presentaD

v1.2

Quick Start Manual

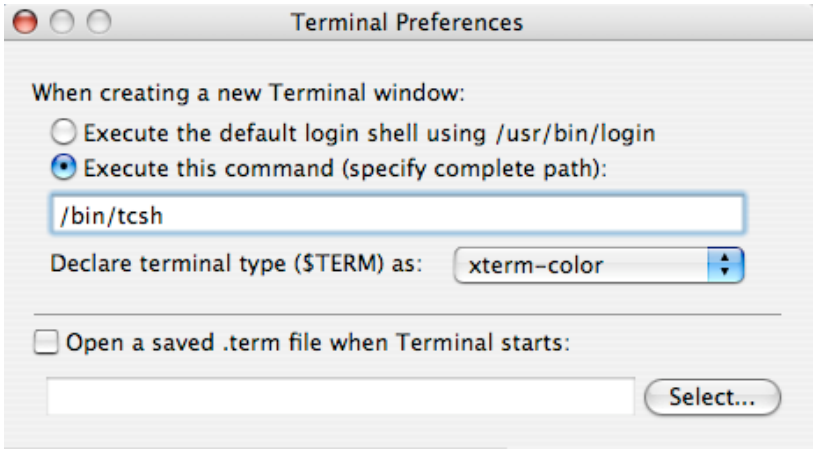
Contents:

1.0 Getting Started

1.01 Installing Present3D

Follow the steps below to install your copy of Present3D:

- Insert Present3D install disk.
- Double click Present3D Installer.pkg icon and follow instructions as normal.
- To install the demos and choose mono or stereo set up select **customise** and tick the appropriate boxes, **you must only select either the mono or stereo setup.** By default the demos, earth data and mono setup are installed.
- The installer puts Present3D in the Application folder, puts invisible .tchsrc, .bashrc and .xinitrc files in your home directory and installs the demos in new folder at the root/mount point of your startup disk called "p3d_demos"
- Now Launch Terminal. This is located in the Utilities folder in the Applications folder. Go to Preferences under Terminal in the menu bar. Change the Preferences so they look like this:



1.02 Setting the default Shell

Go to a finder window and open NetInfo Manager, which is found in the Utiliteis folder within the Applications folder. It opens with three top panes and a lower editable pane, in the middle top pane select "users", this opens in the rh pane now select your User name from the list. This opens info in the lower pane, to edit this info you will need to click on the padlock and enter your admin password. Now scroll till you see under Property - shell and edit the Value to read - /bin/tcsh. Now quit NetInfo Manager and save the changes you have made when asked to do so.

Present3D is now Installed and ready to use.

1.03 Additional and Optional installs:

Present3D install disk ships with three different versions of Present3D:

- **MacOS X Native**
  This is the standard installed version of Present3D. This has all the features of Present3D including SDL support for game-pads.

- **Present3D for X-11**
  This is an optional install, this is instead of AGL or X-11 with SDL version of Present3D, not as well as. This is optional install available in the customise part of the Present3D Installer.
  This version requires X-11 to be installed, this can be installed from your original MacOS X install disk or downloaded from the apple web site.
  http://www.apple.com/macosx/downloads
  Present3D for X-11 does not have support for game-pads, but has better video play back than the standard installation of Present3D.
  Installation is the same as the standard installation, on previous page, but uses X-11 instead of Terminal. X-11 will be located in the Utilites folder in your Applications folder once installed. There is no need to set any preference in X-11.
  WARNING ANY PREVIOUSLY INSTALLED VERSION OF PRESENT3D IN THE APPLICATION'S FOLDER WILL BE LOST.

- **Present3D for X-11 with SDL**
  As above, but with game-pad support. This version is still in development and will exit the X-11 application when Present3D is started, just click on the X-11 application in the Dock and Present3D will function as normal.

1.04 Demos and Freeware:

On the Present3D Install disk there is a selection of demo and freeware software which you may find useful.

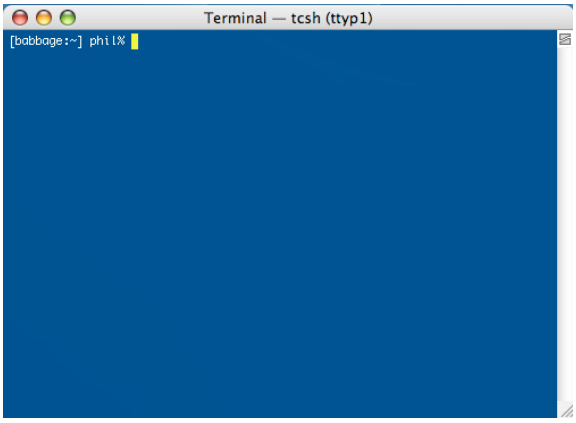
- **BBEdit**
  We have included a demo version of BBEdit, this a very useful scripting tool. This will assist you in producing your own Present3D shows.

- **Fink and Fink Commander**
  We have included the open source tools Fink and Fink Commander. These tools will allow you to easily install a wide selection of open source libraries and applications.

2.0 Using the Command Line

These basic commands are the same whether Terminal, for native version, or X11 is being used:

The command line looks like this:



2.01 Navigate to folders/directories:
Open a new command line window or shell. You will be in your users Home directory. You give the commands by typing the desired command at the shell prompt and hitting the return key to execute. Here is an example:

date

Try typing this now and remember to hit the return key to execute, and X11 will return with the day date and time.

To make it easier for you to understand the following we will use the **%** symbol to indicate the shell prompt, you do not type this.

To find documents you need to type some simple commands, we will cover the basics here:

To list the files in the current directory type a command and hit the return key to execute it, remember to ensure that the cursor is within the bounds of the window:

% ls

a list of files will appear. These are the visible files. To see all the files in this directory including invisible ones type:

% ls -a

You should see listed here the three files that the installer placed previously in your user home directory - .tcshrc , .xinitrc and .bashrc.

To move to another directory or change directory we use the "cd" command, but we need to give the path to where we want to go, so type

% cd /

This takes you to the root or mount point of your startup hard disk, now type:

% ls

again a list of files will be given, you should now see the "p3d_demos" folder that that the installer placed there earlier. To enter this directory type:

% cd p3d_demos

and list the folders by doing a "ls"

% ls

To return to your home directory now type:

% cd ~

the tilde key is found beside the shift key (on UK keyboards). Type:

% ls

and you should be back where we started. But it is not necessary to do all of these steps individually, you can jump to the desired directory by typing the complete path to the file or directory, so to return to the p3d_demos folder type:

% cd /p3d_demos

% ls

and you should now be in the p3d_demos folder as before.

The command line has a nice feature which allows names of files within the current directory to be auto completed, you use this by starting to type the name then hitting the tab key to auto complete. However, if you have two files with similar names you may have to add additional information to allow the command line to distinguish between them.

3.0 Using Present3D

3.01 Starting a Show

Start either Terminal or X11 depending on which version you have installed, if you have installed the standard/native Present3D then use Terminal. Now navigate to the directory where the file you wish to load is located:

%cd /p3d_demos/intro/

Now to see what is in the directory type:

%ls

We will launch the show called “intro.p3d” so type:

%present3D

Followed by the name of the file that is to be opened, so that it looks as follows:

%present3D intro.p3d

Now hit return and the Present3D show will load.

Once you have started a show there will be a holding slide for a few seconds as the show and its contents are loaded into Present3D. Once the show has loaded use the key commands on the next two page to control Present3D

3.02 Moving through your slides

- The left and right arrow keys allow you to move back and forward through the slides in the presentation.
- The up and down arrow keys allow you to move through the layers in each of your slide.
- The “A” key allows you to set the presentation to autoplay.
- The “N” key will auto step through the slide layers.

- The diagonal arrows keys, beside the “help” and “del”, will allow you to jump to the first or last slide in the presentation.

- The “P” key will pause all rotations and movies.

- The “O” key will resume all rotations and movies.

- The “R” key will reset the slide, so all movies/animations will start from the beginning.

- The “C” key will hide the cursor.

- The escape key will take you out of Present3D.

3.03 Interacting with models and images:

A three button mouse is useful for interacting with the contents of the presentation, however if you only have a single button mouse you can use the click modifier keys. Hold down the “alt” key and click the to simulate a middle click, or “command” for a right click.

The three buttons do the following:

  - **Right button** : This zooms in and out, move the mouse up to zoom in and down zoom out.
  - **Left button** : This rotates the model of image
  - **Middle button** : This moves the position of the model or image in the 3D space

- The “space” will reset your model or image back to its default position.

- The “L” key toggles dynamic lighting on and off.

- The “K” key will allow you to move the light source if your model has normals.

- The “W” key will change the model to wireframe view

- When using Volumetric models, the “U” key separates the data by luminance and the “I” key will increase the transparence of the layers.

- When using Point Cloud models, the “+” and “-” keys will increase and decrease the point size.

3.04 Manipulators

In Present3D there are currently four Manipulators:

- **Trackball,** this is advised for interacting with small models. This manipulator can be toggled by pressing the “1” key. The mouse behaves as outlined above.

- **Flight**, this allows you to fly around models, such as terrain, towns and buildings. This manipulator can be toggled by pressing the “2”. Use of this manipulator is outlined further down this page.

- **Drive,** this allows you to drive around models. This is easier than flying and gives your the feel of walking about the model. This can be toggled by pressing the “3” key. Use of this manipulator is outlined further down this page.

- **Terrain**, similar to the trackball, but manages the eye separation, allows zooms and terrain following.

3.05 Using the Flight Manipulator

- Click the left mouse button to move forwards and a right click will slow you down/move backwards. Clicking both at the same time will cause an emergency stop.
- Moving the mouse up will make you tilt downwards and Moving the mouse down will cause you tilt up.
- Moving the mouse to the left and right will make you bank left and right.
- To move straight keep the mouse in the centre of the screen.

3.06 Using the Drive Manipulator

- As with the Flight Manipulator the left mouse button will cause you to accelerate and the right mouse button will cause you to slow down or move backwards.
- Moving the mouse to the left and right will cause you to turn to your left and right.
- Using the “6” and “9” keys will allow you look up and down.

3.05 Using the Terrain Manipulator

- The hold down the right mouse button and push up/pull down to zoom in/out.
- Hold down the left mouse button and move the mouse to translate the models position.
- Hold down the middle button to rotate or travel over the surface of the model, when close in terrain following will be enabled.

3.08 Other Key Commands

- Pressing the “z” key will start recording a motion path that can be used in your presentation to automate moving around large models. Pressing shift and the “z” key will stop recording.

- The “F” key will toggle between full screen and windowed mode.

4.0 Customising Present3D

Now you are familiar with the basics of Present3D you can customise the set up to suit your requirements. There are many different set up options; stereo on/off, type of stereo horizontal split/anaglyphic, size of screen, distance to screen etc. We will cover changing all these options in this section.

4.01 Locating the set up files - .tcshrc / .xinitrc files

During the install of Present3D, 2.02 above you were given the opportunity to select stereo as a custom option. If you chose mono or the default install and now want to change to stereo, insert the install disk and click through as before until you come to customise - now untick all boxes except stereo, which should be ticked and continue. This installs a new .tcshrc file and .xinitrc file set up for stereo use.

Now that you have installed the correct files for stereo use you may need to edit them to achieve properly set up stereo or to switch back to mono without needing to use the installer. However, these files are invisible and to edit them you need to be able to select them and an editor. We will use BBedit for this, Text Edit or Xcode can be used as well, they will need setting up and will require you to use the command line to locate the files, this is covered in appendix *.

Open BBedit from your doc, then go to the menu bar, File, New and scroll down to Disk Browser.... a new window will open with two panes, a top selection pane and a document viewer below, there are also two buttons on the top frame of the window - Show and Directory. You should change the Show button to read "All Files", the list in the selection pane now shows both visible and invisible files - both the .tcshrc and .xinitrc files should now be visible. Select the .tcshrc file, the contents of this file are displayed in the lower viewer pane, you can not edit here, to edit the file double click on the file in the top selection pane and a new editing window opens.

4.02 Stereo and Screen set up

To set stereo on or off, change stereo mode, change screen distance and screen size.

Example stereo .tcshrc file:

```
setenv PRESENT3D_HOME /Applications/Present3D-1.2/
setenv PATH ${PATH}:${PRESENT3D_HOME}/bin:${PRESENT3D_HOME}/lib
setenv DYLD_LIBRARY_PATH
${PRESENT3D_HOME}/lib:${PRESENT3D_HOME}:/lib/osgPlugins
```

setenv OSG_FILE_PATH "/Users/present3d/OpenSceneGraph-Data:/Users/present3d/OpenSceneGraph-Data/Images:/Present3D/images:/Present3D/starfield:/Present3D/tyre:/Present3D/fonts"

setenv DYLD_BIND_AT_LAUNCH

source /sw/bin/init.csh

setenv OSG_EYE_SEPARATION 0.06
setenv OSG_SCREEN_DISTANCE 2.0
setenv OSG_SCREEN_HEIGHT 1.26
setenv OSG_SCREEN_WIDTH 1.68
setenv OSG_STEREO ON
setenv OSG_STEREO_MODE HORIZONTAL_SPLIT
setenv OSG_SPLIT_STEREO_HORIZONTAL_EYE_MAPPING LEFT_EYE_RIGHT_VIEWPORT
setenv P3D_CURSOR /Applications/cursors/crosshair.tiff

Eye separation: **setenv OSG_EYE_SEPARATION 0.06**
This section should not normally require to be changed.

Screen Distance: **setenv OSG_SCREEN_DISTANCE 2.0**
This is the distance in meters from the screen to the design eye point, or main viewer/person. Changing this will reduce or increase the apparent stereo effect, it will also affect the computation of near and far planes, and if clipping occurs with certain data-sets changing this value to a larger distance may resolve the problem.

Screen Height: **setenv OSG_SCREEN_HEIGHT 1.26**
This should be set to the actual dimensions of the screen (meters) that is being used. When using projection remember to preserve the proportions of the source, i.e. 4x3 or 5x4.

Screen Width: **setenv OSG_SCREEN_WIDTH 1.68**
This should be set to the actual dimensions of the screen (meters) that is being used. When using projection remember to preserve the proportions of the source, i.e. 4x3 or 5x4.

Stereo on/off: **setenv OSG_STEREO ON**
To switch stereo off change to : setenv OSG_STEREO OFF

Stereo mode : **setenv OSG_STEREO_MODE HORIZONTAL_SPLIT**
This controls the stereo options, for anaglyphic change to : setenv OSG_STEREO_MODE ANAGLYPHIC

Swop eyes : **setenv OSG_SPLIT_STEREO_HORIZONTAL_EYE_MAPPING LEFT_EYE_RIGHT_VIEWPORT**

To enable Present3D to be used with other stereo applications where the eyes have been set incorrectly. Comment out if not required by adding a hash (alt 3 on UK keyboard) :

#setenv OSG_SPLIT_STEREO_HORIZONTAL_EYE_MAPPING
LEFT_EYE_RIGHT_VIEWPORT

#setenv P3D_CURSOR: this allows you to change the way the cursor looks, just change the path to an image file of the cursor you wish to use.

If you change these settings while you have Terminal or X11 open, you will need to open a new shell window or restart Terminal X11 for them to take effect.

4.03 Starting and setting up X11

It is easier to use X11 when it is set to full screen mode, so we will set this now:
Click on the X11 icon on the doc that you placed there earlier. This will start X11, when it starts for the first time it will be in windowed mode, so go to X11 in the menu bar click and scroll down to Preferences.... this opens a dialogue box, tick all three buttons on the first "Input" screen, then select "Output" and click the "Enable the Enter Full Screen

```
<?xml version="1.0" encoding="UTF-8"?>


<presentation>
<duration>1.0</duration>
<name>example1</name>
<bgcolor>BLACK</bgcolor>
<textcolor>WHITE</textcolor>


<holding_slide>
<duration></duration>
<background></background>
<title></title>
<layer>

<image position="0.5 0.5 0.25" scale="0.55">images/present3dwhite.png</image>

</layer>
</holding_slide>




</presentation>
```

menu". Press Command-Option-A to leave or return to full screen mode when in X11, so do it now and click anywhere on the display or Command -n to create a new "terminal" or "xterm" window, also referred to as a shell.

4.04 Window Manager

If you chose stereo setup you will now be using the TWM window manager, this wm has some "default features" that you may not be familiar with, for instance to type into the shell the mouse cursor must be within the bounds of the shell to keep it active. A full list of TWM's options can be obtained by typing:

%man twm

this brings up the manual (or man pages) for TWM. Do it now. Hit the return key to scroll through the pages.

You can change back to Quartz-wm, which is only suitable for mono use, by editing the .xinitrc file or by using the installer disk and changing to mono as described above. To edit the .xinitrc file, open BBedit from your doc, then go to the menu bar , File, New and scroll down to Disk Browser.... a new window will open with two panes, a top selection pane and a document viewer below, there are also two buttons on the top frame of the window - Show and Directory. You should change the Show button to read "All Files", the list in the selection pane now shows both visible and invisible files - both the .tcshrc and .xinitrc files should now be visible. Select the .xinitrc file, the contents of this file are displayed in the lower viewer pane, you can not edit here, to edit the file double click on the file in the top selection pane and a new editing window opens. The line we are interested in is the very last one:

exec twm

to change to quartz-wm or any other window manager you edit this line and put in the appropriate name, so change to:

exec quartz-wm

you will need to restart X11 for this to take effect.

4.05 TWM : Resize window

The default window is a little small, you can resize the window by placing the cursor on the icon on the rhs of windows top bar, it looks like two boxes, and drag while holding down the mouse button, let up the mouse button when you have the desired size.

4.06 TWM: Kill windows:

You may now have a couple of windows open on your X11 desktop... so how do you remove them? You use the kill function, this can be found in the TWM pop up menu bar - point and hold down the mouse button anywhere on the X11 desktop, but not in a window, and up pops a menu which you can scroll down to select the available functions, so scroll down to Kill and let up the mouse button, your cursor will have changed to a

skull & crossbones icon, now place this over a window that you want to kill and click. Experiment with the other available functions if you wish.

5.0 Creating shows

In this section we will cover producing your own Present3D presentations. To produce a Present3D show you must have a program suitable for creating xml code, on the Mac you can use BBedit or Xcode which comes as standard with your Mac, the example in the following section are from BBedit.

What must be in the file

When creating your own shows, the file must contain certain elements. We have included a basic template .p3d file, this is located in the Present3D folder in your Applications folder. It will look like this:

Lets break down this file and explain what each part does.

```
<?xml version="1.0" encoding="UTF-8"?>
```

This must not be changed this tells Present3D which type of scripting to expect.

```
<presentation>
<duration>1.0</duration>
<name>example1</name>
<bgcolor>BLACK</bgcolor>
<textcolor>WHITE</textcolor>
```

The file is written in XML, which like HTML, uses opening and closing tags between which you place the variable information. You must always ensure that your tags are completed and that there is a space between option in the opening tag or your xml will not parse correctly.

In this header section the name of the presentation can be set, it does not appear in presentation, and can be changed to any name you wish to use. The background colour for the slide in your presentation can be changed by replacing where it says BLACK to the color you wish to use or creating a colour by mixing the RGBA values to give say a light blue ;

<bgcolour> 0.1 0.1 0.7 1.0 </bgcolour>

Finally you can change the color of the text in the presentation by replacing where it says WHITE to the text color you wish to use.

```
<holding_slide>
<duration></duration>
<background></background>
<title></title>
<layer>

<image position="0.5 0.5 0.25" scale="0.55">images/present3dwhite.png</image>

</layer>
</holding_slide>
```

This the holding slide, this is what will be seen while the presentation is loading. The duration of this slide will not make a difference to the time of loading, this is why there is no value in this box.

In this holding slide we are using the Present3D logo. As you can see we have referenced the image (images/present3dwhite.png), this can be changed to any image file you wish. the position command is positioning the image in the 3D space. The position is from the center of the media, this is the same for all types of data. The three values are x y z,

The Z value (0.25 in the above example) sets how far out of the screen the object will be positioned.

The scale command, scales the object between 0-1, 1 being full size of the object. The scale can be varied either larger or smaller, to reduce the size reduce the value 0 being the smallest. To enlarge the object increase the the value.

```
</presentation>
```

This tells Present3D that this is the end of the presentation, this MUST be at the end of your presentation.

We have included a selection of demo presentations, these are located in the p3d_demos folder to allow you to get used to using Present3D. You are free to copy/cut and paste the xml code to make your own presentations, but the content, models, images etc included can only be used in the demos as they stand and **can not** be used as part of another presentation without express permission from Gee-Viz

6.0 Remote Login

It is possible to use the interactive layers feature in Present3D to create a menu show on a remote machine and have this start shows on the display machine. To set this up you need to have a working version of SSH and set up a RSA key to avoid having to enter a password every time.

6.01 SSH Set UP for remote login

There is a bug in the standard implementation of SSH in 10.4.2 that effectively disables remote login. To solve this install “openssh” from Fink. Use Fink Commander as normal. Once installed on the two machines test by using terminal to login from the remote machine to the display machine. To do this you need a common network connection and the network name or address of the machine you wish to connect to and the user name for the current Present3D set up. The remote machine name can be obtained by bringing up a finder window and selecting Network - a list of connected machines will appear on the adjacent column, note the name of the machine that you want to connect to and if necessary check the name of the user, type the following, substituting “user name” and DisplayMachineName and responding with “yes” and the user password for the remote machine when prompted.

% ssh user_name@DisplayMachineName.local

The authenticity of host '12inch.local (fe80::21a:95ff:fef6:a87e%en1)' can't be established.
RSA key fingerprint is 93:b5:0d:a6:af:7f:d9:47:c8:73:00:6b:d1:ad:c0:7d.
Are you sure you want to continue connecting (yes/no)?

%yes

Warning: Permanently added 'DisplayMachineName.local,fe80::21a:95ff:fef6:a87e%
en1' (RSA) to the list of known hosts.

%Password:
Last login: Fri Oct 7 08:48:20 2005
Welcome to DisplayMachineName!
%

6.02 Set up RSA Key to disable passwords for authorised machines

1. Determine your protocol:

   % ssh -V
   OpenSSH_3.8p1, SSH protocols 1.5/2.0, OpenSSL 0.9.7d 17 Mar 2004

2. Select the type of key:

o An RSA key for use with the SSH 1 protocol.
o An RSA key for use with the SSH 2 protocol.
o A DSA key for use with the SSH 2 protocol.

(The rest of these notes assume a RSA key for SSH 2 protocol. RSH keys are reportedly stronger)

3. Use ssh-keygen to generate a key:

% ssh-keygen -t rsa

Follow prompts, but enter an empty passphrase. You can add an passphrase if you want, but you will have to enter a password every time you ssh, and this defeats the purpose of this exercise.

This will generate a private key:

~/.ssh/id_rsa

and a public key:

~/.ssh/id_rsa.pub

4.Copy the public key to the remote host and store this in:

~/.ssh/authorized_keys.

(this will be the last time you have to enter a password)

5. Test it:

% ssh user_name@DisplayMachineName.local

you shouldn't need to enter a password.