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Canoma Basics

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Canoma
User Guide

Introduction

This chapter describes how to setup Canoma and shows you some basic techniques you'll need to know in order to create 3D models.

Customizing Canoma

Setting Canoma Preferences

Set Application Preferences to suit the way you like to work.

To open the Canoma preferences dialog:

- Select **File menu > Preferences** to display the Application Preferences dialog.



Setting Canoma preferences.

Saving Workspace Customizations

Canoma is intended to be a flexible, creative tool, so there are many ways you can customize it to suit your style of working. Move toolbars and palettes, resize the project window, or choose a color scheme.

The Maintain Custom Configured Workspace option toggles between discarding those changes or keeping them from session to session.



Save or discard changes you make to the workspace.

To save changes you make to the Canoma workspace:

- 1 Select **File menu > Preferences** to display the Application Preferences dialog.
- 2 Click the **Maintain custom configured workspace** option. A checkmark indicates that the option is selected.

The next time you start Canoma, your workspace is as you left it when the application was closed.

To discard changes you make to the Canoma workspace:

- 1 Select **File menu > Preferences** to display the Application Preferences dialog.
- 2 Click the **Maintain custom configured workspace** option. No checkmark is displayed when the option is not enabled.

The next time you start Canoma, your workspace is displayed in the default configuration.

Using the Active Guide

When you start creating objects and affixing them to photo elements, you can get some help from the Active Guide. This handy window offers tips to pace you through the creation and pinning of your first few primitives.



The Active Guide offers tips to help as you create and pin objects.

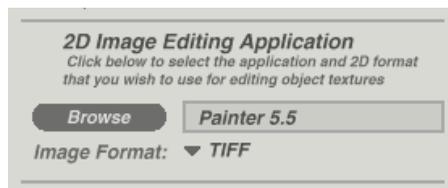
To turn the Active Guide on or off:

- 1 Select **File menu > Preferences** to display the Application Preferences dialog.
- 2 Click the Display Active Guide option. A checkmark indicates that the option is selected.

Choosing a 2D Image Editing Application and Image Format

Make subtle or major changes to the texture of a 3D modeled scene, using your favorite 2D pixel editing program or use Canoma to keep that 3D look, without creating a 3D scene. Edit an area of texture, then have Canoma display the results in proper 3D perspective. What a time saver! Refer to “Retouching or Editing Textures in 2D” on page 110 for more about editing a perspective image.

Select a default 2D pixel editing application, such as Painter or Photoshop. The default 2D pixel editing tool is opened whenever you use the Texture Brush from the Toolbar to edit the texture on the face of an object.



Selecting a 2D editing application.

You can also select a Default File Type to be used for the image files generated when you edit textures.

To select a 2D image editing application:

- 1 Choose **File menu > Preferences**.
- 2 Click the Browse button and navigate to select a 2D pixel editing program.
- 3 Click Apply.

To choose a default 2D Image File Type:

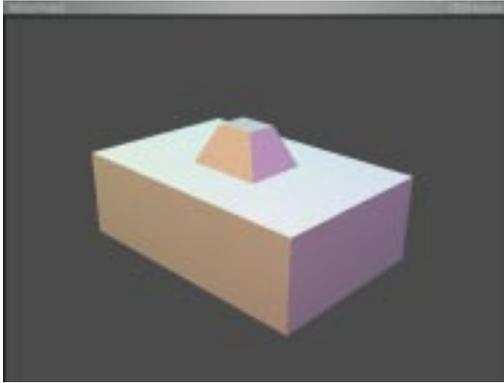
- Click the Image Format drop down list and choose a format.

Setting Up Your Workspace

Working in the Project Window

In Edit mode, Canoma’s Project Window shows the active photograph and any 3D wireframe objects you have created and placed. In View mode, the Project Window shows your textured

or untextured 3D model. Refer to “Using the Canoma Workspace” on page 75 for more about the Project Window.



The Project Window in 3D Preview mode.

Using the Camera Controls

The Camera Controls are used to position and rotate the camera that views your model. They can be repositioned on the workspace. Refer to “Using Canoma Camera Controls” on page 102 for more information about how to use the Camera Controls.



You can move the Camera Controls to another place on the workspace.

Understanding the Toolbar

The Canoma Toolbar holds the tools you’ll use to manipulate objects, view your work, and apply or edit textures. The Toolbar can be repositioned on the workspace. Refer to “The Toolbar” on page 26 for more about the Canoma Toolbar.



The Canoma Toolbar.

Changing Canoma Colors

You can customize the colors that Canoma uses to display application elements. Use the color selection buttons outside the lower right corner of the project window to select a color scheme that works best for you.

To change the background color:

- Click the Background Color button, then select a color. The default background color is dark gray.



Click to change the background color.

To change the color used to highlight the selected object:

- Click the Selected Object Color button, then select a color. The default selected object color is red.



Click to change the selected object color.

To change the color used to highlight unselected objects:

- Click the Unselected Objects Color button, then select a color. The default unselected object color is yellow.

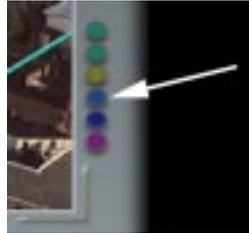


Click to change the color of unselected objects.

To change the color used for objects in the stress display:

- Click the Stress Display Color button, then select a color. The default stress display color is white. Refer to “Avoiding Model

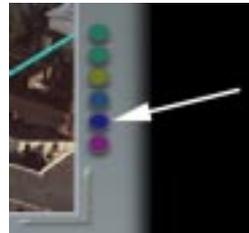
Stress” on page 96 for more about using the stress display to check for errors that place stress on the 3D model.



Click to change the stress display color.

To change the color used for shadows:

- Click the Shadow Color button, then select a color. The default shadow color is light gray. Refer to “Using Shadows” on page 95 for more about wireframe shadows.

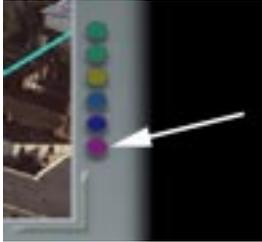


Click to change shadow color.

To change the color used for highlighting a selected object constraint:

- Click the Selected Constraint Color button, then select a color. The default selected constraint color is cyan. When

you move the cursor over a constraint, such as a bead or pin, the selected object constraint color is used.



Click to change the selected constraint color.

Creating a Canoma Project

A Canoma project is made up of photograph(s) or image(s) over which 3D primitives are projected. Refer to “Working with Canoma Projects” on page 76 for more about creating a new project or opening an existing project.

Organizing the Project Folder

It’s a good idea to create a project folder, before beginning work on your 3D model. A main project folder holds all of the photographs your project requires, as well as the Canoma project file (when saved.)

Because Canoma expects all project files to reside at the same hierarchical level, do not place photographs in a subfolder and take care to save the project file so that it resides in the main project folder. Any subfolders that are required by the project are created within the main folder by Canoma.

Using 2D Images

When you create a Canoma project, you’ll start by loading a photograph. This first photograph lays the groundwork for further work. Images are stored in the 2D Image Views palette. The 2D Image Views palette can also be repositioned on the workspace. Refer to “Using 2D Source Images” on page 74 for more information about that palette.

If you need better textures for the front of a building or the side of a box, you can add more detailed texture by adding photographs. For example, you might want to add detail for one side of a building, to show what offices are available. Refer to “Adding More Detail” on page 98 for more about using additional photographs to add detail.



The 2D Image Palette.

Creating 3D Models

The goal of Canoma is to make 3D wireframe primitives match underlying images. To do that, you pin the corners of wireframe primitives, such as boxes or pyramids, to get a reasonable match between the wireframe and the photograph. Refer to “Using the Canoma Workspace” on page 75 for more information about building 3D models. Refer to “Modeling Objects” on page 120 for some interesting modeling techniques.

Once created, you can view it as a 3D model, using Canoma's camera controls. Refer to "Using Canoma Camera Controls" on page 102 for more information about viewing your models.

Adding Texture

Adding texture is the process of mapping pixels of an underlying image to the surface of an object, without changing that object's geometry.

Canoma offers two types of texturing: Quick Texture and Quality Texture. Quality texturing compensates for brightness differences between photographs that can show up as seams. It also fills in white gaps for which there is no available information. Quality texturing takes longer and takes more memory, but it looks better. Refer to "Working with Texture" on page 97 for more information about adding surface textures.



Canoma uses pixel information from the photograph to apply texture to a model.

Refer to "Retouching or Editing Textures in 2D" on page 110 for some great tips about editing areas of texture in a 2D program.



Use the Texture Brush to select an area to edit in a 2D pixel editing application, such as Painter or Photoshop.

Creating Animations

Animation is the process of recording the motion of the camera as a 3D model is being viewed.

To create an animation:

- Complete a 3D model.
- View it.
- While viewing, record keyframes.

Canoma creates a motion path from your recorded camera movements and then generates an animation. Refer to "Creating an Animation" on page 116 for more information about creating animations.

Undoing Operations

The Undo command and the Revert to Saved command let you discard the effects of changes you've made to your model.

You can Undo an operation up to 10 times in a row. You can also Redo what you've undone. If you've made changes and change your mind completely, you can discard any changes you've made, without exiting the program.

To undo the last operation:

- Choose **Edit menu > Undo** (or press **Cmd/Ctrl+Z**).

To redo the last operation:

- Choose **Edit menu > Redo**.

To revert to the last saved version of your model:

- Select **File menu > Revert to Saved**.

Saving and Closing

The Save command lets you save your work.

Saving the Project

To save a project file:

- 1 Choose **File menu > Save**.
- 2 Use the Save dialog controls to choose a location for your work, then click Save.

Be sure to save the project file so that it resides in the same folder as the project photographs. Canoma assumes that all project files are at the same hierarchical level.

To save a file under a different name:

- 1 Choose **File menu > Save As**.
- 2 Enter a new name and/or location in the fields provided and click Save.

A copy of your work is saved, leaving the original intact.

Be sure to save the new project file so that it resides in the same folder as the project photographs. Canoma assumes that all project files are at the same hierarchical level.

If texture was edited with a 2D pixel editing program, such as Painter or Photoshop, the resulting files from those edits are placed in a subfolder created by Canoma. This subfolder's name matches the new project name. If you do not want texture edits to apply to the copy, remove the texture edit files or remove the entire subfolder.

Closing Canoma

To close Canoma:

- Choose **File menu > Quit**, or press **Cmd-Q/Ctrl+Q**. When you close the application, Canoma asks if you want to save your work.

Importing, Exporting, and Rendering

Importing

Canoma supports the following 2D file formats for import into your model:

- JPG
- TIFF (includes alpha information)
- PNG (includes alpha information)
- GIF (includes alpha information)
- PSD (includes alpha information)
- BMP (Win only)
- PICT (Mac only)

Exporting

When you export your Canoma model for use on the Web or in another 3D program, Canoma automatically creates a folder to hold the various files that are created.

With Canoma, what you see is what gets exported. If you edit textures after emitting a model, those image files are not picked up by the exported model. If **Texture menu > Mirror Textures** is Off, untextured surfaces are untextured in the exported file. If **Texture menu > Mirror Textures** is On, untextured surfaces will be filled with pixels from the corresponding side.

Canoma supports the following file export formats:

- **MetaStream** (for posting on the Web)

When exporting to MetaStream, two file formats are generated:

- HTML which embeds (using the EMBED tag) MetaStream output generated by Canoma
- MTS file containing compressed geometry and textures.

Double-click the HTML file to open the output.

The proper usage of MetaStream objects is as embedded objects in a HTML page. This gives the page author full control over a wide range of rendering and interaction options described at the MetaStream Web site (<http://www.metastream.com>). If you were to just open a raw MTS file, the plug in runs with all attributes set to default values, which is unlikely to be correct for all cases.

Textures generated by Canoma are already lit (by real light) and do not need to be additionally shaded by synthetic lights, so texture shading is set to off.

Infini-D: If Infini-D is installed, the MTS file appears with an Infini-D icon and launches the application when double-clicked, so just double-click the HTML file.

Make sure the path and the filename are correct and that all required libraries are available or an error message is displayed. Should that happen, just open the HTML file.

- **OBJ file format** (for import into Poser, Bryce 3D, Ray Dream Studio, and other 3D programs)

Ray Dream Studio: The geometry and textures import nicely, but the bounding boxes are drawn incorrectly.

Poser: Exports to Poser Prop export a.pp2 file and several .bmp (Win)/.pict (Mac) textures. You then need to manually copy or move the .pp2 file to any immediate subfolder of Runtime\libraries\props and move or copy all the .bmp or .pict files to <PoserAppDirectory>\Runtime\ttextures\. The Canoma generated object or scene appears in the list of props (without a special icon) and the name you give the prop. You can place & work with the prop like any other. To make things simpler: Keep shortcuts/aliases to the Poser texture and prop type folders handy to where you generate the prop file, then just drag the files onto the shortcuts - faster than hunting the directory down. One word of caution: don't name two Canoma generated Poser props the same name or you will overwrite part of the other props textures.

Maxon Cinema: Maxon Cinema imports the OBJ geometry ungrouped and untextured.

NewTek Inspire 3D modeler: NewTek Inspire 3D modeler loads the geometry untextured.

- **VRML 2** (for use in Cosmo 2.1, Blaxxun Community Client, Visscape Superscape VRML, and 3D Studio Max)

Textures generated by Canoma are already lit (by real light) and do not need to be additionally shaded by synthetic lights, so texture shading is set to off.

The VRML that is exported contains one viewpoint for each source image and also an extra one for the current 3D view camera (which need not coincide with any source image point of view.) Typically, VRML browsers let you step between viewpoints. Consult your Browser documentation for details. For example, in Cosmo 2.1, PgUP and PgDn go to the Next/Previous viewpoint.

If you created an animation in Canoma, the starting point of the animation gets recorded in the VRML as a special viewpoint called “Tour.” After selecting “Tour” as your viewpoint in the VRML browser, click anywhere in the scene to start the animation you had in Canoma. After the animation is finished, the “Tour” automatically returns to the starting point, ready for another “click” to start it again.

Canoma exports VRML files as text files. Typically, these are not large compared to the associated texture files, but you can gzip the WRL file for extra compression, using the 3rd party gzip software utility. Remember to rename the .wrl.gz file extension back to .wrl, even though it is now compressed. Browsers use this extension to route contents to the correct plug-in (in this case VRML.)

If you import Canoma models into a 3D modeler and the objects seem too bright, either turn texture shading off altogether or attenuate your texture light emission.

- **Caligari trueSpace 3D**

All objects are exported as one group. All image viewpoints are saved as cameras in TS4. The first four are opened as views in the workspace. Canoma exports to .scn files, to load scenes. If you want to create separate reusable objects, load scene, ungroup, and Save Selected Objects as .cob files.

Due to a problem in TS4.0, some textures may display black. Registered users can upgrade to 4.1 by contacting Caligari directly. This fixes the problem.

- **AutoCAD DXF**

Files exported as DXF may import into 3D applications very small. In some cases, you can adjust the DXF units during import. In most cases, you should scale the model. In a very specific case using Artifice Design Workshop, the imported DXF model imports objects ungrouped. Group the model before scaling.

Rendering 2D Images

You can produce a 2D image of your Canoma scene. When a 2D image is rendered, Canoma automatically creates a folder into which it saves any associated image files.

When you render an image, a popup menu with output file size choices is displayed. Any rendered image is locked to the aspect ratio of your project window.

To render a 2D image of your model:

- 1 Select **File menu > Render Image**.
- 2 Set the desired size.

Rendering Animations

You can produce a QuickTime movie of camera movements around your Canoma scene. When an animation is rendered, Canoma automatically creates a folder into which it saves any associated animation files.

Note

To render an animation, QuickTime 3.0 must be installed. It is available on the Canoma CD, or can be downloaded at www.apple.com.

When you render an image, a popup menu with output file size choices is displayed. Any rendered image is locked to the aspect ratio of your project window.

At the time you render an animation, you can edit the module, setting additional options, including animation compression and frame rate.

You can also select to output your animation as a sequence of image files.

To render an animation:

- 1 Select **File menu > Render Animation**.
- 2 Set the desired size.
- 3 Select between outputting a QuickTime animation or a series of keyframe images.
Selecting to output as a series of keyframe images outputs single image files for each keyframe (BMP on PC, PICT on Mac). This generates as many single files as there are frames in your movie.
- 4 Press Edit, to edit the module you just selected.

