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Introduction

xViewer is a program for Windows 95 and DirectX, which deals with 3D-objects. It manipulates 3D-objects in size, movement, color, texture, material, light and fog. Furthermore it allows grouping of 3D-objects and real-time animation of them. All manipulations can be saved and loaded.

xViewer works with .x-files, a data format of Microsoft, which allows to store single or multiple 3D-objects, including animations, the .x-files must be in uncompressed text format.

Here are some fundamentals of 3D-Computing.

XViewer uses a left-handed coordinate system, which means that positive z-Values are farther away from the viewer than negative z-Values.

A 'mesh' is a 3D-Object, which is defined by a number of polygons. Such a polygon is called 'face'.

Each face consists of a number of points. Such a point is called 'vertex'.

A texture is a bitmap file, which is projected on a mesh or on a number of faces or on only one face.

A frame can consist of one or more meshes, it is usually used for movement and rotation of the mesh

or the meshes of it.

Frames are organized in hierarchies, which makes it easy to allow complex movements by defining

a parent frame for one or more children frames. All movements of the parent frame will be also done

by the children frames.

The root frame is called the scene, it contains all other frames.

The frame View is responsible for displaying an area of the scene on the monitor.

An AnimationSet consists of a number of animations. Each animation is connected to a frame, and

defines actions, such as movement, rotation or scaling for it at a certain time. Look for newer versions

of xViewer, it will certainly have much more animation features, such as Sound and Interaction.

System Requirements

Windows 95 and DirectX5 runtime version or above is recommended to run xViewer.

Have a fast computer with lots of RAM. At least a Pentium processor is required.

For example, xViewer was developed with a Pentium II 233 MHz, 64MB RAM and AGP-Card.

If you want to use 3D-hardware acceleration switch to a display mode, which is supported by your 3D-Graphics Card, before starting xViewer. Normally this is 640x480 and 800x600 with a color depth of 16 bit. xViewer uses automatically the current display mode and if there is no 3D-hardware

support for it, it will use software emulation.

xViewer was tested with a S3-Virge DX PCI -Card and a Riva 128 AGP-Card.

Nevertheless there are still problems with programs using DirectX.

Do not run xViewer from the msdos command line prompt. Do not switch between full-screen dos programs,

including msdos prompt, and xViewer.

If you get the error 'rendering failed' after starting xViewer, just try it again. If you get severe system errors,

restart Windows.

You run this program at your own risk, just like every other programs.

Keys And Mouse Movement

Mouse

Select an object on the screen by moving the mouse pointer on it. Press either the left or the right mouse button. The window title will be filled with the name of the frame and of the mesh.

If you keep the right mousebutton pressed, you can move the object around the screen with the mouse.

While pressing the left mouse button, you are able to rotate the object in the direction of the mouse movement . The speed of the rotation is proportional to the movement of the mouse. The rotation will start after releasing the left mousebutton. The rotation can be stopped if you press the left mouse button on the object again and release the button without moving the mouse. If you have difficulties to achieve slow rotation rates, change the parameter Rendering Speed in the Configuration Menu to a smaller value.

Keys	Action
INSERT	zooms in the scene
DELETE	zooms out of the scene
HOME	zooms in the scene, permanent function, press the cursor keys to stop,
END for	reverse
END	zooms out of the scene, permanent function, press the cursor keys to
stop,	HOME for reverse
Cursor left	moves left in the scene
Cursor right	moves right in the scene
Cursor down	moves down in the scene
Cursor up	moves up in the scene
PageUp	zooms the selected frame in
PageDown	zooms the selected frame out
-	scales the selected frame down by 0.9
+	scales the selected frame up by 1.1

Commercial

Of course, the demo version does not include any Save Options.

Furthermore, it is restricted to 10 min. of use.

At last the demo version covers only the features of xViewer 1.0.

The price of the full version is 50 US\$ + 10 US\$ sending costs, only in advance, cash or cheque.

Orders can be sent to following address :

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Tel. 0231/46-87-09
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PS: Microsoft is a registered trademark, or whatever. As I bought a Microsoft Compiler in '92, I was told how to reference to it on several pages in the documentation. The place should have been better used to reference undocumented functions in Windows.

File Menu

The File menu includes commands that enable you to open and save files, to configure and to exit xViewer.

For more information, select one of the following topics:

[Open](#)

[Import Mesh](#)

[Save Mesh As](#)

[Save Frames As](#)

[Save AnimationSet As](#)

[Export Mesh](#)

[Configuration](#)

[Exit](#)

Open

The Open command loads a valid x.file. The file must be in text-format. The file can include meshes, frames and animationsets.

Import Mesh

The Import Mesh command loads a valid .raw file. The polygon is converted to the left-handed Direct3D coordinate system. Only the polygons without any color or texture information are imported. This function can last some minutes if there are many polygons to be imported.

Save Mesh As

The Save Mesh As command saves the selected mesh.

Save Frames As

The Save Frames As saves all existing objects, including fog, lights and rotational movement information.

Save AnimationSet As

Same as Save Frames As, but includes also animations.

Export Mesh

The Export Mesh command saves the selected mesh in a .raw file. The polygon is converted to a right-handed coordinate system. Only the polygons without any color or texture information are exported. It is the best to export meshes, which have only triangles as faces, otherwise there may be difficulties with programs importing this mesh, who only operate on triangle basis.

Configuration

The Configuration menu configures xViewer.

Pushing the OK-Button will change the current configuration.

Pushing the Default-Button will set the parameters to default values.

Rendering Speed

sets the rendering speed of the whole scene. Default value is 1.0, lower values will slow down the rendering process, higher values will fasten

it.

The rendering speed depends on your hardware equipment and you should change

according to your needs.

Center Object After Loading

this option will center the loaded objects on the screen, so that they are visible, even

if their coordinates are outside the current view. Use this option, if you are loading objects,

which were not saved by xViewer.

KeyOffset

will change the movement of the frames according to this value.

FaceColor

defines the color of the selected faces

ViewBack

defines the depth of the view

Working Directory

defines, where xViewer will look for x.Files at first.

Exit

The Exit command exits xViewer.

Mesh Menu

Cut	cuts the selected mesh
Copy	copies the selected mesh
Paste	pastes the selected mesh
Delete	deletes the selected mesh
Face Information	displays select status, number, vertices and normals of the faces
Select /Unselect Faces	of the selected mesh, you can also define ranges to select faces, the select-function is accumulative. enables/disables selection of faces of a selected mesh. Now faces can be selected with the right mouse button, the window caption will show the number of the selected face, to unselect a face, press the right mouse button on it again. The selection color of the faces can be changed in File/Configuration-Facecolor.
New Mesh	builds a new mesh out of the selected faces
Color	changes the color of the selected mesh or of the selected faces
Emissive Color	changes the emissive color of the selected mesh or of the selected faces
Specular Color	changes the specular color of the selected mesh or of the selected faces,
Specular	RGBF value, F stands for fog, which is defined by the Power Of Color value, another way of thinking that this value affects the brightness
Power Of Specular Color	changes the sharpness of reflected highlights, value of 5.0 will give a look metallic, higher values will give a plastic look.
Texture	changes the texture of the selected mesh or of the selected faces
power of	The file must be in .bmp format and the dimensions must be a power of 2, 32x32, 32x64, 64x64, 64x128, 128x128, 128x256, 256x256 and so on.
shure to	The file must be in RGB-color format. If you are loading the mesh object with a defined texture, be shure to have the texture file in the same directory as the .x-file.
	Load Texture selects a .bmp-file
	Delete Texture deletes the texture
selected	Cylindrical topic in u-Direction wraps the texture around the object in x-Direction
selected	Cylindrical topic in v-Direction wraps the texture around the object in y-Direction
textures	Chrome same as the first wrapping option, but can also be used to wrap on flat surfaces
texture will be	if you don't specify one of the three wrapping options, the displayed flat on the object

	use default values	default values will be used for the wrapping options above
	use transparency	all pixels of the texture, which have the same color, as defined in Transparent Color, will be transparent. If you don't define a texture file, but if you enable the 'use transparency'-option, the whole mesh or all selected faces will be transparent
	Origin of Wrap	defines the origin of the wrap
	z-axis of the wrap	defines the z-axis of the wrap
	y-axis of the wrap	defines the y-axis of the wrap
	origin of the texture	defines the origin of the texture
	scale of the the texture	defines the scaling factors of the
texture,		
	Apply	values below zero will mirror the texture
	End	applies the defined values to the object ends the texture dialog
Fill Scene		Displays a mesh on each vertex of the selected mesh.
mesh file		Scale will expand the selected mesh, with the mesh button a
meshes		can be loaded, ok starts the action. The frames of all new
best to scale		will have the frame of the selected mesh as parent. It is the
done. Then		the selected mesh down a very small size after the filling is
mesh.		all created meshes will be moved according to the selected
careful		This functions is very useful to fill patterns with meshes. Be
message		to use the only meshes with a few of vertices. If you get the
to a		'Rendering Failed' set the rendering speed in File/Configuration
Transform		higher value.
the		changes size, position or rotation of the selected mesh
displayed.		above are the minumum and maximum points and the length of
Reset Position		dimensions for the selected mesh or the selected faces
Bounding Boxes		centers the selected mesh on the screen
		draws or deletes a boundary of the selected mesh

Points Menu

Create Points

switches the create-points-modus on or off.

In the create- points-modus points can be defined by pressing the right mousebutton on the screen. The window title shows

the

current coordinates of the mouse position.

Edit

shows the created points.

Insert inserts a point with the defined coordinates.

Delete deletes the selected point.

Update replaces the coordinates of the selected

point.

End ends the dialog.

Frame Menu

Delete All	deletes all frames with their meshes and lights
Reset View	resets the view to default values
Edit	display and changes parameters of the frame. On the left side the number of the frame, it's name, the number of the
parent and	the place in the hierachy displayed. The selected frame is highlighted.
	Matrix 4x4 matrix of the frame
	replace a changed matrix will replace the current matrix
matrix	before a changed matrix will be applied before the current
	after a changed matrix will be applied after the current matrix
	Rotation x,y,z values, in which direction the frame will rotate theta defines, how fast the frame will rotate
	Position x,y,z defines the position of the frame
	Velocity x,y,z defines the velocity of the frame
	Parent the number of the parent of the selected frame
	Name the name of the frame
deleted	Delete if you enter in this field `y' or `Y' the frame will be after pressing OK
	Mesh the name of the selected Mesh in the listbox below
	Faces faces othe selected mesh
	Fog Fog Enabled enables fog
	Linear defines a linear fog
	Exponential defines an exponential fog
	Exponential ² defines an exponential ² fog
	Start defines the start-point of the fog in z-direction
	End defines the end-point of the fog in z-direction
	Density density of the fog, between 0.0 and 1.0.
	Fog Color defines the color of the fog
Color	defines the backgroundcolor of the frame
OK	ends the frame dialog and applies changes to the selected
frame	
Cancel	ends the frame dialog without changing the parameters of the selected frame.

Ani Menu

Delete	deletes the animationset
Start/Stop	starts or stops playing the animationset
Start/End Record	starts/ends recording animations
movement and	you can use now the mouse to move objects around, or use the
Edit	scaling keys to change the whole scene.
value and	above the the name of the animationset is displayed
animation	Below the list of the animations, with the number, the name, the time
type of	the frame is displayed. The selected animation is highlighted.
x,y,z	Animation displays the Animation Dialog
animation	on the right side the AnimationKeys of the selected
animation key	are displayed, first the time of the AnimationKey, the
	the Key, ROTation, SCAling or POSition Key, then the
	values and the rotation angle, only valid for a rotation
	key.
	On the left side the parameters of the selected
	and type are displayed.
	Below the Animation Options are displayed.
linear	Loop the animation will play continously
position,	Lineaer Position the position of the animation is set
methods	Overwrite Position the animation will overwrite the
	which may be set by other
	Overwrite Scale and
	Rotation scale and rotation parameters of other
	methods will be overwritten
	Spline the animation is set by using splines
means,	To the right the time of the animation is displayed. Entering
	greater values will expand the time of the animation, this
	the whole animation will be slower.
	With the TimeOffset the animation can be changed to
	synchronise it with other animations.
	On the left the name of the animation is displayed.
	Down under frame information is displayed.
	On the right is the option to delete animationkeys in a
	time range.
	Apply changes will be applied to the animation
	End the animation dialog will return to the overview of the
	animationset
Delete	
Animation	the selected animation will be deleted
Render	applies changes to the screen
OK	ends the dialog

Renderer Menu

Renderer Menu	
Lighting	enables or disables lighting.
Points	shows objects in point mode
WireFrame	shows objects in wireframe mode
Solid	shows objects in solid mode
Flat	shows objects in flat mode
Goraud	shows objects in Goraud mode
Phong	shows objects in Phong mode
Mono Model	filters textures in Mono mode
RGB Model	filters textures in RGB mode
Dithered	dithers colors, useful for 256 color display modes
Texture Filtering	enables or disables texture filtering

Lights Menu

Lights Menu

New

Ambient	will create an ambient light
Directional	will create a directional light
Parallel Point	will create a prallel point light
s Point	will create a point light
Spot	will create a spot light

Edit

the number of the light, the name, the number of the frame and the name of the frame is

displayed.

The selected light is highlighted.

The type of the selected light

ambient

directional

parallel point

point spot

name the name of the light

constant attenuation of the light

linear attenuation of the light

quadratic attenuation of the light

umbra for spot lights

penumbra for spot lights

Color

defines the color of the light

OK

changes will take effect, the dialog will be ended

Cancel

ends the dialog without changes

