images on your disk. Perhaps you even want to add a couple of removable media to this database, so you have access to the image data even if the CD-ROMs with your images are located on your bookshelf.

Note IMatch databases only store links (or references) to your images. They do not store copies of your images. Only a thumbnail representation of each of your images is stored in an IMatch database. Your images stay on your disk, or removable media, or network, or wherever you put them. Having an IMatch database does not protect your images against accidental deletion or corruption. Don't forget to create backup copies of your images, on a daily basis at least.

Some General Tips:

Always create a new folder for each database!

This keeps all database files together in a single location. IMatch database consist of a number of files, and if you want to move your database to a different disk or computer, it's easier to have them all in one place.

Also, since an IMatch database represents a valuable asset (especially when you add comments to your images, or create categories from your images), you need to create frequent backup copies of your database(s). If all the files are in one folder, you just need to copy the entire folder to CD-ROM, another disk or a tape streamer to secure your database from disk damages and other errors.

Keep your images under a single root folder

Managing your images is much easier when you keep all your images below a single root folder, like *c:\images* or *c:\My Pictures*. If you store your images on more than one physical disk, use one root folder per disk.

Never put your database into the same folder as your images!

You should better create a new folder outside of your image folder hierarchy. A good place is for example a folder like *C:\IMDB* or something like that. Never store images in that folder.

If you add folders to your database, IMatch becomes responsible for managing these folders. For this reason, IMatch constantly monitors the folders in your database for modifications made by other (external) applications. If IMatch recognizes that a folder or its contents have been changed, it will rescan the folder.

Since the files of an IMatch database are always modified while you work with the database, it would cause continuous updates when the folder with the database is added to an IMatch database itself.

Use your fastest hard disk

IMatch needs to access the database files on disk frequently, and the faster the hard disk is, the faster IMatch will be.

Use a disk with plenty of free space

An IMatch databases will grow to about 5% to 10% of the size of all the images you manage with that database. If you add 1 GB of images to a database, the total size of all the database files will be about 50 MB to 100MB, depending on the size of your thumbnails and some other factors.

Tip You usually will have only a single IMatch database, for all your images now and in the future. Only in very specific cases you need more than one IMatch database.

If you are unsure about any of the options mentioned in the following section of this document, you can try them out by creating some *Test-Databases*. These databases allow you to try everything out, without damaging your important *main database*. Test databases can be easily deleted at any time (just delete their folder).

Image Property Sets

Image Property Sets

This section introduces the IMatch image Property Sets and the metadata concept used in IMatch to associate information with individual images. You will learn how to setup a property database and how to add, edit and delete image properties and property sets.

In IMatch, each image has a number of *stock properties or image attributes*, which are automatically extracted from the image file. These attributes are displayed next to each image in the thumbnail viewer. You also can use them as sort criteria or to find images in your database. Examples for stock properties are *file name, dimension, orientation, and file size*. See also [Variables](#) for more information on image attributes.

In addition to that, IMatch allows you to create additional properties and link or associate these properties with the images in your database. For example, you may want to add a *title* and a *description* to each of your images. In IMatch terms, these properties are called *user-defined properties*.

The property concept implemented in IMatch is of course very powerful and fully integrated in the user interface. Figure 82 gives you an impression how you work with image properties in IMatch. The thumbnail viewer optionally displays a *property editor window*, showing all user-defined image properties next to the image categories for the selected images.

Note IMatch uses property sets in various modules and Import/Export filters to access the information associated with each image. See [Variables](#) or [Creating Contact Sheets](#) or [The Batch Processor](#) for some examples.

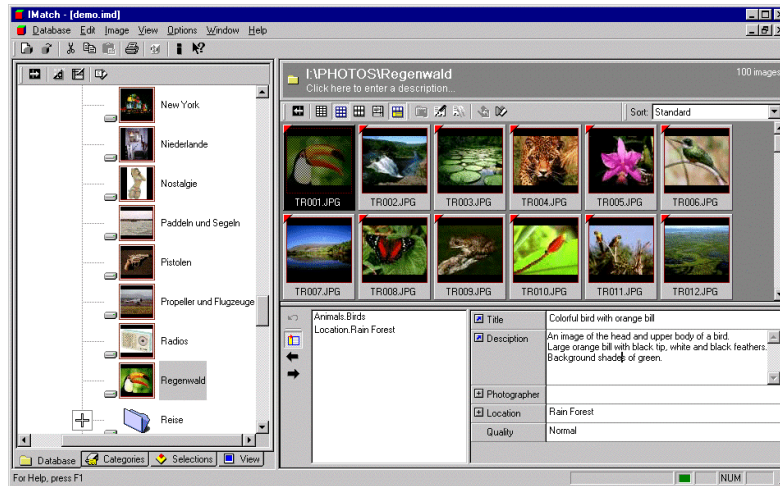

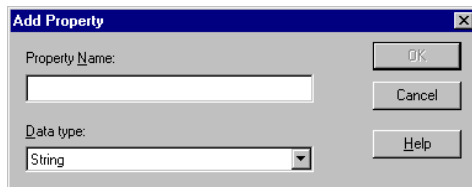


Figure 82: The Property Editor with a user-defined property set

To modify the properties for the selected images, just click on the property you want to change and begin to type. If you want to modify the category assignments for the image, double-click in the categories window on the left of the property editor and make your changes.

Managing Property Sets

Property Sets are managed with the *Database Property Editor*, accessible from the local toolbar of the DATABASE VIEW  or the DATABASE menu. When you first open the editor for a newly created database, it contains only one **predefined property set** named **Image**. This property set is automatically created and associated with each image in your database. For a fresh database, the Image Property Set does not contain any properties.



To get started, let's add two properties to the Image property Set: *Title* and *Description*. Click on the Image property set in the left part of the dialog box and press <Ins>. A dialog box will show up where you can enter the name of the new property and also select a data type.

Enter *Title* in the PROPERTY NAME field and press ENTER. We will use the predefined data type String for this property.

Each property set can contain up to 1,000 properties so there is plenty of room for you to store any type of information with your images.

Note The names for property sets and property sets may only contain alphanumeric characters (digits and characters). Since the property database is based on XML, there are some restrictions on what type of names can be used. To be safe, avoid any special characters, including blanks or tabs. Valid names are "Description" or "Object_Status". Invalid names are for example "Object Status" (note the blank) or "My Stuff (private)" (the parentheses are not allowed).

To add the second property, click <Ins> again. Enter *Description* in the PROPERTY NAME field of the dialog box and press ENTER. Please compare to Figure 83. To complete this step, change the DISPLAY HEIGHT field for the *Description* property to 4. Then press OK to close this dialog box.

Important You can change the property data type only as long the property is empty. This means, after you have added data to your property database, the existing property data types cannot be changed.

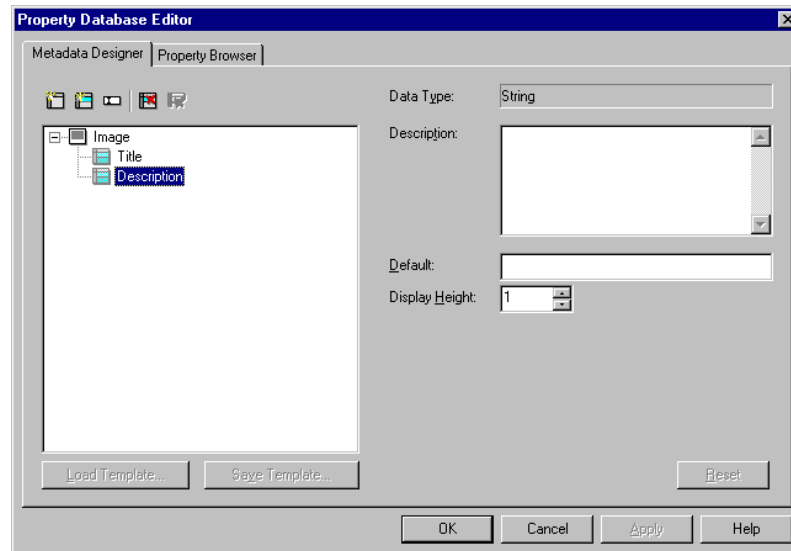



Figure 83: The new properties *Title* and *Description*

Select any folder in the DATABASE VIEW to open a thumbnail viewer. Click on the  icon in the local toolbar or select PROPERTY WINDOW from the VIEW menu to open the property window. Use the **split frame** and resize the property window to be large enough to display all properties. Compare to Figure 84 below.

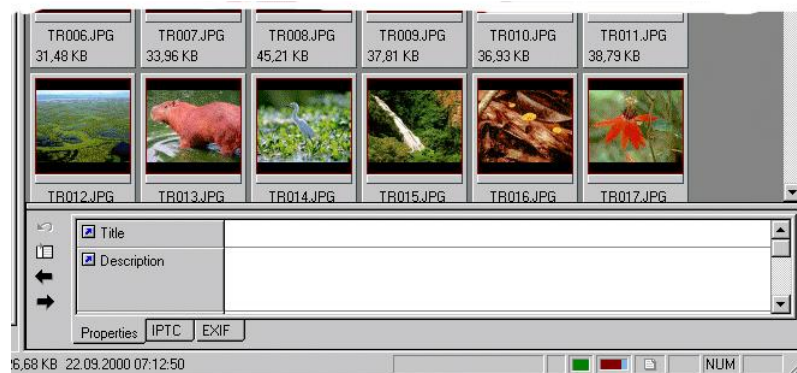


Figure 84: The property window in the thumbnail viewer

To add a Title or Description to the selected image, just type some text in the property editor. When you select another image or window, IMatch will automatically save the new content into the property database.

To set the same title or description for **multiple images** at the same time, just select the images in the thumbnail viewer and enter the text in the appropriate property fields.

All properties you add to the *Image* property set will immediately appear in the property window in the thumbnail viewer.

Changing Properties

You can change the name of a property at any time. However, you can change the *data type* of a property only as long as the property set is empty (contains no records). Changing a property data type when the set contains records would probably cause data loss due to conversion and hence is not supported in IMatch.

Hint If its absolutely necessary to change a data type, you can export your property database into an XML schema, change the property type and [all records](#) accordingly and re-import the schema into your database. However, this procedure is not recommended.

To avoid such problems, plan you database carefully or import a pre-built schema from one of the standard organizations.

Property Data Types

IMatch supports a variety of data types for properties. Each of these data types has been carefully chosen to support easy interchange of data with other applications.

String	The most often used data type. Stores text of any length
Signed Integer	Integer (whole number) from -2,147,483,648 through 2,147,483,647. Storage size is 4 bytes.
Unsigned Integer	Positive Integer (whole number) from 0 through 4,294,967,295. Storage size is 4 bytes.
Signed Long Integer	Signed integer (whole number) with 64 Bits
Unsigned Long Integer	Positive integer (whole number) with 64 Bits
Double	Floating Point number. 1.7E +/- 308 (15 digits). Storage size is 8 bytes.
Date	Date values. IMatch displays a <i>Calendar Control</i> to allow you to choose a date for this type of properties
Time	Time values. IMatch displays a <i>Time Control</i> to allow you to enter time values
Boolean	Boolean Yes/No (True/False, 1/0) values. IMatch displays a combo box control to allow you to choose from a set of alternatives
Currency	A precise data type for <i>currency (monetary)</i> values. Always includes an explicit currency symbol, e.g. USD or EUR.
Hyperlink (URL)	Like String , but with special handling in the IMatch user interface. When you add a property of this type to your property set, IMatch will display it with a special color and font. When you double-click on the link, IMatch will automatically launch the associated application, e.g. your web browser or your email application.
Reference	A reference to a property in another property set. This data type allows you to create links between different property sets in your database

Each property in a property set has a **Description** field where you can add some comments about the meaning of this property.

Most of the properties also have a **Default** value. If you enter a value for the *Default*, this value will be shown as the property value in the thumbnail viewer. New images automatically get the default value for all properties.

A property that has no default has the special value NULL, which means "no value".

Note Please note that showing a default value in the property editor does not automatically create a physical record in your database. IMatch will only allocate space in the database if you enter data for an image in the property editor that is different from the default value.

Display Height

Properties with the data type String have a special Display height setting. This setting controls how many lines are displayed in the property editor for this property. For example, a property like *Name* or *Title* usually has only a single line, but properties like *Description* or *Comments* are often much longer than a single sentence. Here you may use a display height of two, three or more lines to make it easier to edit the property. See the *Description* property shown in Figure 82 for an impression on how this setting works.

Reference Properties

Properties with the data type **Reference** have also some additional attributes:

Property Set	the property set to which this property refers to
Link by field	the field that will be used to link the properties. This field will be shown in the property editor
Default	The default for this property. This default is a record from the referenced property set.

See section [Multiple Property Sets](#) for more information on *references*.

Multiple Property Sets

If you manage images on a professional basis, you usually need to store a large number of properties with each image. Information like *photographer*, *theme*, *quality*, *camera equipment* and *licensing information* needs to be associated with each image.

If you would add all the required fields to your *Image* property set, it would not only grow very large but also would be very inconvenient to use. In addition to that, you would also need to type in the same information over and over again, e.g. the name and address of a photographer or the camera equipment used.

With IMatch you can separate these properties into *separate property sets*, which are then referenced by the central *Image* property set. Instead of typing the same information over and over again you simply select the photographer from a list and IMatch will link the image with the selected photographer.

To set up such a model, you only need to separate the information you want to associate with each image into some additional property sets; one set for each type of information you want to store with your images.

The demo database used for this tutorial has three additional property sets:

Photographer	Stores information about photographers, including the addresses and the home page URLs
Location	A property set describing locations
Quality	A simple property set with only a single property, describing the overall quality of an image

Try it for yourself. Create a new empty database, just for playing around with property sets (see section [Creating an IMatch Database](#)).

Then open the DATABASE PROPERTY EDITOR and add the property sets and properties as described in the table below.

Property Set	Property	Data Type
Image	Title	String
	Description	String
	Photographer	Reference , to property set <i>Photographer</i> . Link property is <i>Name</i>
	Location	Reference , to property set <i>Location</i> . Link property is <i>Name</i>
	Quality	Reference , to property set <i>Quality</i> . Link property is <i>Description</i> .
Photographer	Name	String
	Location	Reference , to property set <i>Location</i> . Link property is <i>Name</i>
	Charge	Currency
	Comments	String
	Home_Page	Hyperlink
Location	Email	Hyperlink
	Name	String
Quality	Description	String
	Quality	String
	Description	String

If you set up your database properties as described in this table, the final property set layout will look like shown in *Figure 85* and *Figure 86*.

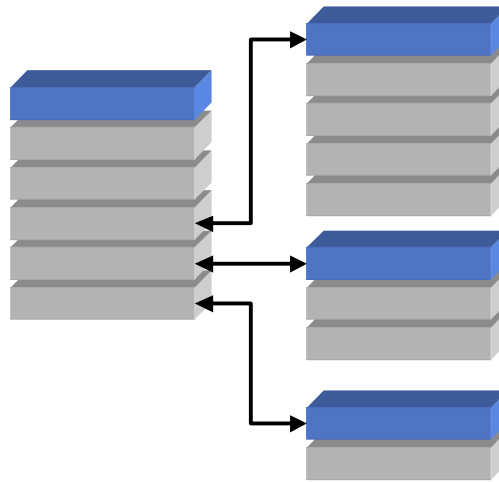


Figure 85: The property set schema for the demo database

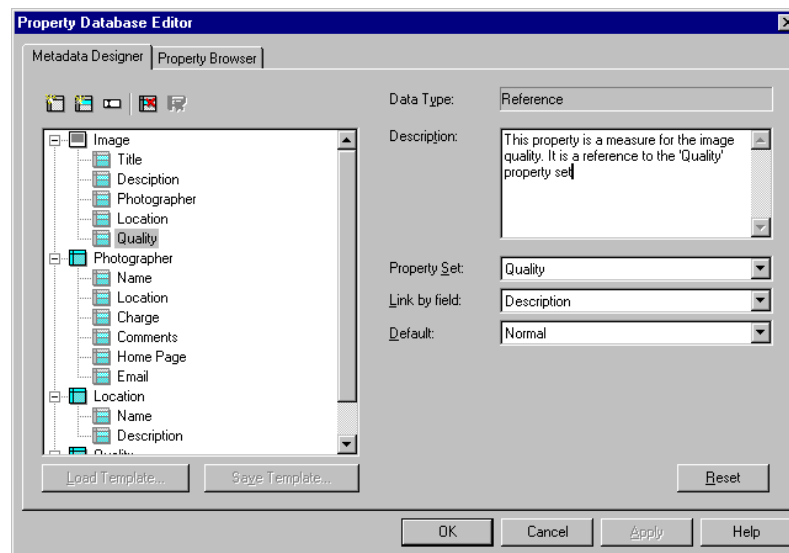


Figure 86: The same schema in the Database Property Editor

Setting up the data model for your database may take some amount of thinking, since the structure of the IMatch database is flexible to adapt to every possible requirement. If you have ever worked with other databases you should feel quite comfortable with the property set concept of IMatch.

If this is all new to you, take your time to get used to the concepts behind.

Note You may add and remove property sets and properties at any time. However, if you remove a property set, the information you have entered will be **lost forever!**

Meta Data Standards and XML

The ability to add new property sets and to create links between property sets is one of the outstanding features of IMatch.

The upcoming imaging standards, like to one proposed by the **Digital Imaging Group** (<http://www.digitalimaging.org/>) or the new **JPEG / JBIG standards** (<http://www.jpeg.org/>)

and the upcoming **MPEG** standards (<http://www.cselt.it/mpeg/>) all include specifications or initiatives to include additional Meta Data with each image. IMatch is prepared to support these standards that will widely adopted in the professional digital imaging community.

IMatch internally manages the property sets, the properties and the property data you enter in an optimized form of **XML** storage. IMatch also allows you to export your property set definitions or to import pre-built definitions into your IMatch database. See [XML Support](#) for more information on this subject.

Adding data to your property sets

The Database Property Editor also allows you to enter data in your property sets. The *Image property set* is usually edited directly from within the IMatch thumbnail viewer. To add data to other property sets, you use the **PROPERTY BROWSER**.

Click on the tab **PROPERTY BROWSER** in the **PROPERTY EDITOR DIALOG** and select a property set from the list at the top of the dialog box. In this example, we will use the *Quality* property set for the beginning.

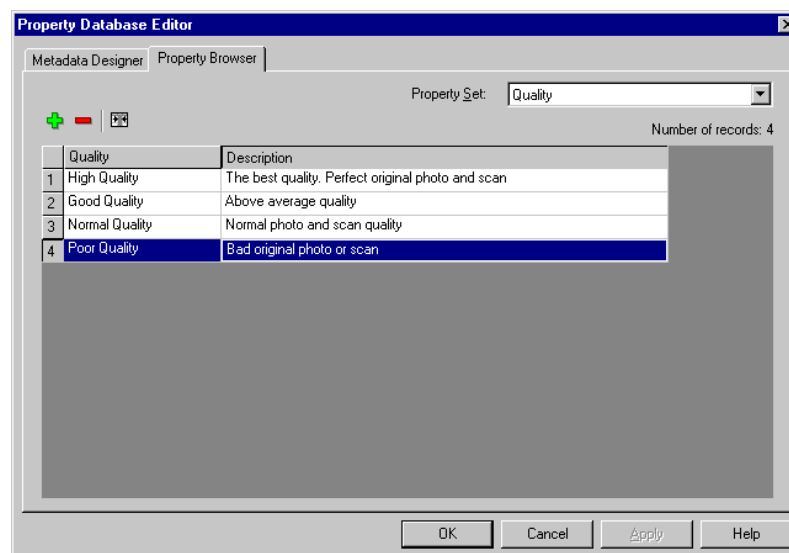


Figure 87: The Property Browser


When you select a property set from the list of available sets, IMatch will load all records from that set into the table control. From there you can add, edit or remove records by pressing the corresponding toolbar buttons and providing the required information.

Press <Ctrl>+<Enter> to add a new row at the end of the table. Press <Ctrl>+ to remove the selected record. To edit a value in one of the fields, double-click on it.

If a field contains a reference to another property set, double-clicking will open a new dialog box showing you the contents of that property set. Just click on an entry in the list to choose that value and return.

Get yourself used to the editing capabilities of the Property Browser. After adding a couple of records, close the dialog and return to IMatch.

Note To fit the column width to the record contents, press the adjust button in the toolbar, double click on a column separator or drag the column to the desired width with the mouse. Auto-fitting a column to the database contents can take a couple of seconds if the table contains a large number of records.

Open a folder in the DATABASE VIEW. Make sure that the property editor is visible by pressing the  button in the local toolbar of the thumbnail viewer. Select an image and have a close look the property editor window at the bottom of the thumbnail viewer.

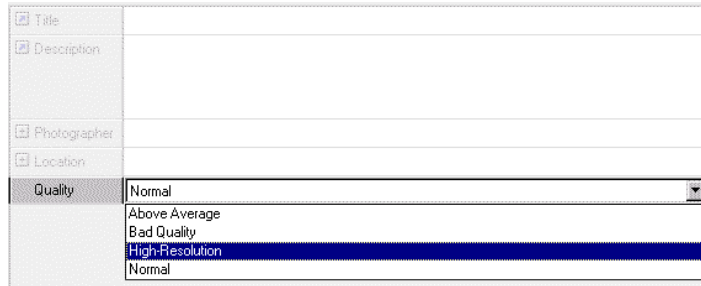
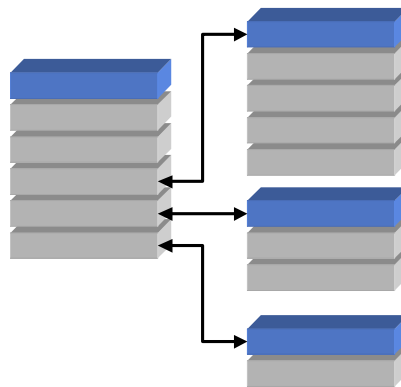


Figure 88: The property editor with the Quality property set

If you click on the *Quality* property of the *Image* property set, IMatch will display a list with all the records in the property set to which this property is linked. Since the *Quality property* of the *Image* property set is linked with the *Quality* property set (compare to Figure 86 or below) the combo box control will contain all records from that set. Since the database links by the property *Description* of the *Quality property set*, the contents of this property are displayed.



Lets add some records to the *Photographer* property set. Since this property set contains a reference to the *Location* property set, the second property shown in the editor will allow you to select an entry from the *Location* property set.

Now add some records to the *Location* property set and the *Photographer* property set to get used to the property editor handling. The best thing is to start with the *Location* property, because the *Photographer* property set contains a *reference* to the *Location* set. When you add records to that property set first, you will be able to select records from that set when you add records to the *Photographer* property set.

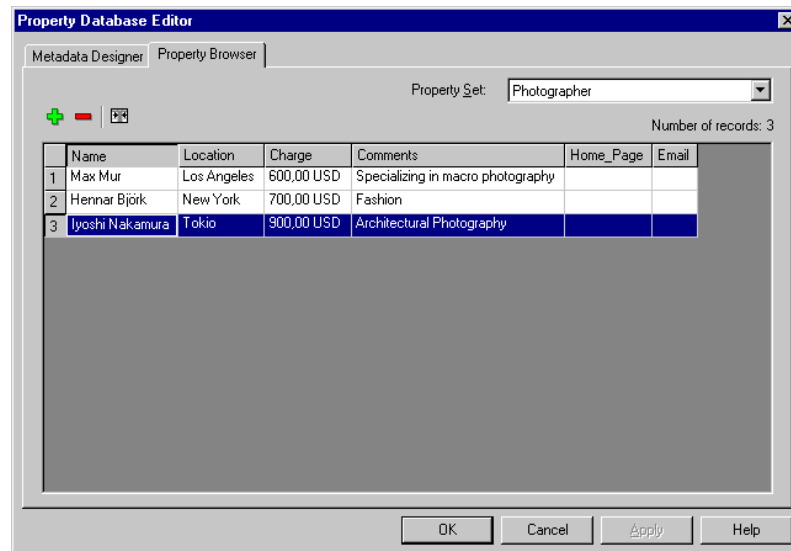


Figure 89: The *Photographer* property set with some records added

After you filled in some data in your tables, you can switch back to the thumbnail viewer and check out the results of your work. Click on the "+" button next to each reference property to see all the properties of the selected property:

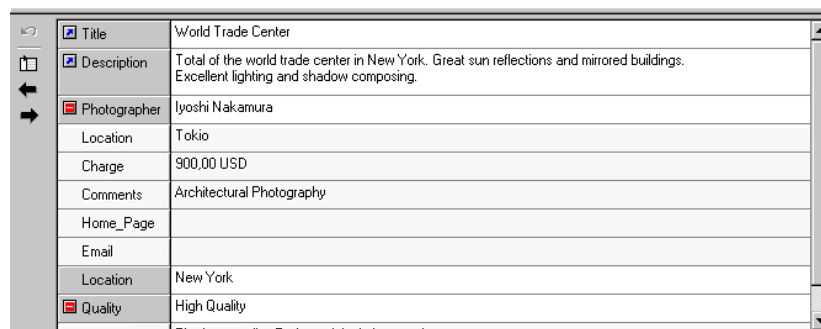


Figure 90: The *Image* property set with a completely filled in record


The button next to each reference property unfolds all properties of the referenced property set. This allows you to view not only the referenced property but also all other properties of the record you referenced.

The button next to each non-reference property will bring up a dialog box with all other *Image property* records in your database. From here you can select an entry to create a copy of that entry in the current set. Only the property will be copied that is currently selected (the property for which you pressed the button). This feature becomes handy when you want to assign the same properties to several images without selecting them before.

Note If you select more than one image and then modify the *Image* property set in the property editor, the modifications will be applied to all images currently selected. You may use this to update the *Image* properties for any number of images at once. However, only the properties are updated in all images that you actually change. All unchanged properties remain unchanged in all selected images, even if they are different.

First Steps: Creating a new Database

The Database Wizard - Adding folders and files

Of course, a new database is initially empty. The next task would be to add images to your database. To do this, click on the  button in the local toolbar of the DATABASE VIEW or choose DATABASE WIZARD from the DATABASE menu.

Note If you have checked the appropriate option on the final step of the NEW DATABASE WIZARD, the Database Wizard will automatically launch after your database has been created.

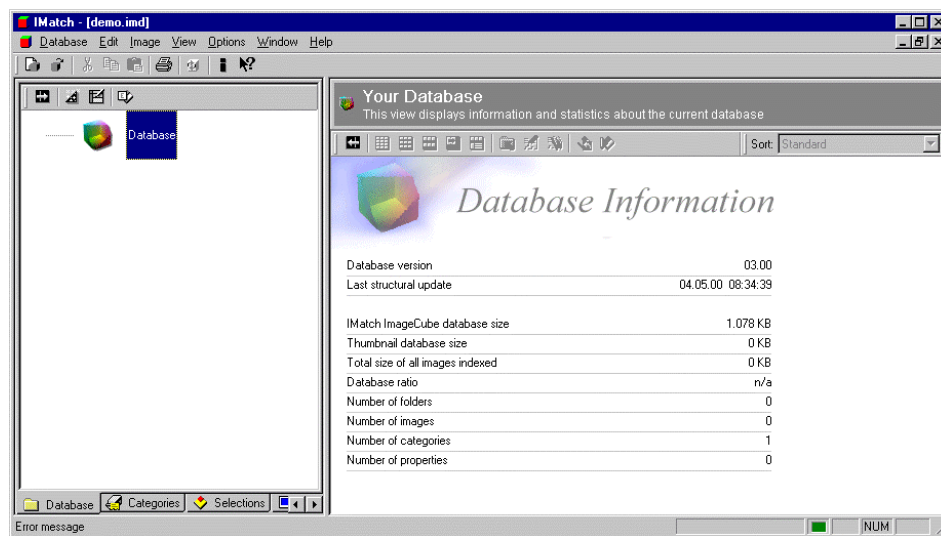


Figure 28: The database workspace window, showing some statistical information about your fresh database. This database does not yet contain image references

The Database Wizard is a convenient helper for performing the most common database maintenance tasks. It allows you to add new images to your database, perform diagnosis and optimization procedures and to set various database options.

Step 1: Choosing the "Add folders and files. . ." operation

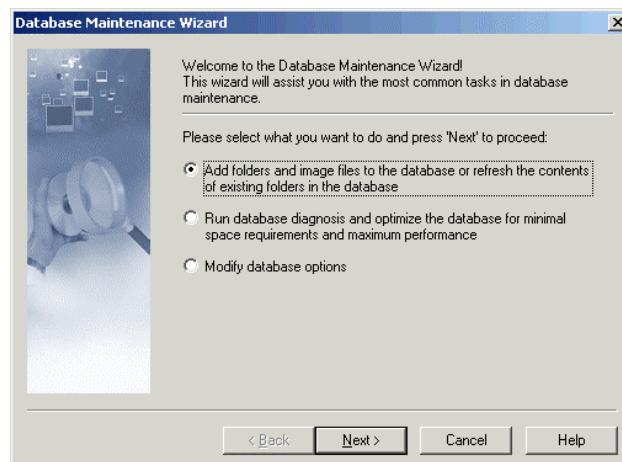


Figure 29: The Database Wizard start page

For now, we will use the wizard to add a couple of folders and images to the new database to get started.

Choose the first option of the wizard, as shown in Figure 29 and click NEXT to proceed.

The other operations

By using the database wizard, you can also perform other operations, like performing a database health check, optimize your database for optimal performance or change the caching mode and password for your database.

Step 2: Choose the folder you want to add to your database

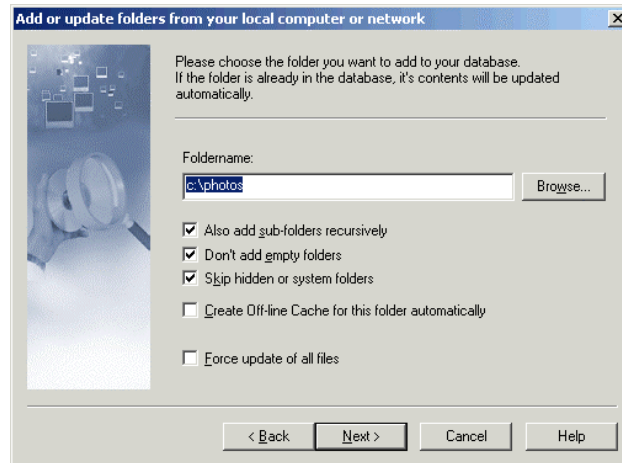


Figure 30: Adding a folder to your database

This screen allows you to select the folder you want to add to your database. If you want to include the sub-folders of that folder, make sure you leave the ALSO ADD SUB-FOLDERS RECURSIVELY option checked. Leave all other options as they are.

Adding a folder

to an iMatch database means that iMatch scans the folder for all images and then adds *links* (or *references*) to each of these images to your database. For each supported file, iMatch creates a thumbnail representation and records additional information about the file, like the date and time of the last modification, the size on disk, the file format, the dimensions of the image and much more. This information is displayed next to each image in one of the many views in iMatch, and allows you to manage your images efficiently and with very little effort.

Note iMatch only stores *links* to the images on your hard disk in the database, not the images themselves. Your images are not duplicated and they stay exactly where they are on your disk or other storage media.

To start to work with your new database, choose a folder that contains at least some image files. If your images are stored on a *removable media* like CD-ROM or DVD, use the BROWSE button to navigate to the folder on the particular media and drive.

If you have defined which folder you want to add to your database, press NEXT to continue with the next step in the DATABASE WIZARD.

If you choose a folder here that is already indexed by your database, iMatch will scan the folder for new, updated and deleted. iMatch will only reprocess images that have been updated or added to the folder since the last ADD FOLDER operation. If you have removed images or sub-folders from the folder with another application, iMatch will remove these files and folders from your database during the scan process to adjust to these changes.

Available Options in this step

You almost never need to change any of the options in this dialog. However, here are detailed explanations what these options do:

Also add sub-folders recursively

This options controls whether or not IMatch includes sub-folders of the selected folder during a scan. In most cases you should leave this checked.

Don't add empty folders

If you check this, IMatch will skip folders without images during a scan. If a folder does not contain images, it will not show up in your database. This option is checked by default.

Skip hidden or system folders

If you want to skip folders marked as *hidden* or *system* during the scan process, leave this option checked.

Create Off-line cache for this folder automatically

This option allows you to create off-line cache images for all images in the scanned folder. This option is useful if you're working with images on removable media and if you want to save some time by creating the off-line cache images on the fly during the scan.

See section [The Off-line Cache](#) for more information about the *Off-Line Caching in IMatch*.

Note IMatch will only add cache entries for new or updated files. If you do a rescan on a folder that already exists in your database, unmodified files will not be added to your off-line cache. To add these images, open the OFF-LINE CACHE PROPERTIES DIALOG from the context menu of the folder and refresh the cache manually. See section [The Off-line Cache](#) for more information.

Force update of all files

This option is seldom used. If you check this box, IMatch will rescan all images in the selected folder(s), even if they already are indexed by the current database and have not changed since the last scan.

If IMatch scans a folder, it checks whether an image is already indexed by the current database or not. If there already is an entry for the image, IMatch uses the date/time of the image file on disk to check whether the image needs to be updated in the database or not. This check can be irritated by some applications that modify the contents of an image, but without changing the time stamp of the image file on disk. In these cases, you may want to enable this option to ensure a full update of all modified files.

Tip If you run a rescan with enforced update of all files, this will also update all images in the off-line cache.

Step 3: Choose which file formats to process

If you want to add only images with a specific file format, select the option ADD ONLY FILES IN ONE OF THESE FORMATS and choose the file formats from the list. Take over the default options to add all supported image types to your database.

Usually, you want to add all supported file formats.

Tip If you work with CRW files you usually don't want to add the THM files that come with each CRW file to your database. Adding these files will give you duplicate images (one CRW and one THM file). Uncheck the EXIF Thumbnail (THM) file

format in this dialog box. IMatch will still recognize THM files in the folders in your database and use them for EXIF and IPTC data. IMatch will also take care that your CRW and THM files stay together when you copy/move/rename the CRW file. You need to enable the corresponding option under **OPTIONS/PREFERENCES/FILE FORMAT PREFERENCES** (see *Keep the THM file with the CRW*).

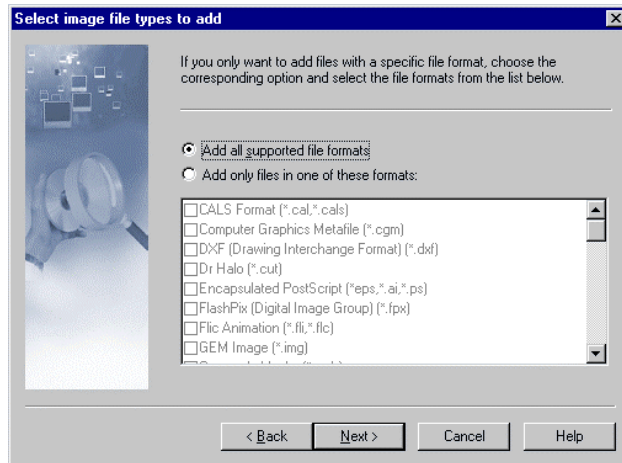


Figure 31: Select the image file formats you want to process

Click NEXT to proceed to the next step.

Step 4: Setting Advanced Options

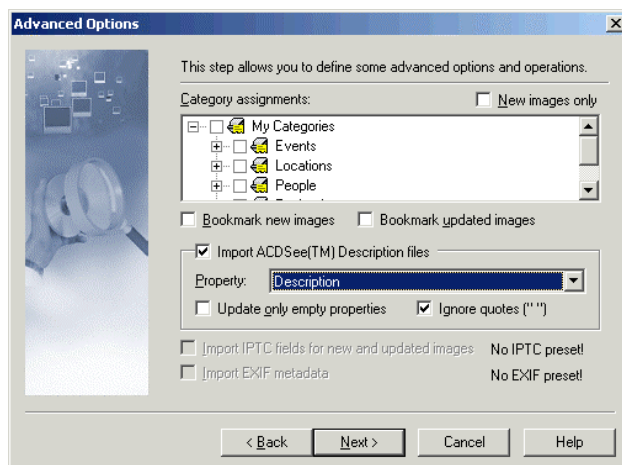


Figure 32: The category assignment dialog

Automatic Category Assignments

If you want to assign newly added or updated images to one or more of your categories, just select the appropriate categories from the list. If you want to assign only images that have been added to the database, make sure that the **NEW IMAGES ONLY** check box is checked.

Bookmarks

If you want to bookmark new or updated images, check the corresponding check boxes **BOOKMARK NEW IMAGES** and/or **BOOKMARK UPDATED IMAGES**.

ACDSee Description Files

IMatch supports ACDSee description files (see also section [EXIF Import](#)). If your folders contain compatible files, IMatch can automatically update your *Image Property Set* (see section [Image Property Sets](#) starting) from the descriptions contained in these files. Check the `IMPORT ACDSEE DESCRIPTION FILES` option and select the Image Property (string type) to update from the list box in the dialog.

IPTC Import

If you check the option `IMPORT IPTC FIELDS FOR NEW AND UPDATED FILES`, IMatch will apply your *IPTC Import Preset* and scan all files for embedded IPTC information. See section [IPTC Support](#) for more information on IPTC support in IMatch. This option is *unavailable* until you have defined an IPTC preset for your database.

EXIF Import

If you check the option `IMPORT EXIF METADATA`, IMatch will apply your *EXIF Import Preset* and scan all files for embedded EXIF information. See section [EXIF Metadata Support](#) for more information on EXIF support in IMatch. This option is *unavailable* until you have defined an EXIF preset for your database.

Note These advanced features allow you to implement a **workflow**: If you add new images to your database on a regular basis, it may be useful to assign these images to categories or the bookmark collection if you plan to review the images later. If you receive images over a wire service or the Internet, additional information about images is often stored in ACDSee description, IPTC fields or EXIF fields. IMatch can transfer this information into your database automatically while adding or updating images.

Press `NEXT` to move to the final step. If you are ready to go, press `FINISH` to start the Scan operation.

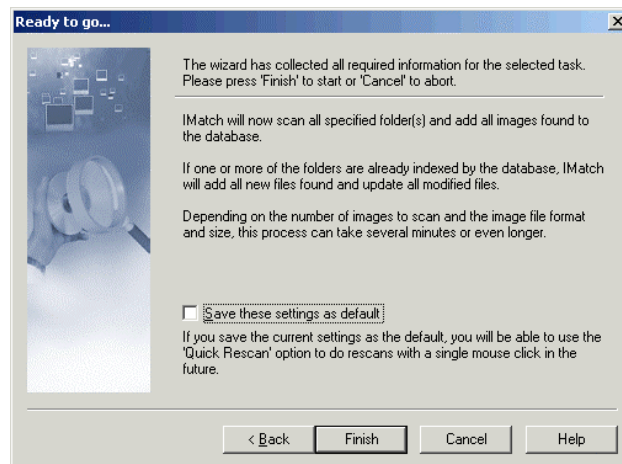


Figure 33: The final step of the database wizard

Tip On this final dialog of the wizard you can check the `SAVE THESE SETTINGS AS DEFAULT` check box and save these settings as the **One-click Rescan** profile for your database. If you have such a profile, you can rescan the entire contents of a folder by choosing the **One-click Rescan** command from the folder context menu – a great time saver.

The Scan Process

After you have completed the wizard, IMatch starts to scan the selected folder for new, updated and deleted images. Depending on the size of the folder and the number of files in it, it can take a couple of seconds until IMatch has scanned the folder(s) and files to process. Immediately after this step, IMatch begins with the analyzing process and adds the images to the database.

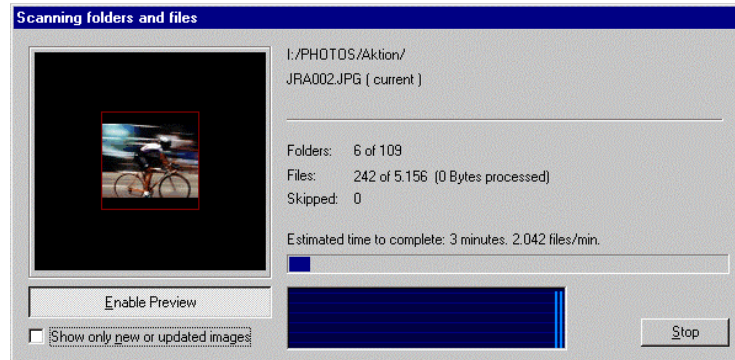


Figure 34: The scan database dialog box while adding new images to your database

During this process, IMatch presents a dialog box (see Figure 34) with the overall progress status. You may enable the preview to see how images are added: however, this may slow down the process a bit because IMatch needs to retrieve and display the images while they are added.

The duration of the scan process depends on the number of images that are new or updated. On a current computer system, IMatch adds up to 1000 images per minute, so even for large folders, the scan process should take only a couple of minutes.

Running IMatch in the background

If you want to reach the **best possible performance** during the update, disable the image preview in the SCANNING FOLDERS AND FILES dialog. Shrink IMatch to the Windows task bar to force it into *idle state*.

Idle state means, that IMatch behaves much more cooperative with respect to other applications. Updating a database is a really processing intensive task – believe me, the algorithms executed during that progress are really complicated – and hence there will be very little processing power left for other applications.

When you force IMatch into the "idle" state, it will consume only the CPU power not required by other applications running. It will also free all unneeded memory and hence reduce its memory footprint significantly – leaving more memory for other applications. The IMatch icon in the task bar always shows the overall percentage for the current task. IMatch will take more time to perform the update, but you will be able to do other things with your computer in the mean time.

Tip Send IMatch to the Windows taskbar if you want to work with other applications while IMatch updates your database.

After all, you can abort the scan process at any time. All images added so far **will remain** in the database.

The next time you run a scan operation, IMatch will process only the files that are not already in the database or files that have been updated since the last scan. Updating a database is very fast since only images that are new or modified are added during that process. While

rescanning a database, IMatch can check about 20,000 images per minute. The speed only drops if images need to be added or updated.

Note The size of your images has an impact on the speed at which IMatch can add images to a database. If you have small image files (about 100 or 200 KB) the update frequency is very high, up to 1000 or more images per minute on a current PC. However, if you're images are large TIFF or PSD files with a size of 10, 50 MB or even more MB, IMatch will need much more time to load the image from disk and hence the update frequency will drop.

Best Practices

Best Practices

This section contains instructions, tips and tricks, which allow you to use IMatch in the most efficient way.

Tip The IMatch FAQ contains answers to frequently asked questions. This FAQ is updated frequently, so make sure you visit it from time to time. You can reach the FAQ online via the [support section](#) at www.photools.com

Database Creation and Location

Each of your databases (if you need more than one) should be stored in a new folder. IMatch creates several files for a database for performance and security reasons. If you keep these files together in a folder, it is easier to move the database to another disk, and to create backups of your database.

If your database will be large (50,000 or more images), you should use a hard disk with plenty of free space, and your fastest hard disk. IMatch needs between 3% and 5% of the total size of the images indexed by a database for the database files.

For example, a database that indexes images with a total size of 1 GB (1000 MB), IMatch needs between 3 and 5 MB for the database.

See also [Planning your Databases](#) for additional information.

Database Backups

To backup your database, close IMatch and then copy the entire folder holding your database to a second hard disk, or a CD-ROM.

You can also use the [IMatch Backup Wizard](#) to create backups of your database, and all other IMatch files (presets, templates, and stuff). See also [Make Backups](#) for more information.

Updating Images or adding new images

To add new or updated images to your database, just run the Database Wizard with <Ctrl>+<W>. Choose the first option, and then click NEXT. Choose the folder containing your images, and then continue to the final step of the wizard.

Tip If the folder is already in your database, and you only have added new images (downloaded from your camera, for example), you can use the One-click Refresh to update the folder in your database:

Select the folder you want to update, and then click on the One-click Refresh in the local toolbar of the Database View.

Categorizing Images

The optimal category structure depends of course on your personal preferences. The golden rule is: *Start simple, and add categories on the fly when you need them.*

IMatch comes with a set of predefined category setups. These category schemas allow you to start quickly. But you can create your new categories when you need them, rename existing categories, or move categories within the category view.

See [Category Setup Examples](#) for some sample setups.

See [Categories](#) for general information about categories

Working with EXIF Data

If you want to work with the EXIF data contained in your images, IMatch has all the tools you need.

See [EXIF Quick Display](#) for information on how to view EXIF information in IMatch.

To edit the date and time information in your EXIF records, you can use the [EXIF Editor](#).

To import EXIF information into your property database, use the [EXIF Metadata Support](#) and the EXIF Import Filter.

Working with IPTC Data

If you are a photo professional, IPTC support is one of the key features you can expect from an image management system. IMatch contains a full-fledged IPTC editor, and also allows you to work with IPTC data in numerous ways. See the sections below for more information:

The [IPTC Import](#) feature allows you to import selected IPTC contents into your property database. Once the data is in the database, you can use it for sorting and searching.

[Running Selections for IPTC Data](#) explains how you can search for IPTC information.

Working with removable media (CD-ROM, DVD)

Digital Cameras and IMatch

Smart Rename

The smart rename module enables to you rename any number of files with powerful options:

- Shorten or lengthen file names
- Create image series with the Auto-Numbering function
- Correct file names by replacing sub-strings with other text
- Clean file names from images downloaded from the WWW or the USENET Newsgroups

You can access the Smart Rename functionally from the context menus for folders, categories, thumbnail viewers and bookmarks.

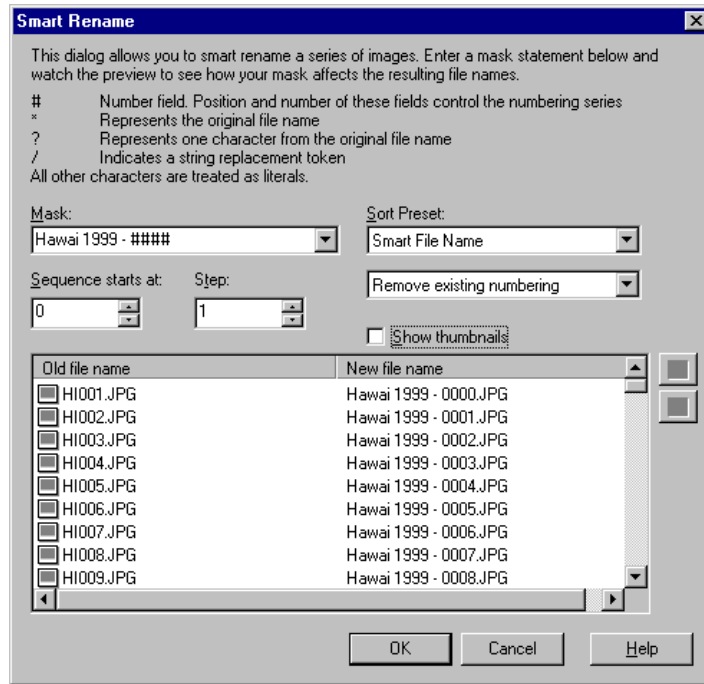


Figure 111: The Smart Rename dialog box

Sending Images via Email

If you have an active selection in a thumbnail viewer window, you can easily send selected files via email to a customer, client or friend. Just select the images you want to attach to an email and then choose the SEND command from the DATABASE menu.

Your normal email client will open, with the selected images attached. Just enter or select the name of the recipient and proceed, as you would do with any other email.

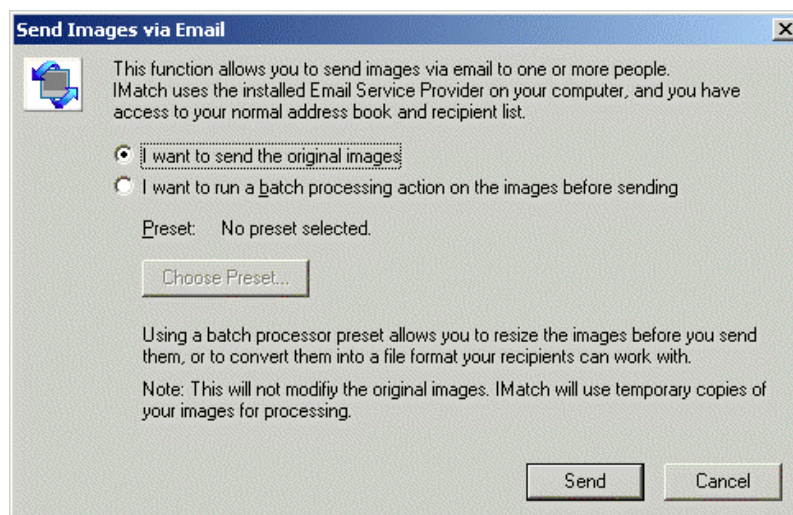


Figure 114: Sending Images via Email

Manipulating images

You can apply a batch **processor preset** before you send your images. IMatch will run the batch processor on your original images, creating copies as required.

This allows you to *resize* your images before sending, or to convert them into a file format which can be opened by the recipient of your email.

Supported File Formats

IMatch supports over 40 different file formats, with even more sub-types.

- JPEG and LEAD Compressed (JPG and CMP)
- Canon CRW (full raw access and conversion) and corresponding THM files
- Nikon NEF (full RAW access and conversion)
- JPEG2000 (read-only)
- Fuji RAF
- Kodak Professional Digital Camera (DCR) (read-only)
- Casio Digital Cameras with the .cam file format extension
- Support for Sony Digital Cameras with the .pmp file format.
- Support for PaintShop Pro 5.x, 6.x, 7.x format files. (Read-only, no layers)
- **TIFF (Without LZW compression only)**
- TIFF with ZIP compression
- BMP Formats
- Icons and Cursors (ICO and CUR)
- PCX Formats (PCX and DCX)
- Kodak Formats (PCD and FPX)
- Exif Formats (TIFF and JPG)
- Windows Metafile Formats (WMF and EMF)
- Drawing Interchange Format (DXF)
- XPicMap Format (XPM)
- Interchange File Format (IFF)
- Portable Bitmap Utilities (PBM)
- Dr Halo (CUT)
- PhotoShop 3.0 Format (PSD). Layered Photoshop formats are also supported, excluding secret or undocumented Photoshop features like adjustment layers. If you want to manage these images with IMatch, make sure to enable the **maximize compatibility option** in Photoshop
- Portable Network Graphics Format (PNG)
- Truevision TARGA Format (TGA)
- Encapsulated PostScript (EPS)
- JBIG Format (JBG)
- SUN Raster Format (RAS)
- WordPerfect Format (WPG). Bitmap formats only. No vector support

- Macintosh Pict Format (PCT)
- Windows AVI Format (AVI). Many sub-formats, but not all.
- TIFF CCITT and Other FAX Formats (**Without LZW compression only**)
- LEAD 1-Bit Format (CMP)
- XBitMap (XBM)
- IntergraphRLE (ITG)
- Miscellaneous 1-Bit Formats (MAC, IMG, and MSP)

Working with EXIF Data

EXIF Metadata Support

Image files created with digital cameras store metadata along with the raw image data. This metadata may be a valuable information resource for your image database.

For more information about the EXIF Standard see the home page of the **Japan Electronic Industry Development Association (JEIDA)** at <http://www.jeida.or.jp/>.

For the full standard document see <http://www.pima.net/standards/it10/PIMA15740/exif.htm>

These documents also contain a description of all available fields in the EXIF metadata stream.

IMatch fully supports the EXIF metadata standard as defined in the above-mentioned documents. IMatch displays the metadata fields contained in EXIF fields below the thumbnail window in a property window. Just click on the tab labeled EXIF to switch to the EXIF Quick Display.

Note Not all camera vendors support all possible EXIF fields. The availability of specific EXIF fields may also depend on your actual camera model.

Windows XP EXIF Information

IMatch also supports the special Windows XP specific EXIF fields: *Title, Comments, Author, Keywords and Subject*.

These proprietary fields can be modified using the file properties dialog box of Windows XP (Simple Mode). Windows XP allows you to display these fields, in addition to some IPTC and other EXIF fields, directly in Windows Explorer.

IMatch recognizes these fields (*in UNICODETM format*) and allows you to view them in IMatch, import them into the property database and to access these fields via variables and various export modules (contact sheets, slide show, batch processor etc.)

EXIF Quick Display

Besides the IPTC QUICK DISPLAY IMatch also contains an EXIF QUICK DISPLAY right below the thumbnail viewer window <Ctrl>+<5>. If the selected image contains EXIF metadata this information will be visible in the EXIF Quick display automatically.



Figure 108: The EXIF Quick Display

If the selected image does not contain valid EXIF information, this window will be disabled.

The information displayed in this window is freely configurable. See section [EXIF Information](#) for more information on how to configure the display.

The EXIF Editor

IMatch contains a built-in EXIF metadata viewer. To open it, select an EXIF image and choose EXIF EDITOR from the context menu of the thumbnail, the IMAGE MENU or press <Shift>+<F12>. The EXIF Editor is a special window, displaying all EXIF fields contained in the image in a grid. On the left side of the grid, the name of each field is displayed. The right field contains the actual contents of the corresponding field in the EXIF image file.

The EXIF Editor always shows the contents of the currently focused image, even if you have multiple images selected.

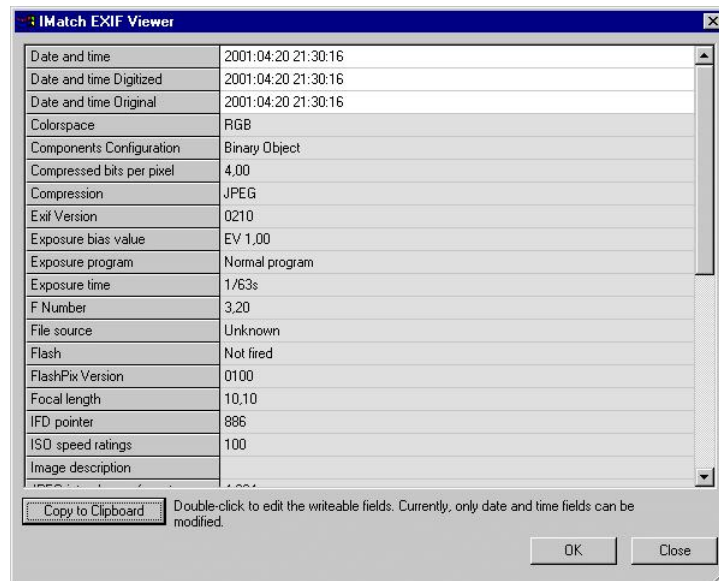


Figure 109: The EXIF Editor

You will notice that different rows have different colors. IMatch uses three colors to differentiate between normal (read-only) content, GPF-related information (if your camera creates it) and **writable** fields.

IMatch current supports write-back for date and time fields only. However, for most users, this is the only field they ever want to write back. The ability to modify the EXIF date allows you to correct wrong dates, for example, when your camera's timer failed to add the correct date to the image.

To update date and time fields in the EXIF file, double-click on the corresponding field to open the EXIF Date Editor dialog box:



Figure 110: The EXIF Date and Time Editor dialog box

This dialog is pretty self-explanatory ☺ so you just can play around with it to see how it works. When you have set the date and time of your liking, press OK to return to the EXIF Editor.

When you press OK, IMatch will apply the new date and time settings to all selected images. IMatch will skip all images that are not EXIF files in the selection, and also all files that are read-only.

Note IMatch can only update date and time fields contained in your image. Some images do not contain date and time fields at all, and some cameras create only a single date and time field in the image. This is a violation of the standard, but there's nothing IMatch can do about it. In these cases, IMatch displays only the date and time fields that are contained in the image, so at least you can see what's in your image.

EXIF Import

Image files created with digital cameras store metadata along with the raw image data. This metadata contains information about the camera settings at the time of the shot. Depending on your work environment, this metadata may be important to protect your copyright or to manage your images based on these criteria.

In a similar manner as the IPTC import, the EXIF importer allows you to extract this information from your images and to add it to your Property Database. After importing the metadata into your image property set, it is immediately available for searching using IMatch selectors. You can also use it from the [Contact Sheet Builder](#), the [Batch Converter](#) or the scripting language.

For more information about the EXIF Standard see the home page of the **Japan Electronic Industry Development Association (JEIDA)** at <http://www.jeida.or.jp/>.

For the full standard document see <http://www.pima.net/standards/it10/PIMA15740/exif.htm>

These documents also contain a description of all available fields in the EXIF metadata stream.

Preparing your Image Property Set

Before you run the import for EXIF metadata, you first need to add one or more properties to your image property set. These properties will be filled during the import with the information extracted from the EXIF images.

For example, if you want to import the date the image was taken, the camera model string and the "F Number", create need to created three properties: One DATE property and two STRING properties.

Of course it depends on your requirements how you name these properties and how many properties you create for importing the EXIF information.

Configuring the EXIF Importer

When you first start the EXIF METADATA IMPORTER from the DATABASE / IMPORT AND EXPORT menu, you will first need to configure it based on your requirements.

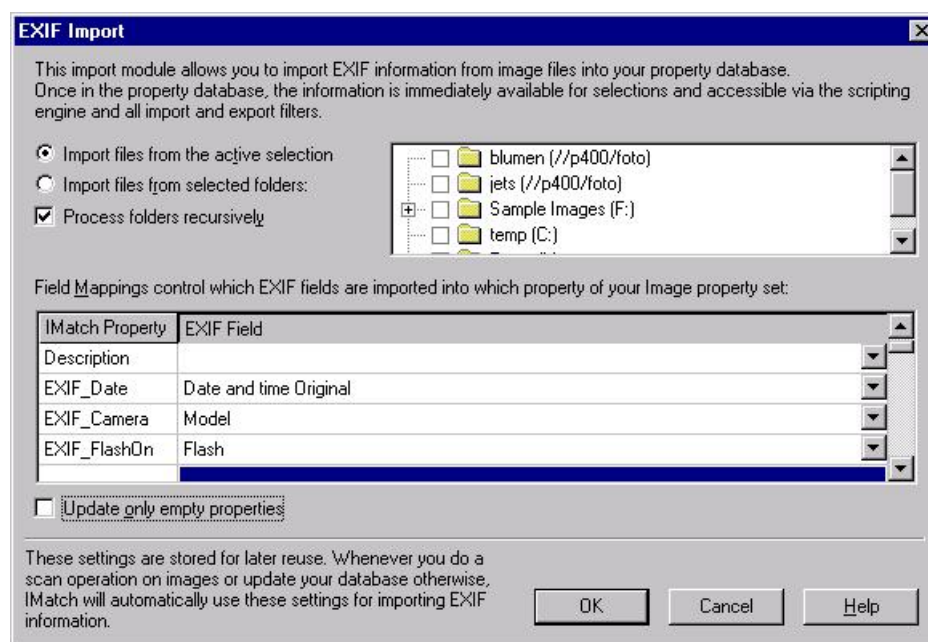


Figure 176: The EXIF Importer dialog box

First you have the common options on whether you want to work with the actual selection of images or specific folders. You can also process folders recursively by checking the corresponding check box.

The FIELD MAPPINGS list contains two columns: The left column contains all properties in your Image property set. The right column allows you to choose from a list of available EXIF metadata field. To import an EXIF field into one of your properties, just select the EXIF field in the right column of the appropriate property.

Tip The EXIF metadata format supports several data types like String and Number. IMatch only shows Image Property -> Exif Field combinations that are compatible. For example, a numeric property can only be filled from a numeric EXIF field. All EXIF fields can be assigned to String property fields. IMatch automatically converts the EXIF metadata fields to strings in these cases.

Finally you should uncheck the UPDATE ONLY EMPTY PROPERTIES in most cases. If you check this, the EXIF import will only update image properties that are empty when new EXIF data is

loaded. This means that properties that already contain values are not updated in the future. This makes only sense in special cases, so you should leave this option unchecked.

By clicking on OK, IMatch starts to import the EXIF metadata into your property database. This operation is usually very fast and should only take seconds or minutes if you have thousands of images.

After the import is completed, you will 'see' the imported information in your Image Property Set. You now can use the normal IMatch selection procedure to search for images with specific EXIF attributes.

Note The EXIF Importer is very robust. Even if your EXIF information does not conform to the standard, IMatch will load as much information as it can. In the worst-case, IMatch will skip the EXIF information for an invalid file and continue with the next file automatically. You can check the IMatch logfile `imatchlog.log` in your temporary folder for more information in these cases.

IMatch automatically stores the settings you define together with your database. The next time you run the EXIF importer, all mappings will be in place and you only need to click on OK to start the import process.

Important If you modify your Image property set, you need to update the mapping to be able to run a successful EXIF import.

Supported EXIF Fields

The following table contains a list of EXIF fields (Standard EXIF 2.1/2.2) supported by most cameras and scanners. Depending on your camera model and camera producer, your camera may record additional fields. Please contact your camera vendor for a list of proprietary (non-standard) maker note fields and additional fields supported by your camera model.

For more information about the EXIF Standard see the home page of the **Japan Electronic Industry Development Association (JEIDA)** at <http://www.jeida.or.jp/>.

For the full standard document see <http://www.pima.net/standards/it10/PIMA15740/exif.htm>

EXIF information can also be found at <http://www.exif.org>

These documents also contain a description of all available fields in the EXIF metadata stream.

Using EXIF Variables

Some modules in IMatch allow you to use **variables** to add text to images, or to display certain information about your images. You can use EXIF fields contained in your images by referencing them with special variables syntax:

{Image.EXIF.<Field Name>}

For example, to get the EXIF camera model, use:

{Image.EXIF.Camera Model}

You can combine any number of variables, and mix them with text. For example, the variable declaration below returns the vendor name and camera model:

Camera vendor: {Image.EXIF.Make}, Camera model is: {Image.EXIF.Model}

Note EXIF variables (as all variables in IMatch) are *case-sensitive*. You must use

the exact names as given in this section of the user manual.

You can also open the EXIF editor, and copy the contents of the EXIF record to the Windows clipboard. Paste the clipboard contents into a text editor of your choice (or Notepad) to have easy access to all EXIF fields and make note names.

List of standard EXIF fields

For an explanation of these fields, please refer to the EXIF standard documentation mentioned above.

Image width

Image length

Bits per sample

Compression

Photometric interpretation

Orientation

Samples per pixel

Planar configuration

YCbCr SubSampling

YCbCr positioning

X Resolution

Y Resolution

Resolution unit

Strip offsets

Rows per strip

Strip byte counts

JPEG interchange format

JPEG interchange format length

Transfer function

White point

Primary chromaticities

YCbCr coefficients

Reference black/white

Date and time

Image description

Make

Model

Software

Artist

Copyright

Exif Version

FlashPix Version

Colorspace

Components Configuration

Compressed bits per pixel

Pixel X Dimension

Pixel Y Dimension

Maker Note

User Comment

Related Soundfile

Date and time Original

Date and time Digitized

Subsec time

Subsec time Original

Subsec time Digitized

Exposure time

F Number

Exposure program

Spectral sensitivity

ISO speed ratings

OECF

Shutter speed value

Aperture value

Brightness value

Exposure bias value

Max. Aperture value

Subject distance

Metering mode

Light source

Flash

Focal length

Flash energy

Spatial frequency response

Focal plane X resolution

Focal plane Y resolution

Focal plane resolution unit

Subject location

Exposure index

Sensing method

File source

Scene type

CFA pattern

GPS Fields

GPS Version ID

GPS Latitude ref

GPS Latitude

GPS Longitude ref

GPS Longitude

GPS Altitude ref

GPS Altitude

GPS Time stamp

GPS Satellites

GPS Status

GPS Measure mode

GPS DOP

GPS Speed ref

GPS Speed

GPS Track ref

GPS Track

GPS ImgDirection ref

GPS ImgDirection

GPS Map datum

GPS Dest latitude ref

GPS Dest latitude

GPS Dest longitude ref

GPS Dest longitude

GPS Dest bearing ref

GPS Dest bearing

GPS Dest distance ref

GPS Dest distance

Special Windows XP fields

Microsoft has added some proprietary EXIF fields under Windows XP. You can view and edit these fields with Windows Explorer. See the Windows XP online documentation for more information on these fields.

XP Title

XP Comments

XP Author

XP Keywords

XP Subject

Maker Notes

[Follow this link](#) for more information about IMatch maker note support.

EXIF and IPTC variables

IMatch allows you to directly access IPTC and EXIF information via special variables. These variables can be used wherever you can work with variables, like in the [Batch Processor](#), the [Contact Sheet Builder](#) or from within [scripts](#).

Tip See also [Variables for more information](#)

IPTC Variables

To access IPTC contents, use the following syntax:
{Image.IPTC.<Name of the IPTC field>}

For example, use

{Image.IPTC.Copyright} to access the contents of the IPTC Copyright field

Tip For a list of available IPTC fields, see the file [imiptctags.ipt](#) in your IMatch program folder

IMatch in addition supports some special IPTC date/time variables:

{Image.IPTC.<DateField>#ShortDate}	Returns a formatted short date, like 01.01.2002 for Jan, 1. 2002. The format of this field depends on your system locale setting for short dates and hence adjusts to your countries date format
{Image.IPTC.<DateField>#LongDate}	Returns a formatted long date, like Monday, 01. 2002
{Image.IPTC.<DateField>#DefaultDate}	Returns the date in the standard format as set for the current user in the Windows control panel
{Image.IPTC.<TimeField>#ShortTime}	Returns the time without seconds: 10:00
{Image.IPTC.<TimeField>#LongTime}	Returns the time with seconds: 10:00.55
{Image.IPTC.<TimeField>#DefaultTime}	Returns the time in the time format set for the current user

You can use these fields like using the following syntax:

*{Image.IPTC. **Release Date**#ShortDate}*

EXIF Variables

To access EXIF variables, use this syntax:

{Image.EXIF.<Name of the EXIF field>}

For example, use

{Image.EXIF.Date} to get the date of the EXIF information

Note EXIF information is not very standardized, and some images contain only a subset of EXIF fields. If an image does not contain a specific EXIF field, IMatch will return an empty string for the corresponding variable.

For a list of supported variable names, see [Supported EXIF Fields](#).

In addition, IMatch supports some special EXIF date/time variables:

{Image.EXIF.<Date and TimeField>#Short}	Returns a formatted short date with time, like
{Image.EXIF.Date and time Original#Short}	01.01.2002 12:00.00
{Image.EXIF.<Date and TimeField>#Long}	Returns a formatted long date with time, like
{Image.EXIF.Date and time Original#Long}	Monday, 01. 2002 12:00.00
{Image.EXIF.<Date and TimeField>#Default}	Returns a formatted date and time string based on the date/time settings for the current user.

{Image.EXIF.Date and time Original#Original}	01.01.2002 12:00.00
{Image.EXIF.<Date and Time Field>#ShortDate}	Returns the date part of the EXIF timestamp in short format
{Image.EXIF.<Date and Time Field>#LongDate}	Returns the date part of the EXIF timestamp in long format
{Image.EXIF.<Date and Time Field>#DefaultDate}	Returns the date part of the EXIF timestamp in default format
{Image.EXIF.<Date and Time Field>#Time}	Returns the time part of the EXIF timestamp in default format

You can use these fields like using the following syntax:

{Image.EXIF.**Date and Time**#Long}

[Click here](#) for more information on maker notes and EXIF variables.

RAW File Formats

Canon CRW Options

This dialog allows you to control the processing of Canon CRW images in IMatch.

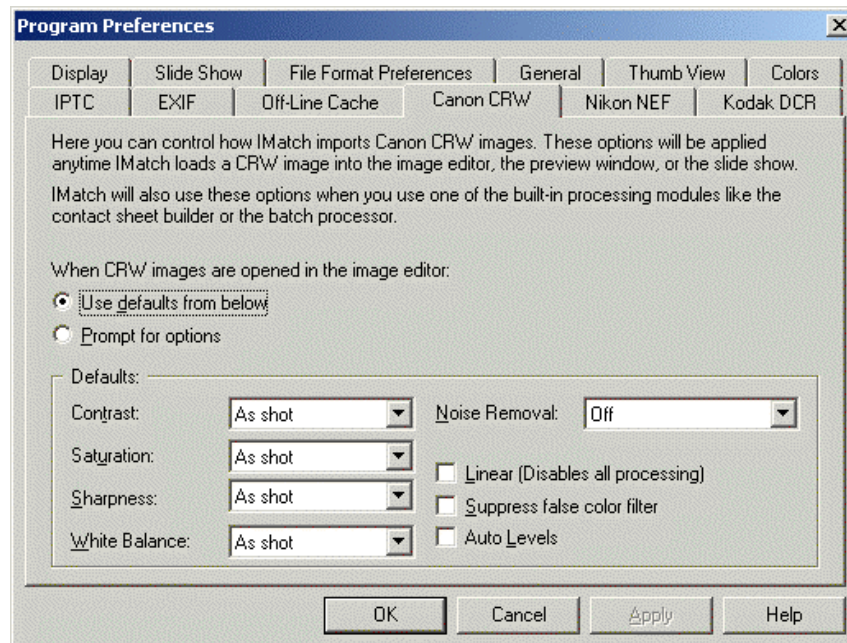


Figure 16: Canon CRW options

In general, the options match the capabilities of Canon® ZoomBrowser™ and many other CRW processing applications. Only the *noise removal* and *auto levels* features are specific to IMatch.

You have two general processing options:

Use defaults

If you choose this option, IMatch will always use the options set in this dialog to process your CRW files.

Note: The slide show and other features like the *batch processor* or the *contact sheet builder* will always use the defaults defined in this dialog.

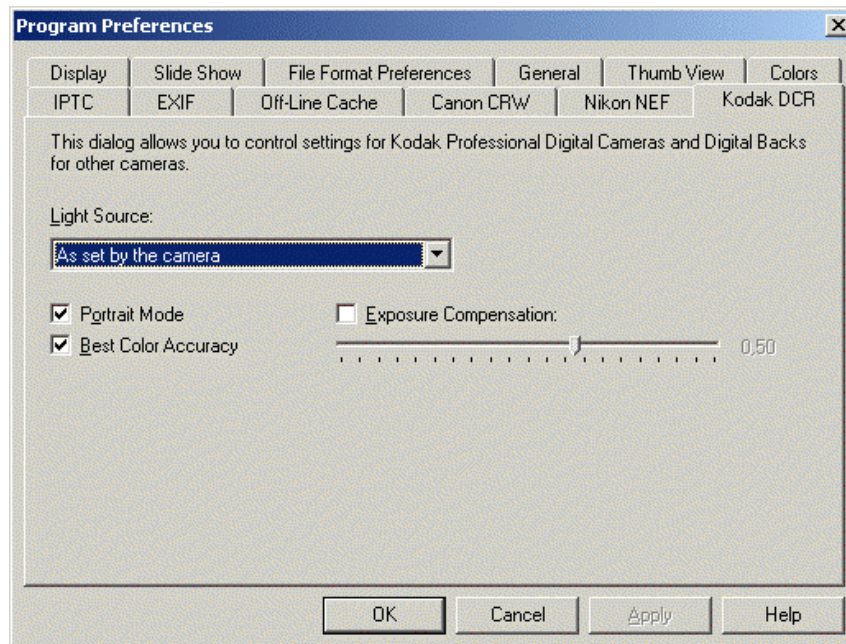
Prompt for options

If you choose this option, IMatch will prompt you for processing options when you open a CRW image in the image editor.

This dialog box shows the same options as this dialog box, but you are able to choose the options for each image or set of images manually

Kodak DCR Options

This dialog allows you to control the processing of Kodak DCR images in IMatch.



IMatch will always use the option set here to display and process Kodak DCR images.

Working with IPTC Data

IPTC Support

This section describes the support for IPTC (International Press Telecommunications Council) and NAA (Newspaper Association of America) image information.

The IPTC/NAA standard is a metadata model for associating additional information with all types of digital media. The IPTC standard has been widely adopted by the Digital Image Industry and within the Publishing and Printing Business.

In the context of IMatch, we deal here only with the IPTC/NAA structures that are directly related to digital images. If you want more information about the IPTC in general, check out the organization's home page at <http://www.iptc.org>

Describing Digital Images

A digital image basically is no more than a representation of the bits and bytes that make up the image. Applications like IMatch see the digital image only as a byte stream and have no clue at all about what is actually shown in the image.

The IPTC standard is one way to associate information with a digital image. Thus an image becomes an *object*, containing not only the image data itself, but also information about the image source, the photographer or artist, a title and description, copyright statements, usage information and much more. This associated information can then be utilized by image management applications like IMatch to categorize images and to perform selections on all kind of data embedded in the image.

IMatch directly supports IPTC information embedded in JPEG, JFIF, CRW, TIF and Photoshop (PSD) files. IMatch extracts the information contained in the image and is also able to write the information back after editing.

Note IMatch updates embedded IPTC information **without recompressing the image**. Thus **no quality loss** occurs during such updates. For TIFF, PSD, CRW files the IPTC information is embedded in a standard IPTC tag without touching the other information contained in the TIFF file.

IPTC Import

The IPTC import allows you to import the IPTC information contained in image files into your property database. You can also automatically assign images into IMatch categories based on IPTC fields like *Category (#15)*, *Supplemental Category (#20)*, *Keywords (#25)*, and *Urgency (#10)*.

This feature is indeed exiting, because it *automatically* creates a complete hierarchical category tree from the information *already contained in your images*. Since most stock photography agencies and also most photographers use keywords to categorize their images, this gets you an initial category setup for your images in nearly no time.

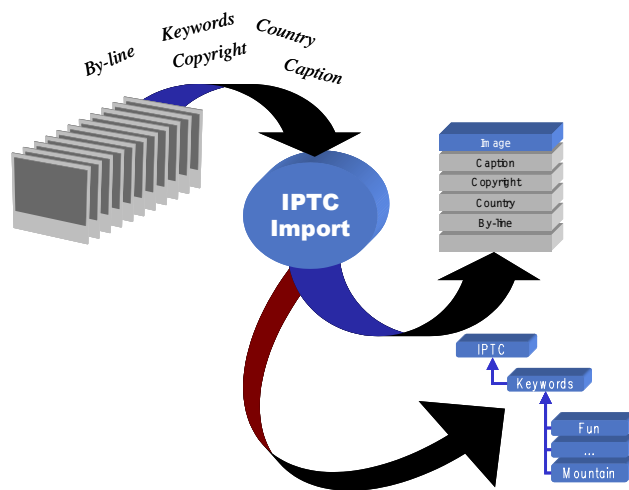


Figure 172: Importing IPTC information

To import IPTC information from your images, run the IPTC / NAA IMPORT wizard from the DATABASE menu. This wizard enables you to define what IPTC fields to import, and where to store the imported information. It also allows you to enable the automatic categorizing feature or to convert IPTC information stored in Macintosh character set into the Windows ANSI character set.

Each IMatch database has its own IPTC import profile, because each of your databases may have a different setup or image property set. IMatch saves the settings you make here and uses them automatically in the future unless you change them.

At the top of the wizard dialog you can choose what to import. You can either import IPTC information from files in a specific folder or from the files in the current selection. The current selection can be a folder, a category, the bookmark collection or even a single image in a thumbnail window. It depends on the current selection that is active before you run this wizard.

Running Selections for IPTC Data

Before you can use IPTC data in your selections, you need to import the IPTC data into your property database.

- See the section [Image Property Sets](#) for more information about Property Sets and the Image Property Set
- See the section [IPTC Import](#) for more information on how to import IPTC metadata into your property database.

After you have added the IPTC metadata to your property database, you can run all type of selection on your IPTC data.

The IPTC Configuration files

IMatch uses special configuration files to store metadata information about IPTC fields. These files are text-based and can be viewed and modified with any text editor (e.g. Windows Notepad). If you edit these fields, make sure you create a backup copy of the original file (just

in case) and that your editor is able to write normal Windows ANSI text files without adding additional data.

Note This is an **advanced topic**. You only need to read this section if you work with special IPTC dictionaries or if your company/agency uses custom IPTC tags.

There are three configuration files that are processed by IMatch:

imiptctags.ipt This is the standard configuration file. It contains descriptions of all standard IPTC fields. This file is located in the IMatch program folder.

Don't modify this file because it will be overwritten when you reinstall or update IMatch

imiptcusr.ipt This is the user-specific configuration file. Here you can add new IPTC field types or replace existing field types found in the standard configuration file. This file is located in your personal folder, e.g. *Windows\Profiles\<User Name>\photools.com/IMatch* or in the *Documents and Settings\photools.com/IMatch* folder if you run Windows 2000 or Windows XP.

imiptcusr.dat This configuration file contains the contents of your thesauri. It is updated whenever you add, update or delete entries from your thesauri. You can edit this file directly when you want to import information from other applications or in-house captioning standards. If you add new entries to this file, these entries will be available in IMatch when you run IMatch the next time.

Note Always quit IMatch before you edit any of these files. Otherwise IMatch will overwrite your modifications when it shuts down.

An IPTC configuration file consists of single lines. A line starting with a semicolon is considered as a comment line:

```
; This line contains a comment
```

IMatch also ignores empty lines in the file. All other lines must contain valid content.

Important IMatch does very little validation when loading configuration files. Be careful when you edit these files and always keep a valid backup copy in case something goes wrong.

Creating Content

Creating Contact Sheets

A *contact sheet* or *index print* combines several thumbnails on a larger bitmap, the *canvas*. IMatch allows you to create contact sheets of any size, with any number of thumbnails. You can customize the look of your contact sheets with many options, including background and overlay bitmaps, customizable text, fonts and colors.

The CONTACT SHEET BUILDER module can be reached via the IMPORT AND EXPORT command from the DATABASE menu.

The Contact Sheet Builder operates on the *current selection*. The contents of the current selection depend on the current *context*. If you set the focus to a folder in the DATABASE VIEW, the current selection contains all images from that folder (optionally including all sub-folders). If you highlight a category and then open the Contact Sheet Builder, it will operate on all images in that category. To convert only a couple of files, select them in a Thumbnail Viewer and then run the Contact Sheet Builder.

The Contact Sheet Builder user interface is a wizard that guides you through the steps required to create great looking and functional context sheets. When you set up a contact sheet you can preview the final results online and save the current settings as a preset for later reuse.

Presets

The first sheet you see when you run the Contact Sheet Builder is the PRESETS Sheet. On this sheet you can save your current settings as a preset for later reuse. Since building a contact sheet for the first time can take some time and you probably want to have several contact sheet layouts for different types of images, IMatch allows you to save any number of presets.

If you later want to reuse a preset for your current selection of images, just select it in the list and click on the LOAD button.

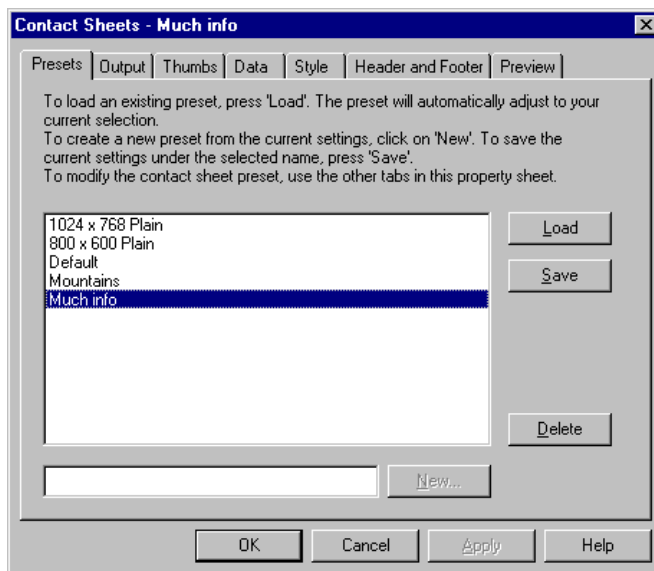


Figure 129: The Preset Sheet

To create a new preset from the current settings, type in a name in the edit field at the bottom of the sheet and click on the NEW button. IMatch will retrieve all settings from all sheets and create a new preset from that information under the given name.

Output

On the OUTPUT sheet allows you to define the file format for your contact sheets. You can choose any of the file formats supported by IMatch. The OUTPUT FOLDER contains the folder to which the resulting contact sheet bitmaps are saved. With the FILE NAME MASK you control the file names used by IMatch. IMatch uses an automatic numbering schema; the first sheet always has the number 1. A mask like "Sheet ###" will result in the file names "Sheet 001", "Sheet 002" etc. If you use "My travel to Hawaii 1999 - ####" instead, you will get file names "My travel to Hawaii 1999 - 0001", "My travel to Hawaii 1999 - 0002" and so on.

The CONTACT SHEET DIMENSIONS control group in the lower half of the dialog box controls the size of the *canvas*. You can use different measurement units to control the size of your contact sheet. Per default, the size of the canvas is defined in pixels (Compare to Figure 130). Usual dimensions for contact sheets are 800 x 600 or 1024 x 768 pixels.

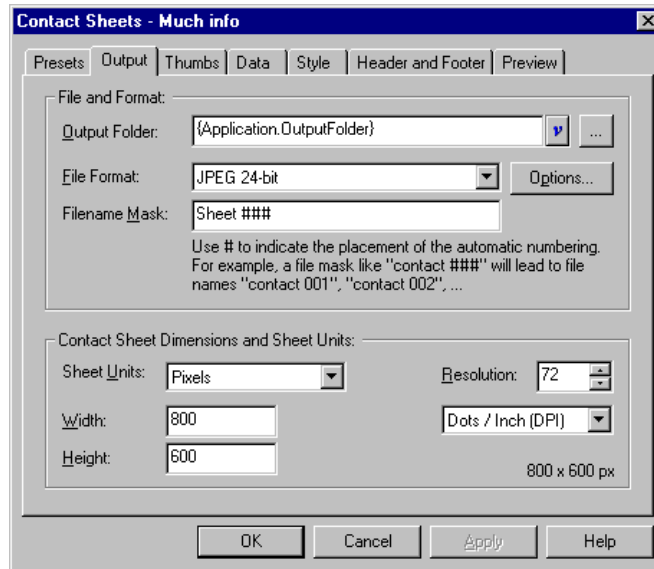


Figure 130: The Output Sheet

You can also define the size of the canvas in inches, centimeters or millimeters. If you have a professional approach and need to create index prints at high resolution for pre-press, you can define the size of your canvas in inches or millimeters and also create them at **print resolution!**

Note Keep in mind that creating a contact sheet at print resolution may need huge amounts of memory. For a 600 DPI device and a contact sheet with letter format, a 24 Bit contact sheet needs about 100 MB RAM! Usually, there is no need to create contact sheets at this high resolution. The output quality of IMatch is very good, even if your images are resampled at a high ratio. Make some experiments to find the optimal settings for your needs.

Anatomy of a Contact Sheet

IMatch applies various measures to contact sheets. By adjusting these measures and settings, you can create exactly the layout you want. Figure 131 depicts the various measures that, in combination, define the layout of a contact sheet.

Don't get confused by all these measures. It's all really simple. Starting at the size of your canvas, IMatch applies an outer border, the *sheet margin*. This margin is used to align the header and the footer area vertically and horizontally.

The second border is the *workspace margin*. This margin controls the vertical and horizontal margins between the sheet margin and the thumbnail area. By modifying the sheet margins, you control the *left and right borders* and the height of the *header and footer areas*.

IMatch arranges the thumbnails in the inner area created by the workspace margin. Simply speaking, if you need more space for the header and footer, use larger upper and lower workspace margins.

The horizontal position of the thumbnails is controlled by the left and right workspace margins. IMatch automatically fits the thumbnails within these margins, depending on the size of the thumbnails, the text position and the number of thumbnails to display per row.

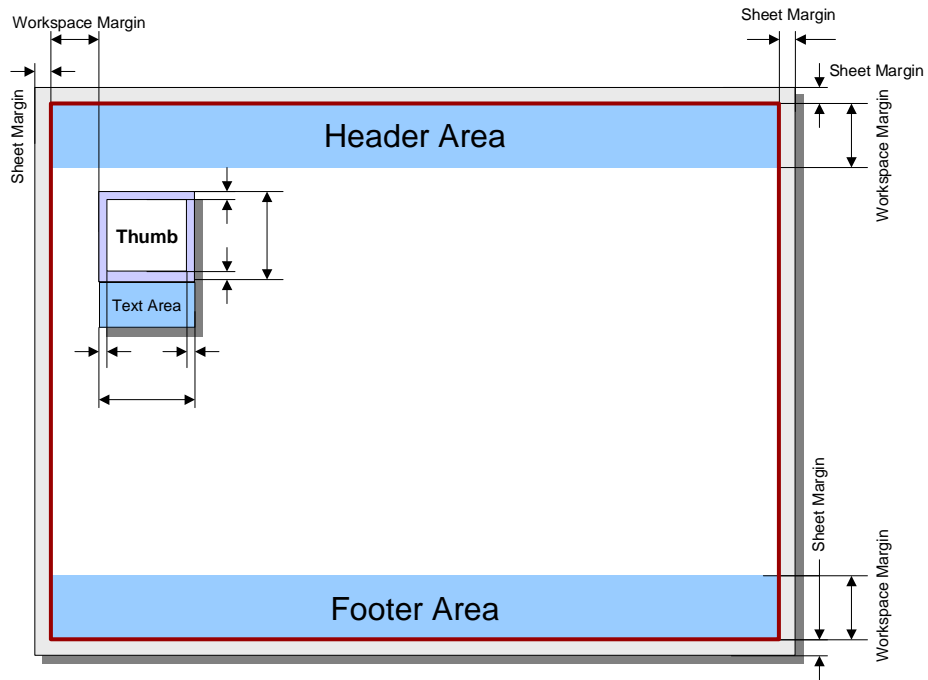


Figure 131: Anatomy of a Contact Sheet

Thumbs

The thumb sheet controls the size and appearance of your thumbnails, the number of rows and columns per sheet and the workspace margins.

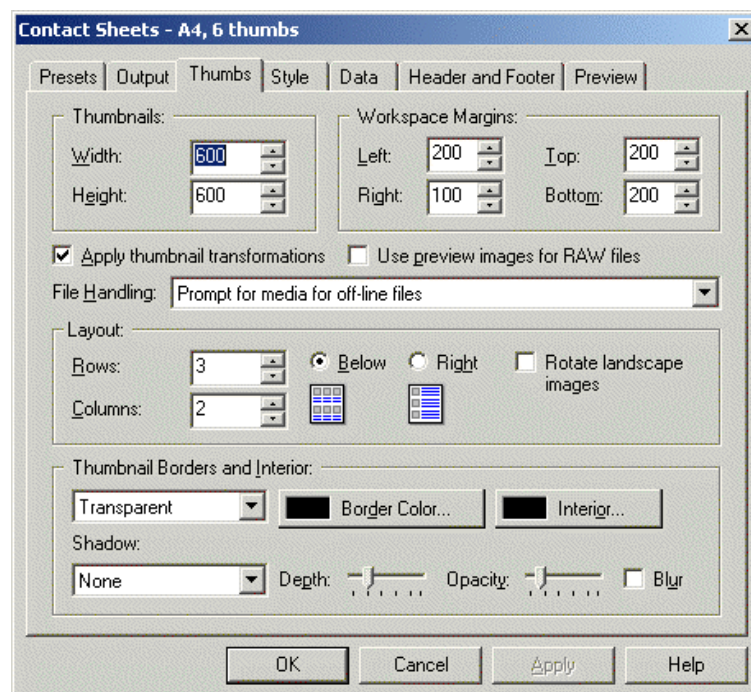


Figure 132: The Thumbs sheet

IMatch automatically resizes your images to fit the thumbnail size you set here. IMatch will also adjust the size of the thumbnails to the correct aspect ratio.

The workspace margins control the area that is available for your thumbnails. The TOP and BOTTOM workspace margins define the size of your header and footer area. If you want to add much text in the header or footer of you want to use a large font, use higher values for these margins.

If you use *thumbnail transformations*, make sure you check this option in the dialog. This will ensure that IMatch applies thumbnail transformations before adding the image to the contact sheet.

If you work with RAW images (NEF, CRW,...) you can enable the USE PREVIEW IMAGES FOR RAW FILES option. If this option is enabled, IMatch will not use the full RAW data of the image, but instead use the embedded preview image to create contact sheets. This is much faster, and since the thumbnails in the contact sheet are usually small, will not lead to a decrease in image quality.

The option ROTATE LANDSCAPE IMAGES tells the contact sheet builder to rotate landscape images automatically. This allows you to align your images in the same orientation in the contact sheet, whether they are portrait or landscape oriented.

The number of rows and the number of thumbnails per row is controlled using the ROWS and COLUMNS setting. Depending on the size of your canvas and the size of your thumbnails, you can vary the number of thumbnails per row and the number of rows you want to fit per contact sheet.

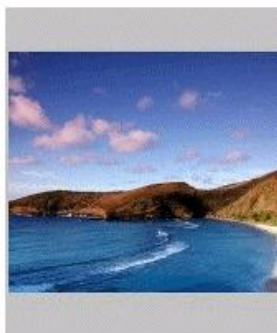
Note IMatch will not attempt to automatically reduce the number of rows or columns you define here if there is not enough room on the contact sheet. If there are more rows or columns as there can fit onto the sheet, the remaining rows and columns will be clipped automatically.

With the BELOW and RIGHT option you control the position of text on the contact sheet. If you add textual information to the thumbnail on the sheet, the text can be displayed below or at the right side of each thumbnail. See also section [Data](#) for more information

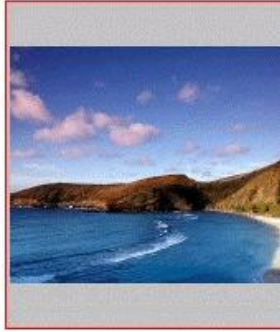
Each thumbnail can have a *background color*, a *frame and frame color* and a *shadow*. All these settings are controlled with a set of controls at the bottom of the Thumbs sheet.



Thumbnail with no frame, no background and no shadows. The BACKGROUND is set to *Transparent*; SHADOW is *off*.



Adding a gray background with the setting FILLED. You can choose any color of your liking with the INTERIOR color button.



Adding a red single border. The border color can be controlled with the BORDER COLOR button.



The same thumbnail with a black background, black single border and a *bottom right* SHADOW setting.

Try the various settings to find the combinations that you like. If you use a *background bitmap* for your contact sheet, it's a good idea you can either use transparent thumbnails or use a background color that matches or contrasts the background bitmap.

Tip At any time, you can switch to the PREVIEW sheet to control the results of your settings. If you find a good preset that you want to save for later reuse, save it as a preset on disk (on the PRESETS sheet).

Style

The style sheet controls the sheet margins, the canvas color, the font used to display information in the thumbnail area, the background bitmap and the overlay bitmap.

The SHEET MARGINS are the outer margins (Compare to Figure 131 on page 355). These margins are used to adjust the header and footer areas.

The SHEET COLORS AND FONTS control the background color of the contact sheet and the font used for the thumbnail text.

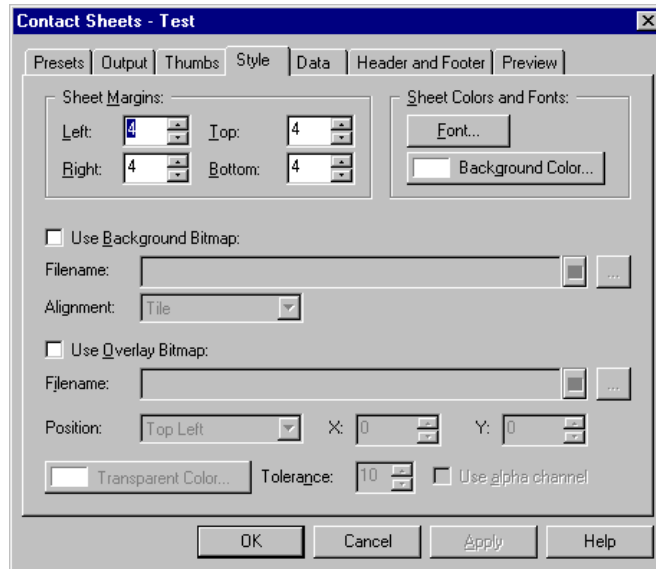


Figure 133: The Style sheet

If you don't use a BACKGROUND BITMAP, the entire canvas is filled with the BACKGROUND COLOR. If you enable the use of a background bitmap, IMatch fills the canvas with the bitmap you choose. If the bitmap is smaller than the canvas, you can control whether it is tiled or centered using the ALIGNMENT option. You can also *tile* the background bitmap. IMatch fills the whole canvas with tiled copies of the bitmap you select here (see Figure 134).

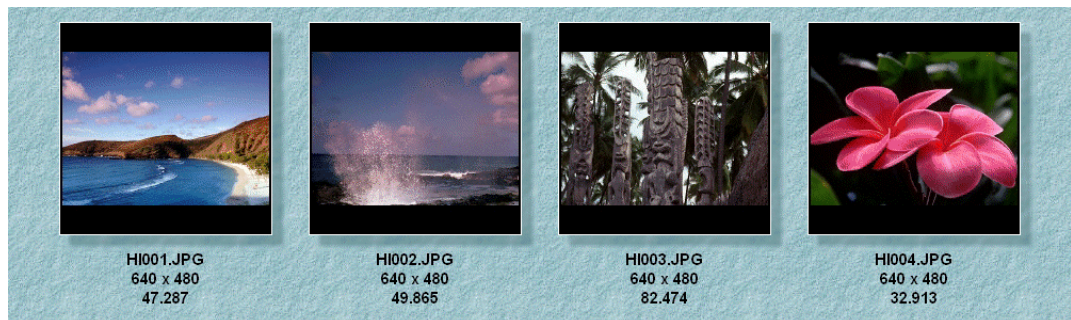


Figure 134: A contact sheet with a tiled background pattern

The Overlay Bitmap

The overlay bitmap enables you to place a bitmap of any size *on top* of your canvas and thumbnails. This feature allows you to place border masks or a company logo on top of each other content on the contact sheet. See Figure 135 for an example of an overlay bitmap. An IMatch logo is shown on the bottom right of the contact sheet. Using the options available for the overlay bitmap, the logo is merged into the existing contact sheet contents and hence the background is visible through the transparent areas in the IMatch logo bitmap.

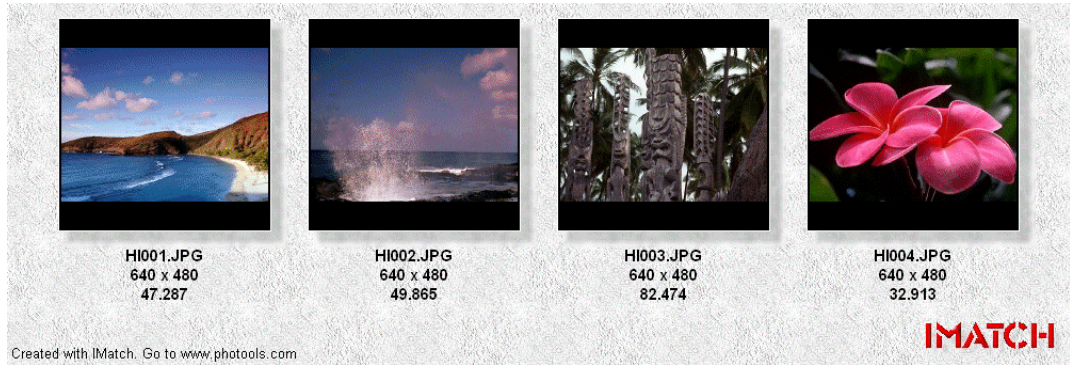


Figure 135: Contact Sheet with Overlay Bitmap (IMatch Logo)

There are three solutions for creating overlay bitmaps with transparent areas:

- Use a bitmap with a single color background and choose the same color as the TRANSPARENT COLOR for the background bitmap
- Use a bitmap that contains a mask in the alpha channel. This mask then controls the transparent areas of the bitmap. You can easily create such bitmaps with your favorite imaging application, e.g. JASC PaintShop Pro or Adobe PhotoShop. If you want to use the alpha information, make sure the USE ALPHA CHANNEL checkbox is checked
- Use a 8-Bit per channel grayscale image, and check the Use Alpha Channel check box. IMatch detects that this is only a single-channel bitmap and will create an alpha channel from the bitmap for you.

The position of the overlay bitmap can be controlled with the POSITION setting. You can choose one of the predefined settings to position your bitmap relative to the canvas. If you use the FREE positioning option, you can position your overlay bitmap using an explicit horizontal and vertical position, measured in pixels and relative to the canvas.

Data

On this sheet you can define what type of information you want to be displayed in the contact sheet for each thumbnail. You can also define a sort order for your thumbnails by using one of your Sort Presets. *See section [Smart Sorting with Sort Presets](#) for more information about Sort Presets.*

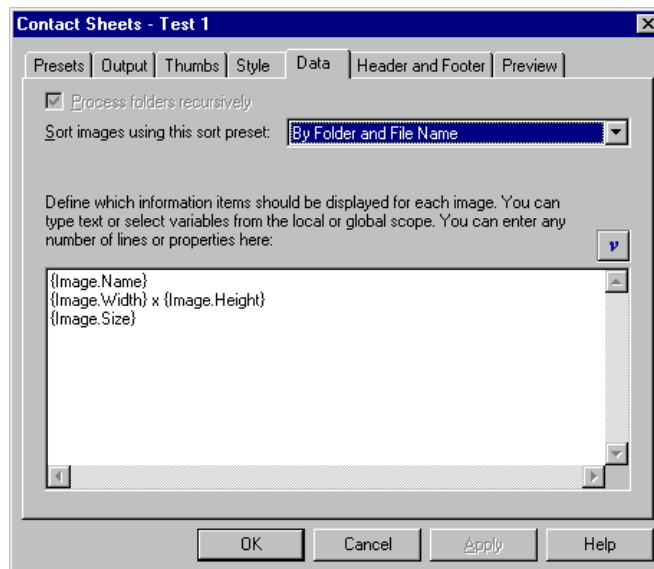


Figure 136: The Data sheet

The edit control contains the text that should be shown next to each thumbnail. You can use plain text or variables to design what you want to see on your contact sheets. Read **more about variables** in the section [Variables](#) for more information **Error! Bookmark not defined.**

The Contact Sheet Builder publishes two variable sets: *Sheet* and *Image*. In addition to these local variable sets, you can use variables from the global *Application* and *User* variable sets.

The Sheet Variable Set

The *Sheet* variable set is only valid in the Contact Sheet Builder context and contains the following variables:

Variable Name	Description
Page	The current page (sheet) number, starting at 1
TotalPages	The total number of pages
Images	The number of images in the selection used to create the contact sheets
OutputFileName	The name of the current sheet as it is named on disk, e.g. <i>Sheet 001.jpg</i>
CurrentFolder	The name of the folder of the first image on the current sheet
CurrentFolderDescription	The description for the current folder as entered by the user
CurrentCategory	List of all categories that refer to the first image on the current sheet. This variable is best used when you create contact sheets for images from one category
CurrentCategoryDescription	The description for the current category
MediaID	The Media Identifier (<i>Label</i>) for the first image on the current sheet
MediaSerial	The media serial number for the first image on the current sheet

In addition to these Contact Sheet Builder specific variables, the Contact Sheet Builder also publishes the *Image* variable set (see section [Image Attributes](#)). Using this set, you can access all properties and attributes that IMatch stores for an image. You can even access to *user-defined* properties and *Image* properties you entered in the *property editor* (See section [Image Property Sets](#) **Error! Bookmark not defined.** for more information on property sets).

How to add information to your thumbnails

I've started with a fresh contact sheet preset. The width and height of the canvas are 1000 x 340. The background color for the contact sheet is set to White. The thumbnail dimensions are 200 x 200 pixel. For demonstration purposes, I've added an *overlay bitmap* with the IMatch logo in the lower right corner of the contact sheet.

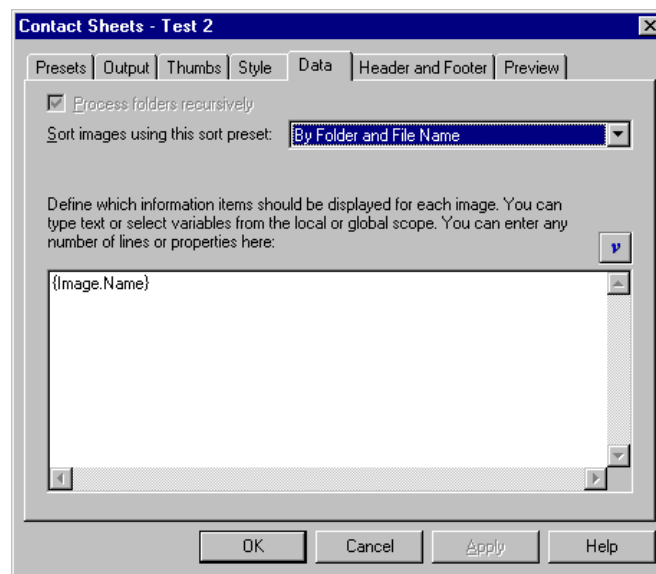
Running this contact sheet results in something like this:



IMATCH

Figure 137: The initial contact sheet, with no textual information

Lets add the file names of the images next to each thumbnail. To do this, go to the DATA sheet of the Contact Sheet Builder and type *{Image.Name}* into the edit field:



You can either do this manually or you can use the VARIABLE SELECTOR dialog box. To open the dialog box, click on the button with the little 'V' on the top right of the edit field. In the dialog box, locate and select the variable *Image.Name*.

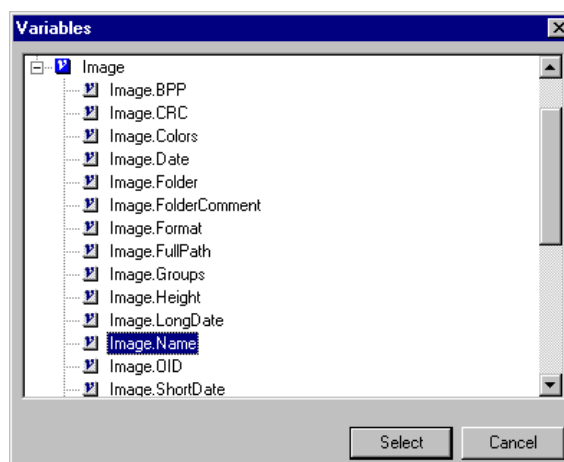


Figure 138: The Variable Selector dialog box

When the contact sheets are created, IMatch applies this *text mask* to each thumbnail. The content of the variable is retrieved and then placed below the associated thumbnail. IMatch automatically takes care that everything fits nicely and that the layout of the contact sheet adjusts to the new height of the thumbnail.



IMATCH

Figure 139: The same contact sheet with the *Image.Name* variable

If you want more information displayed, just extend the variable mask. For example, try the following:

```
{Image.Name}
{Image.Width} x {Image.Height}
{Image.Size}
```

The resulting contact sheet looks like this:



IMATCH

As you can see, IMatch has replaced all variable names by their value. The rest of the text you entered has been copied to the contact sheet without modifications.

Note IMatch only replaces the content of the variables in parentheses { }. All other text in the edit field remains untouched and is copied as is to the final contact sheet. For example, the **x** between *{Image.Width}* and *{Image.Height}* in the sample above remains unchanged when the contents of the variable are expanded.

If your database has an *Image Property Set*, you can use these properties also as variables when you create contact sheets. The sample database used for this manual has an Image property named *Title* that contains the title of the image.

To add the image title to each thumbnail, just add the name of the property:

```
{Image.Name}
{Image.Width} x {Image.Height}
{Image.Size}
```

```
{Image.Properties.Title}
```

The results for your own database may differ, but for the sample database this leads

to:



Figure 140: The contact sheet with image attributes and image properties added

Note the use of the blank line to separate the image attributes from the title. Again, you are completely free in how you format your variables. Just make some experiments to find the optimal settings for your needs.

Headers and Footers

IMatch also allows you add headers and footers to your contact sheets. Just switch to the HEADER AND FOOTER sheet in the Contact Sheet Builder.

You can enter free text or use variables to provide the content for your headers and footers. Usually, you will use some variables of the Sheet variable set here. To produce the headers shown in Figure 142, I've used these definitions:

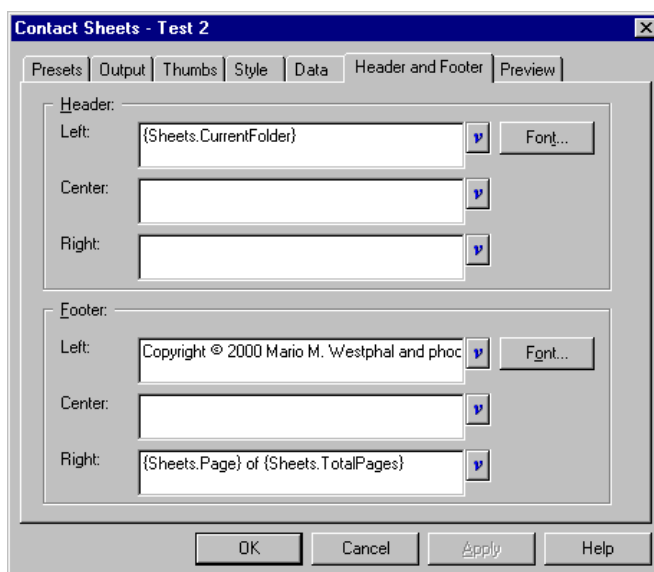


Figure 141: The Header and Footer sheet

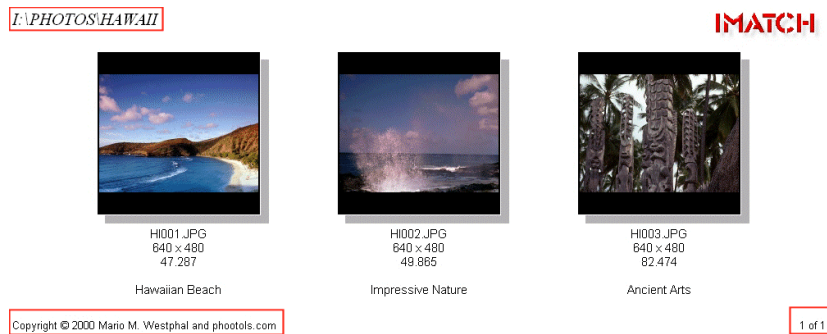


Figure 142: Contact Sheet with headers and footers

The Contact Sheet Builder is an extremely powerful tool. Take some time to try this module out to get an impression about what you can do with it. If you find some good settings, save them as a *preset* for later reuse.

The Batch Processor

The Batch Processor allows you perform imaging operations on series of images in batch mode, without user intervention. With the Batch Processor you are able to:

- Change the dimensions of the images
- Change the DPI settings of images
- Save the input images to a different file format
- Change the color resolution, histogram or gamma settings
- Add background images and overlay images
- Add text, image attributes and user-defined properties
- Apply masks to your source images with many options

THE BATCH PROCESSOR module can be reached via the IMPORT AND EXPORT command from the DATABASE menu.

The Batch Processor not only allows you to convert the file format of a series of images, or resize the images to a certain size. Since the batch processor fully supports the *Variables* concept of IMatch, you can also add text, image attributes, user-defined properties to the target images.

Tip If you create image *catalogs* on CD-ROM or you *deliver images via your web site*, you now are able to create images that contain watermarks, image and photographer information, your company logo and any amount of additional information within a couple of minutes (See Figure 146 for an example).

The Batch Processor operates on the *current selection*. The contents of the current selection depend on the current *context*. If you set the focus to a folder in the DATABASE VIEW, the current selection contains all images from that folder (optional recursively). If you highlight a category and then open the Batch Processor, it will operate on all images in that category. To convert only a couple of files, select them in a Thumbnail Viewer and then run the Batch Processor.

Like the CONTACT SHEET BUILDER, the BATCH PROCESSOR module is powerful and flexible, but easy to use. Figure 146 gives you an impression what results you can achieve with this module.

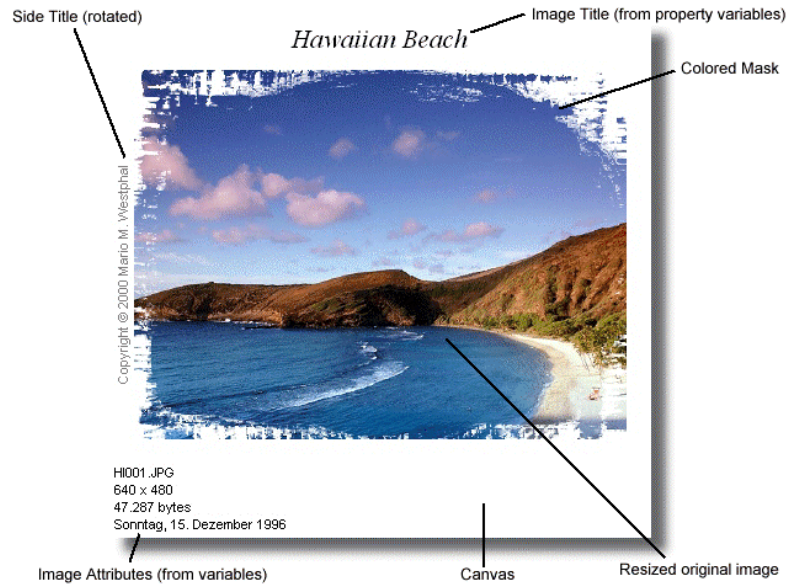


Figure 146: Sample for a batch processed and enhanced image

The Text Export Filter

IMatch has a powerful text file export filter that allows you to export selected database contents into text files. Since text files can be processed / imported by many other applications, this feature is a convenient way to export data from IMatch to other applications.

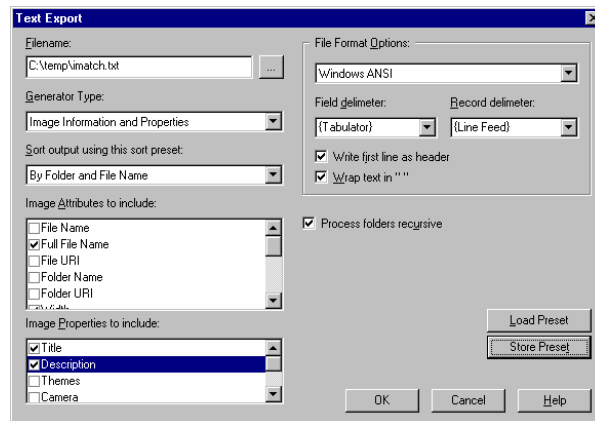


Figure 168: The Text Export filter options dialog box

To run the text export filter, choose the **IMPORT AND EXPORT** command from the **DATABASE** menu and then select **EXPORT TO TEXT FORMAT**.

Note IMatch will interpret the current selection when the text export filter is run. If you want to export the contents of a folder or a category, make sure that you select the folder or category before you issue this command. If you want to export only a group of images, select these images in the thumbnail viewer and then execute the **text export filter**.

Programming IMatch

One of the core features of the IMatch system is its programmability. The built-in scripting language allows you to automate frequent tasks and to extend the built-in functionality to meet your requirements. IMatch contains an Integrated Development Environment (IDE) for creating, editing and debugging IMatch scripts. The complete object model of the application is accessible via the scripting engine.

It is nearly impossible to create an Image Database Application (or another application) that matches the requirements of all potential users. To enable as many users as possible to do what they need with IMatch, I have decided to add a scripting language to the core system. Using this scripting language, you can **easily automate frequent tasks** or **extend the built-in functionality** of the application.

The scripting language also enables IMatch to interface to other applications using **OLE Automation** or to import and export information in formats not directly supported by one of the built-in Import/Export modules.

Note This section assumes that you have at least some basic knowledge about programming with scripting languages. There are excellent books available at your local bookstore that will teach you the basics in only a couple of hours. If you have no previous experience in programming, study the examples in this section carefully and try new things out. You will see that it looks more difficult than it actually is...

IMatch Script is language compatible with Visual Basic for Applications™ (VBA) found in many Microsoft® applications, like Word or Excel. If you have ever created some macros or scripts for these applications, you will find the scripting language available in IMatch pretty comfortable and similar. Since the basic rules are the same, if you have ever programmed in HTML, Java or JavaScript you will also find IMatch Script very easy to learn.

The *Integrated Development Environment* (IDE) comes with full online help and samples. IMatch uses the excellent *SAX Basic Engine* (www.saxsoft.com) to provide its scripting capabilities. Sax Basic has proven to be an extremely reliable and fast scripting environment for applications like IMatch.

IMatch and the WWW

The IMatch Photo Gallery

The IMatch Photo Gallery is a powerful script that allows you to create sophisticated online photo galleries from your images.

You can access this script via the SCRIPTING menu. Choose the PUBLISH YOUR IMAGES ON THE WEB GROUP, and then choose the PHOTO GALLERY CREATOR script.

In the dialog box, choose one of the predefined templates on run it to create a HTML photo gallery. You can then copy these files to your server to publish your images to the web.

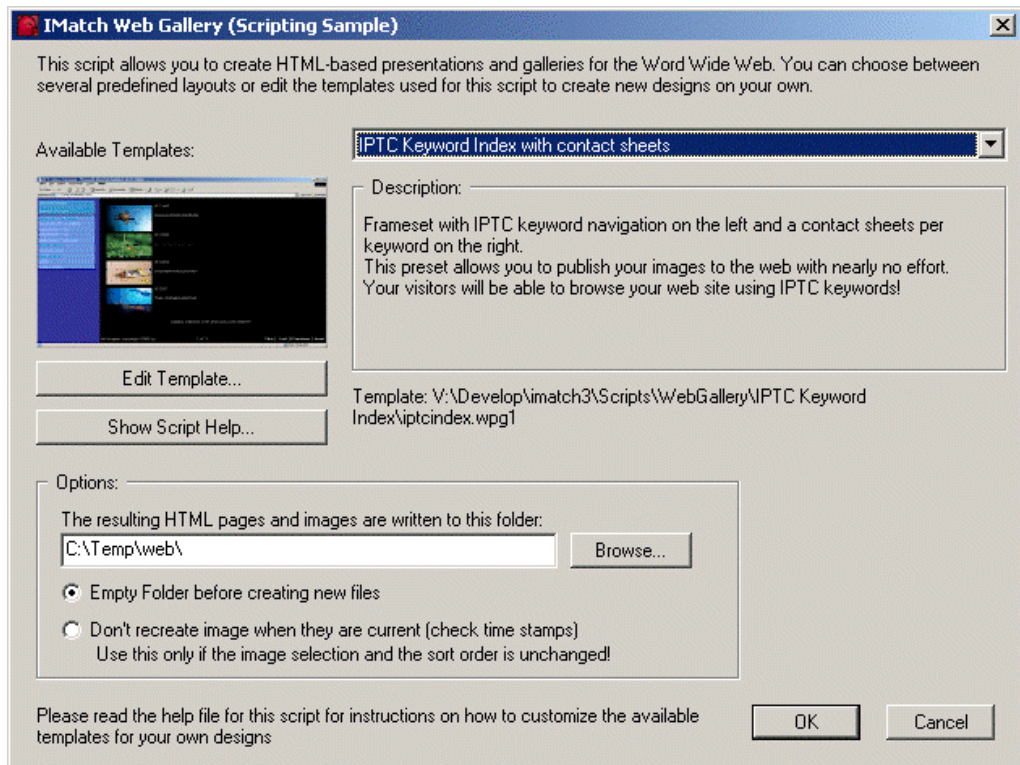


Figure 210: The Photo Gallery Creator script in action

Customizing

The photo gallery creator is a powerful tool. If you have some experience with HTML, you can customize the templates and presets to create any type of online gallery. The photo gallery script comes with an extra help file, which explains you how you can customize existing templates, and how you can create new templates to match the look and feel of your web site.

Just press the SHOW SCRIPT HELP button on the dialog.

Other Scripts

The scripting menu also contains several other scripts to create HTML output in the WEB Scripting Group.

IMatch Folder Report
 This Report has been generated with iMatch - The Digital Image Management Solution
 See www.photools.com for more information

Report For Database F:\imdb14.imd
 This database contains 180 folders and 1752 files
 Report created 02.12.2002 01:24:29

Folder	Number of Files	Total Size of All Files	Last Update
WP1600VFormatSuite\	23	84,27 MB	28.10.2002 22:13:01
C:\Temp\Match Output\	3	21,60 MB	30.11.2002 23:57:17
D:\Data\Clipart and Photos\16-Bit\	3	8,75 MB	04.10.2002 07:55:57
D:\Data\Clipart and Photos\16-Bit\TIFF\	31	31,04 MB	31.08.2002 18:59:28
D:\Data\Clipart and Photos__Video\	0	0,00 KB	03.11.2002 02:34:37
D:\Data\Clipart and Photos\Adobe Photoshop Samples\	15	5,49 MB	26.11.2002 01:05:46
D:\Data\Clipart and Photos\File Format Test Suite\	23	84,27 MB	03.11.2002 00:57:54
D:\Data\Clipart and Photos\Temp\test1\	13	15,76 MB	16.11.2002 11:53:06
D:\Data\Clipart and Photos\Temp\test1\A\	2	6,72 MB	02.11.2002 10:46:59
D:\Data\Clipart and Photos\Temp\test1\B\	13	11,93 MB	30.09.2002 08:29:53
D:\Data\Clipart and Photos\Temp\test1\C\	2	2,61 MB	15.10.2002 08:50:33
D:\Data\Clipart and Photos\Temp\test1\Nigel\	0	0,00 KB	26.09.2002 00:27:35
D:\Data\Clipart and Photos\Temp\test1\Nigel\A\	2	266,41 KB	01.10.2002 00:17:18

Importing Data from other applications

Optimal Category Setups

Categories

Many of today's image management applications use *keywords* to allow you to structure your image collections. These keywords are a more or less static and inflexible approach. Usually no relations exist between the categories that allow you to model the database after your requirements. You are forced to adjust your needs to the inflexible schema of these databases.

IMatch uses a new and exiting concept called *dynamic categorizing* or simple *Categories*. Categories allow you to group your images and to create *relations* between the categories in your database. Categories form a natural hierarchy like most things in your daily life. By setting up categories and sub-categories you can **recreate the natural relations between your images**.

There is no need anymore for thinking in Folders, Drives and Image Files...

But IMatch does not stop here. *Category Formulas* allow you to create even the most complex dependencies between your categories, thus allowing you to model the database exactly after your individual requirements.

With categories you can create a **Virtual Image Space**. You then work only with your categories and the images contained in these categories. Since IMatch can handle all types of media, there is no longer a need to think in folders, drives and image files. In the virtual image view, every image is simply an image, totally independent from its physical location.

An IMatch database can contain any number of categories and sub-categories to any depth. The category concept of IMatch is easy to understand and even easier to handle. Once you get used to this new concept you will be amazed how simple yet powerful it is.

You may create categories based on **Themes, Customers, Projects, Shootings, Priorities, Image State** (Printed, Edited, etc) and much much more. You can even combine a customer-related hierarchy with projects with a theme-based hierarchy. This way, you can order your images into customer projects and into themes at the same time. No problem with IMatch.

Color-Coding Categories

IMatch supports a Color-Coding scheme based on categories. Color-Coding allows you to assign colors to categories and to view these colors in the thumbnail panels.

This feature allows you to assign a visual identifier to each of your thumbnails. It depends on your requirements and situation what you use this feature for. Example uses are *Edit States* or *Priorities*.

To assign a color code to a category, switch to the Category Viewer window, select the category and open the CATEGORY PROPERTIES DIALOG BOX:

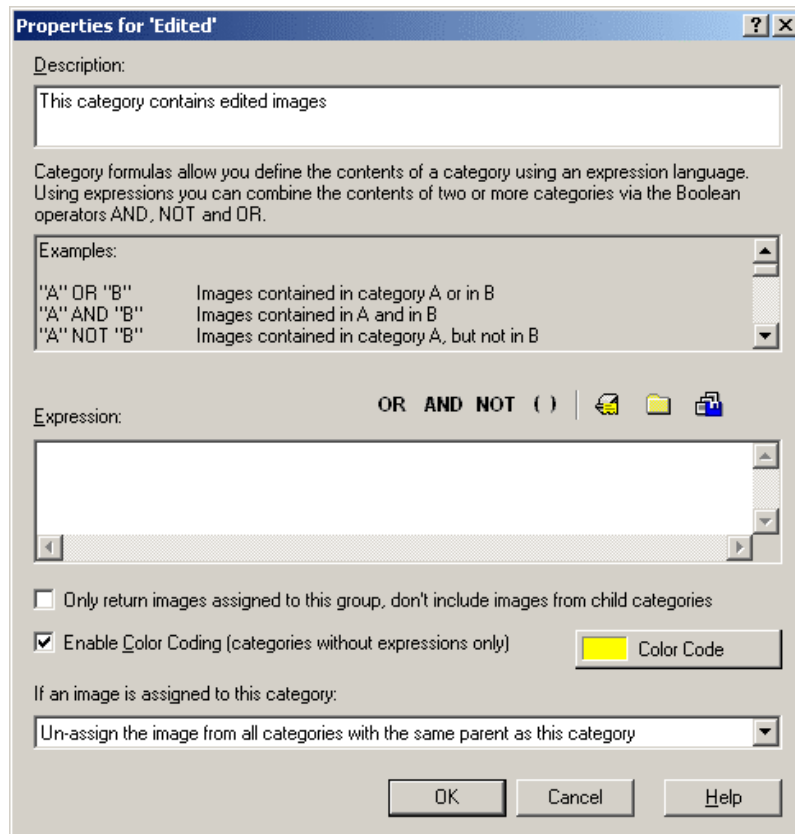


Figure 79: Defining a Color Code

Enable the use of color-coding for this category by checking the **ENABLE COLOR CODING** check box. Then select a color by clicking on the **COLOR CODE** button. Close the dialog box with **OK** when you're finished.

The **Category Viewer** uses the **Color-Coding** color as the background color for the category display:

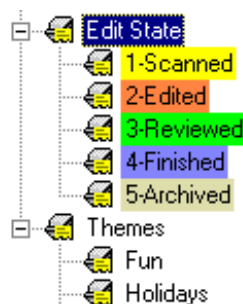


Figure 80: Color-Coding in the Category Viewer

The **Thumbnail Viewer** displays the **Color-Coding** below the thumbnails. To see the color codes, you need to enable the **Color-Coding** under **OPTIONS\PREFERENCES** dialog box. Select the **THUMB VIEW** pane and make sure that the **SHOW COLOR CODING** check box is activated.

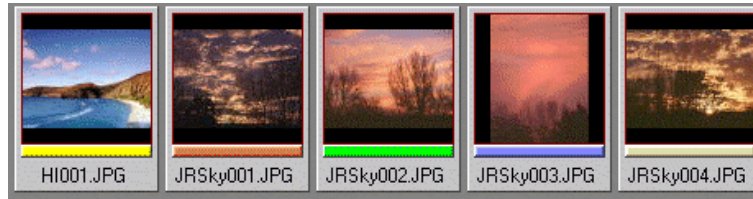


Figure 81: Color-Coding in the Thumbnail Viewer

Note Color-Coding works only for "normal" categories. Formula-based categories don't support Color-Coding.

Searching for images

Selections (Finding Images)

This section explains how to create and perform database selections (queries) with IMatch. You will learn how to create and maintain selection templates, how to execute queries and how to display the result set windows. This section also introduces the result set history and the persistent result set feature.

One of the most important features of IMatch is its ability to perform complex queries against your image database. Selections allow you to:

- Find duplicate images in your image collections, even if the images have been resized, rotated, cropped or resized
- Find image with similar colors or similar shapes based on original images you select
- Find images with absolute or relative size or dimensions
- Find images with similar file names or images that match a specific file name pattern
- Find images based on an absolute or relative date and timestamp
- Find images from a sketch you draw
- Find images that contain specific colors or color combinations
- Find image with specific properties or properties similar to some original images
- Find images based on complex combinations of criteria, like
"Find all images named like bea that have been added within the last 3 months"* or
"Find images that are mostly red and smaller than 640 x 480, but only if they are newer than 6 weeks"
 You get the point...

Note Other image management tools may refer to the process of running selections against your database as "*Finding Images*", "*Running Queries*", "*Searching*" or something similar.

Ad-hoc Selections

IMatch allows you to perform the most frequently selections directly from the SEARCH menu. Some of the search commands here work with their own user interface, others open the [Selection Editor](#) to allow you to edit and run a selection.

Search for File Names

This selection allows you to find images based on their file name. This dialog supports two search modes:

- **Simple Search**
Here you just enter a part of the file name (*beach* in the example). This search will return all images in your database with a file name containing the word *beach*.
- **Power Search (Regular Expression Search)**
This is a regular expression based search. Using regular expressions, you can find literally any file name, even with the most complex search criteria.

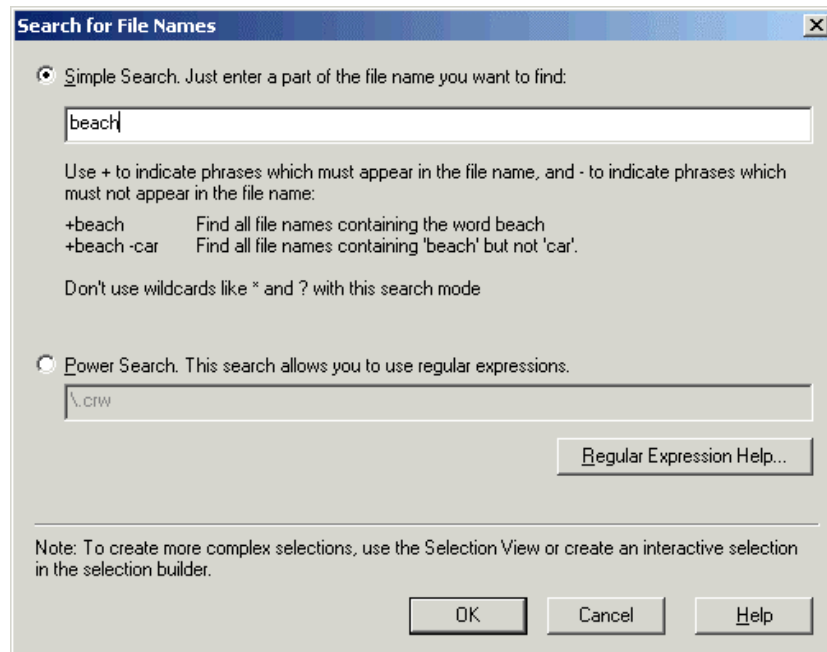


Figure 48: Searching for images using the file name

All options available in this dialog are explained in the section about the FILE NAME SELECTOR below.

Find Text in Properties

This Ad-hoc search dialog allows you to search your image property set (see section [Image Property Sets](#)) for any type of text or patterns. For example, if you have created image properties like *Title* and *Description*, you can search these fields for words or phrases.

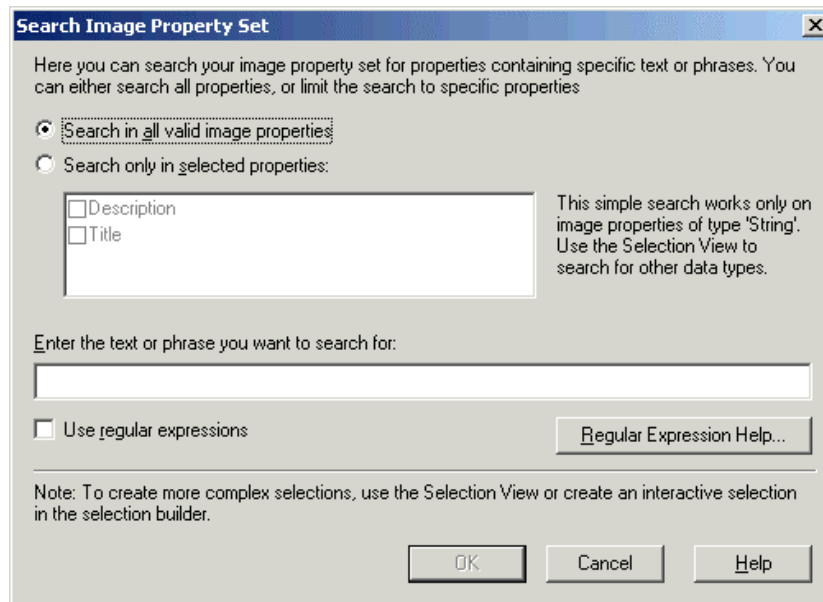


Figure 49: Searching for image properties

The dialog allows you to search all your *string* type properties, or to limit the search to specific properties in your image property set.

You can either search for plain text like "*beach*" or "*+beach-car*", or you can form complex queries using standard regular expressions.

Note The Ad-hoc queries allow you to quickly search your database for the most frequently used fields. To create more complex queries either run *interactive selections* or create a stock selection in the **SELECTION BUILDER**.

Data Security and Backups

Backup Procedures

Regular backups are important. They protect you against data loss due to hard disk damage, disk failure or program errors.

To backup your IMatch databases, simply copy all database files to another disk, an external media or a tape streamer. A database consists of a number of files, all sharing the same name, but different extensions.

IMatch stores your personal preferences, IPTC presets and other configuration files in your personal folder. Under older versions, this folder is located below `\Windows\Profiles\. For newer Windows versions, this folder is located under \Documents and Settings\\My Documents. In both cases, the folder is named photoools.com IMatch.`

You should also backup your Windows installation, including the system registry. IMatch stores user- and machine-depended configuration settings in the system registry. However, if you need to install IMatch on a fresh Windows version, this information can be easily recovered by re-installing IMatch.

Selections (Finding Images)

What is this all about?

When image collections grow, it becomes more and more difficult to keep track of this image flood. Often you will be in a situation where you *know* that you have an image like *this*, but you cannot recall where it is. However, often you remember a **part of the file name**, or a **date where you have added this image** to your collection or even the basic shape of the image. In these situations, the selection functionality of IMatch can help you to find your images within seconds.

Perhaps you use keywords in an image property set property, or you want to find specific words or phrases in another property, like "Title" or "Description".

Imagine a situation where you **need an image with a blue sky and some grass** in the foreground. Usually you will begin to browse your stock collection for this type of images. If you're lucky, your images have keywords and they will allow you to restrict your search to images with a specific keyword or keyword combination. With IMatch, this process becomes as easy as never. **Simply draw a sketch** of the image you're looking for and let the system do the work for you!

Or, you want to find all **duplicate images** in your database. If you try this by hand, it could easily take days or weeks. With IMatch, you can do the same in a couple of hours, automatically, without your intervention.

Perhaps you are creating some web pages and you need images that **match in color and tone** to the overall **color set of your web pages**. Again, IMatch can do most of the work for you. Run a selection based on a color set and define the colors you want to see in the images.

Finally, IMatch can also find **images with similar colors or shape**, given a set of original images. For each original image, IMatch will show you the best matching images from your image collection, within seconds.

Compare this with trying the same action by browsing your image collections manually!

The process of scanning your image collection for images that match specific criteria is called *query* or *selection*. The result of such a query is a *result set*. A result set contains zero or more images. IMatch displays result sets in a special window called the *Result Window*.

To run a query, you need a *Selection Template* that contains the rules and criteria that define the selection. IMatch interprets the contents of the selection template and applies the *selectors* defined in the template to your image database to produce the result set.

The Selection Process

There are three general ways to run a selection in IMatch:

- You choose RUN SELECTION (<Ctrl>+<M>) from the context menu of a folder, a category or your bookmark collection.
IMatch will open the Run Selection dialog box, presenting you all predefined selection types. From this dialog box, you can either directly run a selection, create a new selection, or edit an existing selection
- You run an *Ad-hoc selection* from the SEARCH menu.
Ad-hoc selections allow you to execute the most frequently used selections (file name, image properties, ...).

- You run a selection from within the SELECTION VIEW
You normally run selections from this view only when you create new selection templates

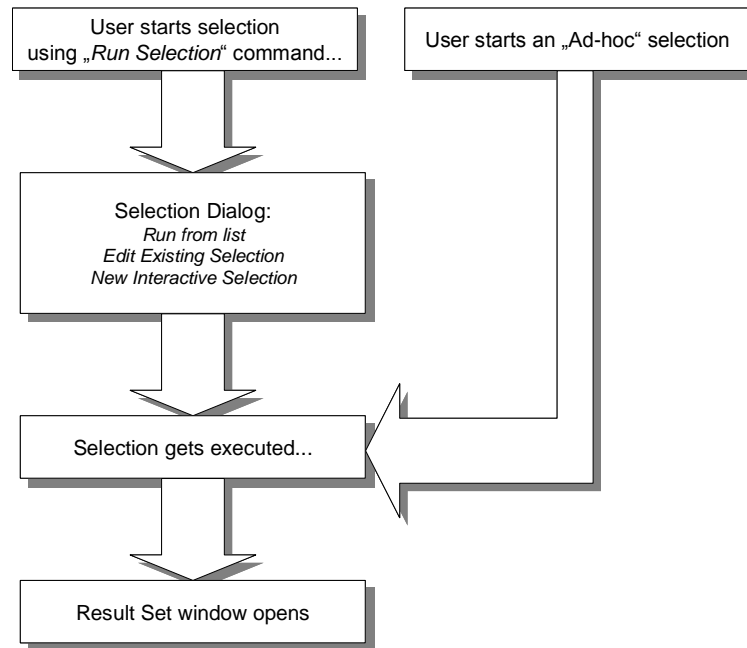


Figure 47: The Selection Process

The result of a query in IMatch is called a *result set*. A result set contains 1 to many images, depending on your search criteria.

Result sets are displayed in a special window, the *Result Window*.

Hint Many of the selections available in IMatch work with a set of *original images*. These selectors use specific attributes of these original images (color, shape, file format, ...) and search for similar images. You can only run these queries when you select one or more images before: a set of thumbnails, a folder, a category or images in your bookmark collection.

Regular Expressions

Regular Expressions

This section covers the regular expression syntax used by IMatch. Regular expressions allow you to specify patterns and tokens you wish to find in your database. IMatch uses regular expressions in various ways, to search for file names, text and image properties.

This section is based on the official documentation to the `regex++` library developed by Dr John Maddock. See also http://ourworld.comuserve.com/homepages/John_Maddock/regexpp.htm or www.boost.org/libraries.htm for more information about this library.

See the [Open Unix Specification](#) for more information about regular expressions and their use in various environments.

In Simple Words

IMatch allows you to search the text contents (file names, user-defined image properties) of your database for specific patterns.

For example, if you want to find all file names containing the word "beach" or "car", you can use the FILE NAME SELECTOR or the AD-HOC SEARCH FOR FILE NAMES to find these files.

If you want to scan your user-defined image property "Title" for specific patterns, you can use the PROPERTY SELECTORS or the AD-HOC SEARCH FOR IMAGE PROPERTIES to do so.

These are rather simple search terms, and you can search for such simple patterns in IMatch by just specifying the pattern you're looking for in the appropriate fields:

<i>beach</i>	<i>Find all file names or properties containing the word beach</i>
<i>+beach +car</i>	<i>Find all file names or properties containing the words beach AND car</i>
<i>+beach -car</i>	<i>Find all file names or properties containing the word beach but NOT car</i>

If you want to use more complex patterns, for example, to find all file names starting with "a" or a number, you need a way to tell IMatch exactly what to search for. In these cases, you use *regular expressions* to specify the pattern.

Regular expressions are powerful and flexible, but may be a bit confusing at first. This section gives you some examples of regular expressions to show you what can be achieved. The following section explains everything in detail.

Examples

<code>^a</code>	Find all matches starting with "a" or "A". If you use this pattern in the <i>file name search</i> , it will return all file names starting with a
<code>^beach</code>	Find all matches starting with "beach"
<code>\.jpg</code>	Find all patterns containing ".jpg". Use patterns like this to find files of a specific type. You may also use the <i>file format selector</i> for the same purpose. Note: The dot "." Has a special meaning in regular expressions. Use "\." instead.
<code>^[0-9]</code>	Find all matches starting with a number
<code>^[a-c]</code>	Find all matches <i>starting</i> with one of the letters "a", "b", or "c"
<code>[a-c]\$</code>	Find all matches <i>ending</i> with one of the letters "a", "b", or "c"

Note In IMatch, all regular expressions are case-insensitive.

Regular Expression Syntax

Note The following section contains the in-depth documentation for the regular expression engine used in IMatch. Reading this section for the first time may be a bit challenging, but understanding the power and flexibility of regular expressions allows you to search your database efficiently in even the most complex cases.

Literals

All characters are literals except: ".", "*", "?", "+", "(", ")", "{", "}", "[", "]", "^", "\$" and "\". These characters are literals when preceded by a "\". A literal is a character that matches itself.

Wildcard

The dot character "." matches any single character.

Repeats

A repeat is an expression that is repeated an arbitrary number of times. An expression followed by "*" can be repeated any number of times including zero.

An expression followed by "+" can be repeated any number of times, but at least once.

An expression followed by "?" may be repeated zero or one times only.

When it is necessary to specify the minimum and maximum number of repeats explicitly, the bounds operator "{" may be used, thus "a{2}" is the letter "a" repeated exactly twice, "a{2,4}" represents the letter "a" repeated between 2 and 4 times, and "a{2,}" represents the letter "a" repeated at least twice with no upper limit.

Note that there must be no white-space inside the {}, and there is no upper limit on the values of the lower and upper bounds.

Examples:

"ba*" will match all of "b", "ba", "baaa" etc.

"ba+" will match "ba" or "baaaa" for example but not "b".

"ba?" will match "b" or "ba".

"ba{2,4}" will match "baa", "baaa" and "baaaa".

Non-greedy repeats

Whenever the "extended" regular expression syntax is in use (the default) then non-greedy repeats are possible by appending a "?" after the repeat; a non-greedy repeat is one which will match the *shortest* possible string.

For example to match html tag pairs one could use something like:

```
"<\s*tagname[^\>]*>(.*?)<\s*/tagname\s*>"
```

In this case \$1 will contain the text between the tag pairs, and will be the shortest possible matching string.

Parenthesis

Parentheses serve two purposes, to group items together into a sub-expression, and to mark what generated the match. For example the expression "(ab)*" would match all of the string "ababab".

Non-Marking Parenthesis

Sometimes you need to group sub-expressions with parenthesis, but don't want the parenthesis to spit out another marked sub-expression, in this case a non-marking parenthesis (? :expression) can be used. For example the following expression creates no sub-expressions:

```
"(?:abc)*"
```

Alternatives

Alternatives occur when the expression can match either one sub-expression or another, each alternative is separated by a "|", or a "\|" if the flag regbase::bk_vbar is set, or by a newline

character if the flag `regbase::newline_alt` is set. Each alternative is the largest possible previous sub-expression; this is the opposite behaviour from repetition operators.

Examples:

"a(b|c)" could match "ab" or "ac".

"abc|def" could match "abc" or "def".

Sets

A set is a set of characters that can match any single character that is a member of the set. Sets are delimited by "[" and "]" and can contain literals, character ranges, character classes, collating elements and equivalence classes. Set declarations that start with "^" contain the compliment of the elements that follow.

Examples:

Character literals:

"[abc]" will match either of "a", "b", or "c".

"[^abc]" will match any character other than "a", "b", or "c".

Character ranges:

"[a-z]" will match any character in the range "a" to "z".

"[^A-Z]" will match any character other than those in the range "A" to "Z".

Note that character ranges are highly locale dependent: they match any character that collates between the endpoints of the range, ranges will only behave according to ASCII rules when the default "C" locale is in effect. For example, in `IMatch`, `[a-z]` will match the ASCII characters a-z, and also 'A', 'B' etc, but not 'Z' which collates just after 'z'.

Character classes

Character classes are denoted using the syntax "[[:classname:]]" within a set declaration, for example "[[:space:]]" is the set of all whitespace characters. Character classes are only available if the flag `regbase::char_classes` is set.

The available character classes are:

- A Any alpha numeric character.
l
n
u
m
- a Any alphabetical character a-z and A-Z. Other characters may also be included depending upon the locale.
l
p
h
a
- b Any blank character, either a space or a tab.
l
a
n
k

c n t r l	Any control character.
d i g i t	Any digit 0-9.
g r a p h	Any graphical character.
l o w e r	Any lower case character a-z. Other characters may also be included depending upon the locale.
p r i n t	Any printable character.
p u n c t	Any punctuation character.
s p a c e	Any whitespace character.
u p p e r	Any upper case character A-Z. Other characters may also be included depending upon the locale.
x d i g i t	Any hexadecimal digit character, 0-9, a-f and A-F.
w o r d	Any word character - all alphanumeric characters plus the underscore.
u	Any character whose code is greater than 255, this applies to the wide

n character traits classes only.
i
c
o
d
e

There are some shortcuts that can be used in place of the character classes:

`\w` in place of `[:word:]`

`\s` in place of `[:space:]`

`\d` in place of `[:digit:]`

`\l` in place of `[:lower:]`

`\u` in place of `[:upper:]`

Collating elements take the general form `[.tagname.]` inside a set declaration, where *tagname* is either a single character, or a name of a collating element, for example `[[.a.]]` is equivalent to `[a]`, and `[[.comma.]]` is equivalent to `[,]`.

The library supports all the standard POSIX collating element names, and in addition the following digraphs: "ae", "ch", "ll", "ss", "nj", "dz", "lj", each in lower, upper and title case variations. Multi-character collating elements can result in the set matching more than one character, for example `[[.ae.]]` would match two characters, but note that `[^.[ae.]]` would only match one character.

Equivalence classes take the general form `[=tagname=]` inside a set declaration, where *tagname* is either a single character, or a name of a collating element, and matches any character that is a member of the same primary equivalence class as the collating element `[.tagname.]`. An equivalence class is a set of characters that collate the same, a primary equivalence class is a set of characters whose primary sort key are all the same (for example strings are typically collated by character, then by accent, and then by case; the primary sort key then relates to the character, the secondary to the accentation, and the tertiary to the case). If there is no equivalence class corresponding to *tagname*, then `[=tagname=]` is exactly the same as `[.tagname.]`. Unfortunately there is no locale independent method of obtaining the primary sort key for a character, except under Windows.

To include a literal "-" in a set declaration then: make it the first character after the opening "[" or "[^", the endpoint of a range, or a collating element.

To include a literal "[" or "]" or "^" in a set then make them the endpoint of a range, or a collating element

Line anchors

An anchor is something that matches the null string at the start or end of a line: `^` matches the null string at the start of a line, `$` matches the null string at the end of a line.

Back references

A back reference is a reference to a previous sub-expression that has already been matched, the reference is to what the sub-expression matched, not to the expression itself. A back reference consists of the escape character `\` followed by a digit "1" to "9", `\1` refers to the first sub-expression, `\2` to the second etc. For example the expression `(.*)\1` matches any string that is repeated about its mid-point for example "abcabc" or "xyzxyz". A back reference to a sub-expression that did not participate in any match, matches the null string: NB this is

different to some other regular expression matchers. Back references are only available if the expression is compiled with the flag `rebase::bk_refs` set.

Word operators

The following operators are provided for compatibility with the GNU regular expression library.

`"\w"` matches any single character that is a member of the "word" character class, this is identical to the expression `"[:word:]"`.

`"\W"` matches any single character that is not a member of the "word" character class, this is identical to the expression `"[^:word:]"`.

`"\<"` matches the null string at the start of a word.

`"\>"` matches the null string at the end of the word.

`"\b"` matches the null string at either the start or the end of a word.

`"\B"` matches a null string within a word.

The start of the sequence passed to the matching algorithms is considered to be a potential start of a word. The end of the sequence passed to the matching algorithms is considered to be a potential end of a word.

Buffer operators

The following operators are provide for compatibility with the GNU regular expression library, and Perl regular expressions:

`"\"` matches the start of a buffer.

`"\A"` matches the start of the buffer.

`"\"` matches the end of a buffer.

`"\z"` matches the end of a buffer.

`"\Z"` matches the end of a buffer, or possibly one or more new line characters followed by the end of the buffer.

A buffer is considered to consist of the whole sequence passed to the matching algorithms.

Escape operator

The escape character `"\"` has several meanings.

Inside a set declaration the escape character is a normal character.

The escape operator may introduce an operator for example: back references, or a word operator.

The escape operator may make the following character normal, for example `"\"` represents a literal `"*"` rather than the repeat operator.

Single character escape sequences

The following escape sequences are aliases for single characters:

Escape sequence	Character	Meaning
-----------------	-----------	---------

	code	
<code>\a</code>	0x07	Bell character.
<code>\f</code>	0x0C 0x0A	Form feed.
<code>\n</code>		Newline character.
<code>\r</code>	0x0D	Carriage return.
<code>\t</code>	0x09	Tab character.
<code>\v</code>	0x0B	Vertical tab.
<code>\e</code>	0x1B	ASCII Escape character.
<code>\odd</code>	Odd	An octal character code, where dd is one or more octal digits.
<code>\xXX</code>	0xXX	A hexadecimal character code, where XX is one or more hexadecimal digits.
<code>\x{XX}</code>	0xXX	A hexadecimal character code, where XX is one or more hexadecimal digits, optionally a unicode character.
<code>\cZ</code>	z-@	An ASCII escape sequence control-Z, where Z is any ASCII character greater than or equal to the character code for '@'.

Miscellaneous escape sequences:

The following are provided mostly for perl compatibility, but note that there are some differences in the meanings of `\l` `\L` `\u` and `\U`:

Equivalent to `[:word:]`.

Equivalent to `^[[:word:]]`.

Equivalent to `[:space:]`.

Equivalent to `^[[:space:]]`.

Equivalent to `[:digit:]`.

Equivalent to `^[[:digit:]]`.

Equivalent to `[:lower:]`.

Equivalent to `^[[:lower:]]`.

Equivalent to `[:upper:]`.

Equivalent to `^[[:upper:]]`.

Any single character, equivalent to `'.'`.

Match any Unicode combining character sequence, for example `"\x 0301"` (a letter a with an acute).

The begin quote operator, everything that follows is treated as a literal character until a `\E` end quote operator is found.

The end quote operator, terminates a sequence begun with `\Q`.

Creating and Managing Selections

Creating and Managing Selections

IMatch combines all selection related functionality in the SELECTIONS VIEW, accessible via the third tab on the lower left of your workspace window. In this view you can maintain and manage your selection templates, the bookmarks the selection history and the persistent result sets.

Every new IMatch database has a couple of predefined selection templates, which handle the most common queries. Figure 50 shows the Selections View with the opened *selection editor*, the *selection template* selected is *Duplicate Images*.

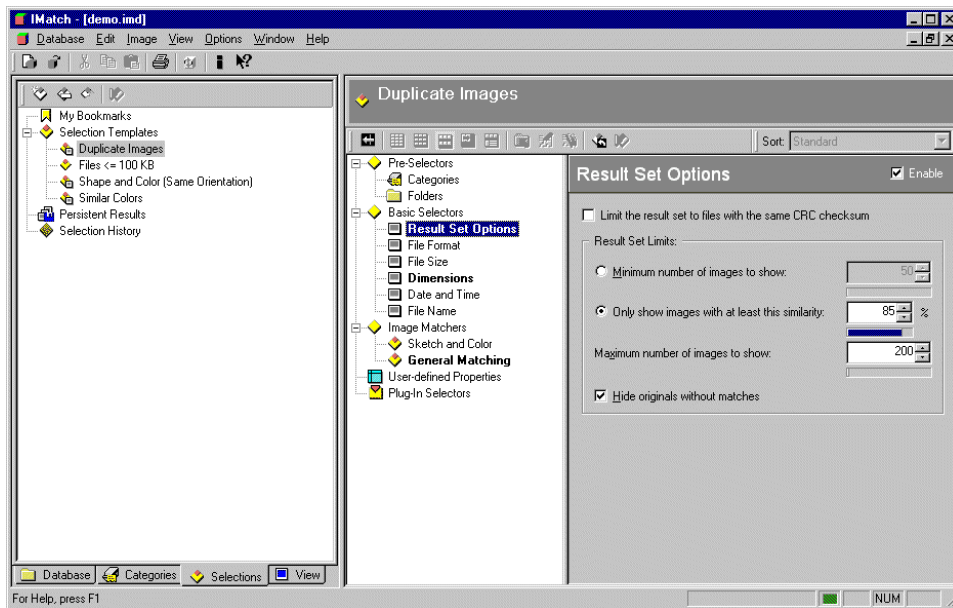


Figure 50: The Selections View (left) and the Selection Editor (right)

The SELECTION EDITOR consists of two windows: on the left you see a tree control with all selection criteria, grouped by *selector category*. The right window contains a specific editor for the highlighted selector.

All selectors are combined via the Boolean operator AND. This means that if you selection template contains more than one selector, all selectors have to be met to include an image in the final result set.

Note Unless you change the Result Set Options, all selections in IMatch return a maximum of 200 matches per original or in total.

For example, if you define a selector to limit the file size to 640 x 480 and a second selector to limit the file size to a maximum of 200 KB, IMatch will return only images that meet both conditions.

Selector Categories

IMatch arranges the available selectors into a couple of selector categories. Each selector has it's own properties and options which you can set in the selection editor. The available categories are:

- Pre-Selectors** This category contains the *Folder Selector* and the *Category Selector*. These selectors allow you to restrict your final result set to contain only images from specific folders or categories
- Basic Selectors** This category holds all selectors that act on image file properties, e.g. the *file format*, *file size*, *image dimensions*, *orientation*, *date and time*, and *file name*.
Of special importance is the **Result Set Options** selector. It allows you to control the size of your result set, the similarity threshold and the maximum number of images to show
- Image Matchers** This category contains the most sophisticated selectors. *Sketch and Color Match* allows you to find duplicate images, or images similar in color and

shape to some original images.

With the *Sketch Match* you can find images based on specific colors in the image or by using a sketch that you draw

User-defined properties These selectors are based on the user-defined property sets. They allow you to perform selections on any property set that you associate with the images in your database. See section [Image Property Sets](#) for more information on this subject.

Plug-In Selectors All external and third party matching modules are arranged in this selector category

To use any of the selectors in your selection template, you must first **enable** it by **double-clicking** on the selector name in the left window or by checking the ENABLED check box in the right window. By default, IMatch disables all selectors. Since the selection gets slower as you add more rules or selectors to your selection template, you should use only the minimum number of selectors to create the desired result. Enabled selectors are shown in **bold**; see Figure 50.

At least you should enable the Result Set Options selector to control how many images will be in your result set. Then use another selector to actually perform a selection on your image database.

Explained: Originals, Matches and Similarity

Before we can explain the different selectors and their options, we should shed some light on some new terms introduced here. An **original image** is an image that is used to find matching images in your database. Most of the selectors need an original image or have a special mode dealing with original images. For example, if you want to find *similar images*, you first need to specify an image to be used as the original image to compare all other images with.

Some of the selectors don't need an original image. An example is the *Dimension* selector. Here you have the choice between a query **relative** to the dimensions of an original image and an **absolute** query, based on numerical values you enter yourself.

Relative: *"Find all files with +/- 20% of the original image dimensions"* or

Absolute: *"Find all files less than 800 x 600 pixels"*.

Another sample for selectors that don't need original images is the *File Size* selector. Here you have the choice whether you want to define a size relative to an original image *"Within 10% deviation of the original image"* or an absolute size *"All files larger than 500 KB"*.

Note A special icon in the selector tree indicates selectors that are configured to use original images. If a selection has no selector that needs on original image, you may run the selection directly from the SELECTION VIEW, else you first need to select some images in a thumbnail viewer.

The **similarity** between images is measured as a percentage between 0% and 100%. 0% means *no match* and 100% indicates a *very good match* – of course depending on the selectors you use in your selection. The *Color Similarity*, *Color and Shape* and *Duplicates* selectors rank each image in your database somewhere between 0% and 100%, compared to the original image you supply. For the simpler selectors, like *File Size* or *Dimensions*, images get a 100% ranking if they meet the criteria you defined or 0% if not.

Note Unless you change the Result Set Options, all selections in IMatch return a maximum of 200 matches per original or in total.

The Folder Selector

This selector allows you to select a set of folders for your selection. If you activate this selector, IMatch considers only the files in the selected folders during the match.

This selector operates in one of two modes:
FILES IN THE ACTIVE FOLDER

If you check this option, IMatch considers only files in the active folder during the selection. This option is especially useful if you want to search for similar file names or files in the folder you're currently viewing. Combine this option with another selector type to limit the search to the files in the active folder.

FILES IN SELECTED FOLDER(S)

This option allows you to select a number of folders from a list. IMatch only considers files from these folders during the match. You may also check the INCLUDE SUB-FOLDERS (RECURSIVE) option to include the sub-folders of the selected folders in your search.

The Category Selector

This selector allows you to select a set of categories for your selection. If you activate this selector, IMatch considers only the files in the selected categories during the match.

This selector operates in one of three modes:

FILES IN THE ACTIVE CATEGORY

If you use this option, IMatch considers only images from the currently active category during the selection. This enables you to limit your search to the files in the category you're currently viewing.

FILES IN SELECTED CATEGORIES

This option allows you to select a set of categories from your database. IMatch considers only the images contained or referenced by these categories during the match.

If you choose this option, you can combine the selected categories using the Boolean operations OR or AND. If you OR the categories, the resulting image set will contain all images from the selected categories. If you AND the selection, the resulting image set will contain only the images contained in all selected categories.

SAME CATEGORIES AS ORIGINAL IMAGE(S)

Check this option if you only want to consider the categories of the selected original images during the match.

The Result Set Options selector

A good way to begin is to enable the Result Set Options selector. It allows you to control the size and contents of your result set with various options:

Note Unless you change the Result Set Options, all selections in IMatch return a maximum of 200 matches per original or in total.

You can set the **minimum number of images to show**, or enter a minimum similarity (in percent between 1 and 100%). If you choose to show a minimum number of images, IMatch will display this number of images, regardless of their actual similarity ranking. If you choose to specify a **minimum similarity**, IMatch will show only images in the result set with a similarity equal to the given threshold or better.

The **sort order** of the result set in the thumbnail viewer is controlled by the current sort preset used; see section [Smart Sorting with Sort Presets](#).

Of special importance is the **maximum number of images** for your result set. If you have a very loose selector, IMatch will easily add several **thousand images** in your result set. A good limit is about 200 images. However, if you set this to the maximum value of 10,000, IMatch will return all images in your database above the similarity threshold, up to 10,000 images.

If you check the **hide originals without matches**, IMatch will only show images in the result set that actually have matches. If none of your original images have matches, IMatch will return an empty result set.

If you enable the **limit the result set to files with the same CRC checksum**, IMatch will only show images in the result set that have the same Cyclic Redundancy Checksum than the original image. This will allow you to find all **binary identical** images (real duplicates) for your original images. This is the **fastest selector available** in IMatch. Use it to scan your database for binary duplicate images.

Important The CRC selector is based on a 32-Bit Cyclical Redundancy Check algorithm. Although unlikely, it may happen, that two different images result in the same CRC checksum. Keep that in mind. However, if this happens, you will see the difference in the thumbnail viewer or the result window immediately.

If you use Plug-In selectors for your database, it may be important in which order they are evaluated with respect to the built-in match modules. You can either run Plug-In selectors before or after the built-in match modules by checking the appropriate option on this tab.

Try it for yourself

Open your initial database in IMatch. If you have not already added some images, do it now. You should have at least 1,000 or 2,000 images in your database to get an impression on how selections work.

Switch to the SELECTION VIEW by clicking on the SELECTION tab on the lower left of your workspace window or by pressing STRG+3. You may also choose SELECTION VIEW from the VIEW menu.

Unfold the SELECTION TEMPLATES item in the tree control on the left. Select the entry named FILES <= 100 KB; compare to Figure 50.

In the selection editor on the right, click on the selector RESULT SET OPTIONS under the BASIC SELECTORS GROUP.

This selector is set as follows: The result set will contain all images with a 100% match; a maximum of 10,000 images will be shown. The HIDE ORIGINALS WITHOUT MATCHES OPTION has no meaning here since this selector does not need original images.

Now select the FILE SIZE selector. You can see that we use an *absolute* file size between 0 and 100 KB. This selector will filter out all images with a file size larger than 100 KB.

To run this selection and to create a result set, click on the selection template in the left window and open the context menu by clicking the right mouse button. From the options available in the menu, choose RUN... After a couple of seconds, IMatch will open a result window; showing all images in your result set.

Note This selection does not need original images. IMatch indicates that with a special icon shown next to this selection in the SELECTION VIEW. All selections without originals can be executed directly from the SELECTION VIEW. For all other selections, you first need to select at least one original image in a thumbnail viewer. You may also start a selection from the context menu of a folder or a category.

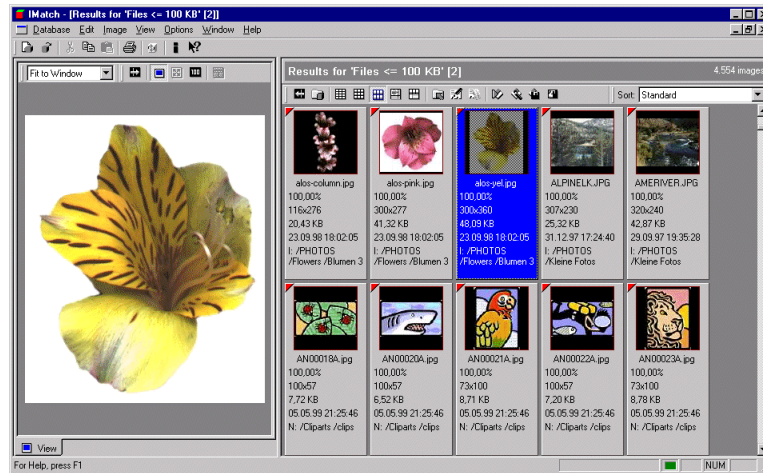



Figure 51: The result set for our selection in a result set window

In my demo database, this query returns a total of 4,554 images; see Figure 51. On the left side of the result window, you have a built-in image preview window.

You now may view your result, perform file operations on the images in the result set or assign them to categories (see section [Categories](#)). Of course, you also can select some images to run another selection directly from the current result set. If you do so, IMatch will open a new result window, showing the results of the new selection. The current result window will remain open, thus allowing you to compare the results of both selections.


Using this schema you can actually **drill-down** your result sets.

Modifying the current result set's selector

The local toolbar of the result window contains a special icon  that allows you to modify the selector for the **current result set**. If you choose this command, IMatch will bring up a dialog box with the selection template used to create this result.

You may modify the selectors in this template to **rerun** your current selection with some new parameters. The result will be displayed in the **current result window**, replacing the contents of it. This feature is very useful if you try to get the best result or to find some good settings for your selector.

Gray scale images are images that contain only black, white and all shades of gray. If IMatch finds a 'real' color, it will treat the image as a color image, even if it appears as gray scale to the user

By pressing the SAVE SELECTION TEMPLATE button  in the toolbar, you can save the current selection template under a new or an existing name to keep it for the future.

Now that you've got an impression on how a query in IMatch works, let's continue with the other selector types.

Note If you rerun a selection, IMatch will use the current set of originals as the

original set for the refined selection. If you have used the HIDE ORIGINALS WITHOUT MATCHES option for the current selector, IMatch will consider only the remaining originals and not all initially selected files.

The Area of Interest Selector

This selector allows you to specify the area of interest for your selection. Usually, IMatch considers the entire area of an image when it compares your original images with the images contained in the database. For some special cases however, this may result in non-optimal results.

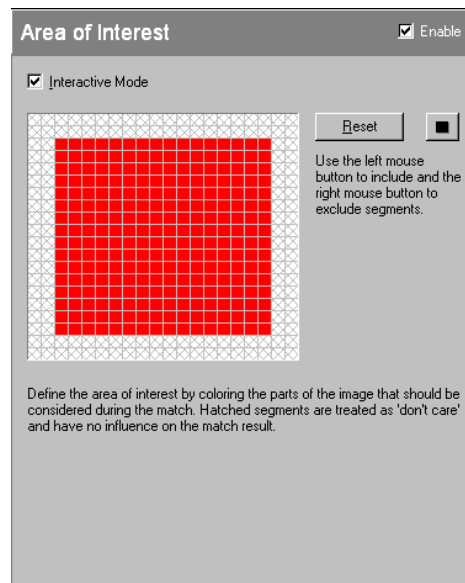


Figure 52: The Area of Interest selector

The Area of Interest selector consists of a 20 x 20 grid. Each grid cell represents approximately 5% of your images. Initially, the entire grid is colored in red, meaning that the whole image is considered during the match.

With the right mouse button, you can exclude portions of the image. By excluding a portion of the image you tell IMatch that the content in this part of the image is of no interest for the final match result. You can also say that these excluded portions are the '*don't care*' parts of your images.

If some of your images have borders, and some don't, it may be a good idea to exclude one or two grid cells on each border (see Figure 52). After this definition, IMatch will ignore the contents of a 5%-10% area on each side of your images, thus ignoring the border area.

Another good way to use this feature is when you store images captured by digital cameras in your database. If you want to check only a specific portion of the images, set the Area of interest only to these areas of the image.

Interactive Mode

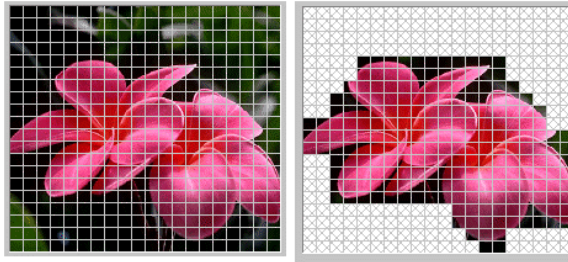


Figure 53: Focusing on relevant parts of the image

Besides defining a static Area of Interest that is used for each image, you may also activate the interactive mode. If you check this option, IMatch will show the selector dialog box whenever you run a match.

IMatch will use the first original image as a backdrop for the Area of Interest selector. This allows you to erase all irrelevant parts of the image (compare to Figure 53). By erasing the irrelevant parts of the original image will usually lead to better matches.

The File Format selector

IMatch supports over 40 file formats with several sub-types. The File Format selector allows you to create a result set containing only files with a specific format, e.g. only TIFF or BMP files. You can choose any number of formats. IMatch will return all files that match one of the file types selected.

The **Color Format** setting allows you to control how the SKETCH AND COLOR match algorithms work. Normally, the match algorithm handles grayscale and color images the same, thus returning gray scale images and color images in the result set. If you want to make a difference between color and gray scale, use the DIFFERENTIATE BETWEEN... option here. Depending on the type of your original images (color or grayscale), IMatch will put different weights on the images in the result set. If your original image is gray scale, IMatch will favor gray scale images in the result set, or vice versa.

If you choose the SAME AS ORIGINAL IMAGE option, IMatch will return only color or gray scale images, depending on the type of the original image.

The File Size selector

This selector allows you to add a restriction based on file size (on disk) to your result set. There is a mode *relative* to some original images and an *absolute* mode, where you can enter a specific file size range. If you use the relative mode, you can restrict the result set to contain only images with sizes within a specific *percentage* of the original image. For example, if your original image is 200 KB, and you use a 10% filter, IMatch will only consider files between 180 KB and 220 KB for the result set.

You may also use the absolute mode to limit your result set to files with a specific size. For example, if you enter a range like 0 to 200, IMatch will limit your result set to contain only images less than or equal to 200 KB.

The Dimensions Selector

The dimensions selector works with the *dimensions* and *orientation* of your images. Dimension means the vertical and horizontal extent of your images, in pixels. Again, there's a relative and an absolute mode for this selector. If you use the *relative* mode, you can limit the

result set to contain only images with dimensions within a specific percentage relative to some original images. For example, if you choose RELATIVE, HORIZONTAL AND VERTICAL DIMENSIONS, and a value of 20%, IMatch will only return images that are +-20% in both horizontal and vertical dimension relative to your original images.

The absolute mode allows you to restrict your result set to images that have a specific range in the horizontal and/or vertical extent. For example, if you enter here 0 to 600 for the horizontal extent, IMatch will return only images that have a maximum of 600 pixels in the horizontal dimension. The maximum for both extensions is 10,000 pixels.

The CONSIDER ORIENTATION setting allows you to limit your result set to images with a specific orientation, absolute or relative to some original images. If you leave this to PORTRAIT AND LANDSCAPE, IMatch will not apply additional restrictions. The SAME AS ORIGINAL IMAGE setting will return only images with the same orientation (portrait or landscape) as the original images. With ONLY LANDSCAPE or ONLY PORTRAIT you can restrict the result set to contain only images of a specific orientation.

Tip By setting this selector to SAME AS ORIGINAL IMAGE you can increase the performance of your selections, since IMatch will only need to consider images with the same orientation as your original image. Also, this setting usually results in a better match quality since images with the same motive often have the same orientation.

The Date and Time Selector

With the date and time selector you can restrict your result set to contain only files with a specific date range. As usual, there is an absolute and a relative mode. With the relative mode you can restrict your result set to contain only images that have a file date *before or after your original images*. You even can restrict the result set to contain only *newer or older* images, with respect to your originals.

This selector can be used to find files that have been modified within a specific *time period* before or after some original image. For example, if you have identified an image in your collection, you can easily select all other files that have been modified in the **same week**, the **same month** or **two days before or after**.

The absolute mode allows you to restrict your result set to a specific date range. For example, if you want to see all images modified in January, just select a start date of January the 1st to January the 31st. IMatch will only consider images for your result set that have been created or modified within this period.

Note Some file systems (e.g. FAT) store date and time of files with a localized time, relative to the system time on the computer. Other file systems, like NTFS under Windows NT and Windows 2000 store file date and times in UTC. IMatch cannot decide whether or not the files on your disk have been stored with time light saving or other local time settings and hence may fail to find some files based on an absolute date.

To avoid problems, always select a time range at least one day larger than the required range. Also make sure that your end date is always at least one day after the start date.

The File Name selector

One of the most frequently used selectors is the file name selector. This selector supports three different modes to handle all usual requirements.

Smart File Name

The most 'intelligent' type is the SMART FILE NAME mode. This mode is able to identify all the usual file name deviations, e.g. numbered series like "image01", "image02", ... or similarity between file names, like "Kawasaki", "Kawasky", or "Kawa001". This mode is best for finding images with similar names relative to some original images.

This selector works with a set of original images (your current selection).

Partial File Name

The smart file name match is not intended to find file names like "Beach" and "Day at the beach". Here you can get much better results if you choose the PARTIAL FILE NAME selector type, which is optimized to handle such cases. It will identify that the second file name also contains the word "Beach" and will include the image in the result set.

This selector works with a set of original images (your current selection).

Regular Expression Search

The REGULAR EXPRESSION SEARCH works with patterns, much like the "*" and "?" Wildcards you can use to specify file names at the command line or in a File Open dialog box.

The patterns you can enter here can be very complex, satisfying even the most difficult requirements.

Hint All selection dialogs that allow you to use regular expressions have a regular expression quick reference. Just click on the corresponding button in the dialog.

Search Engine Like

With the SEARCH ENGINE LIKE selector you can find all file names containing one or more specific patterns. For example, by entering "beach" IMatch will return all file names containing the word *beach*.

You can combine the search patterns with + or minus to force inclusion or exclusion of specific patterns. If you don't use + and -, IMatch treats all patterns as combined via logical OR.

Some examples:

beach Finds all file names containing the word beach

beach car Finds all file names containing the words beach or car or both

+beach +car Finds all file names containing the words beach **and** car

beach -car Finds all file names containing the words beach **and not** car

The Sketch and Color selector

With the SKETCH AND COLOR selector you are able to find images that contain specific colors, or images that match a sketch you draw.

Selections like "Show me all images which are mostly red" or "Show me all images which are blue on the top and green at the bottom" are very easy to do with this powerful selector type.

The OVERALL COLOR mode allows you to define the colors that you are looking for in an image, and also the overall percentage of these colors. For example, see Figure 54 for a selector definition that selects images that contain large amounts of blue and yellow.

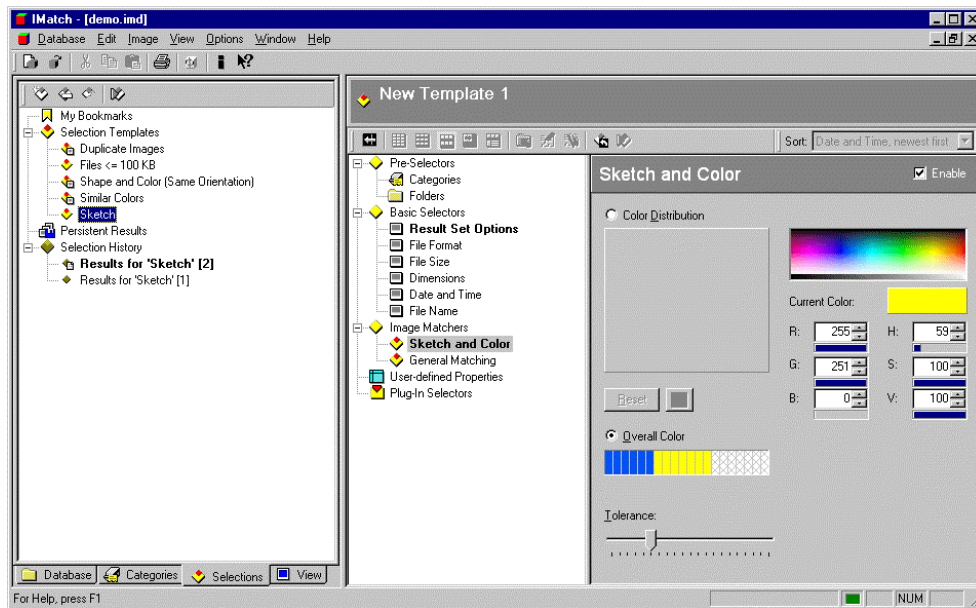


Figure 54: Finding images with specific colors

For my test database, this selection returns the result shown in Figure 55. Imagine how long it would take to find all these images manually; by browsing your database folder by folder...

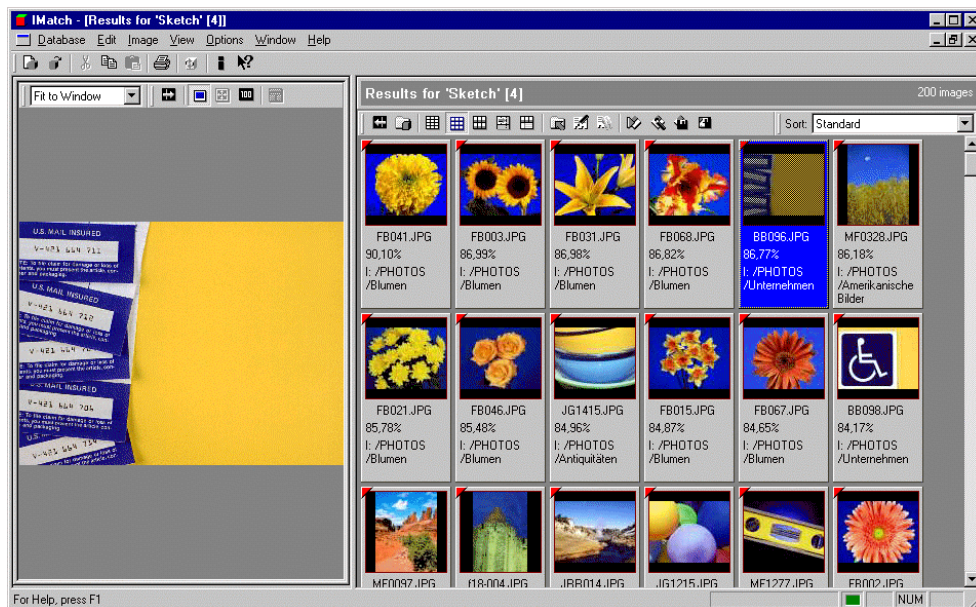


Figure 55: The result for a search on images that contain large amounts of blue and yellow

To define such a query, select the colors you want in the color selector at the upper right of the selector editor or enter color values in the RGB or HSV (Hue, Saturation, Value) edit fields below. Simply click on a color to select it and then 'paint' the amount of color you expect to be in the image in the OVERALL COLOR box. Each segment of this box represents 5% of the total image, summing up to 100%.

Please note that this match method is 'intelligent' - in a sense. It will not only find the exact colors you specify, but will also apply some fuzziness to find all similar colors nearby. You don't have to be *too* exact here. The amount of fuzziness or tolerance that IMatch considers when comparing the images in the database against your color mask can be controlled with the slider at the bottom of the selector editor. Use a lower tolerance value to find images that

match the color mask more closely. If your result set contains only a few images, use a higher tolerance value to loosen the match.

Note Depending on your definition, different tolerance values will produce different results. Since IMatch reacts more or less sensitive to minor color differences, the tolerance setting has a large impact on the result set of your query. Take the time to play around with this setting to get the optimal result. You may use the EDIT SELECTION TEMPLATE button in the local toolbar of the result window to modify the current result set

The COLOR DISTRIBUTION mode allows you to actually draw a sketch of the image you're looking for. In Figure 56 you see a sketch match for finding images with a red center. To define such a search, activate the COLOR DISTRIBUTION mode and draw a sketch of the image you have in mind. With the SQUARE BUTTON below the grid you can change the size of the brush and the RESET button will reset the grid back to the empty state.

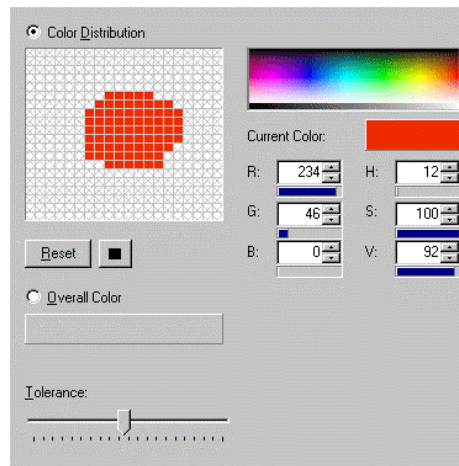


Figure 56: Finding images with a red center

When you run this selection, IMatch will analyze all images in your database and will return only the images that have similar colors as your sketch at approximately the *same position*. Of course, image matching is not an exact science; there is always some fuzziness in the game. As you can see from the result set of this query in Figure 57, IMatch will not only return images with a round red object in the middle, but all images which contain similar shades of red in the center of the image.

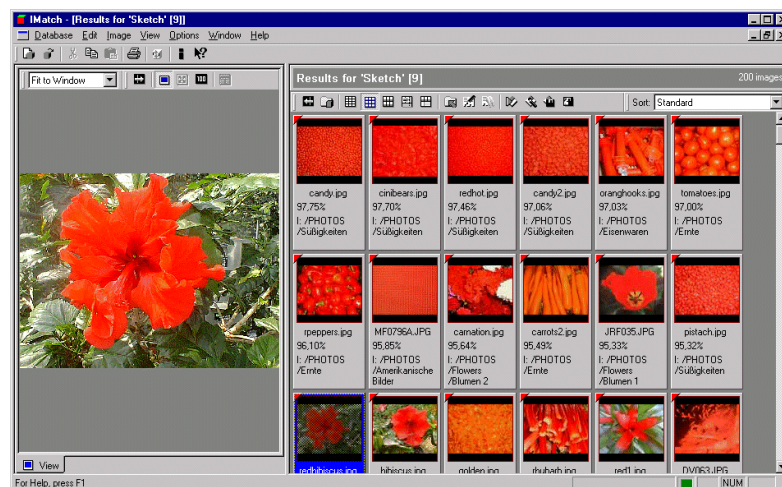


Figure 57: The result for the 'red center' selection

All grid cells not filled with a color are treated as *don't care* and may contain any color in the resulting images. Since we filled only a couple of cells with red color, IMatch returns images that are completely red and also images that only have a red center. Compare to Figure 57 above.

With this the definition in Figure 58, you can find images with a 'sky' shade of blue at the top of the image and a 'sand' color at the bottom. A medium color tolerance worked best for the sample database used:

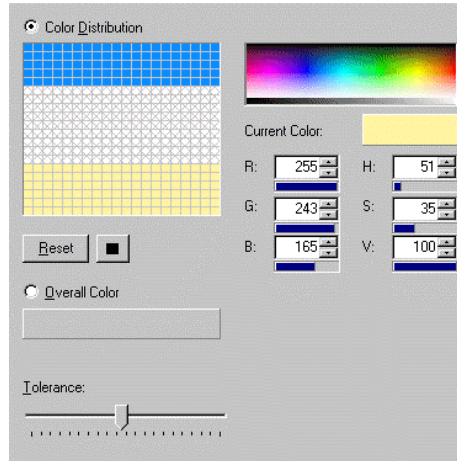


Figure 58: Finding images with sky and sand

The result for this query is shown in Figure 59. Again, to reach the optimal result requires a bit of tweaking, but since IMatch is very fast, you should be able to find the images you're looking for within a couple of seconds.

For example, in the test database it took me about 10 seconds to find the image I had in mind. If I would have to find the image by browsing the 5.000+ image database, it would easily have took several hours to find all images with a sky and a more or less sandy bottom.

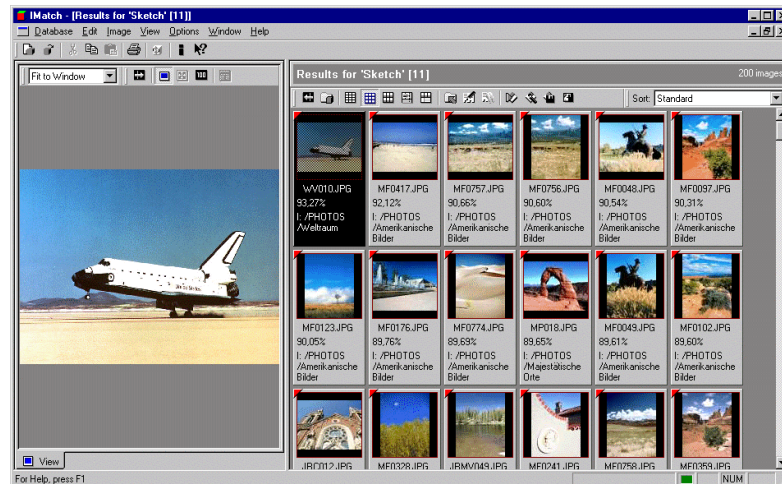


Figure 59: The result set for images with sky blue at the top and sand color at the bottom

The General Matching selector

With the General Matching selector you can query your database for similar images and images with similar colors. This selector also has a special mode tuned to find duplicate images, even if they have been resized, rotated or cropped.

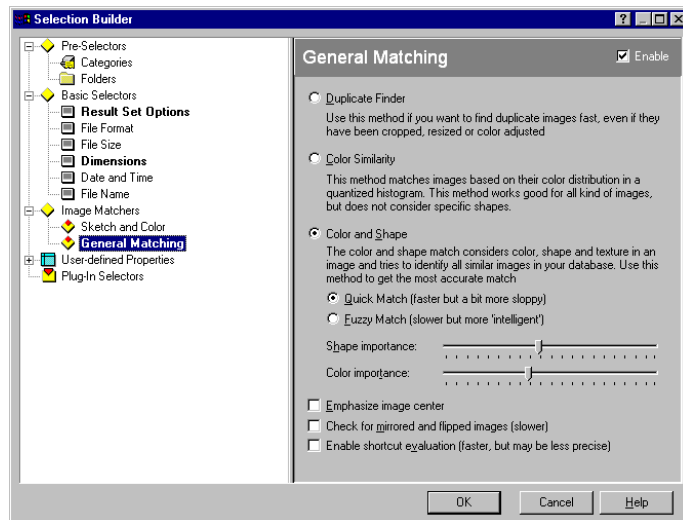


Figure 60: The General Matching selector

User-defined properties selectors

This selector type allows you to create selections based on data contained in your property database (see section [Image Property Sets](#) for more information).

IMatch contains one special selector type for each data type in a property database.

Interactive Mode

All property selectors allow you to activate a special INTERACTIVE MODE. If you enable this option, IMatch will always present the Selection Builder dialog box when you run a selection with an interactive selector. This enables you to enter the match criteria interactively.

For example, if you frequently perform matches based on a property, like "Image State", you may check this option. When you run the query, IMatch opens the selection builder dialog and allows you to select the Image State that you want to search for.

Finding duplicate images

If you want to find duplicate images, use the DUPLICATE FINDER mode of this selector. This algorithm has been optimized to identify **duplicate images**, even if they have been *cropped*, *resized*, *mirrored*, *flipped* or otherwise manipulated.

The ACCOUNT FOR MIRRORED AND FLIPPED IMAGES option forces IMatch to perform some extra calculations to identify images that have been mirrored or flipped. These additional calculations take some extra time, though. Expect your selection to take twice as long as without this option. However, without this option, IMatch **may miss images that have been mirrored or rotated**. However, activating this option may return more irrelevant images in your result set. It depends on the original images which setting works best.

You should also activate the RESULT SET OPTIONS selector when you try to identify duplicate images. Use a high value for the similarity setting, 85% or so is a good starting point. If you want to find only images that are real binary duplicates, you should better use LIMIT THE RESULT SET TO FILES WITH THE SAME CRC CHECKSUM option in the RESULT SET OPTIONS selector.

Color Similarity

The COLOR SIMILARITY analyzes your original images and finds images with **similar colors** in your database. It does not consider the shape of the objects in an image. If your original image contains a red balloon in front of a blue sky, this filter will also find blue balloons in front of a red sky and images with walls painted in red and blue. The position of colors within images is irrelevant for this filter; it only analyzes the overall color distribution. This filter type has no additional properties or settings.

Color and Shape

The COLOR AND SHAPE mode considers the position of colors and objects in an image. With this filter you are able to find images similar in shape and color, based on some original images.

The SHAPE IMPORTANCE slider controls how sensitive IMatch reacts on different shapes in your image. IMatch tries it's best to identify disjoint objects in your original image and compare it to all other images in the database.

The COLOR IMPORTANCE slider controls how sensitive IMatch reacts on different colors in your original image. The higher the value of this slider is, the more close the colors in the target image must match the colors in the original image.

These both sliders have a great impact on the final result set. Often it is **better to use a lower color importance** value to add more tolerance for different shades of the same color.

The shape importance controls how tolerant IMatch reacts on different shapes in the original and target images. Use lower values for more tolerance with respect to shapes or a higher value to be less tolerant.

Both sliders also interact. You should take some time to get used to the influence that both sliders have on the final result. If you find a setting that works good for your type of images, save these settings as a selection template. This will allow you to reuse these settings later to match other images.

If you check the EMPHASIZE IMAGE CENTER option, IMatch will emphasize the center of the original images to focus more on what happens in the middle of the image.

The ACCOUNT FOR MIRRORED AND FLIPPED IMAGES option forces IMatch to perform some extra calculations to identify images that have been mirrored or flipped. These additional calculations take some extra time, though. Expect your selection to take twice as long as without this option. However, without this option, IMatch may miss images that have been mirrored or rotated. Also, activating this option may return more irrelevant images in your result set. It depends on the original images which setting works best.

The ENABLE SHORTCUT EVALUATION uses a faster matching mode with some type of prediction. This results in faster matches, but also may return less optimal results. Try it out for your type of images and decide whether or not it works for you.

Some notes about Image Matching

Please keep in mind that image matching **is not an exact science**. What it very easy for your natural *eye/brain computer* is extremely complicated for a PC: Identifying objects in an image. Your computer only sees the *individual pixels in the image* and has no additional knowledge of what the image really contains.

While you are easily able to decide that an image shows a blond woman with a red jacket in front of a green wall, your computer only sees some red color, some yellow and brown shades, and a larger amount of green. It also has no understanding of the *depth* of the images in the image. There is no third dimension for your computer, at least not in bitmap images. The

human brain is optimized for such tasks, and the nature took some several million years to reach this grade of excellence in pattern and image matching.

The image matching science is currently only at its beginning. It will need many years of hard work and much more in-depth research to make a computer really *identify* objects in images. If you do research in the field of image matching, contact mw@mwlab.de for educational licenses or further information

I have developed the algorithms in IMatch over the last two years, and I have a long way to go to make my algorithms work better and better. Some exiting things are coming. Watch the future versions of IMatch for some additional matching methods...

With IMatch 3 there will be a way for researchers to **add their own algorithms** to the IMatch application framework. IMatch allows adding other matching algorithms in form of plug-in modules, written in C/C++ (and probably other languages supporting a DLL interface).

Since IMatch **got much interest in the image research community**, I hope that many researchers will use IMatch do experiment with new algorithms; using IMatch as a comfortable starting point. IMatch will do all the dirty work, like reading over 40 different image formats, displaying the results, reporting and printing. The plug-in interface will allow researches to concentrate only on their algorithms, without the hassle of providing also a front-end application. This should lead to much faster development cycles for new algorithms and hence will speed up the overall process of the development of new algorithms.

Combining multiple selectors to form a Selection Template

You may combine any number of selectors to form a selection template. IMatch will consider all **enabled** selectors during the selection process. Usually, you always enable the RESULT SET OPTIONS selector to restrict your result set to a maximum number of images or image with a specific similarity.

To speed up the matching and to get a better match quality, it is most of the times advisable to enable the DIMENSIONS selector. Check the SAME AS ORIGINAL IMAGE orientation setting to limit the result set to images with the same orientation as the original images. This leads to better results most of the time. **Make sure** that you use 10,000% for the size constraint to **avoid unwanted restrictions** based on image size.

If you want to search for files only in specific *folders* or *categories*, enable the corresponding selector and choose the folders or categories you want to include in your selection.

IMatch will return only images that meet all criteria defined by your selector. For example, if you search to images with similar colors by using the COLOR AND SHAPE algorithm from GENERAL MATCHING, you can also use a DIMENSION or FILE SIZE selector to limit the images that are considered by this algorithm.

With combined selectors you can enhance the performance and query quality of IMatch a lot, so take some time to get used to the different selectors and their possible combination.

Tip If you have large databases or match a larger number of images at a time, try to *restrict your initial set as much as possible*. Use the DIMENSIONS selector, the RESULT SET OPTIONS and optionally the FILE SIZE or DATE AND TIME selectors limit the initial number of images that need to bet matches with one of the complex algorithms.

It is not a good idea to try to match 5,000 or more images at a time. IMatch will need to create a result set with 5,000 or more original images and 50, 100 or more matches per original. This will use up much memory and will also probably take a long time.

How Selections work: Some technical background

When you perform a selection, the amount of information that IMatch needs to do the comparison depends on the type of the selection. Selections like DIMENSION, CRC, FILE SIZE and the like can be calculated with information contained in the internal index that IMatch maintains. These selection types are very fast, even for larger databases (50,000+ images).

When you perform selections that need to analyze image data, e.g. DUPLICATES or SHAPE AND COLOR selections, IMatch needs much more information about your images. In this case, IMatch needs to access the disk-based matching information that was precalculated when you added the images to your database. The data is compressed and optimized, but needs about 2,000 bytes per image on disk. For example, if your database contains 10,000 images, IMatch needs to read 20 MB of data from disk to run a selection. This process takes its time, depending more on the speed of your hard disks than on the speed of your processor.

IMatch optimizes the access to the database using several techniques, known for example as *caching* or as *sequential only* access. You can help IMatch a lot when you set up your selections with some extra care.

When you run a selection, IMatch will perform some **initial optimization** to minimize the disk accesses needed during the match. If you have multiple selectors in your selection, IMatch first will calculate all selectors that don't require additional access to the shape information stored on disk. This step will sort out all images which will not part of your result set before IMatch starts to load additional data from your disk.

After this initial step, IMatch knows all the files that need to be matched with one of the image analysis selectors. It then creates an **execution plan** to optimize the disk transfers in a way that only sequential accesses to your hard disks are required.

If you enable caching for your database, IMatch needs to read each image data record only once. After it has been read from disk, IMatch stores it in main memory for faster access. If you have enough memory in your system, it is **advisable to enable disk caching** from within the DATABASE WIZARD.

However, for the first selection that you run, IMatch will need to read the data from disk. The larger your database is, the more data needs to be read. For a 10,000 images database, IMatch will need to transfer about 20,000,000 Bytes (20 MB) from disk into memory. For a 100,000 images database, the data transfer will be about 200 MB. This alone takes between 5 and 60 seconds, depending on your Operating System and the overall performance of your disk subsystems and your processor.

If you want optimal performance during the selection process, use smaller databases. If your system has enough memory, enable caching for the databases. Run the DATABASE DIAGNOSIS AND OPTIMIZE task from time to time to optimize your database for better performance.

Note IMatch is not a "simple" application. It is a very powerful database server, combined with a user interface for image management. However, as any other database server in the world, IMatch requires more resources (disk, memory and processor) than 'simple' applications like word processors, spreadsheets or charting tools.

You won't run ORACLE™ or SQL SERVER™ on a normal laptop, at least not with 'real' databases that hold millions of records.

TIP IMatch optimizes disk access as much as possible even on computers with less memory. If you want to speed up your matches for medium to large sized databases (50,000 to 200,000 images) **add more memory** and enable database caching. Something like 512 or 1 GB of RAM gives a great performance boost for larger databases.

The Result Window

The Result Window

Whenever you run a selection, IMatch will open a result window to display the result set. IMatch can open *any number of result set windows* at the same time, thus allowing you to visually compare the results of different matches.

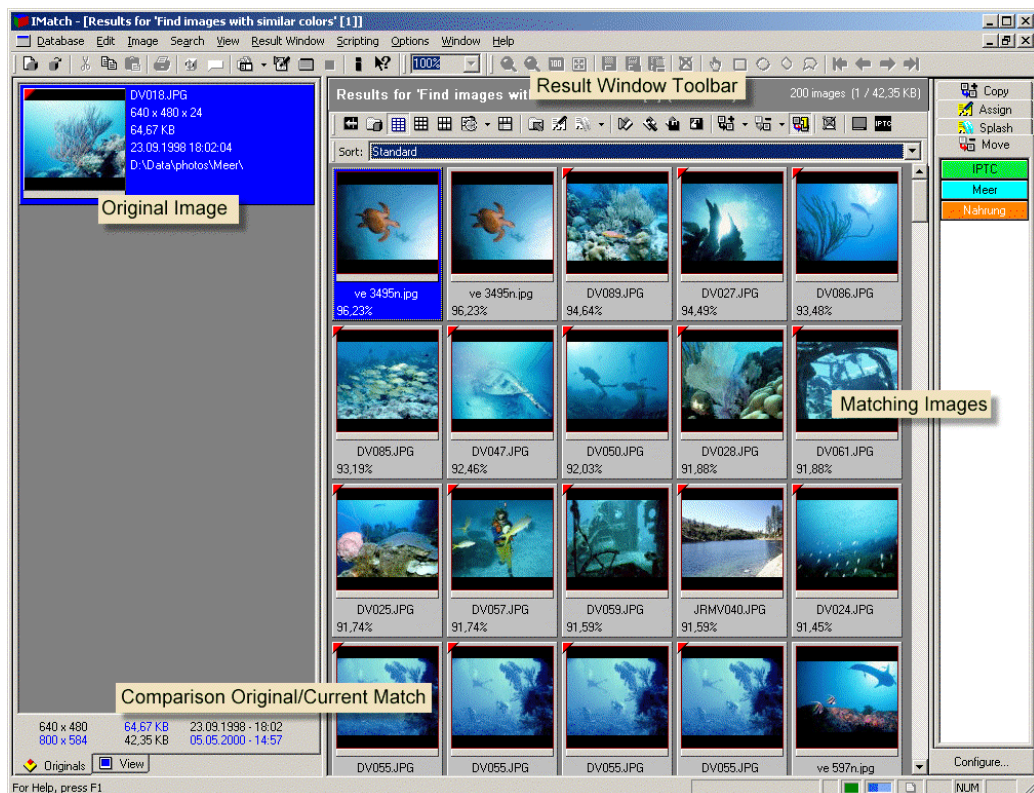


Figure 61: Showing all original images and the result set for the first original image

The left part of the result window contains the ORIGINALS VIEW and the DUAL IMAGE VIEW. The originals view contains all original images you have selected for your match. If you run a selector that does not use original images, the result window will not contain an ORIGINALS VIEW. The right view of the result window contains a standard thumbnail viewer window.

To allow you to visually compare the results of your selection, the image preview (click on the VIEW tab) in the result set always shows the current original image at the top and the image currently selected in the thumbnail viewer at the bottom; see Figure 62.

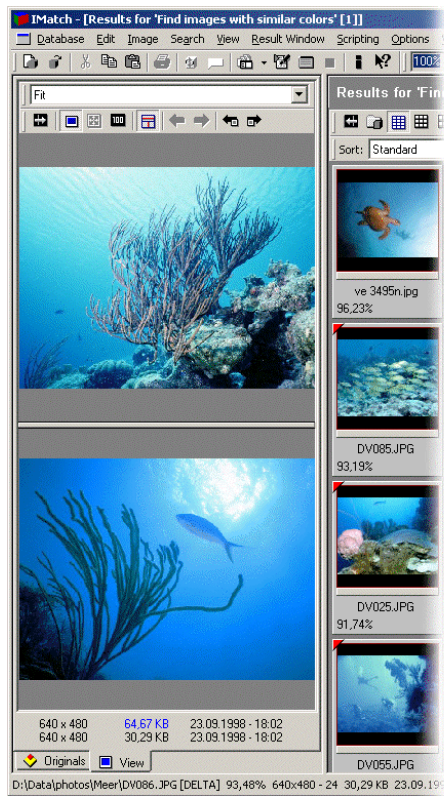


Figure 62: The dual image preview in the result window

With the local toolbar of the dual image preview you can zoom your images, change the orientation of the split bar or expand the dual image view to take up the entire workspace (Figure 63).

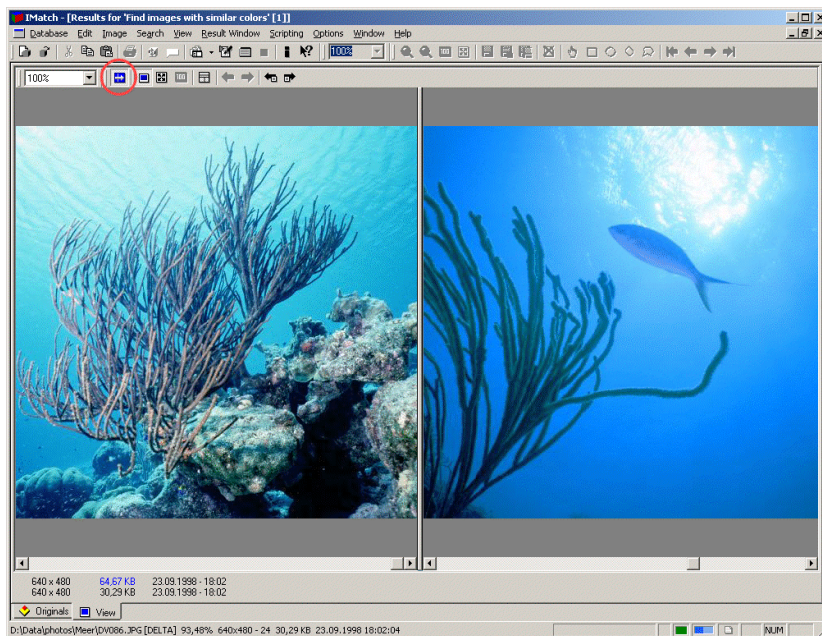


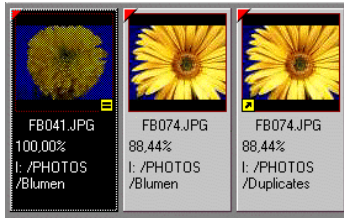
Figure 63: The dual image view expanded and zoomed to 100%
Note that the split orientation has been changed to *vertical*


The ability to display an original image next to one of its matches is very useful if you need to compare two images that appear to be identical. If you view both images with a high zoom


factor you can identify even the smallest differences, e.g. image compression fragments or pixel errors not visible to the human eye without magnification.

Image Panel Indicators for Result Windows

If used in a result window, the image panels in the thumbnail viewer get some additional indicator icons to visualize some special conditions:



The  symbol indicates that this image is **binary identical** to the original image. If this icon is shown next to a match, you may *safely delete* this image or the original image since both are identical.

The  symbol is added to a match in the thumbnail viewer if this image is also an original image in the current result set.

The leftmost image in the figure is a binary duplicate of the original image. The image on the right is not only a match for the current original, but also an original image itself. The middle image is a normal match with a similarity of 88.44%.

The Result Window Toolbar

The local toolbar of the result window gives you direct access to the most frequently used commands. All image related commands are accessible via the context menu of the thumbnail viewer or the IMAGE menu in the main menu bar.

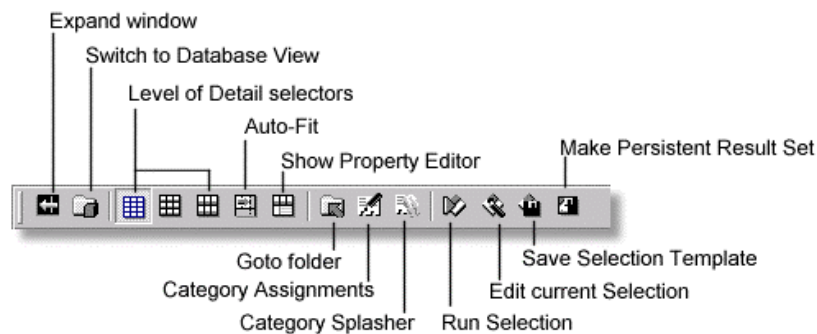


Figure 64: Important buttons on the Result Window toolbar


Expand Window	allows expanding the size of the thumbnail viewer to occupy the available space within the result window
Switch to Database View	brings the database workspace window into the foreground
Level of Detail selectors	allow you to choose how much information is displayed about each image
Auto-Fit	toggles the Auto-Fit mode for the image panels. If you enable Auto-Fit, IMatch will resize the image panels in a way that even very long file names are displayed without being truncated

Show Property Editor	opens the PROPERTY EDITOR window at the bottom of the thumbnail viewer. From here you can edit the image properties or perform category assignments. (See section Image Property Sets starting for more information about property sets)
Category Assignments	opens the category assignment dialog (see section Categories)
Category Splasher	opens the Category Splasher dialog box (see section Category Splashes)
Run Selection	starts a new selection for the selected images in the thumbnail viewer. The results of this selection will be presented in a new Result window; the current result window will remain open
Edit Current Selection	this will bring up a Selection Builder dialog box, allowing you to edit the selection template for the <i>current</i> result set.
Save Selection Template	allows you to save the current selection template under a name of your choice for later reuse. The selection template will be added to the SELECTION VIEW
Make Persistent Result Set	Allows you to save the current result set as a persistent result set . You may retrieve this result set later at any time, without the need to rerun the selection

In addition to these buttons, the toolbar also contains your QUICK MOVE and QUICK COPY buttons, the IPTC EDITOR button and the ONE-CLICK button.


Managing Result Windows

The WINDOW menu in the main menu bar contains a list of all open result windows. You may jump to any open result window directly from the corresponding entry in this menu. You may also close all open result windows with the CLOSE RESULT WINDOWS command in the same menu.

If you are currently in a result window, you can switch to the corresponding database workspace via the OPEN DATABASE VIEW command from the WINDOWS menu. Or you click on the  button in the local toolbar of your result window.

Note When you change settings or layout options in the result window, you need to make these settings the default for the future by choosing the SAVE RESULT SET SETTINGS in the WINDOW menu.

Modifying the current selector

IMatch always keeps the selection template together with the result set. When you run a selection, the Result Set contains also a copy of selection template. This allows you to modify a result set directly from within the Result Set window. Just click on the  icon (EDIT SELECTION TEMPLATE) in the result window toolbar to open a *Selection Builder* dialog box (see Figure 65).

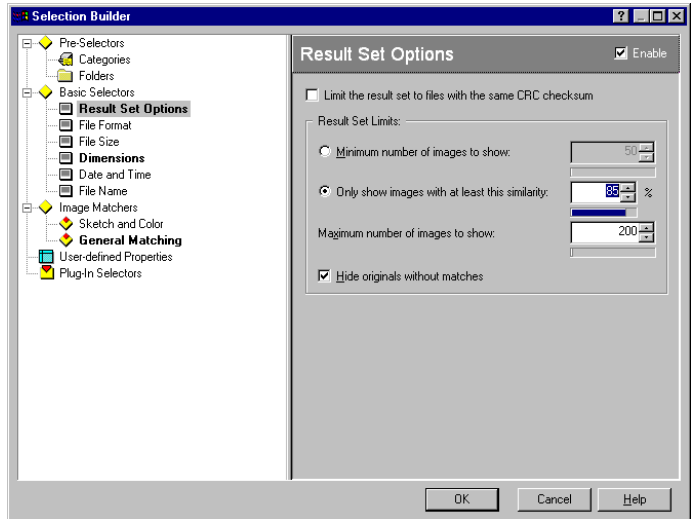



Figure 65: The Selection Builder dialog box

This dialog box allows you to modify the selection template used to create the current result set. It has the same functionality as the selection template edit in the SELECTION VIEW.

When you close this dialog box with OK, IMatch will **rerun the selection**, now **using the modified selection template**. The results of the selection will be shown in the same result window, thus **replacing** the current result set.

By using this feature, you can interactively work with your result set until you're satisfied. If you want to make the modifications to the selection template persistent, click on the SAVE SELECTION TEMPLATE button  in the local toolbar. This will open the SAVE SELECTION TEMPLATE dialog box shown in Figure 66:

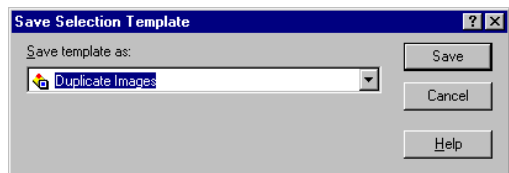
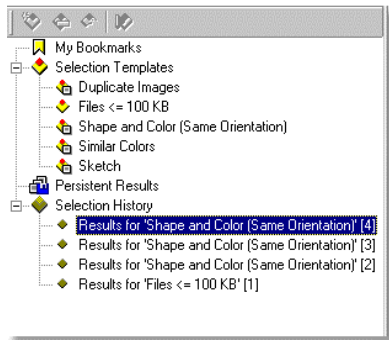


Figure 66: The Save Selection Template dialog box

You can select an existing template to update it or enter a new name to save the current selection template under a new name. The new template will immediately appear in the SELECTIONS VIEW under the SELECTION TEMPLATES folder.

The Result Set History




IMatch saves all result sets of the current session in a special folder in the SELECTIONS VIEW.

From here you can re-open any of the result sets with a double-click or the context menu (right mouse button). Even if the initial selection took a few seconds or even minutes, to open a result set from the history takes only a **few seconds**. Since you can open any number of result sets at any time, this feature allow you to compare result sets visually, even if you already closed the corresponding result window.

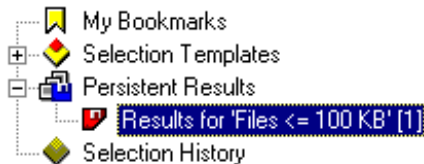
When you manipulate your database by adding new images or deleting images, IMatch keeps the result set history automatically **in sync with the database**. However, **if you add new images** to the database, these images will not be added automatically to the entries in the result history. IMatch needs to rerun the entire selection after you have added new images. If you try to open an entry from the result set history under these conditions, IMatch will bring up a message and prompts you to rerun the selection.

When you close the database, the result set history will be destroyed. The next time you open the database workspace, the result set history will be empty. It will fill up again while you perform selections against your database. This is why the result set history is called transient or temporary.

Persistent Result Sets

If you want to keep a result set for a longer period of time, **even after you close IMatch**, you have to convert the normal result set history entry into a **persistent result set**. To do this, open the result set from the history or switch to an open result set window. Click on the  button in the local toolbar or choose the MAKE PERSISTENT menu entry from the context menu in the thumbnail viewer.

Switch to the SELECTION VIEW and open the PERSISTENT RESULTS folder to view your new persistent result set. You should change the default name to something more meaningful to help you identify the contents of the persistent result set.



IMatch will take care that all persistent result sets stay current, even if you modify the database contents. As you delete or move images around in your database, IMatch will automatically update all persistent result sets.

However, when you add new images to your database or update existing images, IMatch will need to rerun the initial selection to update the result sets. IMatch indicates this 'dirty' state with a special icon next to each persistent result set, as shown in the figure above.

Note As long as you don't rerun the initial selections, the persistent results sets will remain invalid. You can open and view them, but they will not reflect the true database contents. Keep this in mind.


To update a specific or all persistent result sets, click on the PERSISTENT RESULTS folder or on any of the persistent results. Open the context menu and select UPDATE or UPDATE ALL to refresh your persistent results.

IMatch will rerun all selections and update the persistent result sets. Depending on the number of persistent results sets and the complexity of the selections and your database size, this process can take from several seconds or minutes up to several hours for very large database and a large number of persistent result sets.

Running Selections on External Images

IMatch also allows you to perform selections for external images. External images are images not already indexed in your database.

Note You should consider adding the external images to your database before you run selections on them. IMatch works much faster on internal images than on images not indexed by a database.

To run selections on external images, switch to the DATABASE VIEW. Press the EXTERNAL MATCH button  in the local toolbar.

This will open the MATCH EXTERNAL FILES AND FOLDERS dialog box, shown below. From here you can add folders or single files you want to match. You can match any number of folders or files at once. Just press the ADD FOLDER or ADD FILES button to add folders or files to your selection.

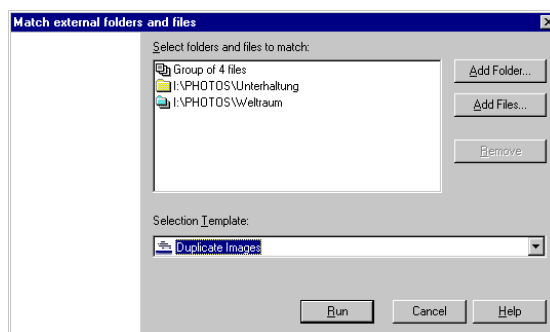



Figure 67: Matching external files and folders

Before you press RUN to start your selection, you may select a selection template you want to use. If you leave this to *New Interactive Selection*, IMatch will bring up the SELECTION BUILDER DIALOG to allow you to create a selection from scratch.

Tip IMatch allows you to add new images to categories as soon as they have been indexed, so you can collect new images in an *Incoming* category to **separate them** from older images.

Dynamic Categories

Assigning images to categories

You can assign images to categories wherever you see them in the thumbnail viewer. Just press <Ctrl+A> or choose CATEGORIES from the context menu. You may also click on the  icon in the local toolbar.

Note When you assign images to a category, the physical image file is not moved. You only add a reference to the image to the category. You can add images to any number of categories.

If you want to remove an image from a category, just *un-assign* it. Removing an image from a category does not remove the image from your disk, it just removes the reference to the image from the category.

IMatch will bring up the CATEGORY ASSIGNMENTS dialog box, showing all available categories. To assign an image to one of the categories, just click on the check box in front of that category. To remove an image from a category, clear the check box. Category assignments will happen immediately and the IMatch user interface will update all open windows to indicate the modifications.

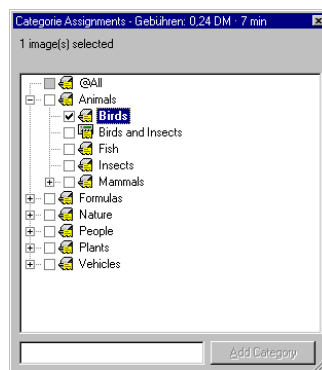


Figure 74: The category assignment dialog box

You may also create new categories on the fly in this dialog box. Just select the category you want to become the parent of the new category in the tree control. Then enter a name and press the ADD CATEGORY button. Then assign the selected image(s) by checking the categories you want the images to be contained in.

Note You can create any number of categories in this dialog. However, calculated categories can only be created in the CATEGORY VIEW.

This dialog box is non-modal which means that it stays open until you close it explicitly by pressing ESC or by clicking on the close button in the upper right. As long as the dialog box is open, it will always reflect the current selection in the thumbnail viewer.

If you select other images, the dialog will update to show the current category assignments of all the selected images. If all images in the selection are in the same group, the check box in front of the category will be shown like this: . If only some of the selected images are contained in a category, the dialog will show the check box in an intermediate state .

Note A red rectangle after the category name of folded categories indicates that this category has sub-categories and that at least one of these sub-categories references one of the images in the current selection.

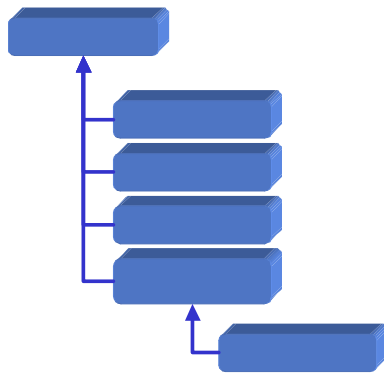
If you check one of these intermediate assignments, all selected images will be assigned to this category. If you leave the checkmark as it is, the assignments of the intermediate images will not change.

IMatch will automatically close the category assignments dialog box when you open another window or select a new folder or category in one of the views.

Tip You can also assign images to categories using the One-click bar

How it works

For example, you may create a category *Animals* in your database to manage photos with animals. Below this category, you add several sub-categories: *Fish*, *Insects* and *Mammals*. The category *Mammals* gets a sub-category *Bears*. The resulting structure then looks like this:



There is obviously a natural hierarchy within these categories; we *model the real world*, so to speak. The category *Animals* 'contains' the contents of all its sub-categories. If you select the *Animals* category, IMatch will open a thumbnail viewer, displaying all the images from the categories *Animals*, *Birds*, *Fish*, *Insects*, and *Mammals*. Since *Mammals* also contains the contents of the category *Bears*, the images assigned to this category will also be shown. In IMatch this is called **category roll-up**.

If you select the category *Birds*, IMatch will display only the images that have been added to this category:



Figure 68: The Category View with the Birds category selected

Instead of using static old-fashioned keywords, with IMatch you create dynamic categories in the virtual image view that match the real world or your specific requirements. Then, while browsing your images within IMatch, you add images to one or more categories with a couple of mouse clicks or by using the *Category Splasher* introduced a bit later. IMatch will keep track of all category assignments and will update the links and relations between all your categories whenever needed in the background.

Note Categories allow you to create a virtual order on top of your database. Categories store links (references) to images, and moving an image from one category to another does not move the image on your disk or removable media.

Assigning images to categories is like adding a *link* (or *reference*) to the image to the category. The physical location of the images plays no role here. By assigning images to categories you can create a *virtual hierarchy* of all the images in your database, without ever moving the images around on your disk. Even if all images are in a single folder, or located on 20 different CD-ROM's, you can move the images around in your categories as you like. Categories are independent from the actual storage location of the images, and they work equally well with images stored on your disk or on your bookshelf.

Note A parent category always 'contains' the images of all its sub-categories, so when you click on a parent category, you see not only the images in that category, but also the images contained in any of its child categories. Each image is shown only once, even if it is contained in more than one child category.

You can control whether or not a parent category displays the images of all child categories via the categories property dialog. This may be useful under some circumstances, for example, when you use categories for export or web page generation.

An image can be added to multiple categories at the same time. Consider a second category, *Location*, which is added to the category hierarchy above:

```
Animals
  Birds
  ...
Location
  Afrika
  America
    North
    South
  Australia
  Pacific
  Europe
```

For example, if you have taken a photo of a Bird in Northern America, you will add this image to both the category *Animals.Birds* and *Location.Amerika.North*. To see all images shot in America, just click on the America category. To see all photos of Birds, just click on this category. The photo of our Bird will show up in both categories, because it's a *Bird*, and the photo was taken in *Northern America*.

But what if you want to see all images showing Birds that have been taken in North America? This can easily be done by using categories with formulas, explained below.

Instead of using old-fashioned keywords, with IMatch you create categories in the virtual image view **that mimic the real world** or your specific requirements. Then, while browsing your images within IMatch, you add images to one or more categories with a couple of mouse clicks or by using the *Category Splasher* explained in section [Category Splashers](#). IMatch automatically keeps track of all category assignments and updates the links and relations between your categories whenever needed.

The special @All category

This category serves as the *root* of your category hierarchy. It represents all images in your database. You cannot delete or change this category.

Per default, the @All category does not show images when you click on it. If you have several thousand images (10,000 or more) in your database, it would take a few seconds to display all images.

You can allow IMatch to show all images in your database when you select the @All category under [Options/Preferences/Thumb View](#).

Example: Modeling a Client and Project History

Another sample for category hierarchies are customers or client. You may want to create categories based on your customers, clients, or projects:

Client

House of Images

- Projects
- Stocks
- Old Houses
- Feb 2001

Foster

- Projects
- Mill Photos Initiative

Mullik Imaging

- Projects
- Stocks
- Brewery Images
- Caribbean Impressions 2001

Photo Netzwerk

- Projects
- Samples
- Autumn 200

This hierarchy contains the top level Customer. For each customer, all projects are added as sub-categories. Within each project, you arrange your images.

Using such a hierarchy makes it very easy to track your work for a specific customer or project. Of course, you can combine such a hierarchy with a theme-based hierarchy or other hierarchies. The possibilities are endless.

By clicking on Foster, for example, you get all images for all projects you have ever done for this customer. By using a sort preset for the thumbnail view you can arrange this images by various criteria.

You can also create a second category hierarchy that orders your images based on their topic, their location or their contents. Since you can add a single image into any number of categories, this allows you to create *different views on your images*.

Formulas for Folders

You can create categories that refer to folders in your database, basically like saying: *"This category contains all images in Folder X"*. You can of course also combine several folders in a single category, for example, all images on two different CD-ROM's or images contained in folders on different drives.

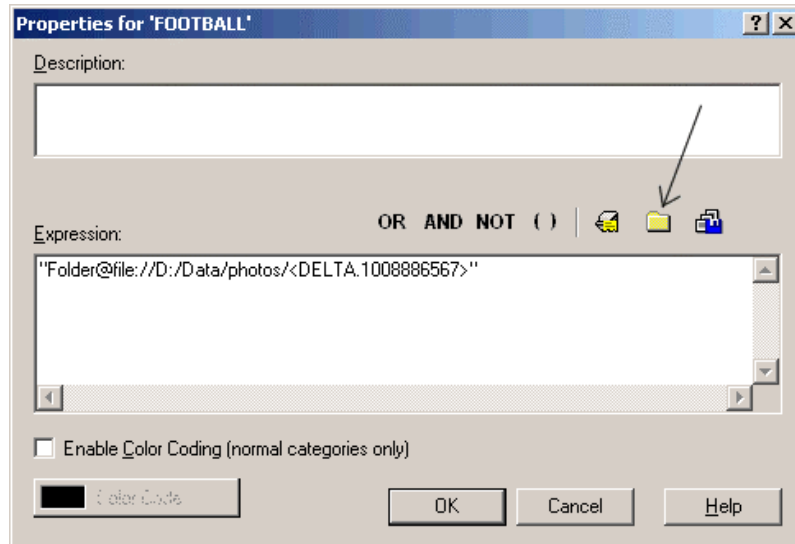


Figure 69: Folder Formulas

You create a folder formula the same way as other formula categories, but instead of combining other category names, you combine folder names. In Figure 18 you see the category properties dialog with a folder formula. It starts with *Folder@file...*, followed by the name of the folder, the *media label* and *media serial number*. This is an URI, unique resource identifier as it is used by IMatch internally to uniquely identify an resource like a file or folder.

`"Folder@file://c:/photos/<Label.Serial>"`

If you close this dialog with OK, IMatch will store this formula with the category. Whenever the contents of the category need to be calculated (for example, if you want to view them), IMatch will query the database for all files in that folder, and use the result of this query as the 'contents' of the category.

If the folder uses in this example has sub-folders, the images in these folders are not considered as part of the result set. To include the sub-folders of a given folder (recursively) in a formula, use *RFolder@...* instead of *Folder@...* in the expression:

`"RFolder@file://c:/photos/<Label.Serial>"`

The toolbar in the category properties dialog box allows you to select folders to be included in your expression (see Figure 18). It also contains a checkbox that allows you to make the expression recursive.

Of course you can combine folder expressions with normal category expressions, for example, to get all images in a folder which are not already contained in the category "BEACH":

`"Folder@file://c:/photos/<Label.Serial>" AND NOT "BEACH"`

Formulas using Persistent Result Sets

You can even include persistent result sets in formulas (see section [Persistent Result Sets](#) for more information about Persistent Result Sets). This allows you to use the actual result of a selection as the content of a category.

Whenever IMatch needs to calculate the contents of the category, it will query the persistent result set for the set of images to use.

For example, you may create a selection that finds all images containing the phrase *beach* in the file name. You make the result of this query persistent (safe it) and then you can use this result as the content of a category.

When you add/rename images in your database, IMatch will take care that the content of the result set are updates (automatically or manually) and hence your category will always show all images in your database with the phrase *beach* in the file name.

More Formula Examples

How to create a category that contains (and shows) all my images?

Just create a category with this formula:

```
"@All"
```

However, please note that this category really links to all your images, and if you click on it, it can take a while for IMatch to retrieve and load the images. I have tested this up to 50,000 images without problems.

How to create a category that shows me all uncategorized images?

To create a category that shows you all images not yet categorized requires one additional step. You need to create a single root category for all your images, like in the following sample:

```
@All
  |-- My Images
```

Below this root category, you create all your other categories.

If you already have created categories below the @All category, you can create the root category at any time, and then *move* your existing categories below this category using your mouse and *drag and drop*.

Then create a category on the same level as your common root category and name it "Uncategorized":

```
@All
  |-- My Images
  |-- Uncategorized
```

The formula for this category is:

```
"@All" NOT "My Images"
```

This means: "*All images not assigned to My Images or on of its sub-categories*". Since all your categorized images are assigned to this category or one of its sub-categories, this formula returns all images not yet in another category.

Adding, renaming and deleting categories

Categories are managed in the CATEGORIES VIEW. Press <Ctrl>+<2> or choose the CATEGORY VIEW command from the VIEW menu. Or click on the CATEGORIES tab in your database workspace window.

Select the category under which you want to add a new sub-category. If you want to add a top-level category, select the @All category that represents the root of all categories. Then press the <Ins> key to insert a new category. Enter a name for the new category and press enter to complete the operation. IMatch will automatically sort the new category under its parent category in alphabetic order.

You can **rename** a category at any time by selecting the RENAME command from the context menu or by clicking on the item itself – much like you would rename a file in the Windows Explorer.

To **delete** a category, select the REMOVE command from the context menu or press . IMatch will ask you if you are sure and then delete the category. If the category has sub-categories, these categories will be deleted also.

Note When you delete categories, IMatch will first check whether the category is **referenced** in a category formula (see below). If this is the case, you first need to remove the category from all formulas before you can delete it. This is a **security mechanism** that prevents category formulas from becoming invalid.

When you create sub-categories, IMatch will automatically roll-up the sub-categories to their parent category. When you click on a category, you will also see all images contained in one or more of the sub-categories of the selected category.

Using Drag and Drop to manage your categories

The Category Viewer allows you to move or copy categories by using drag and drop. You can even create *category references* using only your mouse.

To move, copy or reference a category, select the source category with the mouse. While holding down the left mouse button, select a target category. This target category will become the parent category of the selected category.

When you are satisfied with your target selection, release the left mouse button. A dialog box will appear.

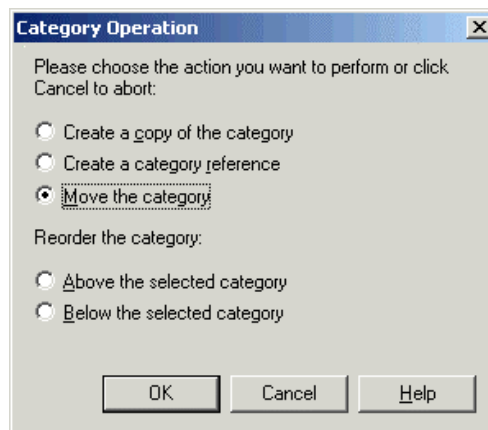


Figure 70: The drag and drop operation dialog box

Select the action you want to execute and press OK.

If you copy a category, IMatch will create an exact duplicate of that category. The copy is independent from the original category.

A *category reference* is simply a category with a formula that references the original category. Whenever you modify the contents of the original category, the reference category will update accordingly. This allows you to use the same category in different places of your category tree without maintaining unwanted copies.

When you move a category, IMatch will remove the selected category from the current parent and assign a new parent to the category.

Moving and copying images via Drag and Drop

You can also move and copy images from one category to another by dragging the images from a source category to a target category. Hold down the <Ctrl> key to copy the images to the target category. If you don't press <Ctrl>, the images will be moved (un-assigned from the source category, and then assigned to the target category)

Custom sort orders for categories

Per default, all your categories are sorted in alphabetical order on each level.

If you want a custom sort order that is not alphabetical, you can use drag and drop to reorder your categories. The process is the same as for moving and copying categories, but you use a different option in the dialog.

Using Category Formulas

The most powerful feature of the categories metaphor is the ability to built relations between categories based on formulas. With category formulas you are able to combine categories using the Boolean expressions AND, OR NOT.



If a category is based on a formula, it is often referenced as a *calculated category*. IMatch uses a different icon in the CATEGORY VIEW to mark calculated formulas.

To create a calculated category, first create a category by pressing <Ins> on the parent category of your new category. Then select the new category and open the CATEGORY PROPERTIES dialog from context menu via the right mouse button or <Alt>+<Return>.

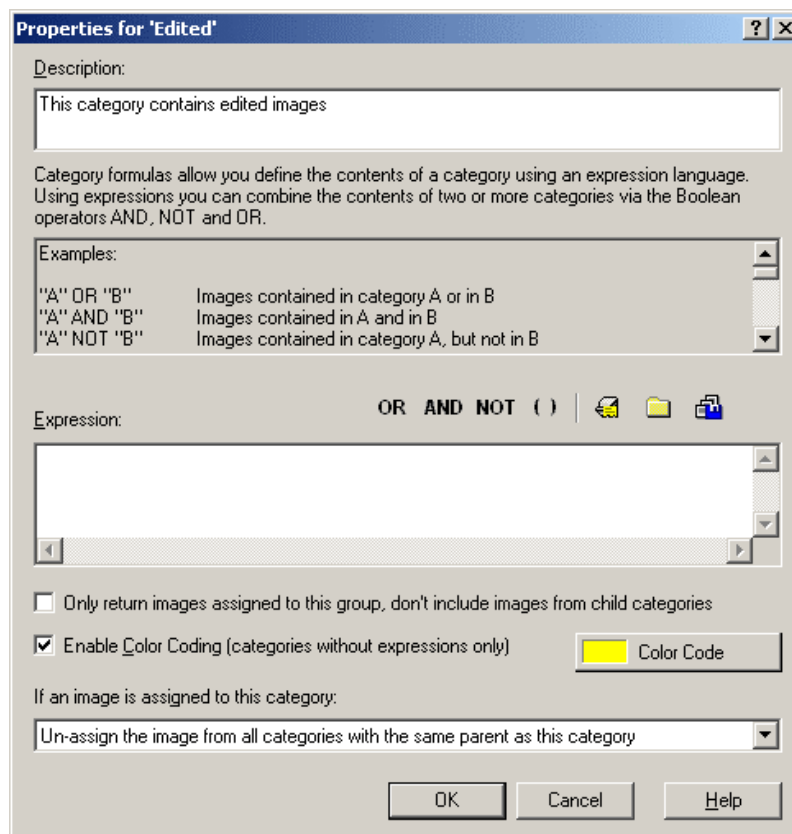


Figure 71: The Category Properties dialog

In the DESCRIPTION field you may enter a description for your category. This description will be shown in the caption of the thumbnail viewer and is also used when you export your data to other applications.

In the EXPRESSION field you enter your formula.

Note [If you'd ever used a search engine on the web, you should be familiar with Boolean expressions and the formula concept behind the categories in IMatch](#)

Category Prefixes

- A category formula consists of *category names*, *folder names* or *persistent result set names*, combined via the operators AND, OR, and NOT. You can also use parentheses "(" and ")" to control the order of evaluation within the formula.
- All names in an expression must be enclosed by quotes, like "Animals" or "Animals.Fish".
- To specify sub-categories, you need to enter the complete name of the category, including all parent categories, separated by dots. The category *Fish* is a sub-category of the category *Animals*, so the complete name of this category is *Animals.Fish*. The full specified name for the category *Bears* is *Animals.Mammals.Bears*. You don't need to include the @All category in your qualified names.
- All names and Boolean operators must be separated with a blank character (Space).
- Categories cannot contain references to themselves. This is called a **circular reference** and is not allowed. For example, if a calculated category is a sub-category of category "A", it cannot contain any reference to "A" in its formula.

The category properties dialog contains an assistant that helps you to build up your formulas. The local toolbar of the dialog allows you to select categories, folders and persistent result sets and to insert Boolean operators and parentheses.



Opens a list with all categories. You can select one category from the list by simply clicking on it



Opens a list with all folders in your database. You can select any of these folders by simply clicking on it. If you want also include the sub-folders of that folder recursively, make sure that the check box is checked.



Opens a list with all persistent result sets. You can select any of these result sets by simply clicking on it



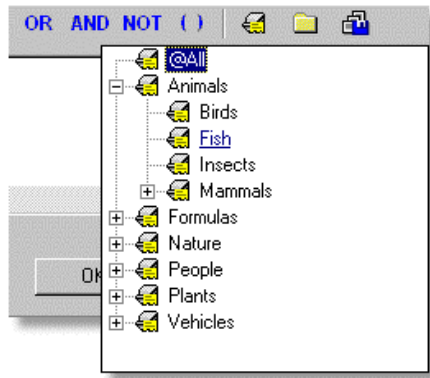
Inserts a Boolean operator at the current cursor position





Inserts a pair of parentheses at the current cursor position

Example

Create a new category labeled "Formulas" under the @All category. Then add a sub-category labeled "Animals, but no fish" under that category. Open the category properties dialog box from the context menu of that category.



To build up the formula shown in Figure 71, click on the EXPRESSION field to activate it. Then click on the  icon in the toolbar and select the *Animals* category from the list:

IMatch will insert the fully qualified name "Animals" in the expression field. Now press the NOT button in the toolbar. Finally, insert the "Fish" category by pressing  again, this time clicking on *Fish*.

The final formula should look like this
 "Animals" NOT "Animals.Fish"

Click on OK to close the dialog. IMatch will calculate the expression and when you made no mistakes, the thumbnail viewer will contain all images from the *Animals* category, except the images contained in the *Fish* sub-category.

If IMatch brings up an error message, read it carefully and then check your formula statement. Between each part of the formula should be a space (blank). Each category name needs surrounding quotes "".

Every time you now select the "*Animals, but no fish*" category in the CATEGORY VIEW, IMatch will calculate the formula and show the result in the thumbnail view. When you add or remove images from the *Animals* category or any of its sub-categories, IMatch will automatically adjust to these modifications. Even if you remove sub-categories from the *Animals* category or add new categories, the calculated formula will always reflect the actual database contents.

Linking Folders

Consider the following formula:
 "Folder@F:/Photos/Animals"

If this formula is evaluated, IMatch will look up all images in the given folder. The category then 'contains' all files in that folder. If the folder has sub-folders, these sub-folders are not included. To add all sub-folders recursively, change the formula to:

"RFolder@F:/Photos/Animals"

Not the R for *Recursive* in the prefix.

Note IMatch will display folder names always in form of a URI (Universal Resource Identifier), so "f:\photos" will become "file://f:/photos". IMatch is prepared to handle images from different sources, and hence all file names are stored in form of URI's internally.

Currently, IMatch only supports 'normal' files, stored on one of your disk drives or external media, or on your network.

In one of the future versions, IMatch will directly support image links pointing to locations on the Intra- or Internet.


If you want to create categories based on the contents of one or more persistent selections, use formulas like

```
"PersSel@My Persistent Selection 1"
```

If IMatch needs to calculate this formula, it will retrieve the current contents of the persistent selection and create a collection with all result images contained in the persistent selection. If the persistent selection is updated, IMatch will automatically update the category.

Tip If you create categories based on persistent selections, you are able to manage result sets like categories. This feature can be very powerful and time-saving when you manage large image collections with frequent updates.

More on Formulas

We want to create a category containing only Birds and Insects. To do this, first add a new category somewhere in your category hierarchy. Label it *Birds and Insects*. Open the category properties dialog via the context menu or the  button in the local toolbar. You may also press <Alt + Enter> to open it.

Enter the expression

```
"Animals.Birds" OR "Animals.Insects"
```

in the expression field and close the dialog box with the OK button. IMatch will calculate the expression and show all matching images in the thumbnail viewer.

This formula reads like *"This category contains all images which are in the category Animals.Birds or the category Animals.Insects"*

Consider the following category hierarchy:

```
People
  Age Group
    Babies
    Children
    Teens
    Adults
    Seniors
  Gender
    Female
    Male
    Unknown
  Race
    Asian
    Black
    Caucasian
    Unknown
```

Further assume that you have already categorized all images in your database. All images with persons have been properly added to these categories. An image showing a female adult Caucasian is contained in the categories *"People.Age Group.Adults"*, *"People.Gender.Female"*, and *"People.Race.Caucasian"*.

An image showing a male and female Asian senior sitting on a bench in a park will be contained in *"People.Race.Asian"*, *"People.Age Group.Senior"* and in *"People.Gender.Female"* and *"People.Gender.Male"* since the image shows both a female and a male person.

If you know click on the *Female* category, you will see two images, since these two images show a female person. If you click on the *Male* category, you will see only the second image, since only this image shows a male person.

If you click on the *Asian* category, IMatch will also show only the second image, since only this image contains Asian persons.

To combine the contents of several of these groups you use calculated categories. For example, if you want a category showing all *female adults*, enter this expression:

```
"People.Gender.Female" AND "People.Age Group.Adults"
```

This formula will return all images that are in `People.Gender.Female` **and** also in `People.Age Group.Adults`.

To create a group showing only Asian and Black people, create a category based on this formula:

```
"People.Race.Asian" OR "People.Race.Black"
```

This formula will return only images that are in `People.Race.Asian` **or** in `People.Race.Black`.

Now we add some other categories to our virtual database:

```
Location
  Beaches
  Cities
  Mountains
  Villages
```

Further assume that all images in the database have been assigned to these categories. For example, a female adult Caucasian person at the beach will be contained in the "*People.Race.Caucasian*", "*People.Age Group.Adult*", "*People.Gender.Female*" and in the "*Location.Beaches*" categories. If you now click on the *Beaches* category, you will see this image, since it is has been assigned to this category.

If you want to create a category showing only images of persons at the beach, you would enter the following formula:

```
"Location.Beaches" AND "People"
```

IMatch will combine all images contained in the *People* category or any of its sub-categories with the images contained in the *Location.Beaches*. The result set of this calculation will contain only the images that are contained in both categories.

If you want a category showing people at the beach or in the mountains, this formula will do the trick:

```
("Location.Beaches" OR "Location.Mountains") AND "People"
```

Note the use of parentheses in this expression. **Parentheses control the order of evaluation** in an expression. The usual order of evaluation is from left to right. If you want to be sure which part of your expression gets evaluated first, use parentheses.

IMatch will first calculate the contents of the expression within the parentheses, which results in all images contained in *Beaches* or *Mountains*. Then it will AND this intermediate result with the images contained in *Persons* to form the final result. The final result will contain only images that have been assigned to the categories *Beaches* or *Mountains* and which are also contained in the category *Persons* or one of its sub-categories.

```
("Location.Beaches" OR "Location.Mountains") AND ("People.Race.Asian" OR "People.Race.Black")
```

This formula will show only *Black* and *Asian* persons at the *Beach* or in the *Mountains*.

Linking other objects

Of course you also can combine the contents of a folder with the contents of a category or a persistent selection.

```
"Folder@file:///c:/photos/animals" OR "Location.RainForest"
```

This formula will contain all images from the *folder* `f:\photos\animals` and from the category `Location.RainForest`.

```
"RFolder@file:///c:/photos/animals" NOT  
"Folder@file:///c:/photos/animals/insects"
```

This category formula returns all images contained in the folder `c:\photos\animals` **except** the images contained in the folder `c:\photos\animals\insects`.

```
"RFolder@file:///c:/photos/animals" NOT "PersSel@My Persistent  
Selection"
```

This formula returns all images from `c:\photos\animals` but only if these images are not contained in the persistent selection `My Persistent Selection`.

Note Take your time to get used to these fascinating concepts and the powerful queries that can be performed using calculated formulas.

Editing Category Assignments in the Thumbnail Viewer

If you display the thumbnail property window (Ctrl+5) below the thumbnail viewer, you can also edit category assignments from there:

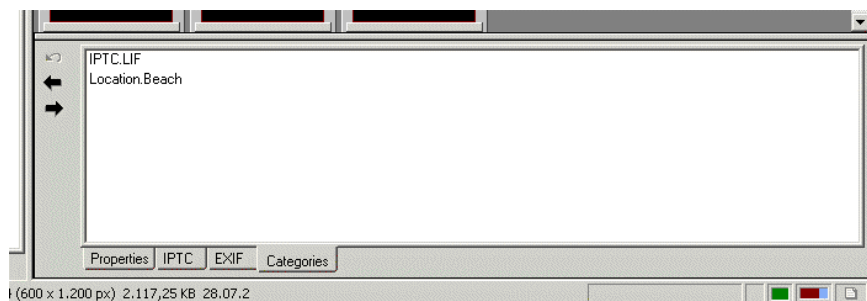


Figure 75: Editing Categories in the Thumbnail Property Window

To do so, enable the category display with the corresponding toolbar button. If you double-click on any item in this list, IMatch displays the normal category assignment dialog. Do remove the selected image(s) from any of the displayed categories, select the category name and then press the key.

Prefixes

Category Prefixes

The objects within a formula are prefixed with special identifier tokens. If no identifier token is given, IMatch assumes that the object name refers to another category.

Category@ This object identifies a category. All images of that category are linked to the current category. You can leave this out since it is the default.

Folder@ This object is a folder name. All images in that folder are linked to the current category. Only the images of the given folder are linked; the sub-folders of that folder are ignored.

CatNoRecurse@ Returns only images assigned to the category. Filters all images assigned to sub-categories. See also [Special Formulas](#)

CatDistinct@ Returns only images exclusively to this category. See also [Special Formulas](#)

RFolder@ This object is a folder name. All images in that folder and **all sub-folders** of that folder (recursively)

PersSel@ This object identifies a persistent selection. When the category is calculated, the images in the persistent selection are linked.


@Unassigned Returns all images not assigned to any category. See also [Special Formulas](#)

@All This category represents all images in your database

Category Splashes

Category Splashes

If you deal with a large number of images on a frequent basis, it can get cumbersome to use the category assignment dialog to assign each individual image. For your convenience, IMatch allows you to assign images to several categories with a couple of keystrokes using the *Category Splasher*.

Before you can use the category splasher, you need to set up the individual splasher. Switch to the CATEGORY VIEW by pressing <Ctrl+2> or by choosing the CATEGORY tab in your workspace window. Open the category splasher dialog from the local toolbar by pressing the  icon.

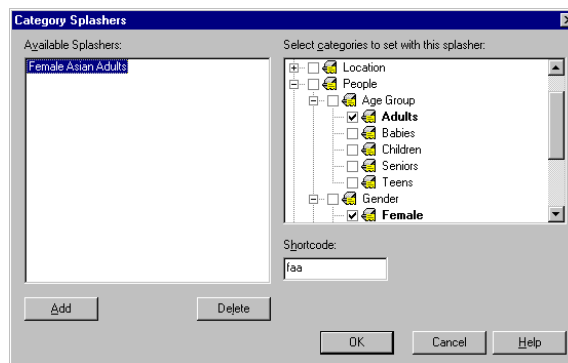



Figure 76: The category splasher dialog box

To add a new splasher, press the ADD button. Rename the item and give it a more meaningful name. Then select in the category tree on the right all categories that are part of this splasher. Finally, choose a **short code** for the splasher. This short code will later be used to execute the splasher on the current image selection. You can enter any kind of text here, but the shorter the code is the better. You cannot assign identical short codes to different splashers; each short code has to be unique.

Executing a Splasher

To execute a Splasher select one or more images in a thumbnail viewer. Press <Ctrl+S> or select the  icon in the local toolbar of the thumbnail viewer. The CATEGORY SPLASHER dialog box will appear. Enter the short code or select a splasher from the list.

Press the ASSIGN button to assign all selected images to all categories referenced by the Splasher.

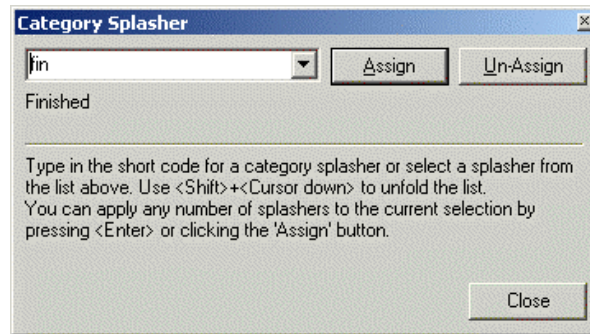


Figure 77: The Splasher assignment dialog box

By creating a set of splashers you can greatly reduce the time you need to assign images to one or more categories. With this feature you easily can handle several thousand images a day.

The UN-ASSIGN button allows you to use the selected splasher to **remove** the selected images from all the categories referenced by the splasher.

See also [Category Splashers](#) for more information.

Quick Access



Figure 78: The Quick Access button for the Category Splasher

From the local toolbar of the thumbnail viewer you also have direct access to the first 20 of your splashers (in alphabetical order). To open the menu, just click on the down-arrow next to the Category Splasher toolbar button. To apply a splasher, click on an entry in the menu.

You can control which splasher items are displayed by naming the splashers accordingly.

Some Example Category Setups

Some Example Category Setups

You can create any type of categories in your database, at any hierarchy depth. Besides the usual Theme-based categories there are several other hierarchies that may be useful to you:

Modeling a Client and Project History

Another sample for category hierarchies are customers or client. You may want to create categories based on your customers, clients, or projects:

Client

House of Images

- Projects
- Stocks
- Old Houses
- Feb 2001

Foster

- Projects
- Mill Photos Initiative

Mullik Imaging

- Projects
- Stocks
- Brewery Images
- Caribbean Impressions 2001

Photo Netzwerk

- Projects
- Samples
- Autumn 200

This hierarchy contains the top level Customer. For each customer, all projects are added as sub-categories. Within each project, you arrange your images.

Using such a hierarchy makes it very easy to track your work for a specific customer or project. Of course, you can combine such a hierarchy with a theme-based hierarchy or other hierarchies. The possibilities are endless.

By clicking on Foster, for example, you get all images for all projects you have ever done for this customer. By using a sort preset for the thumbnail view you can arrange this images by various criteria.

You can also create a second category hierarchy that orders your images based on their topic, their location or their contents. Since you can add a single image into any number of categories, this allows you to create *different views on your images*.

Category Hierarchy for Image Workflow

Consider you have an original for each of your images. This original is the image you originally shot with your camera in CRW format.

For work, you create a TIFF file from this image, and then create some additional derivative images, for publishing, layout, and web.

Such a hierarchy can be modeled in two different ways (at least):

My Images

Mountain Beach

- Originals
- TIFFs
- Layout Versions
- Web-ready

This hierarchy has a "Title Category" on top ("Mountain Beach"), and then arranges the different versions of the images below.

You could also create a hierarchy as the following, with a different approach:

My Images

- Originals

Mountain Beach

- TIFFs

Mountain Beach

```
Layout Versions
  Mountain Beach
Web-ready
  Mountain Beach
```

Here, all original images are kept below a single parent category, and below that, each shooting gets its own category, with a descriptive name.

Then there are separate categories for TIFF, Layout and Web versions of the images, again with a sub-category per shot.

Category Hierarchy for Family Photos

If you want to manage your private photo collection with IMatch, you can model a family hierarchy in IMatch in several ways.

Note Categories in IMatch are unidirectional, and have only one parent. You cannot model a category that has two parents to resemble a natural ancestor hierarchy.

```
My Family
  Peter
    Children
  Paul
    Children
  Mary
    Children
```

This hierarchy allows you to add images from *Peter*, *Paul* and *Mary* to your database. If you have images of Peters, Paul's, and Mary's children, you put them into the *Children* sub-categories below each Persons name. Since you can add images to any number of categories, if a Child both belongs to *Paul* and *Mary*, you put the child's photos into the *Children* sub-categories of *Paul* and *Mary*.

But what if you have a photo that shows both *Mary* and *Paul*? You can add the photo to both categories. Or you create a new category named "*Mary and Paul*" and put the images there. Or both. Categories are very flexible and allow you to do almost everything you want.

Priorities

If you need to rank your images by specific priorities, you can easily add a new top-level category to your database:

```
@All
  Priorities
    High
    Low
    Normal
```

By assigning images to one of these three categories, you can easily create a priority list for your images.

You may also want to use Color-Coding to emphasize the different priorities. This way you can actually *see* the assigned priorities in the thumbnail window.

Tip You can add these categories to your One-click bar for quick access.

Edit State

If you want to keep an eye on the different phases of an image, you can create a workflow model using dynamic categories. Here's an example:

```
@All
  Edit State
    1-Scanned
```

2-Reviewed
3-Edited
4-Finished
5-Archived

There are 5 phases in an image lifetime. By assigning images to one of these categories, you can model every thinkable workflow.

If you want to see all edited images in your database, just click on the category and the results are there immediately.

Edit States are also a good example for the usefulness of Color-Coding. By assigning different colors to each of the Edit State categories you can easily see the different states in all thumbnail windows.

Tip You can add these categories to your One-click bar for quick access.

Clever Combinations

Perhaps you want to create a workflow based on Clients and Edit State so that you can see immediately which images need to be reworked for each client. By combining categories using references or formulas, you can create such a view on your database easily.

To create a category *Unedited images for Client A* you would create a category based on the formula:

"Clients.A" AND "Edit State.1-Scanned"

This category returns all images assigned to *Client A* and which are also in the *Edit State 1-Scanned*.

Splashers

It is also a good idea to create category splashers for the most frequently used category combinations. This way, you can easily assign multiple images to multiple categories by selected a single splasher from the toolbar of the thumbnail window.

A good splasher setup also allows you to categorize images by edit state or priority (urgency) and to facilitate the use of color-coding.

Tip You can add your most-frequently used categories and splashers to the One-Click dialog bar. This allows you to assign images with only a single mouse click to any number of categories.

The Image Editor

The Image Editor

This section describes the capabilities of the built-in Image Editor. This editor allows you to view your images at different zoom levels and to perform a variety of image manipulation functions on your image

What the Image Editor is not

The Image Editor of IMatch has been build to provide the most frequently used image manipulation functions in an easy to user manner. It is a very valuable tool, more than sufficient for the normal user. It contains all required image manipulation routines and also some specialized functions not found in other applications.

It is not a replacement for full-fledged imaging suites like Adobe PhotoShop™, PaintShop Pro™ or Eclipse™. These are fine applications, perfectly built to provide a complete set of functions to create digital artworks of the highest quality.

The primary focus of IMatch however is *managing* your digital artworks, photographs, scanned images and all other digital assets. The Image Editor allows you to perform the most frequent tasks without ever leaving IMatch.

In this section, you will learn how to use the Image Editor and how to perform the imaging functions needed in your everyday work or hobby.

General Usage

There are several ways to open an image in the Image Editor:

- ❑ Press <Ctrl>+<E> in the Thumbnail Viewer to open all selected images in the image editor. **The edit mode in Options/Preferences/File Format Preferences controls whether the images are opened in individual editor windows, or in a single editor window.** If one or more of the images are off-line, the **Offline File Handler** will pop up and prompt you to insert the correct media.
- ❑ *Double-click on an image* in a thumbnail window to open the image in the editor.
Note: This works only if you have enabled the image editor as the default double-click action for images (see Options/Preferences/General)
- ❑ Choose the EDIT command from the context menu of a thumbnail in the Thumbnail Viewer
- ❑ Choose OPEN IMAGE from the DATABASE menu to open external images not indexed by the current database

You can open virtually any number of images at the same time, depending on the amount of memory installed in your computer. IMatch will open each image in it's own Image Editor window. The most frequently used imaging functions are always accessible from the Image Editor toolbar:

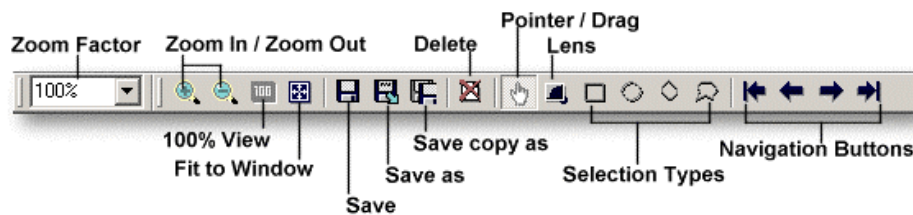


Figure 115: The Image Editor Toolbar

When you open more than one image with the image editor at the same time, you can navigate within this image series using the navigation controls in the toolbar:

You can also use the numeric keypad to navigate within the series: <NumPad 4> and <NumPad 6> to move to the previous and next image, and <NumPad 8> / <NumPad 2> to move to the first and last image in the series.

Tip IMatch displays the dimensions and the memory usage of the current editor window in the application's status bar. If you have opened an image series, the status bar also shows the current position (the current image) for the current series.

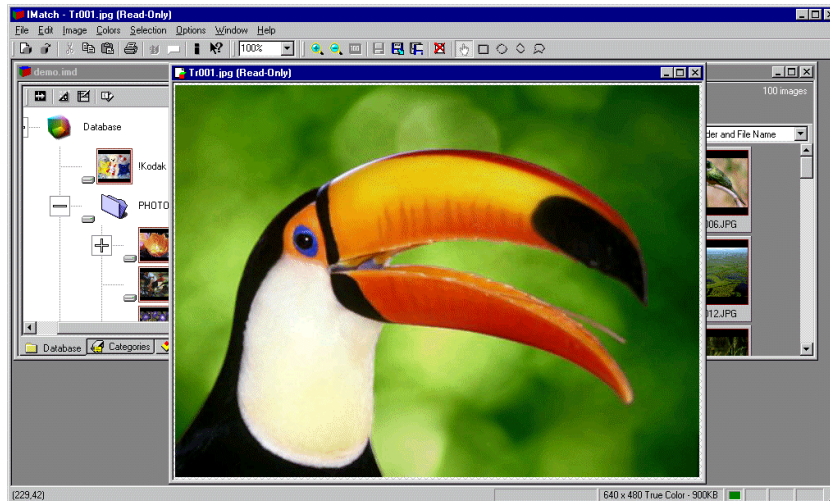


Figure 116: An image in the Image Editor

Zooming

To zoom your image you can use the zoom combo box in the Image Editor toolbar. You can choose on predefined zoom factor from the list and even enter a free percentage. On the right of the zoom combo you find the ZOOM IN, ZOOM OUT and ZOOM 100% zoom controls.

If you have a **scroll mouse**, you can also use the scroll mouse to zoom your image. Move the wheel down to zoom in and up to zoom out.

Rectangular Zoom

By clicking the rectangular zoom button in the image editor toolbar, you can select a rectangular area of the image to zoom in. This zoom mode is very convenient when you want to inspect certain areas of your image.

Saving Images

The Image Editor allows you to save your current image into over 40 different file formats and even more subtypes. You can save the current image in the original format, save it to a different file format or under a new name. You can even save copies of the image without touching the original.

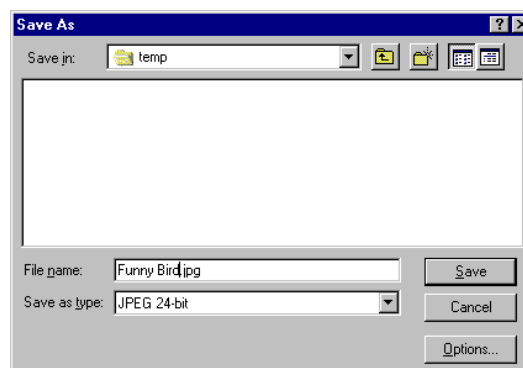


Figure 117: The "Save as" dialog box

If you choose one of the save options from the FILE menu or the IMAGE EDITOR TOOLBAR, IMatch will display the dialog box shown in Figure 117. Here you can select the folder to which you want to save the image, the file name and the file format for the new image.

Many file formats supported by IMatch have advanced options. To change these options click on the OPTIONS button in the dialog box. This will open a second dialog where you can modify the advanced options available for the currently selected image format:

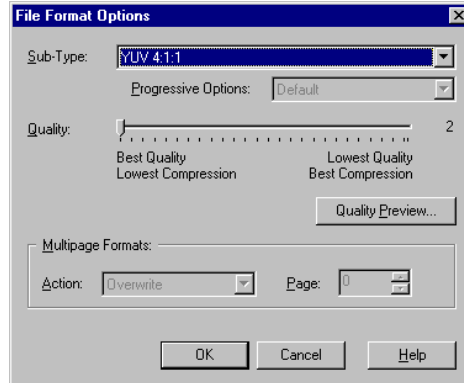


Figure 118: The File Format Options dialog box

Note Not all file formats support all options shown here. Depending on the current file format, some of the options may hence be disabled or hidden.

If the current file format supports a *compression factor*, you can **preview** the result image by pressing the QUALITY PREVIEW button in the dialog. This will lead to the QUALITY PREVIEW dialog box show in Figure 119.

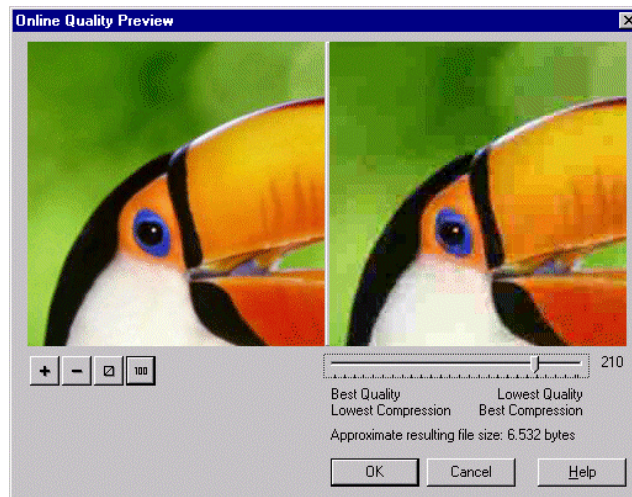


Figure 119: The Quality Preview dialog box

On the left side you see the original image. The *zoom control* arranged under the left window allows you to view your original image and the result image at different zoom factors. The right window contains a preview of the result image, as it would be saved. Use the quality slider control to try out different compression ratios. When you are satisfied with the result and found a tradeoff between quality and resulting file size, press OK to return to the previous dialog.

Note IMatch will save the last settings you made in these dialogs. Until you change the file format, IMatch will use these settings for all future Save operations.

File Format Options

Sub-Type	<p>The sub-type depends on the major image format selected. For example, the Windows Bitmap format has two sub-types: <i>Uncompressed</i> and <i>RLE compressed</i>. The JPEG format has seven sub-types, dealing with various compression options and color models.</p> <p>If you are unsure, keep the IMatch defaults, which have been chosen carefully to match the common formats in use today.</p>
Progressive Options	<p>If the current image format supports a progressive option, you can enable the use of progressive mode here. Images saved in a progressive format are often used on web pages. During transmission of the image over the Internet, the browser is able to display a rough impression of the image. When more data is transmitted, the image quality gets better and better.</p>
Quality	<p>If the file format supports a variable quality factor, you can choose the quality factor used to save the image here. There's always a trade-off between file size and image quality. The larger the resulting file is, the better is the overall quality of the image.</p> <p>When you want to create images to be used in web pages, it's often better to create smaller files to save some download time and bandwidth.</p>
MultiPage Options	<p>If you've chosen an image format that can store more than one image into a single file (e.g. TIFF or FPX), you can select a page number here. Also, if you save to an existing file, you also can choose to replace an existing page or add a new page at the end of the file</p>

Imaging Functions

IMatch provides a large set of general imaging features. All these functions are accessible via the IMAGE menu from within an Image Editor window. The focus of these functions is the management and cleanup of images in your digital image library.

The functions available in IMatch split into two major categories: *Image* and *Color*. These function groups are accessible in the Image Editor using the menus IMAGE and COLOR.

If you've ever worked with an imaging application like Adobe Photoshop or JASC PaintShop Pro, you will immediately be able to utilize the functionality built into the Image Editor.

Undo

IMatch provides a virtually unlimited number of Undo steps per Image Editor window. Depending on the functions you use, the information needed for performing the Undo operation is stored in the main memory of your computer or on your hard disk (in the TEMP directory). The number of undo steps is only restricted by the available RAM and disk space.

The Image Group

This group contains all functions that directly or indirectly manipulate the image contents. The following table describes each command/feature accessible via the IMAGE menu. Following the table are some in-depth explanations of the more complex features.

Function	Description
Flip	This command will turn your image upside down
Mirror	This command will reverse your image
Transform / Rotate	Allows you to rotate your image in steps of tenth of a degree.
Transform / Shear	Moves the corners of the image in the fashion of a parallelogram
Rotate 90° left	Rotates the image by 90° counter-clockwise. Use Ctrl+<Cursor left> as a shortcut
Rotate 90° right	Rotates the image by 90° clock-wise. Use Ctrl+<Cursor left> as a shortcut
Arithmetic	Allows you combine images with Boolean and binary operators to produce effects
Crop	If your image has a <i>Selection</i> , this command removes all unselected parts of the image. This function is great to remove unwanted borders or other stuff from your image
Framer	This command allows you to add a border to your image or to remove borders from images. The latter function works great if your images have unwanted borders or frames.
Auto-Trim Edges	This is a very powerful function to automatically remove unwanted borders or frames from an image. It works by removing blank space of the selected color from the borders of your image. For example, if your image has a irregularly shaped black border, this function will remove this border automatically, leaving the rest of the image untouched
Resize	Changes the dimensions (width and height) of your image. You can choose a specific pixel size or a percentage of the original image size. Several resample methods allow you to change the size of your images with minimal impact on the overall image quality This option also allows you to change the output DPI resolution of images with certain types (JPEG, TIFF, PSD)
Sharpen	Sharpens your image
Unsharp Masking	<i>Unsharp masking</i> , or <i>USM</i> , is a traditional film compositing technique used to sharpen edges in an image. The Unsharp Masking command corrects blurring introduced during photographing, scanning, resampling, or

printing.

You can control the amount of sharpening (*Strength*), the number of neighbor pixel used during the sharpening (*Radius*) and the threshold, which controls how much the sharpened image must differ from the unsharpened image to apply the sharpen effect

Red Eye Removal	This tool allows you to remove red eyes from your images, caused by direct flash exposure.
Soften	Softens your image to remove unwanted spots or compression marks
Blur	Applies an adjustable blur effect on your image
Gaussian Blur	Applies a Gaussian Blur effect to the image. This blur type gives you more control over the blurring process
Motion Blur	Allows you to apply a motion blur effect to your image, simulating the blurred impression of fast motion
Edge Enhance	Enhances the edges of your image, sharpens edges
Edge Enhance more	Same as a above, but even edgier
Emboss	Applies an emboss effect on the image
Intensity Detect	Filters the bitmap to detect colors in a specified intensity range. This filter is great if combined with <i>Color Separation</i> and applied to only one or two channels
Add Noise	Allows you to add <i>noise</i> to your image for various artistic effects
Remove Noise	If your image has too much noise or 'wrong pixels', this function can help. It works similar to the Blur effect or the Soften effect, but with more intelligence. This filter is great if you have some badly scanned images and need to improve the overall quality of the image
Mosaic	Applies a mosaic effect on your image
Aging Effect	Applies a sepia effect to your image to make it look <i>old</i>
Oil Painting Effect	Transforms your image into something looking like an oil painting. Combine with gray scale images or apply to only one channel
External Open	Opens the image with the associated application. This command allows you to open your image directly with your favorite image editing application
File Properties	Displays information about the current image in the Image Editor

The Framer

The Framer is an image manipulation function specifically designed for adding or removing image borders. Figure 120 shows the Framer dialog box with the preview image on the left.

To add borders, simply choose a border with. To make all borders the same width, make sure that the SYMMETRIC check box is checked.

The Framer will resize your image automatically so that there is enough space to add the new borders. The borders will be drawn *outside* the original image.

To remove a fixed number of pixels from the edges of the image, switch to REMOVE FRAME. Again, the number of pixels to remove from each edge is controlled with the border width controls.

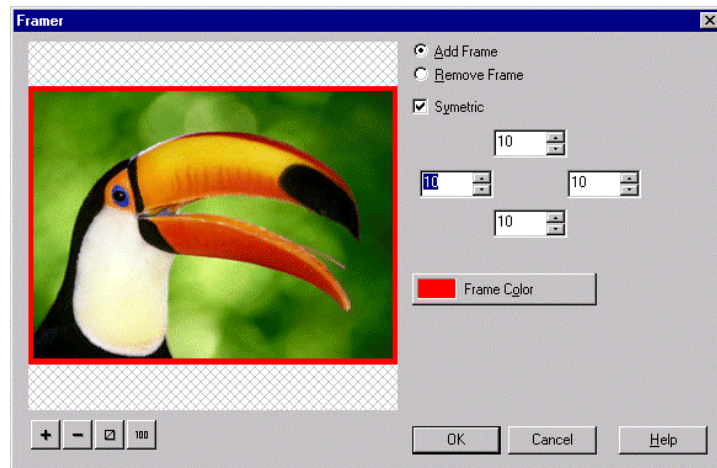


Figure 120: The Framer dialog box

Auto-Trim Edges

This feature comes handy when you want to remove unwanted borders from an image. Often such borders are irregularly shaped and cannot be easily removed with other tools. With the Auto-Trim feature this is not longer a problem.

Consider an image like the following:

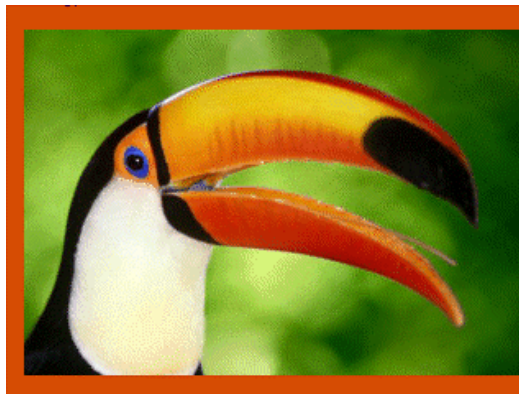


Figure 121: An image with an unwanted border

This image has some irregularly shaped borders that need to be removed. Simply choose AUTO-TRIM EDGES from the IMAGE menu and see what happens:

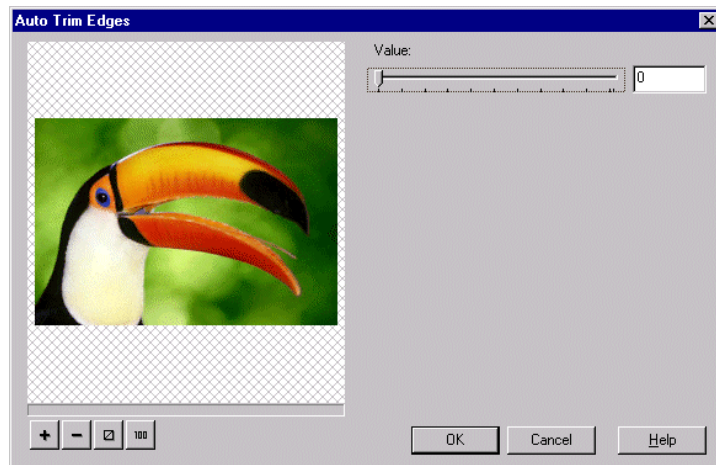


Figure 122: The Auto-Trim Edges dialog box

As you can see, the border is completely removed, without touching any other part of the image. This is basically what the Auto-Trim Edges feature does: It removes similar colored areas from the edges of your image.

The VALUE control allows you to adjust the tolerance of the Auto-Trim algorithm. If the colors in the border vary, move the control to a higher tolerance value. The preview allows you to control the effect of your recent changes. If the result fits your needs, apply the effect with the OK button.

Tip As all imaging commands in IMatch, you can undo the Auto-Trim operation with the UNDO command from the EDIT menu.

Resizing Images

Resizing images is one of the most frequently used image manipulation functions. Either you need a smaller preview image of some larger image or you want to prepare an image for the use on a web site.

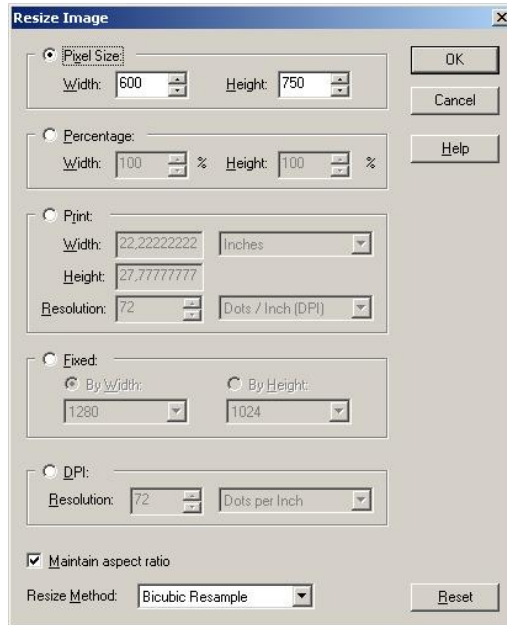


Figure 123: The Image Resize dialog

IMatch provides a sophisticated resize and resampling functionality that gives you perfect control over the whole process.

You can control the resulting size of your image in different ways:

- Pixel Size** Enter the width and the height of the resulting image. If **MAINTAIN ASPECT RATIO** is checked, IMatch will automatically calculate the perfect height / width, depending on your settings
- Percentage** The resulting image size is given as a percentage of the original image size. For example, if you use a 50% x 50% setting here, the resulting image will be half the size of the original image
- Print** This setting allows you to specify the exact dimensions of the result image, based on Centimeters, Millimeters or Inches.

If you working with print media, this setting produces the most precise results. You even can choose the resolution in *Dots Per Inch (DPI)* of the target device (Desktop Printer or High-Resolution Printing Device).

If you choose your image to be 13 x 9 inches, and the target device has a resolution of 600 DPI, the image will become 7800 x 5400 pixels.
- Fixed** If you want to resize your image to be of a predefined with or height, use this option. IMatch will automatically calculate the matching height / width based on your setting.

For example, if you want all your images to have a width of 800 pixels, set **BY WIDTH** to 600 and let IMatch do the rest.
- DPI** Allows you to change the DPI resolution (virtual resolution) of the image. This resolution is used as a resolution hint or output size intent by some applications and printer drivers

The RESAMPLE METHOD allows you to control how IMatch adds or removes pixels during the resize operation. RESIZE is the simplest option but may result in *unwanted artifacts* or *raggedness* in the resulting image. The RESAMPLE method avoids these effects by a process called *interpolation*. This process considers the surrounding pixels of a pixel that needs to be duplicated / removed during a resize operation. The BICUBIC method works similar but produces better results than RESAMPLE when you shrink an image.

The Color Group

All functions from the Color group are accessible via the COLOR menu of the Image Editor. This menu contains functions to perform various actions that manipulate the colors in an image:

- Grayscale and Invert
- Color Depth manipulations
- Optimizations for the Internet (Browser Compatibility)
- Histogram adjustments
- Brightness, Contrast and Gamma manipulations
- Hue, Saturation and Intensity
- General Color modifications
- Channel Split and Combine
- HSV, HSL, CYMK and RGB manipulations

Function	Description
Grayscale	Converts your image into a 256 shades grayscale image
Invert Image	Creates a <i>Negative</i> from your image
Count Colors used	Calculates the number of individual colors in your image
Color Depth	Changes the color depth (color resolution) of your image. You can convert any color resolution into any other color resolution. A specialty is the OPTIMIZED FOR WEB BROWSERS color resolution. This procedure converts your image to a color resolution and a palette that can be handled by any web browser.
Interactive Color Resolution	This opens a dialog box that allows you to change the color depth of your image interactively. This dialog gives you maximum control over the final color resolution and palette of your image
Channel Split	Splits your image into separate channels. You can choose between RGB, HSL, HSV and CMYK channels

Channel Combine	Combines a new image from separate color channels. The dialog box checks all open images to provide a preset of the images that are most likely to be combined
Histogram Functions	The HISTOGRAM EQUALIZE procedure allows you to bring out details in dark areas of your image. WITH HISTOGRAM STRETCH you can increase the contrast in the bitmap by centering, maximizing, and proportioning the range of intensity values.
Posterize	Applies a <i>Posterize</i> effect on your image
Solarize	Applies a <i>Solarize</i> effect on your image
Adjust	BRIGHTNESS, CONTRAST, GAMMA allows you to modify the brightness, contrast and gamma values of your image. With HUE, SATURATION, VALUE you can modify the overall color temperature and appearance of your image CHANGE COLORS allows you to interactively modify the Red, Green and Blue channels of your image

Modifying Brightness, Contrast and Gamma

If your image is too *dark*, has no contrast or needs Gamma correction, use this function to change any of these settings. The Dual-Preview on the left of the dialog box displays the original image on the top and the resulting image at the bottom. When you modify the B, C, G values in the dialog box, the result image is automatically updated when you rest the mouse for half a second.

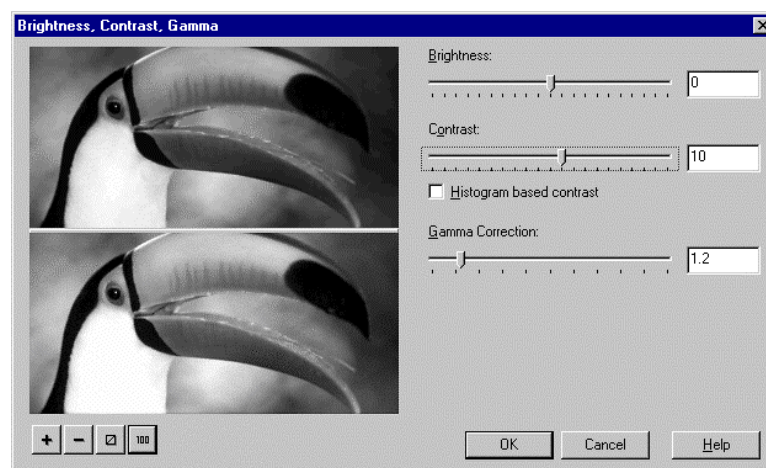


Figure 124: The Brightness, Contrast, Gamma dialog

Tip With the Zoom Controls on the bottom left you can view your original image at different zoom factors. To *pan* an image, use the mouse, click on either the original

[or the result preview and move your mouse while holding down the left mouse button.](#)

Hue, Saturation, Lightness

To change the Hue, Saturation and Lightness attributes of an image, use this dialog box.

- Hue** describes the color's shade. Hue is measured on a circular spectrum running from red to green to blue and returning to red. The hue slider has a value between -100 and 100 and selects the hue value from on the circular spectrum.
- Saturation** describes the hue's purity. A color with 100% saturation is bright and vivid, and a color with 0% saturation is a shade of gray. To correct *flat* colors in your image, use more Saturation. If the colors are too bright and heavy, use lower saturation values to correct.
- Lightness** describes the brightness of the colors in your image. A color with 100% lightness is always pure white, and a color with 0% lightness is always pure black. To adjust a bad scan or an image that is too bright, use higher or lower lightness values

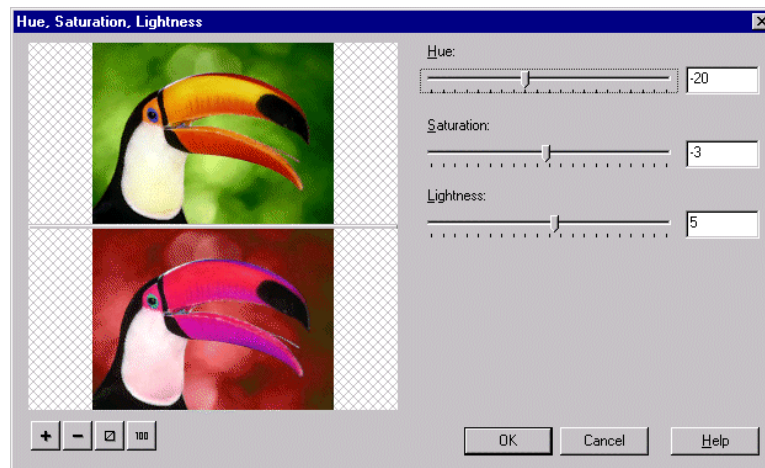


Figure 125: Hue, Saturation, and Lightness

Color Change

This function allows you to change the individual Red, Green, and Blue values of the colors in your image. You can correct wrong colors or produce interesting effects on your image.

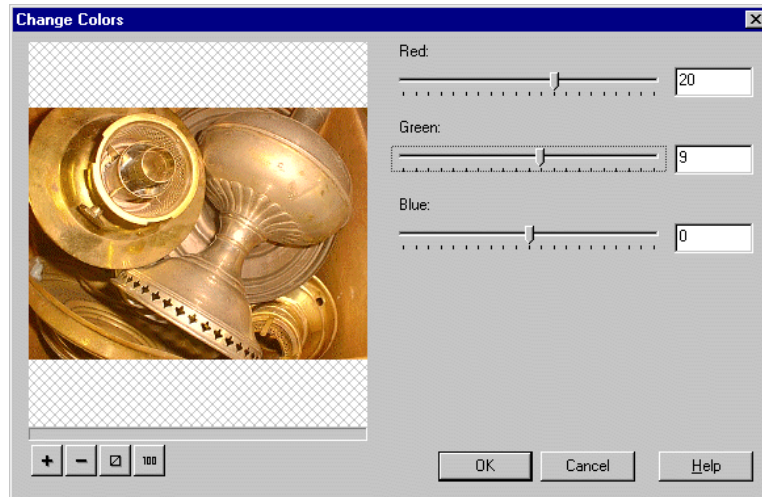


Figure 126: The Change Colors dialog

Printing an image from the Image Editor

Open an image with the image editor (Double-click on a thumbnail in the THUMBNAIL VIEWER, choose EDIT from the thumbnail context menu or choose OPEN IMAGE from the FILE menu).

To set the layout options to be used for the print, open the PAGE LAYOUT dialog box from the FILE MENU:

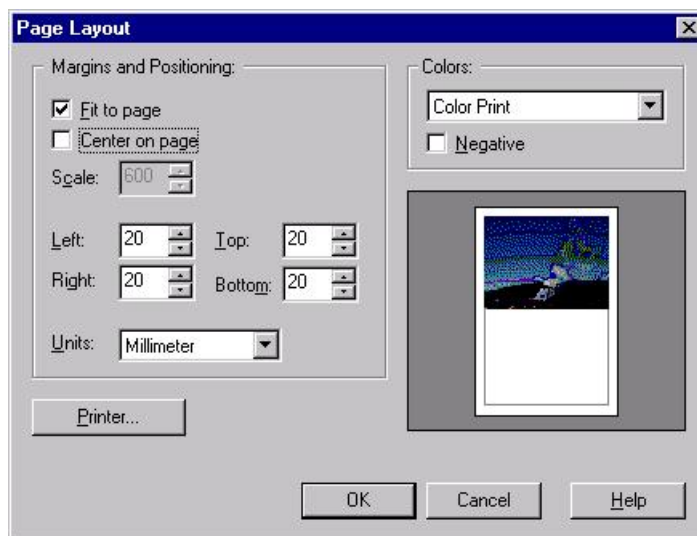


Figure 127: The Page Layout dialog box

From this dialog box you can adjust the printed size of your image, the position of the image on the page, the page margins and define whether you want to create a color, grayscale or negative print.

Tip If you want to make modifications on the image to create better quality prints, you can copy your original into the clipboard and then paste it as a new image. You may also duplicate the image directly with the DUPLICATE command from the WINDOW menu. This way you can apply any type of corrections without touching your original

Variables

Variables

This section describes the unique Variables concept built into IMatch. This concept allows you to utilize the information content of your database with various IMatch modules. The networked and hyperlinked structure of all objects in your database forms much more than a simple collection of thumbnails.

Each image in your database is implicitly or explicitly linked with other objects, attributes and properties. IMatch maintains these associations in efficient internal data structures and allows you to access this information in a variety of ways.

Additional sources of information are the user-defined *property sets* you can create in your database. Together with the *image attributes* automatically created by IMatch, a **database contains a network of information** about each image in your collection.

All the information in an IMatch database is **active, and adapts to changes** in the structure of the database while you work with it. When you move images to different folders, change category assignments or create new persistent result sets, IMatch automatically updates the hyperlinks between the various objects in your database.

This network of objects and information can be used together with many of the filters and export modules that form the IMatch system. For example, you can use the information contained in your database for *Contact Sheets*, the *Batch Export* module and the *HTML Export* module to refer to each attribute and property contained in your database.

This section will show you how the variable concept of IMatch works and what you can do with it to add some extra value to your image collection.

Image Attributes

IMatch stores a number of *attributes* together with each of your images. These attributes are automatically maintained by the core system.

The following table contains a list of all attributes that are exported as variables from the IMatch core system. Use these names together with the *Image* prefix and the following syntax: **{Image.<Name>}**

For example, use

{Image.Name}

to get the file name of the image.

Attribute OID	Description
Name	The file name of the image, including the extension

	Example: "mypic.png"
NameNoExt	The file name without an extension. This attribute is useful if you use serial numbers or ids to name your file name.
	Example: "mypic"
Folder	The fully qualified name of the drive and folder where the image is stored
	Example: "c:\images"
FolderComment	The description you entered for this folder
	Example: "This folder contains my image collection"
FolderMediaID	The media ID (label) of the folder
FolderMediaSerial	The serial number of the media (created during formatting the media)
FolderFriendlyName	The friendly name of the folder
FullPath	The fully qualified path of the image, including the file name:
	Example: "c:\images\mypic.png"
URI	The Universal Resource Identifier for the image as it is stored in the database
	Example: "file://c:/images/mypic.png"
Width	The width of the image in pixels
Height	The height of the image in pixels
Size	The size of the image file in bytes
CRC	The 32-Bit Cyclic Redundancy Checksum (CRC) of the image. This checksum uniquely identifies the contents of each image and is used for the <i>Checksum match method</i> in the <i>CSV / CRC export and import filters</i>
Date	The date of the last modification
ShortDate	The date of the last modification (short format)
LongDate	The date of the last modification (long format)
Time	The time of the last modification
BPP	The color depth of the image, measured in <i>Bits Per Pixel (BPP)</i>
Colors	The number of colors in the image, based on the BPP value

Format	The file format of the image. This attribute contains a description of the file format, e.g. " <i>Windows Bitmap</i> ".
Categories	A comma separated list of all categories that refer to this image
CategoriesFullName	A comma separated list of all categories that refer to this image. The category names are fully qualified, including all parent categories.
DateYYYYMMDD	The date of the last modification in the format YYYYMMDD, for example 20010101 for January 1, 2001
DateYYYYMM	The date of the last modification in the format YYYYMMDD, for example 200101 for January 2001
DateYYYY	The four-digit year of the file date
TimeHHMMSS	The time of the last modification in the format HHMMSS, for example 120001 for 12:00:01
TimeHHMM	The time of the last modification in the format HHMM, for example 1205 for 12:05
WidthIN	The width of the image in inches. <i>This calculation is based on the resolution defined in Options/Preferences/Thumb View.</i>
HeightIN	The height of the image in inch.
WidthCM	The width of the image in centimeter
HeightCM	The height of the image in centimeter
WidthMM	The width of the image in millimeter
HeightMM	The width of the image in millimeter

Table 1: Image Attributes

Global Variables

In addition to the attributes stored with each image, IMatch also provides a set of *Global Variables*. These variables are listed in the following table:

Variable	Description
Name	Name of the application
Version	The application version
Folder	The folder where the IMatch executable is located
Templates	The folder where your presets and templates are stored. You can change the content of this variable in the General Settings dialog (see General Settings)
Bitmaps	This variable contains the name of the folder that stores

	bitmaps and backgrounds used for example with the CONTACT SHEET BUILDER or the BATCH EXPORT module. You can change the content of this variable in the General Settings dialog (see General Settings)
OutputFolder	This variable contains the output folder that is used with the CONTACT SHEET BUILDER or the BATCH EXPORT module. You can change the content of this variable in the General Settings dialog (see General Settings)
TimeNoSec	The current system time in a format compatible to the user-specific time format settings in the control panel. Only hours and minutes are exported. Example: <i>"12:00" or "05:17 am"</i>
Time	The current system time in a format compatible to the user-specific time format settings in the control panel. The time includes hours, minutes and seconds. Example: <i>"12:00.17" or "05:17.23 am"</i>
DateShort	The current date in short date format Example: <i>"12/24/2000"</i>
DateLong	The current date in long date format Example: <i>"Sunday, September 24, 2000"</i>
Year	The current year as a four digit number, e.g. <i>2000</i>
Month	Full name of the current month, e.g. <i>January</i>
MonthNum	The number of the current month, <i>01..12</i>
Day	The full name of the current day of month, e.g. <i>Monday</i>
DayNum	The current day of month as digits with leading zero for single-digit days: <i>01..31</i>

Table 2: Global Variables

User Variables

In addition to the global and local variables you can define your own variables. These user variables can be used wherever other variables can be used. All user variables are of type *String* and may contain any number of characters.

To create or edit user variables, open the USER VARIABLES dialog box from the OPTION menu.

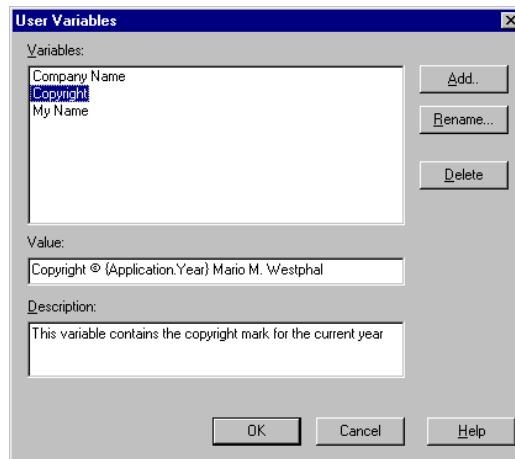


Figure 91: The User Variables dialog box

User variables are very efficient when you want to use the same text with several IMatch modules. In Figure 91 a variable named *Copyright* is currently selected. The content of this variable is a copyright note, with a nested variable that returns the current year:

Copyright © {Application.Year} Mario M. Westphal

If you use this variable somewhere in IMatch, it will resolve to something like

Copyright © 2003 Mario M. Westphal

Note that the year 2003 is not hard-coded into the *Copyright* variable! The global variable *Application.Year* returns the current year as a four-digit number. So you don't need to adjust your Copyright notice when the year changes. IMatch takes care that it's always current.

Using Variables

A good example of how variables are used is the CONTACT SHEET BUILDER module (refer to section [Creating Contact Sheets](#) for more information).

The OUTPUT property sheet of the Contact Sheet Builder expects an *output folder* for the generated contact sheet bitmaps. You can either type in a path like *c:\temp\bitmaps* or use a variable instead. In Figure 93 the output folder has been specified using a global variable named *Application.OutputFolder*.

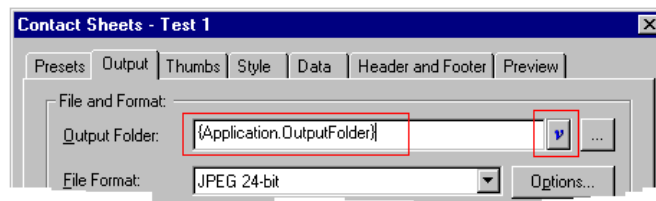


Figure 93: Using variables

In the global variables table above you can read that this variable contains the output folder specified in the GENERAL SETTINGS dialog (See Figure 94 below).

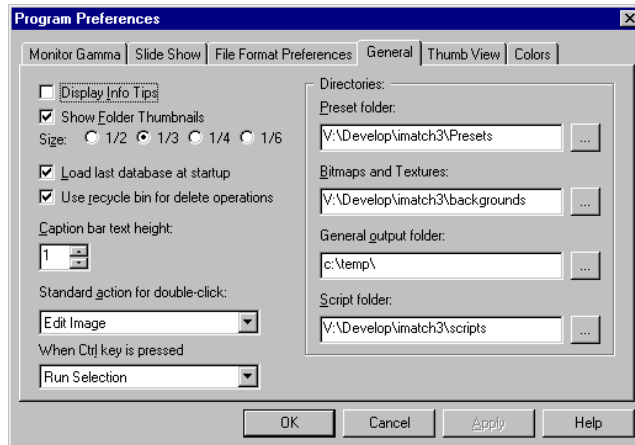


Figure 94: The OUTPUT FOLDER definition in the General Settings dialog

If you run this contact sheet, IMatch will identify this variable and **replace** it with the current contents of the GENERAL OUTPUT FOLDER setting. In our example, the variable *Application.OutputFolder* will resolve to the folder name *c:\temp\t*.

If you want to change the output folder for all your contact sheets at once, all you have to do is to change the global setting. IMatch will automatically update the associated variable with the new folder name and all future contact sheets will be created in the this new folder!

You can, of course, create a *user variable* that points to a folder and use this variable instead. The principles are the same. IMatch will identify the variable, resolve the contents and use the result as the folder name for the Contact Sheet Exporter output.

To use a variable instead of normal text, write the variable name in { }, as in {Application.OutputFolder}

IMatch will only recognize variables when they are written in these parentheses!

Also, variable names are case sensitive: {Application.Version} is not the same as {application.Version} or {Application.version}.

Some other examples for the use of global (Application-) Variables

The current time is {Application.Time} =>
The current time is **12:00.22**

Today is {Application.LongDate} =>
Today is **Sunday, September 24, 2000**

I'm running {Application.Name} version {Application.Version} =>
I'm running **IMatch** version **3.01**

Local Variables

Local variables are variables that are defined only within a specific module. The CONTACT SHEET BUILDER for example publishes a set of variables that are only available and meaningful when the Contact Sheet Builder is executed. These variables all start with the prefix *Sheet* and can be used only within the Contact Sheet Builder presets.

In computer terms this would read: *"The Sheet variable set is only available within the context of the Contact Sheet Builder"*.

The Image variable set

The *Image* variable set gives you access to all image attributes and user-defined properties in your database. For example, with `{Image.Name}` you can refer to the file name of an image. All Attributes supplied by IMatch (see *Table 1*) and all property sets defined in your database are exported as variables in the *Image* variable set.

Other examples for *Image* variables are: `{Image.Size}`, which returns the file size of the image, or `{Image.Folder}`, which returns the name of the folder that contains the image.

Property Sets

If your Image property set (see *Image Property Sets*) contains the two properties *Title* and *Description*, IMatch will export these properties as variables named `{Image.Properties.Title}` and `{Image.Properties.Description}` respectively.

To specify a property, you must use the prefix '*Properties.*' before the actual name of the property: `{Image.Properties.<Name of the property>}`. This way, IMatch can identify that this is a reference to a property set and not a reference to an image attribute like `{Image.Size}`.

Note `{Image.Size}` is the attribute *Size* from the *Image* variable set.
`{Image.Properties.Size}` is some property named *Size* from your image property set.

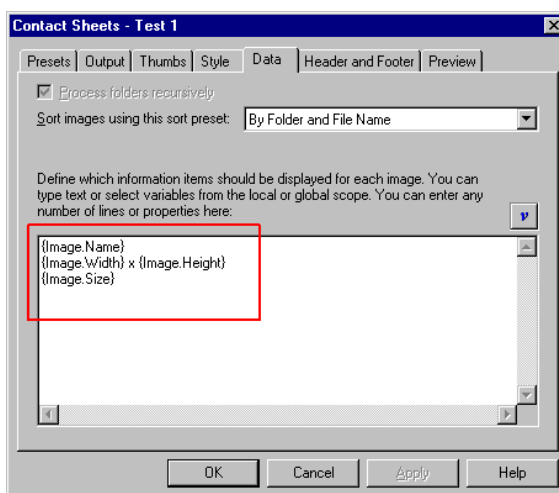


Figure 95: Usage of variables in the Contact Sheet Builder

The variable concept even extends to *multiple* property sets. If your Image property set contains a reference property to another property set, this property set is also accessible as a variable.

Say, you added a property *Location* to your Image property set that links to the property set *Location* in your database:

Image Property Set:

Title
Description
Location => *Links to the Location property set...*

Location Property Set:

Name
State
ZIP
Description

If you want to display or print this information somewhere in IMatch, you can simply use the variables `{Image.Properties.Title}` to refer to the title of the image or `{Image.Properties.Location.ZIP}` to refer to the ZIP code of the location property associated with the image. The name of the property (Location) always comes first, followed by the property name (ZIP).

Context

The *Image* variable set is only available within the context of specific modules and only when there is a selection of images. Read the documentation for the CONTACT SHEET BUILDER and the BATCH EXPORT module for more information about their published variable sets.

Remember Always use { and } when you enter variables instead of normal text. IMatch only recognizes variables when they are contained in these parentheses!

Variable names are case-sensitive (*Image* is different to *image*)

Global variables always start with the prefix *Application*, as in `{Application.Version}`

User variables always start with the prefix *User*, as in `{User.MyVar}`

Local variables also start with a prefix, depending on the variable set. The Contact Sheet Builder publishes the variable sets *Sheet* and *Image*. The Batch Exporter module publishes the variable set *Image*.

The Variables Selector

IMatch provides a convenient Variables Selector dialog. You can access this dialog wherever variables can be used.

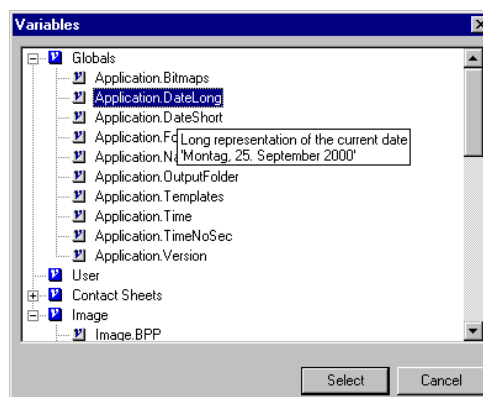


Figure 96: The Variables Selector (showing the CONTACT SHEET BUILDER context)



Most dialog boxes and property sheets contain a special *Variables* button next to the edit control where you can use variables. By clicking this button, you open the Variables Selector dialog (see Figure 96).

To select a variable, click on it and then press the `SELECT` button to close the dialog and insert the variable into the current edit field. Alternatively, you can simply double-click on a variable name.

The variable name is inserted at the current cursor location. If there is a selection in the edit field, this selection is replaced by the inserted variable name.

Scripting and the IMatch Object Model

What can be done with IMatch Scripting?

The capabilities of the build-in scripting language are nearly limitless. The full IMatch object model is available from the scripting language and allows you to access nearly every object in IMatch. Additionally, the Basic Language itself contains numerous methods and features to perform calculations, access system objects and perform operations on the file system.

Since IMatch Script is fully OLE compatible, you can also automate other applications via scripting or access databases via ADO or other database interconnection standards. By using these facilities, you can exchange data with other applications or automate them to perform specific tasks.

Since the full object model of IMatch is exported to the scripting language, you can at any time access the full contents of all open databases. You have access to the folders in the database, the categories, the images, the property database and nearly all other visible and invisible objects.

Warning The scripting language has been developed to be as safe as possible. It is nearly impossible to damage a database from within scripting, even if you do very bad things. However, since you have full access to all database objects, you can delete files, folders or categories from within a script. It is **highly recommended** that you test your scripts carefully before you run them against a production database.

A good method to avoid any kind of trouble is keeping a **test database** that is only used to develop and test new scripts. This database should index a couple of folders that contain **copies** of your real images. In case of an error in your scripts, you only damage these copies and not your original images.

However, this type of warning applies to all applications that allow scripting. Make sure that your script does what you expect it to do and then have fun!

Examples of use

As said above, the capabilities of the built-in scripting language are nearly limitless. There are numerous uses for this type of power, and here are some examples.

Importing and exporting data

With a small script you can export all or parts of your database contents to other applications. Since IMatch Script gives you full access to the file system and OLE automation, you can also write and read files or access databases from within IMatch.

Manipulating Objects in IMatch

Using the IMatch object model, you can access any type of object in IMatch from scripting. For example, you can iterate over all selected images and perform specific operations on each

image. You may delete, move, and copy images. You can assign images to categories or the bookmarks collection. You can open images in the IMatch Image Editor or manipulate them directly via scripting. All capabilities of the Image Editor are also available from the scripting environment, this includes things like *Resize, Rotate, Convert, Frame, Color Change, Saturation, Brightness and Contrast*.

Automating Frequent Tasks

If you deal with large numbers of images every day, you can write down your most frequent tasks as a script and perform all these operations with a couple of mouse clicks. You may copy or move files, resize them and write them out in a different file format, send files via email to remote clients, add watermarks and copyright statements and much more.

Automate other Applications via OLE

If you want to create a full-fledged and professional looking catalogs from your image database contents, you can use IMatch Script to automate Microsoft Word or similar applications that support OLE automation.

If you keep pricing information in your IMatch database, you may use Microsoft Excel to print accounting information or billings.

You can even link your database with your Microsoft Exchange™, Microsoft Outlook™ or Lotus Notes™ address books to send images via email to your customers or friends.

If you have sufficient skills, you can even create sophisticated HTML documents directly from IMatch, with JavaScript, Cascading Style Sheets and all other fancy HTML stuff.

Tip The IMatch user forum contains numerous scripting samples from other users. There is also a section with new and updated scripts at the phootools.com home page.

The Scripting Environment

The scripting environment is accessible via the IMatch main toolbar and the SCRIPTING menu. From the toolbar you can open the *Script Manager*, the *Scripting IDE Window* and the *Script Output Window*.

When a script is running, you can stop it with the red STOP button next to the OUTPUT WINDOW button.

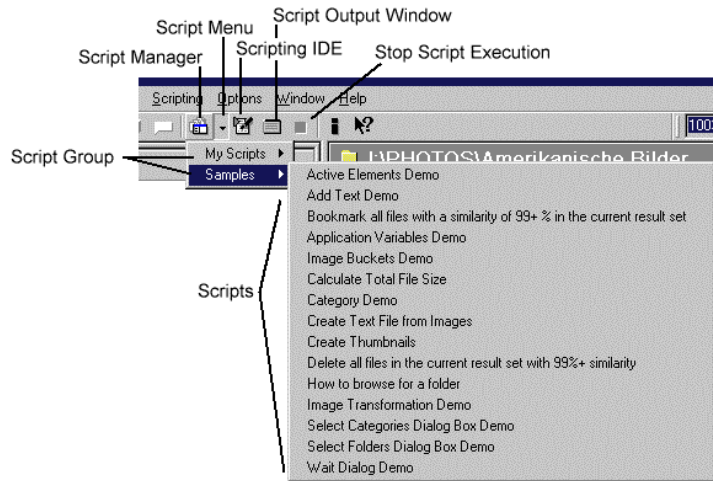


Figure 183: The Scripting Environment in IMatch

The IMatch status bar contains a new icon that indicates the execution status of the scripting engine. When a script is executed, the icon will be shown blinking (compare to Figure 184).



Figure 184: The 'Script running' indicator in the IMatch status bar

The Script Manager

The Script Manager is the central point of management for all your scripts. From here you create, edit and delete scripts. The Script Manager also allows you to start a script or to load a script into the Integrated Development Environment.

On the left side of the dialog box is occupied by a tree control that displays the names of all scripts contained in the IMatch *Script Folder*. The IMatch Script folder normally is located below the IMatch program folder and is named *Scripts*. You may change the location of this folder via the `OPTION\PRESETS` dialog.

If you create your own scripts via the Script Manager, they are saved to this folder automatically. If you get some scripts from another source, just copy them into that folder. The Script Manager takes care for the rest.

Scripts can be ordered into **groups** for easier handling. In Figure 185 the group labeled *Samples* is visible in the script tree. The Script with the name *Calculate Total File Size* is selected. On the right hand you see the information about this script. The `SCRIPT INFO PANE` displays information about the currently selected script. The script author (you or another IMatch user) enters this information when he creates a new script.

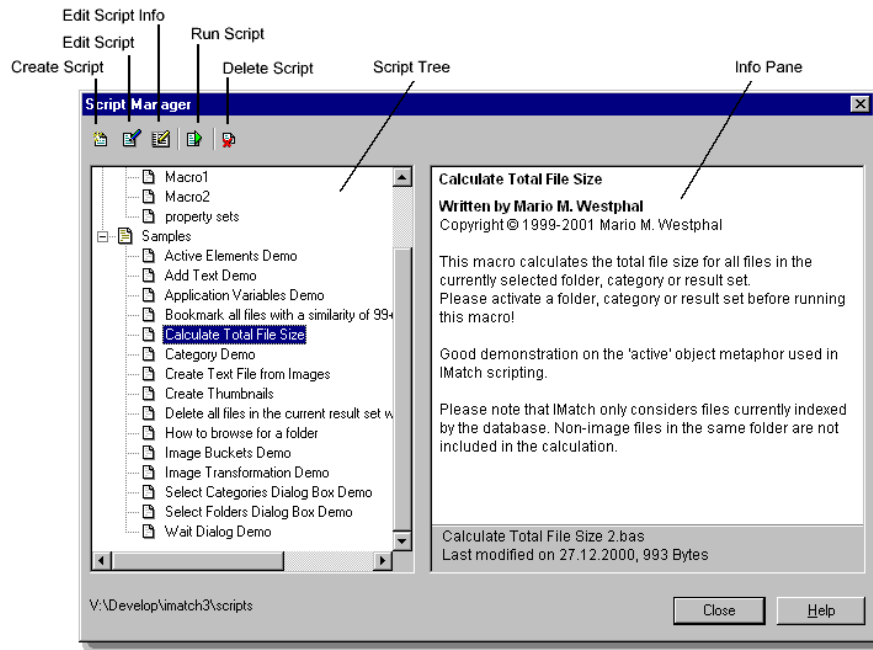


Figure 185: The IMatch Script Manager

Note An IMatch script always consists of two files. The script file with the source code has the file extension **.bas** and the file that contains the script information has the same file name, but the extension **.bai**. Always keep these two files together!

Running your first script

Now we'll give it a try! Open the DATABASE VIEW and select a folder. Then open the Script Manager via the IMatch toolbar or the SCRIPTING menu.

Locate and select the Script labeled *Calculate Total File Size* in the Script Tree on the left. In the local toolbar of the Script Manager, click on the button with the little green "Run" Icon. Alternatively, you can double-click on the script name.

The script is executed and calculates the total size of all files in the selected folder. When the script finishes, it displays a message box, showing you the results:

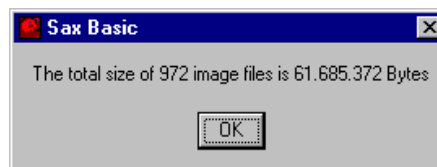


Figure 186: The message box created by the script

Instead of opening the Script Manager to run the script, you can also run the script by unfolding the SCRIPT MENU and selecting the script (see Figure 183 on page 434). To unfold the script menu, click on the little arrow next to the Script Manager button in the toolbar.

Hint If you calculate a folder that contains several hundred files, you can watch the script progress in the IMatch status bar. For folders with only a couple of files, the script executes so fast to see any progress control at all...

Creating a Simple Script

Now you will create your first script. It will perform a rather simple task but it will demonstrate the basic procedures required to create, test and run a script in IMatch.

Open the Script Manager and select the group labeled *My Scripts*.

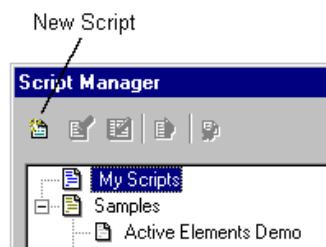


Figure 187: Creating a simple script

Click on the NEW SCRIPT button in the local toolbar of the Script Manager. The SCRIPT PROPERTIES dialog box will open. Here you can enter the name of your script and some optional information. **The script name has to be unique and must contain at least one character.**

The information entered here will be shown in the SCRIPT PANE in the Script Manager. The name of the script will be used as the file name under which the script is stored in the *Scripts* folder of your IMatch installation.

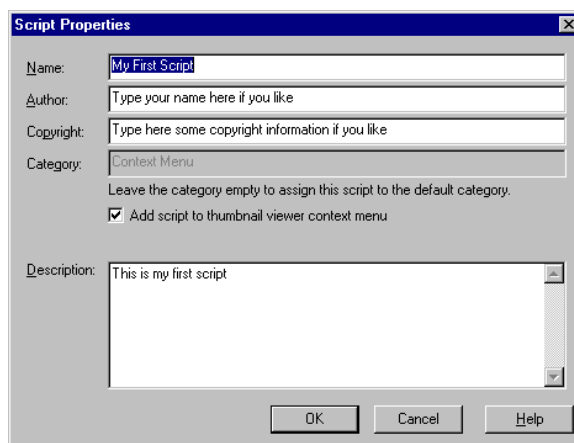


Figure 188: Entering the script information

The CATEGORY field allows you to categorize your scripts into different groups. If you leave this field empty, the script is assigned to the MY SCRIPTS group. To create a new group, just enter a name in this field. The sample scripts contained in the IMatch distribution are all in the SAMPLES group to make them easily identifiable.

If you check the ADD SCRIPT TO THUMBNAIL VIEWER CONTEXT MENU option, the script will be automatically assigned to a special group named *Context Menu*. All scripts contained in this group are accessible via the content menu of the thumbnail viewer. You may arrange all frequently used scripts into this group for easier access.

You may enter a Description for your script. This description should contain information about what the script does, how to use it and any other information that may be useful.

Press OK to close the dialog box. The script will become active in the Script Manager.

IMatch automatically creates sub-menus for each group in the SCRIPT MENU. If there are too many scripts in one of the groups, you can move a script to another category easily:

- Select the Script in the Script Manager
- Open the SCRIPT PROPERTIES dialog by pressing the associated button in the toolbar
- Enter a different group name in the CATEGORY field.
If you enter the name of an existing group here, IMatch will assign the script to that group. If you enter a new name, IMatch automatically creates that group for you

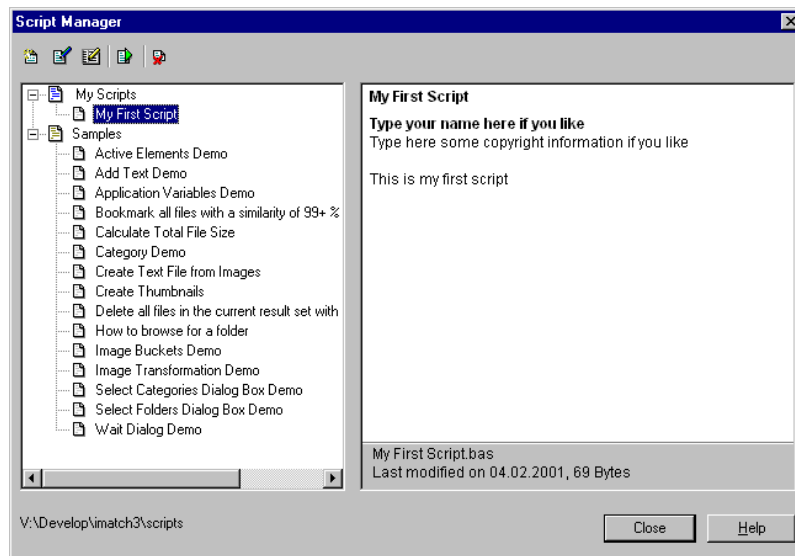


Figure 189: The new script in the Script Manager

Now we need to add some code to create something useful. To do so, please select your new script and then click on the EDIT SCRIPT button in the local toolbar (compare to Figure 183 on page 434).

This will open the Scripting IDE window. If the window is too small, resize it to match your screen resolution. The IDE window will save its size and position, so you have to do this only once.

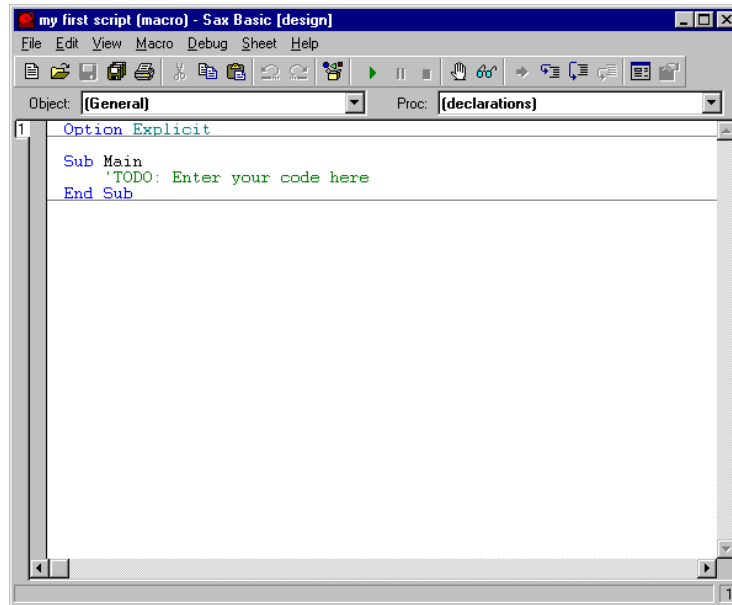


Figure 190: The IMatch Scripting IDE window

This IDE window allows you to load, edit, compile, test and debug scripts. Following an old programmer's tradition, our first script will be a simple "Hello World!" program.

Tip The IDE contains a comprehensive online help. To get help to your current situation, press <F1> or choose EDITOR HELP from the HELP menu of the IDE window. To get help about a specific command or the Basic language itself, choose LANGUAGE HELP from the HELP menu.

In the SOURCE WINDOW of the IDE, you should see a line with the text:
 'TODO: Enter your code here

The line should be displayed in green, indicating that this is a *comment*.

Note A comment is a non-executable part of a program and allows you to put hints or descriptions into your program code. You will see many comments in the IMatch scripting samples contained in the distribution package. These comments help you to understand what a program is doing. Good programmers use many comments in their source code...

Replace this line with the following text:
 MsgBox "Hello World!"

Be careful not to change any of the other text in the source code!

After editing, your code should look like this:

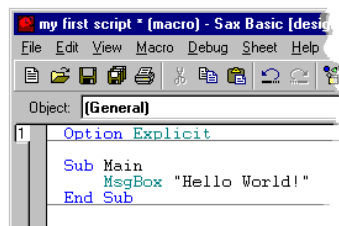


Figure 191: The source code after editing

To bring your code to execution, click on the toolbar button with the green arrow. You may also choose RUN from the MACRO menu or press the <F5> key.

If you did everything correctly, you should get a message box like this:



Figure 192: The output of your first program

This may be not too impressive, but you will see what else can be done with the scripting language in the remainder of this section. Close the message box now by clicking on the OK button. IMatch will return to the IDE window automatically.

Please save your script now. Press the toolbar button with the disk or choose SAVE from the FILE menu of the IDE window.

Tip If you want to play a bit with the scripting, feel free to do so. Just open the Editor or Language help from the HELP menu and follow the documentation. Expect a couple of hours until you get used to the Basic language and the things that can be accomplished.

Editing Existing Scripts

IMatch comes with a batch of pre-built sample scripts that demonstrate various aspects of the IMatch object model. Feel free to open these scripts in the IDE window and learn what they do and how they do it.

To open an existing script, open the Script Manager, select the script you want to open and choose the EDIT SCRIPT button in the local toolbar. The Scripting IDE will open with the script loaded.

Extended Script Help

If your script is more complex, and requires additional instructions on how to run and to use it, you may write an extended documentation and save it into the scripting folder. This documentation must have the same file name as the script itself, and an extension different from .bas and .bai.

For example, you may create a HTML document explaining what your script does and how to use it. Your script is named myscript.bas, and you save your documentation as myscript.html. The script manager automatically detects this documentation, and shows a new button below the description pane, allowing users to open your documentation.

The Scripting Output Window

IMatch contains a scripting output window for debugging purposes. This window is usually hidden and comes to life when a script is executed.

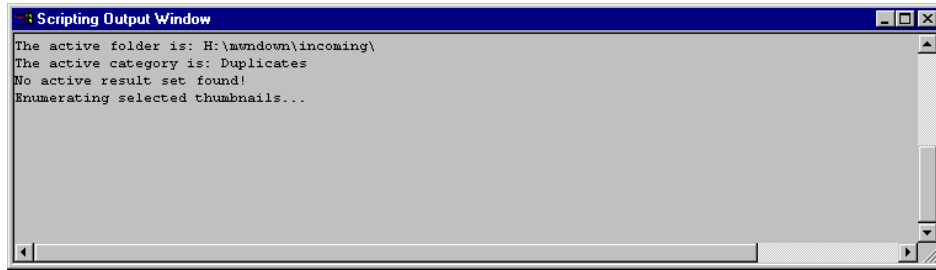


Figure 193: The Scripting Output Window

The output window is used to present textual information to the user while a script is running. Most often, the output window is used for **debugging purposes**. While you're developing a script, you can use the output window to display status information to verify that your script is doing what you expect it to do.

To print text to the output window, use the *Debug* object and its *Print* method:

```
Sub Main
  Debug.Print "Hello World..."
End Sub
```

This program writes the text "Hello World" into the Scripting Output Window.

Depending on your scripts, you may also use the output window to display additional information to your users.

The IMatch Object Model (All classes)

The IMatch Object Model

Figure 194 shows the complete IMatch 3 Object Model. Use this chart as a reference when you begin to write scripts with the IMatch scripting language.

Class Overview

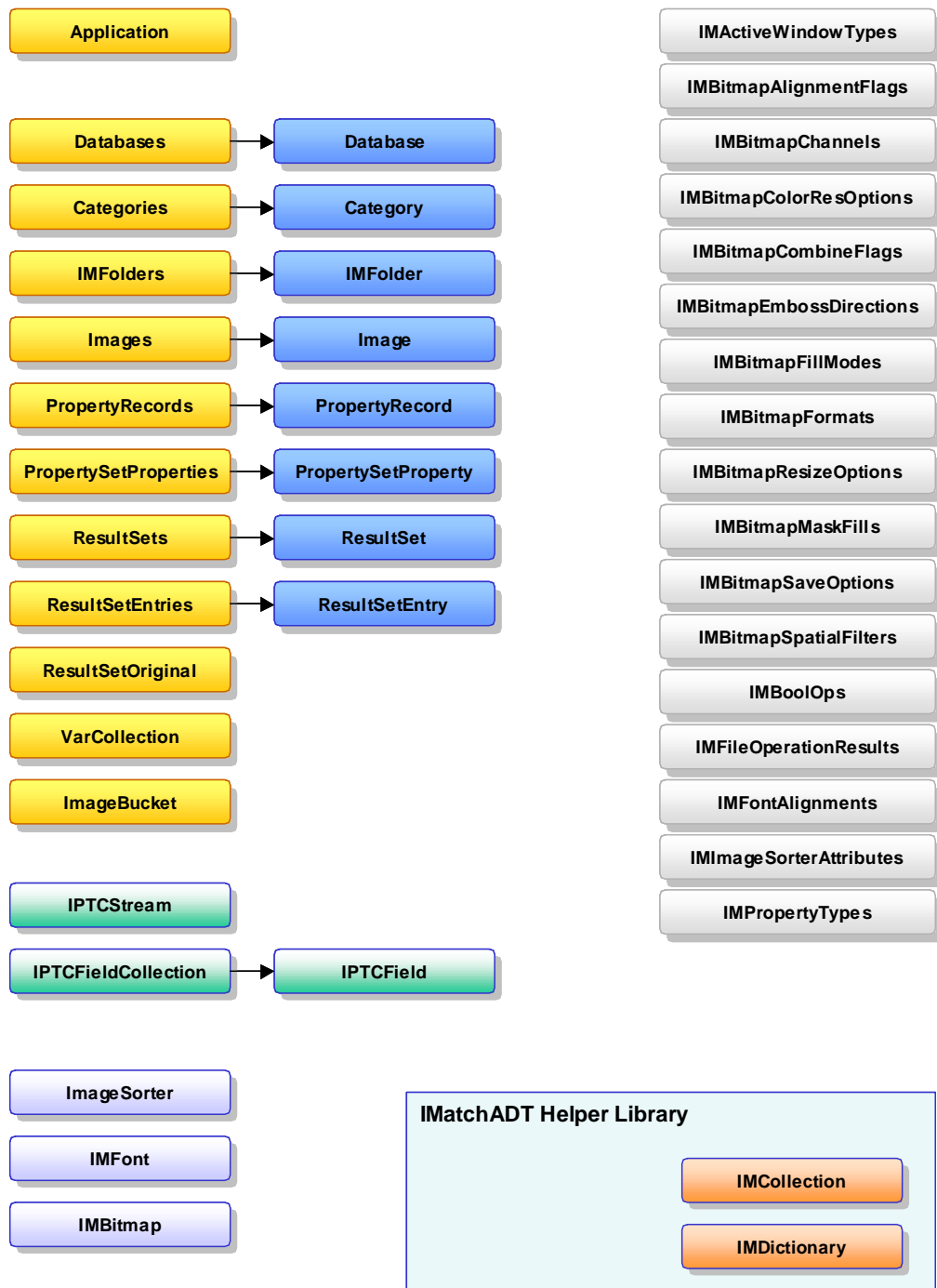
To root of all classes in IMatch is the *Application* class. This class represents the entire IMatch application. Using the *Application* class you can control parts of the IMatch user interface, access the currently open databases and perform some other basic operations.

The *Application* class contains a collection named *Databases*. This collection contains all currently open databases. Each element in this collection is of type *Database*.

Definition A **collection** is a set of objects of the same type. Each collection supports a number of methods, such as *Count*, which returns the number of objects in the collection and *Item*, which returns the object at the given position.

Imatch 3 Object Model

Version 3.3



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Figure 194: The IMatch Object Model

The *Database* class represents a single database and allows you to access and manipulate the contents of the database. The *Database* class contains a number of collections for *Categories*, *IMFolders*, *Images*, *Property Sets* and *Result Sets*.

The class *IMFolder* represents a folder in your database. It contains an *Images* collection that gives you access to all image files in a folder.

The class *Category* represents a category in your database. It contains an *Images* collection that gives you access to all image files in that category.

The *Images* collection contains elements of type *Image*. *Image* objects allow you to access all properties of a single image in your database.

The *PropertySet* class allows you to manipulate a property set in your property database.

The *PropertyRecord* class represents the properties for a single image in your database.

The *IMBitmap* class allows you to perform sophisticated image manipulation tasks from the IMatch scripting language.

The *IMFont* class allows you to add text to images from within scripting.

The *ImageSorter* class enables you to sort your images using a variety of criteria.

The Application Class

The Application Class

The Application class represents the IMatch application and supplies a number of basic methods and collections. The most important collection is the *Databases* collection, which allows you to access to all currently open databases. The most frequently used of Application is *ActiveDatabase*, which returns the currently active (focused, in front) database.

The Application class allows you to manipulate the IMatch status bar to show messages or percentage indicators. It supplies a number of standard dialogs, for example, to browse for files or folders or to allow the user to select a color value.

Properties

Name(String) [R/O]

Returns the name of the application as a read-only string.

Version (String) [R/O]

Returns the application version as a read-only string.

Path (String) [R/O]

Returns the path and name of the application module as a read-only string.

UserName (String) [R/O]

Returns the name of the current user as a read-only string. The name returned here is either the Login name of the current user or the network / domain name of the user if the computer is connected to a network.

EnableUserAbort (Boolean)

Enables or disables script abortion by the user in non-interactive mode. If this is set to *False*, the user is not allowed to abort the script execution. Use this flag with care, because when your script fails to stop, the user has no change to abort it.

It is a good idea to set this to *False* only during critical sections in your script and let it

True the rest of the time.

OLEServerBusyTimeout (Long)

Returns or sets the number of milliseconds during which an automation request will continue to be retried, before the default Component Busy dialog box (or an alternate message) is displayed.

The default for this property is 5000 Milliseconds (5 seconds). If you use OLE automation from your script to automate other applications and you get timeouts because the calls take longer than 5 seconds, use this property to increase the timeout.

Methods

Databases

Description

Returns a *Databases* collection containing all open databases.

ActiveDatabase

Description

Returns a *Database* object for the active database. The active database is the database that has the input focus and is on top of all other databases.

Example

```
dim db as Database
set db = Application.ActiveDatabase
```

StatusBarSetText

Arguments

Text The new text for the status bar

Description

Sets a new text for the application status bar. This method can be used to display information in the IMatch status bar while a script is executed.

StatusBarShowPercentage

Arguments

Min Low value

Max High Value

Description

Displays a percentage bar in the IMatch status bar. The parameters *Min* and *Max* define the range of the percentage bar. Usual values are 0 and 100 respectively.

Example

```
Application.StatusBarShowPercentage 0, 100  
Application.StatusBarSetText "Doing some work..."
```

```
Application.StatusBarSetPercentage 20  
Application.StatusBarSetPercentage 100
```

```
Application.StatusBarHidePercentage
```

StatusBarHidePercentage

Hides the percentage bar in the IMatch status bar.

StatusBarSetPercentage

Arguments

Value The new value. Must be in the range defined by *StatusBarShowPercentage*

Description

Sets a new percentage value for the percentage bar.

Variables

Description

Returns a *Variables* collection containing all *transient* variables. You can add any number of variables to this collection. All variables are of type *Variant*.

IMatch keeps this collection until the application is closed. Variables in this collection **keep their value between script executions**, thus allowing you to transfer information between different scripts.

If you need to access or automate other applications, the *Variables* collection is a good place to store the ADO connection handle or the application object of the other app to make it persistent between script executions.

Example

```
' Assign a value to the variable "MyVar"  
Application.Variables.Value("MyVar") = 1  
  
Debug.Print Application.Variables.Value("OneVar")
```

GetApplicationVariable

Arguments

Name The name of the variable

Description

Returns the application-level variable with the given name as a read-only variant data type. See the list in section [Global Variables](#) for information about the available variables.

GetUserVariable

Arguments

Name The name of the variable

Description

Returns the user-defined variable with the given name as a read-only variant data type. See section [User Variables](#) for information about user variables.

SetUserVariable

Arguments

Name The name of the variable

Value The new value of the variable

Description

Assigns a new value to the user variable *Name*. See section [User Variables](#) for information about user variables.

Example

```
dim v as Variant
v = Application.GetUserVariable("MyCopyright")
Debug.Print v
Application.SetUserVariable("MyCopyright", "Copyright 2002 by Me!")
```

ParseVariables

Arguments

Str Input String containing the string to parse for variables

Description

Parses the given string and replaces all variables with the corresponding values

Example

```
Debug.Print Application.ParseVariables("{Application.DateShort}")
Debug.Print Application.ParseVariables("{User.UserName}")
```

Note

To parse image variables like *{Image.Name}* use the [ParseVariables](#) method of the [Database class](#)

BrowseForFolder

Arguments

StartDir The start folder for the browser

Title The title of the browser dialog box

Return Value

Returns the folder selected by the user or an empty string if the user has canceled

the section.

Description

This method displays a Windows common "Select Folder" dialog box.

Example

```
Dim foldername As String
folder =
Application.BrowseForFolder("c:\", "Please select a folder")
If foldername <> "" Then
    MsgBox "Selected folder: " & foldername
Else
    MsgBox "Folder selection aborted!"
End If
```

GetMediaInfo

Arguments

Path The fully qualified path to the media, e.g. C:\ or C:\Images
MediaID Contains the media id after successful execution
MediaSerial Contains the media serial number after successful execution

Return Value

Returns false if the media is not accessible or the folder does not exist

Description

Returns the media id and media serial for a specific media. You can use this method to get the media information needed for the *GetFolder* method of the *IMFolder* class.

Example

```
Dim mediaid as String
Dim mediaserial as String

Application.GetMediaInfo("c:\",mediaid,mediaserial)
```

VisualBrowse

Arguments

StartDir The start folder for the browser
Title The title of the browser dialog box
BrowseFiles If set to True, the folder browses for files, else for folders
AllowMultiFileSel Optional.
If set to True, the user can select multiple files.
Only valid if BrowseFiles is also true
pDatabase Optional
If you use a valid *Database* object as an argument, the Visual Browse dialog will use the thumbnails contained in the database to speed things up. If you don't define this argument or the selected folder is not indexed by the database, the browser creates thumb nails on the fly

Return Value

Returns a variant array with the selected folders and/or files. If *BrowseFiles* is *False*, the first item in the array contains the name of the selected folder. If the array is empty, the user has cancelled the dialog.

If *BrowseFiles* is *False*, the returned value contains an array of file names. If the array is empty, the user has cancelled the dialog

Description

Opens a Visual Browser dialog box similar to the one used in the IMatch user interface. With this dialog you can enable the user to select a folder or files from within your script.

Example

```
Dim results As Variant
results = Application.VisualBasic(foldername, "Please select a
folder", False, 0, Nothing)

If Not IsEmpty(results) Then
    MsgBox "Selected folder: " & results(0)
else
    MsgBox "Selection aborted"
End If

' -----
' Browsing for files

results = Application.VisualBasic(foldername, "Please select some
files", True, True, Nothing)

If Not IsEmpty(results) Then
    Dim l As Long
    MsgBox UBound(results)-LBound(results)+1 & " Files selected"
    For l = LBound(results) To UBound(results)
        Debug.Print results(l)
    Next l
End If
```

ColorDialog

Arguments

DefaultColor The initial color for the dialog

pColor Contains the selected color on successful return

Return Value

The method returns *True* if the user has aborted the dialog.

Description

Displays a Windows common color selector dialog box. This method enables you to present a color chooser dialog to the user.

Example

```
dim color as Long
dim newcolor as Long
' Set color to white
```

```
color = RGB(255,255,255)
if Application.ColorDialog(color, newcolor) then
end if
```

UpdateDatabase

Arguments

ImageFileName The fully qualified file name

UpdateOnly If this is *True*, IMatch will update the image only if it already indexed by one of the currently open databases. If *False*, the image will be added if is not indexed or updated otherwise

Description

This method informs the application about modifications made to an image file. If you manipulate an image from scripting and save the modified image, call this method to update your databases.

You can also call this method to add new images to all open databases.

WaitDialogOpen

Arguments

Message The message to be shown in the dialog

Min The minimum percentage value

Max The maximum percentage value

ShowCancelButton If set to *True*, the wait dialog will show a *Cancel* button

Description

This method opens and displays a Wait Dialog with a percentage bar. You can show this dialog during lengthy operations to give some user feedback.

WaitDialogClose

Description

This method closes the Wait Dialog opened with *WaitDialogOpen*.

WaitDialogSetPercentage

Arguments

NewPos The new percentage value. Must be within the range given by *Min* and *Max* in *WaitDialogOpen*

Description

Sets a new percentage value for a Wait Dialog. Call this method from within your lengthy operation to update the progress control in the Wait Dialog.

WaitDialogSetText

Arguments

Text The new text for the Wait Dialog

Description

This method sets a new text for the Wait Dialog

WaitDialogIsCanceled

Return Value

This method returns *True* if the user has pressed the Cancel button in the Wait Dialog.

Description

Call this method regularly from within your lengthy operation to check if the user has canceled the operation. If these method returns false, proceed with your operation else abort.

OpenImageEditor

Arguments

FileName The fully qualified name of the file to open. Must be in one of the supported image file formats

Return Value

This method returns *True* if the image document has been successfully opened

Description

Opens the given image file in an Image Editor Window

OpenImageEditorBitmap

Arguments

Bitmap An IMBitmap object that contains the bitmap to be opened in the image editor

Return Value

This method returns *True* if the image has been successfully opened

Description

This method creates a new Image Editor Document from an IMBitmap object.

JPEGTransform

Arguments

FileName Name of the image (JPEG only) to transform

Op The operation to perform:

imJPTRot90cw	90° clockwise rotation
imJPTRot180cw	180° clockwise rotation
imJPTRot270cw	270° clockwise rotation
imJPTRot90ccw	90° counter-clockwise rotation
imJPTRot180ccw	180° counter-clockwise rotation
imJPTRot270ccw	270° counter-clockwise rotation
imJPTMirror	Mirrors the image (left->right)
imJPTRotFlip	Flips the image (top->bottom)

Return Value

Returns true on successful operation, else false.

Description

Performs various **lossless** JPEG transformations.

ShellExecute

Arguments

Verb A string, referred to as a *verb* that specifies the action to be performed. The set of available verbs depends on the particular file or folder.

Common Verbs are:

edit Launches an editor and opens the document for editing. If *File* is not a document file, the function will fail.

explore Explores the folder specified by *File*

find Initiates a search starting from the specified directory

open Opens the file specified by the *File* parameter. The file can be an executable file, a document file, or a folder

print Prints the document file specified by *File*.
If *File* is not a document file, the function will fail

properties Displays the file or folder's properties

File Name of the file or object on which to execute the specified verb

Parameters The parameters to be used on *File*.

Directory The initial (Start-) directory

ShowCmd Controls how the application window is shown. Use one of the members of the *IMShellExecuteShowCmdFlags* enumeration.

Description

This method allows you to execute an application or Windows shell command from a script. For more information on this subject refer to the Windows SDK manuals or the MSDN online forum

The Database Class

The Database Class

The Database class represents a single IMatch database. It gives you access to all contents of a database, including folders, image files, categories, bookmarks, result sets and property sets.

Properties

FileName (String) [R/O]

the fully qualified path for the main database file

OID (String) [R/O]

The unique object identifier for this database

ActiveWindowType (IMActiveWindowType) [R/O]

The type of the currently active window for this database. The active window is the window that is in front and has the focus:

imawUnknown	Unknown window type
imawInfo	The Database node is selected in the Database View
imawFolders	Database View
imawCategory	Category View
imawSelections	Selection View
imawPreview	Preview Window
imawResult	Result Window
imawResultPreview	Result Window Dual Image View
imawThumbView	Thumbnail Viewer

ReadOnly (Boolean) [R/O]

True if the database is read-only

Redraw (Boolean)

Enables or disables window painting for this database. You can disable window repainting to update the speed of your script when you manipulate a database. Don't forget to re-enable the window painting afterwards

Methods

Folders

Description

Returns a collection of all folders contained in this database

RootFolders

Description

Returns a collection of all root folders (folders with no parents) in this database

CreateFolders

Description

Returns an empty Folders collection. You can use the Add/Remove methods of the Folders collection to add or remove individual folders from the collection.

Categories

Description

Returns a collection of all categories in this database. You can use an expression like `Set c = db.Categories("Test")` to get an instance of the category with the name `Test`. Please be aware that `IMatch` will return the first category with that name unless you specify the full path of the category, including all parent categories. Use `"Images.Test"` if you want the category `Test`, which is a sub-category of the category `Images`.

GetImages

Description

Returns an *Images* collection object containing all images in this database. No specific sort order is applied on the images in the collection. You can use the class *ImageSorter* to sort the images in the resulting collection.

Example

This example retrieves the *Image* object for the given image

```
Dim img as Image
set img = db.GetImages("c:\somefolder\someimage.jpg")
```

This example iterates over all images in the database

```
Dim i as Image
for each i db.GetImages
  Debug.Print i.Name
next i
```

CreateImageBucket

Description

Creates a new image bucket to hold images from this database

ActiveFolder

Description

Returns the active folder

ActiveCategory

Description

Returns the active category

ActiveThumbWindowSelection**Description**

Returns the selected images of the currently active thumbnail window

ResultHistory**Description**

Returns a collection of result sets from the result set history

PersistentResultSets**Description**

Returns a collection containing all persistent result sets

ActiveResultSet**Description**

Returns the active result set or nothing if there is no active (open) result set

PropertySets**Description**

Returns the property sets collection for this database

IsFolderOnline**Arguments**

Folder The folder to check

Description

Returns true if the given folder is online

IsFileOnline**Arguments**

Image The image file to check

Description

Returns true if the given image file is online

IsFileMutable

Arguments

Image The image to check

Description

Returns true if the given image file is not read-only and online

DeleteFile

Arguments

Image The image to be removed

DeleteFile True to delete the file on disk. If this is False, the image is only removed from the database but not from your hard disk

Return Values

This method returns an IMFileOperationResult to indicate the outcome of the operation:

imforSuccess Successful completion

imforGeneralFailure General (unknown) error

imforFileDoesNotExist File does not exist

imforFileIsReadOnly File is read-only

imforFileOperationFailed File operation failed (Windows error)

imforDatabaseFailure Database error

imforFileExists File already exists

Description

This method allows you to remove a file from the database and optionally also from disk.

MoveImage

Arguments

Image The image to be moved

TargetFolder The target folder for the move operation

NewName The new name for the file

ReplaceIfExists If a file with the same name already exists in the target folder, this flag controls if it will be overwritten (deleted) or not. If you set this to False and a file with the same name exist in the target folder, the Move operation will fail with the result *imforFileExists*

KeepProperties Set this to True to keep the properties of the original file during the Move

Return Values

This method returns an IMFileOperationResult to indicate the outcome of the

operation:

`imforSuccess` Successful completion
`imforGeneralFailure` General (unknown) error
`imforFileDoesNotExist` File does not exist
`imforFileIsReadOnly` File is read-only
`imforFileOperationFailed` File operation failed (Windows error)
`imforDatabaseFailure` Database error
`imforFileExists` File already exists

Description

This method allows you to move a file on disk and at the same time in your database.

CopyImage

Arguments

`Image` The image to be copied
`TargetFolder` The target folder for the copy operation
`NewName` The new name for the file
`ReplaceIfExists` If a file with the same name already exists in the target folder, this flag controls if it will be overwritten (deleted) or not. If you set this to `False` and a file with the same name exist in the target folder, the copy operation will fail with the result `imforFileExists`
`KeepProperties` Set this to `True` to copy properties and categories to the new file.

Return Values

This method returns an `IMFileOperationResult` to indicate the outcome of the operation:

`imforSuccess` Successful completion
`imforGeneralFailure` General (unknown) error
`imforFileDoesNotExist` File does not exist
`imforFileIsReadOnly` File is read-only
`imforFileOperationFailed` File operation failed (Windows error)
`imforDatabaseFailure` Database error
`imforFileExists` File already exists

Description

This method allows you to copy a file on disk and at the same time in your database.

GetFolder

Arguments

`Path` Fully qualified path of the folder
`MediaID` The media id of the media for the folder. May be empty.

MediaSerial The media serial number for the folder. May be empty.

Return Values

Boolean. Returns false if the folder was not found.

Description

Searches the database for a folder with the given name, on a specific media. If you work with removable media, you may have the folder R:\Images multiple times in your database, but on different media. To get an **IMFolder** object for the folder on a specific media, use this method.

You can use the *GetMediaInfo* method of the **Application** class to get the media id and media serial number of a specific media. Or the corresponding properties of the **IMFolder** class.

If you leave *MediaID* and *MediaSerial* empty, *IMatch* returns the first matching folder in its internal folder list.

```
Sub Main
    dim db as Database
    set db = Application.ActiveDatabase

    Dim mediaid As String
    Dim mediaserial As String
    Application.GetMediaInfo("R:\",mediaid,mediaserial)
    Debug.Print mediaid
    Debug.Print mediaserial

    Dim f As IMFolder
    Set f = db.GetFolder("R:\Images",mediaid,mediaserial)

    If Not f Is Nothing Then
        Debug.Print f.Name
    End If

End Sub
```

RemoveImage

Arguments

Image The image to be removed

DeleteFile Use *True* to delete the physical file also

Return Values

This method returns an **IMFileOperationResult** to indicate the outcome of the operation.

Description

This method removes the given image from the database. The image is NOT removed from your file system unless you use *True* for the *DeleteFile* parameter.

RenameImage

Arguments

Image The image to be moved

NewName The new name for the file (file name only, no path)

Return Values

This method returns an IMFileOperationResult to indicate the outcome of the operation. See above for details.

Description

This method allows you to rename a file on disk. The database is updated automatically. If a file with the same name as "NewName" already exists in the directory or the image file is read-only, the function will fail.

AddImage

Arguments

FileName The fully qualified file name of the file to be updated or added. The file must be in one of the supported file formats

Return Values

This method returns an IMFileOperationResult to indicate the outcome of the operation:

imforSuccess Successful completion
imforGeneralFailure General (unknown) error
imforFileDoesNotExist File does not exist
imforFileIsReadOnly File is read-only
imforFileOperationFailed File operation failed (Windows error)
imforDatabaseFailure Database error
imforFileExists File already exists

Description

This method adds or updates the given image to the database.

RefreshImage

Arguments

Image The image that needs to be updated
ForceUpdate True means that IMatch will import and refresh the image even if the time stamps and the checksum have not changed
KeepTransforms Set this to true to keep existing thumbnail transformations. Otherwise IMatch will reset all thumbnail transformations back to neutral.

Description

This method checks the given image for modifications and updates the database if the image has changed. Call this method from your scripts when you make modifications on image files on disk to keep the database up-to-date.

RefreshImages

Arguments

Image A collection of images to be refreshed

ForceUpdate True means that IMatch will import and refresh the images even if the time stamps and the checksum have not changed

KeepTransforms Set this to true to keep existing thumbnail transformations. Otherwise IMatch will reset all thumbnail transformations back to neutral.

Description

This method checks the given images for modifications and updates the database if the image has changed. Call this method from your scripts when you make modifications on image files on disk to keep the database up-to-date.

ImageSorter

Description

Returns the Image Sorter object for this database. You can use this object to sort the contents of an Image collection or an Image bucket.

SelectFolder

Arguments

IMFolder The folder to select

Description

Opens the Database View and selects the given folder

SelectCategory

Arguments

Category The category to select

Description

Opens the Category View and selects the given category

SelectImage

Arguments

Image The image to select

Description

Opens the Database View and selects the folder containing the image. Then selects the image in the Thumbnail Viewer

ActiveSelection

Description

Returns a collection of all images in the active selection. The active selection depends on the current state of the application and the currently active window

Bookmarks

Description

Returns a collection with all book marked images for this database

AddBookmark

Arguments

Image The image to add to the bookmark collection

Description

Adds the given image to the bookmark collection of this database

AddBookmarks

Arguments

Images A collection of images to be added to the bookmark collection of this database

RemoveBookmarks

Arguments

Images A collection of images to be removed from the bookmark collection of this database

RemoveBookmark

Arguments

Image The image to be removed from the bookmark collection

Description

Removes the given image from the bookmark collection of this database

SelectCategoriesDialog

Arguments

InitialSelection Optional. A collection of categories to be selected initially

ShowALL Optional. If *False*, the ALL category is hidden

Return Values

Returns a collection of all categories selected by the user

Description

This method displays a category selection dialog and allows the user to select or deselect categories. You may use an initial set of categories to populate the category control in the dialog.

The method returns a collection of all selected categories

SelectFoldersDialog

Arguments

InitialSelection Optional. A collection of folders to be selected initially

Return Values

Returns a collection of all folders selected by the user.

Description

This method displays a folder selection dialog and allows the user to select or deselect individual folders. You may use an initial set of folders to populate the folder control in the dialog.

The method returns a collection of all selected folders.

ParseVariables

Arguments

Str Input String containing the string to parse for variables

Image The image to use for parsing

Description

Parses the given string and replaces all variables with the corresponding values. If *Str* contains image variables like {Image.Name} you must set a valid image as the second argument

Example

```
Sub Main()  
    Dim db As Database  
    Set db = Application.ActiveDatabase  
    Dim i As Image  
    Dim iset As Images  
    Set iset = db.ActiveSelection  
    For Each i In iset  
        Debug.Print db.ParseVariables("{Image.Width} x " & _  
            "{Image.Height} - {Image.FullPath}", i)  
    Next I  
End Sub
```

SetFileDateTime

Arguments

Image The image to work with

NewDateTime The date/time to set

SetCreateTime Also set the "file created" date/time stamp. In this case, both the *created* and *last modified* timestamps are set to the same value.

Return Values

Returns an IMFileOperationResult to indicate success or error

Description

This method sets a new date/time for the given file

Example

```
db.SetFileDateTime(img,Date())
```

AddFolder

Arguments

Str The fully qualified path of the folder to add

Return Values

Return an IMFolder object if the folder has been successfully added. Otherwise *nothing* is returned. The method raises an exception if the folder cannot be added.

Description

This method adds the folder to the database. No images are added, and sub-folders are not automatically added.

You can use the *Dir* function in Basic, or the Microsoft *Scripting.FileSystemObject* to recursively add a folder hierarchy.

Example

```
Dim folder as IMFolder  
set folder = db.AddFolder("c:\temp")
```

RemoveFolder

Arguments

Folder Folder object. This object will be invalid after the folder has been removed

DeleteFromDiskBoolean. Set to true to remove the folder from disk. **WARNING: THIS WILL DELETE THE FOLDER AND ALL FILES!**

Set this to false if you only want to remove the folder from your database.

Return Values

Returns an IMFileOperationResult to indicate success or error

Description

This method allows you to remove a folder from your database, including all image references. You can also physically delete the folder from your hard disk.

RemoveCategory

Arguments

Category The category to be removed from your database. This object will be invalid after the category has been removed.

Return Values

Throws an exception if the operation fails

Description

Deletes the given category, including all sub-categories, from your database.

ApplyTransforms

Arguments

Bitmap IMBitmap instance with a loaded image

Image The image object corresponding to the bitmap

Return Values

Raises an exception in case of an error

Description

This method applies the thumbnail transformations associated with the given image to the given Bitmap object

Example

```
Set img = ' Any method that returns an Image
Dim bitmap as new IMBitmap
bitmap.Load(img.FileName)
db.ApplyTransforms(bitmap, img)
```

GetOfflineCacheImage

Arguments

Image The image object for which to load the cache image

Bitmap IMBitmap containing the cache image on return

Return Values

Raises an exception in case of an error. If no cache image exists for the given Image, the returned Bitmap is *nothing*.

Description

Loads the off-line cache image for the given *Image* object.

ImportIPTC

Arguments

Images Images collection containing all images to import

Return Values

True if successful, otherwise False

Description

This method runs an IPTC import using your default IPTC import preset on the images contained in *Images*.

ImportEXIF

Arguments

Images Images collection containing all images to import

Return Values

True if successful, otherwise False

Description

This method runs an EXIF import using your default EXIF import preset on the images contained in *Images*.

The Folder class

The IMFolder class

This class represents a folder in your database. The folder class gives you access to the folder attributes and all images files contained in the folder.

Properties

MediaID (String) [R/O]

The media identifier for this folder

MediaSerial (String) [R/O]

The media serial number for this folder

Comment (String)

Gets and sets the comment for this folder

FriendlyName (String)

Gets or sets the friendly name for this folder

Name (String) [R/O]

The name of the folder as it is displayed in the Windows Explorer

Path (String) [R/O]

The fully qualified path of the folder

LastUpdate (Date) [R/O]

Date and time of the last update

IsOnline (Boolean) [R/O]

Returns *True* if the associated media is online

FolderThumbnail (Image) [R/O]

Returns the folder thumbnail image for this folder, or nothing if the folder is image or has no folder thumbnail

Methods

Children

Description

Returns a collection with all child folders (sub-folders) of this folder. If the folder has no children, this method returns *nothing*.

Images

Description

Returns a collection with all images in this folder. If the folder contains no images, this method returns *nothing*.

Parent

Description

Returns the parent folder of this folder. If the folder has no parent folder, this method returns *nothing*.

TotalImageFileSize

Description

Calculates the size of all image files in the given folder. This method only counts the images that are indexed by the current database. Other files in the same folder, or images not currently indexed are ignored.

The Category class

The Category class

The class *Category* represents a category in your database. This class gives you access to all category attributes, the formula, the children and parent categories and the images contained in the category.

Properties

Name (String)

Gets and sets the name of the category

Description (String)

Gets and sets the category description

FullName (String) [R/O]

Returns the full name for this category, including all parent categories

Formula (String) [R/O]

Returns the formula for this category or an empty string if the category has no formula

ColorCoded (Boolean)

This property returns *True* if the category is Color-Coding. enabled Use this property to enable or disable Color-Coding for this category.

Color (OLE_COLOR)

Use this property to get or set the color value used for the Color-Coding of this category.

AutoCalc (Boolean) [R/O]

Gets or sets the *AutoCalc* property. If this is true, the category *contains* or *returns* all images assigned to the category itself, and all sub-categories, recursively.

AssignAction (IMCategoryAssignAction) [R/O]

Gets or sets the *AssignAction* property. This property allows you to control which action is taken if images are assigned to this category.

SortSequence (Long)

Gets or sets the sort sequence number for this category. The sort sequence number controls how the category is sorted, relatively to other categories on the same level of the hierarchy.

Methods

Parent

Description

Returns the parent category for this category. If this category has no parent, this method returns *nothing*.

Children

Description

Returns a collection of all children contained in this category. If this category has no child categories, this method returns *nothing*.

Images

Description

Returns a collection of all images in this category. This includes the images of all child categories and all images returned by evaluation the category formula. If the category is empty, this method returns *nothing*.

DirectImages

Description

Returns a collection of all images directly assigned to this category, **excluding** child categories. If the category is empty, this method returns *nothing*.

This method does not calculate the result of formulas.

AddImage

Arguments

Image The image to add

Description

Adds the given image to this category. If the image is already in the category, nothing is done.

AddImages

Arguments

Images The images to add

Description

Adds images to this category.

AddImagesBucket

Arguments

Bucket The bucket containing the images to add

Description

Adds all images from the bucket to this category

RemoveImage

Arguments

Image The image to be removed from the category

Return Values

The method returns `False` if the image was not contained in the category and `True` if it has been successfully removed.

Description

Removes the given image from this category.

RemoveImages

Arguments

Images The images to be removed from the category

Description

Removes all images given in *Images* from this category

RemoveImagesBucket

Arguments

Bucket The images to be removed from the category

Description

Removes all images given in *Bucket* from this category

RemoveAllImages

Arguments

None

Description

Removes all images from this category.

HasImage

Arguments

Image The image under consideration

Return Values

`False` if the image is not contained by this category

Description

This method checks whether the given image is contained in this category. The image must be assigned to the category; images in sub-categories are not considered by this method.

HasImageReference

Arguments

Image The image under consideration

Return Values

False if the image is not referenced by this category

Description

This method checks whether the given image is referenced by this category. An image is referenced by a category if it is contained in the category or in one of the categories child categories.

SetFormula

Arguments

Expression The new category formula

Return Values

True if the formula has been successfully updated

Return Values

This method sets a new category formula.

DeleteChildren

Arguments

None

Return Values

Throws an exception if the operation fails

Description

Removes all sub-categories (child categories) of this category from the database.

The Image class

The Image class

The class image represents an image in your database. Using this class, you have access to all attributes and properties of the image. With the help of the *IMBitmap* class, you even can manipulate the contents of the image.

Properties

FileName (String) [R/O]

The fully qualified file name of the image

Name (String) [R/O]

File name and extension

Width (Long) [R/O]

The width of the image in pixels

Height (Long) [R/O]

The height of the image in pixels

Size (Long) [R/O]

The size of the image on disk

CRC (Long) [R/O]

The 32-BIT CRC checksum of this image

DateAdded (Date) [R/O]

Date and time the image was added to the database

LastModified (Date) [R/O]

Date and time of the last modification of the image

BPP (Short) [R/O]

The color depth of the image in bits per pixel

OID (Long) [R/O]

The unique object identifier for this image

IsOnline (Boolean) [R/O]

True if this file is online

Methods

Folder

Return Values

A *Folder* object

Description

This method returns the folder containing this image as a Folder object

Categories

Return Values

A *Categories* object

Description

This method returns a collection of all categories containing this image

Properties

Return Values

A *PropertyRecord* object

Description

Returns the property record for this image. Using this object, you can get and set all user-defined properties for this image.

The ImageBucket class

The ImageBucket class

The ImageBucket is used to store collections of *Image* objects. It works like a bucket or a bin; you can add any number of Images to a bucket and iterate over the images in the collection at any time.

An ImageBucket is always associated with exactly one database. You cannot add or maintain images of different databases in an ImageBucket.

ImageBucket allows you to combine images from various sources into one single collection. While adding images to the bucket, you can apply various Boolean operations like AND, OR, XOR and NOT to control the exact contents of the bucket.

A bucket cannot contain an image twice, at each time, an image is either in the bucket or it is not. This is a special property of buckets that is especially useful when you combine images from categories or several *Images* collections.

Properties

Count (Long) [R/O]

Returns the number of images in the bucket

DatabaseOID (String) [R/O]

Returns the unique identifier of the associated database. This is the same identifier as the Database::Oid method returns

Methods

Clear

Removes all images from the bucket. The bucket is empty afterwards.

Set

Arguments

plmages A collection of images to add to the bucket

Description

Removes all images from the bucket at then adds the given images.

Remove

Arguments

pImage An *Image* object

Description

Removes the given image from the bucket

Find

Arguments

pImage The *Image* object to search for

Description

Returns *True* if the bucket contains the given image

CombineImage

Arguments

pImage A *Image* object

BoolOp The Boolean operation to use when combining the current contents of the bucket with the *pImage*

Description

Combines the given image with the current contents of the bucket using the Boolean operation *BoolOp*.

CombineImages

Arguments

pImages A collection of images to add to the bucket

BoolOp The Boolean operation to use when combining the current contents of the bucket with the images contained in *Images*

Description

Combines the given images with the images already in the bucket using the Boolean operation *BoolOp*.

CombineBucket

Arguments

pBucket An *ImageBucket* object

BoolOp The Boolean operation to use when combining the this bucket with the other ImageBucket.

Description

Combines this bucket with the bucket given using the Boolean operation *BoolOp*.

Images

Returns all images in this bucket as an *Images* collection. This collection then can be used for other methods that take an Images collection as an argument.

Item

Return value

The image at the given position or *nothing*

Description

Returns the image at the given position (1-based)

Save

Arguments

FileName The file name to save to

Description

Saves the contents of the bucket to the given file. This method is useful to save the contents of a bucket between script runs or even after IMatch closes. Using the *Save* method you can restore the contents of the bucket at any time.

Load

Arguments

FileName The file name to read from

Description

Loads the contents of the given file to this bucket.

Note: The bucket must have been created by the same database as the bucket that has been used to create the file. No checks are made for validity of the contents of the bucket. If images have been deleted in the mean time, they must be deleted from the bucket manually.

You can use the *Images* method of the *Database* object to obtain a list of all images currently in the database. ANDing this collection with the images contained in the bucket will remove all images from the bucket that are not in the database.

The ResultSet class

The ResultSet class

This class encapsulates either a temporary or a persistent result set. You can access all original files and the matches within the result set. If the result set is created by a selection type that without an original file, e.g. the *file size* selector, the result set will contain one 'fake' original image.

Properties

Name (String) [R/O]

Returns the name of the result set. This method returns the name that is displayed in the *Selection View*.

Description (String) [R/O]

Returns the description of the result set

Current (Boolean) [R/O]

Returns *True* if the result set is current. This property has only a meaning if used for persistent result sets.

Persistent (Boolean) [R/O]

Returns *True* if this is a persistent result set

Methods

Entries

Return value

This method returns a *ResultSetEntries* collection containing all entries in this result set.

The ResultSetEntry class

The ResultSetEntry class

This class represents one entry in the result set. For each original image in the result set, the result set contains one *ResultSetEntry* element. If the result set has no original images, there will be a fake original entry representing the matches in the result set.

Methods

Original

This method returns a *ResultSetOriginal* object that represents the original image.

Matches

This method returns all matches as a *ResultSetMatches* collection.

The ResultSetOriginal class

The ResultSetOriginal class

This class represents the original image in a result set.

Properties

URI (String) [R/O]

This property contains the universal resource identifier for the original image. If this is a fake original, this will be empty

Properties

Image

This method returns the image of the original. If the original is an external image or a fake original in an original-less result set, this method returns *nothing*.

The ResultSetMatch class

The ResultSetMatch class

This class represents one match in a result set.

Properties

Similarity (Double) [R/O]

This method returns the similarity measure for this entry, a value between 0% and 100%

Methods

Image

This method returns the *Image* object for this match.

The PropertySet class

The PropertySet class

The *PropertySet* class represents a property set in your property database. This class enables you to read and write the properties stored in your database.

Properties

Name (String) [R/O]

The name of the property set as it appears in the IMatch user interface.

Description (String) [R/O]

The description of the property set

Methods

Properties

Returns a *PropertySetProperties* collection describing all properties in the property set

Records

Returns a *PropertyRecords* collection with all records contained in the property set. Be careful when you use the returned collection with a "for each" iterator. Using such an iterator may require huge amounts of memory for large property sets. In such cases, use the *Count()* and access individual records instead to avoid performance penalties.

The *PropertySetProperty* class

The *PropertySetProperty* class

This class describes the properties contained in a property set.

Properties

OID (Long) [R/O]

The Object Identifier for this property

Type (IMPropertyType) [R/O]

The data type of this property. See the following table for possible values

imptString	String of variable length
imptInt	32-Bit signed integer
imptUInt	32-Bit unsigned integer
imptInt64	64-Bit signed Integer
imptUInt64	64-Bit unsigned Integer
imptDouble	Double
imptDate	Date
imptTime	Time
imptBool	Boolean
imptCurrency	Currency
imptURL	URL (Hyperlink)
imptReference	Reference to another property set

Name (String) [R/O]

The name of this property

Description (String) [R/O]

The description of this property

DisplayHeight (Integer) [R/O]

The display height for interactive applications

CurrencySymbol (String) [R/O]

The currency symbol for this property

Default (Variant) [R/O]

The default value

Methods

Reference

This method returns a *PropertySet* object if this property is a reference property (*Type = impReference*), else it returns *nothing*.

ReferenceProperty

This method returns a *PropertySetProperty* object if this property is a reference property (*Type = impReference*), else it returns *nothing*.

The *PropertyRecord* class

The *PropertyRecord* class

This class represents one record from a property set. It contains exactly as many elements as there are properties in the property set. Each element is of type *Variant* and can easily be converted into any suitable format.

Properties

Property (Variant)

Gets or sets the property with the given name or index (1-based). This is the default method

Methods

Update

Updates the record in the database. Call this method after you have made modifications on the record contents. *Update* writes the current record contents back into the database and makes them persistent.

The *ImageSorter* class

The *ImageSorter* class

This class enables you to sort the contents of an *ImageBucket* or an *Images* collection object. Using this object you can realize any thinkable sort order.

An *ImageSorter* object is always associated with a specific *Database* object. You cannot sort objects from different databases with the same *ImageSorter* object. If you try to add images from a different database to an *ImageSorter* object, an error will be raised.

To create an `ImageSorter` object, use the `ImageSorter` method of the database class:

```
dim sorter as ImageSorter
set sorter = SomeDatabase.ImageSorter

' Sort by file name and size
sorter.AddSortDefintion imisaFilename, true
sorter.AddSortDefintion imisaSize, true

' Run the sort
sorter.SortImages imgcollection

' Sort using a sort profile

dim sorter as ImageSorter
set sorter = SomeDatabase.ImageSorter

sorter.SortProfile = "By Date and Time"

sorter.SortImages imgcollection
```

Properties

SortProfile (String) [R/W]

The sort profile name to be used for sorting an image collection or image bucket. The profile must be one of the profiles in the current database.

Methods

Clear

Removes the contents of the sorter, resetting all sort definitions.

AddSortDefinition

Arguments

Attribute Specifies the sort criteria. Use one of the following values:

`imisaDistance` Sort by distance (result sets only)

`imisaFilename` Sort by file name

`imisaFilenameSmart` Sort by file name (smart file name sorting)

`imisaFoldername` Sort by folder

`imisaSize` Sort by file size

`imisaWidth` Sort by width

`imisaHeight` Sort by height

`imisaDateTime` Sort by date and time

`imisaFileFormat` Sort by file format

`imisaProperty` Sort by image property. Use the *PropertyName* argument to specify the property field

`Ascending` Set this to *True* to sort in ascending order of *False* to sort in descending order

`PropertyName` Optional. If you want to sort using property set fields, this argument contains the property field name

Description

You can use any number of sort definitions with a single ImageSorter object. Use *AddSortDefintion* multiple times to add more than one criterion to the sort. The order in which you call *AddSortDefintion* controls the sort precedence.

SortBucket

Arguments

Bucket The bucket to sort

Description

This method sorts the given image bucket.

SortImages

Arguments

Images The image collection to sort

Description

This method sorts the contents of the given Images collection object.

LighTableSortFolder

Arguments

Images The image collection to sort

Folder The folder that contains these images. The ImageSorter will use the light table sort profile associated with this folder to sort the images.

Description

This method sorts the contents of the given Images collection object.

LighTableSortCategory

Arguments

Images The image collection to sort

Category The category that contains these images. The ImageSorter will use the light table associated with this category sort profile to sort the images.

Description

This method sorts the contents of the given Images collection object.

LighTableSortBookmarks

Arguments

Images The image collection to sort

Description

This method sorts the contents of the given Images collection object using the light table sort preset for the bookmarks collection

The IMBitmap class

The IMBitmap class

This class allows you to perform a variety of image manipulation tasks directly from your scripts. In fact, this class enables you to perform most of the tasks the user can perform using the Image Editor in IMatch.

Properties

Width (Integer) [R/O]

Returns the width of the bitmap in pixels.

Height (Integer) [R/O]

Returns the height of the bitmap in pixels.

BPP (Integer) [R/O]

Returns the color resolution in bits per pixel.

IsClipboardAvailable (Boolean) [R/O]

Returns true if there is a valid bitmap in the Windows clipboard. If this method returns *True*, you can use the *CopyFromClipboard* method to copy the bitmap in the Windows clipboard into an *IMBitmap* object.

NumberOfColors (Long) [R/O]

Returns the number of unique colors in the bitmap. This method counts all unique colors in the bitmap.

Methods

LoadFile

Arguments

FileName The fully qualified file name of the file to load. The file must be in one of the supported formats

BPP Bits per pixel to load. IMatch can convert the bitmap into any number of colors during the load operation.

Use **0** to keep the color depth of the image

PageNo Optional. For multi-page formats you can specify the number of the page to load

Description

Loads a bitmap from disk into this bitmap object. After loading, the image is ready for manipulation.

LoadLowRes

Arguments

FileName The fully qualified file name of the file to load. The file must be in one of the supported formats

Description

This method loads the thumbnail, or the embedded preview image for RAW format files (CRW, NEF, ORF, MRW, DCR, RAF). The method always loads the largest possible thumbnail or preview image (some file formats have multiple images).

If the file does not contain a thumbnail or preview image, the method returns *false*.

Since the size of the thumbnail or embedded preview image varies from file format to file format, and sometimes even from camera model to camera model, you usually need to combine LoadLowRes with Resize/Resample to get the image size you need.

SaveFile

Arguments

FileName The fully qualified name for the output file.

If a file with the same name exists in the output directory, it will be overwritten

Format The file format for the output file (*IMBitmapFormat* enumeration). You can use any of the supported file formats. If the color depth (BPP) of this *IMBitmap* object is incompatible with the resulting file format, *IMatch* will change the color depth on the fly to the best matching Bits Per Pixel value.

imbfJPEG24Standard	JPEG Standard Format (JPEG 24 Bit YUV 411)
imbfJPEG24_YUV411	JPEG 24 Bit YUV 411
imbfJPEG24_YUV444	JPEG 24 Bit YUV 444
imbfJPEG24_YUV422	JPEG 24 Bit YUV 422
imbfJPEG24_YUV444_Progressive	JPEG 24 Bit YUV 444 Progressive
imbfJPEG24_YUV422_Progressive	JPEG 24 Bit YUV 422 Progressive
imbfJPEG24_YUV411_Progressive	JPEG 24 Bit YUV 411 Progressive
imbfJPEG24_LossLess	JPEG 24 Bit Lossless
imbfJPEG8_YUV400	JPEG 8 Bit YUV 400
imbfJPEG8_YUV400_Progressive	JPEG 8 Bit YUV 400 Progressive
imbfJPEG8_YUV400_LossLess	JPEG 8 Bit Lossless
imbfCAL5	CAL5
imbfPNG1	PNG 1 Bit

imbfPNG4	PNG 4 Bit
imbfPNG8	PNG 8 Bit
imbfPNG24	PNG 24 Bit
imbfPNG32	PNG 32 Bit
imbfFAX_G31D	FAX G31D
imbfFAX_G32D	FAX G32D
imbfFAX_G4	FAX G4
imbfEPS	EPS
imbfEXIF_RGB	EXIF Uncompressed RGB
imbfEXIF_YCC	EXIF Uncompressed YCC
imbfEXIF_JPEG411	EXIF JPEG 411
imbfEXIF_JPEG422	EXIF JPEG 422
imbfFPX24_Uncompressed	FPX 24 Bit Uncompressed
imbfFPX24_DefaultQuality	FPX 24 Bit Default Quality
imbfFPX8_Uncompressed	FPX 8 Bit Uncompressed
imbfFPX8_DefaultQuality	FPX 8 Bit Default Quality
imbfIMG	IMG
imbfIOCA_G32D	IOCA G32D
imbfMODCA_G31D	MODCA G31D
imbfMODCA_G32D	MODCA G32D
imbfMODCA_G4	MODCA G32D
imbfPCT1	PCT 1 Bit
imbfPCT4	PCT 4 Bit
imbfPCT8	PCT 8 Bit
imbfPCT24	PCT 24 Bit
imbfMAC	MAC
imbfAWD	AWD
imbfMSP	MSP
imbfOS21_V1	OS/2 BMP 1 Bit Version 1
imbfOS21_V2	OS/2 BMP 1 Bit Version 2
imbfOS24_V1	OS/2 BMP 4 Bit Version 1
imbfOS24_V2	OS/2 BMP 4 Bit Version 2

imbfOS28_V1	OS/2 BMP 8 Bit Version 1
imbfOS28_V2	OS/2 BMP 8 Bit Version 2
imbfOS224_V1	OS/2 BMP 24 Bit Version 1
imbfOS224_V2	OS/2 BMP 24 Bit Version 2
imbfPCX1	PCX 1 Bit
imbfPCX4	PCX 4 Bit
imbfPCX8	PCX 8 Bit
imbfPCX24	PCX 24 Bit
imbfPSD1	PSD 1 Bit
imbfPSD8	PSD 8 Bit
imbfPSD24	PSD 24 Bit
imbfRAS1	RAS 1 Bit
imbfRAS4	RAS 4 Bit
imbfRAS8	RAS 8 Bit
imbfRAS24	RAS 24 Bit
imbfRAS32	RAS 32 Bit
imbfTGA8	TGA 8 Bit
imbfTGA16	TGA 16 Bit
imbfTGA24	TGA 24 Bit
imbfTGA32	TGA 32 Bit
imbfTIFF1_CCITT	TIFF 1 Bit CCITT
imbfTIFF1_CCITT_G31D	TIFF 1 Bit CCITT G31D
imbfTIFF1_CCITT_G32D	TIFF 1 Bit CCITT G32D
imbfTIFF1_CCITT_G4	TIFF 1 Bit CCITT G4
imbfTIFF1_Uncompressed	TIFF 1 Bit Uncompressed
imbfTIFF1_RLE	TIFF 1 Bit RLE
imbfTIFF2_Uncompressed	TIFF 2 Bit Uncompressed
imbfTIFF2_RLE	TIFF 2 Bit RLE
imbfTIFF3_Uncompressed	TIFF 3 Bit Uncompressed
imbfTIFF3_RLE	TIFF 3 Bit RLE
imbfTIFF4_Uncompressed	TIFF 4 Bit Uncompressed
imbfTIFF4_RLE	TIFF 4 Bit RLE

imbfTIFF5_Uncompressed	TIFF 5 Bit Uncompressed
imbfTIFF5_RLE	TIFF 5 Bit RLE
imbfTIFF6_Uncompressed	TIFF 6 Bit Uncompressed
imbfTIFF6_RLE	TIFF 6 Bit RLE
imbfTIFF7_Uncompressed	TIFF 7 Bit Uncompressed
imbfTIFF7_RLE	TIFF 7 Bit RLE
imbfTIFF8_Uncompressed	TIFF 8 Bit Uncompressed
imbfTIFF8_RLE	TIFF 8 Bit RLE
imbfTIFF8_GrayscaleYCC	TIFF 8 Bit Grayscale YCC
imbfTIFF8_LosslessJPEG	TIFF 8 Bit Lossless JPEG
imbfTIFF12_Uncompressed	TIFF 12 Bit Uncompressed
imbfTIFF12_GrayscaleYCC	TIFF 12 Bit Grayscale YCC
imbfTIFF12_LosslessJPEG	TIFF 12 Bit Lossless JPEG
imbfTIFF16_Uncompressed	TIFF 16 Bit Uncompressed
imbfTIFF16_RLE	TIFF 16 Bit RLE
imbfTIFF16_LosslessJPEG	TIFF 16 Bit Lossless JPEG
imbfTIFF24_Uncompressed	TIFF 24 Bit Uncompressed
imbfTIFF24_Uncompressed_CMYK	TIFF 24 Bit Uncompressed CMYK
imbfTIFF24_Uncompressed_YCC	TIFF 24 Bit Uncompressed YCC
imbfTIFF24_RLE	TIFF 24 Bit RLE
imbfTIFF24_RLE_CMYK	TIFF 24 Bit RLE CMYK
imbfTIFF24_RLE_YCC	TIFF 24 Bit RLE YCC
imbfTIFF24_JPEG_YCC444	TIFF 24 Bit JPEG YCC 444
imbfTIFF24_JPEG_YCC422	TIFF 24 Bit JPEG YCC 422
imbfTIFF24_JPEG_YCC411	TIFF 24 Bit JPEG YCC 411
imbfTIFF24_LosslessJPG	TIFF 24 Bit Lossless JPEG
imbfTIFF32_Uncompressed	TIFF 32 Bit Uncompressed

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imbfTIFF32_Uncompressed_CMYK	TIFF 32 Bit Uncompressed CYMK
imbfTIFF32_RLE	TIFF 32 Bit RLE
imbfTIFF32_RLE_CMYK	TIFF 32 Bit RLE CYMK
imbfBMP1	BMP 1 Bit
imbfBMP4	BMP 4 Bit
imbfBMP4_RLE	BMP 4 Bit RLE
imbfBMP8	BMP 8 Bit
imbfBMP8_RLE	BMP 8 Bit RLE
imbfBMP16	BMP 16 Bit
imbfBMP24	BMP 24 Bit
imbfBMP32	BMP 32 Bit
imbfWFX_G31D	WFX G31D
imbfWFX_G4	WFX G4
imbfWMF8	WMF 8 Bit
imbfWMF24	WMF 24 Bit
imbfEMF8	EMF 8 Bit
imbfEMF24	EMF 24 Bit
imbfWPG1	WPG 1 Bit
imbfWPG4	WPG 4 Bit
imbfWPG8	WPG 8 Bit
imbfICO1	ICO 1 Bit
imbfICO4	ICO 4 Bit
imbfICO8	ICO 8 Bit
imbfICO24	ICO 24 Bit
imbfCUR1	CUR 1 Bit
imbfCUR4	CUR 4 Bit
imbfCUR8	CUR 8 Bit
imbfCUR24	CUR 24 Bit
imbfCUT	CUT
imbfPPM_ASCII	PPM ASCII
imbfPPM_Binary	PPM Binary

imbfPGM_ASCII	PGM ASCII
imbfPGM_Binary	PGM Binary
imbfPBM_ASCII	PBM ASCII
imbfPBM_Binary	PBM Binary
imbfIFF1_ILBMRLE	IFF 1 Bit ILBM RLE
imbfIFF1_CATRLE	IFF 1 Bit CAT RLE
imbfIFF2_ILBMRLE	IFF 2 Bit ILBM RLE
imbfIFF2_CATRLE	IFF 2 Bit CAT RLE
imbfIFF3_ILBMRLE	IFF 3 Bit ILBM RLE
imbfIFF3_CATRLE	IFF 3 Bit CAT RLE
imbfIFF4_ILBMRLE	IFF 4 Bit ILBM RLE
imbfIFF4_CATRLE	IFF 4 Bit CAT RLE
imbfIFF5_ILBMRLE	IFF 5 Bit ILBM RLE
imbfIFF5_CATRLE	IFF 5 Bit CAT RLE
imbfIFF6_ILBMRLE	IFF 6 Bit ILBM RLE
imbfIFF6_CATRLE	IFF 6 Bit CAT RLE
imbfIFF7_ILBMRLE	IFF 7 Bit ILBM RLE
imbfIFF7_CATRLE	IFF 7 Bit CAT RLE
imbfIFF8_ILBMRLE	IFF 8 Bit ILBM RLE
imbfIFF8_CATRLE	IFF 8 Bit CAT RLE
imbfIFF24_ILBMRLE	IFF 24 Bit ILBM RLE
imbfIFF24_CATRLE	IFF 24 Bit CAT RLE
imbfXBM	XBM
imbfXPM8	XPM 8 Bit
imbfXPM16	XPM 16 Bit
imbfXPM24	XPM 24 Bit
imbfXPM32	XPM 32 Bit
imbfITG	ITG
imbfXWD10_1	XWD 10_1
imbfXWD10_4	XWD 10_4
imbfXWD10_8	XWD 10_8
imbfXWD11_1	XWD 11_1

imbfXWD11_4	XWD 11_4
imbfXWD11_8	XWD 11_8
imbfXWD11_16	XWD 11_16
imbfXWD11_24	XWD 11_24
imbfXWD11_32	XWD 11_32

Quality Optional. For formats that allow for variable compression factors (e.g. JPEG) you can use this parameter to define a compression factor.

A factor of 2 (the default) gives the best quality, 255 gives the best compression.

The following formats allow for variable compression factors:

imbfJPEG24Standard, imbfJPEG24_YUV411, imbfJPEG24_YUV444,
imbfJPEG24_YUV422, imbfJPEG24_YUV444_Progressive,
imbfJPEG24_YUV422_Progressive, imbfJPEG24_YUV411_Progressive,
imbfJPEG8_YUV400, imbfJPEG8_YUV400_Progressive

PageNo Optional. If you want to write a multi-page file, you can specify here the page number to write and in *SaveOption* the append and overwrite options.

SaveOption Optional. Used in conjunction with *PageNo* to create multi-page files. Use one of the following values:

imfsoOverwrite Overwrite existing file
imfsoAppend Append page to exiting file
imfsoReplace Replace existing page
imfsoInsert Insert before the given page

Description

Saves the contents of this bitmap object to a file. All supported formats can be written (except Photo-CD which is a read-only format).

ChangeColorResolution

Arguments

BPP The resulting color resolution. Valid values are 1, 2, 3, 4, 5, 6, 7, 8, 12, 16, 24, 32, 48, and 64

Options Optional. Controls the quality and behavior of the operation. Use one of the following *IMBitmapColorResOption* values

imcroNearestColor Nearest Color
imcroFixed Fixed Palette
imcroOptimized Optimized Palette
imcroBrowser Web Browser Standard Palette
imcroWindows Windows Default Colors
imcroFloydSteinberg Floyd-Steinberg dithering
imcroStucki Stucki dithering
imcroBurkes Burkes dithering
imcroSierra Sierra dithering
imcroStevensonArce Stevenson Arce dithering

imcroJarvis Jarvis dithering
imcroOrdered Ordered dithering
imcroClustered Clustered dithering

Description

Changes the color depth (Color Resolution) of the bitmap. The number of bits per pixel used in this operation controls the resulting number of colors in the bitmap. You can convert in both ways, from lower BPP values to higher values and vice versa.

Note: Many of the higher bitmap operations supplied by the `IMBitmap` class require a color resolution of 24 Bits Per Pixel (16 Million colors).

Resize

Arguments

Width The new width for the bitmap object

Height The new height for the bitmap object

Options Optional. This argument allows you to control the quality and behavior of this operation. Use one of the following values:

imroNormal Normal Resize. Fastest, but may result in a decreased overall quality

imroResample Resample. Results in better quality when you enlarge a bitmap

imroBicubic Bicubic Resample. Results in better quality when you shrink bitmaps

Description

This method allows you to change the size of a bitmap object. If you want to keep the correct aspect ration during the resize, use the *CalculateSizeWithAspect* method to calculate the correct measurements.

See also the *Scale* method.

Grayscale

Converts the image to grayscale (256 different shades of gray)

CopyToClipboard

Copies the bitmap to the Windows clipboard using a device independent (DIB) format

CopyFromClipboard

Copies the Windows clipboard contents into this bitmap

Copy

Creates a copy from the given bitmap

CopyRect

Arguments

pBitmap The source bitmap to copy from

X Column to copy from
Y Row to copy from
Width Number of pixels to copy in horizontal direction
Height Number of pixels to copy in vertical direction

Description

Copies the given rectangle from the other bitmap. This method enables you to create composings from multiple images or to combine the contents of multiple images together.

CalculateSizeWithAspect

Arguments

Width The requested width of the image. On return, this variable will hold the final width of the image

Height The requested height of the image. On return, this variable will hold the final height of the image

Description

Takes the given width and height and calculates the correct sizes based on the image aspect ratio. This method is useful when you resize bitmaps.

Flip

Flips the bitmap from top to bottom

Mirror

Mirrors the bitmap

GaussianBlur

Arguments

Radius The radius to blur, in pixels

Description

Performs a Gaussian blur on the image.

MotionBlur

Arguments

Strength Amount of blur

Angle The angle in 1/100 degrees

Unidirectional Boolean. True means the blur works only in one direction.

Description

Performs a motion blur on the image

UnsharpMasking

Arguments

Amount Strength of the effect

Radius The number of neighbor pixels to consider for the unsharp masking

Threshold Value that indicates the threshold for modifying the original value of the pixel. If the difference in the original pixel value and the blurred pixel value is greater than the threshold value, the original pixel value will be modified.

Description

Performs an unsharp masking effect on the image. This effect allows you to make the image sharper or crisper, without introduction to many artifacts.

SetDPIResolution

Arguments

XRres Horizontal resolution in dots per inch (DPI) for the image

XRes Vertical resolution in dots per inch (DPI) for the image

Description

Set the vertical and horizontal resolution for the image. This information does not change the number of pixels in the image. It only sets the suggested output resolution for the image, which may be used by other applications.

Note: Only certain file formats support DPI resolutions (TIFF).

Rotate

Arguments

Angle The angle in (+/-) 1/100 degrees

FillColor The fill color for the background

DoCrop Optional. Set this to *True* to crop the rotated image within the outline of the original image. If this is *False*, the image will be resized to fit to the rotated bitmap

Description

Rotates the bitmap clockwise by the number of degrees (given in (+/-) 1/100 degrees) specified.

Note: This operation is not lossless, because you need to save the image to make this operation persistent.

ChangeIntensity

Changes the intensity (brightness) of the bitmap. Valid values are from -1000 to 1000

GammaCorrect

Modifies the gamma value for the bitmap. Any value > 0 is suitable.

ChangeContrast

Arguments

Amount The amount of change. Valid values are from -1000 to 1000

UseHistogram Set this to *True* to use the actual image histogram during contrast correction. This usually leads to better results

Description

Modifies the contrast of the image. Valid values are from -1000 to 1000

HistogramEqualize

Bring out the detail in dark areas of the bitmap

HistogramStretch

Increases the contrast in the bitmap by manipulating the range of intensity values

ChangeHue

Changes the hue of colors in the bitmap by rotating the color wheel. Valid values are from 0 to 360 degrees

ChangeSaturation

Increases or decreases the saturation of colors in the bitmap. Valid values are between -100 and +100

Invert

Inverts the image, creating a photographic negative

DetectIntensity

Arguments

Low Low value

High High Value

Description

Applies a filter to detect colors with a specific intensity range. Valid values for *Low* and *High* are from 0 to 255

AddNoise

Arguments

Range The amount of change. Valid values are 0 to 1000

Channel The channel to apply the effect to. Use one of the following values:

imchMaster Master Channel

imchRed Red Channel

imchGreen	Green Channel
imchBlue	Blue Channel

Description

Adds noise (random pixels) to the given channel of the image

AverageFilter

Arguments

Range The size of the square that is used to form the effect

Description

Applies an average filter to the bitmap to produce a Blur (Soften) effect.

RemoveNoise

Arguments

Amount The size of the square to form the effect

Description

Applies a median filter to remove noise from a bitmap.

Mosaic

Arguments

Amount The size of the squares to form the effect. Good values are 10 or 20 pixels

Description

Applies a mosaic effect to the bitmap

Oilify

Arguments

Amount Amount is the number of neighborhood pixels to consider

Description

Applies an oil-painting effect to the bitmap

Posterize

Arguments

Levels The number of bits per color channel to consider

Description

Applies a Posterize effect to the image

Sharpen

Arguments

Amount Value in the range +- 1000

Description

Sharpens the image

Emboss

Arguments

Direction The direction of the emboss effect. Use one of the following values:

imedNorth	North
imedNorthEast	North-East
imedEast	East
imedSouthEast	South-East
imedSouth	South
imedSouthWest	South-West
imedWest	West
imedNorthWest	North-West

Amount Value in the range +- 1000. Default is 500

Description

Applies an Emboss effect on the image

SpatialFilter

Arguments

Type The type of the filter. Use one of the following values:

imspNorth	Gradient North
imspNorthEast	Gradient North-East
imspEast	Gradient East
imspSouthEast	Gradient South-East
imspSouth	Gradient South
imspSouthWest	Gradient South-West
imspWest	Gradient West
imspNorthWest	Gradient North-West
imspLaplace1	Laplace 1
imspLaplace2	Laplace 2
imspLaplace3	Laplace 3

imspLaplaceDiagonal	Laplace Diagonal
imspLaplaceHorizontal	Laplace Horizontal
imspLaplaceVertical	Laplace Vertical
imspSobelHorizontal	Sobel Horizontal
imspSobelVertical	Sobel Vertical
imspPrewittHorizontal	Prewitt Horizontal
imspPrewittVertical	Prewitt Vertical
imspShiftDifferenceDiagonal	Shift-Difference Diagonal
imspShiftDifferenceHorizontal	Shift-Difference Horizontal
imspShiftDifferenceVertical	Shift-Difference Vertical
imspLineSegmentHorizontal	Line Segment Detection Horz.
imspLineSegmentVertical	Line Segment Detection Vertical
imspLineSegmentLR	Line Segment Left->Right
imspLineSegmentRL	Line Segment Right-Left

Description

Applies a SpatialFilter effect to the bitmap

Combine

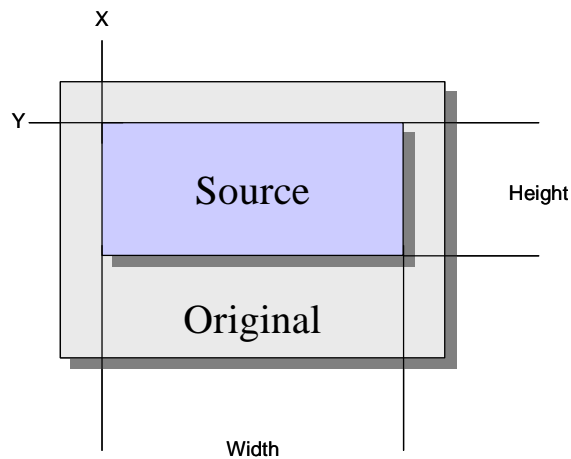
Arguments

pSource	The source bitmap to combine with
Width	Width of the area to combine
Height	Height of the area to combine
XDest	Column in the result bitmap
YDest	Row in the result bitmap
XSource	Column in the source bitmap
YSource	Row in the source bitmap
Flags	Controls the operation. Use one of the following values:
imbcfNop	Nop (no operation)
imbcfSourceNotSource	Not
imbcfSourceSetZero	Source Set all bits to 0
imbcfSourceSetOne	Source Set all bits to 1
imbcfDestinationNot	Destination Not
imbcfDestinationSetZero	Destination Set all bits to 0
imbcfDestinationSetOne	Destination Set all bits to 1
imbcfOR	OR Operation
imbcfXOR	XOR Operation
imbcfADD	ADD Operation
imbcfSubstractSource	Substract Source Operation
imbcfSubstractDesination	Substract Destination Operation

imbcfMultiply	Multiply Operation
imbcfDivideSource	Divide Source Operation
imbcfDivideDesination	Divide Destination Operation
imbcfAverage	Average Operation
imbcfMinimum	Minimum Operation
imbcfMaximum	Maximum Operation
imbcfResultNOT	Result NOT operation
imbcfResultSetZero	Result Set all bits to 0
imbcfResultSetOne	Result Set all bits to 1

Description

Combines this bitmap with the given source bitmap using the given dimensions and flags. With this method you can mimic the *layer operations* found in many modern imaging applications. You can also create transparency effects or things like *Dodge* and *Burn*.



AddBorder

Arguments

Left	Left border
Top	Top border
Right	Right border
Bottom	Bottom border
Color	The color for the border

Arguments

Adds a simple border around the bitmap

RemoveBorder

Arguments

Pixels	The amount of pixels to remove
--------	--------------------------------

Description

Removes the outer size pixels from each edge of the image

AddOverlay

Arguments

pOverlay The overlay bitmap to use

Alignment The alignment of the overlay image within the target image. Use one of the following values:

imbalPositioned Positioned (using explicit X and Y positions)

imbalCenter Center in both directions

imbalCenterHorz Center Horizontally (using Y Position)

imbalCenterVert Center Vertically (using X Position)

imbalTopCenterTop Center

imbalTopLeft Top Left

imbalTopRight Top Right

imbalMidCenter Mid Center

imbalMidLeft Mid Left

imbalMidRight Mid Right

imbalBottomCenter Bottom Center

imbalBottomLeft Bottom Left

imbalBottomRight Bottom Right

X Column of the final source image position in the target image. Only used if Alignment is set to *imbalPositioned*

Y Row of the final source image position in the target image. Only used if Alignment is set to *imbalPositioned*

UseAlphaChannel Set this to *True* if the overlay bitmap has an alpha channel. Note: The original image must have a BPP of 32 Bits to contain an alpha channel

TransparentColor If you don't use the alpha channel for transparence, you can specify a transparent color with this argument.

Tolerance Use the *Tolerance* parameter to control the tolerance of the transparent color. Use higher values for more tolerance

Description

Overlays the given source bitmap with the overlay bitmap to create a watermark effect.

FileExtensionForFormat

Arguments

Format The format for which the file extension is requested

Description

Returns the standard file extension for the given format as a formatted string

Fill

Arguments

Color The color for the fill operation

Description

Fills the bitmap with the given color

FillBitmap

Arguments

FillBitmap The source bitmap to be used for the fill operation

Mode The fill and alignment mode. Use one of the following values:

imbfmTile	Tile
imbfmStretch	Stretch
imbfmCenter	Center

Description

This method can be used to fill one bitmap with another bitmap. An example for a similar functionality is the background bitmap of the CONTACT SHEET BUILDER.

Using the *Mode* argument you can control how the source bitmap is fitted to the target bitmap. If the source bitmap is smaller than the target bitmap, you can tile or stretch the source bitmap to fill the entire target bitmap. If you use the *tile mode*, this method works as the desktop wallpaper in Windows: The entire target bitmap is filled with repeating copies of the source bitmap.

If the source bitmap is larger than the target bitmap, you can either center it (thus cropping the source bitmap on the target bitmap) or stretch it to make it the same size as the target bitmap.

Scale

Arguments

Percentage The percentage to scale to. Use values < 100 to shrink the bitmap and values > 100 to enlarge the bitmap.

Options Controls the resize operation. Use one of the following values:

imroNormal	Normal Resize. Fastest, but may result in a decreased overall quality
imroResample	Resample. Results in better quality when you enlarge a bitmap
imroBicubic	Bicubic Resample. Results in better quality when you shrink bitmaps

Description

Scales the bitmap by the given percentage. This is a shorthand version of Resize, making things a bit easier.

AddMask

Arguments

Mask The bitmap to use as the mask. This bitmap must be a 32 BPP bitmap with an alpha channel

InvertMask *True* to invert the mask (depends on your mask bitmap)

FillType Controls how the mask bitmap is filled. Use one of the following values:

<code>imbmfNone</code>	No fill
<code>imbmfSolid</code>	Fill with <i>FillColor</i>
<code>imbmfBitmap</code>	Fill with Bitmap

FillColor The fill color to use if *FillType* is *imbmfSolid*

FillBitmap The bitmap to be used as the fill bitmap is *FillType* is *imbmfBitmap*

Mode Controls how the mask bitmap is aligned to the original bitmap. Use one of the following values:

<code>imbfmTile</code>	Tile
<code>imbfmStretch</code>	Stretch
<code>imbfmCenter</code>	Center

Description

Applies the given mask bitmap to this bitmap using either none, a solid color fill or a bitmap fill. This method allows you to mimic the mask bitmaps used with the ADD FRAME BORDER MASK feature of the Image Editor.

DrawText

Arguments

Str The text to draw

Font The font to use. This is an `IMFont` object. See there for more information

HorzAlign Controls the horizontal alignment of the font. Use one of the following values:

<code>imfaLeftLeft</code>	
<code>imfaCenter</code>	Center
<code>imfaRight</code>	Right

VertAlign Controls the vertical alignment of the font. Use one of the following values:

<code>imfaTop</code>	Top
<code>imfaMiddle</code>	Middle
<code>imfaBottom</code>	Bottom

Top Top margin

Left Left margin

Right Right margin

Bottom Bottom margin

Description

Enables you to draw text directly onto the bitmap object. You can control the

alignment of the text within the image and the margins that are used when aligning the text object. Using the **IMFont** object, you can control the font, size and special effects of the resulting text.

The *Top*, *Left* and *Bottom*, *Right* parameters form the bounding rectangle for the text. With this bounding rectangle you control the area where the text is displayed.

GetPixel

Returns the pixel at the given X/Y position

SetPixel

Sets the pixel at the given X/Y position to a new color

GetHistogram

Arguments

Channel The channel to calculate. Use one of the following values:

imchMaster	Master Channel
imchRed	Red Channel
imchGreen	Green Channel
imchBlue	Blue Channel

Description

This method calculates the color histogram for the given channel and returns an array of 256 colors.

AutoTrim

Arguments

Threshold Delta value for detecting blank space. Starting at each edge of the bitmap and evaluating toward the center, any change in intensity that is less than or equal to *Threshold* is considered blank space.
Valid values are 0 to 244.

Description

This method removes borders from the edges of the images by deleting areas of the same color. Use this method to automatically remove borders and areas of the same color from the outer areas of an image.

The IMFont class

The IMFont class

This class represents a font object with all font attributes available under Windows. Font objects are used together with the *IMBitmap* class to add text to an image.

Properties

FaceName (String)

The face name, e.g. "Times New Roman" or "Arial"

Italic (Boolean)

True if the font is *italic (cursive)*

Underline (Boolean)

True if the font is underlined

Strikeout (Boolean)

True if the font is strikeout (like ~~this~~)

Size (Integer)

The size of the font in typographical points. This sentence is in 10 points. **This is a 16 points font**

Bold (Boolean)

True if the font is **bold**

Color (OLE_COLOR)

The color of the font as an RGB value. Use the RGB function in Basic to define the font color

DropShadow (Boolean)

True if the font is drawn with a drop shadow

ShadowColor (OLE_COLOR)

The color for the drop shadow

ShadowOffsetHorz (Integer)

Horizontal offset of the drop shadow in pixel

ShadowOffsetVert (Integer)

Vertical offset of the drop shadow in pixel

Methods

GetBoundingBox

Arguments

String A text string

Width Contains the width of the bounding box on return. Set this to a specific value <> 0 to limit the bounding box in the horizontal dimension.

Height Contains the height of the bounding box on return. Set this to a specific value

<> 0 to limit the bounding box in the vertical dimension.

Description

Calculates the bounding box (surrounding rectangle) for a given text for this IMFont object. This method can be used to calculate the space required to draw a specific text for easier positioning.

You must set either *Width* or *Height* to a value <> 0 to limit the bounding box in one dimension.

Example

```
' Create a font object

Dim font As IMFont
Set font = New IMFont

' Setup a larger times font with drop shadow
font.FaceName      = "Times New Roman"
font.Size          = 32
font.Color         = RGB(255,255,255)
font.DropShadow    = True
font.ShadowColor   = RGB(64,0,0)
font.ShadowOffsetHorz = 2
font.ShadowOffsetVert = 2

' Draw some text on to a IMBitmap object
bm.DrawText "This is a text",font, imfaCenter,imfaMiddle,_
            0,0,bm.Width,bm.Height

' Don't forget to free the font object after use!
Set font = Nothing
```

The IPTCStream Class

The IPTCStream Class

The class IPTCStream allows you to access the IPTC information embedded in image files. You can read the information contained in a file, process it within your scripts and even write IPTC information back into a file.

If you're working with IPTC information on a regular basis and you have to process a huge number of images, it is now easier than ever to automate captioning tasks and to save time by utilizing the built-in scripting capabilities of IMatch.

Properties

Fields

This property allows you to access the field collection of this IPTC stream object. It returns an [IPTCFieldCollection](#) object.

KeepFileDateTime (Boolean)

If this property is true, the *WriteFile* method keeps the original date/time of the output file. This allows you to update the IPTC information in files without changing the time stamp of the file

Methods

ReadFile

Arguments

FileName Fully qualified file name of the file to load

Return Values

This method returns one of the following values (IMIPTCResults):

imiptcSuccess Successful execution

imiptcFailed General failure

imiptcNotInitialized The IPTC subsystem is not initialized. Check your IPTC configuration files

imiptcNoIPTCInfo The file does not contain IPTC information

imiptcUnsupportedFormat Unsupported file format. You can only read IPTC information from JPEG, JFIF and TIFF files

imiptcWriteFailed Failure to update file (*Write File* only)

imiptcReadOnly The file is read-only (*WriteFile* only)

Description

This method opens the given file and populates the field collection of the IPTC stream with the IPTC information contained in the file.

WriteFile

Arguments

FileName Fully qualified file name of the file to write the IPTC info to

Return Values

See above

Description

This method writes the contents of the field collection into the given file. The field collection must have been populated before by calling *LoadFile* or via scripting.

The IPTCFieldCollection Class

The IPTCFieldCollection Class

This class represents a collection of fields read from a file with embedded IPTC information. Individual fields are accessible via the official IPTC field number or by the field name. The name of a field must match the name of the field as given in the IPTC configuration files.

Properties

Count

Returns the number of fields in the collection. For a fresh *IPTCStream* object, this method will return 0.

Item (Default Method)

This method returns the item at the given position or with the given name.

The IPTCField Class

The IPTCField Class

This class represents one field within an IPTCFields collection.

Properties

ID

Returns the IPTC field number for this field

Name

Returns the name of this field

Contents

Returns the contents of this field. Some IPTC fields may appear multiple times in an image file. This method always returns an array of Variant, containing one entry for each appearance of the field in the image file.

All field contents are returned as *Strings*, except the fields *Create Time*, *Create Date*, *Release Time*, and *Release Date*, which are returned as *Date* values for your convenience. If a date value is returned, both the time and date parts are filled.

To set / update field contents always use arrays of Variants. IMatch will automatically convert the variant into the suitable data type for updating the file. To get maximum control over date and time values, always use *Date* variables to update the fields *Create Time*, *Create Date*, *Release Time*, and *Release Date*.

IPTC Example

The following script loads the IPTC information for a file, updates the field Copyright and writes back the information into the file. More samples can be found in the Script Samples collection that is part of the IMatch distribution.

```
Dim iptc As IPTCStream
Set iptc = New IPTCStream
Dim res As IMIPTCResults

dim newcontent(0) As Variant
newcontent(0) = "My Copyright notice here..."

res = iptc.ReadFile(FileName)
if res = imiptcSuccess then
    iptc.Fields(116) = newcontent
    res = iptc.WriteFile(FileName)
end if
```

Collection Classes

A collection is a sequence of objects of the same type. Collection classes serve as containers for a number of IMatch objects like *Images*, *Folders*, or *Categories*.

All collection classes in IMatch have at least two methods:

Count Returns the number of elements in the collection

Item Returns the item at the given position (1-based)

Using this methods or an *enumerator*, you can access each object in the collection.

Example

The following script declares a loop variable *i* and an Images collection object named *imgcol*. After initializing the *imgcol* collection with all images in the current database, a loop is used to access each image in the collection:

```
dim i as Integer
dim imgcol as Images
set imgcol = Application.ActiveDatabase.Images

for i = 1 to imgcol.Count
    Debug.Print imgcol.Item(i).Name
next i
```

This code fragment can be rewritten to use an enumerator object instead:

```
dim img as Integer
dim imgs as Images
set imgcol = Application.ActiveDatabase.Images

for each img in imgcol
    Debug.Print img.Name
next img
```

Note All collections in *IMatch* are read-only, meaning you cannot add or remove objects from or to the collections.

Collection	Description
Databases	This collection contains <i>Database</i> objects. The <i>Databases</i> method of the <i>Application</i> class returns this type of collection
IMFolders	<i>IMFolder</i> objects. Also contains methods to <i>Add</i> and <i>Remove</i> individual folders from the collection.
Images	<i>Image</i> objects
Categories	<i>Category</i> objects. This collection also contains the <i>Add</i> and <i>Remove</i> method that allow you to create and remove categories
ResultSets	<i>ResultSet</i> objects
ResultSetEntries	<i>ResultSetEntries</i> objects
ResultSetMatches	<i>ResultSetMatch</i> objects
VarCollection	Holds temporary variables of type <i>Variant</i>
PropertySets	<i>PropertySet</i> objects <i>PropertyRecord</i> objects
PropertyRecords	
PropertySetProperties	<i>PropertySetProperty</i> objects
IPTCFieldCollection	Contains a collection of <i>IPTC</i> fields

Errors and Messages

If an error occurs in any of the scripting classes, IMatch uses the standard way of communicating the error to your scripts: *It raises an error.*

If you don't use any precautions against such errors in your script, your script will be stopped. To enable your script to react in case of errors and to continue normally, you must use the Basic *On Error* mechanism.

See the explanation on the On Error statement in the *Language Help* accessible from the Scripting Editor.

Scripting Building Blocks

Scripting Building Blocks

This section contains numerous samples that demonstrate the IMatch object model in real situations. Please refer to the reference information above for more information.

The Active Database

The active database is the database that is in front of all other databases and that has the current input focus. The *Application* object returns the active database:

```
dim db as Database
set db = Application.ActiveDatabase
```

Please note that the user may run a script when no database is open. You should always check for this situation:

```
if db is nothing then
    MsgBox "Please open a database before you run this script!"
    exit sub
end if
```

This code sequence checks the database object for the special value *nothing*. If the active database is *nothing* (or NULL), a message box is displayed to inform the user and then the current subroutine is exited.

Accessing Folders

There are several methods to get access to the [folders](#) indexed by an IMatch database. The first method is the access by *name*, as shown in the following code fragment:

```
Dim f As IMFolder
Set f = db.Folders("i:\photos\villa")
If Not f Is Nothing Then
    Debug.Print f.Name
End If
```

Here we query the active database for a folder with the fully qualified name "i:\photos\villa". If the database contains such a folder, the returned object will be not nothing and we can use the Debug method to dump the name of the folder to the scripting output window.

To iterate over each folder in a database, use the *Folders* method of the Database class:

```
Dim f As IMFolder
For Each f In db.Folders
    Debug.Print f.Path
Next f
```

This code fragment dumps the full path of each folder in the database specified by *db* to the scripting output window.

To get the child-folders (sub-folders) of a given folder, use the *Children* method of the *IMFolder* class:

```
Dim f As IMFolder
Dim cf As IMFolder

For Each f In db.Folders
    Debug.Print f.Path
    ' Now the child-folders (if any)
    For Each cf In f.Children
        Debug.Print "    " & cf.Name
    Next cf
Next f
```

To get the number of images contained in a folder, use the *Images* method of the *IMFolder* class:

```
Dim cf As IMFolder
For Each f In db.Folders
    Debug.Print f.Images.Count
Next f
```

If you want also the names of the images, or the size, you can use the methods provided by the *Image* class:

```
Dim img As Image
For Each f In db.Folders
    For Each img In f.Images
        Debug.Print img.FileName;img.Size;" Bytes"
    Next img
Next f
```

Accessing Categories

[Categories](#) are similar to folders in the way they are accessed. To get a specific category by name, use the following procedure:

```
Dim c As Category

Set c = db.Categories("Events")
If Not c Is Nothing Then
    Debug.Print c.Images.Count
End If
```

The above script retrieves a *Category* object for the category named "Events" from the active database.

IMatch will return the **first** category (in IMatch's internal order) that matches the name *Events*. If you have more than one category with the same name, make sure that you use the fully qualified name, e.g. *@All.Events*

```
Set c = db.Categories("Events.Birthday")
If Not c Is Nothing Then
    Debug.Print c.Images.Count
End If
```

Birthday is a child category of *Events* and hence we must use the fully qualified path as given above.

To access all categories in a database, use the *Categories* method of the Database object:

```
Dim c As Category
For Each c In db.Categories
    Debug.Print c.FullName
```

```
Next c
```

To iterate over all child categories of a given category, use the *Children* method of the *Category* class:

```
Set c = db.Categories("Events")
If Not c Is Nothing Then
  For Each cc In c.Children
    Debug.Print cc.Name
  Next cc
End If
```

This script will print the names of the first level child categories of the category *Events*.

Adding and removing categories

Using the *Categories* collection of the Database object, you can add and remove categories.

```
db.Categories.Add "My New Category",nothing
```

This statement creates a category named *"My New Category"* as a child category of the *@All* category. If you want to create a new category under an existing category, get an *Category* object for the parent category and then call the *Add* method with this *Category* object as the second parameter:

```
Dim parent As Category
Dim newcat As Category

' The parent category
Set parent = db.Categories("Categories.Events.Birthday")

' Create a new category below the parent. If the function is
' successful, newcat will contain the new Category object
Set newcat = db.Categories.Add("New Category Name",parent)
```

Note Categories must be unique. If you try to create a category with an already existing name, *IMatch* will raise an exception!

To remove a category, get the *Category* object for the category you want to remove and then call the *Remove* method of the categories collection:

```
Dim delcat As Category
Set delcat = db.Categories("Categories.Events.Birthday")
If Not delcat Is Nothing Then
  db.Categories.Remove delcat
End If
```

Working with Images

The [Image class](#) provides numerous properties and methods to get access to the information associated with each image in your database.

If your script works on files, you usually use the *active selection* as the set of images to work with. The active selection depends on the current state of *IMatch* and the current active window. If the user has selected and focused a folder, the active selection contains all images in that folder. If a category is selected, the active selection consists of all images in that category (direct and indirect via formula). If a thumbnail viewer window is active, the active selection contains all selected images in the thumbnail viewer.

To get the active selection, you need a valid database object:

```
' Get the active database
dim db as Database
```



```

set db = Application.ActiveDatabase
if db is nothing then
    MsgBox "Please open a database before running this script!"
    exit sub
end if

' Now get all images in the active selection
Dim imgs As Images
Set imgs = db.ActiveSelection

if imgs.Count = 0 then
    MsgBox "Please make a selection before running this script!"
    exit sub
end if

' Now you can do whatever you want with the images in the selection
Dim i As Image
for each i in imgs
    ' Print the name and the size of the image to
    ' the scripting output window
    Debug.Print i.Name;" ";i.Size
next i

```

Accessing images in a folder

First you need to get the folder object. Several methods are applicable, here is one:

```

Dim f As IMFolder
Set f = db.Folders("i:\photos\regenwald")
Debug.Print f.Name

```

This script fragment gets a specific folder by name from the current database.

You may also want to access the currently active folder:

```

Dim f As IMFolder
Set f = db.ActiveFolder
If Not f Is Nothing Then
    Debug.Print f.Name
End If

```

Please note that the active folder may be nothing when no folder is selected or the database *root node* is selected (showing the database statistics).

If you have a valid folder object, you can access its Images collection to iterate over all images in the folder:

```

Dim f As IMFolder
Set f = db.ActiveFolder
If Not f Is Nothing Then
    Dim i As Image
    For Each i In f.Images
        Debug.Print i.FileName
    Next i
End If

```

The script above gets the active folder and dumps the names of all images in that folder to the scripting output window.

To calculate the size of all images in that folder, only a few modifications are needed:

```

Dim f As IMFolder
Set f = db.ActiveFolder
If Not f Is Nothing Then
    Dim i As Image
    Dim totalsize As Long
    For Each i In f.Images

```

```

        totalsize = totalsize + i.Size
    Next i
    Debug.Print "Total size of all images: ";totalsize;" Bytes"
End If

```

Here the variable *totalsize* is used to sum up the sizes of all individual images. After all images have been iterated, the script dumps the contents of *totalsize* to the scripting output window. The output will look something like this:

```
Total size of all images: 3831911 Bytes
```

If you want to include thousand separators in the number, you can use the built-in *Format* function to generate a valid format:

```
Debug.Print "Total size of all images: ;Format(totalsize,"#,##");"
Bytes"
```

For more information about the *Format* function, check out the Language reference accessible via the HELP menu in the Scripting IDE.

Accessing images in a category

Accessing images in a [category](#) works basically the same as accessing the images in a folder.

First you need to get a Category object of the category you're interested in:

```

Dim c As Category
Set c = db.ActiveCategory
If Not c Is Nothing Then
    Debug.Print "The active category is ";c.Name

    Dim i As Image
    Dim totalsize As Long
    For Each i In c.Images
        totalsize = totalsize + i.Size
    Next i

    Debug.Print "Total size of all images: ";Format(totalsize,"#,##");"_
    Bytes"

End If

```

This script uses the currently active category, calculates the total size of all images in the category and prints the result to the scripting output window.

If you want to access a specific category, you can also create a Category object by name:

```
set c = db.Categories("Vehicles.Motorbikes.Triumph.Mario's Bike")
```

Please note that the name of the category must be fully qualified, including all parent categories. If you use only a single name, *IMatch* will return the first category with a matching name. You never need to include the *@All* category in your category names; it is implicit.

Updating or adding images

The Database class allows you to add new images or update exiting images in your database.

Just call the *AddImage* method with the fully qualified file name:

```
Dim result As IMFileOperationResults
result = db.AddImage("i:\photos\A Flowers\JG1191.JPG")
```

If the image is not in the database, it will be added, else updated. This operation automatically adds the folder of the image to the list of folders managed by the database, if the folder is also new. Only the images explicitly added with *AddImage* are added to the database, the remaining images in the folder are not indexed automatically.

Removing images

You can remove images from a database with the `RemoveImage` method:

```
Dim result As IMFileOperationResults
result = db.RemoveImage someimg, True
```

The second parameter controls whether the file on disk is also removed. If you set this parameter to *False*, only the index entry for the file in the database is removed, but the disk file remains untouched. Setting this to *True* will also **delete the file from your hard disk, so be careful**.

Accessing Property Sets

`IMatch` gives you full access to your property database, including update operations.

Iterating all property sets in your database

The class *PropertySet* represents a single property set in your property database. Using the *PropertySets* method of the *Database* object, you can easily iterate over all property sets in your database:

```
Dim ps As PropertySet
If db.PropertySets Is Nothing Then
    MsgBox "The current database has no property sets!"
    Exit Sub
End If

For Each ps In db.PropertySets
    Debug.Print ps.Name
Next ps
```

This script dumps the names of all property sets to the scripting output window.

To access the individual properties within a property set, you use the *PropertySetProperty* class. This class provides access to all properties within a property set:

```
Dim p As PropertySetProperty
For Each ps In db.PropertySets
    Debug.Print ps.Name
    For Each p In ps.Properties
        Debug.Print " ";p.Name
    Next p
Next ps
```

This script dumps the names of all property sets and the names of each property within the property sets to the scripting output window.

Accessing the contents of a property set record

To access the data stored in a property set, you will need to use the *PropertyRecord* class. The following sample dumps the contents of the property record associated with an *Image* object.

```
img is assumed to contain the currently active image:
Dim record As PropertyRecord
Dim v As Variant
```

```

Set record = img.Properties
For Each v In record
    Debug.Print v
Next v

```

A *PropertyRecord* object contains 0 to n columns, each of type *VARIANT*. To iterate the properties, use a "for each" loop with a variant data type.

If you want to access a specific property, use the *access by name* method:

```
Debug.Print record.Property("Title")
```

This statement dumps the contents of the "Title" field from the record set to the scripting output window.

Updating your property database

To update your property database, you also use the *Properties* method of the Image object. However, it requires two steps to update a record:

```

Dim r As PropertyRecord
For Each i In img
    ' Make a copy - else you would work with transient values
    Set r = i.Properties

    ' Update the properties in the record
    r.Property("Serie") = 1234

    ' Finally, write back the property record to the database
    r.Update
Next i

```

First you retrieve a copy of the image property set of the image, then you update the value of your choice (or multiple values) and then you call the *Update* method to write the changes back to the database.

Note If your property set contains references to other property sets, *IMatch* will resolve these references automatically and deliver the actual contents of the referenced field. For example, if your property set has a property "Photographer" which is a reference to the property set "Photographer", accessing this property will automatically return the contents of the corresponding field of the Photographer property set.

Advanced Sample: Running a selection on your own

The selection methods built into *IMatch* cover the most frequently used queries. However, there may be situations where you need to perform a selection against the images in your database that cannot be done using one of the selectors in *IMatch*.

The following script iterates over all images in the database. For each image, the file name is checked. If the first character is an "A", the image is bookmarked for later inspection:

```

Dim i As Image
For Each i In db.GetImages

    ' Check if the first character is "A". Use the
    ' UCase function to convert the file to upper case
    ' so we detect "a" and "A"

    If UCase(Left(i.Name,1)) = "A" Then
        ' Bookmark this image
        db.AddBookmark i
    End If

Next i

```

If you want to beautify this sample, add a wait dialog to provide some user feedback. This may be important when your database contains several thousands of images since this script may take a while to run:

```
Application.WaitDialogOpen "Scanning...",0,db.GetImages().Count,True

Dim perc As Integer
perc = 0

Dim i As Image
For Each i In db.GetImages
    If UCase(Left(i.Name,1)) = "A" Then
        db.AddBookmark i
    End If

    ' Update the percentage and check whether the user
    ' has aborted the script
    perc = perc + 1
    Application.WaitDialogSetPercentage perc
    If Application.WaitDialogIsCanceled Then
        Exit For
    End If
Next i

Application.WaitDialogClose
```

For more information about the *wait dialog methods*, see the examples below.

Better Performance

When you run this script, you may notice heavy activity on your disks. This activity is triggered by the *AddBookmark* method because for each call to this method, *IMatch* needs to update the bookmark collection in your database.

To speed up the processing, you may create an *ImageBucket* object and store the images considered as "hits" in this bucket while you're scanning the database. After the database scan is completed, you can update the bookmark collection of the database with a single call to *AddBookmarks*, which is by an order of magnitude faster.

```
' Create an image bucket for this database
Dim bookmarks As ImageBucket
Set bookmarks = db.CreateImageBucket

Dim i As Image
For Each i In db.GetImages
    If UCase(Left(i.Name,1)) = "A" Then
        ' Add this image to the bucket
        bookmarks.CombineImage i
    End If
Next i

' Update the bookmark collection from the image bucket
db.AddBookmarks bookmarks.Images
```

Note: The wait dialog code has been left out for clarity.

Providing User Feedback

Providing User Feedback

The *IMatch* scripting language contains three mechanisms that allow you to provide user feedback.

Using the Scripting Output Window

Using the Scripting Output Window

The scripting output window allows you to print or dump textual data. To dump a string to the output window, use the built-in *Debug.Print* method:

```
Debug.Print "Script running..."
```

This message will show up in the output window, and, when you execute your script from within the scripting IDE, also in the *Intermediate* window.

More information about the *Debug* object can be found in the online help of the scripting IDE.

Using the IMatch Status Bar

Using the IMatch Status Bar

Using the IMatch Status Bar

The [Application](#) object provides methods to manipulate the application status bar.

```
Application.StatusBarSetText "Doing some useful work..."
```

The above statement will show the message "*Doing some useful work...*" in the IMatch status bar.

To show a percentage indicating the progress of an operation, use the following sequence:

```
Application.StatusBarSetText "Doing some useful work..."
```

```
' Show the percentage bar with a range from 0 to 100
Application.StatusBarShowPercentage 0, 100
```

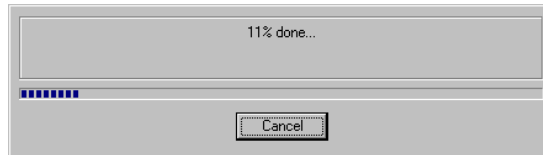
```
' This loop simulates the actual work done by this script
Dim i As Integer
For i = 0 To 100
    Wait(0.1)
    ' Update the percentage counter
    Application.StatusBarSetPercentage i
Next i
```

```
' Remove the percentage bar
Application.StatusBarHidePercentage
```

Using the Wait Dialog

Using the Wait Dialog

The Application object also enables you to show an application-modal Wait dialog box. This dialog box contains a message, an optional percentage bar and an optional "Abort" button.



To open the Wait dialog box, use the *WaitDialogOpen* method of the *Application* class:
`Application.WaitDialogOpen "Doing some useful work",0,100,True`

This call opens a wait dialog box with the given message, a percentage bar with the range 0..100 and an "Abort" button allowing your user to abort the current operation.

Here's a full sample:

```
Application.WaitDialogOpen "Doing some useful work",0,100,True
Dim i As Integer
For i = 0 To 100
    Wait(0.1)
    Application.WaitDialogSetPercentage i
    Application.WaitDialogSetText i & "% done..."

    ' If the user has cancelled the dialog box,
    ' exit the loop
    If Application.WaitDialogIsCanceled Then
        Exit For
    End If
Next i
Application.WaitDialogClose
```

This sample shows a wait dialog box, increases the percentage in a loop from 0 to 100 and enables the user to abort the operation at any time.

Working with Files

Working with Files

The Basic language provides a rich set of functions that allow you to create, open, read and write disk files. In the context of IMatch, these functions can be used to import or export data in all imaginable formats.

If you need a special output format to communicate with other applications, use the building blocks presented above and combine them with the simple but powerful output functions provided by Basic.

```
' Open the file for output
(1) Open "c:\imatch.txt" For Output As #1

' Write the file header
(2) Print #1, "Width";vbTab;"Height";vbTab;"Date";vbTab;"File Name"

' Iterate each image in the active selection and
' write one line per file
' Each field in the file is separated by a tabulator,
' the first line is the header with the field names

(3) For Each i In db.ActiveSelection
(4) Print #1, i.Width;vbTab;i.Height;vbTab;i.Size;vbTab;i.FileName
Next i

(5) ' Close the file
Close #1
```

- (1) Here the file `c:\ismatch.txt` is opened for output. If the file already exists, it is overwritten.
- (2) This statement writes (prints) the first line of the file. This line contains a header for each column in the file.
- (3) This For loop iterates over all files in the current selection
- (4) This *Print* statement writes some information about the current file into the file. Each field is separated with a tabulator character (0x09 or vbTab).
- (5) After the work is done, the file must be closed.

Using a similar script you are able to export all the information contained in your IMatch database into files. This enables you to share the information from your database even with the most exotic applications.

Importing and Exporting your Data

Importing and Exporting your Data

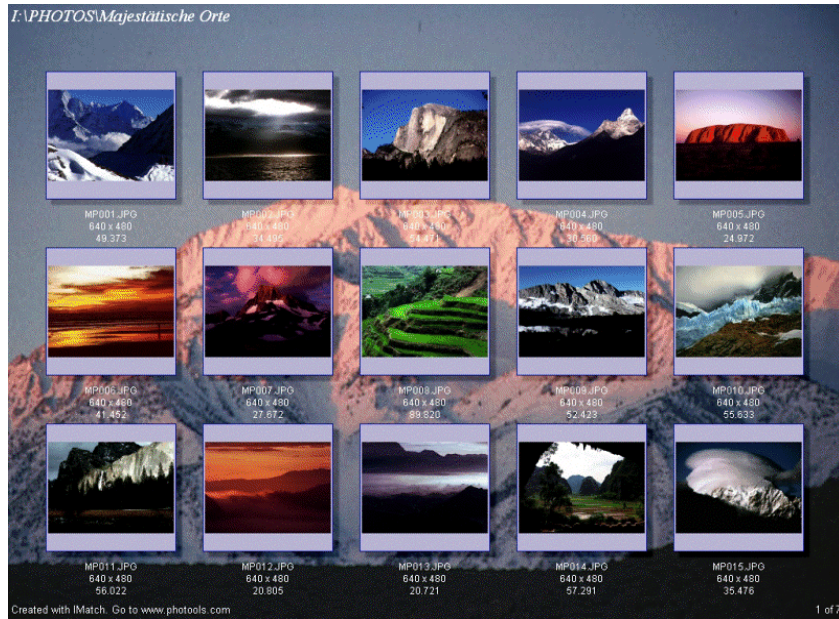


Figure 144: Contact Sheet with a background bitmap, header, footer and some image attributes

I:\PHOTOS\HAWAII
Collection of photos from my trip to Hawaii

	<p>HI001.JPG 640 x 480 47.287 Sonntag, 15. Dezember 1996</p> <p>Aloha Hawaii</p> <p>Hawaiian Beach. Small beach, great sea view. Some shallow mountains in the center of the image.</p> <p>Photo by: Mario Westphal Using a Nikon</p>		<p>HI002.JPG 640 x 480 49.865 Sonntag, 15. Dezember 1996</p> <p>Aloha Hawaii</p> <p>Impressive Nature. Rough sea, with breaking waves.</p> <p>Photo by: Mario Westphal Using a Nikon</p>
	<p>HI003.JPG 640 x 480 82.474 Sonntag, 15. Dezember 1996</p> <p>Aloha Hawaii</p> <p>Hawaiian Ancient Art. Some wooden sculptures in front of palms.</p> <p>Photo by: Mario Westphal Using a Nikon</p>		<p>HI004.JPG 640 x 480 32.913 Sonntag, 15. Dezember 1996</p> <p>Aloha Hawaii</p> <p>Beautiful Flowers. Hawaiian nature is more than impressive!</p> <p>Photo by: Mario Westphal Using a Nikon</p>

Created with IMatch. Go to www.photools.com

1 of 1

Figure 145: Contact Sheet with vertical text and user-defined properties (*Title, Photographer, Camera and Description* from the *Image property set* and additional property sets)
Note: These photos are not actually taken by me. I just used my name here. All credits to the original photographer. Great job!

The Batch Processor

Source Images and Output Options

The Batch Processor operates as a wizard or assistant and leads you through the process of creating contact sheets in several steps. In Step 1 you select the source images for the batch conversion process.

You can either use the current selection or select files and folders manually. The Batch Processor can even operate on external images (images not indexed by the current database).

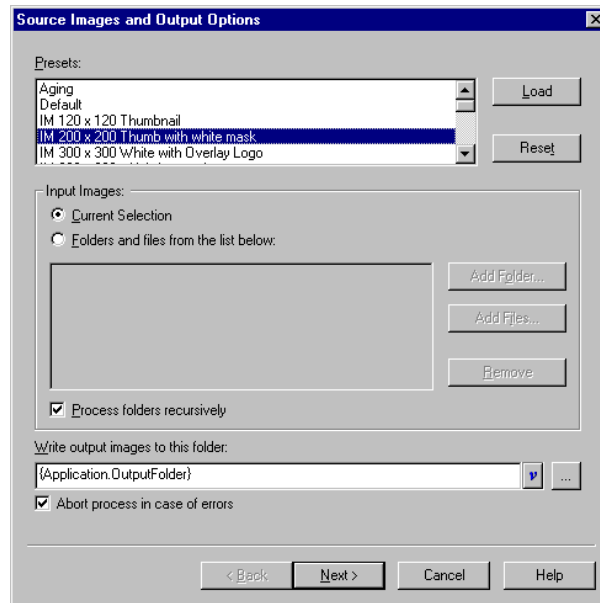


Figure 147: Step 1: The Source Images and Output Options

Note You cannot use *variables* with external images. IMatch does not calculate or store image attributes like *Image.Size* or *Image.Width* for external images. If you want to get the max out of your image collection, you should manage all your images with IMatch 😊

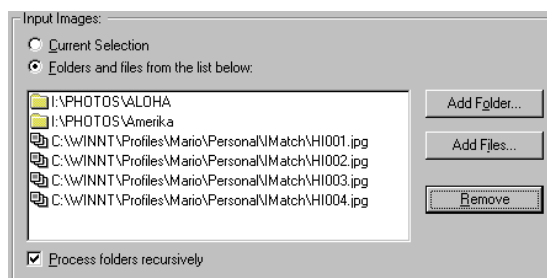


Figure 148: The Batch Processor operating on external files and folders

If your current selection is based on a folder, you can use the PROCESS FOLDERS RECURSIVELY option to process the folder and all its sub-folders at once.

IMatch writes all processed files to the target folder specified at the bottom of the dialog box. You can use a fixed path here or use one of the variables supplied by the IMatch system. In the example above I've used the *{Application.OutputFolder}* variable. This assures that the preset will work with the output folder set under GENERAL OPTIONS in PRESETS.

Since errors may happen during a conversion process (for example, if the source image is unreadable or in an unsupported file format), you have the option to stop the conversion process after such errors. If you check the **ABORT PROCESS IN CASE OF ERRORS** option, IMatch will stop after the first error occurred. Otherwise, IMatch will skip only the image in error and continue with the remaining images of the selection.

Image Processing Options

The second step in the Batch Processor allows you to define various conversion filters and pre-processing steps.

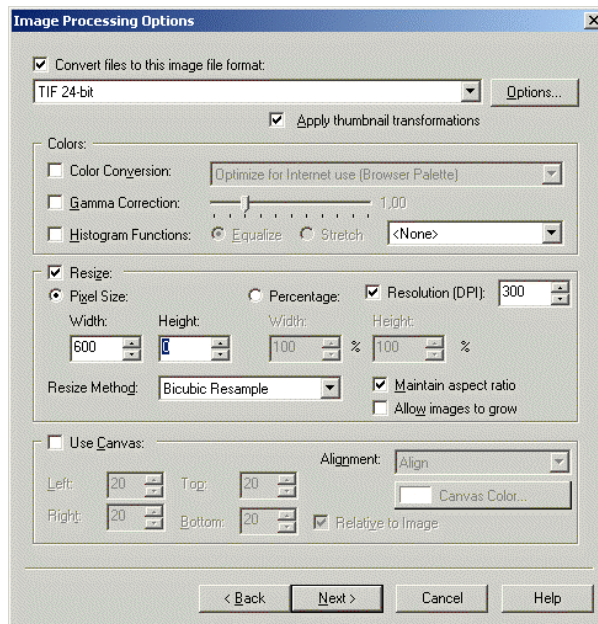


Figure 149: Step 2: Image Processing

If you want to convert the source images to a different **file format**, enable the corresponding option and select the desired output file format from the list (over 40 formats supported, with many sub-formats).

If you want to convert your images to a **different color depth**, enable the option **COLOR CONVERSION** and choose the new color depth from the list. For example, if you want to use your images in web pages, it's a good idea to convert them to **JPEG** format and to change the color resolution to a **Browser-compatible 256 color palette (Netscape palette)**.

If your images are too dark, you can apply a **gamma** correction filter by enabling the corresponding option. Or you can use one of the histogram functions to apply some histogram based color corrections.

To convert your output image to **gray scale**, just select the corresponding option in the list shown. This will change the all colors in your image to one of 256 shades of gray. IMatch takes care that the resulting output file has the correct color depth, depending on the original file format or the new file format defined for the target images. Saving a file to **JPEG** (even a gray scale one) needs 24 Bit color depth to be compatible with most other applications. IMatch automatically takes care for these things.

To apply an **aging effect** to your, select the **APPLY AGING EFFECT** option. IMatch will change your image to look like an "old photography". This is a very nice effect if you create images for web pages or photo albums.

To change the **dimensions** of your images (resize / resample) enable the corresponding option and enter either a height or width. IMatch calculates the other dimension automatically for you.

You can also change the output size of an image using a **percentage** of the original image size.

You can also change the **DPI resolution** of an image to prepare images for printing or for other applications.

If you enable **Allow images to grow** IMatch will enlarge your image if the defined width and height are larger than your source image.

Note There is no *real* DPI resolution with images. Images only consist of pixels, and it depends on your output medium (printer or screen) how these pixels are rendered.

The DPI setting is merely a hint for some devices or applications how you intent to scale the image.

Also, only some file formats (TIFF, PSD) support DPI settings.

Resizing

To resize the original image to a new size, enable the RESIZE functionality. The new dimensions of the image are defined by a fixed width and height in pixels or as a percentage of the original image size. To adjust the aspect ratio of the result image, enable the MAINTAIN ASPECT RATIO check box. The resample method determines how IMatch handles the image resize operation. RESIZE is the fastest method, but may result in some raggedness of the output image. For the best quality, choose BICUBIC RESAMPLE.

If you want to apply some sharpening to your image during the resize process, use one of the Bicubic methods with Sharpening. IMatch will automatically apply an Unsharp mask operation during the processing of the images.

Tip If you resize images for web usage, you should always apply a light or medium sharpen for the best results.

If you want to sharpen your images in batch, but you don't want to resize them, use the resize mode **Percentage**, and set both dimensions to 100%. In this case, the batch processor will only apply the sharpen operation, but will not attempt to resize the image.

Resizing Matrix

IMatch allows you to resize your images with many options. Please see the matrix below for details:

Keep Aspect is set

Both Width and Height are set

Limit: The image must not exceed either width or height.
IMatch checks for portrait/landscape orientation.
Use the larger dimension of the image
resize the image

Either Width or Height is set

IMatch uses the dimension given and resizes the image to this dimension, while keeping the correct aspect ratio

Keep Aspect is not set

Both width and height are set

Resize the image to exactly the given dimensions

Either Width or Height is set

Use the given measure and resize the image based on this measure.
Keep the aspect ratio

The new **Adjust for portrait/landscape images** instructs IMatch to exchange width/height according to the image orientation. This allows you to use one batch processor preset for both landscape and portrait images while limiting the maximum width/height of the image according to the larger dimension.

The Canvas

The canvas is a *background bitmap* on which IMatch arranges your source image. In the simplest case, the canvas allows you to add some borders to your source image. In most cases you will use the canvas to make *some room* to apply one or more of the advanced effects to the image or to add image attributes and user-defined properties.

The dimensions of the original image determine the size of the canvas if you check the **RELATIVE TO IMAGE** check box. If you uncheck this option, the controls in the dialog change to allow you to enter a width and a height in pixels.



Figure 150: Absolute dimensions for the canvas

These two modes allow you to create a canvas that automatically adjusts to the size of the target image, or a canvas that has fixed dimensions, independent from the dimensions of the target image.

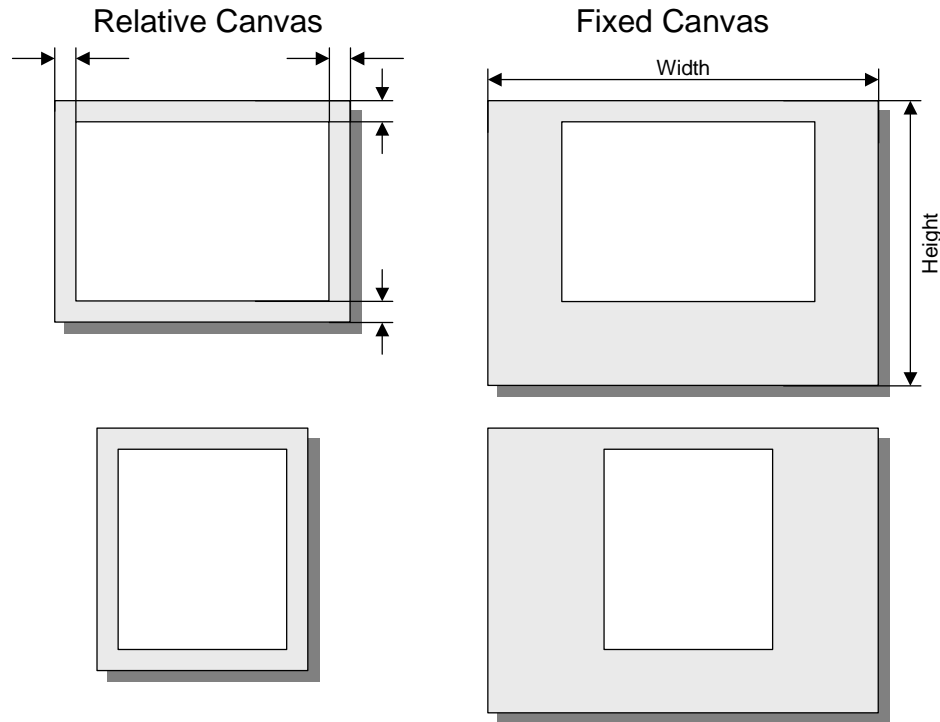


Figure 151: Relative and absolute canvases

Image Alignment

The alignment of the target image within the canvas can be controlled with the ALIGNMENT control. If you set this to ALIGN, IMatch will align the target image at the Top and Left border of the canvas. All other settings center the target image within the canvas vertically, horizontally or both.

Note If you use an absolute canvas size (RELATIVE TO IMAGE is unchecked), the TOP and LEFT canvas margins are used to align the target image on the canvas when you use one of the ALIGN, CENTER VERTICALLY or CENTER HORIZONTALLY alignment modes.

If your canvas size is relative to the target image, these two margins define the left and top margins of the canvas.

Background, Mask, and Text Options

With Step 3 of the Batch Processor you can define a background bitmap, a mask bitmap, and an overlay bitmap for the target image.

The Background Bitmap

If you use a canvas, the color of the canvas is controlled in Step 2 of the Batch Processor wizard. If you don't want a plain colored background for your target image, you can apply a background bitmap.

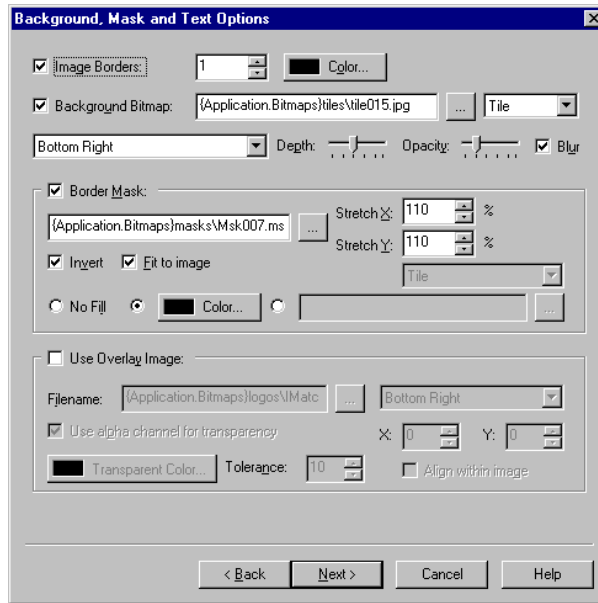


Figure 152: Step 3 of the Batch Processor wizard

As a starting point, I've set up a Batch Processor preset that resizes the image to a maximum of 300 x 300 pixels (keep aspect ratio is on). The canvas is relative to the image and has the settings: Left: 10px, Top: 10px, Right: 10px and Bottom: 100px. This results in an output image like Figure 153.

Adding Shadows

You may add a shadow to your bitmap by selecting one of the shadow alignment options. The DEPTH parameter controls the depth or size of the shadow. With the OPACITY control you can adjust how dark the shadow is rendered on the canvas bitmap. If you enable the BLUR effect, IMatch will also soften the shadow edges.

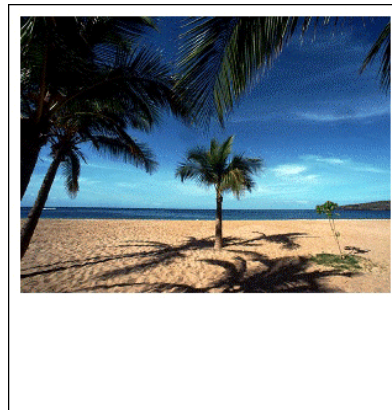


Figure 153: A target image with a solid colored canvas

The canvas has a solid white color and there are 10 pixel margins around the image. The lower border has a height of 100 pixels to leave us some room for adding text and a logo.



Figure 154: The same image, but with a shadow effect

Next, we add a one-pixel border in some shade of red to the original image and use a background bitmap to replace the white canvas:



As you can see, the background bitmap has been loaded from the folder referenced by the *global variable* `{Application.Bitmaps}`. You may use a hard-coded folder name here or a folder that is relative to any of your variables. **If you use a variable, you can easily change the location of your background images and tiles without changing the Batch Processor presets.**

The background image used here is a 100 x 100 bitmap that can be seamlessly tiled to fill a canvas of any size. Make sure that you select the **TILE** setting when you use this type of bitmap. If your background bitmap is a larger bitmap, you can also **CENTER** it (cutting of the parts that are higher or wider as the canvas) or **STRETCH** it, to grow or shrink it to make it the same size as the canvas.



Figure 155: The new target image with background bitmap and image borders

The Border Mask

The border mask allows you to add a mask-based border around your entire target image or the source image. A border mask is a grayscale or black and white bitmap with transparent areas (also known as *Vignette*). IMatch will combine the mask with the target image or the original image to mask out any parts of the bitmap that are set to opaque in the mask.

Tip You can create border masks yourself with any advanced imaging application, for example using Photoshop or PaintShop Pro. See the user's manual of the application of your choice for more information about masks. There are also excellent resources on the Internet that explain how to create masks

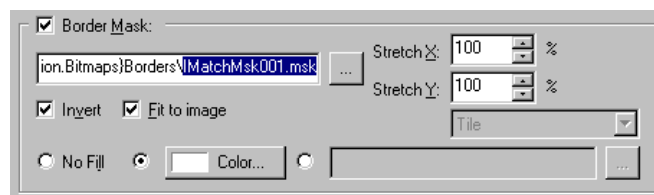
or how to find freely usable masks on the WWW. Give your favorite search engine a try...

Figure 156 shows the target image with a border mask applied. The mask used to create this effect is contained in the file *IMatchMsk001.msk* that is part of the IMatch setup. As with the background bitmap, I have used a path relative to the folder referenced by the variable *{Application.Bitmaps}* to specify the mask. **This allows me to move my masks around and to share Batch Processor presets with other people**, even if they store their bitmaps and masks on different drives or in different folders.



Figure 156: Using a border mask for the entire target image

To change the color of the mask, enable the COLOR option and choose a mask color of your liking. You get the best effect if the color you choose here matches the canvas color (if you use a canvas).



The result of coloring the mask white is show in Figure 157 below.



Figure 157: The colored border mask

Now enable the canvas in Step 1 of the wizard and use: Left/Top/Right: 10px and for the Bottom a height of 100 pixels. Leave the ALIGNMENT to ALIGN to adjust the original image to the left and upper canvas margins. The resulting image should look something like this:

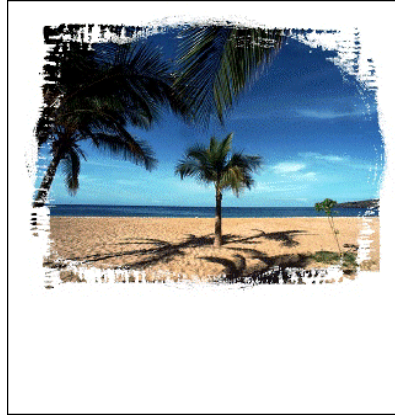


Figure 158: The border mask applied to the original image, with a 10/10/10/100 canvas

Using a contrasting color for the mask bitmap often leads to interesting results:



Figure 159: The same border mask with a contrasting color

Figure 160 uses a different mask to add some smooth borders around the original image. This mask is part of the *IMatch* distribution and is named *IMatchMsk004.msk*.

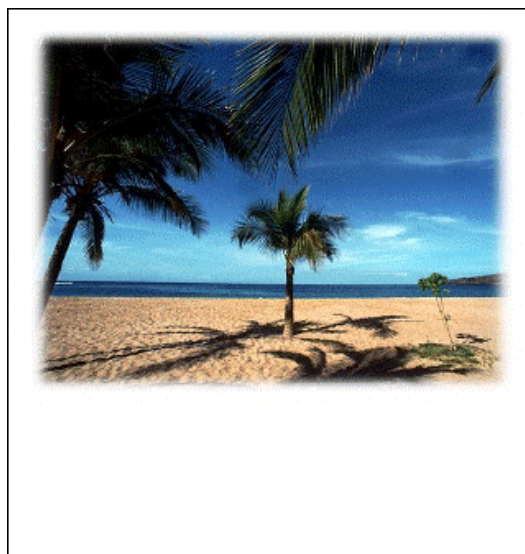


Figure 160: Using a different mask

You can also use a bitmap to fill the mask. As with the background bitmap, you can use a tile bitmap or stretch / center the fill bitmap within the mask:



Figure 161: Using background bitmaps to fill the mask

Using Text, Image Attributes and Properties

The next step in the Batch Processor allows you to add headers, footers, image attributes and user-defined properties to your target image.

The TEXT MARGINS control the distance between the canvas or image and the text that is displayed on the target image. You can use these margins to add a little spacing between the borders of your target image and the text. Usually, something like 4 pixels in each direction is a good value for these margins. If you want to align your text with your original image, use the same LEFT / RIGHT margins as you defined for the LEFT / RIGHT canvas margins in Step 1.

If you check the ALIGN TEXT WITHIN ORIGINAL IMAGE, IMatch will display all text within the bounding rectangle of the original image. If this option is unchecked, IMatch will align the text to the entire canvas.

You can add text above, below or on the left and right of your target image. Just type the text you want to print in the corresponding edit controls on the dialog sheet. With the FONT buttons you can control the font face, size and color of the text. The alignment of the text can be controlled with the controls next to each edit field. The text on the left and right has an additional property that allows you to *rotate* the text by 90 degrees.

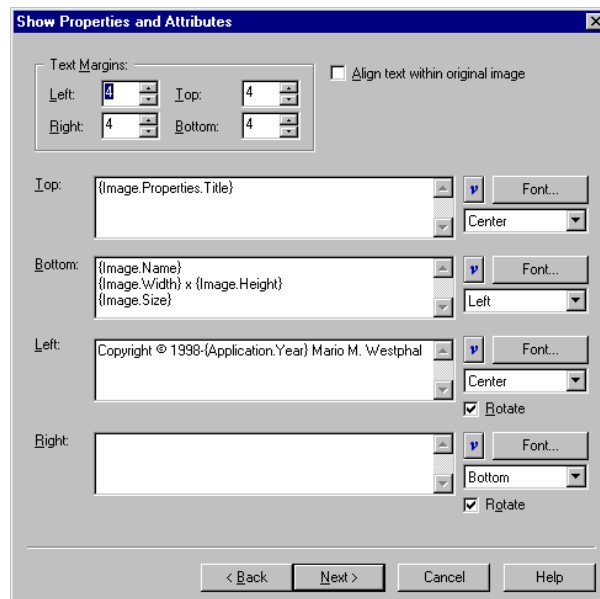


Figure 163: In Step 4 you can add text, attributes and properties to your image

Using Variables

You can use *variables* to access to the information stored in the IMatch database for the original image. The Batch Processor publishes the *Image*, *Application* and *User* variable sets.

The preset in Figure 163 uses several variables from the *Image* variable set and the global variable *{Application.Year}* to create dynamic output:

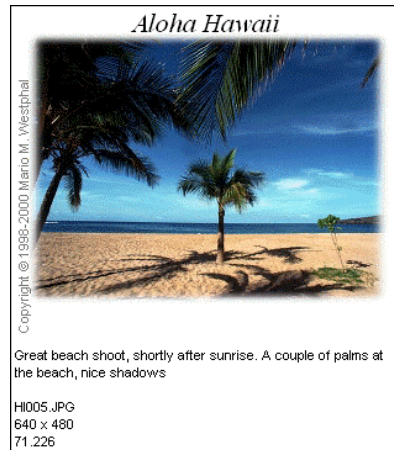


Figure 164: The resulting target image with attributes and properties

Note If you want to use IPTC information in the Batch Converter, you need to import the IPTC information into your Image Property Set first.

Some Tips & Tricks

The Batch Processor is an extremely powerful tool when you need to create image catalogs or want to share images with others. Besides the 'normal' functionality like resizing, color conversion or format conversion, you can add all the information contained in your database and your property sets to the target image. You can even add company logos or watermarks with very little effort.

If you want to do more complex stuff, you can run the Batch Processor multiple times, each time processing the output of the previous run to form new target images. This way, you can add company logos, watermarks and any other imaginable type of information.

Using pre-built Canvas Bitmaps

If you want all your images to have the same background, you can use a pre-built canvas bitmap and arrange all other Batch Processor output onto this background image.

For example, take this 400 x 400 pixels bitmap:

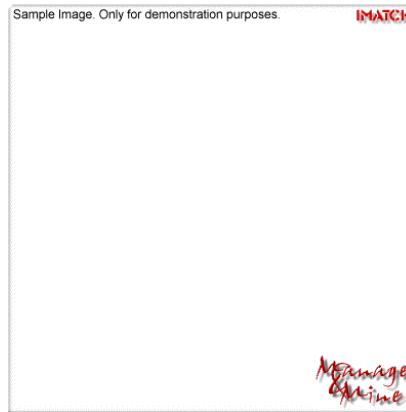


Figure 165: The empty pre-built canvas bitmap

This is a normal bitmap that has been prepared in a paint application. It can be of any color depth (24 bit preferred) and size. Now we need to fill in all remaining information to produce a result like the one shown in Figure 166.



Figure 166: The finished target image

Start by making the canvas the same size as the canvas bitmap (400 x 400 pixels). Make sure that the **RELATIVE TO IMAGE** option is unchecked. Then adjust the canvas left and top margins to leave room for the logo and copyright notice on top of the canvas bitmap. Use **CENTER HORIZONTAL** as the alignment option for the original image.

Apply any effect and mask to your original image and resize it to about 300 x 300 pixels to match the size of the canvas bitmap.

Select the pre-built canvas bitmap as the *Background Image* in Step 3 of the wizard. Make sure that the alignment is set to **CENTER** to align the canvas bitmap correctly.

Use variables or normal text to add some information. Adjust the text margins to match the dimensions of the canvas and the positions of the logo in the lower right corner.

It can take some experiments to find the optimal settings for a given canvas bitmap. Take your time. After you've determined the best settings for your original images and canvas bitmap, save these settings to a Batch Converter preset for later reuse.

Watermarking Images

If you're licensing images to others, you probably provide low-resolution images via your web site for downloading. With IMatch, it's now extremely easy to create such preview images, even if you want to add copyright notices, pricing and licensing information or watermarks.



Figure 167: A watermarked image

Watermark images are added using the OVERLAY IMAGE option of the Batch Processor. Center it within the original image and use a pre-built bitmap that contains transparency information in an alpha channel. To add a copyright, or pricing and licensing information, use the text output functions of the Batch Processor.

Tip You can create watermarking images with any application that supports alpha channels in bitmaps and some kind of 'masking'. Just create an empty bitmap, set it to transparent and then use a mask to add some 'less transparent' areas. Store the transparency information in the alpha channel of the image and save it to a file format that supports an alpha channel: PNG, PCD, or TIFF. In IMatch, enable the alpha channel for your overlay image and you will get the 'see-through' effect that is typical for watermarks.

EXIF and IPTC Data

EXIF and IPTC Data

If you enable the corresponding option under OPTIONS/PREFERENCES/FILE FORMAT OPTIONS, IMatch will copy over IPTC and EXIF information from the source images to the target images.

The Text Export Filter

The Text Export Filter

Filter Options

This section explains the various options available for this filter.

File name	Enter the file name of the resulting text document
Generator Type	Choose a generator type. Each generator type produces different output. Currently, only one generator is supported
Sort output using this sort preset	Choose one of your sort presets to define a sort order for the text document. For example, if you export the contents of more than one folder to a single document you may want to sort the images by folder and then by file name.
Image Attributes to	Check all predefined image attributes you want to include

include

in your text document. IMatch supports a variety of predefined image attributes:

Object Identifier

The unique object identifier (OID) for this image. This identifier remains valid as long as the image remains in the database.

File Name

The name of the image file, including the file extension

Full File Name

The complete path and file name of the image file

File Name w/o Extension

The name of the file without the extension

File URI

The file Universal Resource Indicator, e.g. <file:///c:/temp/beach.jpg>

Folder Name

The name of the folder where the file is located

Folder URI

The folder URI

Width

The width of the image in pixels

Height

The height of the image in pixels

Size

The size of the image file on disk

File Format

A specifier for the image file format

Checksum

A 32-Bit CRC checksum for the file
This checksum is compatible to applications that read and write CRC and CSV files

Last Modified

The date and time of the last modification of the image file

Last Updated...

The date and time of the last update of the image file in the IMatch database

Categories

A comma-separated list of all categories that contain this image

BPP

The bit depth (color resolution) of the image

Similarity

The similarity of this image (available for result sets only)

Image Properties to include

If your database contains an *Image Property Set*, you can include information from this set into the resulting text document

File Format Options

These options allow you to control the resulting output. The optimal settings depend on the application that is the target for the export. See the documentation of the respective application for details.

Choose a file format for the resulting text document. IMatch supports

- **Windows ANSI** format (for most Windows applications)
- **OEM character set** (DOS) for older applications
- **UNICODE™** for UNICODE-enabled applications
- **UTF-8** for Internet Applications, XML Editors and the like

Field delimiter	IMatch arranges the output into rows and columns. The character(s) you enter here specify which character is used to separate columns in the resulting document. Common are comma, tab or semicolon
Record delimiter	Specifies the record delimiter in the resulting document
Write first line as header	<p>If you enable this option, IMatch will include an initial header line in the output. This line contains the names of the exported fields, attributes and properties.</p> <p>This option is pretty handy if you want to import the resulting document into applications like Microsoft® Excel™ or Microsoft® Access™</p>
Wrap text in ""	Many applications require text content to be included in double-quotes. IMatch will not include date, time, and numeric fields in quotes
Load Preset and Store Preset	These buttons allow you to save the current settings to a preset file or to load a stored preset.

Exporting to Microsoft® Office Applications

If you want to import the resulting text document into Microsoft® Office applications, you should use <Tab> as the field delimiter and a single <Line Feed> as the record delimiter. Make sure that you check the WRAP TEXT IN "" and WRITE FIRST LINE AS HEADER options.

Using these settings, importing your data into Microsoft® Access™ or Microsoft® Excel™ is straightforward.

Relational Database Systems

To export data from IMatch into other database systems, a simple text file is the easiest way. Nearly every database application can import data from text file into existing tables.

See the documentation of your database for detailed information on how to import text data.

You can also use the IMatch scripting language to create and use database connections using ADO or ODBC. See the Microsoft documentation and the documentation of your database system for more information on these issues.

XML Support

XML Support

The property database used by IMatch to store non-image data is based on XML and UNICODE™ aware. All textual data stored in an IMatch property database is stored in UNICODE to support all language and localities.

IMatch property database schemas are XML documents based on the IMatch Document Type Definition (DTD). This DTD describes to format of IMatch XML schema files for importing and exporting property database schemas.

IMatch contains Import and Export modules (accessible via the IMPORT/EXPORT menu) that allow you to import pre-built schemas or to export your own schemas to be used with other applications or IMatch databases.

Exporting Property Database Schemas

Open the IMPORT/EXPORT MANAGER from the DATABASE menu and select the Export the property database as XML schema entry.

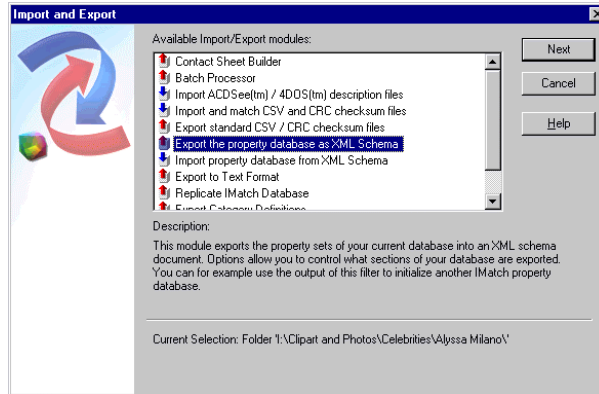


Figure 169: Exporting a property database schema

In the dialog box that opens, select an output file name and the type of data you want to export. You can either export the schema only or also include the data that is contained in your property database. If you want to export your Image property set, check the corresponding option.

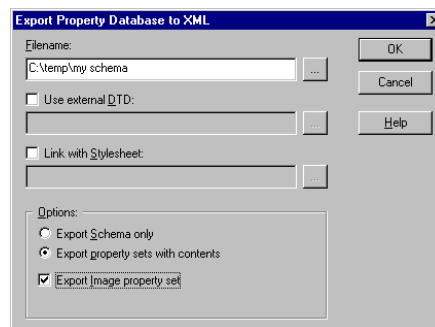


Figure 170: The Export dialog

Exporting the Schema only

This option will only export the database schema into the XML document. This allows you to load the schema into a new or existing IMatch database. No data (property set contents) is exported. All property sets in the target database will be empty.

Export property set with contents

IMatch will also export the data records contained in your property sets. If you load this schema into a new or existing database, the database will contain filled property sets. Use this option if you want to transfer a schema from one database to another, including the data records in the property sets.

Export Image property set

Since an IMatch database can contain a huge number of Image records, this option has been separated from the export of the other property sets. If you enable this option, IMatch will export the Image property set schema and the contents of the Image property set into the XML document. This allows you to re-import the schema and the image property set into a new or existing database. IMatch will use the file CRC or file name to match Image records in the XML document to your database. For each image that is contained in the schema and the database, the Image property record will be added to the target database.

Importing a Property Schema

Use the IMPORT/EXPORT MANAGER to start the IMPORT PROPERTY DATABASE FROM XML SCHEMA import module.

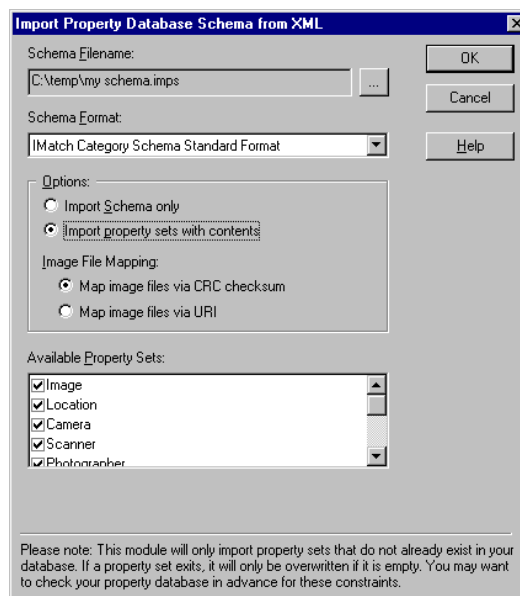


Figure 171: The Import dialog for XML schemas

Select the file you want to import. Select the format of the XML document you want to import. Currently there is only one schema supported.

After selecting a file, the list box at the bottom of the dialog will show you the property set schemas contained in the document. If you want to import only specific property set schemas, remove the check mark before the ones that should be skipped.

Several options give you further control about the import process:

Import Schema only	Enable this option if you want to import the schema information only. Even if the XML document contains property records, they will not be imported into your database.
Import...with contents	This option tells IMatch to import the schema and the data records contained in the XML document. This will automatically populate the imported property sets

Image File Mapping

When you import an Image property set from a schema file, IMatch needs to map the image records contained in the schema file to your current database. In the schema file, each image property set record contains the full file URI (file path, file name), the media label, the media serial number and the 32-Bit CRC checksum of the file.

This information allows IMatch to map the image property set records contained in the schema file to the file records contained in your database. The **fastest method** is mapping files via CRC. In this case, IMatch takes the CRC checksum and scans your database for images with the matching CRC. If such images are found, the Image property set in your database is updated with the records from the schema file.

If you have **modified some files** in the target database, the checksum match **will fail**. If you know that you have manipulated images, you can enable the match method that works on URI basis. In this case, IMatch loads only image records from the schema file that have a file with a matching URI in the target database.

Note When you load an schema with an Image property set, IMatch can only map Image records to files in your database that have the same checksum or files that are stored at the same location as the files that have been used to build the schema. If you move files around on your disks or you manipulate files, you will not be able to import the image property set from a XML schema! There is no way for IMatch to map files when they have been manipulated or moved.

This only applies to Image property set records. All other property sets can be imported successfully into any other IMatch database.

Importing Schemas into non-empty databases

If you import a schema into a non-empty database, IMatch will import only property sets that are not already in the database or that are empty (have no properties).

IMatch will not update existing property sets to match the XML schema nor will it add/remove properties from existing property sets.

If you want to replace the property sets in your database, remove them before trying to load a new property schema from an external file.

If you import a property schema that contains data records, IMatch will import the data from the schema file into your database under two conditions:

- 1) The property sets do not exist (IMatch will create them automatically)
- 2) The existing property sets exactly match the property sets in the schema file

IMatch does not check for duplicate records during schema import. If your existing database already contains records that are also in the schema file, these records **will be duplicated**.

Keep that in mind before you import a schema file.

IMatch DTD Version 3

The current IMatch DTD is described below. For the most recent version of this DTD, please refer to the IMPROPERTYDB.DTD file in your IMatch installation folder.

```
<?xml version="1.0" encoding="UTF-16"?>
<!ELEMENT IMatchPropertyDB (Version,Description,Schema,Data*)>
<!ELEMENT Version (#PCDATA)>
<!ELEMENT Description (#PCDATA)>
<!ELEMENT Schema (PropertySet)+>
<!ELEMENT PropertySet (Name, Description, Property+)>
<!ATTLIST PropertySet PSOID ID #REQUIRED>
<!ELEMENT Name (#PCDATA)>
<!ELEMENT Property (Name,CurrencySymbol*,Default)>
<!ATTLIST Property dt (null | string | int | ui4 | i8 | ui8 | float |
date.iso8601 | time.iso8601 | bit | imcurrency | uri | imreference)
#REQUIRED
POID ID #REQUIRED
PropertySetRef IDREF #IMPLIED
PropertyRef IDREF #IMPLIED>
<!ELEMENT Default (#PCDATA)*>
<!ATTLIST Default TZ CDATA #IMPLIED OID CDATA #IMPLIED>
<!ELEMENT CodePage (#PCDATA)*>
<!ELEMENT CurrencySymbol (#PCDATA)*>
<!ELEMENT Data (Set)+>
<!ELEMENT Set (SName,Row*)>
<!ATTLIST Set PSOID IDREF #REQUIRED>
<!ELEMENT SName (#PCDATA)>
<!ELEMENT Row (URI*,CRC*,MID*,MSER*,Val*)>
<!ELEMENT URI (#PCDATA)>
<!ELEMENT CRC (#PCDATA)>
<!ELEMENT MID (#PCDATA)>
<!ELEMENT MSER (#PCDATA)>
<!ELEMENT Val (#PCDATA)>
<!ATTLIST Val CID CDATA #REQUIRED>
```

Note This DTD is subject to change as soon as the XML Schema standard is approved by the WC3 committee.

IPTC Import

Field Mappings

With *Field Mappings* you control which IPTC fields are imported into which properties in the Image Property Set of the current database. There are no fixed rules on what to import and where to store it. You can import all standard or user-defined IPTC fields or only selected fields that are of interest for you.

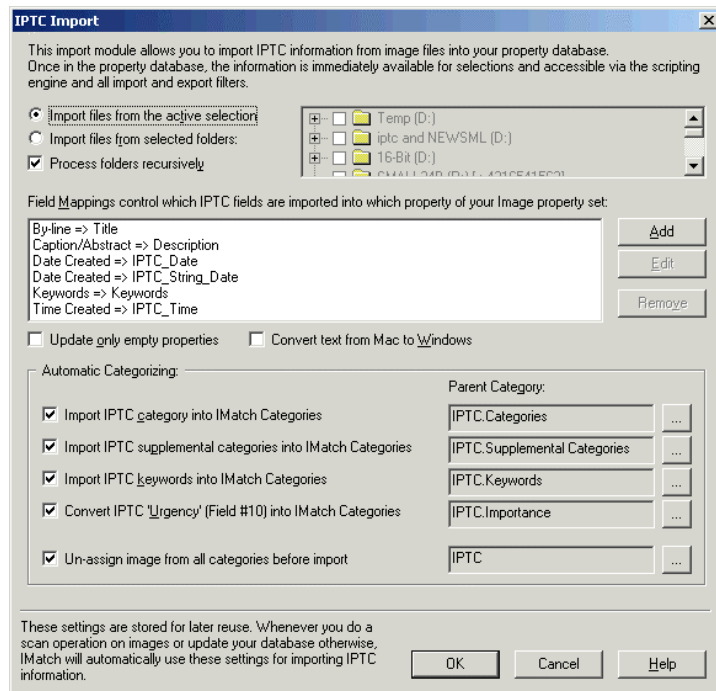


Figure 173: The IPTC Import Wizard

To import an IPTC field, create a mapping by clicking the ADD button. A second dialog box will open:

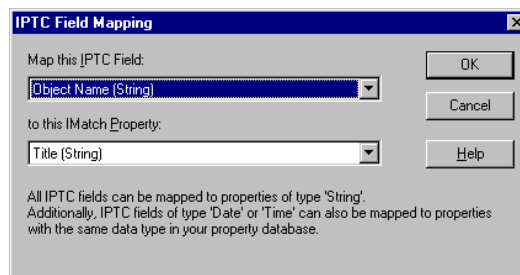


Figure 174: The Field Mapping dialog

There are two lists in this dialog: The upper list contains all IPTC field definitions from your IPTC configuration files (see section [IPTC Support](#)). The lower list contains all *String* properties from your Image Property Set. Currently, you can import IPTC information only into properties with the data type *String*.

To create a mapping, simply select the IPTC field to import in the upper list and the property to import to in the lower list. Click OK to close this dialog box and return to the IPTC Import Wizard.

You can add any number of field mappings. Remember, you have to do this only once, since IMatch saves these settings as long as your database exists.

Note Make sure that you don't use the same Image property more than once for your mappings. You may map the same IPTC field to different properties in your property database, but you can only import one IPTC field per property!

Automatic Categorizing

The IPTC standard specifies 4 field types that fit perfectly into the IMatch Dynamic Category Concept. These field types are

- *Category* (#15)
- *Supplemental Category* (#20)
- *Keywords* (#25)
- *Urgency* (#10)

The field *Urgency* has a special meaning for IMatch. See below for more information.

To use the information in these fields to create categories and to assign images during the Import, just check each of the fields you want to import. It is usually a good idea to check all four fields.

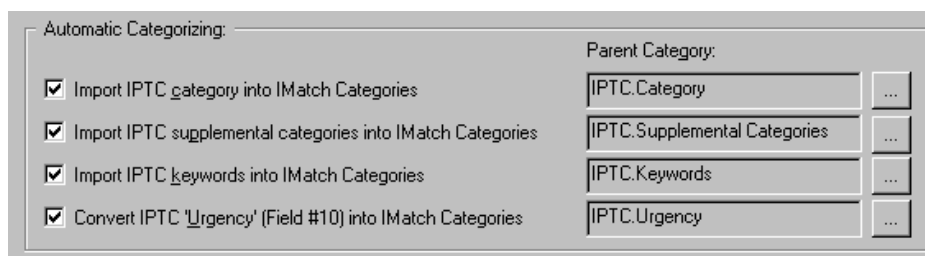


Figure 175: Categorizing Images based on IPTC fields

You can directly import these fields into categories below the @All category. Perhaps you prefer to create a new top-level category for easier handling. In the sample above, we have first created a category named IPTC in the CATEGORY VIEW. Below this category, we have created four categories for each of the four IPTC fields. We use these categories as the parent categories for the imported IPTC fields.

After the IPTC import has finished, your images will be contained in one or more categories. However, this all works if your images do contain valid information in at least one of these fields. After analyzing several thousand images with IPTC information, it has shown that most images at least contain some keywords, which is perfectly enough for IMatch to categorize them.

Un-assign images from all categories before import

This option allows you to remove imported images from all categories before they are assigned to categories based on the IPTC record in the image file.

If you remove a IPTC keyword from an image that has already been imported into your database, this image will not be removed from the category that corresponds with the keyword. You will have a mismatch between the keywords in the file and the related categories in your database.

If you enable this option, IMatch will remove the image from all categories, and then assign it to categories related to the keywords, categories and supplemental categories in the IPTC record.

If you have multiple hierarchies in your database, and you want to keep the category assignments of an image in some parts of the hierarchy, you can tell IMatch to remove the image only below a specific parent category.

Example

```
@All
|-- IPTC
|   |-- Keywords
|   |-- Categories
|   |-- Supplemental Categories
|   |-- Urgency
|-- Clients
    |-- Client A
    |-- Client B
    |-- ...
```

This example shows a hierarchy with two major parts: An IPTC-based hierarchy with child-categories for keywords and (IPTC-) categories and a *Clients* hierarchy. If you use similar hierarchies, you don't want to lose the assignments of images in the Client hierarchy. When you update your categories from IPTC information, you only want to synchronize the images below the IPTC category.

To tell IMatch to un-assign images only below a specific parent category, use the category selector field next to the UN-ASSIGN IMAGES FROM ALL CATEGORIES option in the IPTC Import Wizard. Per default, this parent is set to @All, so your images will be removed from all categories during an IPTC import.

Note As all settings in the IPTC Import Wizard, these definitions are saved automatically and reused whenever you do a folder rescan or One-click rescan.

The Urgency Category

IMatch treats the IPTC *Urgency* field somewhat special. The IPTC standard defines 9 different values for this field. All IPTC compatible applications must adhere to these 9 values. Possible values are 0 (*undefined, empty*), 1 (*High Urgency*), 2, 3, 4, 5 (*Medium Urgency*), 6, 7, and 8 (*Low Urgency*). This field is used to assign an urgency or priority to images and is used mainly in the *News wire* business and by *Press Agencies*.

If you enable the import for the *Urgency* field, IMatch first checks if the parent category that is selected for this field contains the 8 standard categories. These categories must be named accordingly to the schema described above. If one or more of these categories don't exist, IMatch creates them. The Categories 1, 5, and 8 get an automatic **Color Coding** (see section **Color-Coding Categories Error! Bookmark not defined.**) as it is used by many other applications.

During the import, IMatch automatically assigns your images to these Urgency categories based on the corresponding IPTC field. Images without an Urgency value or with an urgency value of 0 are not assigned.

Since IMatch uses Color Coding for these categories, you will immediately *see* the different image priorities in the thumbnail windows. You need to enable Color Coding under OPTIONS\PREFERENCES.

Importing "dot-notation"

If you have IPTC categories like "A.B" or "Beach.South", IMatch will now import these categories, creating appropriate sub-categories on the fly.

Other Settings

There are some advanced settings that control various aspects of the import process.

Update only empty properties

If you check this option, IMatch will only import IPTC into empty properties in your Image Property set.

Convert text from Mac to Windows

When you check this option (Windows NT, Windows 2000 and newer versions only) IMatch will automatically convert all textual content of your IPTC data sets into the Windows ANSI character set. It depends on the source of your images if you need to check this option. If you view the IPTC information in the IPTC Editor or the IPTC Quick Display and it looks somewhat strange (especially if you use "Umlauts"), you should enable this option.

Important There is no way for IMatch to tell whether or not the IPTC fields are in Macintosh or Windows character set. Be careful with this option, since converting text already in Windows ANSI will result in unwanted results.

If you have converted Windows ANSI text by accident, just run the IPTC Import wizard again, this time with unchecked CONVERT TEXT FROM MAC TO WINDOWS. Also uncheck the UPDATE ONLY EMPTY PROPERTIES option. This will restore the correct contents in your property database.

EXIF Import

Importing ACDSee(TM) and JPSoft's 4DOS/4NT(TM) Description Files

Importing ACDSee(TM) and JPSoft's 4DOS/4NT(TM) Description Files

If you use ACDSee® you probably also used the description feature of this fine application to add descriptions to your image collection. These descriptions can now be easily imported into your IMatch database.

If you use the description feature, ACDSee will create and maintain a file with the name *description* in each folder you access with ACDSee. This file contains the comments you enter for individual images. Each comment can be up to 3800 characters long. Carriage returns and line feeds are not supported.

IMatch can import these descriptions and populate one of the text properties of your image property set with the information from the ACDSee comments.

To access the ACDSee import filter, choose the IMPORT AND EXPORT command from the DATABASE menu. In the dialog box, select IMPORT ACDSEE / 4DOS DESCRIPTION FILES. A dialog box appears that presents the available options for this specialized filter.

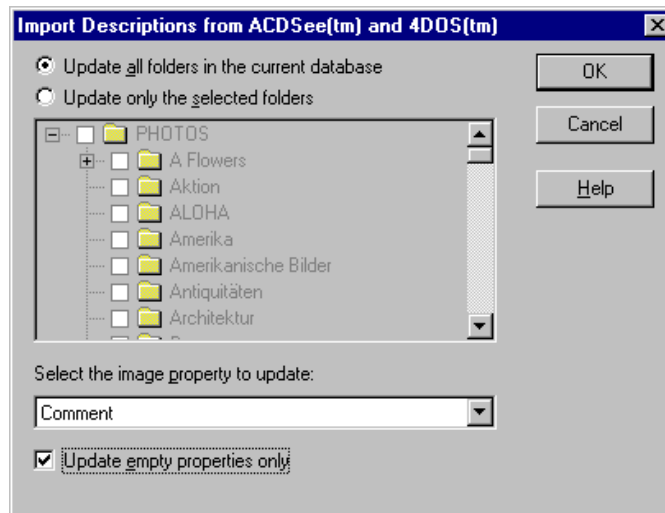


Figure 177: The ACDSee import file dialog box

You can choose to update all folders or only selected folders of your current database. If you choose the option UPDATE ALL FOLDERS IN THE CURRENT DATABASE IMatch will scan all folders in your current database for ACDSee description files. If such a file is found, IMatch opens it and imports the descriptions contained in the file into the database. If you select specific folders, IMatch will only consider these folders during the scan.

In the combo box below the tree control you can select which property you want to update. IMatch will only update text (String) properties of your IMAGE PROPERTY SET with ACDSee comments.

If you want to make sure that IMatch does not overwrite existing content of the selected property, check the UPDATE EMPTY PROPERTIES ONLY check box. If you don't check this box, IMatch will **replace** existing content in your image property set with the comments from the ACDSee description file.

If the ACDSee description file contains no comments for a given file, IMatch leaves the current contents of the image property set untouched.

Matching and Creating CSV / CRC files

Matching and Creating CSV / CRC files

CSV and CRC files are text files that describe an image series or a group of images. For each file in the series, there is one line of text in the file. Each line contains the file name of the image, a 32-Bit CRC checksum and optionally additional information.

If you share your image collection with others, these files are very handsome to describe all contents of an image series so others can check if they're missing some of the images in the series. On the other hand, if you're looking for images from a series, you can produce a *missing image* or *negative CSV/CRC* file and publish it. Other persons can load these files into IMatch and check if they have one or more of the missing images.

This match method only finds files with the same 32-Bit checksum or the same file name as contained in the CSV / CRC files. Don't compare this rather simplistic approach with the powerful and intelligent matching methods built into IMatch!

Creating a Standard CRC / CSV file

Select the folder, category or images you want to be contained in the file. Then run the EXPORT STANDARD CSV / CRC CHECKSUM FILES module from the IMPORT AND EXPORT dialog box accessible via the DATABASE menu.

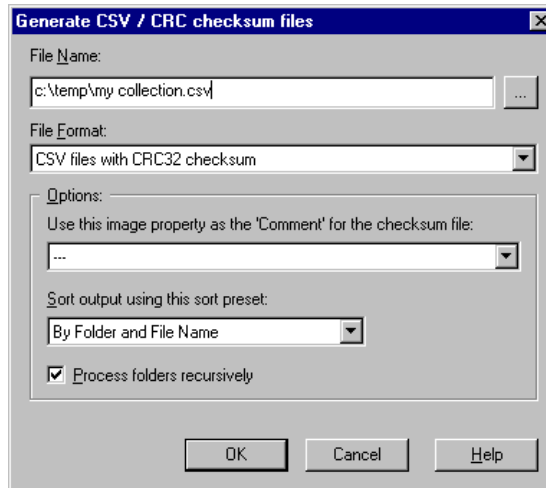


Figure 178: Generating CSV / CRC files

Enter a FILE NAME or browse for a file. Select one of the three supported file formats:

- | | |
|--|--|
| CSV files with CRC32 checksum | this is the most common format today. It contains the file name, a checksum and optionally a comment for each file |
| CSV files with CRC32 checksum in ECSV format | this format is basically the same as the normal CSV format, but it contains additional path information for each file |
| CRC files | this format is also commonly used. It contains the same information as CSV files, but with a slightly different format |

If you want to export comments to your CSV / CRC files, select an image property from the list. IMatch will retrieve the contents of this property for each exported image and add it to the generated file.

Select the sort preset you want to use to sort the images that are exported to the file.

If your selection is based on a folder, and you want to process this folder and all its sub-folders recursively, make sure that the PROCESS FOLDERS RECURSIVELY option is checked. That's all. By pressing OK you start the CSV / CRC file generation process.

The files created with IMatch are compatible to all utilities and application that support the Standard CSV / CRC file format.

Importing and matching CSV / CRC files

If you get a CSV / CRC file and you want to compare it with your IMatch database, select the IMPORT AND MATCH CSV AND CRC CHECKSUM FILES module from the Import Export dialog.

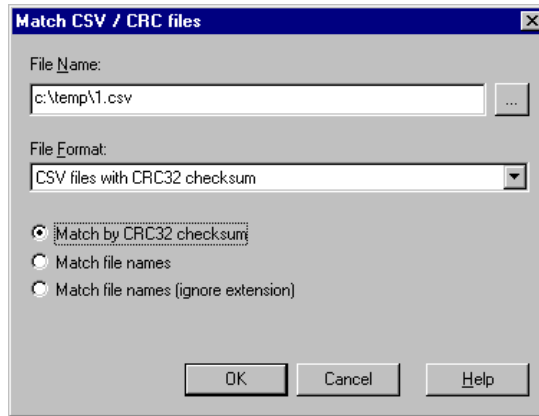


Figure 179: Importing CSV / CRC files

Select a file name. The FILE FORMAT control will automatically switch to the correct file format if the file you selected has one of the standard extensions .CSV or .CRC. If not, select the correct file format from the list of available options.

With MATCH BY CRC32 CHECKSUM, IMatch will compare the checksums contained in the file with all images in your database. If you choose MATCH FILE NAMES or MATCH FILE NAMES (IGNORE EXTENSION) IMatch will only consider the file names contained in the file.

Press OK to run the start the import process. After a couple of seconds IMatch will display a special window with the results of the process:

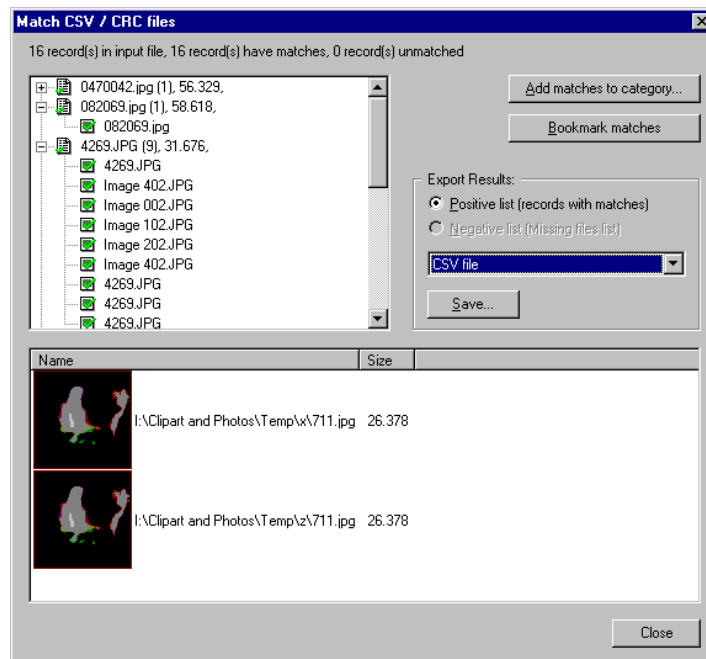


Figure 180: The result window for a CSV / CRC import operation.
The selected file has two hits in the current database.

This special window presents the results of your match. From here you can either add all matches to a category for later inspection or create bookmarks for all matches for later inspection.

You may also create a positive ("I have") or negative ("I'm missing") CRC / CSV file from the results. This file then can be posted or sent to a friend.

Importing and Exporting Category Schemas

Importing and Exporting Category Schemas

A category schema contains all information about category definitions of an IMatch database, including the comments and the formulas used for dynamic categories.

IMatch allows you to import and export your categories via the IMPORT/EXPORT menu. Two specialized modules are available for importing and exporting category schemas.

Importing a Category Schema

To import an existing category schema use the IMPORT CATEGORY DEFINITIONS filter from the DATABASE/IMPORT AND EXPORT menu.

In the dialog box, select the name of the file to import and the format of that file. Currently there is only one format supported for category schemas.

Note Category schema files have the file extension **.imcs**, for IMatch Category Schema.

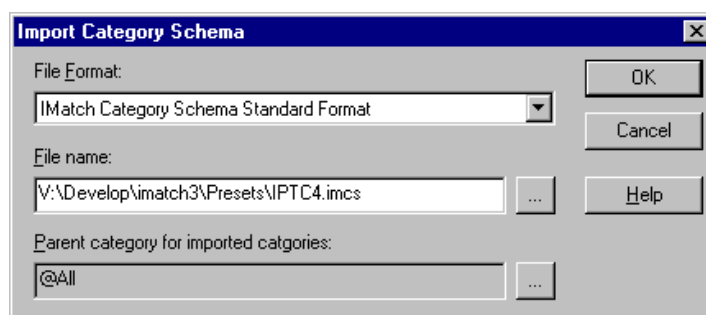


Figure 181: Importing a category schema

Per default, new category schemas are imported below the special *@All* category. If you want a different category to become the parent category of the imported categories, select one by clicking the browse button on the left of the PARENT CATEGORY... control.

To start the process, press the OK button. After a couple of seconds, depending on the size of the schema, the import is complete and the categories are available in the CATEGORY VIEWER.

Note If the category schema contains formulas that refer to folders or persistent result sets, the import module will automatically remove these formulas if the corresponding folders or result sets don't exist in the current database.

Exporting a Category Schema

You can also export one or more of your categories to a category schema file. You then can re-import that schema into new or existing databases or exchange the schema with friends or customers.

To export one or more of your categories, run the EXPORT CATEGORY DEFINITIONS filter from the DATABASE/IMPORT AND EXPORT menu.

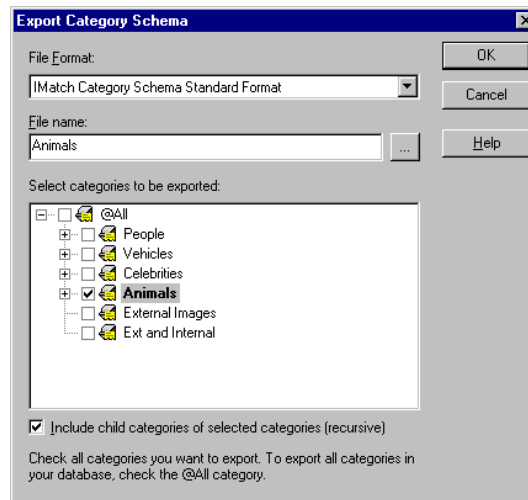


Figure 182: Exporting categories to a schema file

Chose a format for your file and enter a file name. You may also select an existing file to replace it with a new schema.

In the category tree, select one or more of your categories. If you want to export all child-categories of the selected category, make sure that the check box INCLUDE CHILD CATEGORIES... is checked. To export all of your categories, simply check the @All category.

Press OK to start the process.

Smart Rename

The Smart Rename Mask

You tell IMatch what you want to do with your file names using a **mask statement**. The mask statement is simply a string with some special characters (tokens). These tokens are:

This character represents the original file name

A mask like "*" will simply leave the original file name as it is. You can combine this token with other tokens or characters to extend the original file name.

This character represents one character of the original file name. The position of this character within the mask maps to the position of the respective character in the file name

Indicates an auto-number series. You can use up to 10 # tokens in your mask. The number of # tokens controls the number of digits in the resulting auto-number series.

Indicates the beginning of a string (text) replacement token. A string replacement token consists of two parts and three / tokens. The format for a string replacement token is

```
<Old Text>/<Replacement Text>/
```

```
/This/That/
```

This string replacement token will replace all occurrences of *This* with the text *That*.

```
/image/img/
```

This token will replace all occurrences of *image* in the file names with the shorter *img*.

```
/My image//
```

This token will replace all occurrences of *My image* with "*nothing*", thus totally removing this string from the file name.

All other characters in your mask are treated as literal (normal) characters

Examples

Mask	Description
*###	Creates an auto-numbering series with at least three digits. IMatch will format the numbering with leading zeros. File names like "bear.jpg" or "cat.wmf" will be transformed into "bear001.jpg", "cat002.wmf"
Animals ###	Transforms "bear.jpg" and "cat.wmf" into "Animals 001.jpg" and "Animals 002.wmf"
???####	This mask copies over the three first characters of the file name into the resulting file name and adds a 4-digit auto-numbering series:

	"Beach.jpg", "beachaa-00.jpg" will result in "Bea0001.jpg" and "bea0002.jpg".
Car-????-###	This mask creates file names starting with <i>Car</i> , followed by a – sign. Then the first 4 characters of the original file name are copied, followed by a – and a 3-digit number: "porsche.jpg", "bmw.jpg" will be transformed into "Car-pors-001.jpg" and "Car-bmw-002.jpg"
/Image/Img/*	This mask will replace all occurrences of <i>Image</i> with <i>Img</i> and then take over the entire file name: "Image001.jpg", "Imagea.jpg" will result in "Img001.jpg" and "Imga.jpg".
/%20/ /*	This replacement token will translate all %20 (HTML code for <i>Space</i>) into a space characters: "My%20image%20is%20nice.jpg" will be transformed to "My image is nice.jpg"
//*	This mask will remove all blanks from the file names, leaving other characters untouched
??#####	This mask produces 8.3 file names compatible with older computers or software that can handle only DOS-like file names

The Smart Rename function automatically clean the original file name when it contains numbers or other characters that may affect the renumbering or masking.

IMatch will also make sure that each file name produced based on a transformation is unique. If your mask results in duplicate file names, IMatch will warn you and will not rename the files on disk.

Other Options

You can chance the start number of auto-numbering series and the increment with the two combo boxes located below the mask edit field (see Figure 111).

With the Sort Preset combo box you can use any of your sort profiles to initially sort your images. IMatch will automatically reapply the mask when you choose different sort orders.

If this is not enough, you can **manually resort** individual files with the two buttons on the right of the preview list.

To help you to find the correct sort order, you have the option so view the thumbnail images for the files to be renamed. This helps a lot when you want to create a special sort order before renaming.

Using Variables

IMatch allows you to use variables for renaming operations. This enables you to rename your images based on image attributes like date/time, size, width or height. **You can also use IPTC or EXIF fields to rename your images.**

Tip Please refer to section [Variables](#) for more information about variables.

For example, using a mask like *{Image.EXIF.Date and time}###* you can use the EXIF date/time information to create unique file names.

Slide Show

Slide Show

The Slide Show in IMatch allows you to quickly browse through the files in your database, using your current selection, a folder or an entire category. Depending on your current selection (*Folder, Category, Bookmarks, selected Thumbnails*) the slide show displays all images in a sequential fashion, in a full-screen window.

Tip You can use the slide show as a full-screen view for your images.

You can modify the slide show options, like background color, delay and mode via the OPTIONS / PREFERENCES menu (see [Slide Show Settings](#)).

During a slide show, there are several keyboard and mouse commands available. By clicking the right mouse button somewhere on the image, you open the **context menu** for the slide show. It contains all commands, and also describes the keyboard shortcuts available.

Tip Use the context menu of the slide show to execute command unless you memorize the shortcut keys

Slide Show Keyboard Shortcuts

Left mouse button Proceed to the next image in the sequence. If you run a random slide show, a random image will be selected automatically

The left mouse button is also used to pan a zoomed image

<SPACE> Proceed to the next image in the sequence.

If you are in rectangular zoom mode (see **<R>** below), holding down the **<SPACE>** key will allow you to pan your image

Right mouse button	Open the context menu.
<ESC> key	Abort the slide show
<X>	Abort the slide show
Mouse Wheel	Proceed to the next or previous image in the sequence. Depending on the scroll direction, the next or previous image in the sequence will be shown
<Ctrl>+<Mouse Wheel>	Zoom in and out. Use <Ctrl>+<Left Mouse button> to go back to 100%. You may also use <Z> to toggle back to original size or "fit to screen" mode
<+> And <-> keys	Previous or next image in the sequence
<Ctrl> and <+> or <->	Zoom the current image in and out
<Cursor left>/<Cursor right>	Previous or next image in the sequence
<Numpad 4>/<Numpad 6>	Previous or next image in the sequence
<Home>	First image
<End>	Last image
<Numpad 8>	First image

<Numpad 2>	Last image
<Numpad 5>	Pause an automatic slide show
<P> / <Pause>	Pause an automatic slide show
<G>	Go to folder
	Bookmark image
	Delete the current image – with prompt
<Shift>+	Delete the current image – no prompt
<Z>	Toggles between original image size (<i>100% view</i>) and " <i>fit to screen mode</i> "
<R>	Toggle rectangular zoom mode. If rectangular zoom mode is on, you can select a rectangular area of the image to zoom in. If you press <R> while the image is in <i>fit to screen</i> mode, IMatch will automatically switch into the 100% view
<I>	Toggle the information window and toolbar on and off

If you don't enable the automatic loop feature for the slide show, the slide show will end with the last image in the sequence. To run the slide show forever, enable the loop settings under the OPTIONS menu.

Slide Show Preferences

The slide show will use the file format preferences set in OPTIONS (see section [File Format Preferences](#)) to determine the file size to load for PhotoCD, FlashPix and JBIG files.

The slide show preferences also control whether or not the slide show uses off-line cache images, or preview images for certain file formats.

If you select a folder or a category for your slide show, the sort preset *Standard* will be used. If you select some images in a thumbnail viewer, the sort preset of the thumbnail viewer will also be used for the Slide Show.

Tip If you want a full-screen preview in the slide show, go to Options/Preferences/Slide Show and enable USE ORIGINAL IMAGE SIZE. Then disable the info window display (Remove the check mark before SHOW IMAGE INFORMATION). This leaves the slide show maximum room for the image, and displays the image in full size. If the image is larger than the available screen space, you can move the image on screen by holding down the left mouse button.

Hyperlinks

The slide show also supports **hyperlinks**, which means that you can always end the slide show and jump to the currently displayed image in the database view by clicking somewhere in the text area at the lower half of the slide show window. If you move your mouse into this area, the cursor shape will change to a pointing hand.

Toolbar

IMatch displays a small toolbar in the lower right corner of the slide show window, with the most frequently used commands: FIRST IMAGE, LAST IMAGE, PREVIOUS IMAGE, NEXT IMAGE and PAUSE.

Off-line Cache Images

If your images are off-line, the slide show will automatically use the images stored in the Off-Line Cache (see also section [The Off-line Cache](#)). You can also enable that the slide show always uses the images in the off-line cache under **OPTIONS/PREFERENCES/SLIDE SHOW**. This may be convenient when your images are very large, or stored on slow removable media.

Zooming

You can zoom the current image by holding down the <Ctrl> key and then using the mouse wheel. You can also use the <Ctrl> key together with the <+> and <-> keys to zoom the current image.

Panning

If you view an image in original size, or in a zoomed state, you can pan the image on screen by holding down the left mouse button and then moving the mouse.

If you are in **rectangular zoom mode**, you can pan the image by holding down the <SPACE> key.

IPTC Support

Thumbnail Property Window

The thumbnail property window in allows you to view additional properties and attributes of the selected image(s).

To view the thumbnail window, check the corresponding button in the local toolbar of the thumbnail window or press <Ctrl>+<5>.



Figure 97: The Property Window toolbar button

The property window contains four tabs: *Properties*, *IPTC*, *EXIF* and *Categories*. By clicking on one of these tabs you switch between different display modes in the property window.

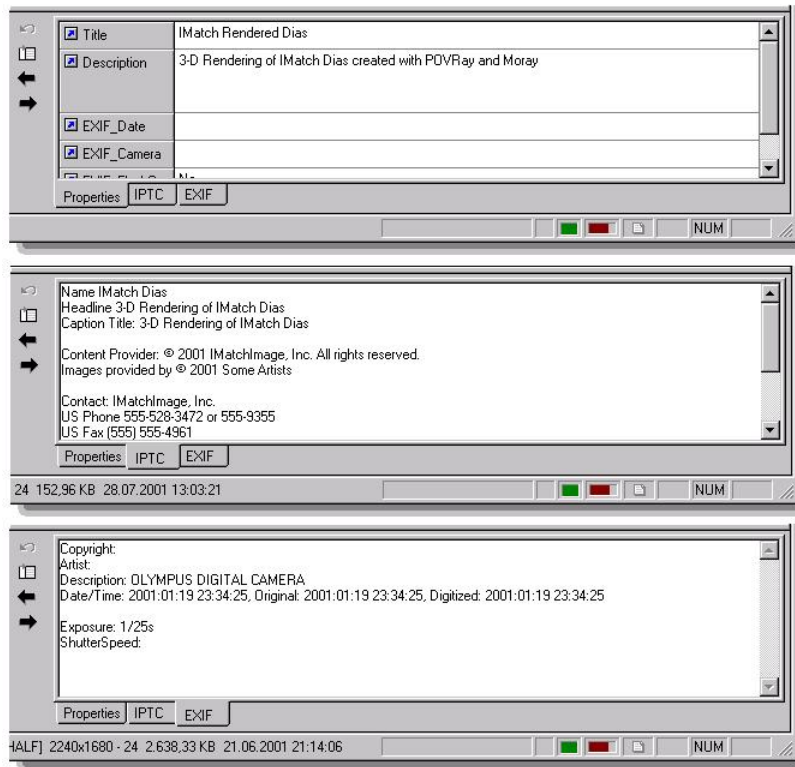


Figure 98: The three display modes for the property window (*categories hidden*)

The *Property* display shows the contents of your Image property set.

The *IPTC Quick Display* shows the IPTC fields contained in the selected image (if any). If the file format of the selected image is in a format that does not support IPTC data, the Quick Display will be disabled.

The *EXIF Quick Display* shows the EXIF metadata fields contained in the selected image (if any). If the selected file does not contain EXIF information, this display will be disabled. See section [EXIF Metadata Support](#) for more information about EXIF.

The *Categories Display* shows the categories of the selected image. If there is more than one image selected, the categories list displays categories in different styles to differentiate between categories valid to all images, and categories matching only some of the selected images. Use the **context menu** for more commands

You can control what information is displayed in the Quick Display via the EXIF/IPTC settings tab under **OPTIONS\PREFERENCES**.

The Category Display

The category display in the thumbnail property allows you to review and edit categories for the currently selected image(es).

With you can un-assign the selected images from the current category in the category display.

With the right mouse button and the context menu you can easily open the [Category Assignment](#) dialog, or jump right to the selected category in the [Category View](#).

The IPTC Editor

The IMatch IPTC Editor

The IMatch IPTC Editor is a full-fledged and feature-rich IPTC editing feature. It supports single file updates and batch updated (multi-file) updates of any number of selected images.

The IPTC Editor supports several **thesauri**, which allows you to save typing by selecting *comments, annotations, keywords, categories* and the like directly from a thesaurus without the need to re-enter information.

Via IPTC **presets** you can save frequently used IPTC comments for later retrieval. Such a preset contains values for all or selected IPTC fields. Loading a preset and thus updating all IPTC fields of one or more fields is a matter of seconds. You can then enter information which is unique to the current image and press the Save button.

One of the unique features in the IMatch IPTC Editor are *synonyms*. With the help of synonyms you can add keywords for multiple languages with a single mouse click, or add variations of the same keyword by selecting the root keyword.

For example, adding the keywords "Woman", "Female", "Girl" and the German translations "Frau", "Weiblich" and "Mädchen" can be done with a single mouse click!

Tip Take your time. Check out all the options available in the IPTC Editor. Learn how to fill and use the thesauri and the synonym lists. You will soon see that you can add and edit IPTC information even for hundreds of images easier than ever.

The IPTC Editor User Interface

The IMatch IPTC Editor is accessible from all thumbnail windows via the context menu, the IPTC button or the keyboard shortcut <Ctrl>+<F11>. Select one or more images you want to edit and then open the IPTC Editor.

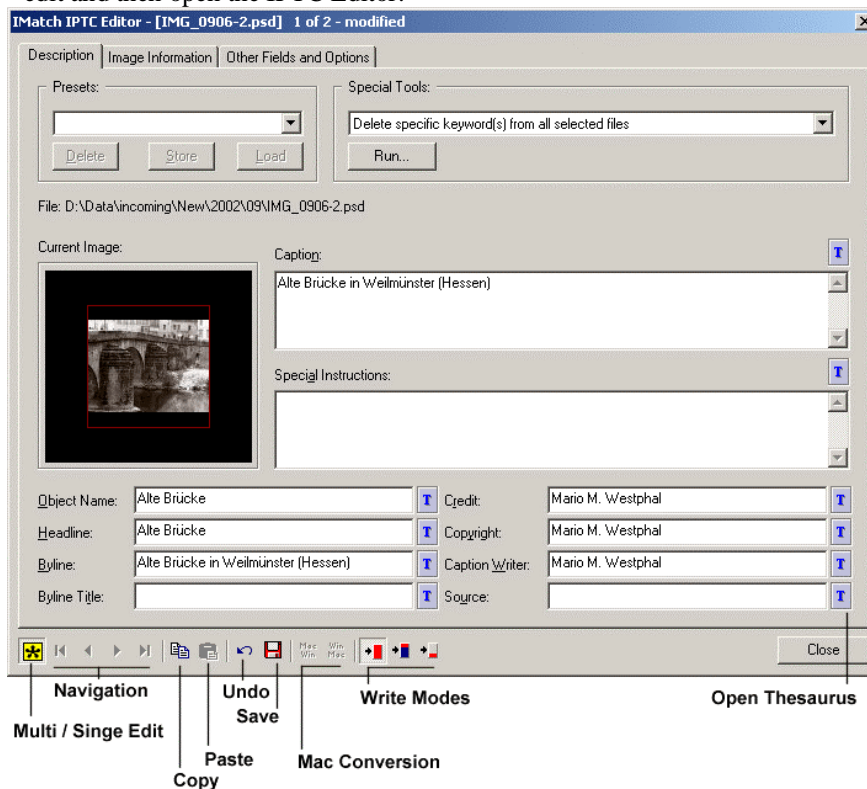


Figure 99: The IPTC Editor

The IPTC Editor consists of three *panes*:

- The first tab is entitled *Description* and contains the more general information items from IPTC.
- The second tab *Image Information* contains captions, keywords, date and time values and location information.
- The third pane contains *custom* (non-standard) IPTC fields and allows you to control the operation of the IPTC editor when you handle multiple files at once.

Editing single and multiple files

The IPTC editor allows you to edit individual images. In this scenario, you simply select the image you want to edit in a thumbnail window, enter your information into the IPTC editor, and then press the SAVE and CLOSE buttons, or just the CLOSE button.

When you hit CLOSE after you have modified the IPTC data of an image, the IPTC editor will prompt you to save or discard your changes.

Tip: The caption bar (window title) of the IPTC editor displays the text **modified** when the currently selected image has been modified.

To edit multiple images at once, select all images you want to process in a thumbnail window, and then start the IPTC editor.

In the IPTC editor, there is always a **current image**, or **template image**. This is the image *currently selected*. The information of this image is displayed in the editor, and the thumbnail of the image is shown on the first pane.



With the multi-image and single-image button at the bottom of the IPTC editor you can control whether your changes are written to *all selected images* or only to the *current image*.

If the button is pressed, IMatch will write the fields displayed for the current image **to all selected images**. If the button is depressed, IMatch works only on the current image.

The multi-image is a great tool to add IPTC captions to a unlimited number of images at once. For example, when you want to add your copyright information, agency code or similar information to all your new images, you should enter this information for the first image, and then press the multi/single button before you press SAVE.

Tip: The caption bar of the IPTC editor shows the number of selected images, and the number and file name of the current image

You then can switch back to the single image mode, and add information to individual images.

Switching between the multi-image and single-image mode allows you to add information in batch to all selected images, and to add specific information to individual images.

Undo: You can undo your changes to the current image at any time by pressing the UNDO button in the toolbar at the bottom of the IPTC editor. Once the information has been written, Undo will be disabled.

Multi-image Options

You can control the write mode of the IPTC editor on the third pane. These options give you maximum control on how new information is written back to your images, and how it is merged with existing IPTC information.

Note: You can also control the write mode using the three write mode toolbar buttons.

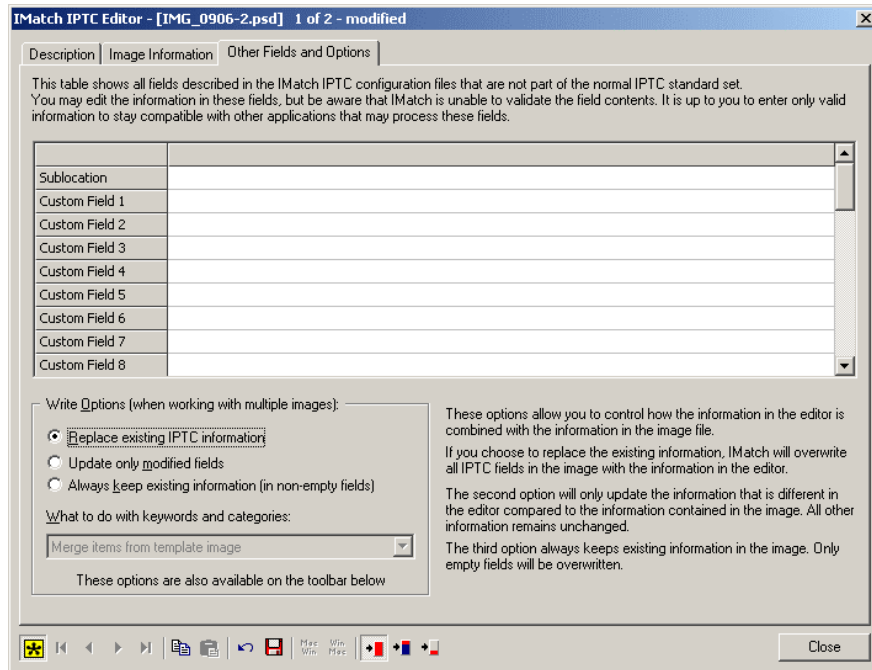


Figure 100: Other Fields and Options

These options are only valid for the **multi-image** mode. When you edit an individual image, the information is written back into the image as displayed in the editor.

- **Replace existing IPTC information**
This mode will replace existing information in the IPTC record of your images with the information from the IPTC editor. *What you see in the editor will be written back to all currently selected images.*
- **Update only modified fields**
This mode will update only modified fields. *Only fields modified in the editor will be written back into all selected files.*
For example, you change the *Caption* field of the current image and then press SAVE. IMatch knows that you have only changed the *Caption* field, and will write back this field only to all selected images.
This mode allows you to update specific fields in your IPTC information without changing other fields.
- **Always keep existing information in non-empty fields**
This mode is rather special, but may come handy at some occasions. IMatch will update only IPTC fields, which are empty in the image files, and will replace these empty fields with the IPTC information visible in the editor.
This mode allows you to fill in new information into images, but only if the images don't already have information in these fields.

Updating Keywords and Categories

You have also advanced control about how keywords and categories are updated when you write IPTC information. This is important when you work with multiple files at once.

- **No modifications**
Existing keywords and categories are not modified

- **Replace existing items**
Keywords and categories are replaced with the keywords and categories from the current (template) image
- **Merge items from template image**
This mode merges the keywords and categories from the current image with the existing keywords and categories. This mode allows you to *add keywords and categories* to existing IPTC fields.

Forcing updates of keywords and supplemental categories

Per default, keywords and supplemental categories will only be updated (depending on the write mode) if they have been modified in the template image – by adding or removing a keyword or supplemental category.

But what if you only want to merge the keywords from the current template image with the keywords already existing in your images? For this special case the IPTC editor allows you to **force an update** of keywords and categories by checking the corresponding check boxes on the *Keywords* pane. Check one of these boxes to force the IPTC editor to update existing keywords in your images. The keyword/category mode on the third tab of the editor controls if existing keywords are replaced, or merged. See above for more information.

Examples

The following table lists the outcome for various combinations and keywords. It is assumed that **Image A** is currently visible in the editor (the *template* image) and that the **Image B** is updated.

Image A	Image B	Write Mode	Image B after the write operation
A, B	A, C, D	No modifications	C, D
A, B	A, C, D	Replace existing	A, B
A, B	A, C, D	Merge Items	A, B, C, D

A, B, C, and D are keywords

Managing Thesauri

For each suitable IPTC field, IMatch allows you to use a *thesaurus*. A thesaurus contains a list of predefined texts that can be used to fill the contents of a field.

Each IPTC field that is linked to a thesaurus has an accompanying thesaurus button next to the edit control or list box. To access the contents of the thesaurus, click on the button to open the Thesaurus Manager.

Tip Thesauri allow you to save typing by storing frequently used keywords, comments and other text for later reuse.

The Thesaurus Manager displays a list of all 'words' or strings currently in the thesaurus. To use any of these entries, simply double-click on it or press OK. To add a new entry, type the new text in the edit field at the bottom of the dialog and then click on ADD.

To change the contents of an existing entry, select the entry in the list box, change the text in the edit field at the bottom and click on UPDATE.

To remove an entry from the thesaurus, select the entry in the list at the top and click on the DELETE button.

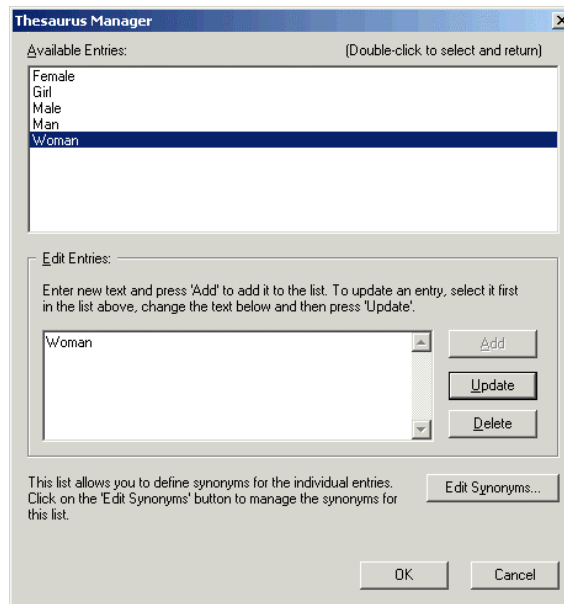


Figure 101: The Thesaurus Manager

You can use these thesauri to store frequently used texts and other snippets to avoid typing. You can also use thesauri to setup as list of standard texts, copyright strings, or keywords for in-house use and standardization. The thesauri information is stored in a file named **imiptcusr.dat** in your personal folder (e.g. `\Windows\Profiles\\photools.com\IMatch` or in `\Documents and Settings\photools.com\IMatch`).

Tip To distribute or exchange thesauri between different computers and/or users simply copy this file to the other system. This allows you to establish a standard repository or keywords, comments and categories to be used within your company or user circle.

Using Synonyms

Synonyms allow you to associate IPTC keywords with other words, terms or the same keywords in another language. You can also use synonyms to create variations or derivatives of the same keyword or category.

For example, you associate the word *Woman* with several other keywords: *Girl*, *Female*, *Frau* and the German *Weiblich* using the Synonym Editor in IMatch:

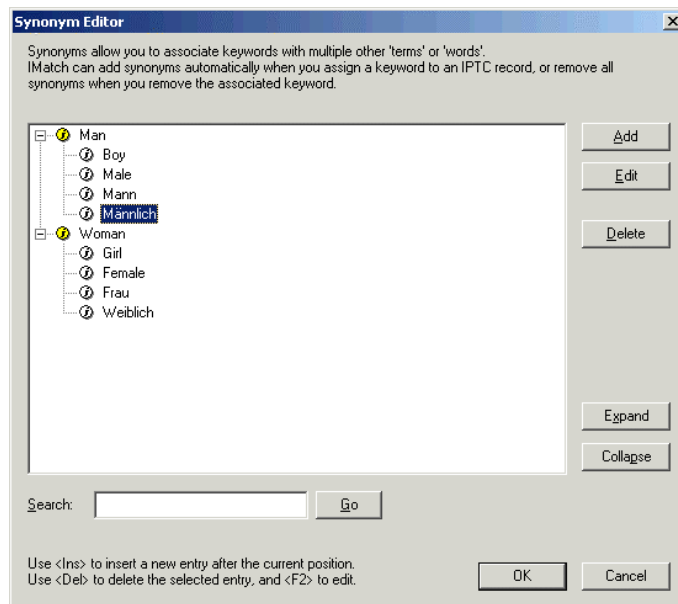


Figure 102: The synonym editor

If you insert the keyword *Woman* in one of your files, IMatch automatically adds the synonyms *Girl*, *Female* and the translations *Frau* and *Weiblich* for you. Once you have defined your synonyms, you can automatically translate your keywords into other languages, and you can add all synonyms for better indexing and searching.

How to take over information from your images

If you want to add the contents of one or more fields currently visible in the IPTC editor to your thesaurus, just open the thesaurus. The contents of the current field are automatically selected in the edit field at the bottom of the dialog. Just press ADD to add it to the list.

For the SUPPLEMENTAL CATEGORIES and KEYWORDS lists you can add the currently selected entry to the thesaurus using the ADD TO THESAURUS button or by double-clicking on an entry in the list. This makes it very easy to fill your thesaurus from the keywords and categories already contained in your images.

To **add all keywords** from the current file to the thesaurus, click the corresponding button next to the keyword list.

To take over a single keyword or category, just double-click the item in the keyword or category list.

Tip To initially fill your thesauri from existing IPTC information in your images, you can use the special tool on the first pane of the IPTC editor. This tool scans your images for keywords and categories, and fills the corresponding thesauri in IMatch.

General Information

Standard - What Standard?

After analyzing the structure of the IPTC information and how it is handled by different applications it has been found that there seems to be no real standard on how to embed IPTC information into JPEG and TIFF files. The IPTC standard only describes the structure of the various information items contained in an IPTC block, but not how this information is to be embedded into an image file.

Over the years, several formats have been used by different applications to embed IPTC information into images. There is a good chance that one application can read an IPTC block without problems, while another application completely fails to even recognize the embedded information.

Great care has been taken to make IMatch compatible with a variety of formats found in digital images today. IMatch reads and understands 5 different IPTC formats found in JPEG and TIFF files. It also recognizes a variety of other IPTC formats found in other file formats.

IMatch itself always writes IPTC information compatible with most applications available on the market today. The IPTC information written by IMatch is also fully compatible with **Adobe Photoshop™** and other Adobe products

Note IMatch conserves IPTC information when you edit an image with the IMatch Image Editor. No IPTC information is lost during a load, edit, and save cycle.

Where does the IPTC information come from?

IPTC information can be added manually with application like IMatch. Photographers and digital artists often use IPTC information to add copyright information or other items to digital images. When you work for the press business, most wire services accept only images with embedded IPTC information.

Image Archives often use IPTC information to build image catalogues and to associate all types of information with digital images.

Modern Digital Cameras and Scanners also add IPTC information to images.

Stock Photo Agencies also use IPTC information to associate copyright and usage information to images.

Handling Non-standard fields

Besides the official IPTC fields there exist a variety of other field types. Many digital image management and thumbnailing applications use application-specific fields to store additional data in images. Most vendors of digital cameras also extend the official IPTC standard with their own field types to add information with images. The same is also true for applications that come with scanners and other imaging hardware.

IMatch takes a unique approach to handle these vendor- or application-specific field types. Unlike most other applications, IMatch allows you to define, edit and update these non-standard fields. If your scanners or digital cameras add non-standard IPTC information to your images, IMatch not only shows you this information, but also allows you to edit and update it.

Note The valuable information stored by modern cameras and scanners in non-standard fields is not lost when you manage your images with IMatch. It is not only preserved but also can be edited and updated. This capability sets IMatch ahead of other products on the market today, which not only ignore this information but also often remove it when IPTC information is written back to the file.

The IPTC Configuration files

Tag Block

A tab block describes an IPTC field (tag). It has the following format:

ID IPTC Field Number (Field Set 2)

Standard	1 for standard fields, 0 for non-standard
ExtVendor	If this is a non-standard field, this element can contain the name of the vendor or some other identification string. (Currently not used)
Name	The name of the field as it is displayed in the user interface
Desc	A description of the field (currently not used)
Type	The field data type. IMatch currently supports only fields of type <i>String</i> , except for field #0 (<i>Record Version</i>)
MinLen	The minimum length for the field. Use the IPTC standard limits
MaxLen	The maximum length for the field. Use the IPTC standard limits
Mandatory	1 if this field is mandatory, 0 for optional fields. (Currently not enforced)
DisplayHeight	The number of lines to display for this field in the "Other Fields" pane of the IPTC Editor. This field has only a meaning for non-standard fields. Minimum here is one, maximum is 20

Within the configuration file, tag blocks must be enclosed in "{" and "}" parentheses. The element name and the element content must be separated with a blank or tab character.

```
{
  ID      5
  Standard 1
  ExtVendor
  Name Object Name
  Desc Used as a shorthand reference for the object
  Type String
  MinLen 0
  MaxLen 64
  Mandatory 0
  DisplayHeight 1
}
```

List Block

A list block is associated with an IPTC field block within the same file. It contains an enumeration of list elements. The format of a list block is as follows:

```
[
  ID <IPTC Field ID of the corresponding field>
  <List Element 1>
  <List Element 2>
  ...
  <List Element n>
]
```

The following example list block contains the valid Category (Field #15) elements according to the IPTC standard:

```
[
  ; IPTC Standard Categories
  ID 15
  ACE
]
```

```

CLJ
DIS
FIN
EDU
ENV
HTH
HUM
LAB
LIF
POL
REL
SCI
SOI
SPO
WAR
WEA
]

```

IMatch displays these list elements in the associated control element on the *Image Information* tab in the IPTC Editor (compare to Figure 107).

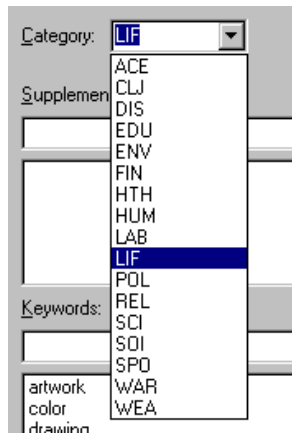


Figure 107: The contents of the list block in the IPTC Editor

Quoting

If the list elements contain carriage return, linefeed, tabulator or other characters with special meanings, the entire list element must be wrapped in double quotes:

```

[
  ID 5
  Normal
  "With embedded
  newline"
  Other Element
]

```

IMatch then treats all contents enclosed in quotes as opaque. If your list element contains double quotes itself, these quotes must be escaped by using doubling the quotes:

```

[
  ID 5
  This is quoted text: ""Text""
  Other Element
]

```

This element will be displayed in the IPTC Editor as:

This is quoted text: "Text"

The standard IMatch IPTC configuration file contains predefined lists for the IPTC fields Country Code (#100), County (#101) and Category (#15). You may add other lists to your user configuration file if you wish.

Note Don't add new list blocks to the standard configuration file! This file will be overwritten when you update or reinstall IMatch!

Modifying the IMIPTCUSR.IPT configuration file

This file has the same structure as the standard IPTC configuration file. You can add user-defined fields and user-defined lists to this file. On program start, IMatch searches the *personal folder* of the current user for a file with this name. If it is found, its contents are loaded and interpreted.

If the user file contains tag blocks for the same fields as the standard configuration file, these fields are overwritten (replaced) with the tag blocks from the user configuration file.

Note If you support logins for multiple users on the same machine or work in a terminal server environment, make sure that modifications to the `imiptcusr.ipt` file are promoted to all user-specific copies of that file on the machine.

Adding application-specific fields

If your digital camera stores information in IPTC fields and you want to be able to view and edit this information in IMatch, you need to add one or more tag blocks to the user configuration file:

1. Locate and open the `imiptcusr.ipt` file with Windows Notepad or a similar application.
2. Create a new tag block. You may copy a tag block from the standard configuration file and modify it. This is the easiest and safest way to create new tag blocks.
3. Get information about the field numbers your digital camera uses. This is the trickiest part. Contact your camera vendor or search the Internet for this information.
4. For each field your camera uses, create a tag block in the user configuration file.
5. Start IMatch, select an image and open the IPTC Editor. Switch to the *Other Fields* tab. You should now be able to view and edit your fields.

If the fields don't show up, check the IMatch logfile (see [The IMatch Logfile](#)) for error messages and make sure your tag blocks are formatted properly.

Adding new list blocks and list elements

You can add predefined list elements to nearly all IPTC fields. This not only includes fields like *Keywords* or *Category*, but also *Caption*, *Transmission Reference*, or *By-line*.

To add new list elements, you need to modify the `imiptcusr.dat` file. This file is read and updated by the IMatch thesauri manager. If you add new elements to any of the list blocks in this file, the thesauri manager will use these list elements automatically.

IMatch makes no difference whether list elements have been added using the IPTC Editor thesaurus manager or have been manually added to the configuration file directly. This allows you to provide a *set of standard captions, categories, or keywords*, and to share these predefined lists with other users in your company or workflow.

To add new list elements, either create a fresh list block from start or edit a list block created with the thesaurus manager.

Note IMatch currently supports no predefined lists or thesauri for user-defined fields.

EXIF Metadata Support Advanced Features

IMatch FolderWatch

IMatch FolderWatch

The FolderWatch is a wizard that enables IMatch to **monitor changes in the file system** and to run operations when a new files are added or existing files are updated.

The FolderWatch feature is accessible via the DATABASE menu, then START FOLDER WATCH.

Note IMatch automatically monitors the currently selected folder in the DATABASE VIEW. If you modify images in this folder, IMatch will automatically update the database.

For example, if you edit an image in the current folder in the internal image editor or an external application, and you save the image, IMatch will reload the image information into your current database.

The monitor is a great feature when you download images from the *Internet* or *USENET newsgroups*. IMatch automatically sorts out duplicate images and updates the current database with new or updates images.

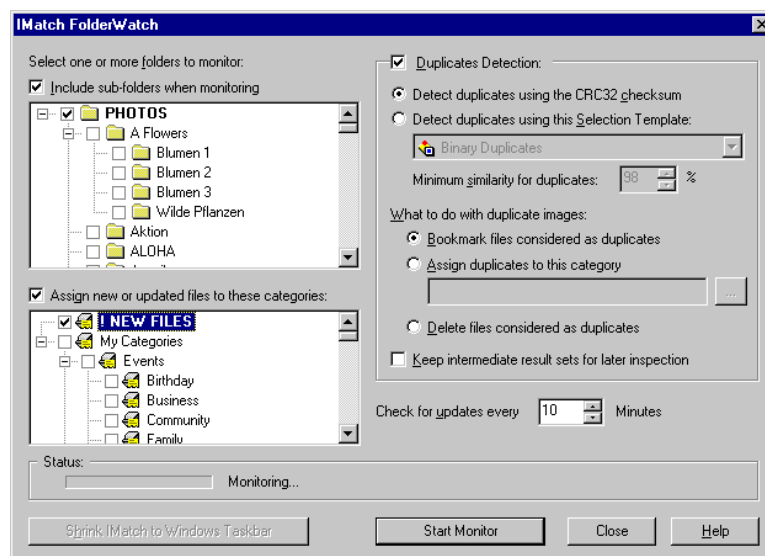


Figure 112: The IMatch FolderWatch configuration dialog box

The tree control on the upper left shows all folders indexed by the current database. You can select any number of folders to watch. To include sub-folders of the selected folder in the monitor check the INCLUDE SUB-FOLDERS WHEN... check box.

All folders selected in this tree control will be monitored for changes. If another application adds, updates or deletes files in such a folder, IMatch will *automatically update the current database* to reflect these changes.

To ASSIGN NEW OR UPDATES IMAGES TO A CATEGORY in you database, enable the feature and select the category (or categories) to add the images to.

If you enable the **DUPLICATES DETECTION** feature on the right hand of the dialog, IMatch will also perform duplicate (similar) file detection when new files are added or existing files are updated.

First you need to choose a match method. If you are only interested in finding binary identical images, use the CRC-based match method. If you want to find similar images, select on of your selection presets.

After choosing the appropriate method, you need to define what to do with duplicate images. There are several options available:

- | | |
|--------------------------------|--|
| Bookmark files | This operation will bookmark all files considered as duplicates. The files will be added to the bookmark collection of the current database. After stopping the monitor you can easily review, move, copy, or delete the files from the SELECTION VIEW |
| Assigning to a category | This operation will assign the duplicates to a category you choose. Again, after stopping the monitor you can review the files by selection this category in the CATEGORY VIEWER |
| Delete files | If you automatically want to delete files considered as duplicates choose this option. However, have a close look at the selector you choose , since you may delete files that are not 'real' duplicates. A good idea is to combine this option with a CRC-based selector |

To find duplicate images, IMatch internally performs a normal selection operation. The intermediate result sets are normally thrown away automatically to save memory and disk space. If you want to review the result sets after stopping the monitor, check in the corresponding option in the dialog box.

Note Intermediate result sets need RAM and disk space. If you let the monitor run for a long time, this may cause your system to get low on memory. Be careful when you use this option!

Checking a folder for updates can take some time, especially if your database is large. You can control the update interval with the spin control on the lower right of the dialog box. Settings like 10 or 60 minutes are recommended.

After defining all options, you can start the monitor by clicking on the **START MONITOR** button.

To hide the IMatch window, click on the **SHRINK IMATCH TO THE WINDOWS TASKBAR** button. The IMatch window will hide and a little cube will show up in the Windows task bar on the bottom of your Windows desktop. Clicking on that button will open a menu with some options. **Double-click** on this symbol to reopen the IMatch window.

The Review Module

The Review Module

When you add large quantities of images on a regular basis to your database, you often need to review, categorize, rename, move, delete or copy images. To help you to make this job faster, IMatch provides a specialized review dialog box.

Tip The Review dialog box is intended as a time saver when you need to review a large number of images. All most frequently used operations and functions are available as "one key" commands in the dialog to speed up the processing of large runs of images.

To open the review dialog, choose SPECIAL TOOLS\REVIEW... from the context menu of a thumbnail window or press <F11>.

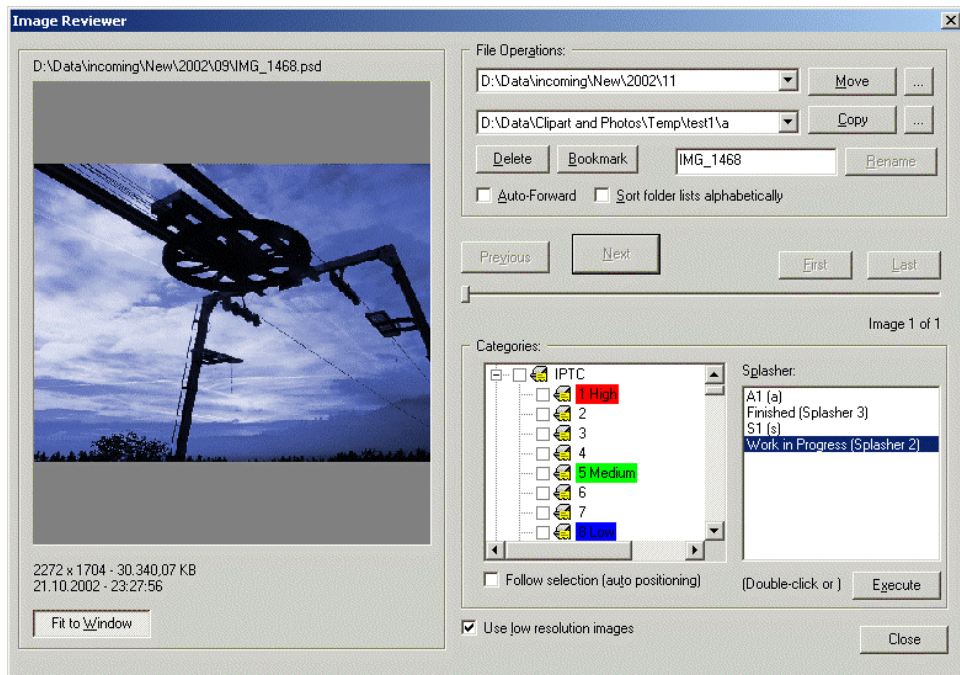


Figure 113: The Review dialog box

This dialog presents all images in the current selection (folder, images or categories) in sequence and gives you quick "one key" access to all relevant operations.

With a single keystroke you can move, copy or delete images. All recently used folders for move or copy operations are accessible via combo boxes right next to your image.

To **rename** an image, just type the new name and press "Alt+R".

You can **scroll** through all images using the NEXT, PREVIOUS, FIRST and LAST buttons. You can also random access an image by moving the slider control with the mouse.

To **categorize** an image, select the category or categories in the tree control or execute a category **splasher**.

The AUTO FORWARD option forces IMatch to move to the next image in the sequence when you move images. If this option is disabled, the Reviewer will stay on the current image after the Move operation.

If the SORT FOLDER LISTS ALPHABETICALLY option is checked, IMatch will sort the folder lists for FILE OPERATIONS alphabetically, else a most recently used sort order is used.

The FOLLOW SELECTION option will automatically position the category list to the first category of the first image. Uncheck it if you don't want the category list to scroll when you move between the images in the selection.

The USE LOW RESOLUTION IMAGES option tells IMatch to use preview images for suitable file formats (e.g. Canon RAW) for faster image display.

Sending Images via Email HTML and World Wide Web with IMatch

Creating Web Pages with IMatch

IMatch contains a very powerful script that allows you to create web pages from your images.

Using this script you can create simple slide shows, category based image galleries and even galleries where your users can use IPTC keywords for navigation.

To start the script, go to the SCRIPTING menu, choose PUBLISH YOUR IMAGES TO THE WEB, and then PHOTO GALLERY CREATOR.

Besides the wide variety of presets that come with the script, you are able to create your own HTML templates to customize the look and style of your web galleries.

The photo gallery scripts ships with an extra help file, which explains how you can create your own web pages and style templates.

To access this help file, open the SCRIPT MANAGER and select the photo gallery script in the tree on the left. Then click on the SHOW SCRIPT HELP button on the right.

See also [The IMatch Photo Gallery](#)

Configuring IMatch

Options

This section describes the various options of IMatch. All options are accessible via the OPTIONS menu.

Monitor Gamma

Here you can adjust the *gamma correction* factor that IMatch applies when it displays your images. This allows you to adjust your monitor / display adapter combination to display colors with the correct gamma value (brightness).

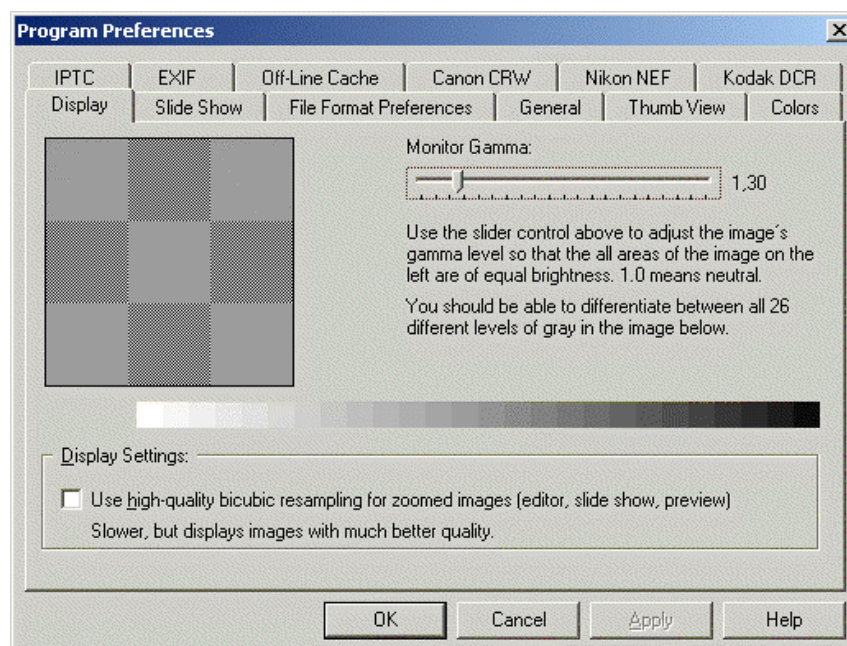


Figure 195: The Monitor Gamma options dialog

To adjust your monitor gamma settings, just follow the instructions given in the dialog.

[Close your eyes slightly, and sit back from the monitor for better results](#)

If you use tools like Adobe™ Gamma (ships with Photoshop™ and several other Adobe products), you should leave the gamma setting in IMatch at **1.0 = neutral** to avoid over-correcting your monitor.

Slide Show Settings

This dialog allows you to configure the slide show appearance and workflow.

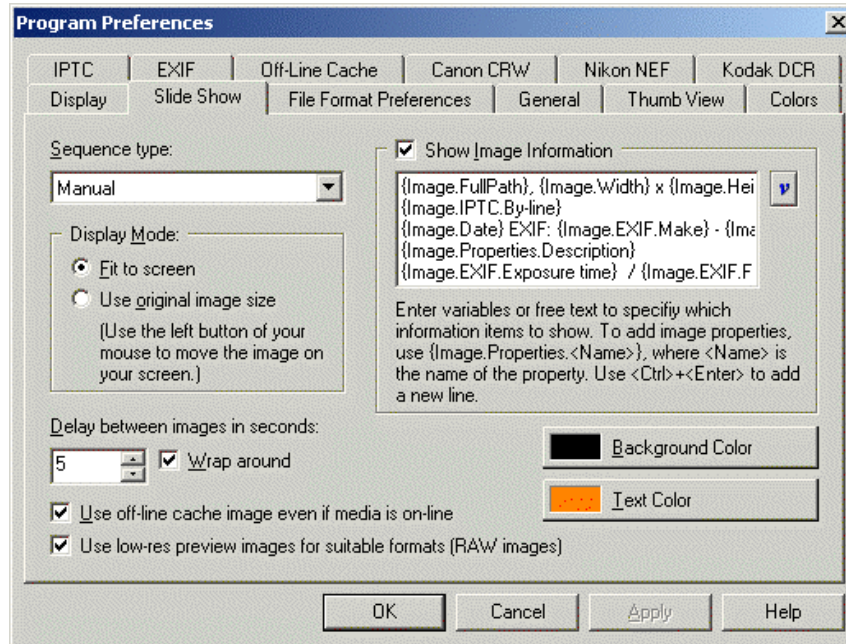


Figure 196: The Slide Show Options dialog

Sequence Types

- | | |
|-------------------|---|
| Sequential | IMatch will display all images of the current selection in sequential order |
| Random | IMatch displays all images from the current selection in random order |
| Manual | IMatch displays all images of the current selection in sequential order, but does not auto-advance the images. The slide show displays only one image at the time and then waits until you click left with your mouse or press <SPACE>. |

Display Mode

With the DISPLAY MODE you can choose if you want to view the images in original size or scaled to fit the available screen size. If you choose the USE ORIGINAL IMAGE SIZE SETTING, the images will be automatically resized to cover the available screen space.

Tip If you want a full-screen preview in the slide show, go to Options/Preferences/Slide Show and enable USE ORIGINAL IMAGE SIZE. Then disable the info window display (Remove the check mark before SHOW IMAGE INFORMATION). This leaves the slide show maximum room for the image, and displays the image in full size.

If the image is larger than the available screen space, you can move the image on screen by holding down the left mouse button.

Delay

The DELAY setting controls how many seconds IMatch waits until it moves on to the next image. You can always proceed to the next image with the left mouse button or the <SPACE> key.

Show Image Information

If you check SHOW IMAGE INFORMATION, IMatch will display the available information about the current image at the bottom of the slide show window. This information also serves as a **hyperlink** into your current database. If you click on it, IMatch will end the slide show and jump to the image shown when you activated the hyperlink.

You can control what information is displayed by using *image variables*. See section [Variables](#) for more information on variables.

Colors

With BACKGROUND COLOR and TEXT COLOR you can control which colors IMatch will use for the background of the slide show and for the image information display.

Off-line Cache Usage

The slide show allows you to use either the original images or the images stored in the off-line cache. If your images are large you can use this option to use the smaller off-line cache images even if the original images are on-line. The slide show performance will be much better for large files, since IMatch needs to load only the smaller images from the cache instead of the big files from your disk or removable media.

Slide Show Preview Images

Some file formats, especially RAW formats like NEF or CRW or JPEG2000 take a long time to decode and display. You can set this option to tell IMatch to use a smaller or low-res preview image for the slide show if the image format supports such a feature.

Use low-res preview images for suitable formats

This option is useful when you work with RAW image files like Canon CRW. If this option is set, IMatch will use the "preview" images contained in the image file for the slide show. This is much faster than processing the RAW image data.

File Format Preferences

This dialog box allows you to define the standard load and preview size for FlashPix and PhotoCD image formats. Since each of these image formats may store images at different resolutions, you can choose which of the available resolutions will be loaded for the image preview in IMatch.

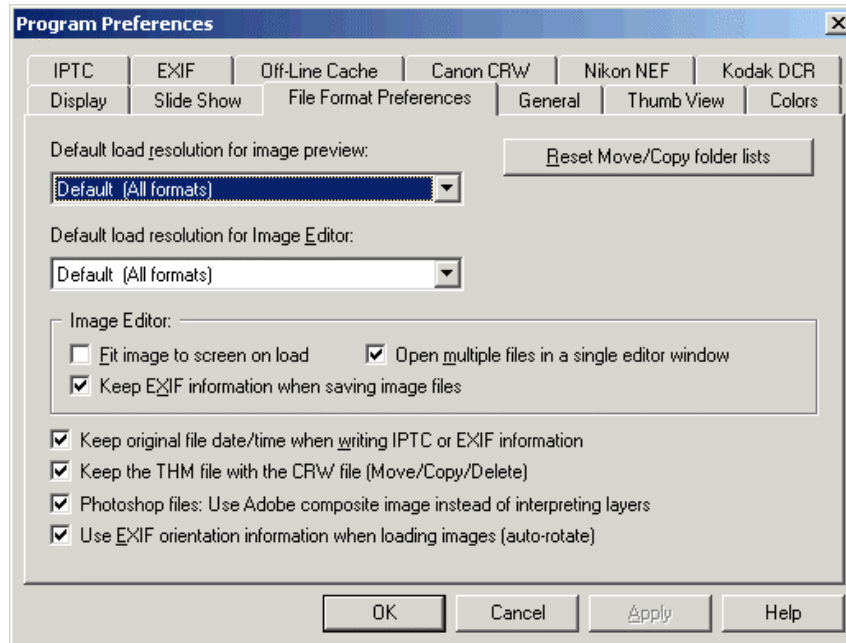


Figure 197: The default image format settings

For example, the biggest resolution of PhotoCD images is 4096 x 6144 pixels. An image of this size takes up **72 Megabytes of main memory** (!). It absolutely makes no sense to load this huge resolution to display the image in the preview control, since it usually would be scaled down to fit the available space anyway.

The default setting is DEFAULT, which uses the *default* size as defined by the image file. For the preview, you may also set this to 512 x 768 or less to load images faster and with far less memory requirements.

Note: The FlashPix format does not support all of the PhotoCD resolutions. IMatch automatically selects the image size that fits best to the resolution defined here.

Use EXIF Orientation information...

IMatch automatically uses the EXIF orientation flag in your images (if available) to rotate images during the load. If you have problems because you rotated your images with an application that does not update the EXIF orientation flag accordingly, uncheck this option.

Image Editor

These settings allow you to control the initial display size for images opened in the image editor and if you want to retain the EXIF information when you save files.

Multi-Edit Mode

When you choose the EDIT command in a thumbnail window, and you have more than one image selected, IMatch will normally open one image editor window for each selected image.

If you enable the option OPEN MULTIPLE FILES... IMatch will open all selected images in a single image editor window. Using the toolbar buttons, you can move forwards and backwards through your selection.

Keep original file date/time

If you enable this option, iMatch will keep the original file date and time of the image file when you update the embedded IPTC or EXIF information. This may be quite handy if you sort your files after date and time, and want to keep the original sort order even if you modify the IPTC or EXIF information.

Keep the THM file with the CRW

If you work with CRW files, you should always keep the THM files because these files allow iMatch to work with IPTC and EXIF information. The CRW file format does not support IPTC and EXIF information directly, but uses a separate THM file instead.

iMatch allows you to skip the THM file when you scan a folder to avoid duplicate images (visually duplicate) in your database.

However, iMatch is aware of the THM files that come with your CRW files. If you move/copy/delete/rename a CRW file, iMatch checks if there is a THM file with the same name in the same folder. If there is such a file, iMatch will move/copy/delete/rename these files automatically.

Important You should always enable this option except you have very good reasons to disable it.

General Settings

This dialog contains all general options that control various aspects of iMatch.

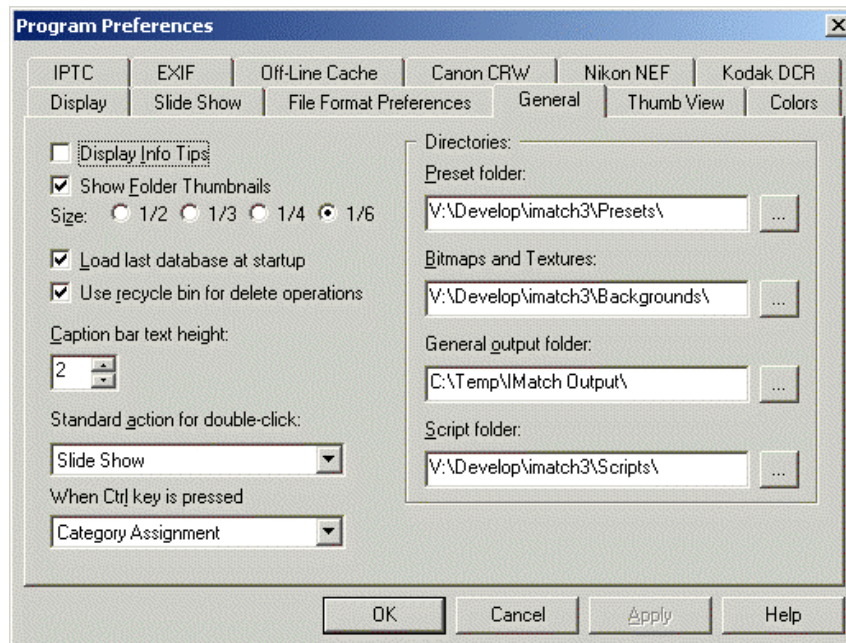


Figure 198: The General options

Option	Description
Display Info Tips	Toggles the display of info tips (tool tips) in various windows.

	<p>Info Tips display information about the folder under the mouse cursor or the image panel in the thumbnail viewer</p> <p><i>You can also toggle info tips on and off using the corresponding button in the main toolbar</i></p>
Show Folder Thumbnails	<p>Toggles between folder thumbnail display and normal display in the database window. If you turn this option off, IMatch will display the folder tree in a Windows Explorer like fashion</p> <p>You can choose different sizes for the folder thumbnails. Choose the size that fits you.</p>
Load last database at startup	<p>If you want to load the last used database on startup automatically, enable this option</p>
Use recycle bin for delete operations	<p>This option instructs IMatch to use the Windows recycle bin on file delete operations. If you turn this off, IMatch will delete the files physically with no change of undoing this operation</p>
Caption bar text height	<p>The number of text lines displayed in the caption bar. If you use long comments for folders and categories, you may set this to a higher value to see more of your text</p>
Preset Folder	<p>The folder where your Import / Export presets, Contact Sheet presets, Batch Processor presets and things like that are located.</p> <p>The folder you enter here is accessible via the global variable Application.Templates</p>
Bitmaps and Textures	<p>This folder is the base location for bitmaps and textures. The Batch Processor and the Contact Sheet Builder use this folder when you add background bitmaps or masks</p> <p>The folder you enter here is accessible via the global variable Application.Bitmaps</p>
General Output folder	<p>This is the location to which IMatch writes files produced by the Contact Sheet Builder, the Batch Processor and some other modules.</p> <p>The folder you enter here is accessible via the global variable Application.OutputFolder</p>
Script folder	<p>This folder contains your scripts. The <i>Script Manager</i> scans this folder for scripts and presents them in the Script Menu. The folder you enter here is accessible via the global variable Application.ScriptFolder</p>
Standard action for double-click	<p>Defines which action to perform when you double-click a thumbnail in the thumbnail viewer.</p> <p>Instead of double-clicking, you can also press <Enter>/<Return></p>
When Ctrl key is pressed	<p>Defines which action to perform when you double-click a thumbnail in the thumbnail viewer while holding down the <Ctrl> key</p>

Thumb View

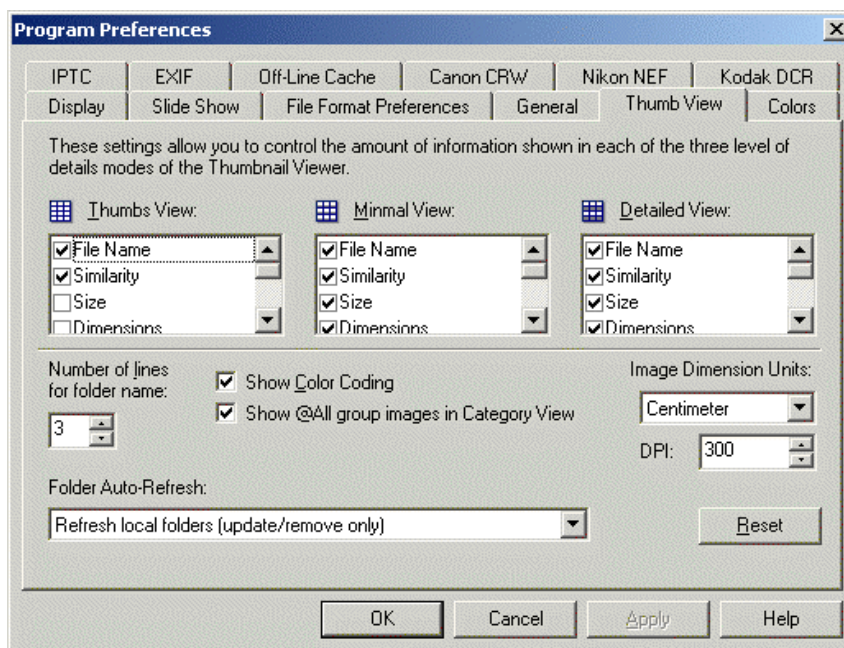


Figure 199: The Thumb View settings dialog box

This dialog allows you to control the amount of information displayed in each of the three *Level of Detail* (LOD) modes of the Thumbnail Viewer. For each of the tree modes, select the image attributes you want to see.

Note The *Similarity* attribute is shown only for result windows.

You can control how many lines in your thumbnail panels you want to reserve for displaying folder information with NUMBER OF LINES FOR FOLDER INFORMATION control. IMatch will automatically fit the folder name in Result Windows, the Category Viewer and the Bookmark Viewer into the available space. If the folder name is too long to fit, IMatch will shorten it in an intelligent way, showing you the maximum information possible.

Show Color Coding

Using color-coding allows you to associate categories with specific colors. See also [Color-Coding Categories](#). Set this switch to on to see color codings in your thumbnail windows.

Show @All group images

Set this switch to on if you want to see all your images when you click on the @All category in the category view. This switch is off by default because depending on the number of images in your database, it can take some time to retrieve and display all images.

If you have only a couple of thousand images, IMatch takes only a second or so to display all your images, so you can turn this option on.

Image Dimension Units

Allows you to control the unit used to display the width and height of your images in thumbnail panels.

You can use either pixel, inch, centimeter or millimeter to display the dimensions of your images in thumbnail windows.

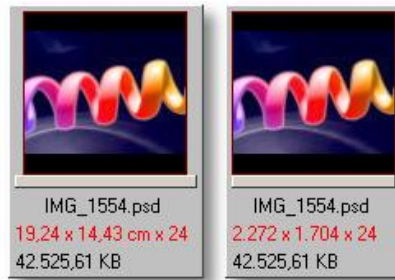


Figure 200: Display Units

For all units except *pixel* the DPI setting controls how many pixels per inch are assumed -for your images.

Tip Use values of 96 DPI to match the average monitor. Use 150, 200 or 300 DPI to match the resolution used in magazines, papers or your printer.

Example:

For an image with 1000 x 1000 pixels and a resolution of 200 DPI, and the unit *Inch* IMatch will display the image as 5 x 5 inch. If you set the unit to centimeters, IMatch will display the image as *12.7 x 12.7 cm*.

Note These DPI settings are only used to calculate the dimensions of your image on a device with that resolution. Your images are not modified.

Folder Auto-Refresh

This setting allows you to control if and how IMatch scans the currently selected folder for modifications. If you modify or delete images from an external program, IMatch will normally only update the database when you do an explicit rescan operation.

If you enable one of the Auto-Refresh options you can allow IMatch to automatically update modified images or remove deleted images from the folder. If you enable the AUTOMATIC RESCAN option, IMatch will automatically rescan the folder with your One-click rescan options. If this interrupts your workflow, you can choose one of the lesser options, which only checks for modified or updated files.

Note If you store your images on a network and the folder monitoring is too slow in your environment, you can limit the automatic folder monitoring to your local disk drives by choosing the appropriate option.

In version 3.3. and above, IMatch also monitors the events generated by Windows Explorer. When you move/copy/rename files in Windows Explorer while IMatch is running, IMatch will automatically update the database accordingly.

IMatch will not add new folders as you create them in Windows Explorer. To add new folders to your IMatch database, use the Database Wizard and perform a normal rescan on that new folder.

File System Events

IMatch will also monitor file system events generated by Windows. This technology allows IMatch to get information about most changes in your file system, e.g. when an image is added to a folder controlled by IMatch, or if an image is changed by another application. This of course works only if IMatch is running at that time, and if the folder is current selected.

You need to enable the option *"Automatically rescan local and remote folders on demand"* under *Options/Preferences/Thumb View* to use this special feature.

Colors

This dialog allows you to customize the colors used throughout the IMatch user interface.

To change a color, select the associated entry in the dialog box and double-click to open a color selector dialog box. To see the changes you've made, close the dialog with OK. IMatch saves the last color set and restores it on every program start.

To reset all colors back to the default values, press the RESET button on the bottom left of this dialog box. This will restore the factory defaults for all colors.

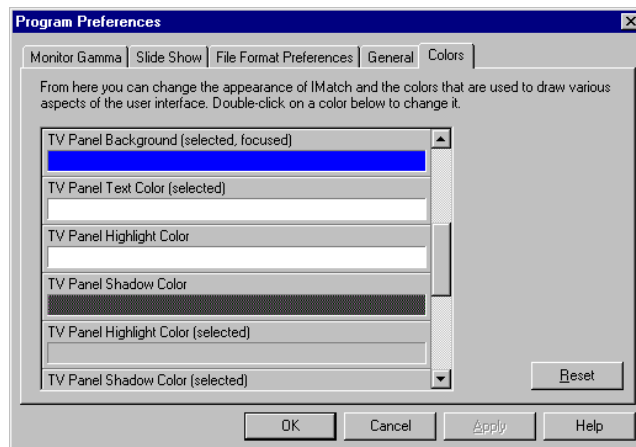


Figure 201: The Color option dialog

Color Management

Color Management allows applications like IMatch to display images with correct colors on a wide variety of devices.

Some image formats allow for embedded color profiles. These profiles can be used to transform the colors in the image to match a specific output device, like a monitor or printer.

In addition, devices like printers or monitors also have color profiles, which tell applications how to transform colors of an image to match the colors of the device.

IMatch supports embedded profiles in images, and also monitor profiles.

Why is Color Proofing Important?

Displaying images correctly on your monitor is very important when you make corrections on your images. If your monitor is badly adjusted, to dark or to bright, or uses a wrong color temperature, your images may look bad when they are displayed on another monitor after you have modified your images in a way that they look good on your monitor.

All monitors display colors slightly different, and hence what may look good on one monitor may look way off on another monitor.

To get the optimal colors from your images, make sure you use a monitor profile. Either use a profile from your monitor vendor, or create your own custom profile with hardware devices like Pantone® Image Spider™ or a similar device.

Embedded Profiles

For images with embedded profiles, IMatch can read the color profile, and apply it to the image before the image is displayed in the preview window, the slide show, or the image editor feature.

Applying a profile to an image does not modify the data in the image. The colors in the image are only temporarily transformed using the embedded profile when the image is displayed.

Display Profiles

IMatch allows you to define a monitor profile that defined how your monitor displays colors, and what color translations must be applied. Please refer to the manual of your monitor to learn more about color profiles.

The ICC Color Management Dialog

This dialog allows you to control if and how IMatch uses color management for your images.

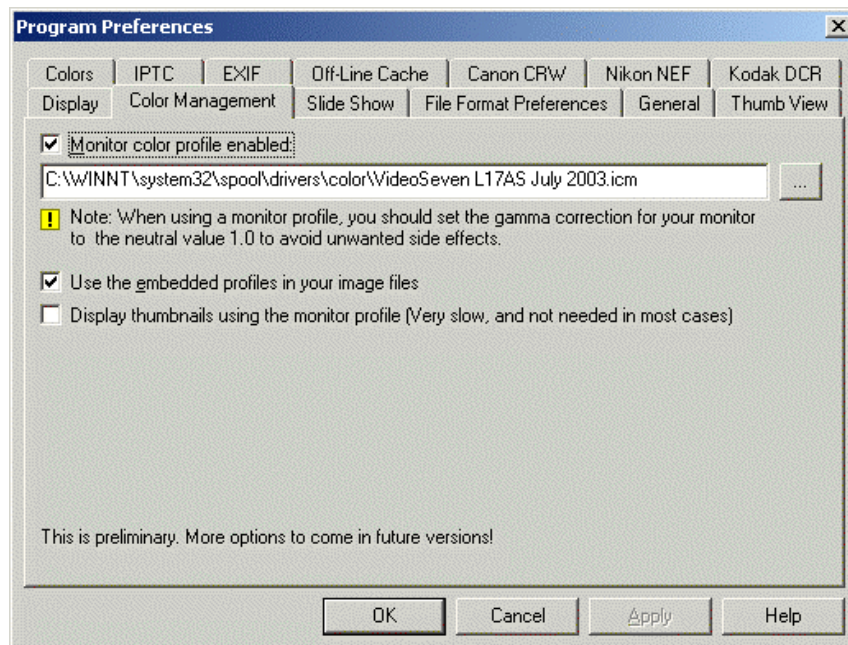


Figure 212: ICC Color Management Options

To enable a display profile for your Monitor, check the corresponding option, and select a monitor profile using the Browse button (...) in the dialog.

The option USE THE EMBEDDED PROFILES IN YOUR IMAGE FILES tells IMatch to extract and apply the embedded ICC color profiles in your images. Embedded profiles are supported in a variety of file formats, like JPEG, TIFF, PSD, and NEF. Some cameras and scanners embed color profiles in images to ensure correct color management.

Combined with a display or monitor profile, you will get optimal colors for a given combination of image and display.

If you want to display thumbnails with color management, you can enable the corresponding option in this dialog.

Note Using color management for thumbnails is only rarely of use. IMatch will become much slower when you enable color management support for thumbnails. But it may be useful under some conditions to display color management thumbnails.

Where do you find monitor profiles?

Depending on your Windows version, you can find color profiles in `\Windows\System32\Spool\Drivers\Color`, or in `\Windows\System32\Color`.

If you use applications from Adobe® or other software vendors, or you use cameras from Nikon, Canon or another vendor, you may have additional profiles somewhere on your hard disk. Please refer to the manuals of these applications or devices for more information.

Important Make sure that you use the correct profile. Don't use a profile that "looks good" on your device! Using the wrong profile may lead to unbalanced or "off" images.

Turn of Gamma Correction

Make sure you set the gamma correction in IMatch to neutral (value = 1.0) when you use color profiles. Applying gamma correction will lead to wrong results if combined with color management.

IPTC Information

This dialog allows you to control which IPTC fields are shown in the IPTC Quick Display (see section [IPTC Quick Display](#)). The IPTC expression controls the position and format of IPTC fields within the IPTC Quick Display.

You can add any number of IPTC fields from the list of available fields to get exact the amount of information you need.

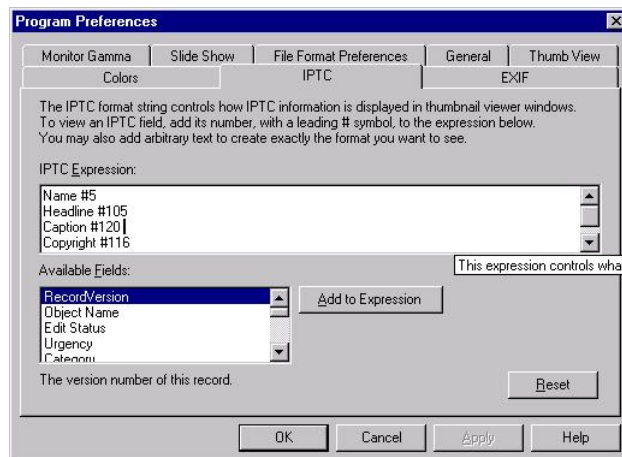


Figure 202: The IPTC options dialog

You may also add arbitrary text to the expression, like Captions or comments.

EXIF Information

This dialog allows you to control which EXIF fields are shown in the EXIF Quick Display (see [EXIF Quick Display](#)). The EXIF expression controls the position and format of EXIF fields within the EXIF Quick Display.

You can add any number of EXIF fields from the list of available fields to get exact the amount of information you need.

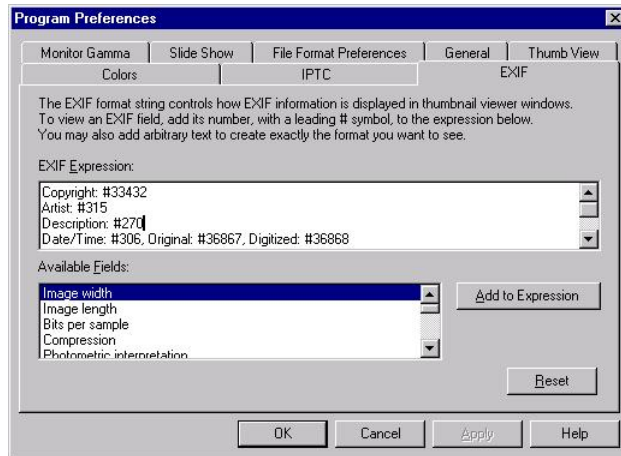


Figure 203: The EXIF options dialog

Displaying additional EXIF fields and maker notes

Besides the standard EXIF 2.2 fields, you can also display camera-specific EXIF information in the quick display. To do so, just add EXIF fields using normal variable syntax into the edit field.

If your camera for example supports the maker note "nik Lens Information" (see the EXIF editor for supported maker notes for your camera), you can add this field to your quick display by adding the following line to your EXIF Expression:
`{Image.EXIF.nik Lens Information }`

The prefix *Image.EXIF* is the same for all maker notes. Add the name of your maker note behind that (case-sensitive!) and you're done.

Tip For more information on variables and how to use them, see the section [Variables here in the online help](#).

Technical Information

Technical Information

Hardware and Software Requirements

PC with a Pentium-200 or higher processor (or compatible processor)

- Microsoft Windows® 98, Windows® NT 4.x, Windows ME or Windows®2000
- Internet Explorer 4.x or higher
- 64 MB of RAM, 128 MB recommended. For large databases with 100,000 images and more, 256 MB or more recommended for optimal performance
- Hard disk space: 20 MB for the IMatch software and accompanying files
- 800 x 600 screen resolution or higher
- Graphics adapter with 32,000 or more colors, True Color recommended. **256 color modes are not supported!**
- Windows compatible Mouse or other pointing device

A note on LZW formats

At the moment of writing, IMatch does not support the GIF format and some of the sub-formats of TIFF that rely on the patented LZW algorithm. Supporting these file formats would require a license from UNISYS.

Folders used by IMatch

IMatch stores all user-related contents in the default folder as specified by Windows. This folder is referred to as the *Personal* folder.

Backgrounds, Bitmaps, Brushed and other files common to all users are located below the IMatch program folder.

- ❑ The *Preset* folder contains pre-build Batch Converter Settings, Contact Sheet Builder templates, and other presets for various modules in IMatch.
- ❑ The *Bitmap* folder contains bitmaps and textures to be used with the Contact Sheet Builder, the Batch Converter and the Frame Builder. If you want to use your own backgrounds, copy these into this folder.
- ❑ The *Scripts* folder contains all your Basic Scripts.
- ❑ The *PlugIns* folder contains all plug-ins. Valid plug-ins in this folder are automatically registered during program startup. If you receive a new plug-in, just copy it into this folder (*XCopy Deployment*)

During installation, these folders are created automatically and filled with pre-build files contained in the IMatch distribution. The location of these folders on your hard disk can be adjusted via the OPTIONS\REFERENCES menu from within IMatch.

IMatch stores your personal preferences, IPTC presets and other configuration files in your personal folder. Under older versions, this folder is located below \Windows\Profiles\\My Documents. In both cases, the folder is named *photools.com IMatch*.

Restoring IMatch on a new PC / Windows installation

If you need to re-install IMatch or if you buy a new PC, you can re-install IMatch with some easy steps:

- Install the latest IMatch evaluation version
- Install the latest service pack (upgrade) into the same folder
- Restore your databases
- Optionally restore the contents of your personal photools.com IMatch folder
- Run IMatch and adjust your workspace settings, windows positions, and other configuration options

After performing these steps, you can continue to work with IMatch and your databases.

The Category Schema Format (*.imcs)

IMatch allows importing and exporting category schemas using a file format called IMCS (IMatch Category Schema). The format of these files is pretty simple and easy to create.

An IMCS file is a simple text file and consists of records (lines) separated by Carriage Return / Line Feed pairs. Each record contains four fields, where two of the fields are optional. The fields are separated by semicolons ";":

```
[Fully qualified Category  
Name]; [Formula]; [Comment]; [Color]; [Flags]CRLF
```

Fully qualified Category Name	This field contains the fully qualified category name, including all parent categories. This field is mandatory
Formula	The category formula. May be empty and omitted. If the category has a comment, this field must be emitted, but may be empty
Comment	The comment/description for the category. May be omitted.
Color	The color for the category. May be omitted.
Flags	The category flags. May be omitted

If a field contains a semicolon, the entire field must be escaped with a piping symbol | (ASCII code 0x7c).

Sample file

```
My Categories;;The root of my personal categories;;;FF0000  
My Categories.People  
My Categories.A  
My Categories.Animals;;;00FF00  
My Categories.Animals.Bears;;;0000FF  
My Categories.Vehicles  
My Categories.Combined.Test;"My Categories.Animals" OR "My  
Categories.A"
```

The first line contains a comment, but no formula. Since there is a comment, we must emit a ";" for the empty formula to allow the parser to find the comment field. The last line contains a formula in the native IMatch format; all other lines simply contain category names.

The best thing is to emit always all four fields, with the appropriate number of semicolons.

The XML Property Database Schema

IMatch XML property schemas are stored in XML format based on the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>  
<!ELEMENT IMatchPropertyDB (Version,Description,Schema,Data*)>  
<!ELEMENT Version (#PCDATA)>  
<!ELEMENT Description (#PCDATA)>  
<!ELEMENT Schema (PropertySet)+>  
<!ELEMENT PropertySet (Name, Description, Property+)>  
<!ATTLIST PropertySet PSOID ID #REQUIRED>  
<!ELEMENT Name (#PCDATA)>
```

```

<!ELEMENT Property (Name,CurrencySymbol*,Default)>
<!ATTLIST Property dt (null | string | int | ui4 | i8 | ui8 | float |
date.iso8601 | time.iso8601 | bit | imcurrency | uri | imreference)
#REQUIRED
POID ID #REQUIRED
PropertySetRef IDREF #IMPLIED
PropertyRef IDREF #IMPLIED>
<!ELEMENT Default (#PCDATA)*>
<!ATTLIST Default TZ CDATA #IMPLIED OID CDATA #IMPLIED>
<!ELEMENT CodePage (#PCDATA)*>
<!ELEMENT CurrencySymbol (#PCDATA)*>
<!ELEMENT Data (Set)+>
<!ELEMENT Set (SName,Row*)>
<!ATTLIST Set PSOID IDREF #REQUIRED>
<!ELEMENT SName (#PCDATA)>
<!ELEMENT Row (URI*,CRC*,MID*,MSER*,Val*)>
<!ELEMENT URI (#PCDATA)>
<!ELEMENT CRC (#PCDATA)>
<!ELEMENT MID (#PCDATA)>
<!ELEMENT MSER (#PCDATA)>
<!ELEMENT Val (#PCDATA)>
<!ATTLIST Val CID CDATA #REQUIRED>

```

Note The schema presented here may be outdated. Please check the [impropertydb.dtd](#) document type definition in your IMatch program folder for the latest version of this DTD.

The IMatch Logfile

IMatch creates and maintains a detailed logfile in your TEMP folder. This logfile contains information about each action executed, the internal states of the application during execution and all other type of useful information.

Whenever IMatch recognizes an error or unexpected condition, it logs information to the logfile. This information is extremely useful for me to diagnose problems and to get some information about the inner workings of IMatch during program execution.

Tip You can access the IMatch logfile via the Help Menu, [TECHNICAL SUPPORT OPTIONS, VIEW APPLICATION LOGFILE](#)

Logfile Format

The logfile is a simple, human readable text file. You can open it with Windows Notepad or some other editor of your choice. Each line in the logfile has the following structure:

```

Date and Time           |Level|Message
Sun Apr 30 19:35:08 2000 000    I> # Logfile opened.

```

Each line has a date and timestamp and a 3-digit level number. The various levels allow fitting the logfile to various needs. The final version of IMatch will only log hard errors in the logfile (Level 0), the beta version logs all levels (0 .. 4). Information on level 3 and 4 is for performance statistics and function call profiles. Warnings and errors are always on levels 0 and 1.

Next comes the type tab, which can be one of the following:

I> Information. This is only for informal purposes

- W>** Warning. Some unexpected condition occurred. For example, when IMatch is unable to load an image due to a file format problem, a warning message is logged.
- E>** Some error occurred. IMatch writes out as much information as possible about the error. It is **very important** that you extract these error messages from the logfile when you report an error. See below for details.
However, not everything logged as an error is a real program error. If you enter a wrong formula for a category, IMatch will also log this as an error. Before you send in the errors, have a quick look and verify that these are real errors. If you are in doubt, send them in.

Controlling the Logfile

The generation and level of detail of IMatch logfiles can be controlled via the Windows System Registry.

Warning BE CAREFUL WHEN YOU MANIPULATE THE REGISTRY. IF YOU DO SOMETHING WRONG, YOUR SYSTEM CAN BECOME UNSTABLE OR UNBOOTABLE.

All logfile-related entries are contained in the key
HKEY_CURRENT_USER\Software\photools\IMatch\3\Settings

Within this category, you can use the following keys to control the logfile operation:

LogEnable	D	Controls the creation of a log file. If you set this to 0, no log file will be generated
	W	
	O	
	R	
	D	
LogFolder	S	The path for the log file. If this is empty, IMatch uses the Windows TEMP folder to store the log file
	t	
	r	
	i	
	n g	
LogLevel	D	Controls the level of detail of the log file. Valid values are from 1 to 999. On level 1, only errors and warnings are logged. All levels above 1 log different levels of information messages. To see all messages, use 999 or delete this key in the registry
	W	
	O	
	R	
	D	

The IMatch logfile is saved to the file IMATCHLOG.LOG in your TEMP directory (see the Windows Control Panel for the exact location on your computer). At every program start, IMatch creates a backup copy of the last logfile into a file named IMATCHLOG.LO_ in the same directory and then creates a new (empty) IMATCHLOG.LOG.

Reporting errors or bugs

At any time, there is a *current* logfile (from the last program run) and a backup copy of the last logfile.

Whenever IMatch noticed a problem, a message box will open at program end to inform you that important information has been written to the logfile. In this situation, please copy the logfile IMATCHLOG.LOG to a safe place and then open it with your favorite text editor. Search for the type tag **E>** to find all lines with error messages. Copy these lines, **plus about 20 lines before and after** that error line to a separate text file and keep this information together with your error reports.

This information will help me to identify the exact position in IMatch where the error occurred, and also the exact conditions under which the error can be reproduced. If you find an error or IMatch crashes on your machine, **please include the related portion of the logfile** with your email.

Logfiles can become rather large, so please make sure that you have at least 10 or 20 MB of free space on the drive where your temporary folder resides. A logfile with 10 or 20 MB is usual when you use IMatch for a longer period or perform many actions, like adding new images to your database.

Please **DO NOT** send in complete logfiles if they are larger than about (zipped) 100 KB! Please extract the portions of the file related to the error you want to report and send in only that smaller file.

Database Sizes

An IMatch database consists of several files. All files have the same file name but different extensions:

Extension	Description
IMD	The IMatch database file
IMC	The catalog file
IM2	Secondary feature database
IMP	The property database
IMT	The thumbnail database
IMW	The work space
IML	Selection template persistence file
WSA	Presets file

Depending on your particular database, some other files may exist in the database folder. These files also have the same name as your main database file, but different extensions.

If you move a database, always keep these files together!

The resulting size of an IMatch database depends on a variety of factors, such as number of images, thumbnail size and some other variables.

Usually, for medium to large size databases, the database needs about 5% to 10% of the total size of images indexed by the database. For example, a database with 50,000 images with a total size of 10 GB needs between 500 MB and 1 GB of disk space.

Performance Optimization

The IMatch database format has been developed for maximum security and speed. When add new files to your database or you move or delete files, new records will be allocated and old records will be deleted. IMatch automatically reclaims unused space in database files for new records.

From time to time an IMatch database needs to be optimized. During such an optimize procedure, IMatch rearranges the records in the database for optimum query performance and overall speed. The optimizer also makes sure your database is intact and removes unused space, thus leading to smaller databases.

To run the Database Optimizer, use the *Database Wizard* and choose the Option RUN DATABASE DIAGNOSIS AND OPTIMIZE....

Optimizing a database can take a couple of minutes (even hours for very large databases). However, the result of such a procedure is a much faster database and less disk space.

Run the Optimizer from time to time or after you have added a couple of thousand images. If you use only small databases, you will never notice degradation in performance, but for databases containing 100,000 or more images it makes a difference.

How to get the maximum performance

The technology of the multidimensional spatial cube index automatically results in optimal query performance even for large databases. However, you can help IMatch to stay on top speed with some simple tricks.

Please don't forget that IMatch is strictly speaking a database server with a user interface. You can handle several 100,000 images per database, but don't try this on rather slow machines with little RAM and slow hard disks.

IMatch databases can handle 100,000's of images per database. Usually image databases of this size run on large-scale hardware, such as SUN, HP or IBM servers. These machines have gigabytes of RAM and very fast hard disk subsystems – and they cost a fortune.

IMatch is probably the only application that allows you to handle large image databases on a normal PC, but there are some physical limits even IMatch cannot ignore. The rule is: The larger the database, the more memory you need. Also, fast hard disks are always a plus.

To handle a 100,000 images database your PC should have at least 128 MB of RAM. The more RAM the better.

Tips and Tricks

Store databases on your fastest hard disks

IMatch needs to access your database frequently. So, the faster the hard disk is, the faster IMatch will be.

Don't store databases in the same folder as your images

Enable database caching

If you have sufficient main memory, enable the caching of database records in memory (DATABASE WIZARD). If a database record is in memory, IMatch can access it 100 times faster than on disk. However, this will eat up much of your main memory, about 2KB per image in the database. For example, to cache a database with 50,000 images, you'll need 100 MB RAM plus the additional RAM that is needed to store the internal data structures.

Add some memory

The more memory your computer has, IMatch can use the additional memory to cache frequently used information. If your databases are too large to be cached efficiently, adding some more RAM will speed things up.

Split large databases

Instead of creating a database with 200,000 images, it is faster to create two databases with 100,000 images. In the later case, IMatch can store more information in memory and hence can access the data about 100 times faster.

Don't load several databases at the same time

If your databases are large, load only one database at a time. IMatch needs to share the available RAM between all loaded databases, so more loaded databases means less memory for each database. Less memory means slower performance.

Acknowledgements

Acknowledgements

This software is based in part on libraries and source code provided by companies, standard organizations and individuals.

Regex++ Regular Expression Library

Copyright (c) 1998-2001

Dr John Maddock

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Apache Xerces XML Library

This product includes software developed by the Apache Software Foundation (<http://www.apache.org/>)

LIBTIFF Image Library

Copyright (c) 1988-1997 Sam Leffler

Copyright (c) 1991-1997 Silicon Graphics, Inc.

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JPEG Image Library

This software is based in part on the work of the Independent JPEG Group.

PolyImage Image Library

Copyright © 2000-2003, Polybytes®, Inc.

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Lead Tools Imaging Library

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Portions of the PCDLIB32.DLL, PCDLIB.DLL, LFFPX7.DLL, and LFKODAK.DLL files contain material that is ©Copyright Eastman Kodak Company, 1996.

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The "FlashPix" format uses Microsoft's OLE structured storage.

The ImageMagick Library

Copyright (C) 2003 ImageMagick Studio, a non-profit organization dedicated to making software imaging solutions freely available.

The official ImageMagick WWW page is <http://www.imagemagick.org/>

im3manual

IMatch Online Help Overview

This section contains an overview about the IMatch online help. If no specific help exists for the current situation, you can click on any of the topics below to get more information. You can also use the help index on the left to find additional help for the current situation or feature.

Help Sections

Installation and Setup

- How to install IMatch on your computer
- Getting support
- Planning your Database
- Backing up and data security

Overview

- The IMatch workspace
- Creating and managing databases
- Removable media handling (CD-ROM, DVD)

The Thumbnail Window

- View the contents of your database
- Perform file operations like move, copy, rename, and delete
- Use the Smart Renamer to rename series of images
- Work with IPTC and EXIF information
- Work with off-line images on removable media

The Category System

- Create a virtual view on all the images in your database, independent from their actual physical storage location
- Group your images by topic, theme, projects, customers, family, locations, ...
- Use categories like simple keywords, or create a hierarchical view on top of your images
- Create dynamic relations between your images using category formulas

Running Selections (Searching Images)

- Learn how to search for images using a variety of criteria
- Create result sets and use the drill-down to find and order your images

The Image Editor

- Perform basic image manipulations like cropping, color correction, and rotation
- Create sophisticated borders and frames
- Convert your images into more than 50 file formats

The Slide Show

- View your images quickly and in full size
- Reviewing series of images
- Present your images to others

Image Properties

- The Image Property Set is the central meta data store in IMatch
- Annotate your images
- Add text, date, time and other information to your images
- Import IPTC and EXIF information for sorting and searching

IPTC Support

- Viewing IPTC information
- The IPTC editor
- Importing IPTC information for searching and sorting

EXIF Meta Data

- Viewing EXIF information
- The EXIF Editor
- Importing EXIF information for searching and sorting

Importing and Exporting Data

- Use the **Batch Processor** to convert series of images
- Use the **Contact Sheet Builder** to create index prints and contact sheets
- Import IPTC and EXIF information into your property database
- Import ACDSTM compatible description files
- Import and work with CRC and CSV files

Programming IMatch

- Learn how to use IMatch Scripting to enhance IMatch

- Create your own scripts to automate frequent tasks
- The IMatch scripting object model

Special Features and Time Savers

- The Review module allows you to review series of images quickly
- Use the Smart Renamer for rename series of image quickly and with many options
- Using IMatch Folder Watch
- Sending images via email

Configuring IMatch

- Learn how to configure IMatch to match your requirements

Find Folder

This dialog box allows you to find folders by name. Enter the first few letters of the folder name you're looking for. IMatch will show all folders starting with these letters, followed by the folders with names containing these letters.

Category History

The local toolbar for the Category View has two arrow buttons that allow you to move forwards and backwards through the category history.



IMatch records each of your movements in the category list, and allows you to jump forwards and backwards to the 20 most recently visited categories.

This feature allows you to navigate quickly in your category hierarchy. By clicking on one of the down arrows next to the arrow buttons, you can open the HISTORY dialog, showing the last 20 visited categories.

Special Formulas

You can use some special keywords in category formulas to create categories with specific contents. This section explains these special category formulas:

CatNoRecurse@

This prefix tells IMatch to return only images directly assigned to the category following the prefix. If you use this prefix with a category name, only the images assigned to the category are returned. Images assigned to any of the sub-categories are not returned.

Example:

"CatNoRecurse@Beach"

This formula returns only the images assigned to the category *Beach*. If *Beach* has sub-categories, images assigned to these categories are not returned

CatDistinct@

This prefix analyzes the images assigned to the category and returns only images that are exclusively assigned to that category. This formula returns only images which are assigned to this category only.

Example:

"CatDistinct@Beach"

This formula returns only the images exclusively assigned to the category *Beach*. All images also assigned to other categories are filtered

@Unassigned

This prefix does not require a category name. It returns all images not yet assigned to a category.

Example:

"@Unassigned"

If you use this expression as a category formula, the category contains all images not assigned to other categories. When you assign an image to a category, it will vanish from this category.

This category formula can be used **only once** in your category tree, and must be used as a **top-level** category, directly below the special **@All** category.

Creating your Database

Step 1: Starting the Wizard

To create a new database, click on the icon  in the main toolbar or choose the NEW command from the DATABASE menu. The NEW DATABASE WIZARD will open.

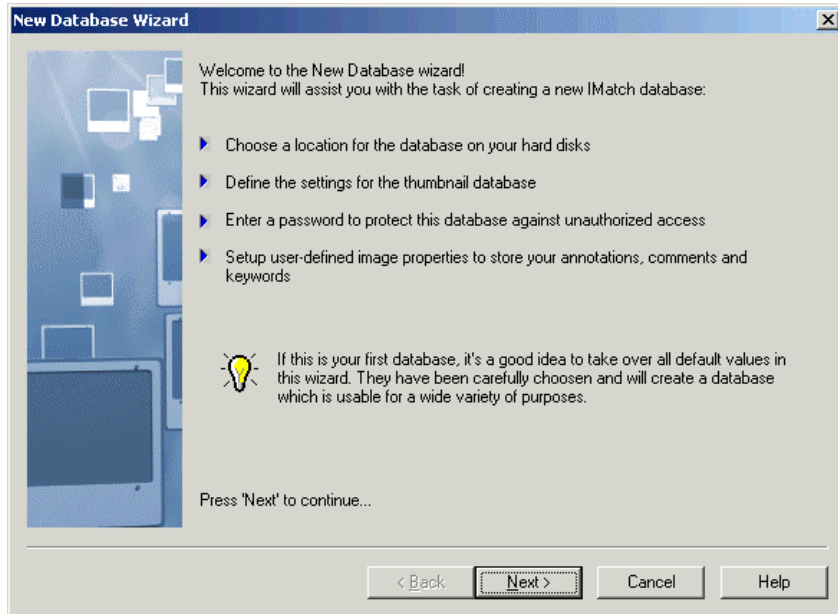


Figure 24: The New Database Wizard

Step 2: Setting a Password (Optional)

Click on NEXT to proceed to the first option screen. On this screen you may enter a password for your database. This password will **protect your database** from being opened by persons that do not know the password. Leave both fields blank if you don't want a password for your database.

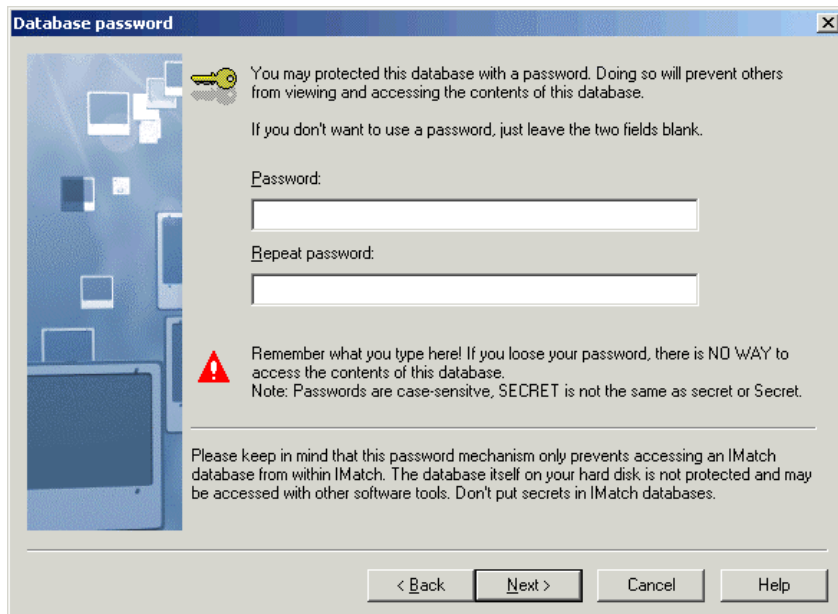


Figure 25: Defining a password for your database

Tip You can change the password later at any time using the Database Wizard from the DATABASE menu. Choose the third option of the wizard, MODIFY DATABASE OPTIONS, and then click on the CHANGE PASSWORD button.

Step 3: Choosing a Location for your Database

Proceed with NEXT to the next screen. Here you must enter a name and location for your new database. Use the BROWSE button to choose a folder for your new database and enter a name in the dialog box.

Again, it is a good idea to **create a dedicated folder for each database**. Just use Windows Explorer to create a new folder on your disk before you start IMatch.

The Thumbnail Size

Each image in your database is represented by a smaller version of the original image in your database. These smaller representations are called *thumbnails*. When you create a database, you need to choose the size of these thumbnails out of several predefined thumbnail sizes.

Choose a thumbnail size appropriate for your screen resolution and requirements. A good value here is 100 x 100 or 120 x 120 for screens with 1024x768 or higher resolution. If your screen has a higher resolution you can also choose something like 160 x 160 pixels for easier viewing. Perhaps you should try *your* optimal setting with a test database that you can throw away later.

Note You cannot change the thumbnail size once the database has been created. It is therefore important to choose a size large enough for comfortable viewing. You can use the thumb lens later to reduce the size of the thumbnails for screen display, without affecting the size of the thumbnails in your database. However, the size you choose during database creation is the maximum size you will later get without quality loss.

The quality setting allows you to define how much the thumbnail images are compressed. The default setting here is a good compromise between thumbnail storage requirements and display quality. The better the quality for the thumbnails is, the larger the resulting thumbnail database will grow, using up more space on your hard disk. The default setting is a good compromise between quality and the resulting file size.

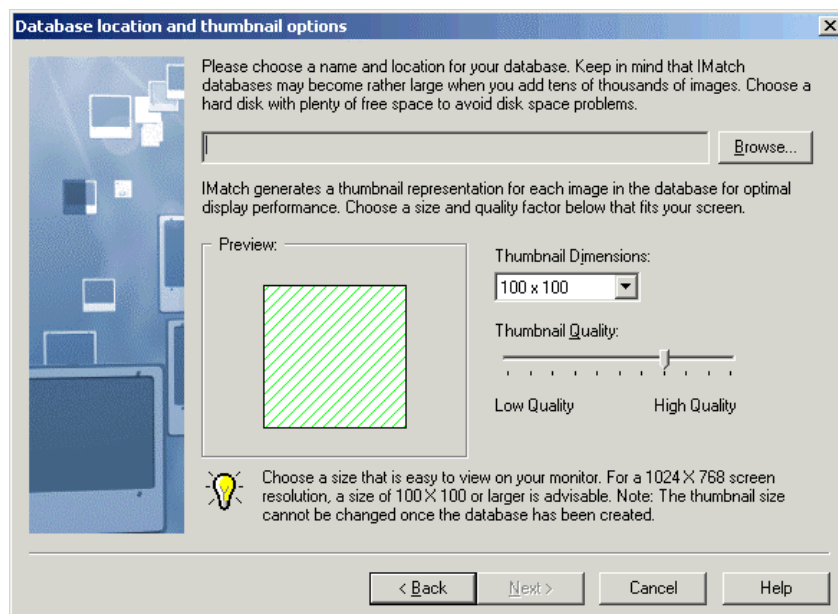


Figure 26: Database location and thumbnail options

Note Especially if you choose a larger thumbnail size (120 or more pixels), the thumbnail database often becomes larger than the IMatch database itself. It's a good idea to make some experiments with this setting to find a quality/size ratio that fits to

your needs without using up too much disk space. Use test databases that you can throw away later for this purpose.

Step 4: Setting Database Options and Finish

With a click on NEXT you proceed to the final dialog box for the New Database Wizard.

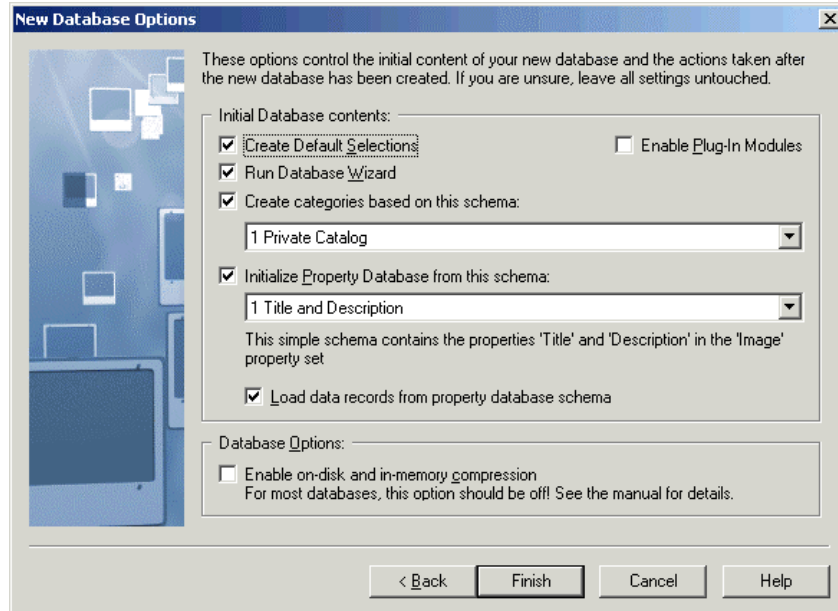


Figure 27: The final steps

Please set the options as shown in Figure 27 and click on FINISH to finish this wizard. IMatch will now create the database and all associated files in the selected folder. After a few seconds IMatch will open the workspace window for your new database.

The default options for this step of the wizard have been chosen carefully to fit the needs of new users. The only two options you may ever want to change here are the *category schema* initially loaded into your database and the property database schema loaded initially to populate your database.

Additional Information

Create categories based on this schema

This option allows you to use one of the predefined category schemas delivered with IMatch. If you do so, you start your new database with a set of categories targeted at specific user groups:

Keywords	This schema contains a list of keywords that are used by many of the online image companies and stock photography sites.
Universal Catalog	This schema contains categories from all fields of photography and is targeted at professional collectors and photographers
IPTC4	A standard used by most of the press agencies, broadcasters and newspapers worldwide. Contains numerous categories from all facets of human life, politics, and sports.
Private Catalog	(Default) A category schema targeted at private users and semi-professionals.

Categories for IPTC Import This category schema is useful if you want to import IPTC metadata from your images. It contains root categories for *keywords*, *categories*, *supplemental categories* and *importance*.

Initialize property database from this schema

This option allows you to import an XML-based metadata schema into your new database. Such a schema contains property set definitions and optionally property data. The IMatch installation contains a number of pre-build schemas for your convenience.

Note Read the section entitled [Image Property Sets](#) starting for more information about property databases and the meta model used by IMatch. See also section entitled [Meta Data Standards and XML](#) starting.

Depending on your requirements, you may want to create your property database yourself or import an existing property database. Several metadata standards are currently available, depending on the type of images you manage with IMatch.

The IPTC standard organization (www.iptc.org) publishes a Meta Model for journalistic and broadcast users that is also used by other companies and organizations. The new JPEG2000 (www.digitalimaging.org) Standard also contains a Meta Model for associating textual and other information with images. Several image and stock photo agencies also publish their own standards for describing and indexing images. Many museums also publish and use their own Meta Model for describing images and artifacts.

IMatch 3 is prepared to handle all of these standards by using XML as the core for its property database concept.

Per default, IMatch ships with four rather basis property schemas for your convenience:

1. Title and Description (Default)

This schema allows you to enter a title and comment for each of your images. You can add any number of fields later.

2. Title, Description and Image Source

This schema allows you to enter a title and comment for each of your images. There is also a second property set that allows you to create a set of *Image Sources* (e.g. *Photographer*, *Agency*, *Country*), and to assign one of these sources to your images. You can add any number of fields later.

3. Title, Description, Photographer and Image Quality

This property schema contains two additional property sets: One to enter photographer details and one to enter image quality metrics.

4. IPTC Official Fields

This property set is of rather specific use for users working with IPTC fields in their images. In most cases, it's better to use the [The IMatch IPTC Editor](#) and embedded IPTC fields instead of this property set.

A Note on Compression

IMatch is able to compress the databases on disk and in-memory. Enabling compression for your database will hence save you disk space and also will lower the memory requirements for IMatch. However, there is a drawback: *Performance*.

When IMatch needs to scan your database while you perform matches, IMatch will read data from one or more of the files forming your database. If the data is compressed, IMatch will need to uncompress the data before it can make use of it. Although the compression used in IMatch is very fast and efficient, this extra step takes extra time.

If you enable compression for your database, you can save up to 30% to 50% disk space, depending on the thumbnail size, the number of properties and other variables. The performance will drop between 10% and 40%, also depending on the database size, your computer and the hard disk(s) you're using.

If you expect that your database will grow large, **don't** use compression. This may sound strange, but there is a simple reason behind this statement. If the database is too large to fit into memory, IMatch cannot provide efficient caching (storing frequently accessed data in memory for faster access). This means that IMatch needs to load large amounts of data from your hard disk when it is needed. If the database is compressed, this will require decompressing each record in the database over and over again, instead of using it directly. However, if you have much memory (128, 256 or even 512 MB), IMatch will use the main memory of your computer for efficient cached access to the image data and this will lead to a much better performance.

Using the Light Table sort with other features

The light table sort order is also available in the Contact Sheet Builder, the Batch Processor, the Slide Show and from within scripting.

Note: You can choose the light table sort order only when you work with folders or categories. Result sets have no manual sort order.

To work with a selection of images in a thumbnail window, first select the light table sort order, and then select the images. Then use the appropriate feature.

Category Formulas Introduction

But IMatch does not stop here. It even allows you to create *category formulas* to specify complex **dependencies** between categories. For example, you may create a category named "*Animals, but not fish*" by combining the contents of the category *Animals* with the contents of the category *Fish* using a formula like this:
"Animals **NOT** Fish"

When you click on the category "*Animals, but not fish*", IMatch will automatically evaluate the formula and will show only the images that are in the category *Animals* (including its sub-categories) but which are not in the category *Fish*.

Category formulas can also refer to categories from totally different segments of your virtual image view. Consider the following categories:

Location

Beach

City

Mountain

People

Female

Male

Cars

Porsche

BMW

Audi

GM

Ford

If you would like to create a category "*People at the beach*", you could combine the contents of *Beach* (all images related to the topic "Beach") with the contents of *People* (all images showing people) by defining a formula like this:

People at the beach := Beach **AND** People

If you display the contents of this category, IMatch will show only the images that are in the category *Beach* and in the category *People*.

To create a category that contains all images from *Beach* and all images from the category *People*, you would use the Boolean OR operator:

People or beach := Beach **OR** People

Consider an image with two persons (male and female) and a car at the beach. This image is assigned to the categories *People.Female*, *People.Male*, *Location.Beach* and *Cars.Ford*.

Category formulas allow you to create powerful combinations of the images contained in several, even remote, categories. By combining several categories using formulas you will get the maximum out of your dynamic categories. You should definitely play with this exciting feature.

Remember the example from the introduction of this section: Birds in North America? How to create a category that contains all photos of Birds taken in North America?

Animals

Birds

 ...

Location

 Afrika

 America

North

 South

 Australia

 Pacific

 Europe

Birds_In_North_America := "Animals.Birds" **AND** "Location.America.North"

Note If a category has a formula, it first evaluates the images assigned directly to it, then evaluates the formula and combines the result with the images in the sub-categories. All three results are combined via OR, so no images are duplicated in this process.

Category Properties

You can control many features for a category using the categories properties dialog. To open this dialog, select a category and then press <Alt>+<Return> or choose PROPERTIES from the context menu of the category.

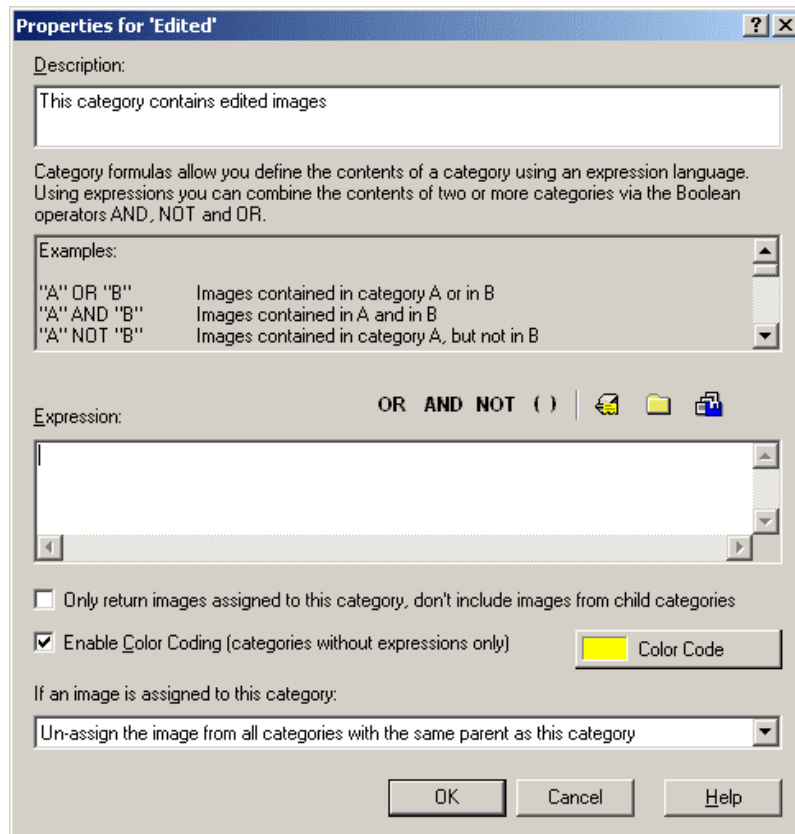


Figure 72: The Category Properties dialog

The field DESCRIPTION allows you to enter a descriptive text for the category. This description is displayed in the caption bar above the thumbnail window (you can edit the description there also).

In the Expression field you can type **category formulas**.

If you enable the option ONLY RETURN IMAGES ASSIGNED TO THIS CATEGORY... the category will only show images assigned directly to it and will not include images from its child categories. This may be useful if you use categories to export data from IMatch, or when you create web sites from your categories.

The option ENABLE COLOR CODING controls **color-coding** for this category.

Assignment Actions

Here you can control what action IMatch performs when you assign one or more images to this category.

Per default, IMatch performs no special action when images are assigned to a category. The images are just added to the category, and that's it.

You can tell IMatch to remove the image from all other categories, or categories below the same parent category using the assignment actions:

Un-assign the image from all categories with the same parent as this category

This action will remove the images from all categories with the same parent category as the category to which the image is assigned.

Un-assign the image from all other categories

Before assigning the images to this category, they are removed from all other categories in the database.

These actions allow you to control exactly what happens during an assignment.

Example for a Workflow Setup

Image you want to impose a workflow on your images. When images are added to your database during a rescan, you want to assign these images to a category named *New*. When you have reviewed or edited the image, you want to assign it into a category *Edited*. When the image is finished, you want to assign it into a *Final* category.

A possible category setup for such a workflow or edit state may look like this:

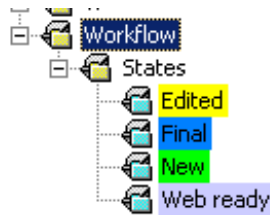


Figure 73: A workflow hierarchy

It is obvious that you want to have your images in only one of these categories at a given time. You can enforce this rule by setting the *Un-assign the image from all categories with the same parent* option in the category properties dialog.

If you assign an image to one of the categories below the *States* category, it will be removed from all other categories below that category first. You need to enable this option for all categories below the *State* category.

Tip You can automatically assign images to a category (in this case, the category *New*) during a rescan by setting the corresponding option in the Database Wizard.

IPTC Special Tools

On the first pane of the IPTC editor you have access to some special tools. These tools allow you to:

- Add one or more keywords to all selected files
- Remove one or more keywords for all selected files
- Import keywords and categories from your existing images to initially fill your thesaurus

To use any of these tools, just press the Run button and follow the instructions given on screen.

The Description Pane

On the first pane of the IPTC Editor you can enter general image information and captions. The meaning of the different fields is specified in the IPTC standard, but may also depend on your work situation or in-house standards. IMatch makes no assumptions about the contents of these fields.

Some of the fields on this pane have a length limit according to the IPTC specification. For example, the SPECIAL INSTRUCTIONS can take a maximum of 256 characters. IMatch automatically enforces these field length limits to stay compatible with the IPTC standard.

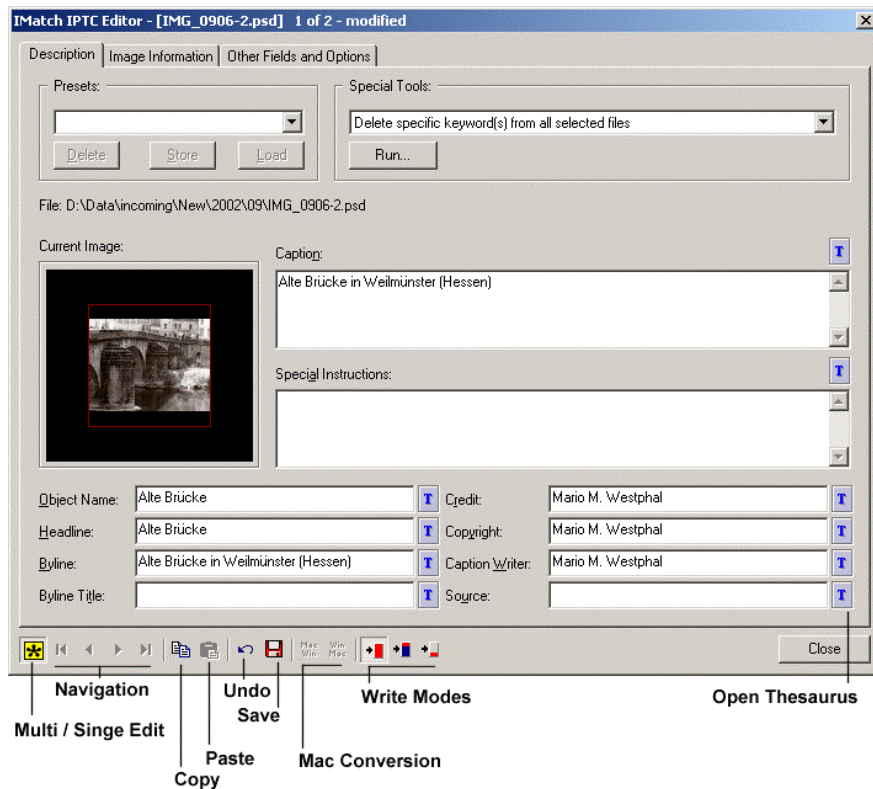


Figure 103: The Description Pane

The first pane of the IPTC Editor also allows you to *Create*, *Update* and *Delete* IPTC presets.

Managing IPTC Presets

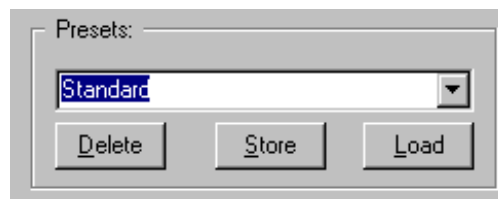


Figure 104: IPTC Presets

IPTC Presets allow you to save a complete set of IPTC information for later reuse. Instead of typing things like Copyright information, Photographer Name, Credit lines and the like over and over again, you can save this information once as a preset and apply it later to any number of images.

To create a new preset, enter the information into the appropriate fields in the IPTC Editor. Then select an existing preset from the list of type in a new name. Press SAVE to save the preset.

To apply a preset to the selected image(s), choose the name of the preset from the list and then press LOAD. The IPTC Editor loads the contents of the preset and replaces the IPTC information of the current file(s) with the IPTC fields from the preset.

Converting between different Character Sets

The IPTC information contained in an image file may have been written using an application running on the Apple Macintosh or another Apple computer. If this is the case, and the text contains *Umlauts* or other special characters, these characters may not be displayed correctly using the Windows ANSI character set.

If this is the case, you can convert all textual content of your IPTC fields into the Windows character set by pressing the CONVERT TEXT FROM MAC TO WINDOWS BUTTON in the toolbar at the bottom of the IPTC editor.

If you want to make your IPTC information readable on the Apple Macintosh, you can also convert from Windows ANSI to Macintosh character set by pressing the CONVERT TEXT FROM WINDOWS TO MAC BUTTON, also in the toolbar.

Note These commands are only available if you're running Windows NT, Windows 2000 or a newer version of Windows.

The Image Information Pane

The second pane contains all remaining standard IPTC (version 2) fields. Again, most of the fields are linked to a thesaurus, thus enabling you to fill field contents from a thesaurus without the need to retype information.

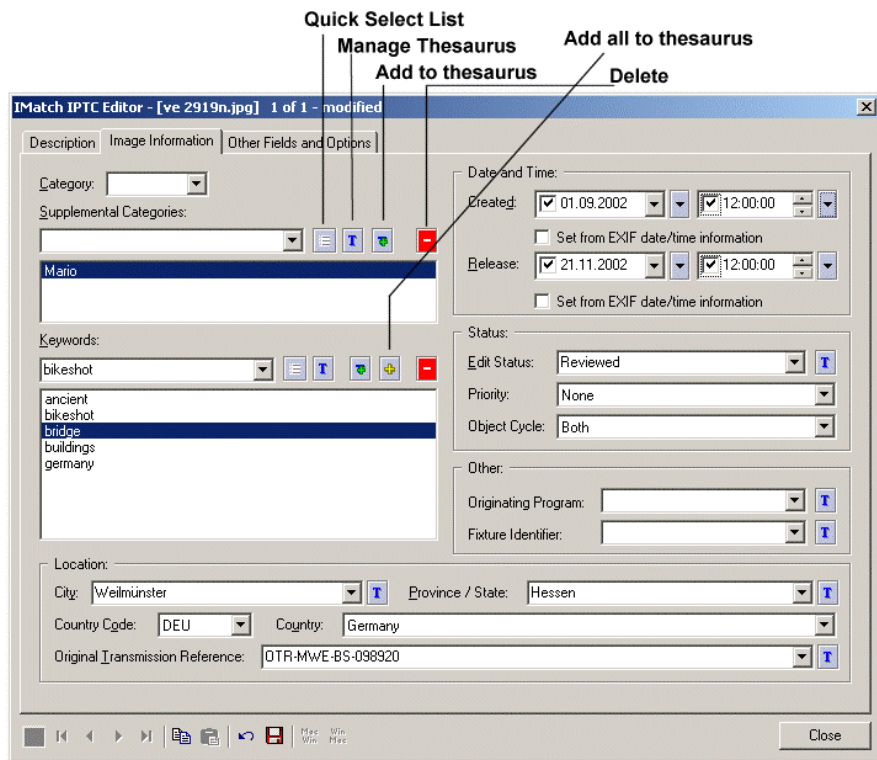


Figure 105: Image Information

The CATEGORY, COUNTRY CODE and COUNTRY fields on this pane are pre-filled with the official IPTC standard codes for these fields. You can select only from these predefined lists to stay compatible with the IPTC standard. All other fields may contain any arbitrary text or data.

Working with Keywords

To add keywords from the thesaurus you can

- a) Select the keyword in the drop-down list box above the keyword list
- b) Open the keyword selector dialog and check/uncheck keywords
- c) Open the thesaurus and select an existing keyword. Here you can also add new keywords to your thesaurus or modify existing keywords
- d) Type in a new keyword and press <Return>. This keyword will be added to the list of keywords of the current image (template image) but not automatically to the thesaurus.

Note You can work in the same way with IPTC supplemental categories. Only IPTC categories are special because the IPTC standard defines a set of categories, and hence you can only select categories from the supplied list.

The Other Fields and Options Pane

Beside the official IPTC fields standardized by the IPTC consortium there exist a variety of application- or hardware-specific fields. During our analysis of several thousands of images with IPTC information we have found not less than 200 different fields that are in use today.

The bad thing is that often applications use the same field identifier (tag id) for completely different meanings. One application may use a field number like 220 for storing *Image Notes*, while another application uses the same field to store *camera-* or *scanner-related* information items.

If you've used other applications to manage your images in the past, it is very likely that these applications simply skipped these non-standard fields while reading and displaying the IPTC contents of an image file.

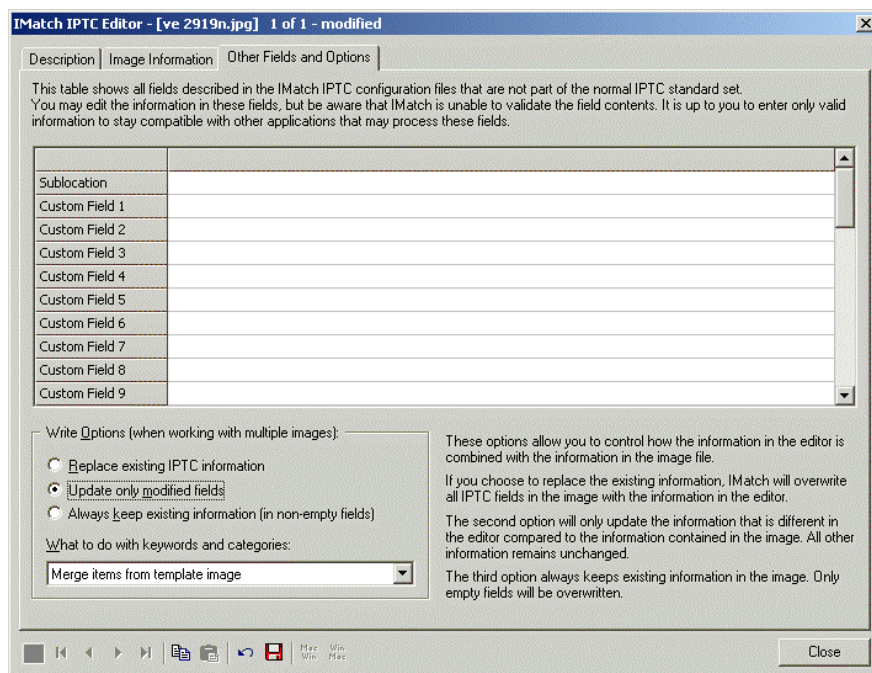


Figure 106: The IPTC Editor (Other Fields and Options Pane)

However, this information is often important. For example, digital cameras often store information like *Flash*, *Exposure Time*, and *Light Source* in application-specific IPTC fields. This information may be too valuable to throw it away.

Unfortunately, each producer of digital cameras implements its own IPTC fields to store this camera information. The same also applies to scanner vendors or other imaging hardware.

To enable you to make use of these non-standard fields, IMatch allows you to define additional fields and to view and edit these fields in the third pane of the image editor.

Note IMatch makes no assumptions about the contents of these fields. Since the type of information contained in these fields is unknown to IMatch, IMatch cannot validate the contents of these fields. It is up to you to enter only valid content and to adhere to the limits of these fields.

Specials

This section describes the various special features available in IMatch.

[IMatch Slide Show](#)

[Contact Sheet Builder](#)

[Smart Rename](#)

[The Batch Converter](#)

[FolderWatch](#)

Panning

You can pan the current image by clicking somewhere in the image, and then moving the mouse while holding down the left mouse button.

You can also toggle into Pan mode by holding down the <SPACE BAR>

Red Eye Removal

To remove "red eyes" from your images, caused by direct flash exposure, use the RED EYE REMOVAL tool.

Zoom in the image until the eye of the person fills the entire screen. Select the red portion of the eye (plus some extra space outside) with the circular lasso tool (image editor toolbar).

Then open the Red Eye Removal tool from the IMAGE menu.

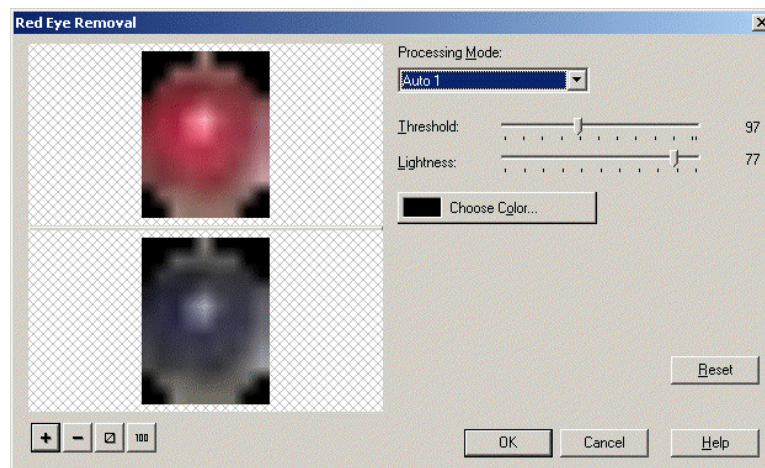


Figure 128: Red Eye Removal dialog

IMatch contains two automatic red eye removal modes, and a manual mode. Start with the Auto 1 mode and check the result.

Tip Use the zoom tool in the preview window to enlarge the display of the eye for better control

If the results are not satisfactory, try Auto Mode 2. Each of these two modes uses different *features* of the image to determine and correct the effect caused by the flash to the persons eye.

If none of the automatic modes produces satisfactory results, you can switch to the manual mode. Use the THRESHOLD, LIGHTNESS and COLOR controls to replace the red color in the iris with a color of your choice.

Finally, click OK to apply the correction to your image. Repeat this step with the second eye.

Photoshop Options

Photoshop PSD files are somewhat special. Only certain parts of the file format are documented for newer Photoshop version, and hence it is difficult to support all features of Photoshop files in IMatch.

IMatch supports many of the PSD features, but not all. Currently, there is no support for vector layers, and adjustment layers.

You should save your Photoshop images with the option "**Maximize Compatibility**" checked. This will increase the file size of your images, but allows you to view your images in other applications as they appear in Photoshop.

If you don't save your images with maximum compatibility, your images may not appear in IMatch as they appear in Photoshop, but IMatch will be able to index and load them anyway.

If you don't use maximize compatibility, uncheck this option to allow IMatch to process as much image data as possible.

Reset Move Copy List

This button allows you to reset your move/copy favorites list. All saved entries will be deleted, and IMatch will rebuild these lists with the new folders you use for copying or moving your images.

Networking IMatch

IMatch allows you to share a single database located on a network server between multiple users in *read-only mode*.

As long as each user opens the database in read-only mode, the database will be accessible, and several users can share the database.

If a user opens the database in write mode, all other users are locked out until this user closes the database.

To **open a database in read-only mode**, choose OPEN from the FILE menu, and then check the option OPEN AS READ-ONLY in the file browser dialog box.

If you have opened a database in read-only mode, and you open it again, IMatch will ask you if you want to open the database in read-only mode again. Choose YES to open the database in read-only mode, or NO to open it in write mode.

Note If a database is opened in read-only mode, all command and features that may modify the database are disabled.

The Help menu

This menu allows you to open the IMatch online help and the IMatch tutorial.

In addition, you can perform some commands or visit selected parts of the IMatch home page.

Info Tips

Info Tips allow you to view details about a folder or image while you move the mouse over it.

To enable info tips, click on the corresponding button in the main toolbar: 

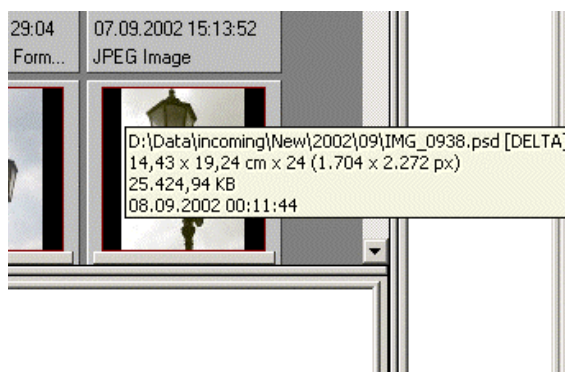


Figure 204: The Info Tip Window

The Tools Menu

The Tools menu allows you to add custom tools to IMatch, or to register external applications to be used with IMatch.

This menu also contains some of the most frequently used special tools in IMatch, like the [Batch Processor](#), the [Contact Sheet Builder](#), or the [IPTC](#) and [EXIF](#) Import modules.

Customizing User Tools

To add new applications to the tool menu, choose the CUSTOMIZE USER TOOLS command from the TOOLS menu.

Tip To open images with their associated application, choose "Open" from the SHELL sub-menu of the context menu in the thumbnail window or press **<Ctrl>+<Shift>+<O>**

IMatch will then open a normal Windows Explorer Window for the special Tools folder below the IMatch program folder.

To add new applications, use the *New Shortcut* command from the context menu of that folder, or use drag and drop to add applications from the Window Start menu or your desktop.

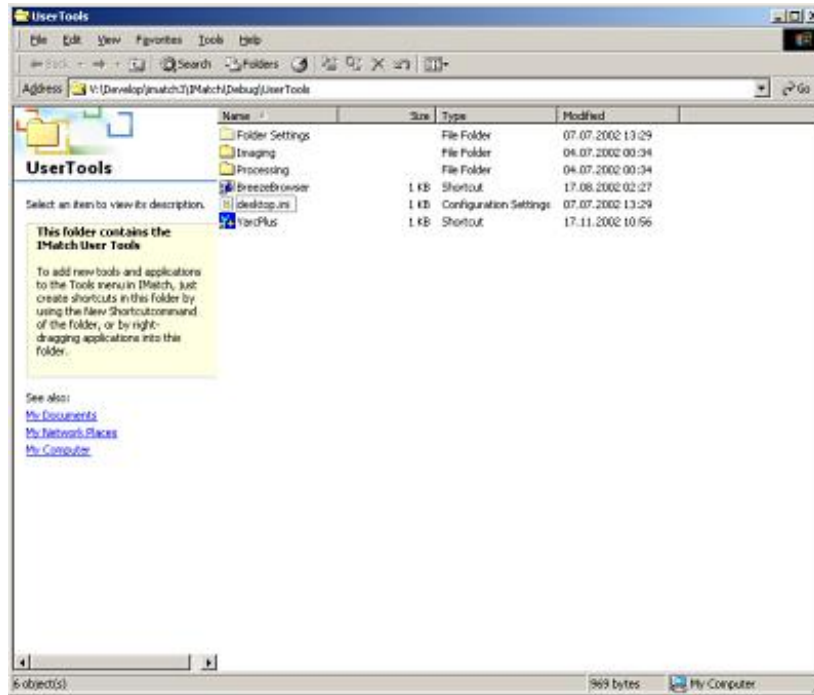


Figure 205: Customizing User Tools

Sub Folders

You can also create new sub-folders within the Tools folder. IMatch will display these folders as *sub-menus* below the *Tools* menu. This allows you to arrange your user tools and applications in any way you want.

Controlling the Hot-key

IMatch will automatically assign a hotkey to each of your user tools. Per default, this is the first character in the name of the shortcut you create.

For example, if you add a shortcut named "Photoshop", IMatch will use the "P" as the shortcut of that tool within the User-Tools menu. If you want to control the hotkey, just insert an Ampersand (&) into the name of your shortcut right before the character you want to use as the hotkey within the menu.

Relocating Folders

The Relocate command (Database View) allows you to tell IMatch that a folder has been moved to another media or drive on your computer system.

This may happen if you move a folder in Windows Explorer. Or when you move your images to another disk or another computer. But the most common case for using RELOCATE is when you move images to a CD-ROM or DVD to save space on your hard disk.

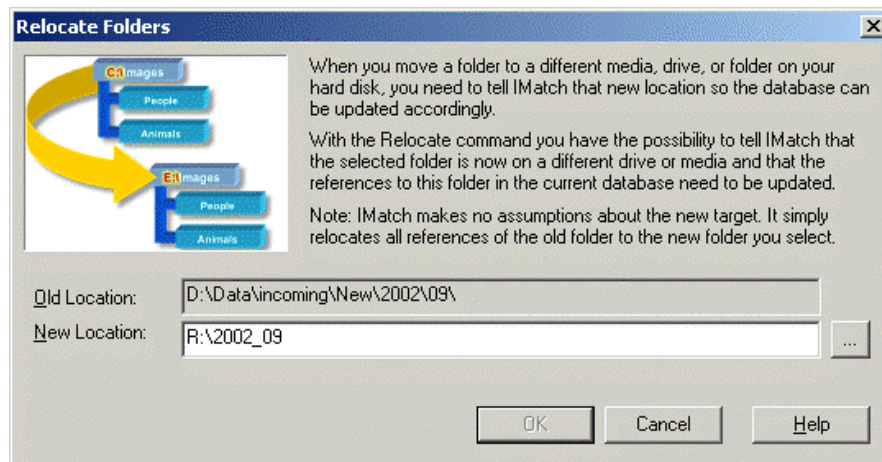


Figure 206: Relocating folders

When you move or rename a folder in Windows Explorer, IMatch will lose track of that folder. To tell IMatch the new drive or media on your system, perform the following steps:

- Select the folder that has moved in the Database View
- Choose the Relocate command from the context menu of that folder
- In the dialog, navigate to the new location of that folder and press OK. IMatch will now update all internal references to point to the new disk/media. No information will be lost and your database will be up-to-date afterwards

Note Always use the available file commands in IMatch to rename or move folders and files. This allows IMatch to keep track of the changes and relocating folders is not needed.

Burning CDs or DVDs

Most often the Relocate command is needed after you have moved (burned) one or more of your folders to a removable media like a CD-ROM or DVD.

If you want to move a part of your image collection to a CD-ROM or DVD, perform these steps:

- Use your CD writer software to copy the entire contents of a folder to CD-ROM. **Note: IMatch cannot relocate single files, only relocation of entire folders is supported.** Always write entire folders on CD or DVD
- Next select the folder in the Database View and choose Relocate from the context menu of that folder
- Navigate to the new disk/media of that folder and press OK. IMatch will now update all internal references to point to the new location of the folder on your CD-ROM or DVD
- You now can safely delete the folder on your disk

Scanning Images

IMatch contains a TWAIN-based scan module, which allows you to process images directly from your scanner and into your database.

Tip IMatch cannot support all special features of your scanner or digital camera. If your scanner or camera comes with a scan / download utility, you probably get better results using this specialized application.

Note The TWAIN standard does not support **EXIF** information. If you want to keep your EXIF information (the meta data in your images), you have to use the specialized download application that ships with your camera.

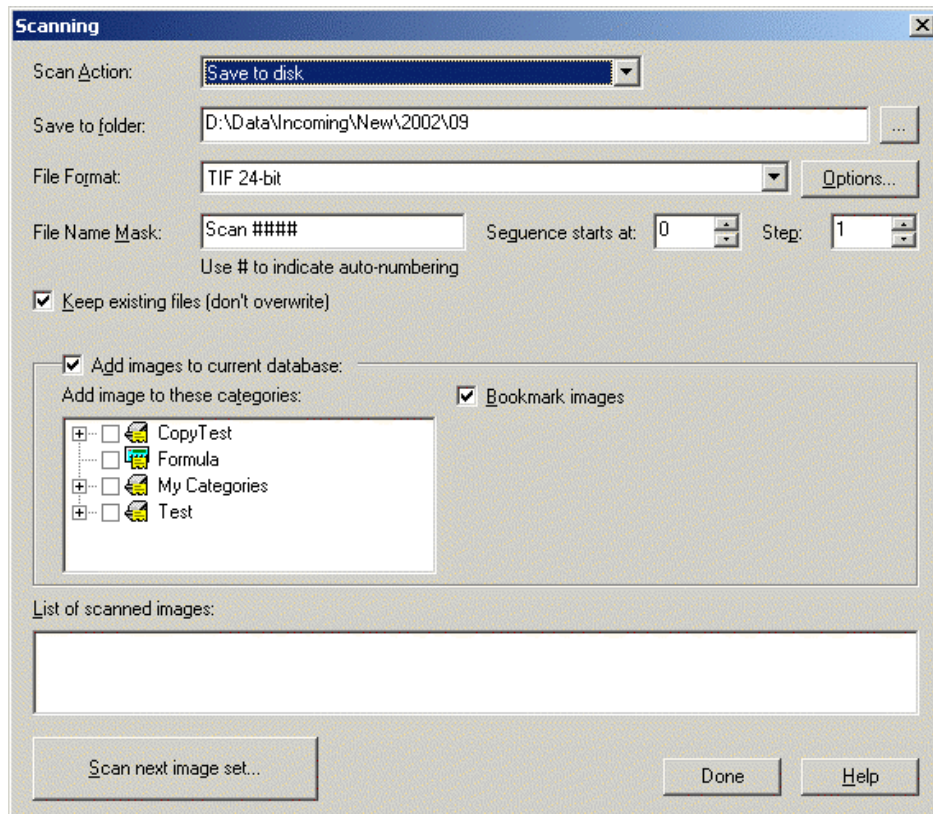


Figure 207: Scanning Images

This dialog allows you to choose the target of the scan (into the image editor, or on your disk), the file format for the images (48-Bit scanning is not supported via TWAIN), and to use a mask to name the scanned images.

You can also automatically assign scanned images to a category, or bookmark the images for easier review.

Note Before you can use the scanner module you have to select a TWAIN source

IMatch Online

This page contains several useful online links for you:

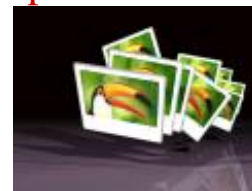
- The photools.com home page serves as the entry page for all IMatch related topics.
- For IMatch support, send an email to support@photools.com
- For more information about how to register IMatch, go to [this](#) page.
- To download the latest IMatch version, or updates, go to the [photools.com download page](#).

Welcome to IMatch

IMATCH

**The Digital Image
Management Solution for
Windows**

photools.com



*All information contained in this document is subject to change without notice.
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Welcome to IMatch!

If you see this help screen, you have launched IMatch for the first time.

Before you can start using IMatch to manage your digital image collection, you need to create an *IMatch database*. A database contains an index of all the images on your hard disk and removable media (CD-ROM, DVD).

To **create your database** now, select the **first option** in the dialog and click on **Let's go**.

IMatch will launch the database wizard, and guides you through the few steps needed to setup a database for all your digital images.

If you want to read the **tutorial** before you start, choose the **second option** and click on **Let's go**.

IMatch opens the tutorial with Acrobat Reader. If you don't have Acrobat Reader, you can get it for free from Adobe's web site: <http://www.adobe.com>

If you just want to go ahead and work with IMatch at your own pace, choose the third option.

Useful documentation links

The [System Overview](#) explains how IMatch manages your images, and how the different modules and features work together.

The online tutorial [Creating an IMatch Database](#) contains a step-by-step example on how to create your first IMatch database.

The [IMatch Online Help Overview](#) contains pointers to interesting sections in this online help.

Support addresses and more information about IMatch can be found on [this page](#).

EXIF Maker Notes

Maker Notes are special EXIF fields, which are not officially part of the EXIF specification.

Each camera manufacturer creates its own format for the maker note fields, and they usually do not publish this format. In many cases, maker note contents and formats change when new camera models are released.

Through experimentation with images from the cameras they own, individuals on the Internet have "reverse engineered" many of the maker note formats used.

All maker note information provided by IMatch is based on these web sources, and my own experiments. **Therefore the correctness and completeness of this information cannot be guaranteed.** Camera vendors may invent new maker note schemas at any time, or change the meaning of existing fields.

If you want to share information about maker notes, or you think that the maker notes of your images are not shown correctly in IMatch, contact me via one of the support addresses given here in this online help or via the www.photools.com web site.

Supported Maker Note Types

IMatch currently supports about 350 maker note fields from different vendors. You can see the maker notes for your images in the IMatch [EXIF editor](#). Maker notes are displayed with a different background color.

IMatch currently supports maker notes from **Nikon, Canon, Minolta, Olympus, Fuji, Casio** and some other camera models. Not all cameras of each vendor are supported, and not all fields have been decoded.

Maker Note Prefixes

To distinguish maker notes from normal (standard) EXIF fields, IMatch uses prefixes. Each camera vendor has got its own prefix. For example, for Nikon cameras IMatch uses the "nik" prefix.

Prefix	Camera Vendor
nik	Nikon
can	Canon
canr	Canon RAW (CRW files)
oly	Olympus
fuji	Fuji
cas	Casio
mrw	Minolta

For example, the Nikon maker note *Focus Mode* has the full name "nik Focus Mode".

If you have more information about a maker note field, please send your information to exif@photools.com. I will add the maker note field in future releases of IMatch.



Figure 92: Maker Note fields in the EXIF-Editor (Sample: Canon CRW maker notes)

IMatch tries to extract as much information from your image files as possible. If a field is encountered which IMatch currently does not know, it will be displayed as *Unknown* in the EXIF editor. The internal number of the field is displayed in parentheses right after the name of the field.

Using Maker Notes in Variables

You can use maker notes as IMatch variables using this syntax:
{Image.EXIF.<Name of the maker note>

For example, to get the value of the Canon maker note for "White Balance", use the following variable name:

```
{Image.EXIF.can White Balance}
```

Note As all variables, maker note variables are case-sensitive!
To get a list of all maker notes supported by your camera, open the EXIF editor and then press the **Copy to Clipboard** button. Paste the clipboard contents into Notepad or your favorite text editor and you have a **list of all maker note names** supported by your camera model.

The Overlay Bitmap

The overlay bitmap allows you to place an extra bitmap somewhere on your target image. This feature can be used to add a company logo or a watermark to each resulting image.

IMatch supports transparent regions in the overlay image either by a transparent color or by using the *alpha channel* of the overlay bitmap.

If you use a transparent color, choose the color that should appear as transparent with the TRANSPARENT COLOR button. You may also increase the TOLERANCE to add colors similar to the color you selected to the transparent region.

If you enable the ALPHA CHANNEL, the overlay bitmap must contain a mask in the alpha channel that masks all transparent areas of the image. Currently, only files in TIF, PNG, TGA and PCD store alpha channel information.

The position and alignment of the overlay bitmap can be relative to the original image or the entire canvas. If you select ALIGN WITH IMAGE, IMatch will position your overlay image within the original image, else within the entire canvas.



Figure 162: Overlay bitmap alignment: *align to image* or *align to canvas*. The left overlay bitmap is used as a watermark bitmap. The right shows the IMatch logo in its full beauty...

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