

WebFX Plugin

for Netscape Navigator 2.0 Beta 2

Halloween Beta

Paper Software, Inc.

October 31st, 1995

Thank You For Choosing WebFX!

Thanks for choosing WebFX, the fastest VRML viewer on the internet and the first to work as a plugin for Netscape Navigator. We realize you have a choice in VRML viewers and we will continue to do our absolute best to provide you with distinctive advantages in design, performance, and quality.

The WebFX Plugin lets you fly through inter-connected three dimensional worlds on the internet complete with all the safety and comforts of Navigator. WebFX provides full VRML 1.0 compliance, progressive rendering, physics based navigation, collision detection, animated viewpoints, gzip support, level of detail, GIF, JPG, and BMP textures, multiply nested inlines, 3D text, sprites, image backgrounds, and support for common Open Inventor nodes so you can view as many 3D files on the internet as possible.

Check Our Website For The Latest Release of WebFX!

If you got this copy of WebFX from anywhere other than Netscape's or Paper's web site, chances are that by the time you read this there is a much improved version of WebFX available. Check <http://www.paperinc.com> for the latest WebFX release before proceeding with this version.

IMPORTANT! Netscape Navigator 2.0 Caveats

This version of WebFX is configured for Netscape 2.0 **Beta 2**. Because WebFX is tightly integrated with Navigator, **you may have difficulty using this release of WebFX with earlier or later versions of Netscape Navigator. It is STRONGLY RECOMMENDED that you download the latest Netscape Navigator 2.0 release along with the latest WebFX release at <http://www.paperinc.com>.**

At the time this beta release was put together, Navigator 2.0 Beta 2 was not yet shipping. While WebFX will work with Navigator Beta 1, there are several significant problems you should be aware of:

- WHATEVER YOU DO, Don't resize your Netscape window if there is an *embedded* VRML file within an HTML document. There is no telling what will happen. This is a known bug in Netscape Navigator and will be fixed in Beta 3.
- On Windows NT and occasionally on Windows 95, Navigator betas 1 and 2 will crash when loading an HTML document after viewing a VRML file. This is a Netscape bug that has been reported and will soon be fixed in an upcoming Navigator beta. The work around for this is to open two Navigator windows... one for VRML viewing and one for HTML viewing.
- Navigator beta 1 will not let WebFX retrieve inlines (textures, etc.) over the net. You need to be running at least beta 2 in order for this to work.

- Navigator/WebFX will crash frequently, especially when accessing worlds over the net.

Notes About This Beta Release

Requirements:

- You must have at least a Windows 95, NT, or 3.1 PC with at least:
 - 486DX 33mhz (or a 486SX with a math coprocessor)
 - 8MB RAM
 - 256 colors
- Note: Some notebook computers use a 486 without a math coprocessor. If you have one of these notebooks and would like to use WebFX, you will need to install a separate math coprocessor. We have to have some way to do all that fun 3D floating point math ;)

New features:

- Separate 32 bit and 16 bit versions
- Full support for the Netscape Plugin API
- Support for Netscape's EMBED tag for embedding multiple WRLs in an HTML document
- Point navigation mode
- LOD support
- AsciiText support
- AnnotationText support
- Sprites (axis aligned objects which always face you)
- Transparent GIF texture support
- JPG texture support
- Animated BMP texture support for texture movies
- Animated viewpoints
- Image backgrounds (similar to QuickTimeVR)
- Improved navigation bar with the camera functions you need most often
- Panic (reset) button for when you get lost in three space
- Front, top, side views
- Optional, adjustable headlight
- Adaptive rendering based on hardware performance
- View, save, and print VRML source
- Full support for Netscape bookmarks
- Drag and drop VRML bookmarks onto your Windows 95 desktop

Improvements:

- *Way* more stable
- Even faster
- Improved texture transformations and UV mapping
- Improved material colors
- Improved HUD
- Improved fly mode with realistic flight option
- Support for #anchors

Known bugs and unimplemented features in this bleeding edge beta:

- Cannot retrieve textures or VRML inlines over the internet due to a bug in Netscape Navigator 2.0 beta 1. Get the latest Netscape beta to correct this.
- The WebFX window will cause that beautiful Netscape animation to look a little strange due to the war of the color palettes
- Netscape currently displays a harmless error message when retrieving GZipped files, although WebFX should still come up and be able to uncompress the file properly

- WebFX does not yet display the status for downloading inlines
- There are known problems with default configurations of certain graphics cards when running RenderWare (our 3D graphics engine). **If** you are experiencing these problems, you may need to make one of the following changes to your windows configuration files:

ATI Graphics Ultra Pro Mach 32 (Driver version 2.3):
Edit the file "WIN.INI" in your Windows directory (normally "C:\WINDOWS"). Under the section labeled "[Mach]" add the line:
DeviceBitmap=off

ATI Graphics Ultra Pro Mach 64 card:
Edit the file "SYSTEM.INI" in your Windows directory (normally "C:\WINDOWS"). Under the section labeled "[Macx]" add the line:
DeviceBitmap=off

Matrox MGA:
Edit the file "SYSTEM.INI" in your Windows directory (normally "C:\WINDOWS"). Under the section labeled "[MGA.DRV]" add the line:
DevBits=off

If you have an earlier version of WebFX...

You should either delete your current WebFX directory or install WebFX within a brand new directory.

Installing WebFX

After you have unzipped the WebFX self-extracting zip file, run the resulting setup program to install WebFX into the Netscape 2.0 Plugins directory. You'll be happy to know that no changes will be made to your autoexec.bat, config.sys, or system.ini files and no files will be copied to your Windows system directory. The setup program may ask you to identify the location of Netscape 2.0 if it cannot find the program during installation.

Registry Modifications: The 32bit WebFX Setup install program modifies some Netscape Windows 95 (or Windows NT) Registry entries.

- HKEY_USERS:
 .Default\Software\Netscape\Netscape Navigator
 Viewersx-world/x-vrml browser-handle-promptuser
 Suffixesx-world/x-vrml wrl,wrx,flr

Running WebFX

Once installed, WebFX is completely transparent until you load a VRML file. To try this, start Netscape, select "Open File..." from the File menu, look in the VRML directory included with WebFX, and double click on a wrl file. After a short delay (we're working on this), you should see the WebFX window appear within the browser window. **To popup the WebFX main menu, right click anywhere within the 3D viewing window.**

WebFX Extensions

This release of WebFX supports the following VRML extensions:

Animated Textures

This release of WebFX supports animated .BMP & .RAS files in the Texture2 node. The format of the Texture2 node remains the same, except that multiple images are combined into one *long* image. The height of the image must be an even multiple of the width, and the width should be a power of 2.

For instance, let's say you have 4 images you would like to cycle thru on one of your objects, and that each image is 128x128 pixels. You need to create one large image which is 512x128 in size and supply this image as the URL for the Texture2 node.

Check out MTV Cube in the WebFX distribution.

AnnotationText

This node is identical to ascii text, but the text always faces the viewer, regardless of orientation. This is achieved by adding the AxisAlignment node (described below) in front of the AsciiText node.

AxisAlignment

This node forces all children objects to be aligned in the specified axes. Typical use is to turn Ascii Text into Annotation Text or arbitrary 3D objects into Sprites.

Usage:

```
AxisAlignment {
    fields [SFBitMask alignment]
    alignment ALIGNAXISXYZ # Always face the Camera
}

AsciiText {
    string ["This text will always face me"]
}
```

BackgroundColor

Sets the background color of the scene. Colors are interpreted as RGB triplet ranging from 0.0 (black) to 1.0 (full intensity).

Usage:

```
DEF BackgroundColor Info {
    string "1.0 0.0 0.0" # Let's set the background to bright red
}
```

BackgroundImage

Sets the background image for the scene. There currently is a bug in how the background image follows the camera, which should be fixed in the next beta. .BMP, .RAS, .GIF and .JPG are all supported for this node.

Usage:

```
DEF BackgroundColor Info {
    string "http://www.come.place/some.jpg" # URL of the image
}
```

Collision Detection

This node adds basic cube based collision detection to your scene. There are 2 nodes to be concerned with here. The first node turns collision detection on for the whole scene and the second node turns collision detection on for any nodes which follow it.

Usage:

```
DEF CollisionDetection Info
{
  string "TRUE" # Turn on collision detection for the scene
}

CollisionDetection {
  fields [SFBool collision]
  collision TRUE # All nodes following this node would be collideable.
}
```

Sprite

This node basically creates a polygon that is always axis aligned with the Camera, with the specified URL texture mapped onto the polygon. This is an excellent node for representing 3D Objects such as trees/grass which are in the form of an image.

Usage:

```
Sprite {
  fields [SFString texture]
  texture "http://www.some.place/some.jpg"
}
```

Cool Content

You'll want to check out two HTML pages in particular when running WebFX: **Welcome.htm** and **Coolwrls.htm**. Try our Welcome.htm page to get a nice summary of using WebFX as well as an example of embedded VRML. Also, try our Coolwrls.htm document to see a bunch of really cool VRML files locally and on the net. Both HTML documents are in the WebFX directory and are installed in your Windows 95 Start Menu.

Cool worlds you'll find in the plugins\vrml directory:

Weather World

This is a great demonstration of our annotation text and texture mapping support.

MTV Cube

This is a good demonstration of our animated texture support.

Castle

Castle.wrl is particularly interesting because of the way it makes use of multiply nested inlines to keep the file size small. Castle.wrl is also cool because it uses our collision detection VRML extension. Try it in walk mode with keyboard navigation and you'll swear that you're playing Doom.

Crayola

To learn how to fly with WebFX, give Crayola.wrl a whirl. Collision detection is enabled for this file as well, although you might find it easier to fly if you turn it off using the WebFX main menu.

You'll also want to check out our animated MTV cube and the VRML Netscape and Paper logos.

House of Immersion

An excellent introduction to navigating in a VRML space.

Logos

There's a Paper, Netscape, and VRML logo.

Configuring WebFX for Optimum Performance

There are a number of options you can select which will effect WebFX performance. All of them are found on the WebFX main menu:

Optimize Window Size: The larger the WebFX window, the slower the performance. Turning this option on keeps the VRML viewing area within a reasonable width and height for optimum performance.

Generate Back Facing Polygons: Many models on the internet today assume that the software they are viewed with will display both sides of a polygon. While this is the case on high end graphics workstations, PC based 3D rendering engines do not draw the back face of a polygon in order to optimize performance. As a result, it is currently necessary for WebFX to assume that every polygon should have a back face, even though that face may not be visible. This effectively doubles the number of polygons, slowing performance by roughly 50%. Gradually, as VRML content creators begin to create models which explicitly create a back face only when needed, you can turn this option on to make WebFX run nearly twice as fast.

Turn off the HUD: While the heads up display is cool, it does slow rendering performance down a bit. Take your pick.

Optimize for Performance: Currently this feature doesn't do much except use a faster lighting algorithm for rendering. Later, this option will automatically set all WebFX options for maximum performance.

WebFX Navigation

There are three navigation modes in WebFX: walk, fly, and point. To switch between modes, use the toolbar or right click to popup the WebFX main menu. You can use either the keyboard or mouse to navigate in each mode. If you're like us and you've racked up alot of mileage playing Doom or Descent, you'll be familiar with WebFX navigation. The Doom model is used when walking or authoring while the Descent model is used when flying.

Walking

<i>Up/Down Arrows</i>	Move forward/backward
<i>Left/Right Arrows</i>	Turn left/right
<i>A/Z</i>	Tilt head up/down
<i>J</i>	Jump
<i>Mouse Left Drag</i>	Move forward/backward or turn left/right
<i>Mouse Right Drag</i>	Orbit about the entire scene
<i>Mouse Ctrl+Left Click</i>	Automatically walk to the object you ctrl+clicked on
<i>Mouse Right Click</i>	Popup the WebFX View menu
<i>Shift (w/ mouse or keys)</i>	Move faster
<i>Alt (w/ mouse or keys)</i>	Pan left/right or up/down
<i>Space</i>	Open doors, manipulate objects

Enter Fires (only kidding...)

Flying

<i>Up/Down Arrows</i>	Tilt up/down
<i>Left/Right Arrows</i>	Turn left/right
<i>A/Z</i>	Thrust forward/backward
<i>Q/E</i>	Revolve counter-clockwise/clockwise
<i>Mouse Left Drag</i>	Tilt up/down or turn left/right
<i>Mouse Right Drag</i>	Orbit about the entire scene
<i>Mouse Ctrl+Left Click</i>	Automatically fly to the object you ctrl+clicked on
<i>Mouse Right Click</i>	Popup the WebFX View menu

<i>Shift (w/ mouse or keys)</i>	Move faster
<i>Alt (w/ mouse or keys)</i>	Pan left/right or up/down
<i>Space</i>	Open doors, manipulate objects

Pointing

<i>Keyboard</i>	Same as walking
<i>Mouse Left Click</i>	Animates you closer to the point you clicked on
<i>Mouse Left Drag</i>	Move forward/backward or turn left/right
<i>Mouse Right Drag</i>	Orbit about the point currently at the center of the screen
<i>Mouse Right Click</i>	Popup the WebFX View menu

Technical Support

Please check our home page at www.paperinc.com for a running list of known bugs. If you find anything we don't know about (especially crashes), it would be great if you could drop us a note at support@paperinc.com. Thanks in advance.

Please **DO NOT POST PROBLEM REPORTS ON THE VRML MAILING LIST**. Not only will this embarrass us, it will also create unnecessary noise on an otherwise productive mailing list. If you must get an answer to a technical support question immediately, you can call our labs at 914-679-2440. We're there most of the time but we're busy working on your next beta drop so please, keep your questions concise.