



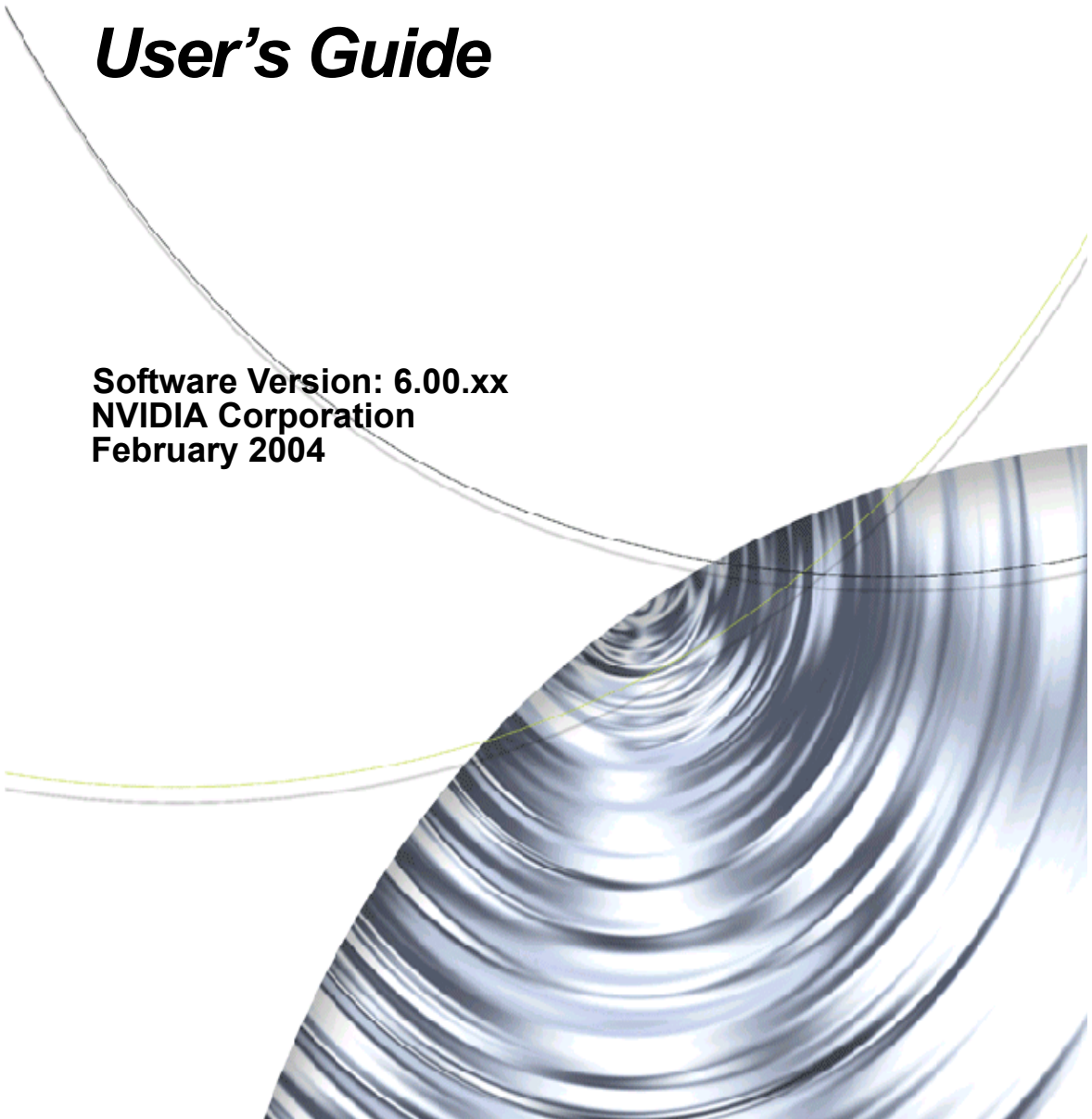
NVIDIA.

Workstation Applications for Windows

NVIDIA MAXtreme

User's Guide

**Software Version: 6.00.xx
NVIDIA Corporation
February 2004**



Published by
NVIDIA Corporation
2701 San Tomas Expressway
Santa Clara, CA 95050

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OVERVIEW OF NVIDIA MAXtreme

What Is NVIDIA MAXtreme?

The Release 6 NVIDIA[®] MAXtreme[™] 3D application driver is a tool that enhances the productivity of the discreet[®] 3ds max[™] 6 application. The NVIDIA MAXtreme driver performs the following functions:

- Allows you to control the application's viewport display quality and rendering speed,
- Enables a variety of rendering enhancements.
- Optimized for use with the full line of NVIDIA Quadro[®] GPU-based graphics cards.

You can use the NVIDIA MAXtreme 3D driver configuration dialog box to customize the driver for display quality and speed.

Key Features

The following sections provide an overview of the key features in NVIDIA MAXtreme:

Fog

NVIDIA MAXtreme supports the rendering of Standard fog into the viewports since version 1.01.00. You can enable this feature from the Configuration dialog box. Currently, only one Linear or Exponential Standard Fog is supported; additional Standard Fogs and all Layered Fogs are ignored.

Wireframe Viewport Options

- Apply antialiasing to wireframes
- Render wireframes using triangle strips
- Customize the vertex dot size

Rendered (Shaded) Viewport Options

- Apply antialiasing to edged faces
- Render using the environmental background color
- Render fogging
- Customize the vertex dot size
- Configure magnification texture filtering for quality or speed
- Configure minification texture filtering for quality or speed
- Control anisotropic texture filtering
- Compress textures for quality or speed
- Control background texture size
- Control material texture size

Online Help

From the open 3ds max application, when you have any NVIDIA MAXtreme dialog box open, you can press **F1** to display online Help, which provides user information about NVIDIA MAXtreme features and configuration options.

During NVIDIA MAXtreme installation, MAXtreme Help (a **.chm** file) is usually installed in the 3D Studio Help directory. You can also view the Help outside the application, if needed.

System Requirements

Before you can install the NVIDIA MAXtreme software, you must meet the system requirements listed in [Table 1.1](#).

Table 1.1 System Requirements

System Requirement	Description
Operating System	Windows [®] XP or Windows 2000
3ds max 6	You must have this applications installed on your computer <i>before</i> you can install the NVIDIA MAXtreme driver.
Hard Disk Space	You need a minimum of 2.5 MB free hard disk space
NVIDIA Graphics Card	You must have an NVIDIA workstation graphics card based on the NVIDIA Quadro series of graphics processing units (GPUs) installed in your computer.
NVIDIA Display Driver	You need the most current NVIDIA Display Driver software for Windows XP/Windows 2000 installed on your computer in order to use your NVIDIA graphics card.

INSTALLING NVIDIA MAXTREME

This chapter contains the following sections:

- “Installation Files” on page 7
- “Installing NVIDIA MAXtreme” on page 7
- “Uninstalling NVIDIA MAXtreme” on page 8

Installation Files

The NVIDIA MAXtreme **Setup** directory contains the following files:

- **MAXtreme6_readme.txt** file
- **setup.exe** installation program for Windows
- Other files required for installation

Installing NVIDIA MAXtreme

About Installation (setup.exe)

When you run the Release 6 NVIDIA MAXtreme installation (InstallShield) program (**setup.exe**), it performs the following tasks:

- Copies the MAXtreme software into the 3dsmax 6 location you specify.
- Configures 3ds max 6 to use the NVIDIA MAXtreme driver.
- Verifies that your computer has an NVIDIA workstation (Quadro-based) graphics card installed in it.

Note: If a Quadro-based graphics card is not installed in your system, the MAXtreme driver will not be installed.

- Verifies that a 3ds max 6 installation exists on your hard disk.

Note: If a 3ds max 6 installation doesn't exist, or if the installation program detects an older version of 3ds max, the MAXtreme driver will not be installed. In this case, note any messages and warnings and proceed accordingly.

Installation Procedure

Follow these steps to install the MAXtreme software.

- 1 Before you run **setup.exe**, be sure you have met all the requirements listed in “[System Requirements](#)” on page 6.
- 2 From the Setup directory, run the **Setup.exe** program and follow the instructions that appear in the InstallShield prompts.

Note: For details about responding to the prompts or any error conditions that may appear, see “[About Installation \(setup.exe\)](#)” on page 7. If the installation program stops processing and generates an unknown error message, you may want to run the program after logging in with Administrator access rights.

Uninstalling NVIDIA MAXtreme

Follow these steps to uninstall the MAXtreme software from your computer:

- 1 From your Windows taskbar, click **Start > Settings > Control Panel**.
- 2 Double-click the **Add/Remove Programs** icon.
- 3 Click **NVIDIA MAXtreme** icon from the list.
- 4 Click the **Change/Remove** button.
- 5 Follow the instructions from the Install Shield program to complete uninstallation.

CONFIGURING NVIDIA MAXTREME

The following major topics are discussed in this chapter:

- “Accessing NVIDIA MAXtreme Driver Settings” on page 9
- “Auto-Configuring for Speed or Quality” on page 11
- “Configuring Individual Settings” on page 13
- “Explanation of Configuration Settings” on page 13

Accessing NVIDIA MAXtreme Driver Settings

Initial Access to NVIDIA MAXtreme Configuration

After completing the NVIDIA MAXtreme driver installation process, when you start 3ds max, the NVIDIA MAXtreme Driver Configuration dialog box appears automatically. Follow these steps:

- 1 After installing the NVIDIA MAXtreme software, start your 3ds max 6 application.
If you see a message prompting you to open the NVIDIA MAXtreme Driver Configuration dialog box, click **Yes**.
- 2 The NVIDIA MAXtreme Configuration dialog box appears, as shown in [Figure 3.1](#).

Subsequent Access to NVIDIA MAXtreme Configuration

Follow these steps to open the NVIDIA MAXtreme Driver Configuration dialog box *after* first-time use:

- 1 Start your 3ds max 6 application.
- 2 From the main menu, click **Customize > Preferences** and then click the **Viewports** tab to display the Viewports page, as shown in [Figure 3.2](#).

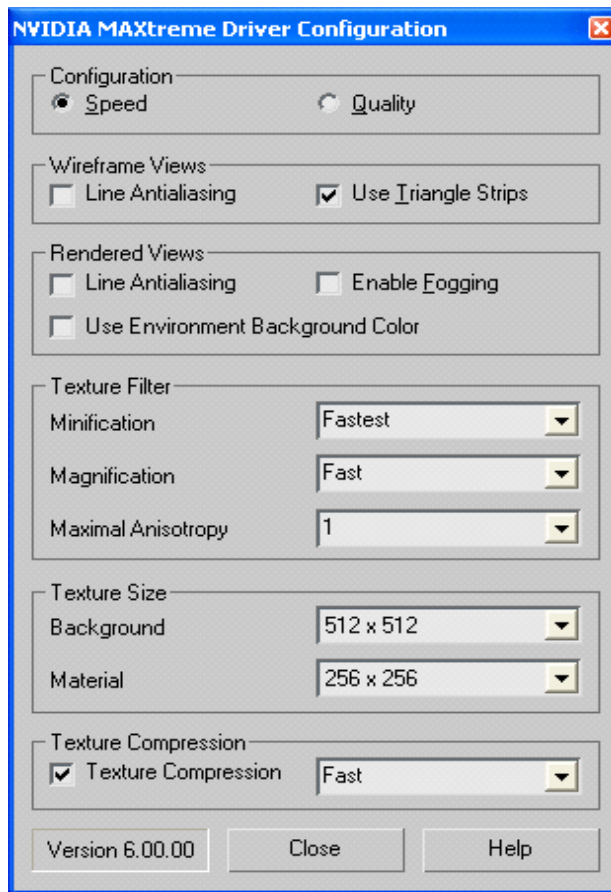


Figure 3.1 NVIDIA MAXtreme Driver Configuration Dialog Box

- 3 From the Display Drivers section, click **Configure Driver** to open the NVIDIA MAXtreme Driver Configuration dialog box (Figure 3.1).

Note: If you do not see the NVIDIA MAXtreme Driver Configuration dialog box, this means you have another driver enabled. To enable the NVIDIA MAXtreme driver, follow these additional steps:

- 4 Click **Choose Driver** and then click the option that allows you revert the driver. The Graphics Driver Setup dialog box opens.
- 5 Click **Custom** and then choose the NVIDIA MAXtreme driver file (**MAXtreme6.drv**) from the list.
- 6 Click **OK** and restart your computer for the change to take effect.
- 7 Repeat steps 1. through 3. to open the NVIDIA MAXtreme Driver Configuration dialog box.

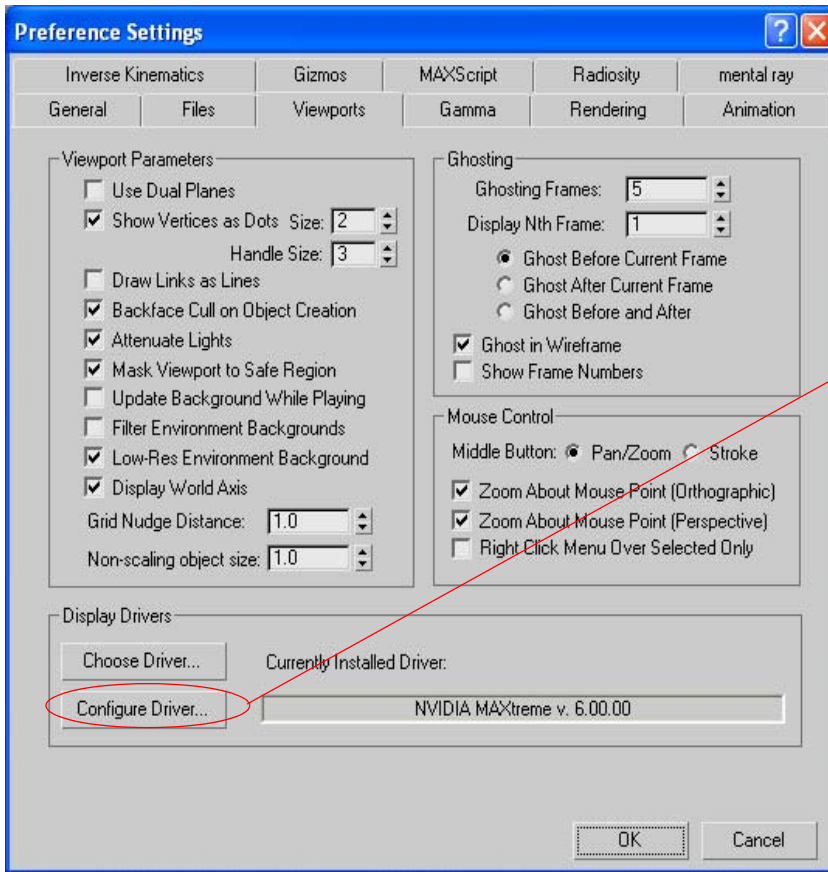


Figure 3.2 3ds max 6 Preference Viewports Page

Auto-Configuring for Speed or Quality

The Configuration section of the MAXtreme Driver Configuration panel allows you to choose between optimum speed or optimum quality (see Figure 3.3).

Choosing **Speed** or **Quality** automatically configures several control panel settings to achieve the desired optimization, as listed in Table 3.1

Table 3.1 Speed and Quality Settings

Section	Option	Speed Setting	Quality Setting
Wireframe View	Line Antialiasing		X
	Use Triangle Strips	X	
Rendered Views	Line Antialiasing		X
	Use Environment Background Color		X
Texture Filter	Minification	Fastest	Nicest
	Magnification	Fast	Nice
Texture Compression		(X) Fast	

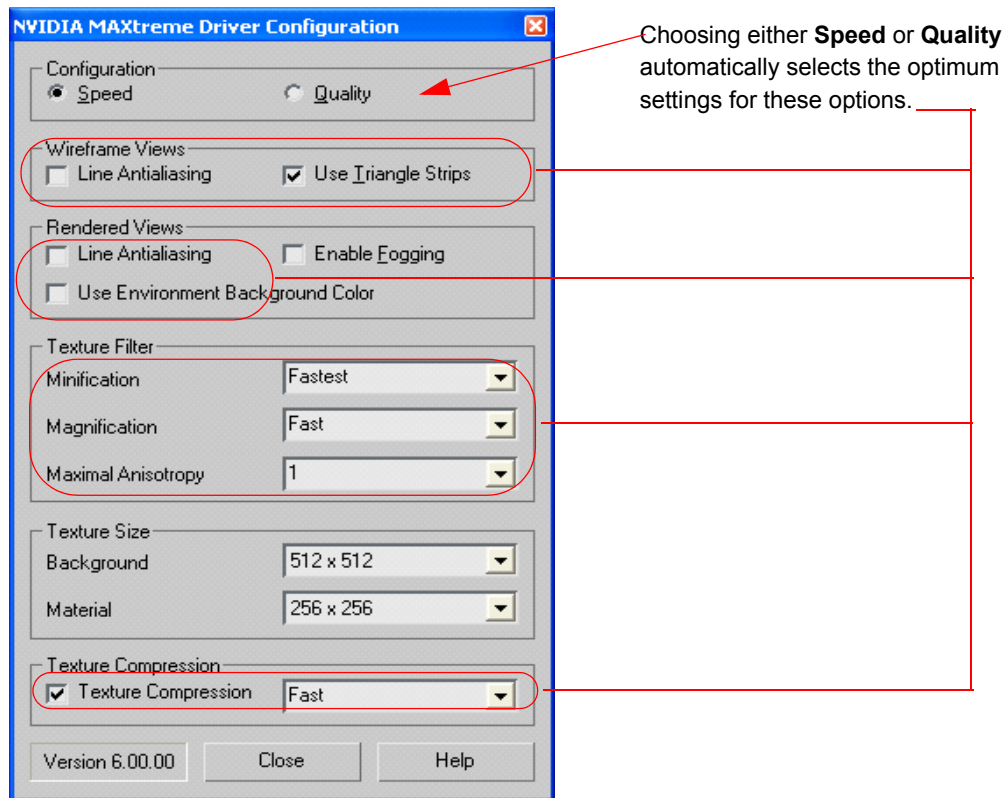


Figure 3.3 Sections Affected by the Speed and Quality Setting

Configuring Individual Settings

Figure 3.4 gives basic descriptions of the MAXtreme configuration settings. Additional information for these settings are given later in this section.

Explanation of Configuration Settings

This section provides additional information about the settings in the driver configuration control panel.

Configuring Wireframe Viewports

Wireframe viewports can be configured to display wireframes using antialiased lines and/or using triangle strips.

Antialiasing

This option is automatically chosen with the Quality configuration.

Triangle Strips

Triangle strips are a form of surface representation that renders efficiently using the graphics hardware, and results in faster rendering. This option is automatically chosen with the Speed configuration.

Configuring Rendered (Shaded) Viewports

The following are enhancements that can be made in Rendered Views.

Antialiasing

In rendered views with edged faces enabled, the shaded objects are overlaid by the wireframe mesh. The overlaid lines can be antialiased. This option is automatically chosen with the Quality configuration.

On some hardware, antialiasing may slow down rendering performance.

Fogging

NVIDIA MAXtreme supports the display of fog under the following conditions:

- Only one Linear or Exponential Standard Fog is supported; additional Standard Fogs and all Layered Fogs are ignored.
- An Environment Color Map or Environment Opacity Map is not in use with this Standard fog.

Fog thickness is controlled by the Camera Environment Range.

See “Auto-Configuring for Speed or Quality” on page 11

Click this check box to enable antialiasing for lines in wireframe views.

Click this check box to enable the use of triangle strips in wireframe views.

Click this check box to enable antialiasing of wireframe lines in rendered views, when edged faces are enabled.

Click this check box to enable the display of fog in rendered camera views.

Click this check box to display environment background color in rendered views.

Choose the minification texture filter method:

Fastest - Provides the fastest rendering but can also result in severe aliasing artifacts.

Fast - Provides smoother results than the Fastest setting.

Medium - Can result in minor aliasing artifacts.

Nice - Provides smoother results than the Medium setting.

Nicest - Provides the smoothest results.

Choose the magnification texture filter method:

Fast - Provides fast rendering but can also result in aliasing artifacts.

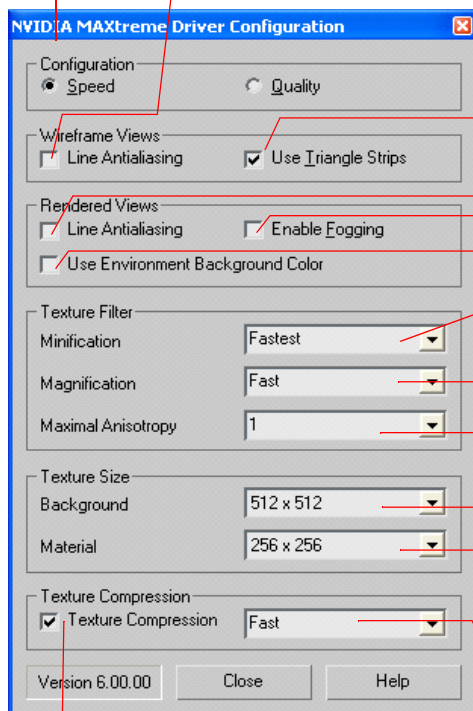
Nice - Provides smoother results than the Fast setting.

Choose the maximum degree of anisotropy needed to compensate for texture filtering.

Choose a background texture size. The 3ds max 6 application scales the image textures to the specified size. The larger the size, the better the image quality.

Choose a material texture size. The 3ds max 6 application scales the image textures to the specified size. The larger the size, the better the image quality.

Reduces texture memory usage. Click the check box and choose either Fast (more compression) or Nice (less compression).



See “Texture Compression” on page 16

Figure 3.4 NVIDIA MAXtreme Driver Configuration Settings

Environment Background Colors

NVIDIA MAXtreme supports the use of Environment Background Color. Check the *Use Environment Background Color* check box and then select the desired background color from the application’s Environment page.

Note: After you change the Environment Background Color, the viewport may not be immediately updated with the new color until the application redraws the image.

Texture Filtering Options

Texture filters control the appearance of texture mapping. Following are the texture filter controls that can be controlled with MAXtreme.

Note: After changing the settings described here, the image may not reflect the changes until the application reloads the textures.

Minification

The Minification filter is used when the pixel being textured maps to an area in the texture greater than one texture element (texel). MAXtreme uses the following Minification texture-filtering methods:

- **Fastest:** This method uses the texel closest to the center of the pixel to texture the entire pixel. Since only part of the texture is used, this method can result in severe aliasing artifacts.

This method is automatically chosen with the Speed configuration.

- **Fast:** This method uses a weighted linear average of the 2x2 array of texels that are closest to the center of the pixel. The results are smoother than the 'Fastest' method.
- **Medium:** This method first selects the **line of detail (LOD)** from the mipmap pyramid where the mapped texel area is closest to the size of a pixel. From this LOD, the single texel that is closest to the center of the pixel is selected and mapped to the pixel.

This method can result in minor aliasing artifacts.

- **Nice:** This method first selects the LOD (from the mipmap pyramid) where the mapped texel area is closest to the size of a pixel. From this LOD, the 2x2 array of texels closest to the center of the pixel is selected. Finally, the weighted linear average of the texel array is computed and mapped to the pixel.

This method provides smoother results than the Medium method.

- **Nicest:** This method first selects the LODs (from the mipmap pyramid) where the mapped texel areas are closest to the size of a pixel. From each of the selected LODs, the weighted linear average of the 2x2 array of texels closest to the center of the pixel is computed. Finally, the linear interpolation between the two averages is determined and mapped to the pixel, resulting in true tri-linear filtering.

This methods yields the best results, and is automatically chosen with the Quality configuration.

Magnification

The Magnification filter is used when the pixel being textured maps to an area in the texture less than or equal to one texture element (texel). MAXtreme uses the following Magnification texture-filtering methods:

- **Fast:** This method uses the single texel closest to the center of a pixel. One texel may be mapped to more than one pixel.

This method can result in aliasing artifacts, and is automatically chosen with the Speed configuration.

- **Nice:** This method uses a weighted linear average of the 2x2 array of texels that are closest to the center of a pixel. The results are smoother than the ‘Fast’ method.

This method is automatically chosen with the Quality configuration.

Maximal Anisotropy

This option provides a mechanism for supporting anisotropic texture filtering schemes. You can specify the maximum degree of anisotropy to account for texture filtering.

Texture Size Control

Background Texture Size

The background textures can be scaled to the selected size. The smaller the size, the less memory is required to render it. The larger the size, the more texture detail is visible.

Material Texture Size

The material textures can be scaled to the selected size. The smaller the size, the less memory is required to render it. The larger the size, the more texture detail is visible.

Texture Compression

Texture compression reduces the memory required for rendering. For example, the amount of memory required to render an image with a background texture size of 64x64 is similar to that required for an image with a background texture size of 256x256 with compression enabled. The 256x256 texture size results in a better quality image, while compression keeps the memory requirement down.