

- (iv) Invert Effect
- (v) Reverse Effect
- (vi) Filters
- (vii) Generate Sounds
- (viii) DX Effects
- (ix) VST Effects

The Favorites tab lists the most recently used effects and filters:

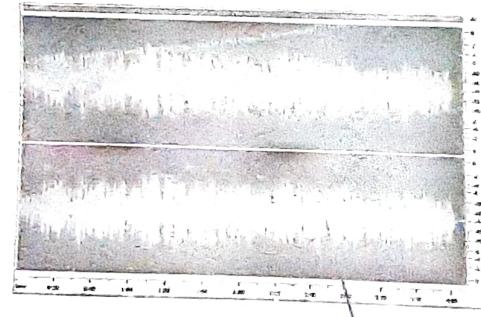


You can use the effects and filters from this list to quickly access and reuse them.

Waveform Editing Space :

- (i) Waveform Editing Space consists of four main parts:
- (ii) Waveform Display
- (iii) Display Range Bar
- (iv) Vertical Scale
- (v) Time Scale

(i) Waveform Display :



Waveform Display

Waveform Display is the area where you view your audio material. There are many mouse operations available in the Waveform Display to select data:

Left-click anywhere in the waveform and you will change the position of the playback cursor.

With stereo or multichannel waveforms, use the Control key of the keyboard together with the mouse pointer (the cursor will acquire L or R letter - Lf, Rf, Cf, LFE, Lr, Rr, Ls and Rs for eight channel audio) and left-click to enable only the necessary channel for editing (the disabled channels will gray-out), another left-click within the disabled channel will re-enable it.

Left-click and drag in the waveform display to make a selection.

Double left-click in the waveform display to select the entire visible portion of the waveform (when zoomed in this does not select unseen areas which may be to the right or left).

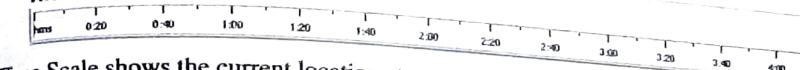
(ii) Display Range Bar

The Display Range Bar on the top of the Waveform Display window indicates which part of the entire waveform is currently being viewed in the Waveform Display. When zooming in or out, this bar will get smaller or larger, as the portion being viewed changes with respect to the entire waveform or session. Left-click (the mouse cursor should change to a hand) and drag the bar to scroll forward or backward in time. You can drag the bar to scroll forward or backward in time. As with dragging in the Time Scale, the zoom level is retained, only the viewing range is altered. To change the zoom level, move the mouse cursor to the edge of the Display Range Bar in zoom-in mode (it will turn to the double-sided arrow with a magnifying glass) and drag it to zoom out or zoom in.

(iii) Vertical Scale:

Vertical Scale measures the changes of audio data at a certain moment of time. You can select the measurement units for the Vertical Scale using the View section of the Main Menu - select Edit - Vertical Scale Format and one of the following values: Sample Values, Percentage and Decibels (you can select the measurement units for the Vertical Scale using the right-click mouse menu on it).

(iv) Time Scale:



Time Scale shows the current location at any point in the waveform display. The time markings are subdivided into more detail when zoomed in, and less detail when zoomed out.

Left-click (the mouse cursor should change to a hand) and drag the ruler to scroll forward or backward in time. You can drag the ruler to scroll forward or backward in time. As is altered. You can select the measurement units for the Time Scale using the View section of the Main Menu - select Edit - Time Scale Format and one of the following values: Decimal (mm:ss.ddd), Samples, Frames 30 fps, Frames 29.97 fps, Frames 25 fps and Frames 24 fps (you can select the measurement units for the Time Scale using the right-click mouse menu on it).

Bottom Toolbar

Bottom Toolbar consists of the following main parts:

- (i) Audio player
- (ii) Zooming toolbar
- (iii) Current position field
- (iv) Time display

(i) **Audio Player:** This toolbar consists of the following buttons:



In the table below you will find the functions you can perform with the help of each button:

Button	Name	Functions
	Play	Starts playback of the current selection, or of the current audio file from either the left edge of the selection, or from the beginning of the file, to either the right edge of the selection or to the end of the file.
	Play Looped	Plays the current audio file or selection repeatedly, looping it until the Stop button is pressed.
	Play to End	Starts playback of the current selection, or of the current audio file from either the left edge of the selection, or from the beginning of the file, to the end of the file.
	Rewind	Rewinds the audio back several thousandths of a second.

	Forward	Steps the audio forward several thousandths of a second.
	Record	Start the recording from the source selected in the AVS Audio Editor Parameters dialog.
	Pause	Pauses playback.
	Stop	Stops playback.
	Go to Previous Marker	Quickly goes to the previous set marker. If there are no markers set in the audio, then this option lets the user quickly go to the beginning of the audio.
	Go to Next Marker	Quickly goes to the next set marker. If there are no markers in the audio, then this option lets the user quickly go to the end of the audio.

(ii) Zooming toolbar: This toolbar consists of the following buttons:



In the table below you will find the functions you can perform with the help of each button:

Button	Name	Functions
	Zoom In	Zooms in on the center of the current audio file window. After zooming, use the Time Ruler to scroll to the desired location.
	Zoom Out	Zooms out from the current location.
	Full Zoom	Zooms all the way out to fit the entire waveform or session in the display window.
	Vertical Zoom in	Increases the vertical resolution scale of the waveform and Vertical Scale.
	Zoom in to Left Edge of Selection	Zooms in to the left edge of the current selection.
	Zoom to Selection	Zooms to the current selection. If no selection is made, this button zooms in on the cursor location.
	Zoom in to Right Edge of Selection	Zooms in to the right edge of the current selection.
	Vertical Zoom Out	Decreases the vertical resolution scale of the waveform and Vertical Scale.

(iii) Current Position Field: This toolbar displays the current position of the active window cursor (measured in hours:minutes:seconds:thousandths of seconds):

00:01:53.049

(iv) Time Display: This toolbar consists of 6 fields

Start	End	Length
Selection 00:01:53.049	00:01:53.049	00:00:00.000
View 00:01:46.490	00:01:46.507	00:00:00.017

These fields display start, end, and length information for the visible portion of the current waveform.

Stop
4100 Hz, 16-bit, 2 Channels
0.075 Mb 00:01

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form or session, as well as for the currently selected range. The top row of fields shows the selection time, and the bottom row the viewing range.

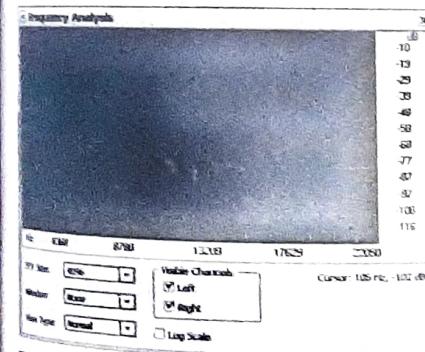
Status Bar

Status Bar displays information relating to the file properties and free resources.

In the left part of the bar you can see the current file operation status, then the information on the format of the current waveform or session, with sample rate, sample size and the number of channels. In the middle part of the Status Bar the file size is displayed. In the right part of the bar you can see the duration of the audio (in hours:minutes:seconds:thousandths of seconds).

④ you can select to show or hide the file information in the Status Bar using the View section of the Main Menu.

Frequency Analysis Window



Frequency Analysis Window contains a graph of the frequencies at the insertion point (yellow arrow cursor) or at the center of a selection. This window "floats", meaning that you can click window on the main AVS Audio Editor window to update the analysis while the Frequency Analysis window is on top. The information in this dialog is like one "slice" or line in the Spectral View of the waveform.

The most prominent frequency is interpolated and displayed in a window below. You can move the mouse over the graph area to display the frequency and amplitude components of that frequency.

The Frequency Analysis window is updated in real time while you play your file.

You can select the properties of the Frequency Analysis using the appropriate options:

FFT Size - the size of the FFT filter. You can select between the following values: 64, 256, 1024, 4096 and 16384.

Window - the amount of transition width and ripple cancellation that occurs during filtering, with each one resulting in a different frequency response curve. You can select between None, Welch, Bartlett, Hanning and Hamming.

View Type - the appearance of the graph. You can select between Analog, Normal, Fire, Glass and Kryptonite depending on your needs and preferences.

Visible Channels - the number of channels of the audio used to produce the Frequency Analysis. You can either select all the channels or switch off some of them. One of the channels have always to stay on.

You can show or hide Frequency Analysis Window going to View -> Frequency Analysis.

Keyboard and Mouse Shortcuts

To speed up your editing AVS Audio Editor offers you a wide variety of keyboard shortcuts. Use the table below to learn how to edit audio data in a fast and easy way.

Keyboard

Controls	Shortcut Key	Functions
File Controls	Ctrl+N Ctrl+O Ctrl+S Shift+Ctrl+S	Creates a new, initially blank file Opens an existing waveform Saves the current waveform to disk Saves the active audio file with a different file name and location, in a different file format.
Editing Controls	Ctrl+A Ctrl+Z Shift+Ctrl+Z Ctrl+X Ctrl+C Ctrl+V Ctrl+T Del	Selects Entire Waveform Undo, reverses the last command or action Redo, repeats the last command or action Cuts a waveform to internal clipboard Copies a selection to internal clipboard Pastes from internal clipboard Trims to selection Deletes selection
Navigation Controls	Left Arrow Right Arrow Home End	Move cursor left on the Timeline Move cursor right on the Timeline Move cursor to the beginning of the waveform on the Timeline Move cursor to the end of the waveform on the Timeline
Selection Controls	Shift+Left Arrow Shift+Right Arrow Ctrl+Left Arrow Ctrl+Right Arrow Shift+Home Shift+End	Increase the left selection boundary Increase the right selection boundary Decrease the left selection boundary Decrease the right selection boundary Move the left selection boundary to the beginning of the waveform Move the right selection boundary to the end of the waveform
Zoom Controls	Ctrl+Up Arrow Ctrl+Down Arrow	Zooms In Zooms Out
Miscellaneous	F1	Brings up the current Help File

Mouse Operations

- Left click and drag a waveform to make a selection.
 - Double left-click a waveform to select the entire visible portion of the waveform (when zoomed in this does not select unseen areas which may be to the right or left).
 - Left-click anywhere in the waveform and you will change the position of the playback cursor.
 - With stereo or multichannel waveforms, use the **Control** key of the keyboard together with the mouse pointer (the cursor will ac-
- quire L or R letter - **L**, **R**, **C**, **LFE**, **L**, and **R**, for six channel audio) and left-click to enable only the necessary channel for editing (the disabled channels will gray-out), another left-click within the disabled channel will re-enable it.
- Left-click (the mouse cursor should change to a hand) and drag the **Display Range Bar** to scroll forward or backward in time.
 - Click and drag on the **Time Ruler** to scroll horizontally.
 - Rest mouse over any toolbar button to get an explanation of the button's function.

Double-click title bar to Maximize/Restore.

Wheel mouse specific

Roll the mouse wheel forward to zoom in.

Roll the mouse wheel backwards to zoom out.

2. Sound Forge:

Sound Forge software is a powerful, full-featured and easy to use digital sound editor used by countless audio professionals. You will find that the new features in this version will help simplify your life by consolidating common tasks and allowing you to customize the software to suit your needs. Although Sound Forge software is not a video editor, you can open and save video files just as you would any other supported file type, allowing you to edit the audio track with familiar Sound Forge tools. You can preview an audio file from the main Sound Forge window or using the playbar in each data window. In addition the Video Preview window allows you to preview video files natively or send them to an external monitor. The Sound Forge **channel meters** display peak levels during playback. Use the meters to monitor levels and make sure no clipping occurs in your file. If you have an audio device that supports multiple inputs, you can use Sound Forge to perform multichannel recording. Sound

Forge software can also generate MTC/SMPTE synchronization while recording. Selecting data and positioning the cursor are the first steps in most editing processes. After you have selected data, you can **cut**, **copy**, **paste**, **mix** trim/crop, add effects, and more. Most of these functions use the clipboard, which is a temporary storage area. The clipboard can also be used to move data from one window to another. The Sound Forge support markers and regions that serve as reference points along the timeline. You can use markers for annotations, to insert metadata commands, or for MIDI triggers. Sound Forge software includes many processes and effects that you can use to manipulate the audio in your media files.

You can use Sound Forge software to repair

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glitches, clicks, and surface noise in sound files. Sound Forge software can use scripts written using JScript, VBScript, or C# as well as scripts that have been compiled as DLLs. With the Sampler Tool, you can use the powerful and easy-to-use sample-editing capabilities in Sound Forge software to create and edit samples and then transfer them to your external and internal samplers. The Spectrum Analysis tool of the Sound Forge allows you to examine the fundamental frequency and overtones present in a recording. Spectrum Analysis permits you to make exact Fast Fourier Transform (FFT) analysis and displays the resulting data in a spectrum graph or a sonogram display. Both formats make it easy to navigate data and read audio frequency and position. Sound Forge software includes an extensive library of extremely high-quality acoustic signatures (impulse responses) that you can use to simulate the acoustics of many different environments.

What's new in version 9.0

- Multichannel audio editing and recording.
- Updated Channel Converter for multichannel files.
- Updated Spectrum Analysis for multichannel files.
- Drag-and-drop mixing and pasting among channels.
- Hardware Meters window for monitoring hardware outputs and adjusting preview levels.
- Phase scope and mono-compatibility meter.
- You can now cut, paste, and delete data from individual channels of multichannel files.
- You can now update the cursor position and selection by double-clicking and editing the selection status boxes in data windows.
- Improved process and effects dialogs with selection, wet/dry mix, fade-in/out controls.
- Adjust data window selections/crossfades when process and effects dialogs are visible.
- Improved snapping.
- Improved color customization via Display Preferences.
- Improved keyboard customization.

- Updated marker and region ruler with selection snapping.

System Requirements

The following lists the minimum system requirements for using Sony Creative Software Inc. Sound Forge:

- Microsoft Windows 2000 SP4, XP, or Windows Vista
- 800 MHz processor
- 256 MB RAM
- 150 MB hard-disk space for program installation
- Windows-compatible sound card
- DVD-ROM drive (for installation from a DVD only)
- Supported CD-Recordable drive (for CD burning only)
- Microsoft DirectX 9.0c or later (included on application disc)
- Microsoft .NET Framework 2.0 (included on application disc)
- Internet Explorer 5.1 or later (included on application disc)

Installation

The install utility creates any necessary folders and copies all files required by Sound Forge to your computer.

Installing from a Disc

- Place the Sound Forge application disc in the your CD-drive. The setup screen is displayed (if AutoPlay is enabled for your CD-ROM or DVD-ROM drive).

If you have disabled the drive's AutoPlay feature, click the Start button and choose Run. Type D:\setup.exe, where D is the drive letter of your CD or DVD drive, and follow the on-screen prompts to complete the installation.

- Click Install, and then follow the on-screen prompts to install the appropriate version of Sound Forge for your computer.

OVERVIEW OF VARIOUS SOUND FILE FORMATS ON PC:

WAV/WAVE

WAV stand for Waveform audio format, a Microsoft and IBM audio file format standard for storing audio on PCs. It is a alternative of the RIFF bitstream format method for storing data in "chunks", and therefore also close to the IFF and the AIFF format used on Amiga and Macintosh computers, respectively. It is the most important format used on Windows systems for raw audio.

MP+

MP+ stand for Musepack music format, a popular high quality lossy compression that offers higher audio quality than MP3. Nowadays Musepack audio files usually 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 numerous improvements. It is believed by audiophiles to be one of the highest quality lossy compressions available for music.

MP2

MP2 stand for MPEG-1 Audio Layer II, sometimes Musicam. It is 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 generally .mp2, though 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.

MP3

MP3 stand for MPEG-1 Audio Layer 3. It is 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

de commun d'études de télévision 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 11 hours of music could be stored on a recordable CD that on the other hand could be played by MP3-CD-player or an ordinary PC.

M4A

M4A files are really the audio layer of (non-video) MPEG-4 movies. M4A is scheduled 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 offer lossless encoding in less storage space.

OGG (Operation Good Guys)

OGG is an open standard for a free of charge container format for digital multimedia, unre-

SUMMARY

- Sound is vibration, as distinguished by the sense of hearing. We generally hear vibrations that travel through air, but sound can also travel through gases, liquids and solids.
- In more technical language, "sound" is a fluctuation in pressure, particle displacement, or particle velocity spread in an elastic material."
- The wavelength is the distance between two successive crests and is the distance that a wave complete a cycle.
- The frequency range of sound capable of being heard to humans is in the range of between 20 and 20,000 Hz.
- Mono or monophonic describes a system where *all the audio signals are mixed together and routed through a single audio channel.*
- Two channel systems usually suffer from having half the people in the listening area only hear half the audio program, which makes two channel systems a poor choice for music reinforcement.

stricted 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. even though 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 fractions of the song are encoded with a higher compression than others what depends on the source. Most times, this compression goes along with soft noises or even small interruption s. 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 is one of many good reasons for OGG.

GSM

This is 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. Remember always WAV files can also be encoded with the GSM codec.

EXERCISE

1. What are various attribute of sound ? Explain in detail.
2. Write short note on the following :
 - (i) Sound Files
 - (ii) Amplitude Effects
 - (iii) Mono Vs Stereo Sound
 - (iv) Time/Pitch Effects
3. What are differences between mono and stereo sound ? Explain.
4. What are Monophonic and Stereophonic Sound system ? Explain.
5. What is LCR System ? Explain importance of Stingers.
6. What do you mean by sound channels ? Explain sound channel in hardware and programming context.
7. Explain various sound effect that used in multimedia.
8. Explain the following :
 - (i) Delay effects
 - (ii) Reverse effects
 - (iii) Invert effects
 - (iv) VST effects
 - (v) Creation of Audio file.

9. What are differences between analog and digital sound ? Explain.
10. Explain sample sound, sampling rate, samplesize and sampling frequencies.
11. What is sampling ? How digital sampling works ?
12. Write short note on the following :

(i) Sample Rate	(ii) Sample Resolution
(iii) Clipping	(iv) Nyquist frequency
(v) Quantization	
13. Write all steps to create and edit sample information.
14. What is digitizing ? Explain basic of digital sound.
15. What are hardware and software requirement for playing sound on PC ?
16. How do you assign sound to program events ? Write all steps.
17. How do you create a sound scheme ? Write all steps to change the system sound volume.
18. How do you adjust the volume for multimedia recording devices ? Write all steps to adjust the volume for multimedia playback devices.
19. How do you adjust speaker volume ? Write all steps.
20. What is TTS (text-to-speech) and SR (speech recognition) ? Explain in detail.
21. Write all steps to determine and preview the text-to-speech voice.
22. Write all steps to change the text-to-speech voice or engine and voice rate.
23. Write all steps to select an audio output device and change the text-to-speech volume for a multimedia system.
24. Write short note on the following :

(i) Speech recognition engine	(ii) MIDI sound
(iii) Sound standards	(iv) Frequency Analysis Windows
(v)	
25. Explain the methods of capturing, storint and editing of sound in any multimedia application.
26. How will you create digital audio file ?
27. Explain the followings :

(i) Mono Mix	(ii) Stereo Mix
(iii) Aux	(iv) CD-player
(v) Sound Recorder	
28. What is sound recorder ? Write all steps to record, mix, play and edit sounds using sound recorder.
29. What are Sound Editing Software ? Explain any two sound editing software.
30. Write short note on the following sound file format :

(i) WAVE	(ii) MP3
(iii) OGG	(iv) MP+
(v)	

BASIC OF ANIMATION

We often think of animation as full-length Disney movies and Saturday morning cartoons in which illustrated heroes and villains and especially animal characters come to life.



Television programs, movies, and videos are part of our daily lives. **Animation** plays a huge role in entertainment (providing action and realism) and education (providing visualization and demonstration). Entertainment multimedia titles in general and children's titles specifically, rely heavily on animation. But animation can also be extremely effective in other titles, such as training applications.

Animation adds visual impact to the multimedia project. Many multimedia applications for both the Macintosh and Windows provide animation tools.

Computer animation began in the 1960s, with abstract color designs in motion. This technology has so advanced, artists draw figures and manipulate them via computer imagery. Using electronic surfaces and computer programs to change backgrounds and choose colors, the finished product is visualized on a television monitor, and saved on computer disc. Multimedia computer systems integrate materials from a variety of formats. Film animation applies techniques of cinematography to the graphic and plastic arts in order to give the illusion of life and movement to cartoons, drawings, paintings, puppets, and three-dimensional objects. George Lucas and Stephen Spielberg rely heavily on this animation to develop the special effects needed for their feature films. Animated graphics have served to delineate the Web as an artist's

medium. However, old-style *cell animation* is the mainstay of professional artists in creating characters, and computers are only used to move the objects and backgrounds within a scene. *Mickey Mouse, Donald Duck, The Simpsons* - are favorite cartoons of kids as well as adults. All these cartoon characters are the creation of the wonderful art of animation that captivates our eyes and makes our childhood days full of fun. How are these cartoons displayed on television or Internet? Let's find out...

Basic animation is an easy and single *keyframe animation*. Animation is a presentation of various displays and movements, which adds liveliness to your site or film. The Internet users are usually fond of browsing a website that is well animated with good graphics. A web designer cannot ideate his website without the application of basic animation, due to its virtual advantages in the Internet market. In simple words, basic animation is the illusion of different movements, linked together in a proper way so that visitors/audiences get the effect of seeing a well coordinated set of actions.

Generally, this beautiful animation art is created using the Java language. For example. If you want to show a bouncing ball, you need to draw various positions of the ball in different drawings or 'frames' as they are called. In the first drawing, you can show the ball resting on the ground in the second frame, the ball slightly above the ground, the third one will show the ball 2-3 feet above the ground, in the fourth one the ball will come down a bit and so on till finally the ball is on the ground. These drawings are composed together with the help of computer scanning, use of software, matching sound effects, time management and shooting with a camera. In the final result you will find an animation similar to the live action of a boy bouncing the ball up and down on the ground.

Three Basic Types of Animation

The basic types of animation are the primary keynote for animation effect. The 3 basic types of animation are cel, stop and computer animation.

Cel Animation

Cel animation refers to the traditional way of animation in a set of hand drawings. In this process of animation, various pictures are created which are slightly different but progressive in nature, to depict certain actions. Trace these drawings on a transparent sheet. This transparent sheet is known as cel and is a medium for drawing frames. Now draw outlines for the images and color them on the back of the cel. The cel is an effective technique that helps to save time by combining characters and backgrounds. You can also put the previous drawings over other backgrounds or cels whenever required. Here, you need not draw the same picture again as it has the facility of saving previous animations that can be used when required. Coloring a background may be a more difficult task than a single drawing, as it covers the whole picture. Background requires shading and lighting and will be viewed for a longer duration. Then use your camera to photograph these drawings. Today, cel animations are made more attractive by using the drawings together with music, matching sound effects and association of timing for each effect. E.g. To display a cartoon show, 10-12 frames are played in rapid succession per second to give a representation of movement in a cel animation.

Stop Animation

Stop animation or *stop motion animation* is a technique to make objects move on their own. Here, a few images are drawn with some different positions and photographed separately. Puppets is the one of the most used frame-to-frame animation types. Some famous movies that are animated via stop animation effects are *King Kong, The Dinosaur and the Missing Link, The Curse of the Were-Rabbit* and *The Lost World*.

Computer Animation

Computer Animation is the latest technique of animation that includes *2D and 3D animation*. These animations not only enhance the hand-drawn characters but also make them appear real as compared to the above mentioned animations.

2D Animation: It is used through *Powerpoint* and *Flash animations*. Though its features are similar to cel animation, 2D animation has become popular due to simple application of scanned drawings into the computer like in a cartoon film.

3D Animation: It is used in film making where we require unusual objects or characters that are not easy to display. Use of 3D animation can create a crowd of people in a disaster like earthquake, flood or war. There are different shapes, support of mathematical codes, display of actions and colors which are mind-blowing as if copied from an actual picture.

The above mentioned 3 basic types of animation have brought a new era of amazing technology in the field of Internet (website design and graphics), film industry and media. In addition, animation is the one of the popular Internet marketing strategies that make visitors stay on your site for a longer time.

BASIC PRINCIPLES OF ANIMATION

Animation is possible because of a biological phenomenon known as *persistence of vision*. An object seen by the human eye remains mapped on the eye's retina for a brief time after viewing. This makes it possible for a series of images that are changed very slightly and very rapidly, one after the other, to seemingly blend together into a visual illusion of movement. In other words, if you just change slightly the location or shape of an object rapidly enough the eye will perceive the changes as motion. The perception of motion in an animation is an illusion. The movement that we see is, like a movie, made up of many still images, each in its own frame. Animation can be a set of graphic images that may be displayed quickly as a series of frames or a set of objects (or "characters"). *Movies on video builds 30 entire frames or pictures every second*; the speed with which each frame is replaced by the next one makes the images appear to blend smoothly into movement. *Computer animations can be effective at 12 to 15 fps (or more)*. Anything less results

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in a jerky motion, as the eye detects the changes from one frame to the next.

There are 12 basic principles of animation introduced by the Disney animators Ollie Johnston and Frank Thomas in their 1981 book *The Illusion of Life: Disney Animation*. These are as follows:

1. **Squash and stretch:** this is the most important principle, the purpose of which is to give a sense of weight and flexibility to drawn objects. It can be applied to simple objects, like a bouncing ball, or more complex constructions, like the musculature of a human face.
2. **Timing:** Timing in reality refers to two different concepts: physical timing and theatrical timing. It is essential both to the physical realism, as well as to the storytelling of the animation, that the timing is right. On a purely physical level, correct timing makes objects appear to abide to the laws of physics; for instance, an object's weight decides how it reacts to an impetus, like a push. Theatrical timing is of a less technical nature, and is developed mostly through experience.
3. **Staging:** This principle is similar to staging as it is known in theatre and film. Its purpose is to direct the audience's attention, and make it clear what is of greatest importance in a scene; what is happening, and what is about to happen.
4. **Straight ahead action and pose to pose:** These are two different approaches to the actual drawing process. "Straight ahead action" means drawing out a scene frame by frame from beginning to end, while "pose to pose" involves starting with drawing a few, key frames, and then filling in the intervals later. A combination of the two techniques is often used.
5. **Follow through and overlapping action:** These closely related techniques help render movement more realistic, and give the impression that characters follow the laws of physics. "Follow through" means that separate parts of a body will continue moving after the character has stopped. "Overlapping action" is when a character changes direction, and parts of the body continue in the direction he was previously going.
6. **Slow in and slow out:** The movement of the human body, and most other objects, needs time to accelerate and slow down. For this reason, an animation looks more realistic if it has more frames near the beginning and end of a movement, and fewer in the middle. This principle goes for characters moving between two extreme poses, such as sitting down and standing up, but also for inanimate, moving objects, like the bouncing ball.
7. **Anticipation:** this is used to prepare the audience for an action, and to make the action appear more realistic.
8. **Secondary action:** Adding secondary actions to the main action gives a scene more life, and can help to support the main action. A person walking can simultaneously swing his arms or keep them in his pockets, he can speak or whistle, or he can express emotions through facial expressions. The important thing about secondary actions is that they emphasize, rather than take attention away from the main action. If the latter is the case, those actions are better left out.
9. **Exaggeration:** Exaggeration is an effect especially useful for animation, as perfect imitation of reality can look static and dull in cartoons. The level of exaggeration depends on whether one seeks realism or a particular style, like a caricature or the style of an artist. The classical definition of exaggeration, employed by Disney, was to remain true to reality, just presenting it in a wilder, more extreme form.

Computer animation removes the problems of proportion related to "straight ahead action" drawing; while, "pose to pose" is still used for computer animation, because of the advantages it brings in composition.

10. **Solid drawing:** The principle of solid — or good — drawing really means that the same principles apply to an animator as to an academic artist. The drawer has to understand the basics of anatomy, composition, weight, balance, light and shadow etc. For the classical animator, this involved taking art classes and doing sketches from life.

11. **Appeal:** Appeal in a cartoon character corresponds to what would be called charisma in an actor. A character that is appealing is not necessarily sympathetic — villains or monsters can also be appealing — the important thing is that the viewer feels the character is real and interesting. There are several tricks for making a character connect better with the audience; for likable characters a symmetrical or particularly baby-like face tends to be effective.

12. **Arcs:** Most human and animal actions occur along an arched trajectory, and animation should reproduce these movements for greater realism. This can apply to a limb moving by rotating a joint, or a thrown object moving along a parabolic trajectory.

USES OF ANIMATION IN MULTIMEDIA

At a basic level animation can be thought of as a flicker of life in objects. For example a flying bird is an "animate" object while a glass vase is an "inanimate" object. In real life inanimate objects move because of external forces, but in the virtual world, technology and imagination work together to create movement. Animation has become popular because real life has movement and the human eye is naturally attracted to movement.

Over the last 100 years animation has developed into a huge industry. Computer animation has advanced quickly, and is now approaching the point where movies can be created with characters so lifelike as to be hard to distinguish from real actors. This involved a move from 2D to 3D, the difference being that in 2D animation the effect of perspective is created artistically,

but in 3D objects are modeled in an internal 3D representation within the computer, and are then 'lit' and 'shot' from chosen angles, just as in real life, before being 'rendered' to a 2D bitmapped frame. There were predictions that famous dead actors might even be brought back to life to play in new movies.

Animations can be used in various ways on a web page such as making a log presentation more interesting by activating charts that dynamically show changes over time. Again animated games are very popular on the Web, especially 3D games. Animation attracts the attention as it is dynamic. For example animated buttons on a web page attract more attention than the static buttons.

Flash is widely used to create animations for the Web because Flash animations are usually small in size and most Web users have the Flash player installed in their web browsers. In the future the animations on the Web will be more interactive and 3D animations will be widely used. Web animations will be used widely for education and entertainment. The gaming industry will increase its presence on the Web and support 3D and interactive animations. Animations that use simulations will be used for training and education. A lot of focus will be on multi user interactions and 3D animations and on making the Web more and more interactive.

EFFECTS OF RESOLUTIONS

Monitors are measured in inches, diagonally from side to side (on the screen). However, there can be a big difference between that measurement and the actual viewable area. A 14-inch monitor only has a 13.2-inch viewable area, a 15-inch sees only 13.8 inches, and a 20-inch will give you 18.8 inches (viewing 85.7% more than a 15-inch screen). A computer monitor is made of pixels (short for "picture element"). Monitor resolution is measured in pixels, width by height. 640 x 480 resolution means that the screen is 640 pixels wide by 480 tall, an aspect ratio of 4:3. With the exception of one resolution combination (1280 x 1024 uses a ratio of 5:4), all aspect ratios are the same.

Screen dimensions are the horizontal measurement followed by the vertical measurement. These are not resolution numbers, but merely monitors are not standardized yet. They might have any aspect ratio. CRT monitors typically have a 4:3 aspect ratio, or a 5:4 aspect ratio. The following table summarizes a few categories of screen resolution.

Monitors have an aspect ratio. An aspect ratio is the ratio between the horizontal dimension and the vertical dimension. Divide the horizontal dimension by the vertical dimension. Common monitor aspect ratios are 4:3 (1.3333) and 5:4 (1.25). Wide screen monitors are totally different.

- ④ Screen resolutions also have an aspect ratio, not related to the monitor aspect ratio.

Match the aspect ratios

Understand that a computer user needs to select a screen resolution setting with the same aspect ratio as the aspect ratio of the monitor. If your monitor has a 4:3 aspect ratio, then your screen resolution setting should have a similar 4:3 aspect ratio, otherwise the display will be "squished" and objects will appear fatter. On the other hand, if your monitor has a 5:4 aspect ratio, then pick a resolution setting which also has a 5:4 aspect ratio.

Resolutions with a 4:3 aspect ratio:	800 x 600 1024 x 768 1152 x 864 1600 x 1200
Resolutions with a 5:4 aspect ratio:	1280 x 1024 1600 x 1280

The more common resolutions having a 4:3 aspect ratio are: 800 by 600, 1024 by 768, 1152 by 864, 1600 by 1200 pixels. Resolution settings with a 5:4 aspect ratio are 1280 by 1024 pixels, and 1600 by 1280 pixels. These resolutions should not be set for monitors having a 4:3 aspect ratio. The display will be distorted. Use the 5:4 aspect ratio resolution settings when using monitors also having a 5:4

aspect ratio. Many newer LCD monitors have a native resolution of 1280 by 1024. Widescreen monitors are not standardized yet. They might have any aspect ratio. CRT monitors typically have a 4:3 aspect ratio, or a 5:4 aspect ratio.

The following table summarizes a few categories of screen resolution.

Width x Height (pixels)	Category	Aspect Ratio
640 x 480	SVGA	4:3
800 x 600	SVGA	4:3
1024 x 768	SVGA/XGA	4:3
1280 x 1024	XGA	5:4
1400 x 1050	XGA	4:3
1600 x 1200	XGA	4:3
1600 x 1280	-	5:4

Keep in mind that while you may have a new system with high resolution for web graphics most of your end-users will be viewing your web page with the lower resolution monitors. Currently, most monitors display 72dpi (dots per inch). At this resolution, 32 pixels would be 0.5 inches and 72 pixels would be an inch. Since resolution can be changed slightly by the user, the web author has no way of telling the user's screen resolution but may code widths in percentage values rather than in absolute width units.

At higher resolutions you seem to gain more desktop "space" because objects will appear smaller in size and icon labels may be more difficult to read at the smaller icon size. With higher resolutions the display is "sharper" but the cost may not be worth having more pixels to process, perceivably slower screen refresh rates and more eye strain from looking at the smaller objects.

There will be times you may wish to temporarily increase the resolution. For instance, if you are working in a program for which all of the menu options do not display you may increase the resolution in order to view the full width of the tool bar and menu bar. If you are working on a web page you may wish to see your page as viewed with higher or lower resolutions, especially if you are working on page layout.

You can see by the chart below how screen size and effective resolution are linked. Compare a 15-inch monitor and a 21-inch monitor, both set to 800 x 600 pixels: the 15-inch will have a higher resolution. Larger monitors must contain smaller pixels in order to maintain the same

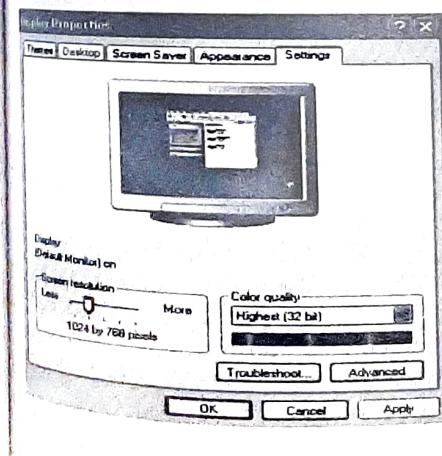
screen sizes	14"	15"	17"	19"	21"
640x480	BEST	GOOD	TOO BIG	HUGE	TERrible
800x600	GOOD	BEST	GOOD	TOO BIG	HUGE
1024x768	TOO SMALL	GOOD	BEST	GOOD	STILL GOOD
1280x1024	TINY	TOO SMALL	GOOD	BEST	GOOD
1600x1200	TERrible	TINY	TOO SMALL	GOOD	BEST

The Scream Online is optimized for viewing at 1024 x 768 resolutions. As you can see by the chart above, it should look good on most monitors. Be aware that there are many versions and interpretations of these settings. This table is an average of various opinions.

Adjusting Resolution

On a PC with Windows, do the following:

1. Double-click the Display Icon in the Control Panel by clicking: Start > Settings > Control Panel.
2. Select the "Settings" tab in the Display Properties Dialog Box.
3. Adjust the slider to 1024 x 768 (shown below), then click the Test Button. A test bitmap will appear for 5 seconds, and then you will be asked if everything looked OK. Click YES to confirm.



resolution, but when a smaller monitor is set to a high resolution, the images would be much too small to read. A 14-inch monitor set to 640 x 480 is very readable, while a 21-inch needs at least 1024 x 768. Here are some recommended resolutions for the different screen sizes:

BIT DEPTH	COLOR RESOLUTION	CALCULATION
1-bit	2 colors	2 (2)
2-bit	4 colors	2 (2x2)
3-bit	8 colors	2 (2x2x2)
4-bit	16 colors	2 (2x2x2x2)
5-bit	32 colors	2 (2x2x2x2x2)
6-bit	64 colors	2 (2x2x2x2x2x2)
7-bit	128 colors	2 (2x2x2x2x2x2x2)
8-bit	256 colors	2 (2x2x2x2x2x2x2x2)
16-bit	65,536 colors	2
24-bit	16,777,215 colors	2

Figure: BIT DEPTH & COLOR RESOLUTION

PIXEL DEPTH

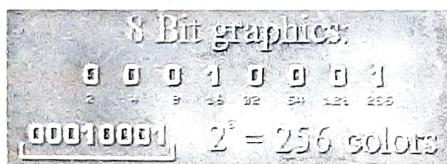
Now let us see "What is Pixel Depth?"

Definition: "The number of bits used to hold a pixel is called Pixel Depth or "color depth" or "Bit depth". The bit depth determines the maximum number of colors that can be displayed at one time."

True Color (16M colors) is required for photorealistic images and video. Most display adapters today support 65K and 16M colors at their highest resolution without noticeable loss of performance in rendering the images.

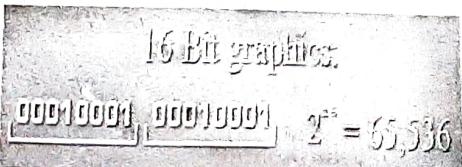
Bit depth/ Pixel depth/ Color depth	Number of colors
4-bits	16 (Standard VGA)
8-bits	256 (Super VGA, indexed color)
16-bits	65,536 (High Color)
24-bits	16,777,216 (True Color)
32-bits	16,777,216 + alpha channel
15-bits	32,768 (Custom option sometimes available on earlier display adapters)

Actually Pixel Depth refers to the number of colors possible on screen. Another way of looking at this is to determine how many different bits are used to make up an individual pixel (**pixel depth**). In the first example below, suppose the binary code to make up the pixel in the top left hand corner were expressed as 0 0 0 1 0 0 0 1. This pixel is using 8 bits to determine how many colors it can have.



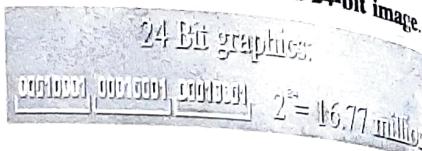
because each bit can either be a 0 or a 1, the number of different combinations can be expressed as 2 to the 8th power. Or, $2 \times 2 = 256$. This means that on an 8-bit image, each pixel can be only 1 of 256 different colors. These same 256 colors are the ones all the other pixels on the image must use. Therefore we can say that the image can only have 256 different colors. Most of the images you will work with will be 8-bit (256 color) images.

Not Let us do the same thing for a 16-bit image.



Observe that 16-bit images can utilize more than 65,000 different colors. The more colors an image uses, the better the image will look. That is because the more colors that are available, the closer the image can look to the way it looked in the real world.

Now let us do the same for a 24-bit image.



Observe that a 24-bit image can utilize more than 16-million colors.

IMAGE SIZE ON QUALITY AND STORAGE

The format that you save your images in can make a huge difference in their final quality as well as limiting what sizes you can print them off at later.

1. JPEG Mode

JPEG is the most common image format and arguably the best! It not only reduces the size of the photograph but it also lowers the quality of the picture. That is why it is called the lossy mode. A lot of pixels are lost when the photograph is changed to the JPEG format. This makes the image less suitable for photo-editing. The advantage is that the JPEG images take less space to store. They are easier to transmit and can even be sent over dial up connections. It is highly suggested that you use this file format.

2. TIFF Mode

The TIFF mode is a better mode. There is no picture loss, and the picture is also acceptable to the publishing industry since it is in an 8-bit mode. The image takes relatively less storage space as compared to the RAW format, and is very suitable for any changes that need to be made using photo-editing software. Of course, it still has some drawbacks. These pertain to file size, that is still very large and can choke small e-mail boxes. You also need more memory cards if you are using TIFF images during a photo shoot.

3. RAW Mode

RAW mode is not the most common format for images; most images are JPEG's. The picture has been stored as it is. This means that each and every pixel that was captured by the camera is now on the image. You can now download this image on your computer for processing. Of course, when you do so you will notice that this is a very large image, probably a few MBs. This means that you will need a very large storage area or memory space if you are going to shoot images in RAW format. Your advantage is that you can sharpen, size, or crop the picture without losing any picture quality.

But your disadvantage is the file size. You cannot transmit it easily because it needs high bandwidth connections. Also, you can shoot very few photographs if you select the RAW mode. After that, you have to change the memory card or make space by erasing a few photographs. Also, this mode is generally not accepted by the publishing industry because it produces a 12-bit image. The photographer needs to modify it using photo-editing software before submitting it for publication.

OVERVIEW OF 2D AND 3D ANIMATION TECHNIQUES AND SOFTWARE

ANIMATION TECHNIQUES: Many different techniques or methods could be used to create your own animation. One can either use the traditional technique, computer animation or the stop motion technique in creating animation.

Traditional Technique : The technique was used for many films that were made in the 20th century. In the traditional technique, the first step is to make drawings for the sequences to be presented in the animation. These drawings are photocopied onto acetate sheets. The side of the sheet which is opposite to the line drawings should be filled with the assigned colors. These sheets are then photographed on motion picture cameras using a rostrum camera.

Computer Animation Technique: The two basic categories of computer animation are 2D and 3D animation. The 2D animation is created ei-

ther using '2D vector graphics' or '2D bitmap graphics'. Morphing, tweening, interpolated rotoscoping and onion skinning are the techniques used in 2D animation.

The technique known as 'rigging' is used to create 3D animations. Although many other techniques are used to create a 3D animation, rigging is most commonly used. The digital models made for 3D animation are manipulated with the help of an animator. The mesh is given a digital structure to facilitate easy manipulation.

Stop Motion Technique: The stop motion technique too uses the phenomenon of optical illusion to create animations. However, in this method, real world objects are manipulated physically and then photographed one frame at a time. *Puppet animation, clay animation, cutout animation* are some of the types of stop animation.

Now let us see "What is Computer multimedia Animation Technique?"

Computer Animation: There are two main types of animations which are used in multimedia applications.

The first type of animation: 2D animation or linear animation is the simple movement of objects on the screen, generally through linear translation. Multimedia development environments often provide the necessary tools to perform this simple animation procedure.

The original creation of animation: 3D animation, however, is very technically and artistically involved, as well as time consuming. Three dimensional objects are created using a mathematical model. Each object may be shown in various views, giving the user a realistic sense of third dimension.

Besides 2D animation and 3D animation, there are also other special effects techniques in computer animation such as *morphing* and *warping*.

2D Animation: Two dimensional (2D) animation software adds movement and action to static images. These programs use either vector drawn or bitmapped images as objects. The motion of animation is perceived by the viewer from a

series of frames. For the motion to appear smooth a minimum of 15 frames per second (fps) is generally required.

There are two types of 2D animation techniques. These are as follows:

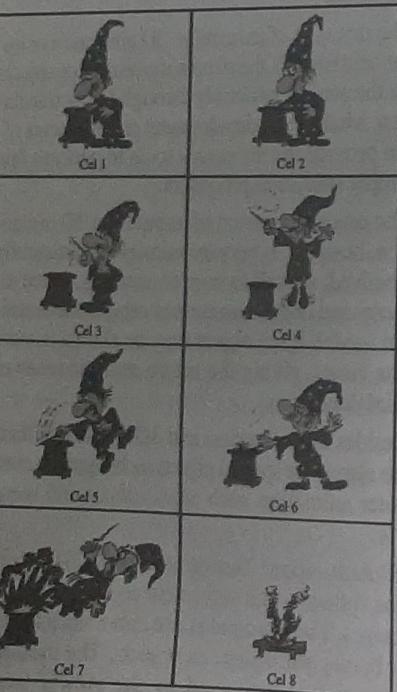
1. Cel Animation
2. Path Animation
3. Onion Skinning
4. Tweening

Besides cel and path animation techniques, there are also other techniques such as

3. Onion Skinning
4. Tweening

2D - Cel Animation techniques: Cel animation is based on a series of frames or cels in which the object is redrawn in each consecutive cel to depict motion. Cel comes from the word celluloid (a transparent sheet material) which was first used to draw the images and place them on a stationary background.

Figure below shows a set of eight cels that can be used to create an animation of a magician with his magic rod. The magician is a multiple-cel actor. Playing the cels in sequence will create the illusion of the magician jumping around.



2D - Path Animation : Path Based animation is the simplest form of animation and the easiest to learn. It moves an object along a predetermined path on the screen. The path could be a straight line or it could include any number of curves. Often the object does not change, although it might be resized or reshaped.

Onion Skinning: Onion Skinning is used in the process of creating cel animations. It allows you to see a faint outline of the previous cel so you can draw the changes for the next cel.

Tweening: Tweening is a method where the first cel of an animation and the last cel of animation are selected and the animation program calculates all the cells in between.

3D Animation: Though 2D animation can be effective in enhancing a multimedia title, 3D animation takes the entire experience of multimedia to another level. Three dimensional animation is the foundation upon which many multimedia CD games and adventure titles are constructed.

3D ANIMATION

Creating 3D animation is more complex than 2D animation and involves two steps : modeling and rendering before the real animation take place.

3D Animation – Modeling: Modeling is the process of creating 3D objects and scenes. Modeling technique involves drawing various views of an object (top, side, cross section) by setting points on a grid. These views are used to define the object's shape. The animation step involves defining the object's motion and how the lighting and views change during the animation.

3D modeling involves defining the shape and physical characteristics of an object which will be created in three dimensions. The most common modeling techniques are wireframe and solid object modeling.

3D Animation – Rendering: Rendering is the final step in creating 3D animation and involves giving objects attributes such as color, surface textures, and degrees of transparency. Rendering can take considerable time depending on the complexity of the animation. There are different rendering processes, varying in time needed and quality of the completed animation.

3D Animation Software: Maya Pro 3D, Lightwave 3D, Specular Infinity, and 3D Studio Max are examples of programs that can produce quite stylish three-dimensional animations.

2D AND 3D ANIMATION SOFTWARE:

Following are the 2D Animation software that you can use :

- (i) USAnimation OPUS
- (ii) ANIMO
- (iii) RETASpro
- (iv) CTP or CREATER
- (v) DIGITAL (Flipbook)
- (vi) Pencil 2d
- (vii) Flash

USAnimation OPUS :

Toon Boom



USAnimation OPUS used to be Toonboom's flagship product. With the passage to the 3d animation it is true that 2D has lost much of the advance software out in the market that will boost your productivity and stream line any studio requirements. OPUS is marvel in animation technology. Not only it allows you to turn your line drawings to vectors through the scanning module but the XSheet, Camera, Paint, and Scene Planning functions are all merged into one

universal "Stage Module". The outcome is a mind-blowing production system will let you blast through production stages, heat up the scene and ignite your own creative renaissance. The software runs both on Linux and Windows machines but be aware that it needs a professional set up in order to make it work the way it is intended.

ANIMO :

Cambridge Animation Systems



While USAnimation dominated the Television and direct to video productions Animo dominated the feature films. Used widely in US and Europe this system also packages all the bells and whistles a complete studio will need. It is also one of the first systems that integrates 2d with 3d animation. Starting with pre-production, Animo and its family of associated products address each of the key stages in the digital production process with intuitive, fast and reliable tools. Animo has been designed from the outset with collaboration in mind, both within the studio and among different studios in widespread locations.

Animo also packages a great pencil tested module that makes testing your animation simple and effective.

RETASpro :

Celsys



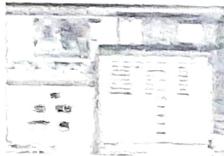
RETASpro combines a number of individual programs (STYLOS, PAINT MAN, QUICK CHECKER, TRACE MAN, RENDER DOG,

that can work together creating a powerful set of tools for 2d animation productions.

The heart of the system CoreRETAS is a tool for carrying out the shooting process in animation production. The tool allows each of the separate materials such as backgrounds and painted cels to be gathered together at the shooting stage to create one scene. Using X-sheets, CoreRETAS HD allows each of the materials to be arranged in the optimum positions and timing for carrying out the shooting with the addition of a variety of production effects.

CTP :

Crater animation



This is a great package for the studio that can't afford one of the more complex and expensive programs CRATER or CTP places the full range of cartoon production functions and tools within a unique and intuitive single-interface design. Yet CTP remains cost-effective and easy-to-use, which means that everyone from the independent artist to the large studio can heighten their production capacity and broaden the creative possibilities. It comes in 3 versions, Pro, Lite and Educational.

DIGICEL :

Flipbook



A rather inexpensive set of tools created by a team of 2D animation professionals. This software comes in 3 versions: FlipBook Lite - FlipBook Lite is our entry-level program for people who are just getting interested in animation.

FlipBook Studio - Includes all the features of FlipBook Lite but you get 5 foreground layers and your scenes can have up to 1,000 frames.
FlipBook Pro - FlipBook Pro is a complete, full-featured animation program with 99 layers, 1,500 frames.

Pencil 2d :

BlenderNation



Pencil 2d animation is an open source program created for traditional animation. Pencil is an animation/drawing software for Mac OS X, Windows, and Linux. It lets you create traditional hand-drawn animation (cartoon) using both bitmap and vector graphics. Pencil is free and open source.

Visit following website for a free download:
www.blendernation.com

3D ANIMATION SOFTWARE:

3D software tends to range in complexity and sophistication, although these days even the simplest 3D software is capable of impressive results. However, choosing the right 3D program is not a trivial matter, nor is it an easy one. There are many factors to take into account and your choice will also depend on your intentions. Do you just want to dabble or include a little 3D rendering in your website? Perhaps you are a 2D designer and want to start incorporating 3D in your illustration work. Maybe you have learned about 3D using free software and intend to pursue 3D as a career. Here we will go over the options available in three general sectors of the market: beginner, intermediate, and advanced.

BEGINNER :

Basic

If you want something for nothing, there are a few freeware versions of 3D packages avail-

able. One of the best free 3D applications available is Blender. This program is a full featured 3D production package featuring the kinds of tools you'd expect to see in a mid to high end application.

Advanced:

At the high end level of 3D applications, it's not so much the tools as their implementation that makes the difference, and each 3D application listed here has its own style of working. Some of these applications are costly, seriously powerful, and used for many high-end effects in movies and television.

Newtek's Lightwave 3D is a dual application featuring separate modeler/texturing and animation/lighting/rendering apps. Its quirky interface is deceptively powerful, and it offers one of the best quality renderers out there.

Softimage XSI combines sublime modeling with non-linear animation, scripting, and phenomenal rendering through tight integration with Mental Images' Mental Ray rendering software. It also features an integrated 2D/3D compositor.

Alias's Maya 3D is extremely powerful. Its node-based architecture enables complex animation and rendering linkages to be created and it offers a nonlinear modeling history, plus Mental Ray rendering.

Discreet's 3Ds Max has always been a popular choice. Its design is not as modern as Maya or Softimage but it holds its own, especially in the games production market, and comes with Mental Ray rendering as standard.

Houdini is a fully procedural animation system that takes the node-based architecture to the nth degree. Sublimely powerful, it's not for the faint hearted, but offers the kind of flexibility other applications only hint at.

INTRODUCTION TO FLASH

What is Macromedia Flash MX 2004?

Macromedia Flash began as an animation tool and has developed over time to become not only the software of choice for multimedia development, but also, with the implementation of

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MX and then MX 2004, a tool for developing *Rich Internet Applications*. It remains easy to use but very powerful, and with a new component architecture and the implementation of *object-oriented programming*, Flash MX 2004 now rivals many of the industry-standard Web application programs.

What's New in Flash MX 2004?

Flash MX 2004 includes a large number of significant enhancements, not the least of which is the implementation of version 2 component architecture, which uses a broadcaster/listener event model. The Components panel now boasts over 30 components, though some of these are available only in the Professional version, and consist of enhanced accessibility features. All the components are based on classes, and have predefined parameters and events, methods, and properties.

Also implemented is ActionScript 2.0, an object-oriented language developed to fulfill with ECMA script language specifications. ActionScript 2.0 supports inheritance, strong typing, and the event model.

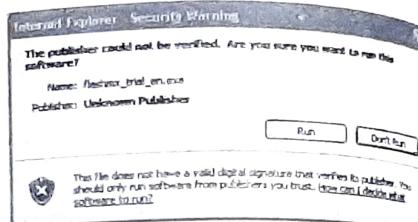
The Behaviors panel contains pre-written scripts in ActionScript, which you can add to your movie for quick functionality. These include video playback behaviors, movie clip behaviors, and sound behaviors, among others. The new History panel tracks your actions, which can be reused.

In addition, Flash MX 2004 includes updated templates, an integrated Help system via a new Help panel, a spell checker, a find and replace feature, rich media support, small font size rendering, and a new *Video Import Wizard*, with pre-defined and customizable encoding options. AVI and MP3 movies can now be embedded in Flash documents, as well as QuickTime movies, which can be embedded or linked.

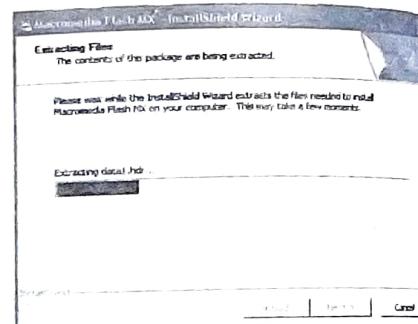
Flash MX 2004 also includes new publish profiles that allow you save and reuse publish settings, as well as Flash Player detection in published files, which can direct users to alternate files if they don't have the correct Flash Player version.

Installation of Flash MX:

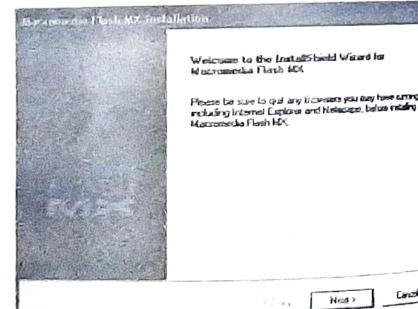
1. Insert 'Macromedia Flash MX' CD-ROM in your CD-Drive or Free download if from its Web site.



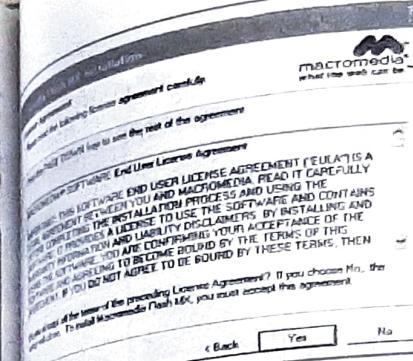
2. After down loading, click on the Run button as figure or if you are using CD-ROM then go to step 3.



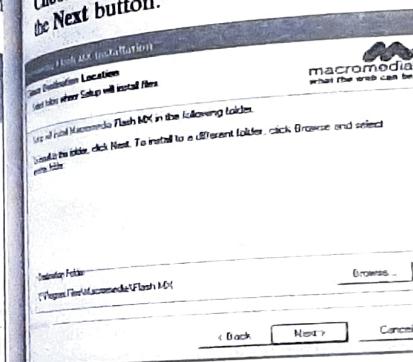
3. Click on the next button as figure.



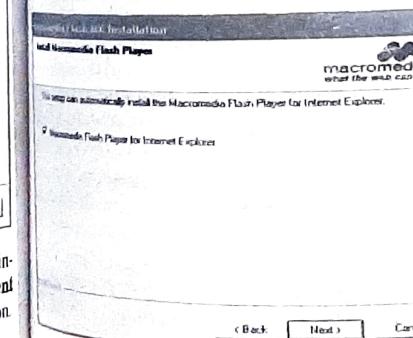
4. After clicking on the Next button the window with message License Agreement appear as figure. Click on the Yes button



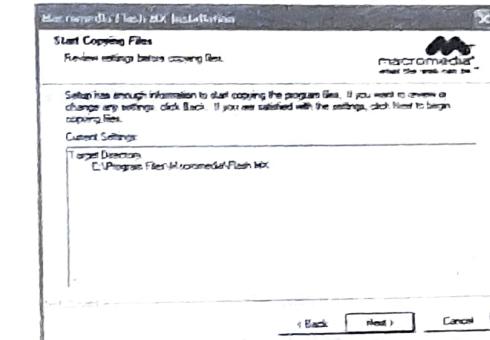
Then a new window appear with message **Choose Destination Location**. Click on the **Next** button.



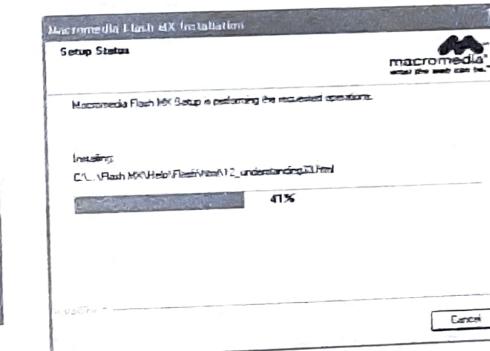
Then another new window will appear with message **Install Macromedia Flash Player**. Click on the **Next** button once again.



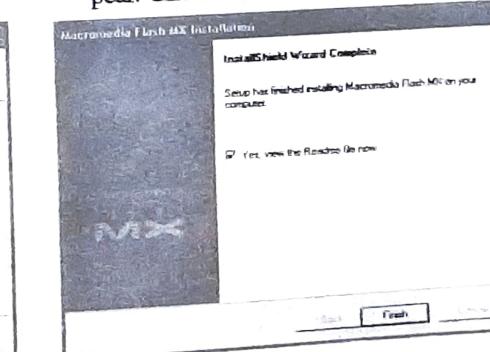
7. Then an other new window will appear with message **Start Copying Files**. Click on **Next** button once again.



8. Then an other new window with message **Setup Status** will appear as figure.



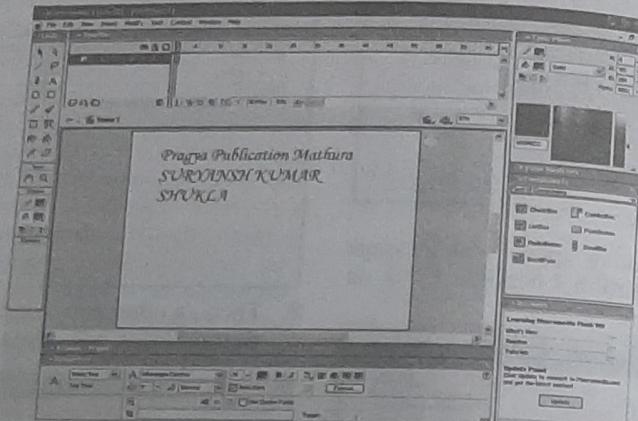
9. Finally an other window with message **InstallShield Wizard Complete** will appear. Click on the **Finish**.



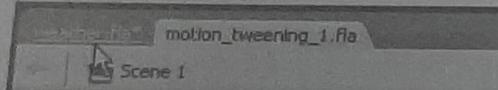
Using the Flash Interface

The Flash MX 2004 workspace consists of a Stage, a Timeline, and various panels that display information and let you define object properties and add ActionScript code.

The Tools panel, which by default appears vertically along the left side of the Stage, contains drawing and selection tools for creating and manipulating objects on the Stage.

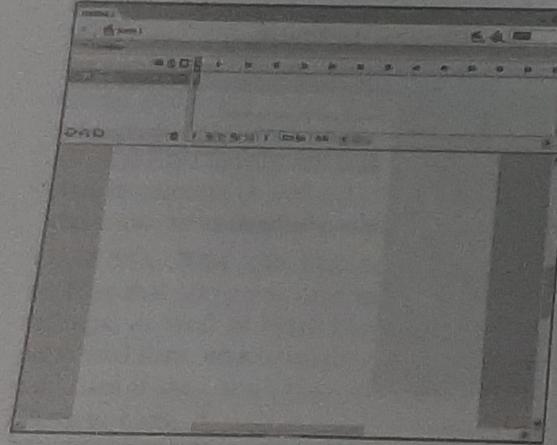


Open Flash documents are displayed on tabs in the main window. To switch from document to document, simply select the appropriate tab:

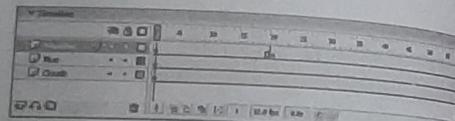


Notice that unsaved documents appear with an asterisk (*) next to their names.

The Stage is your main workspace. This is the area where you place the content as it will appear in your movie:



The flow of content is controlled by its location on the Timeline:



The Timeline consists of individual frames, which can be likened to a piece of paper in an old-fashioned hard-copy cartoon. As papers containing individual images are shuffled, motion is simulated. This is what Flash does: it uses the Timeline to simulate motion. By placing images, buttons, sounds and other objects into frames on the Timeline, you can control how and when those objects appear and disappear. By default, when a Flash movie plays, the playhead automatically moves forward through the frames to the end of the existing content, and then loops back to the beginning to play all over again.

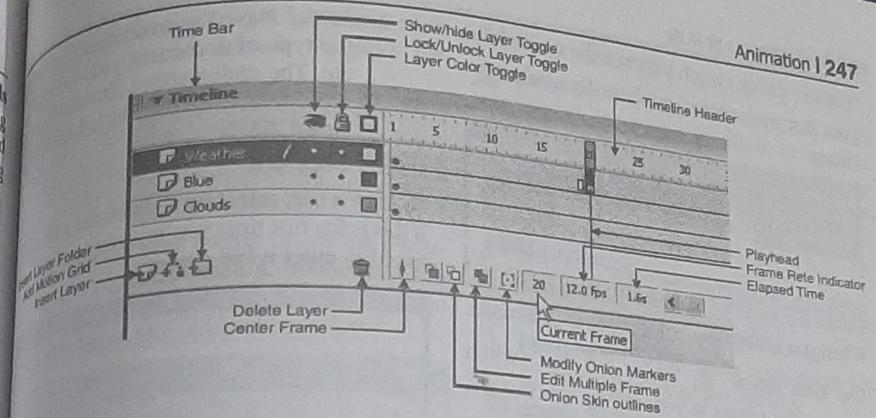
As you're authoring, you can drag the playhead (the red vertical line) along the Timeline to view your animation-in-progress. At any time, you can view the contents of an individual frame by selecting it—clicking inside the frame in the Timeline. The frame number is displayed at the bottom of the Timeline:

When you select a frame, the playhead moves to that frame, and the Stage displays all the objects contained in that frame.

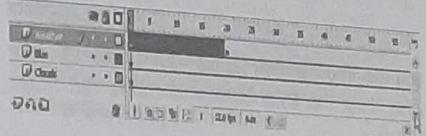
In Flash, there's a special kind of frame called a keyframe, which is essentially a frame used for holding objects representing a change in the animation. For example, a moving car animation might have a car graphic in one location on the Stage in frame 1, and in a different location on the Stage in frame 20. As long as frame 1 and frame 20 are keyframes, Flash will keep the car in its original position until the playhead reaches frame 20; then, Flash displays the car in its new location on the Stage. A keyframe is represented on the Timeline by a black circle. When the circle is solid, an object resides in the frame; when it's clear, no objects are contained in the frame.

In addition, layers let you organize your content in the Timeline, so you can work with different elements separately. Besides having layers that group related images, it's standard to have a layer for buttons, a layer for sounds, and a layer for ActionScript code. You can insert as many layers as you need, and arrange and rename them as necessary. The layers are displayed on the left side of the Timeline. Objects are added to frames on the selected layer.

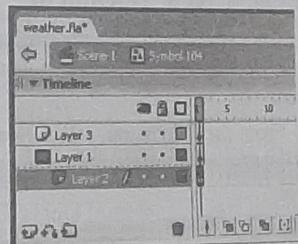
You can adjust the height of the Timeline by clicking and dragging along the lower boundary of the Timeline. You can also use the scrollbars



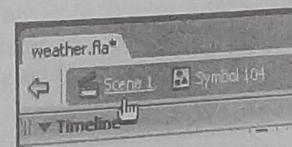
to scroll vertically and horizontally through the Timeline:



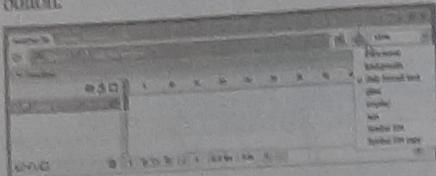
Just above the Timeline, Flash displays the name of the current scene. If you double-click on a symbol—a button, a graphic that's been converted to a symbol, or a movie clip—Flash enters Edit mode for that object, and the name of the object appears above the Timeline next to the scene. Symbols have their own Timelines, which are displayed in place of the Main Timeline in Edit mode.



To exit Edit mode, all you have to do is click the name of the scene or the back button next to it.



You can easily switch between the symbols in your document using the **Edit Symbols** button:



When you select a symbol, it opens in Edit mode.

The **Edit Scene** button lets you switch between the scenes in your movie. You can use scenes to group portions of your movies.

The **Zoom** menu 100%, also located above the Timeline, lets you adjust the display of the Stage. A **Zoom** button also appears on the Tools panel, along with a **Pan** button. Use the Pan button to move the Stage display.

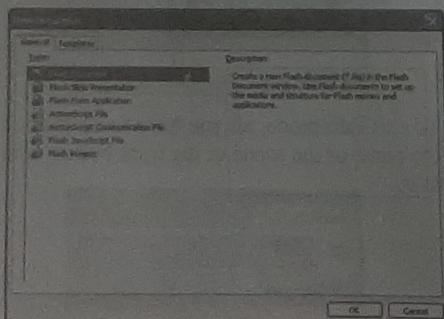
Most of the buttons on the Tools panel are used for creating and transforming graphics in Flash. To display the Tools panel, select Tools from the Window menu.

In addition to drawing and selection tools, the Tools panel includes buttons and menus for defining objects' stroke and fill colors and options for the selected tool.

Creating a New Document

Flash refers to movies in the authoring environment as "documents". To create a new Flash document:

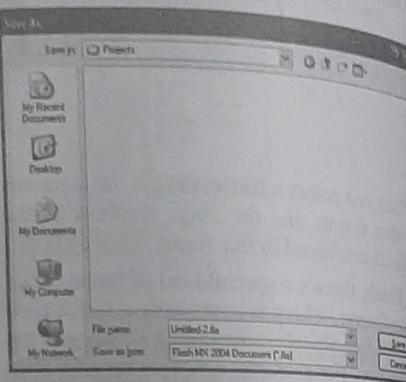
- From the File menu, select New.



- In the **New Document** dialog, select the type of document you want to create. The dialog above shows document types available for Flash MX Professional 2004.

- Click OK.

To save a file, select Save from the File menu. If this is the first time you're saving a file, you're asked to enter a file name:

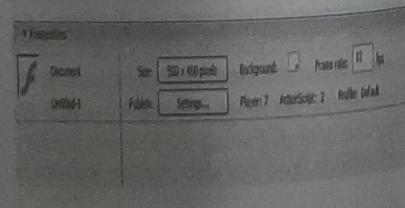


Remember to save your work frequently! Flash uses a lot of resources, and animating is time-consuming work—you don't want to have to reproduce it if Flash crashes.

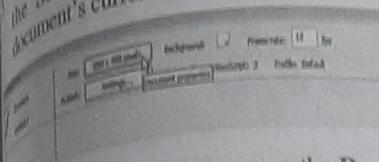
Changing Movie Properties

Movie properties can be set using the *Property Inspector*.

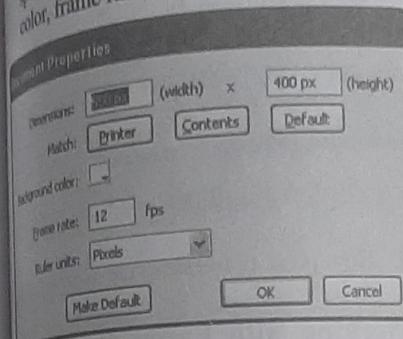
- If necessary, select **Properties** from the Window menu to open the *Property Inspector*.
- With no object on the Stage selected, the *Property Inspector* displays the document's properties by default. If necessary, you can click on a blank area of the Stage, or outside the Stage in the grey area, to display the document's properties:



To change the size of the document, click the **Size** button, which displays the document's current size.



Clicking the **Size** button opens the **Document Properties** dialog, where you can specify the movie's dimensions, background color, frame rate, and ruler units.



Tip: 12 frames per second (fps) is the default frame rate for Flash documents, and is usually sufficient.

- When you've finished defining the document properties, click **OK** to apply the settings and close the dialog.

Creating simple animation for the web:

1 Using Flash MX

Flash is a household name when it comes to multimedia. Whether you're creating standalone movies, interactive demos, or cool web components, Flash is a solid foundation on which to base your work.

Flash can create two types of tweened animation using timeline.

Tweening in FlashMX:

There are two type of tweening in FlashMX. These are as follows:

- Motion Tween &
- Shape Tween

Motion Tween:

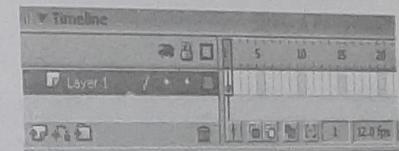
Motion tween is nothing but tweening a Symbol's movement from one position to another. To implement Motion Tween all that you have to do is, provide Flash with Symbol's initial position and the end position. Rest is taken care by Flash.

Please note:

- You need to have Flash Player 7.0 installed to view the Flash animation.
- Flash MX 2004 must be installed in your system to download the .fla file.

To create Motion tween follow the following Steps:

- Open a new flash file (Ctrl+N).
- New Document window will appear. Select General panel and choose Type: Flash Document. Press OK.
- If your timeline window is not open, press (Ctrl+Alt+T).
- Now you can see a single Layer called "Layer1" in your timeline Window.



- Select the first frame. Import your image onto stage, upon which you would want to implement motion tween.

File>Import>Import to Stage, or just press (Ctrl+R).

Or you can even draw your own object, you can either choose Rectangular tool or Oval tool from the tool box and draw your desired shape.

- Now select your object on the stage and press F8 to convert this image to a Symbol. Convert to Symbol window will pop-up. Name your Symbol whatever you like. Select Graphic behavior and press OK.

You can create motion tween only on symbols. So any object upon which you would want to implement motion tween, First convert the object to a Symbol.

7. Right now your Symbol is in frame 1 of Layer1. Select frame 20 and press F6 to insert a new keyframe.
8. Still keeping playhead on frame 20, move your Symbol to any other position other than the present one.
9. Select any frame between, 2 to 19 and select Motion from the tween pop-up menu in the Property inspector. Now your Layer will look something like the one shown below,



10. Now press (Ctrl+Enter) to view your motion tween.

Shape Tween:

By tweening shapes, you can create an effect similar to morphing, making one shape appear to change into another shape over time. Flash can also tween the location, size, and color of shapes.

To create Shape tween follow the following Steps:

1. Open a new flash file (Ctrl+N). New Document window will appear Select General panel and choose Type: Flash Document. Press OK.
2. If your timeline window is not open, press (Ctrl+Alt+T).
3. Now you can see a single Layer called "Layer1" in your timeline Window.

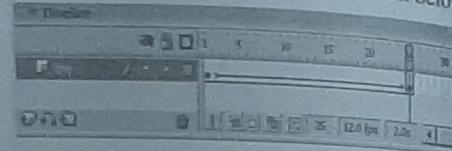


4. Select the first frame. Now go to your working area and draw any object. To start off with, maybe you can draw a circle. This is going to be your initial object.

5. Select frame 20 and press F6 to insert a new keyframe.

6. Still keeping playhead on frame 20, delete the object present in your working area. Now draw a different object, maybe a square.

7. Select any frame between, 2 to 19 and select Shape from the tween pop-up menu in the Property inspector. Now your Layer will look something like the one shown below,



8. Now press (Ctrl+Enter) to view your motion tween.

Working with Layers in Flash:

Now let us see how to work on layers using Flash MX 2004?

To Work with Layers in Flash follow the following Steps:

1. Open a new flash file (Ctrl+N). New Document window will appear Select General panel and choose Type: Flash Document. Press OK.
2. If your timeline window is not open, press (Ctrl+Alt+T).
3. Now you can see a single Layer called "Layer1" in your timeline Window.



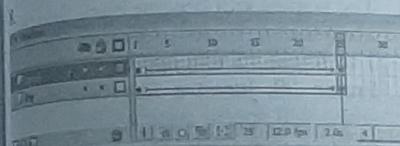
4. Create a Shape Tween on Layer1.

Single click on add new layer button.



A new layer gets added. By default it will be named "Layer 2".

Create a Motion Tween on Layer 2. After creating two layers, your timeline will look something like the one shown below.



9. Now press (Ctrl+Enter) to view your motion tween.

Motion Guide in Flash:

Now let us see "What is Motion Guide?"

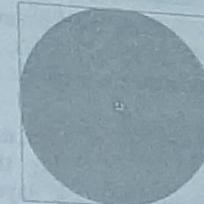
Motion Guide is nothing but moving your symbol in a predefined path such as curves or circles.

Now let us see how to create motion guide in Flash MX 2004?

To create motion guide in Flash MX 2004 follow the following Steps:

1. Create a graphic symbol or drag a pre-existing graphic symbol from library onto the stage. Name the layer as "graphic"
2. Right click on the "graphic" label and select "Add Motion Guide" from the pop-up window.
3. A new layer will appear on top of the "graphic" layer with the label "Guide:graphic" along with the guide icon.
4. Draw the path for your symbol in this new layer using pencil or line tool. For example: I drew a circle for my car.
5. Select frame 50 of guide layer and press "F5" to insert frames.

6. Now go to "Frame 1" of "graphic" layer and drag your symbol to one end of your path. While dragging, you will see a bubble on the symbol. That bubble should go right below the path. Something like the one shown below.



7. Now go to "Frame 50" of "graphic" layer and press F6 to insert a new keyframe.

8. Now drag your symbol to other end of your path. Again, the bubble should go right below the path.

9. Select any frame between 1 to 50 of your "graphic" layer. Right click and select "motion tween" from the pop-up menu.

10. Press Ctrl+Enter to view your work.

Masking in FlashMX:

Masking is revealing portion of your picture or graphic in the layer below.

While surfing through net you might have come across lots of beautiful Flash effects such as ripple effect, some wording with sky background or glitter bordering an object, and wondered "How? What is the logic behind this". The answer for all this is *masking*.

To create masking in Flash MX 2004 follow the following Steps:

Inserting Layers and Naming them

1. By default you will have a layer in your timeline window. Insert one more layer, totally you need two layers to mask an object.
2. Rename the top layer to "Mask" and the layer below that to "background".
3. Import your picture to the "background" layer.

Creating Shape Tween

2. Using Oval tool from your tool box, draw a circle in your "Mask" layer and delete its border.
3. Drag the circle to one end of your picture.
4. Now go to "frame 40" of your "Mask" layer and press "F6" to insert a new keyframe.
5. Now go to "frame 40" of your "background" layer and press "F5" to insert frames, so that your background image is available all through your mask.
6. Select "frame 40" of your "Mask" layer, that is your new keyframe, Keeping the playhead on "frame 40" of "Mask" layer, drag the circle to other end of your picture.
7. Now go back to "frame 1" of your "Mask" layer, keeping the playhead on "frame 1" of your "Mask" layer, select Shape tween in your properties window.

Masking

1. Right click on the "Mask" layer (the area where you named the layer not where the frames exist) and select *Mask*.
2. Your Mask is all ready. Press *Ctrl+Enter* to view your Mask.

Fade in & Fade out Effect:

Now let us see "how to fade an image in Flash MX"

You can use fading effect on images and text and it is a very common Flash effect.

To create fading effect in Flash MX 2004 follow the following Steps:

1. Open a new file. Go to *File>New*. A Screen called *New Document* will appear. Select *Flash Document* and click on *OK*. Go to *Modify>Document* and give a file size of 300px by 200px. This is the same size as the Bitmap pictures we have.
2. Select the Bitmap pictures that you want to Fade in and Fade out from your picture file and bring it to the Flash Library. Select *File>Import To Library* from the Menu Bar. A Screen named *Import To Library* will open. Choose the file name and click on

Open. Repeat these steps for all the Bitmap pictures. To open Library, go to *Window>Library*. You can see the pictures in the Library panel.

3. Drag the picture from the Library panel to the Stage. Select the picture by clicking on it. Go to *Modify>Convert To Symbol* from the Menu Bar. A dialog Box named *Create New Symbol* will appear. Give the name as *pic1_mc*. Select Movie Clip. Click on *OK*.
4. Click on your Movie Clip. Go to Frame 15. Insert a Keyframe. Right click on layer 1 in the middle of the frames 1 to frames 15. The frames will become black. Select Create Motion Tween. An arrow from frame 1 to frame 15 will appear. Again click on Frame 30. Insert a Keyframe. A second arrow will appear automatically.

5. Click on Frame 1. Here we will give the fade in effect. Select the picture by clicking on it. Go to Properties in the panel below it.



Your picture has faded in. Click on Frame 30. Here we will give the fade out effect. Select the picture by clicking on it. Go to Properties in the panel below the Stage. Go to Color>Alpha give 0% to it.

6. Repeat the steps 3 to 5 in layer 2 from the frame 31 to 45 to 60. To make a new layer, click on the following button which is on the right side below the layers. Repeat the above steps for all the images in new layers and you will create a simple fade in and fade out Flash animation.

Press on *Ctrl+Enter* to see the Fade in & Fade out Effect of the 4 pictures.

Bouncing Effect in Flash:

Now let us see "how to create a bouncing effect animation using Motion Tween and Shape Tween in Flash MX2004?"

In the demonstration, the bouncing heart animation is created using motion tween and the shadow effect using shape tween.

TO CREATE MOTION TWEEN

Steps to Follow :

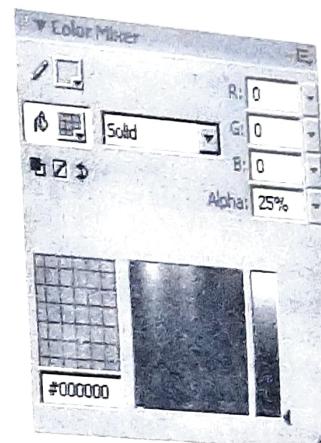
Create a Symbol

1. First draw an object for Motion Tween. Like in the above demonstration I used heart.
2. Select the object you have drawn and press *F8* to convert this object to a Symbol.
3. In the Symbol window which appears now. Name this object *heart_mc*, choose Movie clip behavior and bottom center square for registration. Press *OK*.



Create a Motion Tween

1. Double click on the Layer and type "Heart".
2. Select Frame 30 and press *F6* to insert a keyframe.
3. Select Frame 15 and press *F6* to add another keyframe.
4. With the playhead still on Frame 15, hold the Shift key to move the *heart_mc* in a straight line, and drag the *heart_mc* up.
5. Select any frame between Frames 2 and 14 and select Motion from the tween pop-up menu in the Property inspector.
6. Select any frame between Frames 16 and 29 and select Motion from the tween pop-up menu in the Property inspector.
7. Press *Ctrl+S* to save your changes.
8. Select any frame between Frames 16 and 29 on the Shadow layer. In the Property inspector, select Shape from the Tween pop-up menu.
9. Select any frame between Frames 16 and 29 on the Shadow layer. In the Property inspector, select Shape from the Tween pop-up menu.



Now its time for Final touch up

- Select Frame 1 of the Heart layer. Press F6 to add a keyframe. A new keyframe is added, and the playhead moves to Frame 2.
- Go back to frame 1, select the Free Transform tool from your toolbox.
- Select the transformation center point (the small circle near the center of the movie clip) and drag it to the bottom of the heart. On the Stage, drag the upper middle transform handle down to slightly compress the heart shape.
- Right-click Frame 1 of the heart layer and select Copy Frames from the context menu. Go to 29th frame and press F8 to insert a new keyframe. Right-click 29th frame and choose Paste Frame from the context menu.
- Click on the Stage, away from any objects. Type "28" in the Frame Rate text box of your Property inspector window.
- On the heart layer, select any frame between Frames 2 and 14. Then in the Property inspector, in the Ease text box, type 100. Similarly select any frame between Frames 16 and 29 in the same layer, then go back to Property inspector window and type -100 in the Ease text box. Do the same thing to the Shadow layer.
- Press Ctrl+Enter to view your animation.

Flash Ripple Effect:

Now let us see how to create a simple Ripple effect in Flash MX 2004?

STEPS TO FOLLOW

Create a Graphic Symbol.

- Import an image to your work area upon which you would like to create ripple effect.
- Press F8, to convert this image to a symbol.
- Name this Symbol "girl_gr" and choose graphic behavior. Press OK.
- Name this Layer "bg".
- Select girl_gr and choose Alpha 99% from color list box in your property window.

Create a Movie clip.

- Press Ctrl+F8, to create Ripple movie clip.
- Name this symbol "ripple_mc" and choose Movie clip behavior. Press OK.
- Drag girl_gr to your working area from Library (ctrl+L).
- Select girl_gr and choose Alpha 0% from color list box in your property window.
- Insert Keyframe (F6) into the 5th frame.
- Remaining on the 5th frame, Select girl_gr and choose Alpha 99% from color list box in your property window.
- Now select 1st frame, choose Motion Tween from Tween list box in your property window.
- Insert Keyframe into 15th frame and later to 20th frame.
- Remaining on the 20th frame, Select girl_gr and choose Alpha 0% from color list box in your property window.
- Select 15th frame, choose Motion Tween from Tween list box in your property window.
- Insert a new layer above this layer, call it "Layer 2".
- Select frame 1 of Layer 2 and draw a borderless square or rectangle depending on the type of ripple effect you want.
- Place this vector wherever you want the ripple to begin. Make sure that the vector belongs only to layer 2.

- Insert Keyframe into the 20th frame of Layer 2.
- Place the vector wherever you want the ripple to end or ebb.
- Select 1st frame, choose Shape Tween from Tween list box in your property window.
- Right click on Layer 2 and select Mask.
- Save (ctrl+S). Make it a habit to save your work after each step you do.

Insert Ripple Movie Clip onto Scene 1

- Now go back to Scene 1.

Insert a new layer above bg layer and call it ripple1.

Insert new Keyframe (F6) into the 10th frame of ripple1 layer.

With 10th frame of ripple1 layer selected, Drag ripple_mc movie clip (or any other clip) onto the working area. Place it appropriate to girl_gr. Make sure that this movie clip is placed exactly where you had placed your square or rectangular vector in ripple_mc Movie clip.

Insert frame (F5) into the 30th frame of ripple1 layer. This is just to make sure that the ripple_mc runs only for 20 frame.

Insert another new layer above ripple1 layer and call it ripple2

Insert Keyframe into the 20th frame of ripple2 layer.

With 20th frame of ripple2 layer selected, Drag ripple_mc movie clip onto the working area. Place it appropriate to girl_gr just the way you did in step 4.

Insert frame (F5) into the 40th frame of ripple1 layer. This is just to make sure that the ripple_mc runs only for 20 frame.

Insert frame (F5) into the 40th frame of bg layer.

Here you go!! Your movie is ready. Press Ctrl+Enter to view your movie.

GIF Animator

CoffeeCup GIF Animator allows you to easily create or edit animated GIFs for your Webpages. Just open the software, and it guides you through creating great animated GIFs in just a few simple steps. It's so easy... anyone can do it.

CoffeeCup GIF Animator can convert JPEG and BMP graphics to GIFs automatically, as well as AVI files. There is also a floating preview window so you can see your animation and edit it at the same time!

GIF Animator makes it easy to create professional GIF animations, and even export them to

Animation | 255

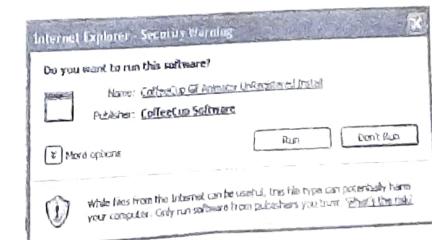
Flash SWF format... and the HTML code is generated automatically for easy insertion into any Webpage. Editing your existing animated GIFs is super-simple too — just open it up and go to work with the program's user-friendly interface. You can use transparent backgrounds, choose the delay time for each frame, and easily change the order that frames appear.

Some Features of GIF Animator

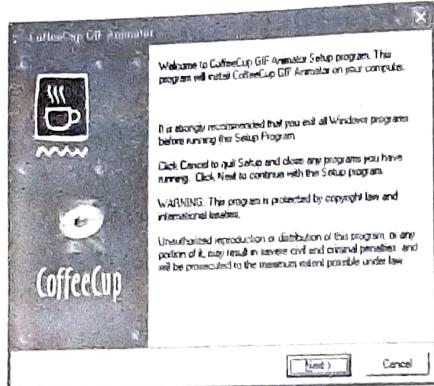
- Floating Preview Window for easy Editing
- Loop the animation forever or a certain number of times.
- Change the Delay makes the animation slower or faster.
- Generates HTML source code on the fly
- Import .AVI format files up to 500K and convert them to animated GIFs.
- Select Transparency with just One Click
- Quickly Edit your existing Animated GIFs
- Easily Make High Quality Animated GIFs in a few steps
- Convert jpg, .ico, .bmp and more to .gif automatically
- Converts JPG, .BMP, .ICO and more to .GIF automatically

Installation of CoffeeCup GIF Animator:

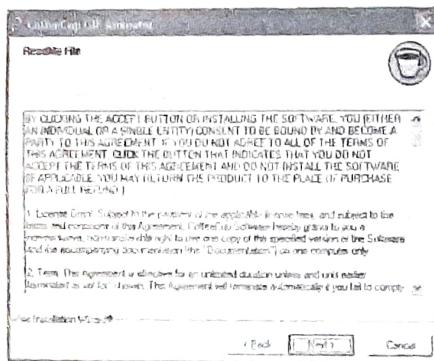
- Insert CoffeeCup GIF Animator's CD-ROM in your CD-Drive or Free download it from its Web site.
- After download, click on the run button as figure or if you are using CD-ROM then go to step 3.



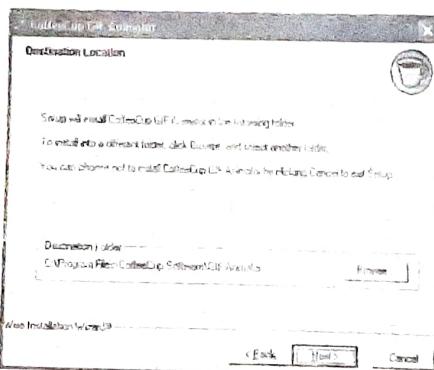
3. Click on the next button as figure.



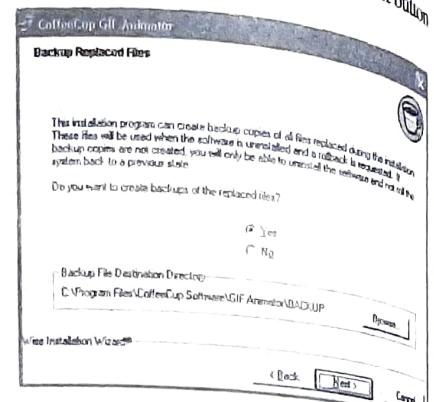
4. After clicking on the Next button the window with message ReadMe File will appear as figure. Click on the next button as figure.



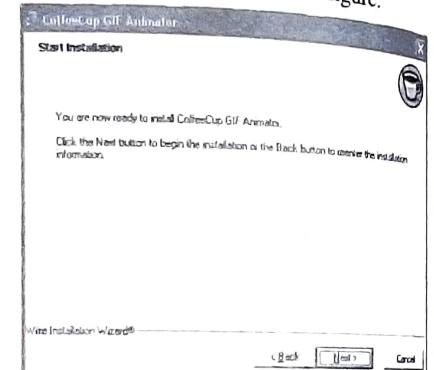
5. Again Click on the next button as figure.



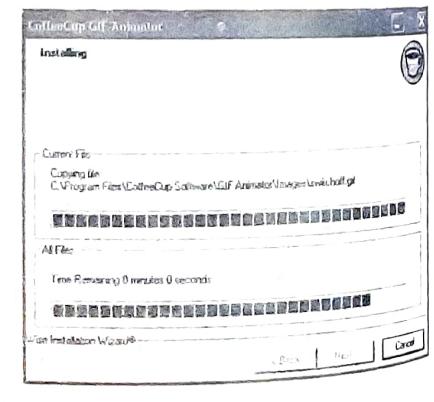
6. Then a window with message Backup Replaced File will be appeared. Click on the Yes radio button and Click on the next button as figure.



7. Then a window with Start will be appeared. Click on the next button as figure.



8. Then a installation progress window will be appeared as figure.



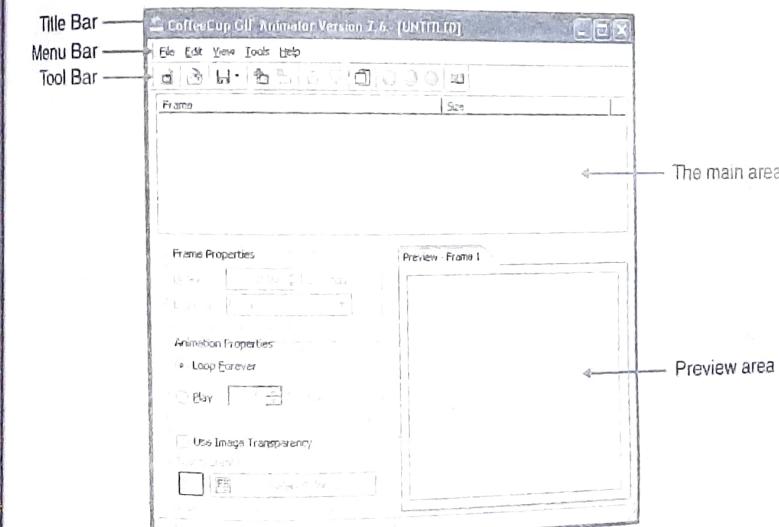
After completion of installation the following window will be appeared as figure. Click on the Start the Program button to start CoffeeCup GIF Animator.



Overview of GIF Animator

Main menu):

The Main Screen in GIF Animator is easily navigable and allows you to change all the options for the images you are using in the program. The main area will display all the images you insert bring into the program. The Frame name and size will be displays in this area. The Preview area shows the frame (image) selected from the list of frames above. Click on many of the image below for more information.



tion about that section.

To start your Animated GIF click on File → New. The Animation Wizard will begin.

Choose how many times you would like the GIF to repeat its animation. You can also choose for the GIF to repeat infinitely. Choose how much time you would like between each GIF frame. Default is 1 second.

Choose the GIFs you want in the animation, by clicking on Add Image(s). You can highlight multiple files. You can also use many other image formats other than GIF, including JPEG, BMP, ICO, EMF and WMF. You can remove images from your animation by clicking Remove Image.

When adding images of different sizes you must choose how you want the images animated together. You can choose Trim Frame to match the animation size which makes the frame one size and may cause cropping, or Change the animation size to match the frame size which will cause the animation to have different sized frames.

Click Finish to be brought back to GIF Animator with your animation complete.

EXERCISE

1. What is animation ? Explain the 2D and 3D animation.
2. Explain the various types of animation classification.
3. Explain animation technique in detail.
4. Write short note on the following :

(i) Image and Animation	(ii) Morphing
(iii) Keyframe	(iv) Tweening
(v) Lofting	
5. Explain the 2D and 3D animation techniques in detail.
6. Explain various principles of animation.

7. Explain features of 3D studio and Paintshop-pro for creating animation.
8. What is Macromedia Flash MX 2004 ? What is new in Flash MX 2004 ?
9. Write short note on the following :
 - (i) Storage size
 - (ii) Pixel Depth
 - (iii) Effect of Resolutions
 - (iv) Animation Technique
 - (v) 2D and 3D Animation software
10. How do you install Flash MX 2004 ? Write all steps.
11. What is Flash Interface ? Explain various component of Flash MX 2004 application window.
12. What is keyframe and layer in Flash MX 2004 ? How do you create a new document in Flash MX 2004 ?
13. What is property inspector ? How do you change movie properties in Flash MX 2004 ?
14. What is motion tween ? How do you create motion tween ? Write all steps.
15. What is shape tween ? How do you create shape tween ? Write all steps.
16. What is motion guide ? How do you create motion guide ? Write all steps.
17. What do you mean by masking in Flash MX 2004 ? How do you create masking in Flash MX 2004 ?
18. Write all steps to create fading effect in Flash MX 2004.
19. Write all steps to create a bouncing effect animation using motion tween and shape tween in Flash MX 2004.
20. What is GIF Animator ? Explain features of GIF animator.
21. Write all steps to install CoffeeCup GIF Animator.
22. How do you create a simple animation using GIF animator ? Write all steps.
23. Write short note on the following :
 - (i) Exaggeration
 - (ii) Squash and stretch
 - (iii) Use of animation in multimedia
 - (iv) 2D and 3D Animation Techniques