

AVS4YOU Help - AVS Photo Editor

AVS4YOU Programs Help



www.avs4you.com

© Online Media Technologies, Ltd., UK. 2004 - 2009 All rights reserved

Contact Us

If you have any comments, suggestions or questions regarding **AVS4YOU** programs or if you have a new feature that you feel can be added to improve our product, please feel free to contact us.

When you register your product, you may be entitled to technical support.

General information:	info@avs4you.com
Technical support:	support@avs4you.com
Sales:	sales@avs4you.com
Help and other documentation:	help@avs4you.com

Technical Support

AVS4YOU programs do not require any professional knowledge. If you experience any problem or have a question, please refer to the **AVS4YOU Programs Help**. If you cannot find the solution, please contact our support staff.

Note: only registered users receive technical support.

AVS4YOU staff provides several forms of automated customer support:

AVS4YOU Support System

You can use the $\ensuremath{\textbf{Support Form}}$ on our site to ask your questions.

E-mail Support
 You can also submit your technical questions and problems via e-mail to <u>support@avs4you.com</u>.

Note: for more effective and quick resolving of the difficulties we will need the following information:
Name and e-mail address used for registration
System parameters (CPU, hard drive space available, etc.)
Operating System
The information about the capture, video or audio devices, disc drives connected to your computer (manufacturer and model)
Detailed step by step describing of your action

Please do NOT attach any other files to your e-mail message unless specifically requested by AVS4YOU.com support staff.

Resources

Documentation for your AVS4YOU software is available in a variety of formats:

In-product (.chm-file) and Online Help

To reduce the size of the downloaded software installation files the in-product help was excluded from the installation although you can always download it from our web-site for your convenience. Please, visit AVS4YOU web-site at http://www.avs4you.com/OnlineHelp/index.aspx to download the latest available version of the help executable, run it and install into the AVS4YOU programs folder. After that you will be able to use it through the Help menu of the installed AVS4YOU software.

Online Help include all the content from the In-product help file and updates and links to additional instructional content available on the web. You can find the **Online Help** at our web-site - <u>http://www.avs4you.com/OnlineHelp/index.aspx</u>. Please note, that the most complete and up-to-date version of AVS4YOU programs help is always on the web.

PDF Documentation

The offline help is also available as a pdf-file that is optimized for printing. All PDF help files are available for download at the programs pages at AVS4YOU web-site (both http://www.avs4you.com/index.aspx and http://www.avs4you.com/index.aspx and http://www.avs4you.com/onlineHelp/index.aspx). To be able to read and print AVS4YOU PDF help files you will need to have a PDF reading program installed.

User Guides

You have access to a wide variety of resources that help you make the most of your AVS4YOU software. The step-by-step user guides will be of help not only to the novice users but also to the users that face a certain task to be performed and look for a way to do it. Please, visit our **User Guides** section of AVS4YOU web-site at http://www.avs4you.com/Guides/index.aspx to read the detailed instructions for various software and tasks

Technical Support

Visit the **AVS4YOU Support** web-site at <u>http://support.avs4you.com</u> to ask your questions concerning AVS4YOU software installation, registration and use. Feel free to also use our e-mail address <u>support@avs4you.com</u>.

Downloads

Visit the **Downloads** section - <u>http://www.avs4you.com/downloads.aspx</u> - of our web-site to find free updates, tryouts, and other useful software. We constantly update the software, new versions of the most popular programs and new software are also frequently released.

Overview

AVS Photo Editor has a user friendly **interface** and a lot of useful tools and functions, which help you perform necessary editing operations.

With AVS Photo Editor you can:

- use the convenient **Folders Tree** to find the directory or image you need, after that you can hide it with one button click;
- switch between different photo view modes while editing (Thumbnails, Full Screen, One on Screen);
- **zoom** the displayed photo in and out or make it fit the preview area;
- apply ready photo correction **presets** to give an individual touch to each image;
- adjust color as well as brightness and contrast in your photos;
- correct tonal range in your images and have a look at the Image Histogram to learn what exactly has changed in the tone representation;
- use the Red Eye Correction option to bring eyes their natural color back;
- select the **Retouch** or **Brush** tool to perform a certain editing task;
- crop and resize your photos as you like;
- view information about the image file you are editing.

With the **AVS Photo Editor** application you can easily find the needed folder, edit your photos the way you want using different tools, changing color and tone settings or selecting one of the available ready presets and finally save the image you have just edited into one of the **supported image formats**. It offers everything for you to excite your fantasy, achieve the best results and simply enjoy the process.

To launch AVS Photo Editor open the Start menu and select All Programs -> AVS4YOU -> Image -> AVS Photo Editor.

Program Interface

AVS Photo Editor has an intuitive interface, where you can capture everything with only one look.

AVS Photo Editor consists of a single window that comprises the following elements:

- Main Menu is used to get access to all the main functions and features of the program.
- Folders Tree is used to navigate through the files and folders system of your computer, network or removable media.
- Preview Area is used to view your photos and work on them by applying the editing tools offered in the program.
- Editing Tab is used to select one of the available editing tools, change color and tone settings, view image histogram and the original photo.
- File Info Tab is used to view information about the image file you are editing.
- **Toolbar** is used to get quick access to the basic features change the current view mode, go to the next or previous image in the opened folder, rotate photos, select one of the zoom options.
- Navigation Panel is used to find the needed photo from the opened folder.



Main Menu

The **AVS Photo Editor** application can be operated with the help of **Main Menu** elements. Flexible system of menu elements is a perfect tool for navigating and operating the application, controlling all the processes.

The **Main Menu** has the following structure:

File Menu Section

Item	Shortcut	Description	
Open	Ctrl+0	Use it to open the needed folder and load all the photos from it into the progra for editing.	
Open Recent		Use it to open a previously saved or opened photo to edit it. Together with the selected image the entire folder will be loaded into the program.	
Save	Ctrl+S	Use it to save the currently edited photo.	
Save as		Use it to save the currently edited photo under a different name.	
Exit	Alt+F4	Use it to finish work with AVS Photo Editor and exit.	

Edit Menu Section

Item	Shortcut	Description	
Undo	Indo Ctrl+Z Use it to reverse the latest performed command.		
Redo	Ctrl+Y	Use it to repeat your latest performed command or action.	
Rotate Left		Use it to change the orientation of the imported photo (portrait to landscape and vice versa).	
Rotate Right		Use it to change the orientation of the imported photo (portrait to landscape and vice versa).	
Reset		Use it to bring the edited photo to its initial state. If you have already saved the changes made, this option will be not available.	

View Menu Section

Item	Shortcut	Description
Folders		Use it to show or hide the folders tree situated on the left within the AVS Photo Editor window and used to find a certain folder in your files and folders system.
One on Screen		Use it to return from the Thumbnails view mode to the default one, when one image is shown within the Preview Area .
Full Screen	Ctrl+F	Use it to make the image occupy the entire screen area. To return to the default view mode, double-click the left mouse button, press the Esc key or the Back button.
Thumbnails		Use it to view all the photos from the opened folder within the Preview Area of the program window.
Fit	F	Use it to resize your image, so that the entire image fits within the Preview Area of the program window.
100%		Use it to view the edited photo in full size.
1:3		Use it to view the edited photo at 300% zoom.
Zoom In		Use it to zoom in the edited image.
Zoom Out		Use it to zoom out the edited image.
File Info		Use it to view information about the image file you are editing.

Item	Shortcut	Description
HelpF1Use it to open the AVS Photo Editor help file.		Use it to open the AVS Photo Editor help file.
AVS Home Page		Use it to visit AVS4YOU web site.
AVS Support Page		Use it to open AVS4YOU support page, where you can describe your problem or ask a question by filling out our support form.
E-mail us		Use it to contact our support staff per e-mail.
About		Use it to read information about AVS Photo Editor as well as our license agreement, or to register and activate the program.

Preview Area

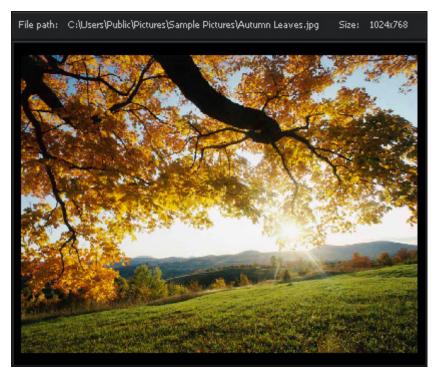
The **Preview Area** is the central part of the **AVS Photo Editor window** and is used to view your photos and work on them by applying the editing tools offered in the program. The **Preview Area** has several appearances depending on the view mode selected.

One on Screen

📕 1 on screen

If the **One on Screen** button at the **Toolbar** is pressed or the corresponding option of the **View** section in the **Main Menu** is chosen, the **Preview Area** will look like in the figure given below. This is the default appearance of the **Preview Area**, i.e. it will be seen as soon as you launch the program. At the top of it

you can find the **Path** to the image file you are editing and its **Size** given in pixels (width x height).



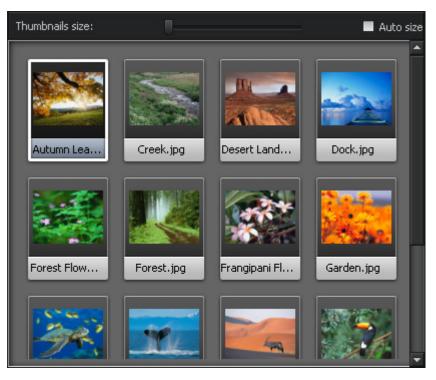
Thumbnails

Thumbnails

0

You can switch to this view mode by clicking the **Thumbnails** button at the **Toolbar** or selecting the corresponding option of the **View** section in the **Main Menu**. In the table given below you can find the function description of the preview area elements when **Thumbnails** view mode is used.

Item	Name	Description
	Thumbnails Size	Is used to change the size of thumbnails that represent the image files shown in the Preview Area . By moving the indicator along the slider you can set the size you need.
	Auto Size	If you check this box, the thumbnails shown in the Preview Area will be automatically equally spaced while dragging the indicator of the Thumbnails Size slider.



By double-clicking a photo from the Preview Area the view mode will be switched to One on Screen.

Note: as soon as you press the **Thumbnails** button, it will turn into **One on Screen** for you to change the current view mode.

Full Screen



You can switch to this view mode by clicking the **Full Screen** button at the **Toolbar**, selecting the corresponding option of the **View** section in the **Main Menu**, or double-clicking the image edited in the **Preview Area** with the left mouse button.

In this view mode the edited image will occupy the whole screen area. If you direct the mouse cursor to the upper part of it, the **Navigation Panel** will appear for you to navigate through the images of the loaded folder and to find the one you need. If you direct the mouse cursor to the bottom of the screen, you'll see the following buttons:

Button	Description
Back	Is used to return from the Full Screen view mode to the default one, when one image is shown within the Preview Area (One on screen).
Previous 🔶	Is used to view the previous photo displayed in the Navigation Panel .
Next	Is used to view the next photo displayed in the Navigation Panel .
Rotate	Is used to change the orientation of the imported photo (portrait to landscape and vice versa).
Rotate 🕍	Is used to change the orientation of the imported photo (portrait to landscape and vice versa).

Back

button situated at the bottom of

To return to the program window, double-click the left mouse button, use the the screen, or press the **Esc** key.

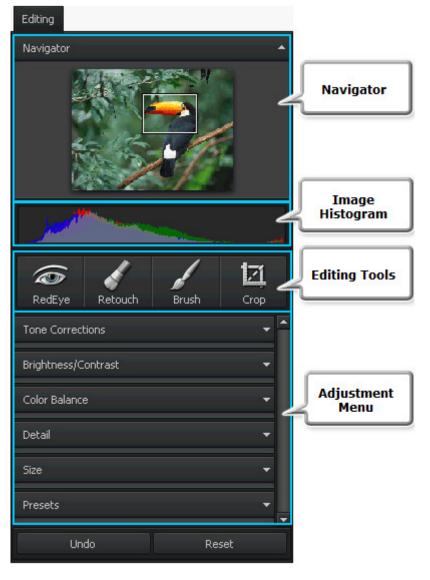


6

Note: you can perform editing operations in the **One on Screen** view mode only. In the **Thumbnails** view mode the **File Info Tab** will be shown on the right-hand side; if you switch to the **Editing Tab**, the editing tools buttons will be greyed out (i.e. disabled) and settings adjustment will be unavailable.

Editing Tab

The **Editing Tab** is situated on the right side of the **Program Window** and is used to select one of the available editing tools, change color and **tone** settings, view image histogram and the original photo. It consists of the following elements:



• Navigator

It is used to navigate through the photo that is displayed within the **Preview Area** while using zoom. In the navigator you can see the entire picture and the part of it that is currently shown within the preview area. So if you zoom in the image, the image part visible in the preview area will be displayed within the white-outlined rectangle in the navigator. The navigator window can be hidden and then shown by clicking the upper bar.

• Image Histogram

Image histogram is used to represent the distribution of colors in the edited image, derived by counting the number of pixels of each of given set of color ranges in a typical **color space**. To learn more on **Using Image Histogram** refer to the corresponding section.

• Editing Tools

Here you can find the tools you can use for editing your images, such as: **Red Eye Correction**, **Retouch**, **Brush** and **Crop**.

• Adjustment Menu

Here you can make **adjustments** to the **tonal** range and properties of the represented colors, apply one of the available effects and resize the image.

• Buttons

The only buttons situated at the **Editing Tab** are **Undo** and **Reset**. The **Undo** is used to reverse the latest performed command,

whereas clicking the **Reset** button you will bring the edited photo to its original state.

0	Note:	after	saving	the	changes,	no	action	can	be	undone or res	et.
U	Note:	after	saving	the	changes,	no	action	can	be	undone or res	e

File Info Tab

The **File Info Tab** is situated on the right side within the **AVS Photo Editor window** and is used to view information about the image file you are editing.

Here you can find the following data that you might need while editing the image. It can be divided into three sections:

File info

DSCO File Siz Date Create Dimension Dimensions (inches Resolutio Bitmap Typ Color Spac Jpeg Qualit	d 2009.05.301 s 2816 x 2112 a) 39.1" x 29.3" n 72 dpi x 72 d e 32bpp e sRGB	
Title		
Author		
Description		
Copyright Disclaimer		
Comment		
EquipmentType	SONY	
EquipmentModel	DSC-W50	
SoftwareID		
VersionNumber	0	
VersionLetter		
HostComputer		
Warning		
DocumentName		
ExposureTime	10/1250	
ExposureCompensation	0	
ExposureProgram	Normal program	
ShutterSpeed		
LensAperture	-	
FocalLength FNumber	124/10 100/10	
ISOSpeed	80	
MeteringMode	Pattern	
FlashMode	Off, Did not fire	
Image: A state of the state		

1. Image File

- Image file name and format extension
- File Size size of the image file given in megabytes
- **Date Created** date and time when the photo was shot (year:month:day hours:minutes:seconds)
- **Dimensions** width and height of the image in pixels
- Dimensions (inches) width and height of the image in inches
- Resolution it describes detail an image holds, measured here in dots per inch (dpi)
- **Bitmap Type** type of memory organization and image file format used to store digital images, measured in bits per pixel (image pixels are generally stored with a **color depth** of 1, 4, 8, 16, 24, 32, 48, or 64 bits per pixel)
- **Color Space color space** used to create this image: sRGB (standard red/green/blue), CMYK (cyan/magenta/yellow, K stands for black), HSL (hue/saturation/lightness), etc.
- Jpeg Quality quality setting used for image compression in JPEG format

2. Additional Information

- **Title** image name entered manually
- Author person who took this picture
- Description description of the image subject
- Copyright copyright notice
- **Disclaimer** statement intended to specify situations that involve some level of uncertainty, waiver, or risk
- **Comment** additional information on the edited image
- Equipment Type name of the still camera used to shoot this picture
- Equipment Model model of the still camera used to shoot this photo
- Software ID name of the software package used to create the image
- Version Number version number of the software package used to create the image
- Version Letter version letter of the software package used to create the image
- Host Computer computer and/or operating system in use at the time of image creation
- Warning warning about the image contents (available for .png image files only)
- Document Name name of a multi-page .tiff image file

3. Camera Settings

- Exposure Time time during which the film or sensor was exposed to light, given in seconds
- **Exposure Compensation** feature that allows to adjust the automatically calculated exposure (compensation can be either positive (additional exposure) or negative (reduced exposure))

- **Exposure Program** class of the program used by the camera to set exposure when the picture is taken (the following programs can be used: not defined, manual, normal program, aperture priority, shutter priority, creative program, action program, portrait mode, landscape mode)
- Shutter Speed length of time the aperture remains open for a given exposure
- Lens Aperture opening in the camera that allows light to pass through the lens to strike the film
- Focal Length actual focal length of the lens
- **F-Number** (also known as F-stop or relative aperture) number defined as the focal length of the lens divided by the effective diameter of the aperture (a smaller F-number implies a larger diameter lens and therefore more light available for high-speed photography)
- **ISO Speed** refers to the "film speed" or sensor sensitivity to light (higher ISOs mean the sensor (or film) is more sensitive to light, while lower ISOs mean the sensor will be less sensitive to light)
- **Metering Mode** refers to the way in which a camera determines the exposure (the following modes can be used: unknown, average, center weighted average, spot, multi-spot, pattern, partial, other)
- Flash Mode flash mode used to produce this picture (on/ off/ auto, fired/ did not fire, red-eye reduction, retouch)

Note: all the strings are always displayed at the tab, but some of them may contain no values depending on still camera you used, image file format and camera settings.

Toolbar

The **Toolbar** is situated at the bottom of the **AVS Photo Editor window** and is used to get quick access to the basic features - change the current view mode, go to the next or previous image in the opened folder, rotate photos, select one of the zoom options. So all the tools on the toolbar are divided into three groups according to their functions:

Changing View Mode

	Folders Fell Thumbnails 🛄 FullScreen
Button	Description
Folders	Is used to show or hide the folders tree situated on the left within the AVS Photo Editor window and used to find a certain folder in your files and folders system.
Thumbnails	Is used to view all the photos from the opened folder within the Preview Area of the program window.
1 on screen	Is used to return from the Thumbnails view mode to the default one, when one image within the Preview Area is shown (available after the Thumbnails button was pressed).
E FullScreen	Is used to make the image occupy the entire screen area. To return to the default view mode, double-click the left mouse button, hit the Back button, or press the Esc key.

Navigating through Photos and Rotating Them

Previous 🦛 📥 Next 🛛 🏠 Potata 🚵

Button	Description
Previous (Is used to view the previous photo displayed in the Navigation Line .
Next	Is used to view the next photo displayed in the Navigation Line .
Rotate	Is used to change the orientation of the imported photo (portrait to landscape and vice versa).
Rotate 🕍	Is used to change the orientation of the imported photo (portrait to landscape and vice versa).

Zoom Options



Button	Description			
🕀 ZoomIn	Is used to zoom in the edited image.			
🖲 ZoomOut	Is used to zoom out the edited image.			
Fit	Is used to resize your image, so that the entire image fits within the Preview Area of the program window.			
100%	Is used to view the edited photo in full size.			
1:3 Is used to view the edited photo at 300% zoom.				

Express Menu

The **Express Menu** is used to facilitate the access to the main functions of the program. The areas of the **Program Window** that offer it are **Preview Area**, **Navigation Line** and **Navigator**. The **Express Menu** can be accessed by right-clicking an element within one of these areas.

Express Menu of the Preview Area

The **Preview Area** situated in the center of the program window has three appearances. So depending on the view mode used the express menu of the **Preview Area** has three variations displayed below:

1. One on Screen view mode

	• Full Screen - used to make the image occupy the entire screen area. To return to the One on
Full Screen	Screen view mode, double-click the left mouse button, hit the Back button, press the Esc key
Undo Last	or use the Back option of the express menu.
Reset	 Undo Last - used to reverse the latest performed command.
	• Reset - used to bring the edited photo to its initial state. If you have already saved the changes
Rotate Left	made, this option will be not available.
Rotate Right	• Rotate Left - used to change the orientation of the imported photo (portrait to landscape and
Previous	vice versa).
	• Rotate Right - used to change the orientation of the imported photo (portrait to landscape and
Next	vice versa).
Zoom In	 Previous - used to view the previous photo displayed in the Navigation Line.
7 0.4	 Next - used to view the next photo displayed in the Navigation Line.
Zoom Out	• Zoom In - used to zoom in the edited image.
Fit	• Zoom out - used to zoom out the edited image.
100%	• Fit - used to resize your image, so that the entire image fits within the Preview Area of the
	program window.
1:3	 100% - used to view the edited photo in full size.
Thumbnails	• 1:3 - used to view the edited photo at 300% zoom.
	• Thumbnails - used to view all the photos from the opened folder within the Preview Area of
	the program window.

2. Full Screen view mode

Back	• Back - used to return from Full Screen to the view mode you used before switching to it.
Rotate Left	 Rotate Left - used to change the orientation of the imported photo (portrait to landscape and vice versa).
Rotate Right	• Rotate Right - used to change the orientation of the imported photo (portrait to landscape and
Previous	 vice versa). Previous - used to view the previous photo displayed in the Navigation Line.
Next	 Next - used to view the next photo displayed in the Navigation Line.

3. Thumbnails view mode

Edit	Enter
Rotate Left	
Rotate Right	
View Full Screen	

- Edit used to return from the **Thumbnails** view mode to the default one, when one image within the **Preview Area** is shown (i.e. **One on Screen**) to be able to edit the selected image.
- **Rotate Left** used to change the orientation of the imported photo (portrait to landscape and vice versa).
- **Rotate Right** used to change the orientation of the imported photo (portrait to landscape and vice versa).
- **View Full Screen** used to make the image occupy the entire screen area. To return to the default view mode, double-click the left mouse button, hit the **Back** button,

press the $\ensuremath{\textit{Esc}}$ key or use the $\ensuremath{\textit{Back}}$ option of the express menu.

Express Menu of the Navigation Line

Within the **Navigation Line** situated at the bottom of the program window you can see all the photos from the opened folder. After right-clicking one of them the following express menu will appear:

Edit	Enter
Rotate Left	
Rotate Right	
View Full Screen	

- Edit used to return from the **Thumbnails** view mode to the default one, when one image within the **Preview Area** is shown (i.e. **One on Screen**) to be able to edit the selected image. If you click this option while using **One on Screen** view mode nothing will happen.
- **Rotate Left** used to change the orientation of the imported photo (portrait to landscape and vice versa).
- **Rotate Right** used to change the orientation of the imported photo (portrait to landscape and vice versa).
- **View Full Screen** used to make the image occupy the entire screen area. To return to the default view mode, double-click the left mouse button, hit the **Back** button,

press the **Esc** key or use the **Back** option of the express menu.

Express Menu of the Navigator

The **Navigator** situated in the right upper corner of the program window is used to see the image area displayed at the moment in the preview area while using one of the zoom options. By right-clicking it the following express menu will be shown:

Zoom In
Zoom Out
100%
Fit

- **Zoom In** used to zoom in the edited image.
- **Zoom Out** used to zoom out the edited image.
- **100%** used to view the edited photo in full size.
- Fit used to resize your image, so that the entire image fits within the **Preview Area** of the program window.

Keyboard Shortcuts and Mouse Manipulation

The **AVS Photo Editor** interface allows you to use keyboard shortcuts to facilitate the access to the main program features. They are represented in the table below:

Section	Shortcut		Description
	Ctrl + Z	Undo	Use it to reverse the latest performed command or action
	Ctrl + Y	Redo	Use it to repeat your latest performed command or action
	Ctrl + O	Open	Use it to open the needed folder and load all the photos from it into the program for editing
	Ctrl + S	Save	Use it to save the currently edited photo
Program Window	Ctrl + F	Full Screen	Use it to switch to the Full Screen view mode, when the image occupies the entire screen area
	F	Fit	Use it to resize your image, so that the entire image fits within the Preview Area of the program window
	F1	Help	Use it to open the AVS Photo Editor help file
	Alt + F4	Exit	Use it to finish work with the program and exit

	Top Arrow	Use it to move up within the folders tree
	Bottom Arrow	Use it to move down within the folders tree
	Right Arrow	Use it to open the selected folder, if it contains some other folders
Folders Tree	Left Arrow	Use it to close the selected folder, if it contains some other folders
	Page Up	Use it to move to the top of the tree - to the very first folder
	Page Down	Use it to move to the bottom of the tree - to the last folder
	Alt + Left Arrow	Use it to move to the parent folder
One on Screen Esc		Use it to prevent the editing tool from fulfilling a certain task
Thumbnails View Mode	Enter	Use it to switch to the One on Screen view mode
	Left Arrow	Use it to show the previous image displayed in the navigation panel
Fullscreen View Mode	Right Arrow	Use it to show the next image displayed in the navigation panel
	Esc	Use it to switch to the previous view mode
Settings Sliders	Left Arrow	Use it to decrease value of the selected setting
at the Editing Tab	Right Arrow	Use it to increase value of the selected setting

0

Note: before using the keyboard shortcuts, make sure that the corresponding **section** of the program interface is enabled.

You can also use the scroll wheel (i.e. mouse wheel) to perform some actions within AVS Photo Editor interface:

• Zoom

If the mouse cursor is situated within the Preview Area in the One on Screen view mode or within the **Navigator** window, by scrolling the mouse wheel you can zoom in and out the displayed photo.

• Navigation

In the Thumbnails view mode you can scroll thumbnails, if one of them is selected. If one of the folders in the **Folders Tree** is selected, you can scroll the whole folders list.

• Settings Adjustment at the Editing Tab

If you press the **Ctrl** key and click with the mouse one of the settings sliders, you can change the default value to the needed one by scrolling the mouse wheel.

Working with AVS Photo Editor: Overview

Working with **AVS Photo Editor** is very easy, as you don't need to open additional windows to perform a certain editing task - everything is displayed and can be done within the only **Program Window**.

This help section comprises the following chapters for you to learn more about working with **AVS Photo Editor**:

1. Adding and previewing photos

This chapter includes instuctions on how to load photos you want to edit into the program and preview them using various view modes and zoom options. The full **list of image file formats** supported by **AVS Photo Editor** can also be found here.

2. Using editing tools

Refer to this chapter, if you'd like to learn more on how to use editing tools, such as: **Red Eye Correction**, **Retouch**, **Brush** and **Crop**.

3. Adjusting color and tone

In this chapter you can read tips about making adjustments to the **tonal** range and settings of the represented colors, applying one of the available ready presets and resizing the edited image.

4. Using image histogram

You can also correct color and **tonal** settings using the image histogram, which is used to represent the distribution of colors in the edited image, derived by counting the number of pixels of each of given set of color ranges in a typical **color space**.

5. Saving edited photos

Here you can find detailed information about saving options offered in this program.

Adding and Previewing Photos

Before you can edit your photos, you should find them on your hard disk drive or removable medium and import to the program. To do that you can use the **Main Menu** or **Folders Tree**.

Adding Photos

• Using drag-and-drop function

If you find the necessary images in **Windows Explorer** of your PC you can select one of them left-clicking it and drag the image to the **AVS Photo Editor** icon on the desktop and drop it there. After that the program will be launched with all the photos from this folder loaded to it, and the added image will be displayed in the Preview Area.



It's also possible to drag and drop the images from **Windows Explorer** to the launched **AVS Photo Editor** application, if the **One on Screen** or **Thumbnails** view mode of the Preview Area is selected.



• Using main menu

Click the **File** section of the **Main Menu** and select the **Open** option. Then the following window will pop up and let you find the needed image file:

op up and let you find the needed image file:					Open Re	cent			
🔰 Open								×	
Look jn:	👰 Exchange			-	🕂 🗗 🕂				
Ca.	Name	Date modified	Туре		Size			<u> </u>	
Recent Places	2009-03-1				DSC03241.JPG				
	DSC03228. DSC03229.				DSC03242.JPG DSC03243.JPG				
	DSC03229.				DSC03243.JPG				
Desktop	DSC03231.				DSC03245.JPG				
Desktop	SC03232.	JPG			DSC03246.JPG			=	
100	DSC03233.				DSC03247.JPG			-	
(<mark>6</mark>)-	DSC03234.				DSC03248.JPG				
Alex	DSC03235. DSC03236.				DSC03249.JPG DSC03250.JPG				
	DSC03237.				DSC03251.JPG				
	DSC03238.				DSC03252.JPG				
Computer	SC03239.	JPG			DSC03253.JPG				
	SC03240.	JPG		-	DSC03254.JPG				
								-	
Network	File <u>n</u> ame:				-		<u>O</u> pen		

All Supported Images

<u>F</u>ile

-

Cancel

<u>E</u>dit

Open

⊻iew

About

Ctrl+O

Files of type:

• Using folders tree

It's very easy to find the photos you want to add using the **Folders Tree** situated on the left side of the **Program Window**. To do that you should know where the needed photos are stored on your PC or a removable medium. Here you can see the entire structure of the files and folders system on your computer. As soon as you find the wanted folder, click it and its contents will be displayed within the **Navigation Panel**, where you can find the image you want to edit.

After you loaded the necessary folder into the program, you can hide the **Folders**

Folders button situated on the **Toolbar**.

Previewing Added Photos

• Changing view modes

Tree using the

After you found and added the necessary folder to the program, all of the images from it will be seen within the **Navigation Panel**. Click one of the photos and it will be displayed in the **Preview Area**. To make the previewing process more comfortable you can use a variaty of the view modes offered in the program: **One on Screen**, **Thumbnails** and **Full Screen**. You can switch between them using the appropriate buttons on the **Toolbar**.

• Navigating through photos

To navigate through images from the imported folder you can use the **Navigation Panel**, the corresponding option of the **Express Menu**, or the buttons on the **Toolbar** displayed on the right.

• Rotating photos

A

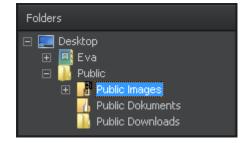
It's possible to rotate photos in the **Preview Area** counter clockwise and clockwise by 90 degrees. For this purpose use the **Rotate Right** or **Rotate Left** option of the **Edit** section in the **Main Menu**, the corresponding option of the **Express Menu**, or the buttons situated on the **Toolbar** and displayed on the right.

Note: the **Rotate** function will be disabled, if one of the **Editing Tools** is being used. In order to rotate your image, press the appropriate tool button at the **Editing Tab** to hide the settings area and deactivate the tool.

• Zooming in and out

To zoom in or out the edited image in the **Preview Area** select the appropriate option of the **View** section in the **Main Menu** or the buttons situated on the **Toolbar** and displayed on the right. It's also possible to use **Express Menu** to apply one of the zoom options. The following zoom options are available in the program:

- Zoom in use it to zoom in the edited image.
- **Zoom out** use it to zoom out the edited image.
- Fit use it to resize your image, so that the entire image fits within the preview area.
- **100%** use it to view the edited photo in full size.
- **1:3** use it to view the edited photo at 300% zoom.





1 on screen





It's also possible to zoom in and out the displayed image by scrolling the mouse wheel, if the mouse cursor is situated within the Preview Area in the One on Screen view mode or within the **Navigator** window at the Editing Tab.

While using the zoom function you can have a look at the **Navigator** window situated in the Editing Tab, where you can see the image area displayed at the moment within the Preview **Area**. So if you zoom in the image, the image area visible in the preview area will be displayed within the white-outlined rectangle in the navigator.

While zooming in a photo in the **One on Screen** view mode, some parts of the image won't be seen within the **Preview Area**, as this option zooms in to the center of the image. As soon as you zoom in the edited image, the mouse cursor will turn into a hand - 🖑. To move the image and see the area you need, click the mouse button (the hand becomes closed - \bigcirc) and, without releasing it, drag the hand cursor in the desired direction.

Supported Image File Formats

Image file formats are standardized means of organizing and storing images. Image files are composed of either pixel or vector (geometric) data. So image formats are divided into three groups: raster formats, vector formats and metafile formats (include both vector and bitmap components).

Raster formats store images as bitmap that is a data structure representing a generally rectangular grid of pixels, or points of color. A bitmap is technically characterized by the width and height of the image in pixels and by the number of bits per pixel. The greater the number of rows and columns, the greater the image resolution, and the larger the file. Also, each pixel of an image increases in size when its color depth increases — an 8-bit pixel (1 byte) stores 256 colors, a 24-bit pixel (3 bytes) stores 16 million colors, the latter is known as truecolor. **Image compression** uses algorithms to decrease the size of a file.

There are two types of image file compression algorithms: lossless and lossy. Lossless compression algorithms reduce file size without losing image quality, though they are not compressed into as small a file as a lossy compression file. When image quality is valued above file size, lossless algorithms are typically chosen. Lossy compression algorithms take advantage of the inherent limitations of the human eye and discard invisible information.

Most of the commonly used raster image file and metafile formats are supported by **AVS Photo Editor**:

Format	Format Usage Info		Quality
BMP (Windows Bitmap)Microsoft Windows OS Widely accepted			Typically uncompressed, hence large, best image quality
ICO (Windows Icon)	Microsoft Windows OS	One or more small images at multiple sizes and color depths	
WMF (Windows Metafile) EMF (Enhanced Metafile)	Microsoft Windows OS	Layout of a printed page containing text, objects and images (line-art, illustrations, content created in drawing or presentation applications)	WMF is a 16-bit format, EMF is a newer 32-bit version



www.avs4you.com





JPEG (Joint Photographic Expert Group) .jpeg .jpg	 In digital cameras and other photographic image capture devices For storing and transmitting photographic images on the WWW Best for the final distribution of photographic images 		 Lossy format bits per color (red, green, blue) for a 24-bit total Generational degradation when repeatedly edited and saved Small files
GIF (Graphics Interchange)	 - Suitable for storing graphics with relatively few colors such as simple diagrams, shapes, logos and cartoon style images - Widely used to provide image animation effects 		 Limited to an 8-bit palette, or 256 colors Lossless compression that is more effective when large areas have a single color, and ineffective for detailed images or dithered¹ images Small files
PNG (Portable Network Graphics)	 - Best for WWW - Fully streamable with a progressive display option - Best suited for editing pictures 	 Gamma and chromaticity data for improved color matching on heterogeneous platforms Indexed-color, grayscale, and truecolor images are supported 	Lossless, truecolor supported
TIFF (Tagged Image File Format) .tif .tiff	Not widely supported by web browsers, but widely accepted as a photographic file standard in printing industry	 Size, definition, image- data arrangement, applied image compression Can handle device- specific color spaces, such as the CMYK 	Lossy and lossless (if lossles, editing and re-saving without losing image quality)
EXIF (Exchangeable Image File format)	In digital cameras	 - Date and time information - Camera settings - Thumbnails for previewing the picture - Descriptions - Copyright information 	Lossy and lossless depending on the file format used (JPEG, TIFF Rev. 6.0, and RIFF WAV)

¹ - **Dithering** is a technique used in computer graphics to create the illusion of **color depth** in images with a limited color palette. In a dithered image, colors not available in the palette are approximated by a diffusion of colored pixels from within the available palette. The human eye perceives the diffusion as a mixture of the colors within it.

² - **Color map** is a matrix of real numbers between 0.0 and 1.0, where each row is an RGB vector that defines one color.

Using Editing Tools

AVS Photo Editor offers a number of editing tools for you to perform some operations. They are situated at the **Editing Tab** and can be accessed by clicking the appropriate tool button. After that you'll see all the settings of the tool you have just selected. More information on the tools settings you can find in the corresponding chapters.



Red Eye Correction Tool

This tool allows you to easily remove the red-eye effect in a digital photo caused by a camera's flash reflecting on a person's retina and correct eye color.



Retouch Tool

This tool allows you to make color adjustments to certain areas of your image. Using this tool you can also multiply or delete some objects depicted in an image.



Brush Tool

This tool allows you to make brightness or contrast adjustments to certain areas of your image, rather than to the entire image.



Crop Tool

This tool allows you to select an area of an image and discard everything outside this area. You can also rotate, adjust width and height and zoom this area in.

0

Note: you can perform editing operations in the **One on Screen** view mode only. In the **Thumbnails** view mode the **File Info Tab** will be shown on the right-hand side; if you switch to the **Editing Tab**, the editing tools buttons will be greyed out (i.e. disabled).

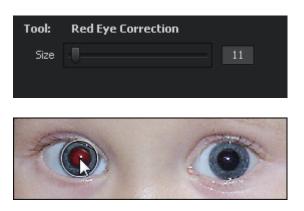
Red Eye Correction Tool



The **Red Eye Correction** tool allows you to easily remove the red-eye effect in a digital photo caused by a camera's flash reflecting on a person's retina and correct eye color.

Settings

After pressing the **Red Eye** button you'll see all the available tool settings and the mouse cursor within the **Preview Area** will be accompanied by an applying area that looks like a white-outlined circle (see the figure on the right). You can select the **Size** of the applying area by dragging the indicator of the appropriate slider or entering a value into the box next to it and pressing the **Enter** key. The higher value you set, the larger applying area of the tool will be.



Using

To correct red-eye effect you should hover the mouse cursor over one of the eyes, so that the applying area covers it, and click the left mouse button. The retina color will be corrected.

Retouch Tool



The **Retouch** tool allows you to make color adjustments to certain areas of your image. Using this tool you can also multiply or delete some objects depicted in an image.

Settings

After pressing the **Retouch** button you'll see all the available tool settings and the mouse cursor within the **Preview Area** will be accompanied by an applying area that looks like a white-outlined circle. You can change the tool settings by dragging the indicator of the appropriate slider or entering a value into the box situated next to it and pressing the **Enter** key. The following tool settings can be adjusted:

Tool:	Retouch	
Size		30
Туре	Round	-
Softness		70

- Size select the size of the applying area; the higher value you set, the larger applying area of the tool will be.
- **Type** choose an applying area type: round or rectangle.
- Softness select the transparency level of the applying area.

Using

To apply the **Retouch** tool you should hover the mouse cursor over one of the objects in your photo, so that the applying area covers it, click the left mouse button and **without releasing it** move to the needed place. The image part covered by the applying area will be 'copied' and transferred to another place. So you can paint over the objects you don't need or multiply them.



Example

In the figures below you can see an image before and after applying the **Retouch** tool:



Before applying the **Retouch** tool



After applying the Retouch tool

Brush Tool



The **Brush** tool allows you to make brightness or contrast adjustments to certain areas of your image, rather than to the entire image.

Settings

After pressing the Brush button you'll see all the available tool settings and the mouse cursor within the Preview Area will be accompanied by an applying area that looks like a white-outlined circle. You can change the tool settings by dragging the indicator of the appropriate slider or entering a value into the box situated next to it and pressing the Enter key. The following tool settings can be adjusted:

- Size select the size of the applying area; the higher value you set, the larger applying area of the tool will be.
- **Type** choose a tool type: brightness or contrast. •
- Level set the needed brightness or sontrast level.
- **Softness** select the transparency level of the applying area.

Using

To apply the **Brush** tool you should hover the mouse cursor over any area in your photo, so that the applying area covers it, and click the left

mouse button. So you can adjust brightness and contrast in some areas of the image.

In the figures below you can see an image before and after applying the **Brush** tool:

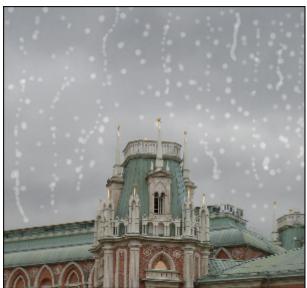
Example



Before applying the **Brush** tool

Tool:	Brush			
Size			30	
Туре	Brightness		•	
Level			60	
Softness			0	





After applying the **Brush** tool

())

Crop Tool



The **Crop** tool allows you to select an area of an image and discard everything outside this area. You can also rotate, adjust width and height and zoom this area in.

Using

After pressing the **Crop** button you'll see all the available tool settings and the image will be enclosed in a gray-outlined rectangle. As soon as you hover the mouse cursor over its edge, the rectangle will become active and the mouse cursor will turn to a double-sided arrow - $\hat{\mathfrak{T}}$. So you can **zoom in** an object displayed in the photo.

As soon as you move your mouse cursor outside the rectangle, it will turn to a round arrow - 🚱 - that allows you to **rotate** the image in the direction you want.

Within the rectangle you can use a hand cursor - 0 - that can be used to **drag** the image till the needed area is situated within the rectangle.



To apply changes made and hide the crop settings

area, click the left button, whereas after pressing the right button all the changes made will be discarded.

Settings

You can change the tool settings by dragging the indicator of the appropriate slider or entering a value into the box situated next to it and pressing the **Enter** key. The following tool settings can be adjusted:

- Angle rotation angle of the edited image.
- Width width of the cropped image part.
- Height height of the cropped image part.
- **Proportion Constraint** this box is checked by default; uncheck it to crop your image without preserving the aspect ratio.
- Apply after pressing this button all the changes made will be seen within the Navigator window.
- Cancel after pressing this button the changes made will be discarded.

Example

In the figures below you can see an image before and after applying the **Crop** tool:



Before applying the Crop tool



After applying the Crop tool

ght button all the changes made will be discarded.			
Tool:	Crop		
Angle			0
Width	2112	Height	2816
🗹 Pro	oportion constraint		
- A	Apply	Ca	incel

 \bigotimes

A

Adjusting Color and Tone

You can change color and tonal settings using the Adjustment Menu that is situated at the Editing Tab.

The **Adjustment Menu** represents a so-called accordion menu, which contains a vertically stacked list of sections. Each of them can be opened by clicking it. Within the opened section you'll see settings that can be changed. To increase a setting value drag the indicator of the corresponding slider to the right, whereas to decrease a value move the indicator to the left. It's also possible to enter the needed value into the appropriate box per keyboard. To apply the entered value to the edited image, press the **Enter** key.

Note: you can perform editing operations in the **One on Screen** view mode only. In the **Thumbnails** view mode the **File Info Tab** will be shown on the right-hand side; if you switch to the **Editing Tab**, settings adjustment will be unavailable.

Tone Correcti	ons		•
Blacks	0		 0
Fill light	0		 0
Exposure		_0	 0
Recovery	0		 0
Saturation		-0	 0
Temperature	_	-0	 0

Blacks

Is used to adjust the black clipping point of an image. Increasing **Blacks** expands the areas that are mapped to black. The greatest change is in the shadows, with much less change in the **midtones** and **highlights**.

• Fill Light

Is used to restore shadow detail. Increasing the value allows you to digitally shine light on dark areas and bring out detail that would otherwise be obscured without affecting areas that should be black based on the **Blacks** setting.

• Exposure

Is used to adjust the **white clipping point** of an image (i.e. the overall image brightness), if your image is overexposed (too much light) or underexposed (too little light). Decrease **Exposure** to darken the image and increase it to brighten the image.

• Recovery

Is used to restore **highlight** detail. By using this simple slider, you can easily bring back some detail from most images without changing the overall exposure or color balance. While certainly it's no substitute for getting the shot right, it's always nice to be able to get back that tiny bit of extra detail you might otherwise lose.

• Saturation

Is used to correct the strength (purity) of colors. Saturation represents the amount of grey in proportion to the **hue**, measured as a percentage from -100 (grey) to 100 (fully saturated).

• Temperature

Is used to adjust your image to **warm or cold colors**. Negative values represent cold colors and positive values transform to warm colors correspondingly.

Tone Correction



Blacks



Fill Light







Recovery







Temperature

Brightness/ Contrast

Brightness/Contrast

Brightness

Is used to adjust the relative lightness or darkness of the color, i.e. the tonal range of an image.

Contrast

Is used to correct the difference in visual properties that makes an object in an image distinguishable from other objects and the background.

Color Balance

• Cyan - Red

Cyan and red are chromatically opposite colors. Cyan is used to refer to the color obtained by mixing equal amounts of green and blue light or the removal of red from white light.

• Magenta - Green

Magenta and green are chromatically opposite colors. Magenta is used to refer to the color obtained by mixing equal amounts of red and blue light or the removal of green from white light.



magenta



Yellow - Blue

Color Balance

Color Levels

Cyan

Yellow

Magenta

Size

Width

Yellow and blue are chromatically opposite colors. Yellow is used to refer to the color obtained by mixing equal amounts of red and green light or the removal of blue from white light.

Red

Green

Blue

• Color Levels

These boxes are used for the same purpose but using keyboard. The 1st box stands for "Cyan - Red", the 2nd for "Magenta - Green", the 3rd for "Yellow - Blue".

Detail		•
Blur		Sharpening
	Sharpening level	0

Detail

Blur - Sharpening Is used to reduce (**Blur**) or increase (**Sharpen**) contrast between adjacent pixels by lightening or darkening pixels next to well-defined or blurry edges and shadows, visually smoothing and softening or sharpening the image.

• Sharpening Level

This box is used for the same purpose but using keyboard.

Size

- This section is used to resize the edited image.
- Width is used to change the image width.
- Height is used to change the image height.

Proportion Constraint

Proportion constraint

This check box is used to preserve image proportions and is checked by default. To change only width or height uncheck this box and enter the needed value into the appropriate field.

This button is used to apply the changes you have just made in order to adjust the picture size.

• Apply This button is used to apply the changes you have in

Height

Apply

0

Note: settings of the **Size** section will be greyed out (i.e. unavailable), if one of the **Editing Tools** is being used. In order to resize your image, press the appropriate tool button at the **Editing Tab** to hide the settings area and deactivate the tool.

Presets

Original Aged Photo Black and White High Contrast Sepia Tone Cold Tone Noon Day Sun Effect Soft Focus Sharp Details

These presets represent ready parameters combinations. The result displayed after applying one of them can also be adjusted by changing color and tone settings.

Presets

• Original

This is the initial image. You can use this option to swith to the original photo after applying one of the presets.

Aged Photo

This preset gives your photo an antique or aged look.

• Black and White High Contrast

This preset makes your photo black and white maintaining its sharpness and contrast.

• Sepia Tone

This preset transforms image spectrum to brownish which imitates faded photos and yellowish photo paper. It gives your image an antique appearance.

Cold Tone

This preset adjusts your image to cold colors.

• Noon Day Sun Effect

This preset lets colors bleed out and leaves images flat or blown out.

• Soft Focus

This preset gives the appearance of blurring the image while retaining sharp edges. It eliminates blemishes, and in general produces a dream-like image.

• Sharp Details

This preset enhances images that lack sharp detail and depth.



Noon Day Sun



Soft Focus



Sharp Details



Original



Aged Photo



Black & White High Contrast



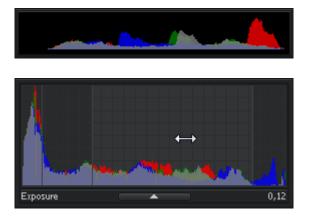
Sepia Tone



Cold Tone

Using Image Histogram

The **Image Histogram** is used to represent the distribution of colors in the edited image, derived by counting the number of pixels of each of given set of color ranges in a typical **color space**. It is situated under the **Navigator** area within the **Editing Tab**.



A

Image Histogram is minimized by default, but it can be maximized with one mouse click and will look like shown in the figure on the left. By hitting the **Image** button you can minimize the **Image Histogram** area, when you don't need it any more.

The **Image Histogram** represents colors overlay and is devided into four parts, each of them corresponds to **Blacks**, **Fill Light**, **Exposure** and **Recovery**. You can learn more about them in the **Adjusting Color and Tone** chapter.

Note: these parameters can also be changed in the **Adjustment Menu** of the **Editing Tab** by dragging the indicator of the appropriate slider or entering a certain value.

To change one of the above mentioned settings, direct your mouse cursor to the needed area of the **Image Histogram**. It will turn into a two-directional arrow pointer. So you can drag it to the left or right to adjust **Blacks**, **Fill Light**, **Exposure** and **Recovery**. Moving the arrow pointer to the right you can increase a value, so to decrease it, move the arrow pointer to the left. The current value will be displayed in the right lower corner of the image histogram. It corresponds to the appropriate value in the **Tone Correction** section of the **Adjustment Menu**.

Note: you can perform editing operations in the **One on Screen** view mode only. In the **Thumbnails** view mode the **File Info Tab** will be shown on the right-hand side; if you switch to the **Editing Tab**, settings adjustment will be unavailable.

Saving Edited Photos

After you made the needed adjustments to your image, you have several possibilities to save it:

Using Main Menu

In the **File** section of the **Main Menu** you can select the **Save** and **Save as** options to save the currently edited photo into the same file or under a different name. As soon as you choose the **Save as** option, the following window will pop up to let you select the location and type in a file name:

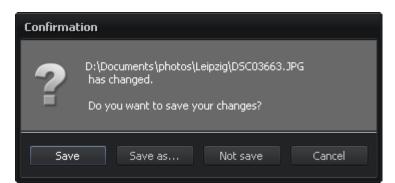
🗿 Save As						
Savejn:	🔋 Sample Pi	ctures		• + (È 💣 🎟 🔹	
Ca.	Name	Date taken	Tags	Size	Rating	<u>^</u>
Recent Places						
Desktop	Autumn Leaves	Creek	Desert Landscape	Dock	Forest	
		and a	No.	Jr;	Me.	
Alex	Forest Flowers	Frangipani Flowers	Garden	Green Sea Turtle	Humpback Whale	
Computer				the second		
	Onvy	Toco Toucan	Tree	Waterfall	Winter	-
Network	File <u>n</u> ame:	Untitled.bmp			•	<u>S</u> ave
	Save as <u>t</u> ype:	All Supporte	d Images		•	Cancel

Per Keyboard

Use **Ctrl+S** key combination to save the currently edited image into the same file.

Before Opening the Next/ Previous Photo in the Folder

If you press the **Next** or **Previous** button situated at the **Toolbar** or click the next/ previous photo thumbnail within the **Navigation Panel**, the following confirmation dialog will appear for you to select one of the options:



Button	Description	
Save	Is used to save the currently edited photo	
Save as	Is used to save the currently edited photo under a different name	
Not save	Is used to discard the changes made during editing process and go to the next or previous imaging the opened folder.	
Cancel	Is used to cancel the saving process and continue editing the image.	

Glossary

A

AAC

Advanced Audio Coding. Standardized, lossy compression and encoding scheme for digital audio. AAC is promoted as the successor to the MP3 format by MP3's creator, Fraunhofer IIS. Depending on the encoder used, AAC generally achieves better sound quality than MP3 at the same bitrate, particularly below 192 kbit/s. AAC's most famous usage is as the default audio format of Apple's iPhone, iPod, iTunes, and the format used for all iTunes Store audio (with extensions for proprietary Digital Rights Management (DRM) where used). AAC is also the standard audio format for Sony's PlayStation 3, the MPEG-4 video standard, and HE-AAC is part of digital radio standards like DAB+ and Digital Radio Mondiale.

ADPCM

Adaptive differential pulse-code modulation. A technique for converting sound or analog information to binary information (a string of 0's and 1's) by taking frequent samples of the sound and expressing the value of the sampled sound modulation in binary terms. ADPCM is used to send sound on fiber-optic long-distance lines as well as to store sound along with text, images, and code on a CD-ROM. This method of encoding sound data files takes up less storage space than the regular PCM format used by WAV and AIFF files--and CD audio for that matter. ADPCM comes in more than one flavor: IMA's ADPCM, for example, is used on the Sony Mini Disc to cram more data onto a smaller platter; Microsoft ADPCM is used as part of Windows 95's canon of audio codecs.

AMR

Adaptive Multi-Rate. An audio data compression scheme optimized for speech coding. AMR was adopted as the standard speech codec by 3GPP in October 1998 and is now widely used in GSM. It uses link adaptation to select from one of eight different bit rates based on link conditions. AMR is also a file format for storing spoken audio using the AMR codec. Many modern mobile telephone handsets will allow you to store short recordings in the AMR format, and some commercial programs exist to convert between this and other formats such as MP3, although it should be remembered that AMR is a speech format and is unlikely to give ideal results for other audio.

artifacts

Unusual or unwanted video distortion. Examples of artifacts include flicker, jitter, degradation of resolution, and aspect ratio abnormalities.

aspect ratio

The aspect ratio is the relationship of screen width to height. Standard broadcast TV has a ratio of 4 to 3. Widescreen commonly has a ratio of 16 to 9 (although 1.85:1 and 2.11:1 are also used). To show widescreen movies on a standard TV screen, either letterbox (with black bars above and below the image) or 'pan and scan' (which crops the movie to fit the screen) are common techniques.

audio feedback

A special kind of feedback which occurs when a sound loop exists between an audio input (for example, a microphone or guitar pickup) and an audio output (for example, a loudspeaker). In this example, a signal received by the microphone is amplified and passed out of the loudspeaker. The sound from the loudspeaker can then be received by the microphone again, amplified further, and then passed out through the loudspeaker again. This is a good example of positive feedback. The frequency of the resulting sound is determined by resonant frequencies in the microphone, amplifier, and loudspeaker, the acoustics of the room, the directional pick-up and emission patterns of the microphone and loudspeaker, and the distance between them.

AVI

Audio Video Interleave. The original Microsoft file format for Microsoft's Video for Windows standard. It is an audio video standard designed by Microsoft and is apparently proprietary and Microsoft Windows specific. It is a format developed for storing video and audio information. Files in this format have an .AVI extension. However, Video for Windows does not require any special hardware, making it the lowest common denominator for multimedia applications.

В

B-frames

Bidirectional frames - frames used in MPEG-4 format that are compressed based on the frames before and after them. Have the greatest compression ratio among all frame types. See **B-VOPs** codec settings section for more detail.

BD

Blu-ray Disc. A next-generation optical disc format meant for storage of high-definition video and high-density data. The Blu-ray standard was jointly developed by a group of leading consumer electronics and PC companies called the Blu-ray Disc Association (BDA), led by Sony and Philips. A single-layer Blu-ray disc (BD) can fit 23.3, 25, or 27 GB; this is enough for approximately four hours of high-definition video with audio. A dual-layer BD can fit 46.6, 50, or 54 GB, enough for approximately eight hours of HD video. Capacities of 100 GB and 200 GB, using four and eight layers respectively, are currently being researched; TDK has already announced a four-layer 100 GB disc.

bandwidth

A network's capacity for transferring an amount of data in a given time.

bidirectional frames

See **B-frames**.

bit rate

The number of bits transferred per second.

brightness

The value of a pixel along the black-white axis.

B-VOPs

An option that allows the codec algorithm to use so called bidirectional frames that are much smaller in size than usual frames and are predicted based on the frames before and after them.

С

capture

To record audio, video, or still images as digital data in a file.

capture device

Hardware that transfers audio and video from an external source, such as a VCR or camcorder, to a computer.

chapters

DVD discs can be split up into **titles**, and then further into chapters. For example, on a disc with multiple sporting events, each event may be designated as a separate title. Each period in the individual sporting event or title may be designated a chapter.

chroma motion

An algorithm that lets the codec detect motion in an advanced way and calculate the possibility to additionally compress the output file without the quality loss.

chroma optimizer

An algorithm used to produce a better impression of objects edges by reducing the noise around them.

chromaticity

Chromaticity is an objective specification of the quality of a color regardless of its luminance, that is, as determined by its **saturation** (or colorfulness) and **hue**.

clip

1. The audio, video, or still images within DVD discs. Clips are stored in collections.

2. The audio, video, or still images within AVS Video Editor.

clip creation

The process of detecting and splitting video content into separate clips.

codec

An abbreviation for COmpressor/DECompressor. Software or hardware used to compress and decompress digital media.

color depth

Color depth or bit depth, is a computer graphics term describing the number of bits used to represent the color of a single pixel in a bitmapped image or video frame buffer. This concept is also known as bits per pixel (bpp), particularly when specified along with the number of bits used. Higher color depth gives a broader range of distinct colors.

- **1-bit monochrome** typically the two colors used for a binary image are black and white, though any two colors can be used
- **8-bit greyscale** greyscale images have many shades of grey in between in comparison with one-bit black-and-white images
- **8-bit color** the maximum number of colors that can be displayed at any one time is 256
- **15/16-bit color (highcolor)** it allows 32,768/ 65,536 possible colors for each pixel
- **24-bit color (truecolor)** it means at least 256 shades of red, green, and blue, for a total of at least 16,777,216 color variations
- **30/36/48-bit color (deepcolor)** anything superior to truecolor, typically over a billion colors; the xvYCC, sRGB, and YCbCr **color spaces** can be used with deepcolor systems

color model

A **color model** is an abstract mathematical model describing the way colors can be represented as sequences of numbers, typically as three or four values or color components. When this model is associated with a precise description of how the components are to be interpreted (viewing conditions, etc.), the resulting set of colors is called **color space**.

color space

Any specific method for associating **tristimulus values** with each color.

- CMYK cyan (C), magenta (M), yellow (Y), and black (K) used in the printing process
- **sRGB** or **standard RGB** red, green, blue created cooperatively by Hewlett-Packard and Microsoft Corporation for use on the Internet
- Adobe RGB developed by Adobe Systems in 1998, designed to encompass most of the colors achievable on CMYK color printers, but by using RGB primary colors on a computer display
- **HSV**, also known as **HSB** hue, satutarion, value/ brightness lightness of a pure color is equal to the lightness of a medium grey
- HSL, also known as HLS, HSI, or TSD hue, saturation, lightness/ luminance brightness of a pure color is equal to the brightness of white
- YIQ, YUV, YDbDr YIQ was formerly used in NTSC, YUV in PAL, YDbDr in SECAM
- **YPbPr, YCbCr** YPbPr is a scaled version of YUV. It is most commonly seen in its digital form, YCbCr, used widely in video and image compression schemes such as MPEG and JPEG
- **xvYCC** a new international digital video color space standard
- **CIE 1931 XYZ** the first attempt to produce a color space based on measurements of human color perception and it is the basis for almost all other color spaces
- **CIELUV** a modification of "CIE 1931 XYZ" to display color differences more conveniently, especially useful for additive mixtures of lights, due to its linear addition properties
- **CIELAB** designed to produce a color space that is more perceptually linear than other color spaces (i.e. a change of the same amount in a color value should produce a change of about the same visual importance)
- **CIEUVW** measurements over a larger field of view than the "CIE 1931 XYZ" color space which produces slightly different results

color wheel

The color wheel or color circle is the basic tool for combining colors. The color wheel is designed so that virtually any colors you pick from it will look good together. Over the years, many variations of the basic design have been made, but the most common version is a wheel of 12 colors based on the RYB (red, yellow, blue) **color model**.

compression

A process for removing redundant data from a digital media file or stream to reduce its size or the bandwidth used.

content

Audio, video, images, text, or any other information that is contained in a digital media file or stream.

CSS

"Content Scramble System". The official DVD-Video digital encryption scheme.

D

data rate

The speed of a data transfer process, usually expressed in kilobytes (thousands of bytes) per second. See also bit rate.

DC Bias (DC offset)

An offsetting of a signal from zero. The term originated in electronics, where it refers to a direct current voltage, but the concept has been extended to any representation of a waveform. DC offset is the mean amplitude of the waveform; if the mean amplitude is zero, there is no DC offset. DC offset is usually undesirable. For example, in audio processing, a sound that has DC offset will not be at its loudest possible volume when normalized (because the offset consumes headroom), and this problem can possibly extend to the mix as a whole, since a sound with DC offset and a sound without DC offset will have DC offset when mixed. It may also cause other artifacts depending on what is being done with the signal. DC offset can be reduced in real-time by a one-pole one-zero high-pass filter. When one already has the entire waveform, subtracting the mean amplitude from each sample will remove the offset if the offset is constant throughout the waveform. Otherwise, the high-pass filter should be used.

decode

The process of converting the data on a DVD into the video image on the screen.

decompress

Convert video and audio data from a compressed form back into its original form.

delta frames

See P-frames.

digital video (DV)

Video images and sound stored in a digital format.

to download

To transfer a file over a network in response to a request from the device that receives the data. Downloaded content is kept on the receiving device for playback on demand. In contrast, streamed content is played as it is delivered.

DVD

Digital Versatile Disc - an optical disc used to store information that has rather a large capacity as compared with usual CD's. Needs special DVD drive to read such a disc.

Е

encode

Convert video or audio into a compressed format.

F

FFT

Fast Fourier transform. An efficient algorithm to compute the discrete Fourier transform (DFT) and its inverse. FFTs are of great importance to a wide variety of applications, from digital signal processing and solving partial differential equations to algorithms for quick multiplication of large integers. The discrete Fourier transform, occasionally called the finite Fourier transform, is a transform for Fourier analysis of finite-domain discrete-time signals. As with most Fourier analyses, it expresses an input function in terms of a sum of sinusoidal components by determining the amplitude and phase of each component. However, the DFT is distinguished by the fact that its input function is discrete and finite: the input to the DFT is a finite sequence of real or complex numbers, which makes the DFT ideal for processing information stored in computers. In particular, the DFT is widely employed in signal processing and related fields to analyze the frequencies contained in a sampled signal, to solve partial differential equations, and to perform other operations such as convolutions. The DFT can be computed efficiently in practice using a fast Fourier transform algorithm. Since FFT algorithms are so commonly employed to compute the DFT, the two terms are often used interchangeably in colloquial settings, although there is a clear distinction: "DFT" refers to a

mathematical transformation, regardless of how it is computed, while "FFT" refers to any one of several efficient algorithms for the DFT. This distinction is further blurred, however, by the synonym "finite Fourier transform" for the DFT, which apparently predates the term "fast Fourier transform" but has the same initialism.

frame

One of many sequential images that make up video.

frame drop ratio

The percentage of frames that don't have any important information and thus can be dropped.

frame rate

The number of video frames displayed per second. Higher frame rates generally produce smoother movement in the picture.

frame size

The number of pixels that form the video image (horizontally/vertically).

full motion video

Content that shows 30 (interlaced) or 24 (film content) frames per second.

G

gain

A measure of the ability of a circuit to increase the amplitude or power of a signal. It is usually defined as the mean ratio of the signal output of a system to the signal input of the same system. It may also be defined as the decimal logarithm of the same ratio.

Thus, the term gain on its own is ambiguous. For example, 'a gain of five' may imply that either the voltage or the power is increased by a factor of five.

global motion compensation

An algorithm that helps while coding the objects that only change their size or place in the picture but keep static.

GSM

An open file format designed for telephony use in Europe, GSM is a very practical format for telephone quality voice. It makes a good compromise between file size and quality. Note that WAV files can also be encoded with the GSM codec.

Н

HD DVD

High-Definition Digital Versatile Disc or High-Density Digital Versatile Disc is a high-density optical disc format designed for the storage of data and high-definition video. HD DVD-ROM has a single-layer capacity of 15 GB, a dual-layer capacity of 30 GB, and a 51 GB single-sided triple-layer disc (which uses slightly bigger 17 GB layers), approved in September 2007 by the DVD Forum. However, the 51 GB spec is only a preliminary spec and compatibility with existing hardware is unknown at this time. HD DVD-R and HD DVD-RW has a single-layer capacity of 15 GB, a dual-layer capacity of 30 GB.

HDD

Hard disk drive.

highlight (photography)

The brightest areas in a picture, which often occur as a result of an incorrect exposure when initially photographing or scanning to a digital image. Increasing an exposure increases the intensity of light, and increasing it too far will cause the lightest areas, such as the sky, or light sources, to clip.

to highlight

Activate or focus menu or selection. When the cursor is moved over an option on a DVD menu, that menu often changes color. It is then "highlighted".

hue

In painting color theory, a hue refers to a pure color — one without **tone**, tint or shade. Usually, colors with the same hue are distinguished with adjectives referring to their lightness and/or chroma, such as with "light blue", "pastel blue", "vivid blue". Exceptions include brown, which is a dark orange, and pink, a light red with reduced chroma.

I

I-frames

Also called intraframes or keyframes - frames with a very small compression ratio used to form the base of the video picture. See **B-VOPs** codec settings section for more detail.

import

The process of bringing existing digital audio, video, and still image files into **AVS Video Converter** or **AVS Video Editor** programs.

indexed color

In computing, indexed color is a technique to manage digital images' colors in a limited fashion, in order to save computer's memory and file storage, while speeding up display refresh and telecom transfers. When an image is encoded this way, the color information is not directly carried by the image pixel data, but it is stored into a separate piece of data called a palette: an array of color elements, in which every element, a color, is indexed by its position within the array. This way, each pixel does not contain the full information to represent its color, but only its index into the palette. This technique is sometimes referred as pseudocolor or indirect color, as colors are addressed indirectly.

interframes

See P-frames.

intraframes

See I-frames.

J

jitter

The smoothness of frame delivery over time.

Κ

keyframes

See I-frames.

L

letterboxing

The practice of transferring widescreen films to video formats while preserving the original aspect ratio.

LFO

Low-frequency oscillation. An audio signal usually below 20 Hz which creates a pulsating rhythm rather than an audible tone. LFO predominantly refers to an audio technique specifically used in the production of electronic music. The abbreviation is also very often used to refer to low-frequency oscillators themselves, which produce the effects explored in this article.

lumimasking

An algorithm used to apply more compression to very dark and very bright areas where it cannot be easily noticed by the human eye.

Μ

M4A

M4A files are actually the audio layer of (non-video) MPEG-4 movies. M4A is slated to become the new standard for audio file compression. This format is also known as Apple Lossless, Apple Lossless Encoder, or ALE. It is a new codec designed to provide lossless encoding in less storage space.

matte (usually used in plural - mattes)

The masked-off areas above and below the picture area, used to maintain original aspect ratio when viewing video on the screen with a different aspect ratio.

max consecutive B-VOPs

Maximum number of sequential bidirectional frames in the video stream.

max key interval

Maximum number of delta frames (interframes) between two keyframes (intraframes).

motion search type

An algorithm that allows the codec to search for the motions in the movie and better compress them with a higher quality.

MOV

A file extension for QuickTime Video Clip. QuickTime is a video and animation system developed by Apple Computer. QuickTime is built into the Macintosh operating system and is used by most Mac applications that include video or animation. PCs can also run files in QuickTime format, but they require a special QuickTime driver. QuickTime supports most encoding formats, including Cinepak, JPEG, and MPEG. QuickTime is competing with a number of other standards, including AVI and ActiveMovie. For more information see the **Apple site** and their **Support page**.

movie file

The file created by combining the audio, video, and still images contained in your project.

MP+

A Musepack music format, a popular high quality lossy compression that offers higher audio quality than MP3. Nowadays Musepack audio files generally have the extension .mpc, but lots of files with the extension .mp+ still float around file sharing networks. Musepack is based on the MPEG-1 Audio Layer 2 standard (MP2), but includes many improvements. It is believed by audiophiles to be one of the highest quality lossy compressions available for music.

MP2

MPEG-1 Audio Layer II, sometimes Musicam. An audio codec defined by ISO/IEC 11172-3. An extension exists: MPEG-2 Layer II and is defined in ISO/IEC 13818-3. The file extension for files containing such audio data is usually .mp2. While it has largely been superseded by MP3 for PC and Internet applications, it remains a dominant standard for audio broadcasting as part of the DAB digital radio and DVB digital television standards. It is also used internally within the radio industry, for example in NPR's PRSS Content Depot programming distribution system.

MP3

MPEG-1 Audio Layer 3. An audio encoding format. It uses a lossy compression algorithm that is designed to greatly reduce the amount of data required to represent the audio recording, yet still sound like a faithful reproduction of the original uncompressed audio to most listeners. It was invented by a team of European engineers at Philips, CCETT (Centre commun d'etudes de television et telecommunications), IRT and Fraunhofer Society, who worked in the framework of the EUREKA 147 DAB digital radio research program, and it became an ISO/IEC standard in 1991. MP3 is an audio-specific format. The compression removes certain parts of sound that are outside the normal human hearing range so cannot be heard by the listener. It provides a representation of pulse-code modulation — encoded audio in much less space than straightforward methods, by using psychoacoustic models to discard components less audible to human hearing, and recording the remaining information in an efficient manner. Using MP3-compression PC-users were able to compress an ordinary music-CD to one tenth of its original size - thus 12 hours of music could be stored on a recordable CD that on the other hand could be played by a MP3-CD-player or an ordinary PC.

MPEG

Moving Picture Experts Group. Gives excellent compression with little loss in quality of the video. MPEG supports three types of data - video, audio and streaming. There are a number of standards: among them there are two flavors of MPEG available today. MPEG-1 was designed to provide VHS video quality and CD audio quality at a combined data rate of 150 kilobytes per second. MPEG-1 is displayed at 30 frames per second in a frame that is 352x240 (horizontal x vertical) pixels in size. This allows relatively high quality video images to be stored in relatively small file sizes for playback across computer networks or CD-ROM delivery. MPEG-2 is the other side of the compression coin. It is a broadcast standard specifying a playback size of 720 x 480 pixels at 60 fields per second. Data rates can range from 2 to 10 megabits per second. This means large file sizes and data rates that require specialized hardware for playback. MPEG-2 is one of the core compression technologies for DVD. See the **MPEG site** for more information.

MPEG-4

ISO/IEC open standard for video encoding developed by MPEG (Moving Picture Experts Group). It is characterized by a small output video file size and quite good picture quality even when a relatively low bit rate is used. The most known resulting output when you use MPEG-4 format for compression is the AVI file type which is commonly used in home video. It is coded with Xvid, DivX, 3ivx, Nero Digital and other video codecs.

MSC

Devices that represent USB Mass Storage Device Class (MSC or **UMS**) are seen as a removable drive in the system and some of them as a fixed drive.

МТР

Devices representing USB MTP device class use Media Transfer Protocol (MTP) supported by Microsoft Windows Media Player 10 and 11.

multimedia

Any format that contains more than one media, such as text, still images, sound, animation, and video.

Ν

navigation

Accessing the features of a DVD-Video disc.

NTSC

National Television Systems Committee. A committee of the Electronic Industries Association that prepared the standards for commercial television broadcasting in the United States, Canada, Japan, and parts of Central and South America. The NTSC format has 525 scan lines (rows) of resolution at frame rate of thirty frames per second.

0

OGG

An open standard for a free container format for digital multimedia, unrestricted by software patents and designed for efficient streaming and manipulation. The development of the OGG standard began in 1993, then known as "Squish". It was designed as a substitute for MP3 and WMA and by now it is almost as popular and well known as MP3. Above all, the algorithm is still being developed what is mainly due to its flexibility. Although the sound-quality gets better with every further development the files are backwards compatible and can be played with older players as well. Like MP3 OGG offers encoding at variable bitrates. Using this compression parts of the song are encoded with a higher compression than others what depends on the source. Most times, this compression goes along with squishy noises or even small interruptions. OGG is also one of the very few formats that support multi-channel compression. Surround-files could theoretically be compressed with more than two channels. OGG is, like it's predecessors, streamable and although the used player has to support this feature, it's one of many good reasons for OGG.

output file

The file that is a result of conversion of a source file.

Ρ

P-frames

Delta frames or interframes - frames used in MPEG-4 format to increase the compression ratio. A row of P-frames is placed between two **I-frames** - thus the name interframes was given. See **B-VOPs** codec settings section for more detail.

PAL

Phase Alteration Line. This standard is used for commercial broadcasting in most of Europe, Australia, and parts of Central and South America. PAL format displays at 625 scan lines (rows) of resolution at frame rate of 25 frames per second.

pillar boxing

The practice of transferring films having aspect ratio of 1.33:1 to wide screens while preserving the original aspect ratio.

pitch

The perceived fundamental frequency of a sound. While the actual fundamental frequency can be precisely determined through physical measurement, it may differ from the perceived pitch because of overtones, or partials, in the sound. The human auditory perception system may also have trouble distinguishing frequency differences between notes under certain circumstances. According to ANSI acoustical terminology, it is the auditory attribute of sound according to which sounds can be ordered on a scale from low to high.

pixel

Picture cell. This is the smallest independent unit of a digital image; similar to each dot on your monitor.

pixel depth

The number of bits of color information per pixel.

player

A program or device that displays multimedia content, typically animated images, video, and audio.

project file

The file created when you save the results of adding various clips to the **workspace** when you work with **AVS Video Editor**. This file is saved with an .vep4 extension.

Q

QT

Apple Quick Time format for audio/video data.

quantizer

Detail removal factor (DRF), or the degree of picture blur due to details reduction. Used to allow picture compression.

quantizer offset

The offset used to calculate frames quantizer.

quantizer ratio

The ratio used to calculate frames quantizer.

R

to record

To capture audio, video, or still images as digital data in a file.

regional coding

Region code - the software protection used on DVD discs to prevent unauthorized playback of the discs made in one country to be played in another country.

Most DVD-ROM drives let you change the region code a few times, usually between 0 and 5. Once a drive has reached the limit it can't be changed again unless the vendor or manufacturer resets the drive. This limitation cannot be overridden. There are 7 regions: (1) Canada, U.S., US Territories; (2) Europe, Japan, South Africa, Middle East (including Egypt); (3) Southeast Asia, East Asia (including Hong Kong); (4) Australia, New Zealand, Pacific Islands, Central America, Mexico, South America, Caribbean; (5) Former Soviet Union, Indian Subcontinent, Africa (also North Korea, Mongolia); (6) China and (7) Transcontinental - used for watching DVD movies onboard the planes, ships and so forth.

resolution

See Frame size

RGB model

Color spectrum represented by mixing red, green, and blue (RGB) colored light in various proportions and intensities.

RM

Real Media streaming format for audio/video data. RealMedia provides one of the oldest and most widespread (85% of all web-accessing computers have RealPlayer installed) Web delivery formats. The RealMedia files (.rm) can be viewed using RealPlayer 3 and above. For more information see the **RealNetworks site** and their **user information site**.

root-mean-square

Abbreviated RMS or rms, also known as the quadratic mean, is a statistical measure of the magnitude of a varying quantity. It is especially useful when variates are positive and negative, e.g. waves. It can be calculated for a series of discrete values or for a continuously varying function. The name comes from the fact that it is the square root of the mean of the squares of the values.

S

saturation

That is the strength (purity) of colors. Saturation represents the amount of grey in proportion to the hue, measured as a percentage from -100 (grey) to 100 (fully saturated).

source

Audio and video content that can be captured and encoded from devices installed on your computer or from a file.

split

The process of dividing an audio or video clip into two parts.

still image

A graphic file, such as a .bmp, .gif, or .jpg.

storyboard

A view of the workspace that focuses on the sequencing of your clips (used in AVS Video Editor).

subtitle

Subtitles show the words being spoken on top of video content. They are often used for language translations.

SWF

Macromedia/Adobe Flash format, used to create video files that can be easily placed to your home page as they use not too much space and are supported by most browsers (in case the necessary plugin is installed). See the **Adobe web site** for more info on this format.

Т

timeline

- 1. The area of the user interface that shows the timing and arrangement of files that make up a media file.
- 2. A view of the **workspace** that focuses on the timing of your clips.

titles

Video programs can be split up into titles, and then further into **chapters**. A good example of titles is when a DVD contains a movie (one title), the trailer for the movie (a second title), and biographies of the actors (a third title), all on the same disc.

tone, tint, shade

These terms are often used incorrectly, although they describe fairly simple color concepts. If a color is made lighter by adding white to a pure **hue**, the result is called a **tint**. If black is added, the darker version is called a **shade**. And if gray is added, the result is a different **tone**. So **midtones** are areas of an image, which consist of close to 50% grey (or 50% color).

transition

The method of smoothly moving from one video clip or photo to another.

trim

Hiding parts of a file or clip without deleting them from the original source. Files and clips can be trimmed by adjusting the start or end trim points. Used in **AVS Video Editor**.

tristimulus values

The human eye has receptors for short, middle, and long wavelengths. Thus in principle, three parameters describe a color sensation. The tristimulus values of a color are the amounts of three primary colors in a three-component additive **color model** needed to match that test color. Any specific method for associating tristimulus values with each color is called a **color space**.

U

UMS

Devices that represent USB Mass Storage Device Class (**MSC** or UMS) are seen as a removable drive in the system and some of them as a fixed drive.

V

VBR

Variable bit rate. This allows DVD compression methods to use more or less compression according to the complexity of the picture.

VHQ Mode

An algorithm that decides which format will be used to store motion vectors thus reducing the file size.

VOB

DVD video movie file. DVD is the new generation of optical disc storage technology. DVD is essentially a bigger, faster CD that can hold cinema-like video, better-than-CD audio, still photos, and computer data. DVD aims to encompass home entertainment, computers, and business information with a single digital format. It has replaced laserdisc, is well on the way to replacing videotape and video game cartridges, and could eventually replace audio CD and CD-ROM. DVD has widespread support from all major electronics companies, all major computer hardware companies, and all major movie and music studios.

VOX

Dialogic ADPCM. An open file format optimized for storing digitized voice data at a low sampling rate. VOX files are most commonly found in telephony applications, as well as an occasional arcade redemption game. Similar to other ADPCM formats, it compresses to 4-bits. Unlike a WAV file, a VOX file does not contain a header to specify the encoding format or the sampling rate, so this information must be known in order to play the file. If not known, it is normally assumed that a VOX file is encoded with Dialogic ADPCM at a sampling rate of 8000Hz. It is possible that a VOX file may be encoded in a format other than Dialogic ADPCM, but this is not common.

W

WAV/WAVE

Short for Waveform audio format, a Microsoft and IBM audio file format standard for storing audio on PCs. It is a variant of the RIFF bitstream format method for storing data in "chunks", and thus also close to the IFF and the AIFF format used on Amiga and Macintosh computers, respectively. It is the main format used on Windows systems for raw audio.

warm and cold colors

The **color wheel** can be divided into warm and cold colors. **Warm** colors are vivid and energetic, and tend to advance in space. **Cold** colors give an impression of calm, and create a soothing impression. White, black and gray are considered to be neutral.

white point

It is a set of **tristimulus values** or **chromaticity** coordinates that serve to define the color "white" in image capture, encoding, or reproduction. Depending on the application, different definitions of white are needed to give acceptable results. For example, photographs taken indoors may be lit by incandescent lights, which are relatively orange compared to daylight. Defining "white" as daylight will give unacceptable results when attempting to color correct a photograph taken with incandescent lighting.

widescreen

Most TVs display in 4:3 ratio. Widescreen display shows you the same ratio that is used for movies, which is frequently 16:9. If the title is being shown on a widescreen TV it can be shown in its original aspect ratio without the display of the black bars above and below the image.

Windows Media file

A file containing audio, video, or script data that is stored in Windows Media Format. Depending on their content and purpose, Windows Media files use a variety of file name extensions, such as: .wma, .wme, .wms, .wmv, .wmx, .wmz, or .wvx.

WMA

Windows Media Audio, an audio data compression technology developed by Microsoft. The name can be used to refer to its audio file format or its audio codecs. It is a proprietary technology which forms part of the Windows Media framework. WMA consists of four distinct codecs. The original WMA codec, known simply as WMA, was conceived as a competitor to the popular MP3 and RealAudio codecs. It is the second most popular audio codec after MP3, based on the number of supported devices researched by Jupiter Research. WMA Pro, a newer and more advanced codec, supports multichannel and high resolution audio. A lossless codec, WMA Lossless, compresses audio data without loss of audio fidelity. And WMA Voice, targeted at voice content, applies compression using a range of low bit rates.

WMV

Windows Media Video, Microsoft's new standard for audio and video which is closely tied with the Windows Operating System. The player is able to play Windows Media Video (.wmv) and Advanced Streaming Format (.asf) files, and also other formats such as QuickTime, AVI, MPEG and MP3. See the **Windows Media site** for more information.

workspace

The area of **AVS Video Editor** in which you create your movies. It consists of two views: **storyboard** and **timeline**, which act as a container for work in progress.