Strand LIGHTING

INFORMATION

# THE APPLE MACINTOSH IN A STRAND WORLD

*a guide to using Macintosh computers with Strand lighting consoles*

Version 1.1
March 2004

# A NOTE ON xCONNECT

In the autumn of 2003, Strand Lighting introduced a new way of connecting Macintosh (and Windows) computers to Strand lighting consoles. xConnect is a program which lives on a USB dongle. Plug the dongle into the back of your Mac or PC and the program allows you to view and control a console using your computer.

xConnect runs natively under Mac OS X or current versions of Windows. It offers a number of advantages over the systems described in this Guide - particularly that it is easier to set-up and use and that xConnect can give simulate two or more console screens (allowing more channels to be viewed), whereas the techniques described here are limited to showing one screen on the Mac. In addition, because xConnect runs natively, you don't need to purchase VirtualPC, whereas you do need to use VirtualPC for the approach described in this Guide.

However, please note that xConnect is not an off-line editor - it is merely a way of connecting to a real console. If you need to edit shows away from a console using your Mac, you will still need VirtualPC and will need to follow the instructions here. In addition xConnect only runs under OS X; if you are still using Mac OS 9 or earlier you will still need to adopt the techniques described here. And xConnect will only work with consoles running software version 2.6.15 or later.

To summarise, xConnect may be a better option for you if:

- you are using Mac OS X (or current versions of Windows).
- you want a way of connecting your Mac to a console in order to be able to view or control channels, and in particular if you want to be able to have mutliple simultaneous views open on your Mac.
- you don't need to edit shows 'off line' using your Mac
- you don't already own Virtual PC
- the consoles you are using are running software version 2.6.15 or later.

While the approach described in this Guide, using VirtualPC and Strand's existing console software may be a better option for you if:

- you are running OS9 or earlier
- you need to edit shows off-line as well as connecting to consoles.
- you need to save shows from a console to your Mac, and load shows from your Mac to a console directly (xConnect does not yet support this functionality).
- you already have VirtualPC, or need VirtualPC for some other application (such as running WYSIWYG).

xConnect on a USB dongle is available from Strand Lighting; further details and operating instructions can be found at the Strand website, www.strandlighting.com.

# CONTENTS



## A Note On This Document

This document is designed to assist owners of Apple Macintosh computers who wish to take advantage of the Mac's ability to link to Strand consoles via ethernet and to run Strand's off-line editor software via VirtualPC. Because it is aimed at Macintosh users who may not be familiar with PCs, DOS or command-line style operating systems it describes the various set-up procedures in a step-by-step manner with screenshots to show you exactly what to do - this means that it is quite a long document, but you should not allow yourself to be intimidated by that!

The steps described are those required to configure the software with a standard Virtual PC installation. However, you should note that if you have customised your VirtualPC set-up or use it to run other software, screens may appear slightly different from those shown in the images in this document, and slightly different commands may be required (if, for example, you have different directories in your VirtualPC). However, in these cases it is assumed that you have enough working knowledge of DOS to ammend the instructions in this document to suit your system set-up.

As with all work involving installing new software on computers, it is recommended that you back up all important files before carrying out any of the work described in this document.

Instructions to be typed in DOS are denoted by `this font`

Instructions relating to console keys follow the usual Strand conventions: [console keys] {softkeys}

## Version


*Strand Lighting Information Document:* The Apple Macintosh in a Strand World

RH. Version 1.1. English. Console Software 2.6d or later. March 2004.

Strand Lighting: www.strandlighting.com

*Please send comments or corrections to strandmac@strandlighting.com*

# THE APPLE MACINTOSH IN A STRAND WORLD

Apple Macintosh computers can now make very useful adjuncts to Strand 300- or 500- series lighting consoles. By loading the appropriate software, Macintoshes can be used as:

- off-line editors, allowing shows to be prepared or analysed away from the theatre; shows can be taken from the off-line editor to a console or vice-versa. If using the Macintosh as a remote console as described below, shows can be saved directly from a console to the Mac and loaded directly from the Mac to a console.

- remote consoles, allowing full or limited access to all of the functions of a Strand-controlled lighting system independently of the main console. Used in this way, a lighting designer can view channel levels in their own chosen display format, independently of the actions of the show programmer using the main console

- remote nodes, allowing the Mac to show the same display as Strand's SN video nodes, which will be the same display as seen by the console programmer.

- WYSIWYG systems, allowing WYSIWYG to show a 'virtual' display of what the lighting system is doing, either modelling what the lights are currently doing or giving a blind preview of what they will be doing in a specified cue.

For remote, node and WYSIWYG use, the connection between the console and the Macintosh computer can either be by RJ45 Cat-5 Ethernet cable or, if the appropriate hardware is available, via a wireless Ethernet network (IEE802.11b/'WiFi'/AirPort). Wireless networking can use the same base station as a Strand iPaq wireless handheld remote; however, connecting a Macintosh to a console wirelessly does not require the console to have the Strand WiFi application installed.

## What's Needed To Make This Work

- An Apple Macintosh computer with a G3 or G4 processor running Macintosh System 8.6, 9.x or X, with at least 4Gb of hard disk space available (less for VirtualPC 4) and with at least 128Mb of RAM and a CD-ROM drive for software installation. G4 Mac recommended for use with WYSIWYG.

- VirtualPC for Macintosh, version 4 or later (version 5 or 6 required for use with Mac OS X). Note that only the PC-DOS version of VirtualPC is required for use with the Strand software; you will only need a Windows version of VirtualPC (Windows 98 or later) if you are planning to use WYSIWYG. VirtualPC is available from Macintosh software dealers or directly from Connectix, www.connectix.com.

- Strand Lighting's off-line editor (OLE) software, version 2.4 or later - the latest software (2.6d at the time of writing) is recommended. For connecting to a console, the software should be the same version as is installed on the console. If you wish to connect your Mac as a network video node, you will also need Strand's Node software (caution: read the instructions on page 19 before installing the node software.....) This

software can be downloaded from Strand Lighting's website, www.strandlighting.com

To connect to consoles, the Mac will need to have an Ethernet connector fitted, which all recent Macs do. You'll then need:

- A Strand 300-, 400- or 500- Series console running GeniusPro/Light Palette software version 2.5 or later with the Networker application software installed, and with an Ethernet connector.

- Standard 10BaseT (RJ45-style/Cat-5) Ethernet cabling and hub, for a wired network.

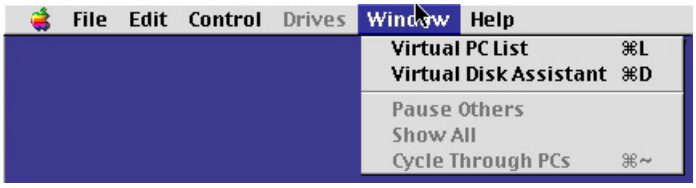
For wireless use, you will also require an IEE802.11b wireless ethernet base station connected to your console, and an IEE802.11b network card for your Macintosh. Apple's Airport cards are the most common IEE802.11b wireless network cards, but other suitable cards are available for older Macs that can't accept Airport cards.

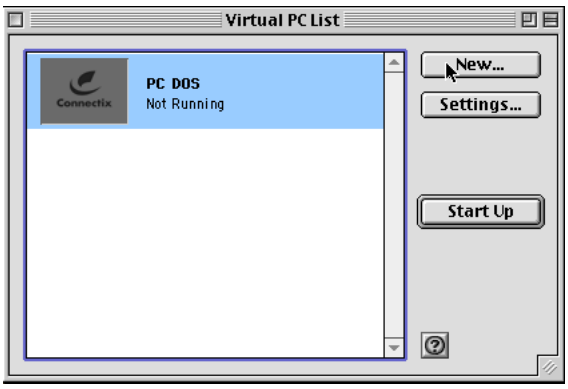
# Installing VirtualPC

VirtualPC is a software package which emulates one or more PCs on a Macintosh. A VirtualPC 'virtual machine' consists of a virtual computer together with a virtual hard drive.

To install VirtualPC, follow the VirtualPC instructions. At some point during the installation you will be asked which operating system you plan on using with a hard drive - specify DOS. You will also be asked whether you want the drive to be 'dynamically expanding' or 'fixed size'. VirtualPC 4 would sometimes not function correctly with Strand's software installers if the 'dynamically expanding' option was selected; if you are using VirtualPC 4 you should choose 'fixed size' and pick an appropriate size for the hard drive according to the free disk space available.

VirtualPC should now have created one virtual machine with a hard drive - the virtual machine is probably called PC DOS unless you have given it a different name. If you cannot see this virtual PC, select Virtual PC List from VirtualPC's Window menu



# Creating Multiple Virtual PCs

If you are planning to use the Strand off-line editor and use your Macintosh to connect to consoles as a remote, node or with WYSIWYG, we would recommend creating separate virtual PCs with separate hard drives for each of the off-line editor, the Remote software, the Node software and WYSIWYG. Having each in their own virtual machine means that you will be able to use them simultaneously, if required.

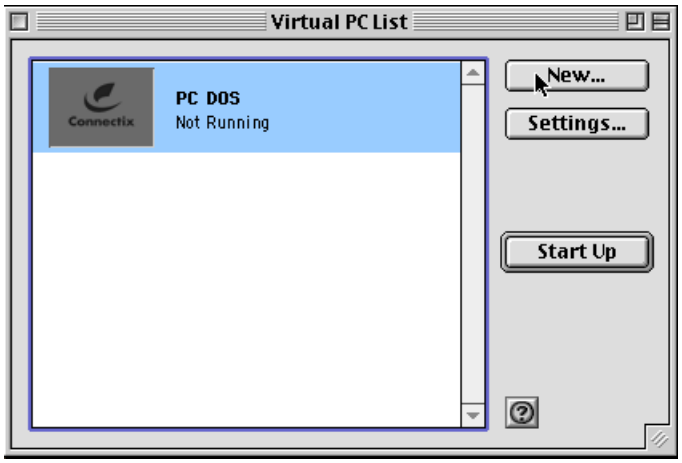
A VirtualPC virtual hard drive is actually just a file on your Macintosh's hard drive and will appear as shown in Mac OS9 (left) or OS X (right).


In VirtualPC 4 and VirtualPC 5, you can create two further hard drives by locating the virtual hard drive file (usually in the VirtualPC application folder) and making two copies of it. You can then rename them to make it clear which is which - for example, 'Remote_Drive' for the hard drive which will contain the Remote software, 'Node_Drive' for the hard drive which will contain the Node software.

In VirtualPC 6, the file format has changed to make it compatible with both Macintosh OS 9 and OS X. You will find that if you try to copy these in OS9, you will not be able to rename the new file. The simplest way to make duplicate hard drives is to re-start your Macintosh in OS X and duplicate and re-name the hard-drive files. You can then switch back to OS 9 if you prefer working in that operating system. You will see that in OS 9, the VirtualPC 6 hard drive image files have names ending with '.vhdp'.

WYSIWYG requires a hard drive containing Microsoft Windows 98 or later - you should follow VirtualPC's instructions for creating such a hard drive.

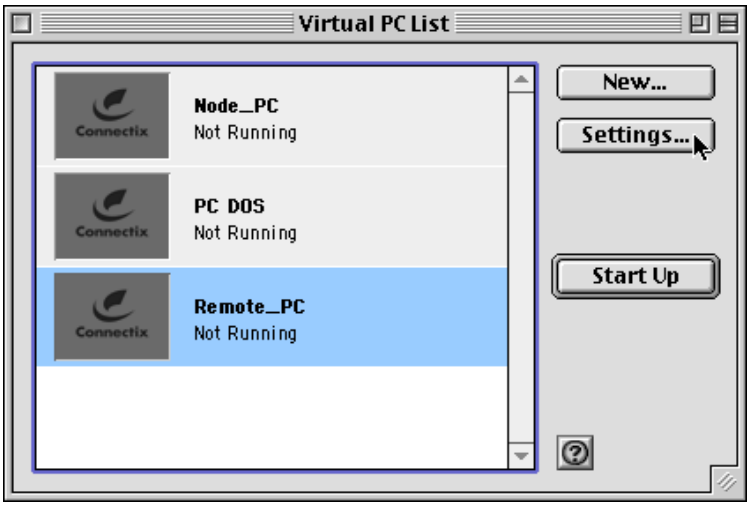
Having created multiple hard drives, you now have to create multiple virtual PCs. In VirtualPC's VirtualPC List, select New...

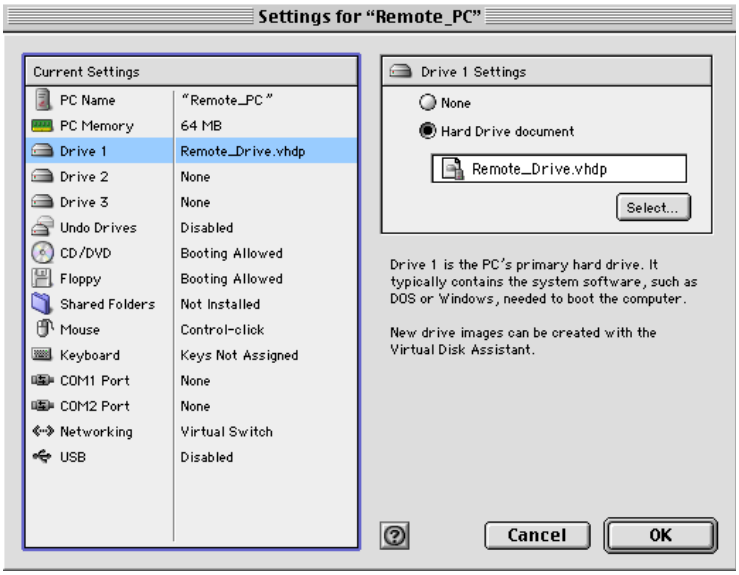



In the PC Setup Assistant, select 'Duplicate an existing PC'


Select the PC to duplicate (normally the PC DOS PC), then give it a new name. We would suggest 'Remote_PC' for the PC to be used for Remote software and 'Node_PC' for the PC to be used for the Node software. Allow VirtualPC to create this new PC, and repeat as required.

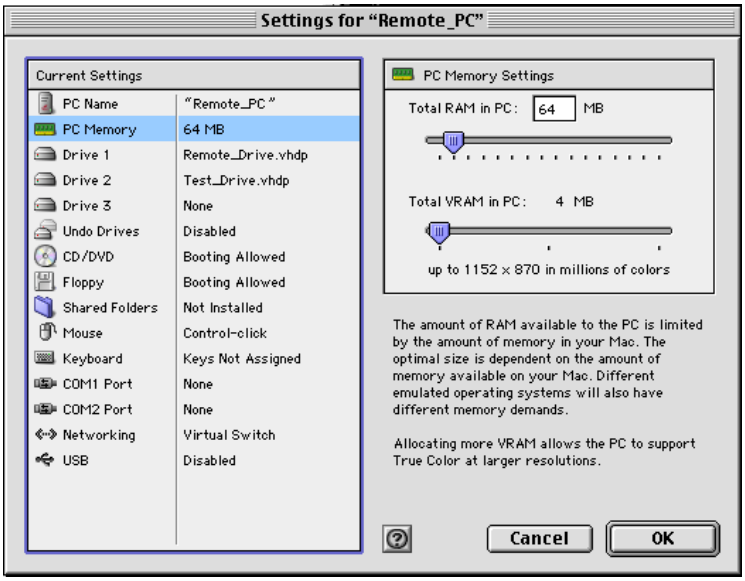
You then have to tell each virtual PC to use its own hard drive. In the VirtualPC List, select 'Remote_PC' then chose 'Settings...'






Select 'Drive 1' then browse to the hard drive image called 'Remote_Drive'. Press 'OK', then repeat for 'Node_PC', setting it's 'Drive 1' to 'Node_Drive'.

As you are in the Settings box for each PC, you should also set the amount of Memory the PC has.

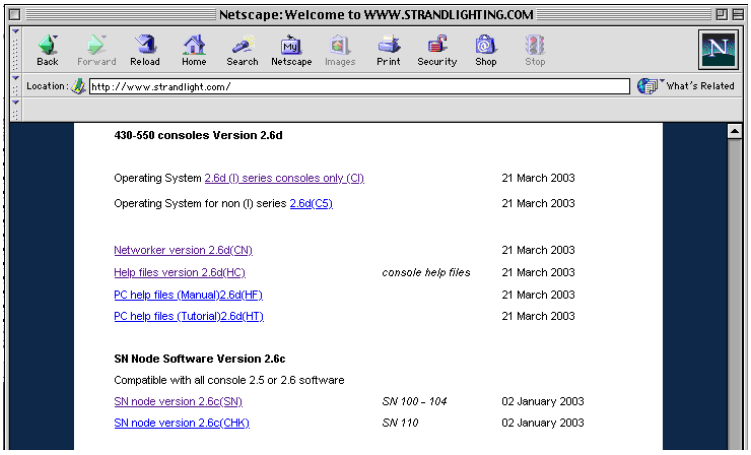



This should be at least 64Mb for each of the off-line editor, Remote and Node PCs. A PC created to run WYSIWYG under Windows will require more memory. If you are installing off-line editor version 2.6 or later, you will see performance improvements in the off-line editor by setting its PC to have more than 64Mb of RAM. The maximum you can set will depend on the amount of RAM available in your Macintosh.

If you are planning to use your Macintosh to run more than one VirtualPC simulatenously (for example, to run as a Remote Console and a Node simultaneously), you should select 'Preferences' from VirtualPC's Edit menu, click on 'PC Behavior' and make sure that 'Pause background PCs' is unselected. This will ensure that your Mac will display information from a lighting console in the various displays on your Mac simultaneously.

# Installing the Strand Off-Line Editor

The off-line editor software allows you to prepare or edit shows away from the console. You will need to obtain the relevant software, usually by downloading it from the Strand Lighting website at www.strandlighting.com - then click on 'support' then on 'software'.

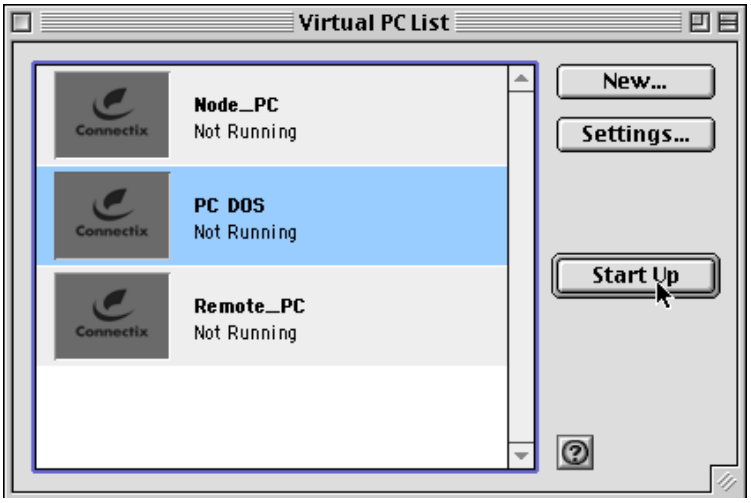



You should download:

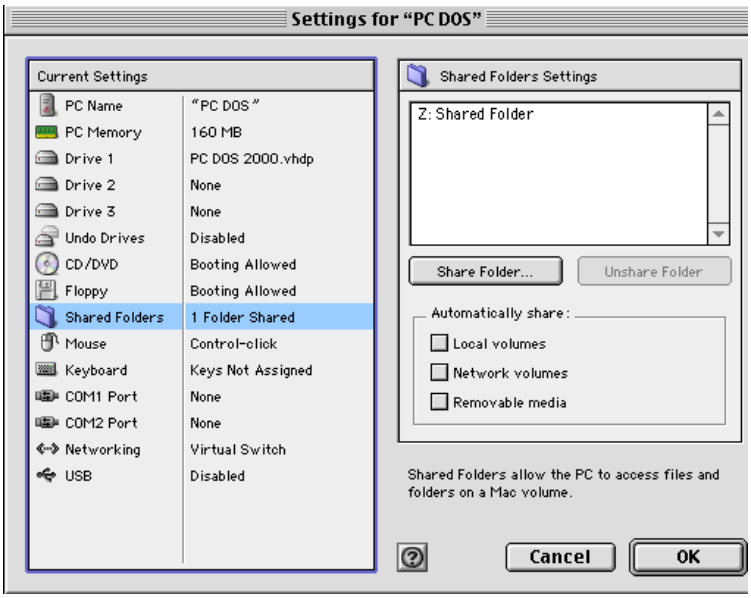
- ci.exe which is the off-line editor software
- hc.exe which contains the console help files.

Both of these files are listed under '430-550 consoles'. There is no separate listing for console software and off-line editor software since the same software is used for both.

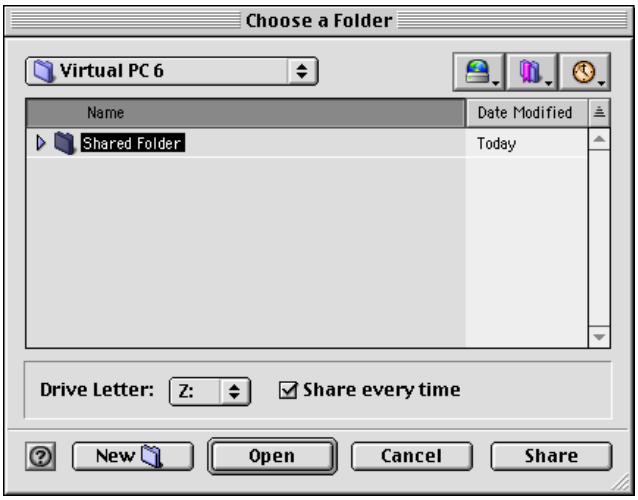
You now have to get these files into VirtualPC. To achieve this, VirtualPC can 'share' a folder between the Mac and one or more virtual PCs. To do this, start up your 'PC DOS' PC by selecting it in the Virtual PC List window then hitting Start Up




You should see a new window appear with a DOS PC screen inside it. Now go back to the Virtual PC List window and press 'Settings...', then selected Shared Folders




Press 'Share Folder...', then create or pick a suitable folder. It may be convenient to locate this folder on your Mac's desktop so that it is easy to find. Set its drive letter to Z:, and tick 'Share every time'.




The 'Z:' part means that the shared folder appears as a pretend hard drive called 'Z:' within VirtualPC. 'Share every time' means that this will be set-up every time you start this Virtual PC so that you don't have to re-visit these settings. Once you have ticked this press 'Share'.

Now switch back to the PC DOS window, and type

```
copy z:ci.exe c:
copy z:hc.exe c:
```

This will copy the two files from the shared folder into the virtual PC's hard drive.

Now type

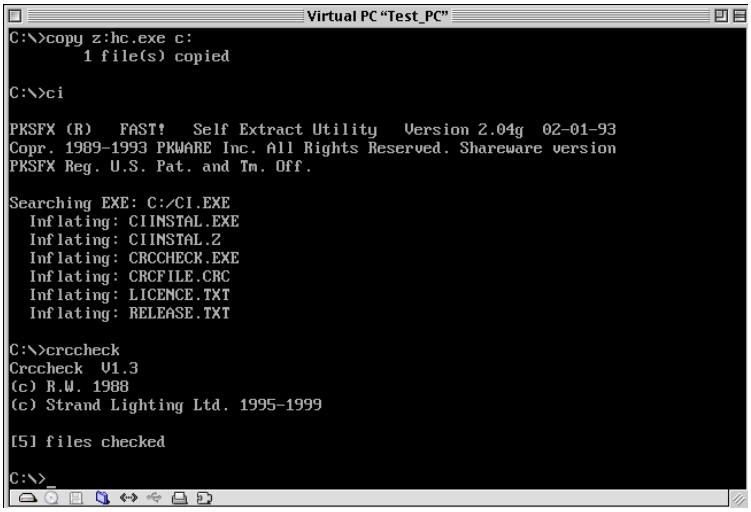
```
ci
```

This 'unpacks' the installation files.

Now type

```
crccheck
```

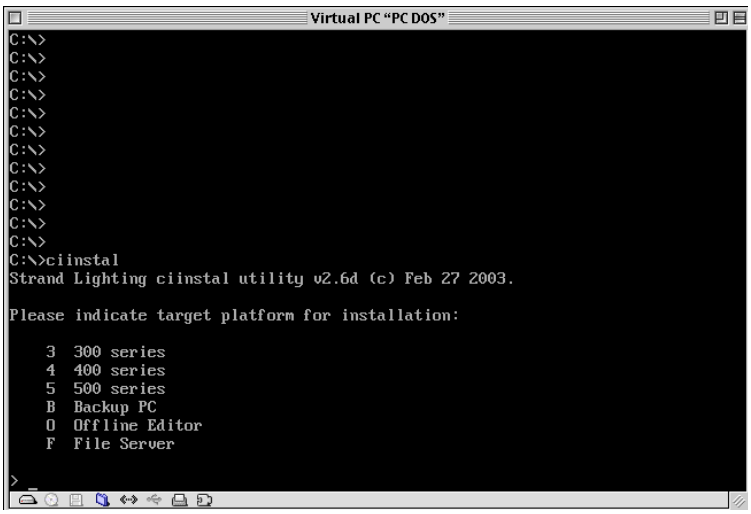
which will check that the software has been downloaded correctly - it should report '[5] files checked'. If this is not the case, the file may not have been downloaded correctly; you should not proceed with the installation but should download a fresh copy of the file.



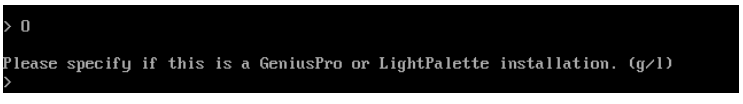

Then type

```
ciinstal
```

Which will start the off-line editor installation. This will ask you a number of questions:




Type 'o' for off-line editor.




Type 'g' for the Genius Pro off-line editor (for European console users) or 'l' for the Light Palette off-line editor (for American console users).

```
> 0

Please specify if this is a GeniusPro or LightPalette installation. (g/l)
> g

Please enter the full path of where to install the software.
The default directory is c:\geniusp
> c:\2.6d
```

The software is now asking which directory to store the off-line editor in. A PC directory is the equivalent of a Macintosh folder. The default is a directory called ‘geniusp’ or ‘lightp’ depending software version. You may want to specify a different directory name particularly if, for example, you are planning to install different versions of the off-line editor; names can consist of up to eight characters then, optionally, a ‘.’ and a further three characters. For example, if you are installing software version 2.6d you might want to specify a directory called ‘c:\2.6d’.

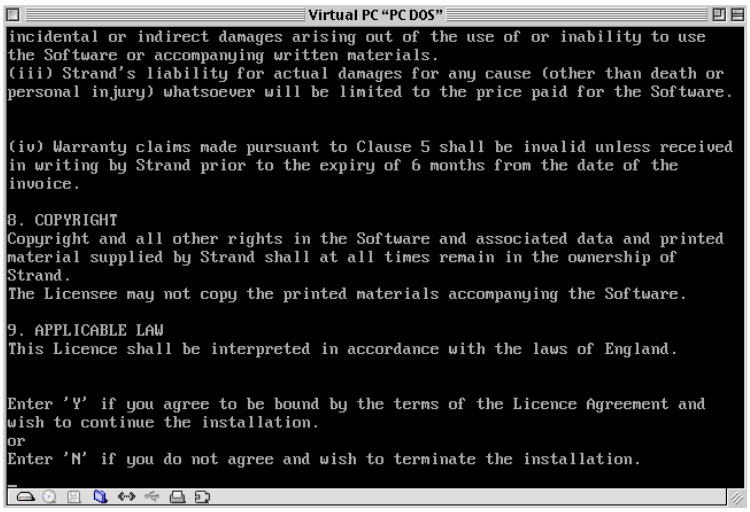
```
> 0

Please specify if this is a GeniusPro or LightPalette installation. (g/l)
> g

Please enter the full path of where to install the software.
The default directory is c:\geniusp
> c:\2.6d

Please enter the full path of where the show files are to be kept.
The default directory is c:\shows
> _
```

The software is now asking which directory it should store showfiles in, by default. Just press return to accept its suggestion (since even if using different versions of the off-line editor, you will probably want all of your showfiles to be stored in the same place).




The software will then run through the Licence Terms and Conditions. When it has finished press ‘y’ to confirm that you accept them.

```
Enter ’Y’ if you agree to be bound by the terms of the Licence Agreement and
wish to continue the installation.
or
Enter ’N’ if you do not agree and wish to terminate the installation.
y
Please wait while installing/configuring Operating Software.
This will take some time...
.....
.....
.....
.....
.....
.....
Use geniusp.bat to run software.

Install successful.
```

The off-line editor software will now be installed.

When it has finished, repeat the procedure with the help files. Type

```
cd ..
hc
```

The software may report that some files already exist; this is because some of the file names created by the help installer are the same as those already created by the off-line editor installer. Just reply 'y' in each case. Once this is complete type

```
crccheck
```

to check the files, as before. Then type

```
hcinstal
```

to install the help system. Answer the questions as before. Specify the same directory as you specified for the off-line editor software (ie. c:\2.6d if following the example above).

To run the off-line editor, you will have to change to the correct directory if you are not already there, then run the off-line editor software. You can tell which directory you're in by looking to the left of the flashing cursor:


The installers will leave you in the correct directory (in this case, 2.6d), so you can run the off-line editor by just typing

```
geniusp
```

(if you selected the GeniusPro off-line editor software)

or

```
lightp
```

(if you selected the Light Palette off-line editor software)

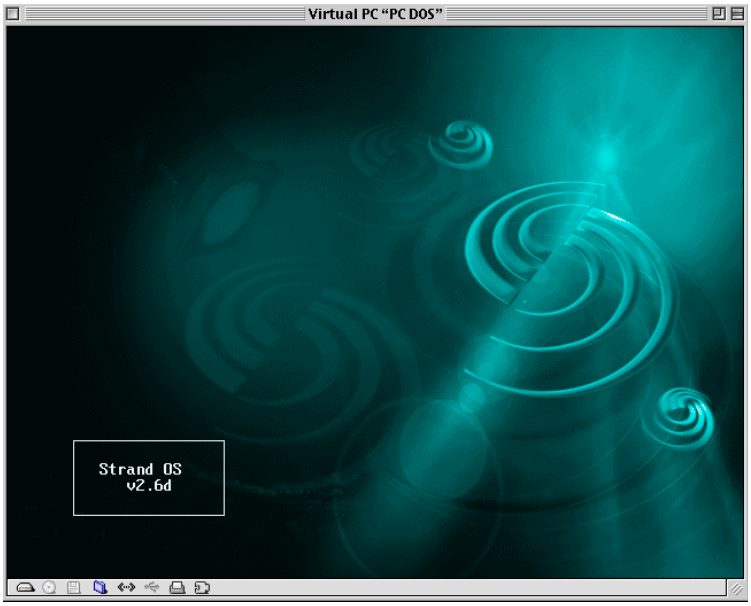
When you start the PC DOS Virtual PC, you will not be in the correct directory, so in that case you would have to type

```
cd 2.6d
```

(or cd directory name) to change to the correct directory

`geniusp` or `lightp`
(to start the off-line editor software).

You are then in the off-line editor. Keyboard equivalents to the console keys can be found in the console user manual, or at the end of this document.




To return to DOS you must 'shut down' as you would when you finished using a console. The keyboard equivalents are ctrl-F12 then F2 for SHUT DOWN.

If you are using a PowerBook laptop, you may have to hold down a 'FN' key to make your function keys operate as function keys.

***WARNING:***

When you are using a Shared Folder in VirtualPC, it will appear as the 'Z:' drive in the Archive screen within the off-line editor. The simplest way to save and load files would appear to be to select this Z: drive from within the off-oine editor. However, problems have been noted with some Macintosh/VirtualPC combinations whereby files saved or loaded in this way become corrupt, and will therefore not load into another console properly.

We would recommend saving to and loading from the 'C:' drive from the off-line editor archive screen.

To move files from the C: drive to the Z: drive (from which they can be accessed from the Macintosh, and so transferred by email or to a floppy drive), exit from the Off-Line editor into DOS. Then type

```
cd ..
cd shows
```

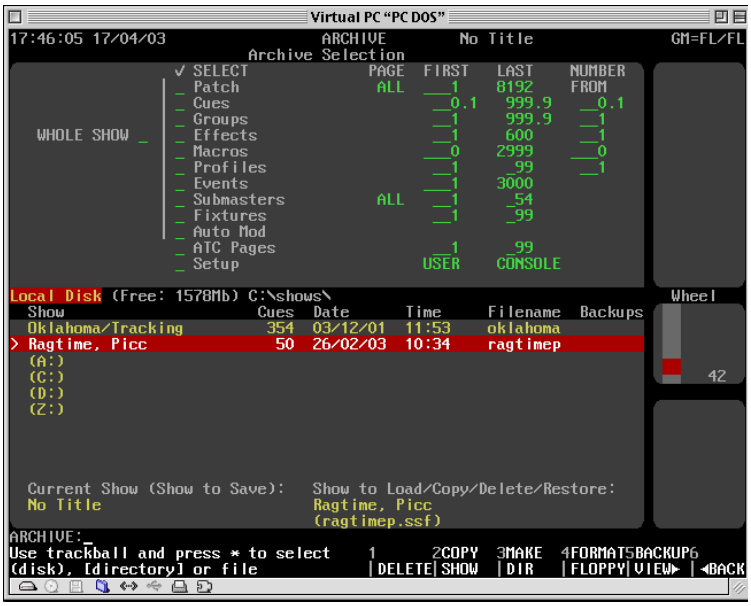
to change to the directory holding the show files. You can then copy a file from the Z: drive to the C: drive (the Mac to the PC) by typing

```
copy z:showname.ssf c:
```

or from the C: drive to the Z: drive (the PC to the Mac) by typing

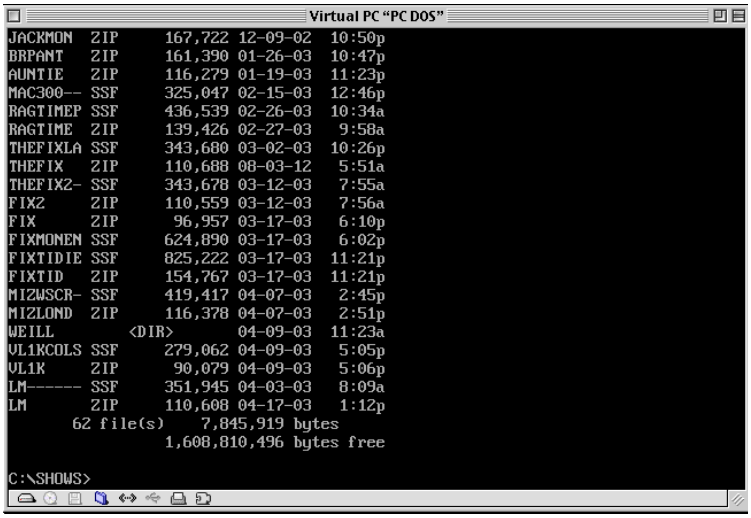
```
copy showname.ssf z:
```

'showname' is the eight-letter filename for the showfile, which can be seen on the right-hand side of the Archive screen on the console or the off-line editor




If the name is not known, a list of filenames can be produced by typing

```
dir
```




The name together with the date and time listings can then be used to determine which is the correct file.

Once you have exited from the Strand software, you can close your VirtualPC window by clicking in the top left-hand corner of the title bar. You wll be asked whether you wish to 'Save PC's State' or 'Turn Off PC'. 'Save PC's State' is equivalent to putting a Macintosh to sleep - when you next start that VirtualPC it will start in exactly the same place. 'Turn Off PC' is equivalent to shutting a Macintosh down - the next time you start that VirtualPC it will have to start up (which will take a few seconds longer) and will then start from a 'fresh' condition.

We would recommend always exiting from the Strand software and selecting 'Turn Off PC'. If you choose 'Save PC's State' then when you next turn on that VirtualPC it's internal clock will be out-of-sync with the Mac's clock (and so with real time). This may lead to confusion as to when different versions of a showfile had been saved. 'Turning off' the PC then re-starting it ensures that its follows the correct time.

# Installing a Strand Remote Console

Running the Strand software configured as a remote console allows you to use your Macintosh running VirtualPC as a fully-functional console in a Strand network. This means that you can configure all of your screen displays independently of the main consoles, and control the rig and run or edit cues exactly as you would from the main console (unless limited by the use of channel or playback partitioning or via the Server software).

The software used as a Remote Console is actually the same software as used for the Off-Line Editor, only configured differently, plus Strand's 'Networker' software which allows consoles to connect to a network.

From www.strandlighting.com you should download:

- ci.exe which is the console software (unless you have already down loaded it as part of installing the off-line editor as described above)
- cn.exe which contains the Strand Networker software.

Follow the instructions in 'Installing the Strand Off-Line Editor' (page 7) for setting up a Shared Folder for the 'Remote_PC' PC in Virtual PC. Then, in the Remote_PC window, type:

```
copy z:ci.exe c:
copy z:cn.exe c:
```

This will copy the two files from the shared folder into the virtual PC's hard drive.

You should then follow the instructions for installing the Off-Line Editor software above, up to the point where the off-line editor software is installed.

Then, instead of installing the help files, you need to install the Networker software. Type

```
cd ..
cn
```

The software may report that some files already exist; this is because some of the file names created by the Networker installer are the same as those already created by the off-line editor installer. Just reply 'y' in each case, then type

```
crccheck
```

to check that the software has downloaded correctly, then

```
cninstal
```

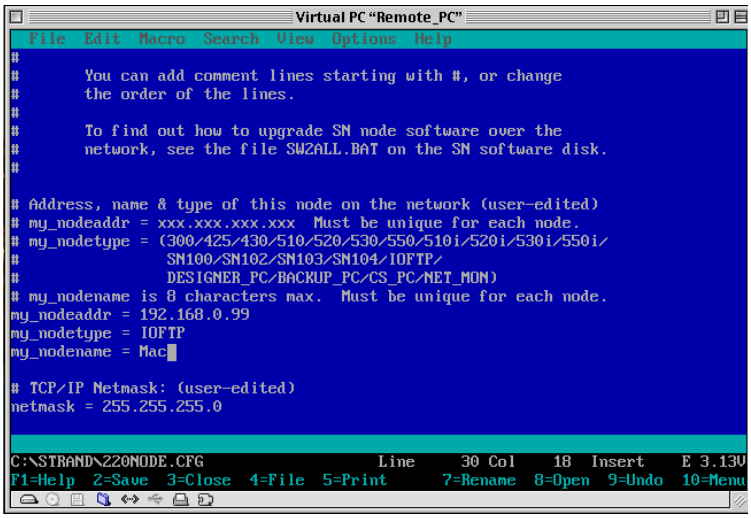
to start the installation of the Network software. Answer the questions as before. Specify the same directory as you specified for the off-line editor software.

The installer will leave you in the correct directory (in this case, 2.6d). You now have to configure your remote console to allow it to work with the rest of your Strand network.

Type

```
e 220node.cfg
```

'e' stands for edit; this will allow you to edit the node configuration file.




You will have to pick a suitable node address for your remote console - this number must be unique on your Strand network. A good choice is often 192.168.0.99. You can also give your remote console a name; this is the name which will appear on the console's net diagnostics screen. 'Mac' might be a good name. So scroll down and then edit these lines to read:

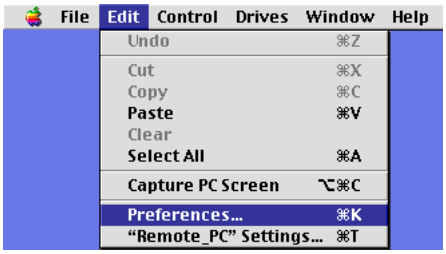
```
nodeaddr = 192.168.0.99
nodetype = IOFTP
hostname = Mac
```

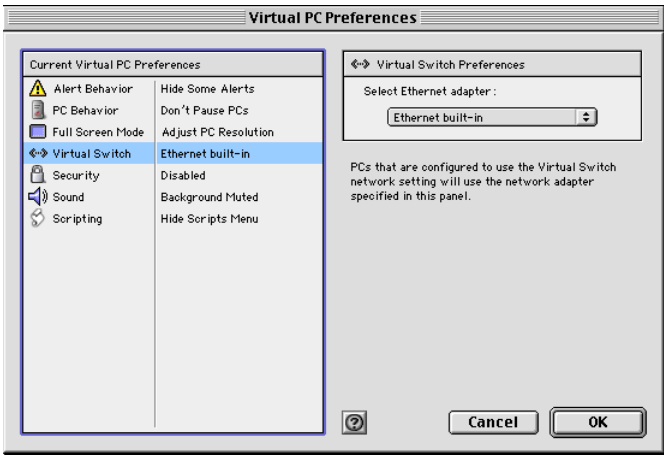
If your Strand network has a highly-specialised setup you may also need to edit other settings, such as the TCP/IP Netmask - but if in doubt, leave them unchanged.

Save this file by pressing the 'alt' or 'option' key to bring up a menu, then press the down arrow and move down to 'Save', then press Return. Then bring up the menu again and select 'Exit'.

The Strand software is now configured and ready to talk to the network. However, you first have to configure VirtualPC to communicate with a network.

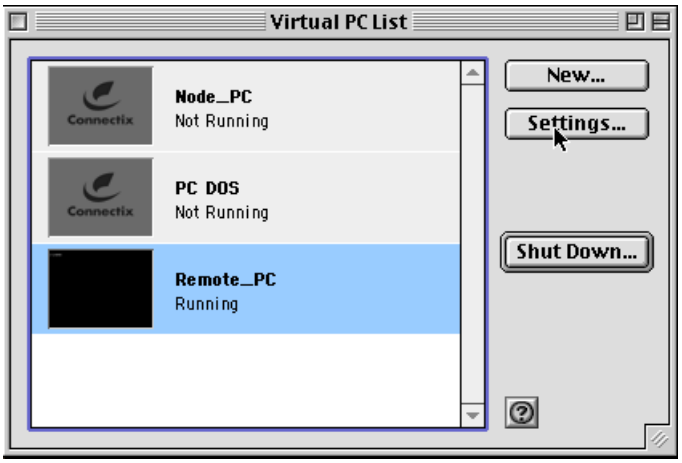
First, go to the Edit menu and select 'VirtualPC Preferences' (this option appears under different menus in VirtualPC 4 and 5, and in VirtualPC 6 for OS X)



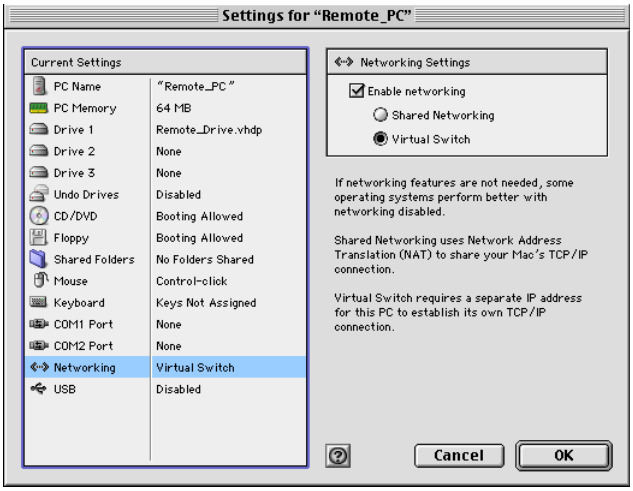



Select the 'Virtual Switch' option. If you are connecting to the network via a cable to the connector in the back of your Macintosh, select 'Ethernet built-in'. If you are connecting wirelessly, select 'Airport'. While here, select 'PC Behaviour' and ensure that 'Pause Background PCs' is not selected, to allow your Remote Console to run alongside other VirtualPCs. Then press 'OK' to close that window.

Now open the 'VirtualPC List' window. Select 'Remote_PC' and press the 'Settings...' button to bring up the Settings window




Select 'Networking'. Tick the 'Enable networking' box, then select 'Virtual Switch'



Then press ‘OK’ to close that window.

Now click in to your Remote_PC window again. You can now start the remote console: depending on whether you installed the Genius Pro or Light Palette software, type

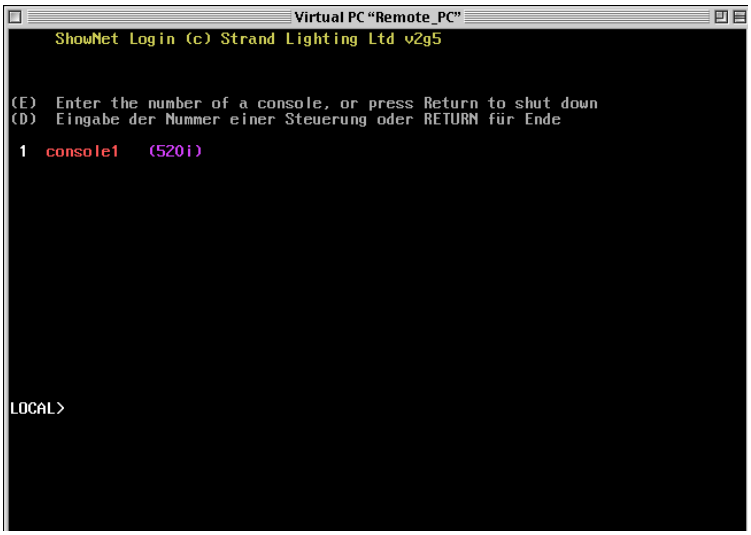
```
neton
geniusp remote      or      lightp remote
```

(if you have just started up your Remote_PC, you will first have to type

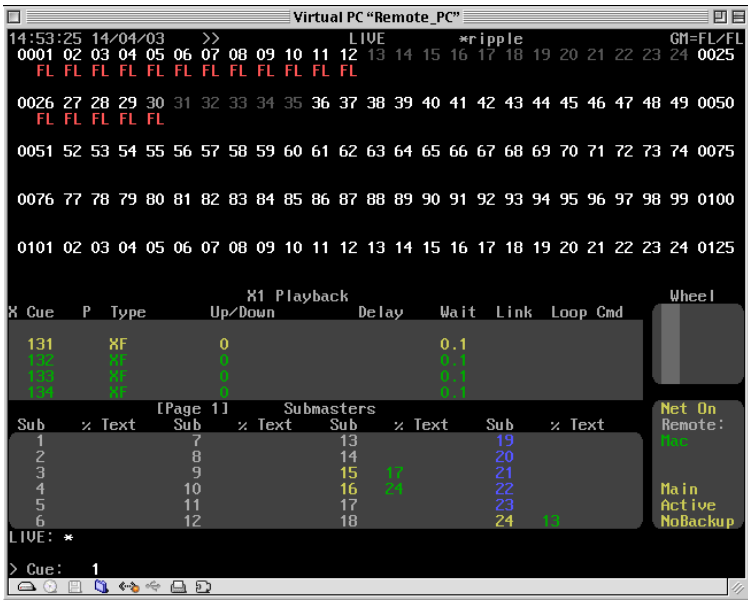
```
cd 2.6d
```

to change to the correct directory.)

If you are connected to a Strand network, you should see a list of consoles on the network. To connect to a console, select its number and press Return.




After a few moments, you will see the console screens on your Mac’s screen, and should be able to control channels, playbacks and displays using the usual off-line editor keys.




If you can’t see any consoles listed, check that you are connected to the

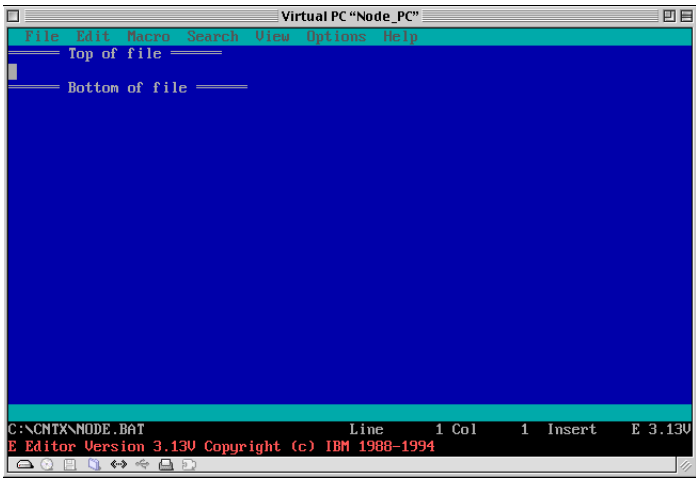
network (ie. the network cable is connected to the rear of your Macintosh, or that your Airport card is turned on if using a wireless network), and check that the console on the network has the NET Networker software installed and has networking turned on in its Console Setup screen. If the Mac has connected to a console but the displays appear strange, you will have to set your Remote Console to just use one display: USER SETUP (CTRL-F9)>Number Screens 1.

To return to DOS you must 'shut down' as you would when you had finished using a console. The keyboard equivalents are ctrl-F12 then F2 for SHUT DOWN. Alternatively, just close down the Remote_PC window: since all of the show data is stored on the main console there is no harm in doing this. You will want to select 'Turn off PC' rather than 'Save PC's state' to ensure that the next time you use the Remote PC, its network connections re-establish correctly.

It is possible to simplify the process of starting up the remote console by making a 'remote' command which will initialise and start the remote console. To do this, exit from the remote console into dos, then type
You will now have to create a file that will setup and run the node software. Type

```
cd ..
e remote.bat
```

'e' stands for edit; this will bring up a text editor with an empty screen




Type

```
cd 2.6d
neton
geniusp remote
```

Then save this file by pressing the 'option' key to bring up a menu, then press the down arrow and move down to 'Save', then press Return. Then bring up the menu again and select 'Exit'.

You will now be able to start your Mac remote console by just starting up your Remote_PC, then typing

```
remote
```

# Installing the Strand Node Software

Running the Strand node software allows your Mac to show the same display as Strand's SN video nodes, which will be the same display as seen on the main console. This can be useful because (for example) it allows you to see a cue in preview by asking the console operator to switch to preview rather than having to manually switch to the preview display yourself, as you would have to do if using a Remote Console window. Of course, in VirtualPC the Remote Console and Node windows can be open simultaneously, giving you the best of both worlds!

***WARNING:***

Read and follow these instructions carefully. Installing the node software is slightly different from installing the console software, since it is designed to run on a Strand SN node. Failure to follow the instructions may lead to the installer deleting your VirtualPC hard drive, or leaving your Node VirtualPC in a state where it will not start up correctly.

Note that if you are installing this onto a 'real' PC you should ensure that your hard drive has a directory called 'DOS', "WINDOWS', WINNT', WIN95', 'WIN98' or 'WIN2000' on it, otherwise the installation software will assume it is installing on a node and wipe your entire hard drive!! Your 'Node_PC' in VirtualPC has a 'DOS' directory and so will be fine.

From www.strandlighting.com you should download:

- sn.exe which is the node software
- cn.exe which is the networker software (unless you have already downloaded it while installing the off-line editor as described above)

Follow the instructions in 'Installing the Strand Off-Line Editor' (page 7) for setting up a Shared Folder for the 'Node_PC' PC in Virtual PC. Then, in the Node_PC window, type:

```
copy autoexec.bat autoexec.old
copy config.sys config.old
```

This will copy the VirtualPC's set-up information. Then type

```
mkdir strand
cd strand
copy z:sn.exe c:
```

This will copy the file from the shared folder into the virtual PC's hard drive.

Now type

```
sn
```

This 'unpacks' the installation files.

Then type

```
crccheck
```

which will check that the files have been downloaded correctly. If this gives an error, you should download a fresh copy of the software.

Now type

```
sninstal
```

Which will start installing the node software. You will be asked whether you agree to the licence conditions - press ‘y’ to confirm. The software will then install.

You now have to install a network driver to allow VirtualPC to connect to the Mac. Type

```
cd ..
copy z:cn.exe c:
cn
```

The software may report that some files already exist; this is because some of the file names created by the Networker installer are the same as those already created by the Node installer. Just reply ‘y’ in each case. Then type

```
crccheck
```

to check that the software has downloaded correctly, then

```
cninstal
```

to install the software. You will be asked for the ‘target platform’ - type ‘O’ for off-line editor. Then type ‘g’ for a GeniusPro installation

When asked for a directory name, type

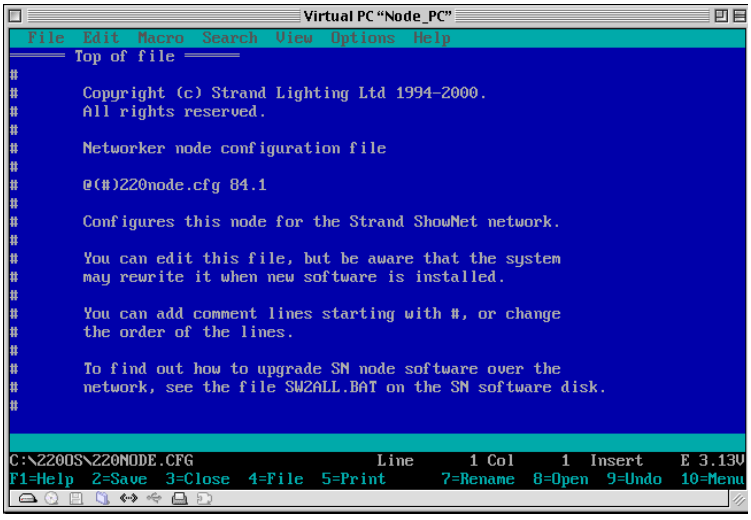
```
c:\220os
```

since this is the directory that the node software installs itself into. The Networker software will then install itself.

You now have to configure your remote console to allow it to work with the rest of your Strand network. Type

```
e 220node.cfg
```

which will allow you to edit the node configuration file.



You will have to pick a suitable address for your node - this number must be unique on your Strand network. A good choice is often 192.168.0.89. You can also give your remote node a name; this is the name which will appear on the console's net diagnostics screen. 'Node_Mac' might be a good name. So scroll down then edit these lines to read:

```
my_nodeaddr = 192.168.0.89
my_nodetype = sn100
my_nodename = Node_Mac
```

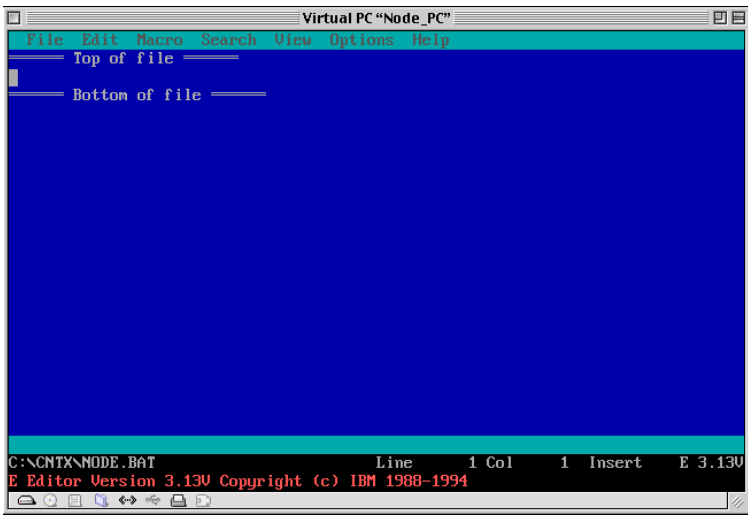
If you Strand network has a highly-specialised setup you may also need to edit other settings, such as the TCP/IP Netmask - but if in doubt, leave them unchanged.

Save this file by pressing the 'alt' or 'option' key to bring up a menu, then press the down arrow and move down to 'Save', then press Return. Then bring up the menu again and select 'Exit'.

You will now have to create a file that will setup and run the node software. Type

```
cd ..
e node.bat
```

'e' stands for edit; this will bring up a text editor with an empty screen




Type

```
cd 220os
dc21x4pk 0x7e
220sn /pc
```

[NOTE: there IS a space between pk and 0x, and between sn and /pc]

Then save this file by pressing the 'alt' or 'option' key to bring up a menu, then press the down arrow and move down to 'Save', then press Return. Then bring up the menu again and select 'Exit'.

Next, you will have to restore VirtualPC settings for this Virtual PC, which the installation software will have over-written. Type

```
copy autoexec.old autoexec.bat
```

and type ‘y’ when asked whether you want to overwrite the existing file. Then type

```
copy config.old config.sys
```

and type ‘y’ when asked whether you want to overwrite the existing file.

Finally, you have to alter the VirtualPC’s settings slightly. Type

```
e autoexec.bat
```

which will edit this configuration file.

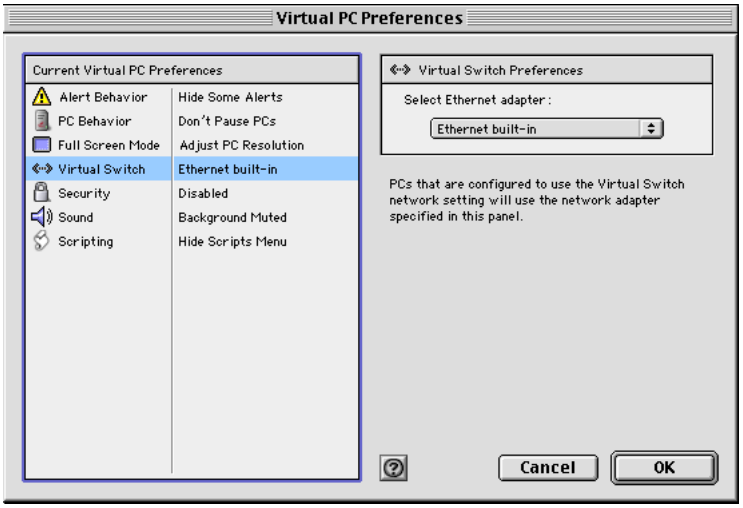
Delete the lines

```
fshare.exe
mouse.com
```

then save the file and exit the editor program.

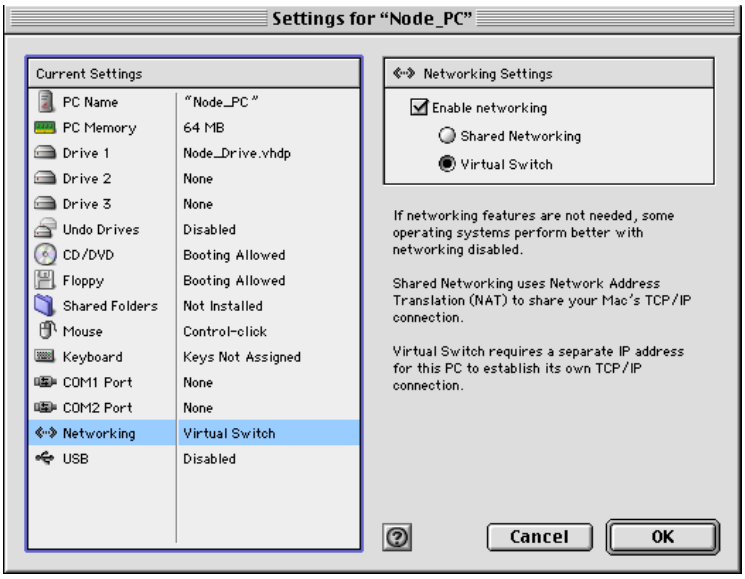
The Strand software is now configured and ready to talk to the network. However, you first have to configure VirtualPC to communicate with a network.

First, go to the Edit menu and select ‘VirtualPC Preferences’ (this option appears under different menus in VirtualPC 4 and 5, and in VirtualPC 6 for OS X).




Select the ‘Virtual Switch’ option. If you are connecting to the network via a cable connected to your Macintosh, select ‘Ethernet built-in’. If you are connecting wirelessly, select ‘Airport’. While here, select ‘PC Behaviour’ and ensure that ‘Pause Background PCs’ is not selected, to allow your Node to run alongside other VirtualPCs. Then press ‘OK’ to close that window.

Now open the ‘VirtualPC List’ window. Select ‘Node_PC’ and press the ‘Settings...’ button to bring up the Settings window



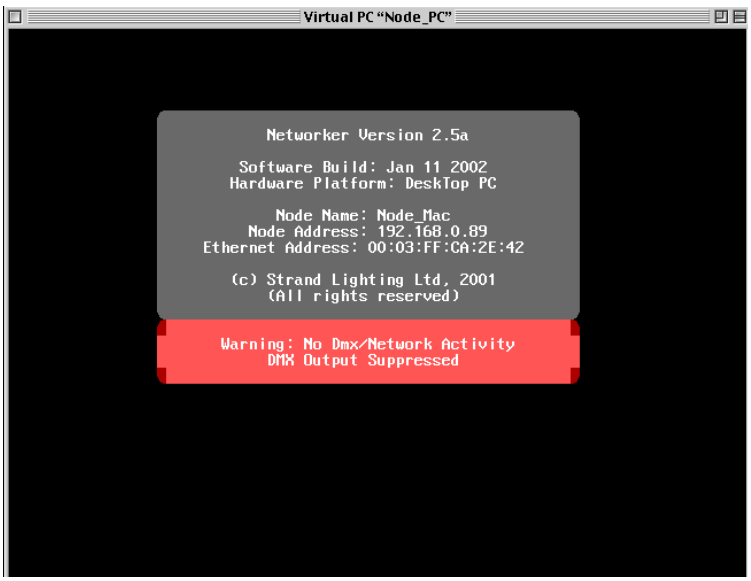

Select 'Networking'. Tick the 'Enable networking' box, then select 'Virtual Switch'

Then press 'OK' to close that window.

Now click in to your Node_PC window again. You can now start the remote console: type

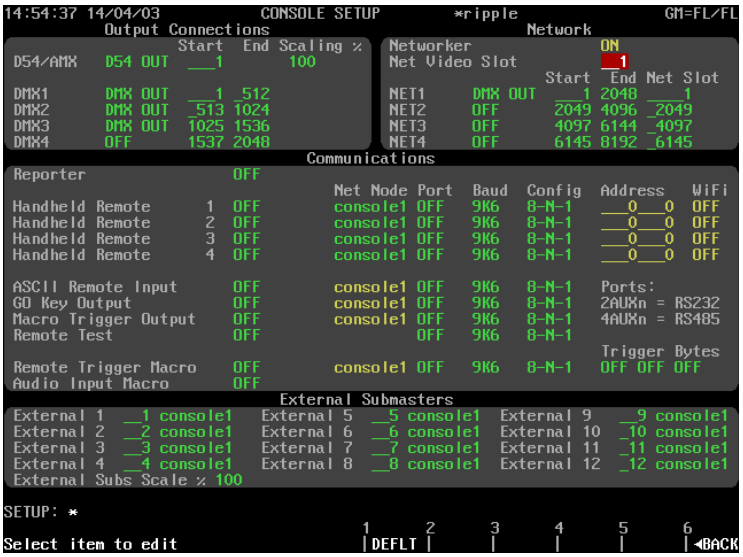
node

This should start the Node software. After a few moments you should see one of the screens from the main console appear. Pressing the '1' and '2' keys allows you to toggle between the console's two screens (or more, if the console has more than two screens).




If a message 'No Dmx/Network Activity - DMX Output Suppressed' appears in red, it means that the node can't find a console on the network or hasn't been properly connected to the network. If all the connections appear correct, check that the console has the NET Networker software installed and has networking turned on in its Console Setup screen.


If your screen just shows a number at the top, it means that a console has been found but that console does not have its 'Network Video' option turned on: [REPORT] {ADV SETUP} {CONSOLE SETUP}, then set 'Net Video Slot' to 1.




When you have finished using the Node window, simply close the Node_PC window. You will be asked whether you want to 'Save PC's State' (akin to putting a Macintosh to sleep) or 'Turn off PC' (akin to shutting a Macintosh down). You should chose 'Turn off PC' to ensure that the next time you use the node its network connections are properly re-established.

# Installing WYSIWYG and Using It With A Strand Network

Using Cast Lighting's WYSIWYG allows your Macintosh to show you a 'virtual' representation of what your lighting rig is doing, either alongside or instead of the numeric channel data available by using your Mac as a remote console or as a node. WYSIWYG can listen to the Strand ShowNet network to either show you what the lights are doing 'live' or, using the console's DMX-Preview setting, to have a 'virtual preview' of cues.

WYSIWYG runs under Windows 98 or later, and you will therefore need to have a Virtual PC running Windows 98 or later installed. Connectix sell 'Operating System Packs' that allow you to easily add new operating systems to existing VirtualPC installations, or you could buy a version of VirtualPC with Windows 98 to begin with, adding PC-DOS if necessary. Or, if you already own a copy of Windows 98 or later, you can install that into an existing VirtualPC setup, subject to Microsoft's licensing agreement.

Having set-up a new VirtualPC running a suitable version of Windows, you can then purchase WYSIWYG and install it as per Cast Lighting's instructions.

To operate, WYSIWYG requires a USB 'dongle' to be connected. You may find that if the dongle is connected to the USB port of your Mac before you open the Windows VirtualPC, it will not be recognised by WYSIWYG. The solution is simply to remove then replace the dongle, then re-run WYSIWYG.

To allow WYSIWYG to listen to a Strand ShowNet network, a small network driver must be installed. This driver, called 'lxstrand.dll', is included with the 'cn' network installation software. If you have installed either the Remote or Node software as described above, you will already have this drive, otherwise download the 'cn' software from the Strand website. You will need to copy the driver to your Windows VirtualPC. To do this:

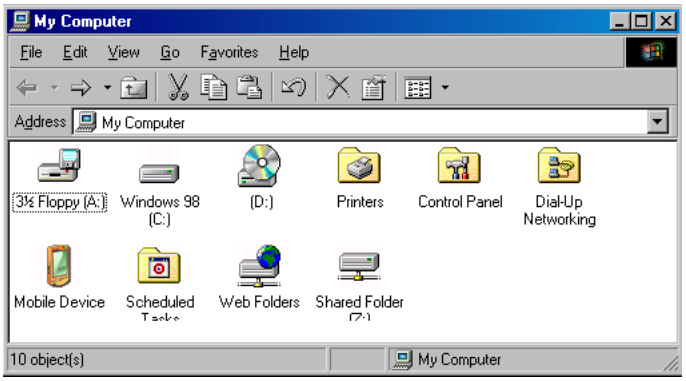
Open your Remote_PC.
Move to the Strand directory by typing

```
cd 2.6d
```

Copy the driver to your shared folder by typing

```
copy lxstrand.dll z:
```

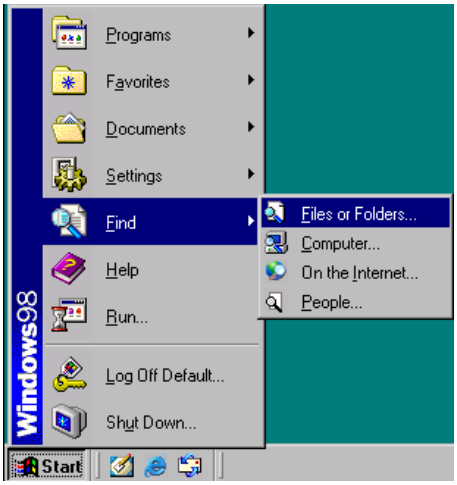
Close your Remote_PC
Open your Windows PC
Locate the Z: drive, which is the shared folder drive by default (this can usually be found by double clicking on 'My Computer' then double clicking on 'Shared Folder (Z:)' to see the contents of the Z: drive)

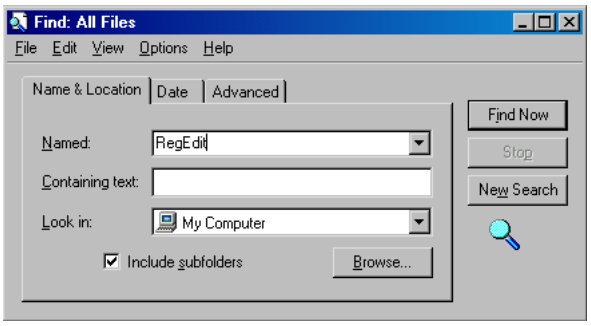


If you do not appear to have a Z: drive, follow the instructions under ‘Installing VirtualPC’ on page 7 to configure your Windows PC to use a shared folder.

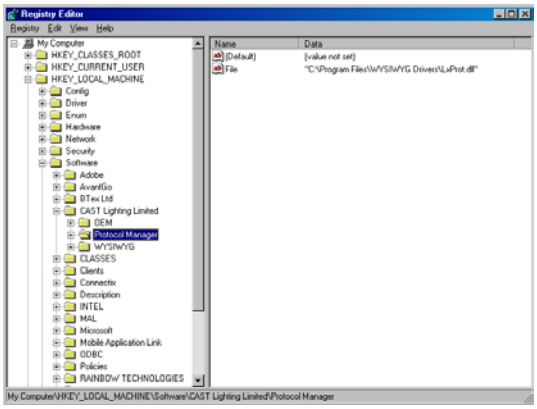
Once you have found the lxstrand.dll driver, you should move it to the WYSIWYG Drivers folder, which can usually be found by clicking on ‘My Computer’ then ‘C:’ then ‘Program Files’, then scrolling down. If you can’t find the lxstrand.dll driver, Windows may be hiding it from view: select the folder the file is in, select ‘View’ then ‘Folder Options’ then the ‘View’ tab, then select ‘Show all files’ under ’Hidden files’.

You now need to tell WYSIWYG to use this driver using a Windows program called ‘RegEdit’. The quickest way to locate RegEdit is to click ‘Start’, then ‘Find>’ then ‘Files or Folders’. Type ‘RegEdit’ then press ‘Find Now’. Once found, double click on it to run the program.



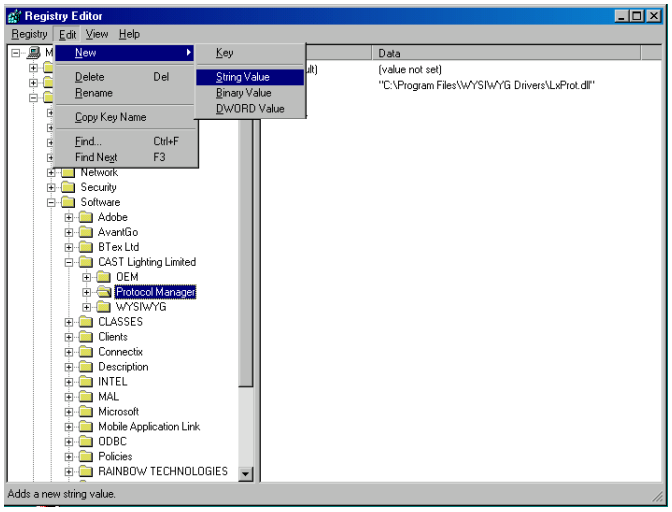




Within RegEdit, double click on HKEY_LOCAL MACHINE, then double click on Software, then double click on CAST Lighting Limited



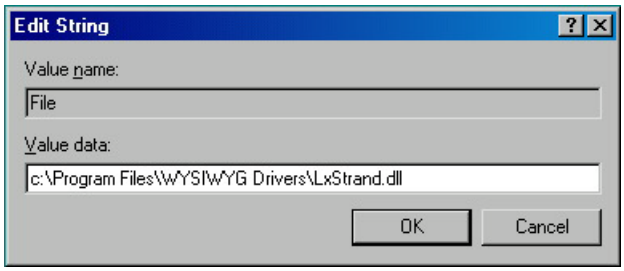

Then double click on Protocol Manager and, from the ‘Edit’ menu select

'New Key'. A new folder will appear; give it a name by typing 'Strand Shownet'.




Now select 'Edit > New > String Value'

A new entry will appear on the right of the screen. Type 'File' then press Return. Then double-click on 'File' to open a new window




In the 'Value data' area, type

```
c:\Program Files\WYSIWYG Drivers\LxStrand.dll
```

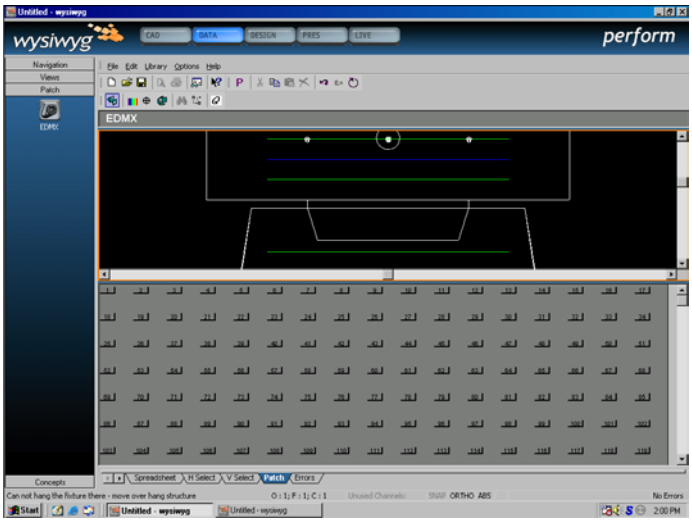
then press 'OK'.

Then press the small 'x' at the top-right of the RegEdit window.

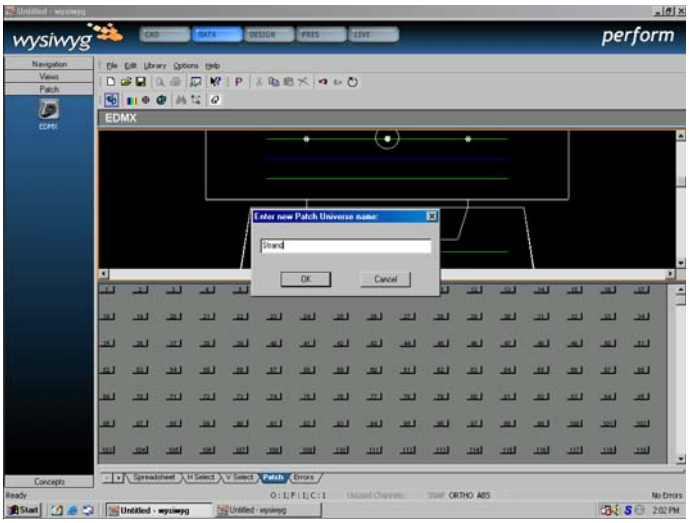
Because WYSIWYG has to detect its USB dongle to run, make sure that your Windows Virtual PC has USB operation enabled: select the Windows PC then press 'Settings' then 'USB' then make sure 'Enable USB' is selected.

You can now run WYSIWYG to draw your lighting rig, following the instructions provided by CAST Lighting. Once drawn, you will have to patch your rig so that the DMX start addresses for the moving lights and dimmer addresses for conventional lights correspond to those in the soft-patch in the lighting console.

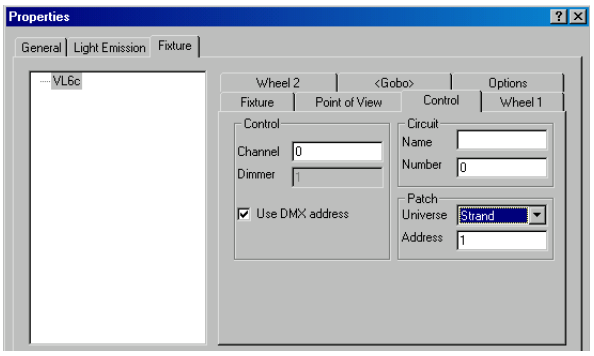
In the 'Data' section of WYSIWYG, click on the 'Patch' tab at the bottom of the screen, then the 'Patch' bar on the left of the screen




You will probably see an icon entitled ‘EDMX’. This is for patching show’s using ETC’s network DMX. You want to use Strand’s ShowNet instead, so hold down the CTRL key and click in this area of the screen. A pop-up window will offer ‘New Patch’ as an option. Select that and, when asked for the new Patch Universe name, enter something memorable, such as ‘Strand’

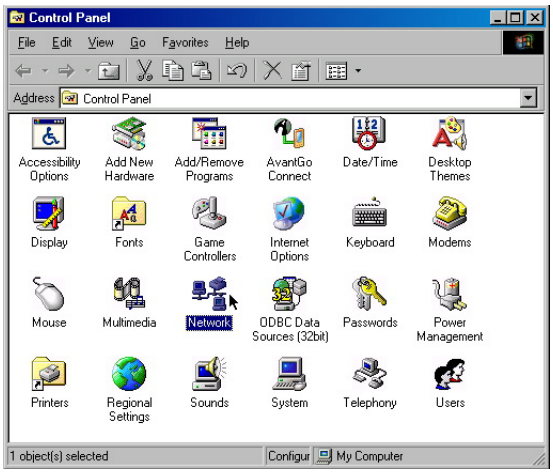



You can now patch your various lights and moving lights: double click on each and select the ‘Fixture’ tab in the window which appears, then the ‘Control’ tab in the right-hand side of that window.

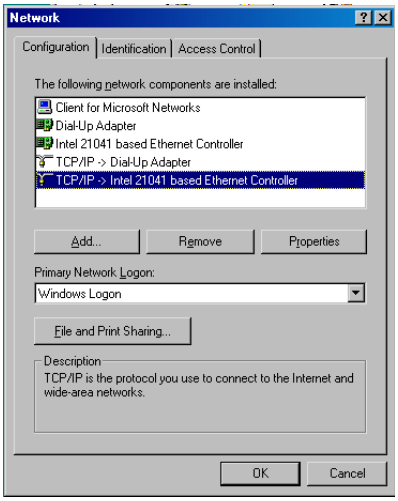



Under ‘Universe’ select Strand, then enter the start address as set on that fixture. Alternatively you can follow the other patching techniques as described in the WYSIWYG documentation.

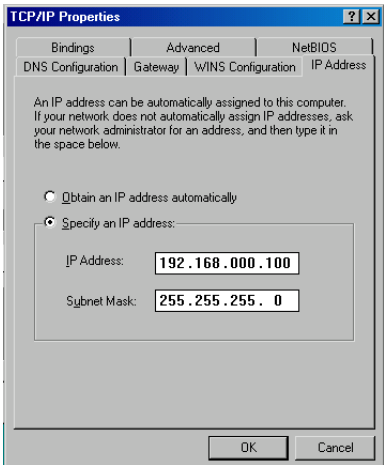
Once the rig has been patched, you need to get WYSIWYG to listen to the Strand network. To do this will first involve configuring Windows, so save your WYSIWYG file and exit into Windows. There press Start then select Settings> Control Panel.




Now double click on the Network control panel

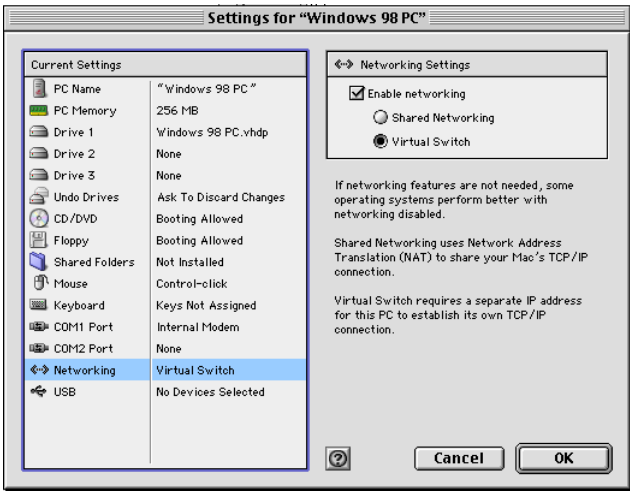



Select the TCP/IP-> Intel 21041 based Ethernet controller, then press Properties. Click on 'Specify an IP Address, then enter an IP address which is not used by any other equipment on your Strand network. 192.168.000.100 is often a good choice. Also enter the subnet mask, which will usually be 255.255.255.0




Press 'OK' then 'OK' again.

You now have to configure the Windows VirtualPC correctly. Shut down Windows (Start>Shutdown) then close the Windows PC Window. Then from the VirtualPC list select the Windows PC then press 'Settings...' Select 'Networking' and ensure that 'Enable Networking' is ticked and that 'Virtual Switch' is selected.

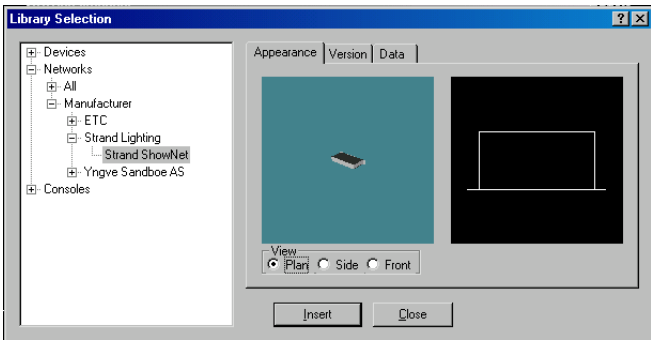



Then press 'OK'. You may also have to go to the VirtualPC Preferences box, as described on page 15, to select whether you are using a wired or wireless connection to the Strand network.

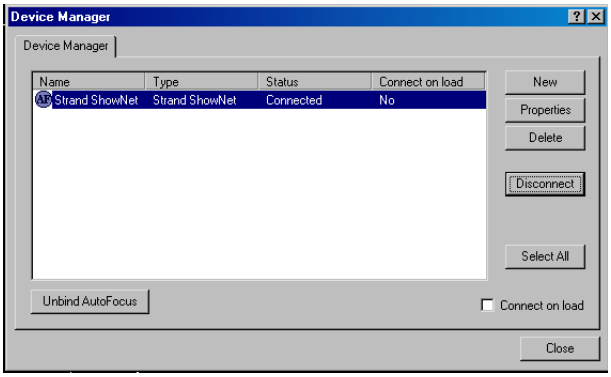
Note that if you use the Windows VirtualPC to run other Windows software which accesses the Internet, you may have to toggle these VirtualPC and Windows settings between connecting WYSIWYG to a Strand network and using your other software.

Now start the Windows VirtualPC again, and run WYSIWYG. Open your file then switch to LIVE mode.

If you now select 'Live' then 'Device Manager', you will be able to insert a 'Strand ShowNet' network: press 'New' then select Networks then Manufacturer then Strand Lighting then Strand ShowNet and press 'Insert'.

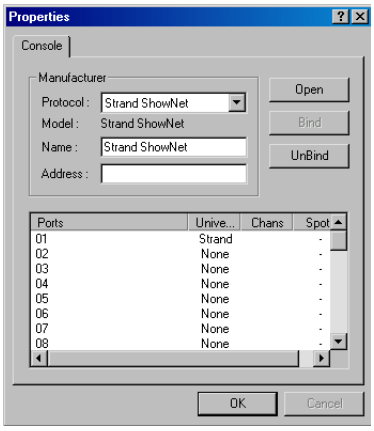


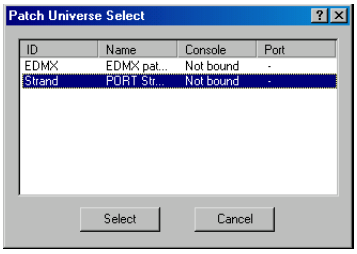

You should now be able to select 'Strand ShowNet', then press the 'Connect' button. This should make WYSIWYG start listening to the data being transmitted on the Strand network.




If it fails to connect, ensure that your Macintosh is correctly connected to the network, and that the console is set to transmit DMX over the network - under [REPORT] {ADV SETUP} {CONSOLE SETUP}, ensure that NET DMX is set to OUTPUT and to the correct range of DMX values.

Finally, you have to tell WYSIWYG which Strand DMX universe to match to which WYSIWYG DMX universe. Select Strand Shownet then press 'Properties'. This will give a list of 36 ports each corresponding to one DMX universe.

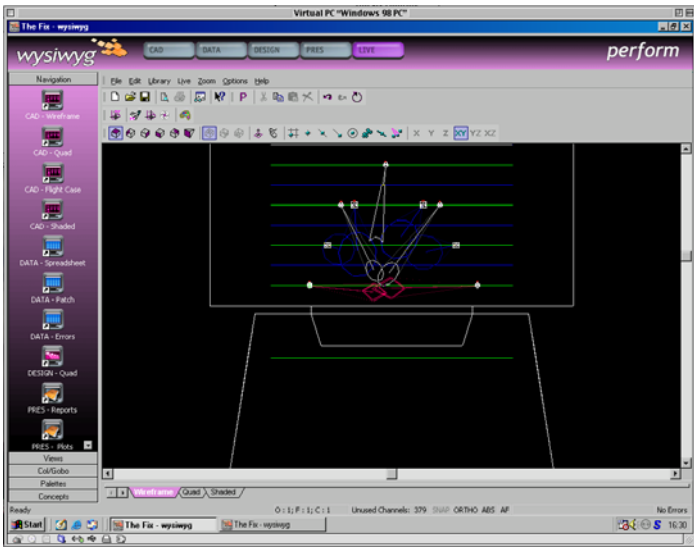



Double click on a relevant port and select 'Strand' to make it follow the data on the Strand network.

Note that in complex system set-ups, some thought may be required to match the WYSIWYG Port number to the correct 'slots' on the Strand ShowNet network, since a console can be configured to send out DMX universes to different network slots. If using more than one DMX universe, you will need to create more Strand patches in WYSIWYG.

In normal operation, WYSIWYG will show the lighting state as it appears on stage, with moving lights displaying their correct positions and colours. If the lights do not appear to be moving on WYSIWYG as they are in real life, you should check that the addresses they have been given in WYSIWYG match the addresses they have been given in real life, and that the units have been hung in the same way in WYSIWYG and in real-life, since a unit that has been hung in a different orientation will appear to move in a different way.




It is also possible to configure the system to allow WYSIWYG to display cues that are being previewed on the console. To do this, you must make use of the console's DMX PREVIEW option. In normal use, the console will always send the current 'live' state out as DMX data to the dimmers, moving lights etc, and this is normally correct. DMX PREVIEW works slightly differently. When you are in LIVE, the 'live' state is sent out as DMX data, but when you are in a PREVIEW display, the state you are looking at in preview is sent out as DMX data - in other words the lights follow the cue you are looking at in preview.

This behaviour would normally be wrong (-you'd prefer the lights to stay where they were while you looked at cues in preview). However, it becomes very useful when combined with WYSIWYG, since it allows you to preview cues using WYSIWYG. The trick is to send the same data out twice, once in normal 'DMX OUT' mode to the lights, and once in 'DMX PREVIEW' mode to WYSIWYG.

If you were using one universe of DMX data, you could therefore configure your network DMX settings ([REPORT] {ADV SETUP} {CONSOLE SETUP}) as:

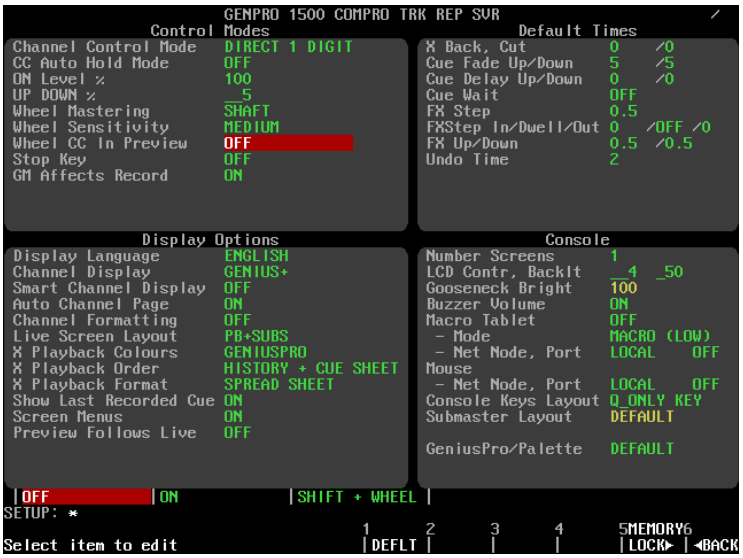
| | | | | |
|---|---|---|---|---|
| Net1 | PREVIEW | 1 | 512 | 513 |
| Net2 | DMX OUT | 1 | 512 | 1 |
| Net3 | OFF | | | |
| Net4 | OFF | | | |

WYSIWYG would then be configured to listen to network DMX outputs 513-1024 (WYSIWYG port 2) while any network nodes outputting DMX data would output DMX channels 1 to 1024 correctly.

When using multiple remote consoles in a system, Net1-Net4 correspond to consoles 1-4 when set to DMX PREVIEW - so in the set-up above, WYSIWYG would show cues previewed by console 1, which would normally be the 'real' console in the system. If you want to preview cues you are looking at on your Macintosh on WYSIWYG running on your Macintosh, your Mac would normally be console 2, so you'd have to configure the network DMX as:

| | | | | |
|---|---|---|---|---|
| Net1 | DMX OUT | 1 | 512 | 1 |
| Net2 | PREVIEW | 1 | 512 | 513 |
| Net3 | OFF | | | |
| Net4 | OFF | | | |

With DMX PREVIEW in use, it is also possible to set moving lights in preview using WYSIWYG. By default this isn't possible as the channel control wheel, trackball and rotary encoders aren't available in preview (since the wheel and trackball are used for scrolling through the cuelist). However, under USER SETUP there is an option called 'Wheel CC In Preview' that controls what these encoders do in Preview.




When it is set to 'OFF' they are used for scrolling through the cuelist. When set to 'ON' they are available for controlling lanterns, exactly as they are in LIVE. To scroll through the cuelist you have to hold down the SHIFT key then move the wheel or trackball. When set to SHIFT+WHEEL the inverse applies - the controllers scroll through the cuelist unless you hold SHIFT, in which case they will control a selected lantern.

Using this function, it is possible to check and correct cues in WYSIWYG before they actually appear on the stage in addition to using WYSIWYG just to check or pre-program cues 'live' - with or without the real rig of lights present.

When you have finished using WYSIWYG, you should leave the program by selecing 'Exit' from its 'File' menu. You should then close the Windows VirtualPC window, selecting 'Shut down Windows' then pressing 'OK'. In VirtualPC 6 you will be presented with options about 'carrying forward undoable changes'; these allow you to recover lost or deleted files under certain circumstances, and you should refer to the VirtualPC documentation for more details. Normally you will want to select 'carry forward undoable changes'.

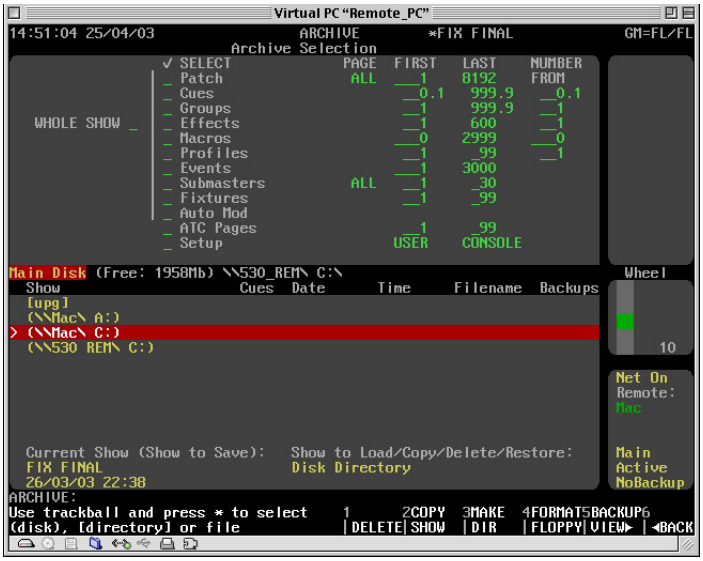
It is possible to select 'Save PC's state' instead of 'Turn off PC' without first shutting down Windows. This is akin to putting a Macintosh to sleep and can make it quicker to get Windows up-and-running the next time you use it. However, re-starting a PC with a saved state sometimes results in the WYSIWYG dongle not being recognised by the VirtualPC and so is not recommended when using WYSIWYG.

# Saving Shows Directly To Your Macintosh

When you are using a console with a Macintosh connected as a remote console, you may want to save the showfile to your Macintosh as well as to the console's built-in hard drive - for example, as an extra backup or because you want to work on the show away from the theatre (using the off-line editor in your Macintosh) overnight.With your Mac connected to the console, you can save showfiles directly to your Mac's hard drive, and load showfiles directly from your Mac's hard drive, saving the need to save to a floppy disk then load the floppy disk into your Mac or console.

Note that prior to software version 2.6d, this functionality was only possible on consoles with the Server software installed. The Server software still offers some additional functionality (see page 44 for a summary), but all consoles that can connect to a Macintosh can now save and load files in this way.

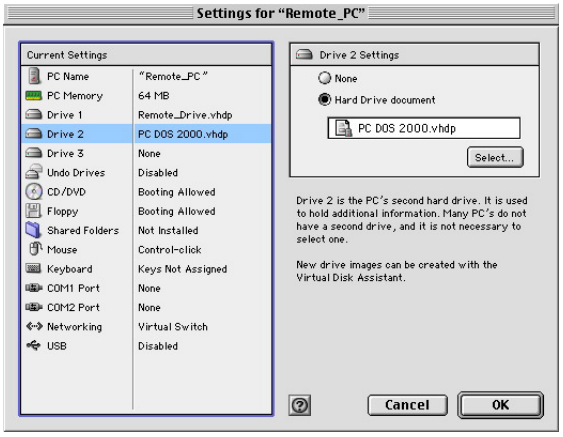
If you connect your Mac to a console as a Remote, then select Archive on the Mac (ctrl-F8 is the keyboard equivalent), you will see the console archive screen but will also see an additional 'C:' drive with the name you gave to your Mac's remote console setup next to it - if you followed the Remove Console set-up in this document exactly this name will be 'Mac' and so you will see "(\\Mac\C:)" This is the Virtual PC hard drive for your Remote_PC - the hard drive called Remote_Drive if you followed the set-up procedure described earlier.




You can now save files to and load files from this hard drive as you would normally save and load files to the console's hard drive (F3 is the keyboard equivalent for 'Browse Files').

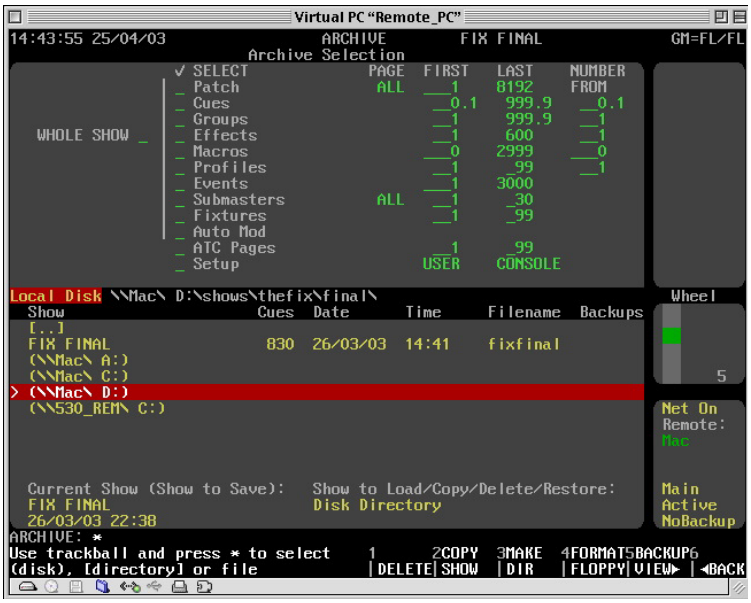
While this provides a useful way of making backup copies of showfiles, it does not immediately allow you to open these files in your off-line editor, since in the configuration described above that uses a different Virtual PC hard drive. However, this problem is easy to overcome since each VirtualPC can connect to more than one hard drive.

To achieve this, shut down your Remote_PC Virtual PC. Then in the Virtual PC List window, select the Remove_PC and press 'Settings.'




Now select 'Drive 2' and then click on 'Hard Drive document'. VirtualPC will ask you to select a VirtualPC hard drive file. Select the hard drive file for the Virtual PC that you use for your off-line editor - if you've followed this document, this will be called 'PC DOS 2000', which will be inside your VirtualPC application folder. Select this and press 'OK', then press 'OK' again (note that if the PC DOS VirtualPC is running, VirtualPC will not allow you to do this because it will consider that the PC DOS 2000 hard drive is already in use; if this happens close the PC DOS VirtualPC and try again).

Now when you start your Remote_PC again, it will have access to the PC DOS 2000 hard drive, as its D: drive. This means that when you select the Archive screen on your Mac, you will see a '\\Mac\ D:' drive.



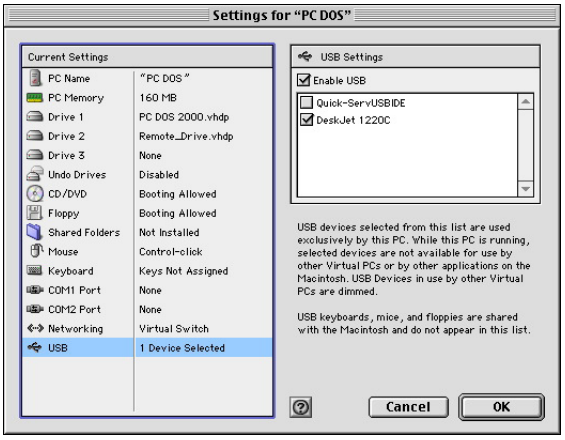

Files you save to this drive will be available to your off-line editor. You can work on them, then re-load them into your console directly.

***IMPORTANT NOTE:***

If you open your PC DOS (off-line editor) Virtual PC while the Remote_PC is running and configured to use the PC DOS 2000 hard drive in this way, the PC DOS VirtualPC will not be able to save changes to this hard drive (VirtualPC will warn you of this as it opens the PC). You should either close the Remote_PC or set its Drive 2 back to 'None' while running the PC DOS VirtualPC.

# Printing Shows From Your Macintosh

VirtualPC supports printing from PC programs to printers connected to the Mac's USB port. To enable this, the USB printer must be connected to your Mac and its Macintosh printer drivers must be installed on your Mac. You then have to enable USB printing and select the printer in the Settings window for the VirtualPC you wish to print from.




You can utilise printing in two ways - either by printing a showfile directly from an off-line editor, or by using the Mac to route the printout from a console to a Macintosh printer.

To print from the off-line editor, go to the Print options by pressing [ARCHIVE] {PRINT}, the keyboard equivalents of which are ctrl-F8 F4, then selecting what you wish to print. In the Printer Setup area of the screen, select a printer type to suit your printer (this may take some experimentation to find the best match; if in doubt select ASCII OUT). Leave the Port set to LPT1, and the Net Node set to Local. When you now press PRINT SHOW (F1), the printout should be routed to your printer.


An alternative to printing to paper is to print to a text file, which can then be opened in Excel or a similar application. This can be a useful way of getting a cue list with cue times from the console into another document without retyping (though if you want to extract the whole show including

cue data in this way, a more efficient method might be to use Strand's ShowPort utility, which can convert show data to other formats).

To extract a cuelist, select 'Cues' and a suitable cue range to be printed, but make sure 'Print Channels' and 'Add Attributes' are not selected. Then in Printer Setup set the Type to ASCII OUT and the Port fo FILE. Note the filename which appears to the right of the word file, which will be in the form

```
c:\shows\name.prn
```

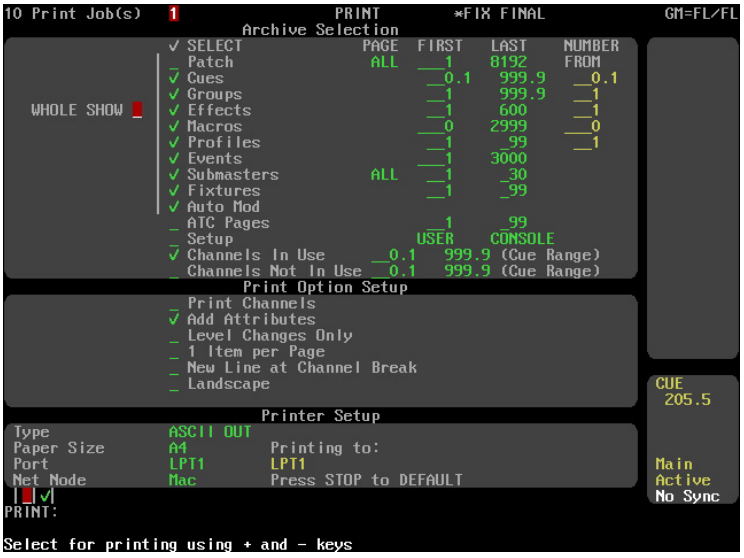
This shows the directory the file has been stored in (the '\shows' part) and then the name of the file. The directory used is the last directory selected in the Archive screen. To make the file easy to find in DOS, keep selecting '[..]' in the Archive screen until you are shown as being in just 'C:' prior to printing.

When you next exit exit the off-line editor into DOS, you will be able to copy the file to the shared folder of your Macintosh. Assuming that you printed the file to 'C:' as above, and provided that your VirtualPC settings have shared folders enabled (see page 8), you can copy the file to your Mac by typing

```
cd ..
copy name.prn z:
```

You should then be able to open the file using any suitable Macintosh program.

To print from a console via your Macintosh, you need to have either your Remote PC and/or Node PC running and connected to a console, and with your USB Printer enabled as described above. When you select Printing on either the console or your Remote PC and set the Port to LPT1, you will be able to set the Net Node to either your Remote Mac or your Node Mac.




When you press {PRINT SHOW}, the printout should appear from the printer connected to your Mac. For more details, refer to the relevant VirtualPC documentation.

# Connecting to Wired Networks

Connecting your Macintosh to a wired Ethernet network involves the use of a 'Cat-5' ethernet cable, which uses RJ45 connectors which resemble oversized American telephone connectors. There are, however, two types of cable:

- a standard cable. This is used when connecting a number of items of equipment together through an ethernet 'hub' or 'switch' - a device that looks like an 'splitter'. In a theatre a hub might have one cable going to each of the console, the backup console and one or more Strand network nodes. Some hubs have a port labelled 'uplink' which is used to connect the hub on to another hub. To connect your Macintosh to a hub, use a standard cable and connect it to any of the ports on the hub apart from the uplink port (-on some hubs the uplink port can be switched between normal and uplink use; in this case you can use the uplink port as long as you set it to 'normal').

- a crossover cable. This is used when your are only connecting two devices together - for example, your Macintosh to a stand-alone console; it is so-called because two of the wires are reverse-wired at one end of the cable. A standard cable won't work in this situation. Conversely, you can't use a crossover cable to connect your Macintosh to a hub (unless you are connecting to the uplink port on a hub).

  Apple has confused the issue slightly with their latest laptops, from the 15" Titanium PowerBook G4 onwards. These can connect directly to another device using a standard ethernet cable where you would normally have to use a crossover cable. Unfortunately if you do try to use a crossover cable in this situation, as you would expect to, things won't work!

  In general, wired ethernet connections are reliable. If you experience problems you should first check that you are using the correct type of cable, and that it is plugged correctly (ie. not into an uplink port on a hub). You should then check that the connectors are pushed fully and securely home - a common problem is for the clip on the top of the connector to become damaged and for the cable not to remain fully seated in the connector.

  If you experience a very slow or unreliable connection, particularly when using a long cable run, it is likely to be because the cable is damaged in some way. You should replace the cable at the earliest opportunity.

  Strand's ShowNet can co-exist with other network data, such as Apple's Appletalk. It is therefore possible to set-up one network that carries lighting data between the consoles, nodes and Macintoshes as well as other data (such as shared files and printer data) between Macs and printers. However, this is not recommended in show-critical applications since the bandwidth available for the lighting data may become constricted without warning by other network traffic.

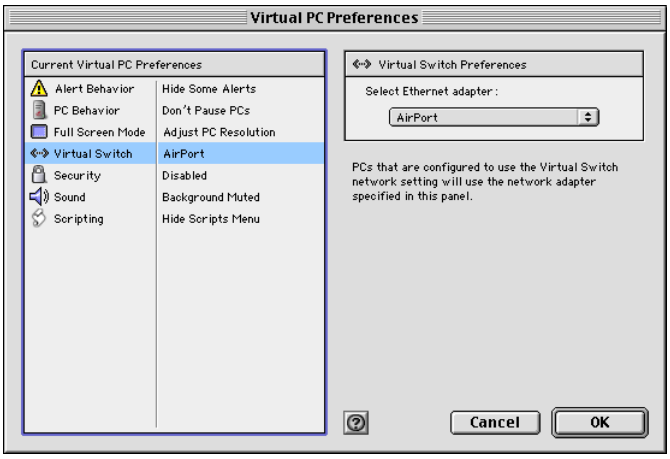
  Further information about ethernet and Strand ShowNet can be found in the *Shownet Design Guide*, which can be downloaded from the Support> Tutorials section of the Strand website, www.strandlighting.com.

# Connecting to Wireless Networks

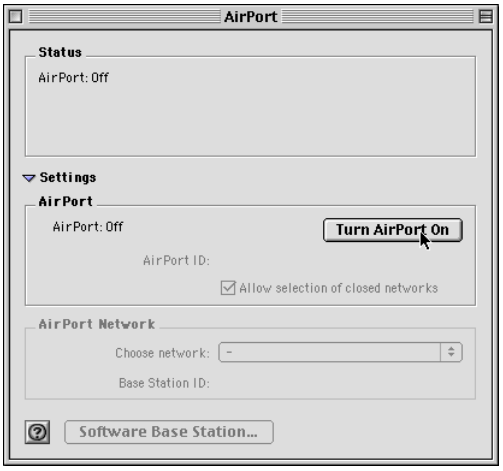
Late-model G3 PowerBooks, second-generation iBooks and all G4 Powerbooks can be fitted with an Airport card - Airport being Apple's brand name for the industry standard 'WiFi' IEE802.11b wireless ethernet protocol. Airport-equipped Macs can communicate with any IEE802.11b wireless device.

Strand ShowNet network data can be sent and received wirelessly by adding any of the commonly available IEE802.11b base stations to a Strand ShowNet network. Some theatres already have this kind of base station on their network as they are also used by the Strand iPaq handheld remote control. In a set-up with just one lighting console, the wireless base station can be connected to the console's network port using a crossover cable. In more complex installations it can be connected to a spare port on a network hub. Data will then be transmitted exactly as for a wired network - in other words, network DMX data and video data will be sent as per the Network DMX and Net Video Slot settings in the CONSOLE SETUP screen. The WiFi application software is not needed for this - it is only needed if the iPaq remote is to be used.

With a Mac running VirtualPC set to use Airport (by selecting Airport under the 'Virtual Switch' setting of VirtualPC's Preferences), all of the functions described - node, remote PC and WYSIWYG - can take place wirelessly.




You just need to make sure that the Mac has an Airport card installed, and that it is switched on (select the Airport control panel and press 'Turn Airport On')



With Airport on, you should be able to see a signal strength meter showing the wireless network. If other wireless networks are available in the building (for example, an office network) you can select which network to join from this control panel.

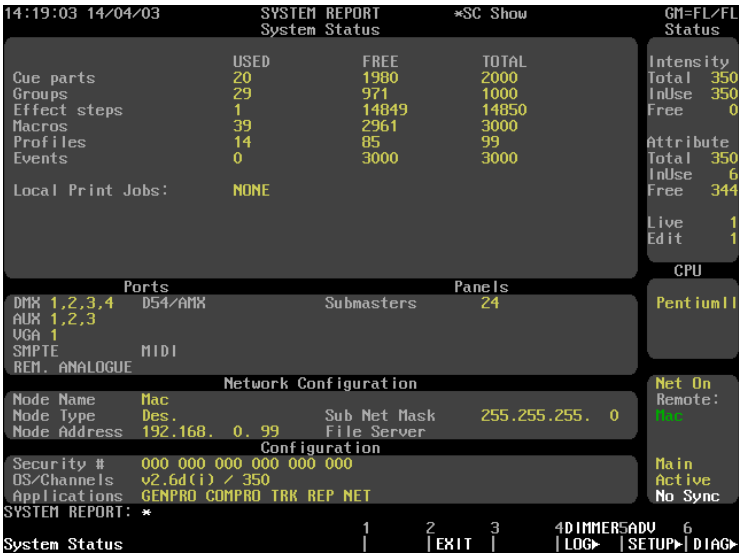
The operating speed of an IEE802.11b network is dependent on its signal strength. In areas of low signal strength you may experience slowdowns in the response of the node, remote and WYSIWYG PCs - in the Remote_PC if commands are not appearing as you type them it is because the Mac is losing contact with the console. Care with the positioning of the wireless base station can help with this - perhaps locating it on stage instead of in the control room to ensure coverage under a balcony, for example. Alternative antenna are often available for the base stations to improve signal strength. However, Strand do not recommend using WiFi for carrying 'show critical' data, such as the DMX data from the lighting console to the dimmer, unless the link can be proven to work prior to being used in a show.

Older Macintosh PowerBooks (first and second generation G3s and all earlier models) do not contain the internal slot required for an Airport card. However, those models that include a PCMCIA Card slot can be fitted with a Wireless PC card to add wireless network functionality. Not all Wireless PC cards are compatible with Macintoshes, but those made by Compaq (as supplied by Strand with the iPaq remote) and Orinoco (and others where the card is actually based on the chipset from Agere Systems) do function. Suitable Mac driver software and control panels can be obtained from www.proxim.com; these will appear as their relevant brand name rather than AirPort in the VirtualPC Preferences window.

The latest PowerBooks (from the 12" and 17" G4 PowerBooks onwards) include Airport Extreme cards; this is Apple's brand name for IEE802.11g, a faster version of the IEE802.11b standard. These cards remain compatible with existing IEE802.11b networks, but the entire wireless network will operate at the speed of the slowest transmitter in use.

# Console Software Requirements

For a Strand console to support network activity, it must have the Networker application program installed. You can tell whether a console has Networker installed by pressing [REPORT].



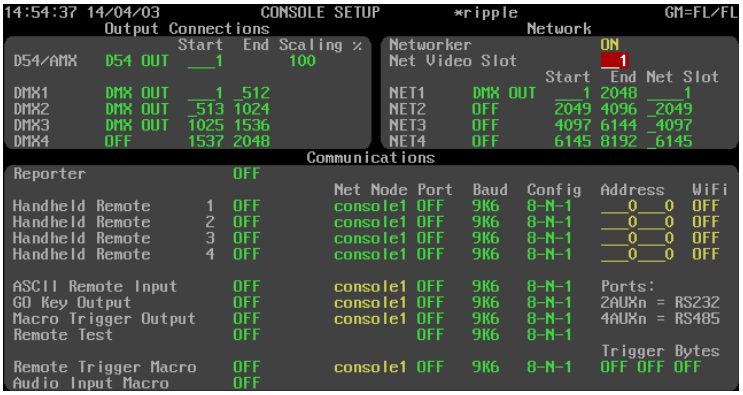

If 'NET' appears next to 'Applications' in the 'Configuration' section of the screen, the Networker application is installed. If it is not installed it can be purchased from Strand Lighting.

Note that very early consoles did not have a network card installed as standard. In addition, a network card is not a standard feature of 300-series consoles.

Note also that a Main console must be present in the system if DMX output is required. In particular, this means that you cannot use WYSIWYG to visualise the lighting from the off-line editor software.

# Console Configuration

For Network data to be available, it must be enabled in the Main console. These settings are found under REPORT > ADV SETUP > CONSOLE SETUP.




For all activity, 'Networker' must be turned ON. If the console does not

have the Networker application installed, this setting will not be available. If the console does have the Networker software installed but this option is still not available, the 'cn' software has not been installed on the console.

For network nodes and Macintoshes used as Nodes to display video, 'Net Video Slot' must be set to a number. This number can be between 1 and 9; for a system with one Main console it will generally be set to '1'.

To send DMX data over the network, it must be enabled and the console told which data to send over the network. The simplest configuration is to send as many DMX ports as are being used over the network. For example:

```
NET1   DMX OUT    1   2048    1
NET2   OFF
NET3   OFF
NET4   OFF
```

will send the first four universes of DMX out over the network. Network DMX configurations will vary when multiple Main consoles are used on the same network, or when using DMX PREVIEW with multiple consoles - see page 32.

## Numbers of Remote Consoles and Nodes

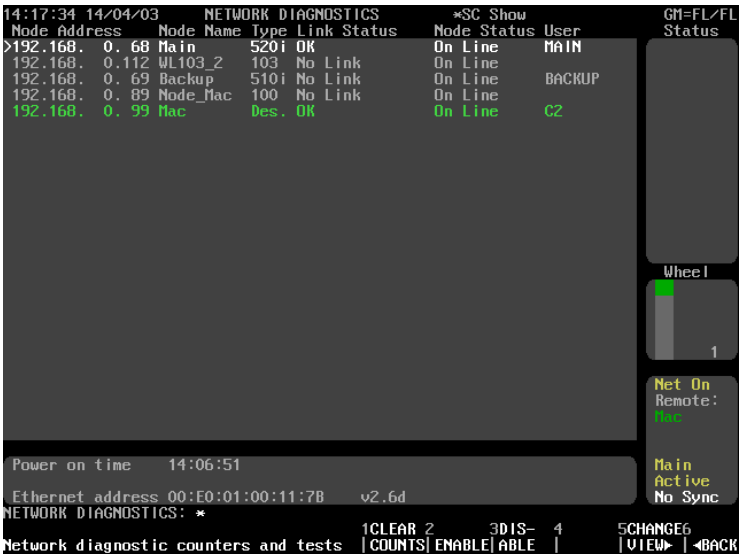
Different Strand consoles can support different numbers of remote consoles, up to a maximum of four remote consoles:

- Standard 300-Series consoles cannot support remote consoles.
- 310-Series consoles can support one backup console plus one remote console.
- 'Non-i' 400- and 500-Series consoles can support one backup console plus one remote console (note that not all 430 consoles have a network card installed).
- 'i' 500-Series consoles can support a backup console plus up to four remote consoles.

A Macintosh configured as a remote console counts as one of these consoles, so for each 500i Main console in your system you may also have one Backup console and then four further Remote consoles, Remote Macintoshes, Remote PCs or any combination thereof.

A system may have any number of nodes.

You can keep track of the devices currently connected to your network by pressing [REPORT] then {DIAG} then {NET DIAG}.




This will display a list of network devices currently connected, including consoles and nodes, complete with their IP address and their network name. Note that any connected WYSIWYG systems will not appear on this screen.

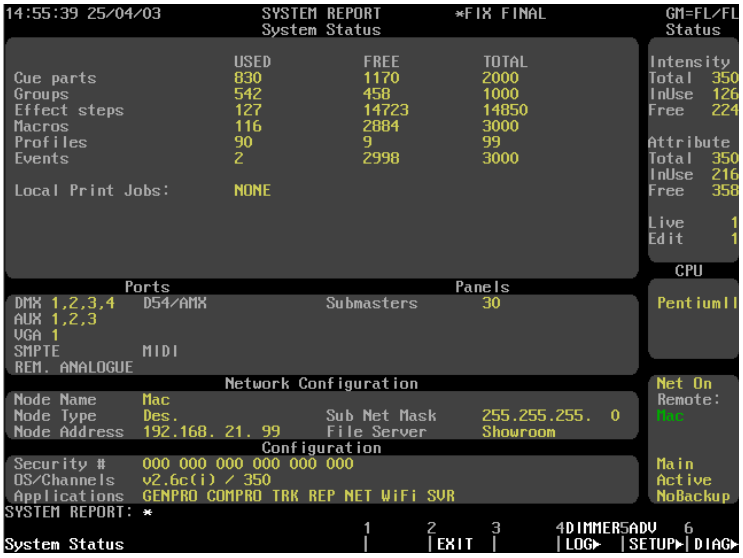
A device that is “on line” is currently available on the network.

A device that is listed but shown as “off line” has been active on the network at some point since the Main console was last switched on, but has since lost contact with the console (ie. it has been switched off or disconnected from the network).

Link status indicates whether the device is ‘talking back’ to the main console. Remote consoles should show a link status of ‘OK’. Nodes will show a link status of ‘No Link’ unless they are talking back to the Main console in some way - most usually if a handheld remote is connected to the Node.

# Consoles with Server Software

Consoles that have the SERVER application software installed (SVR next to 'Applications' after pressing [REPORT]) can be configured to support different remote users as well as just remote consoles, allowing different users to have access to different functions in the system (for example, to allow certain users to look at cues but not edit them). Refer to the Server documentation for more details.

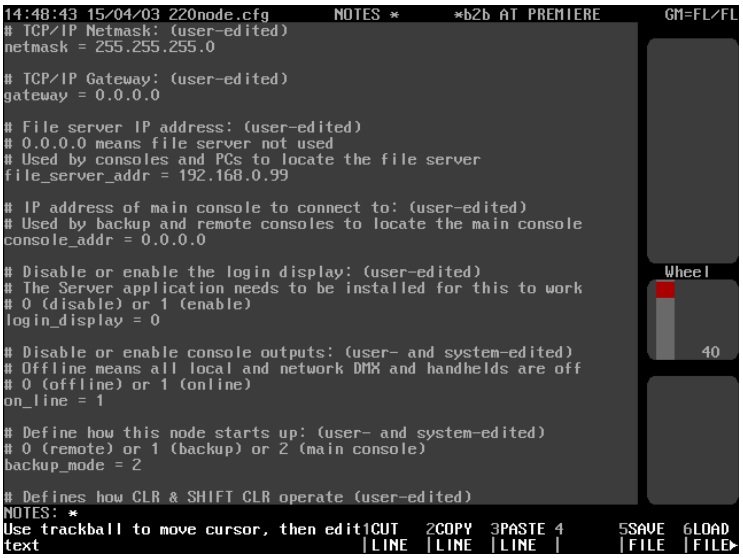



Consoles with Server software can also save show files to a remote 'Server' computer in addition to saving them on the hard drive of the main console. If such systems do not have a central server, it is possible to configure them so that a Macintosh computer connected to the network appears as the Server, so allowing you to save files to, and load files from, the Virtual PC hard drive on your Macintosh directly, rather than having to first copy them onto a floppy disk.

Note that from software version 2.6d onwards, this functionality is also possible without the Server software being installed, or, if Server is installed, with the standard file server and the Macintosh being accessible simultaneously. This also means that the configuration described here is not required. See page 34 for details of saving to your Macintosh in this way.

If you do wish to configure your Mac as a Strand fileserver, you must set up your Mac to function as a Remote Console, as described on page 15. You must then note the IP address you assigned to this Macintosh and set your console to use this as the address of the fileserver. If you followed the set-up procedure as described, this IP address will be 192.168.0.99.

To configure the console, you need to edit its node configuration file. Press:
[MORE] {NOTES DISP} {LOAD FILE} {CONF FILES} {NET CONFIG}




Then scroll down and set the File server IP address to be the same as the IP address of your Macintosh Remote Console:

```
file_server_addr = 192.168.0.99
```

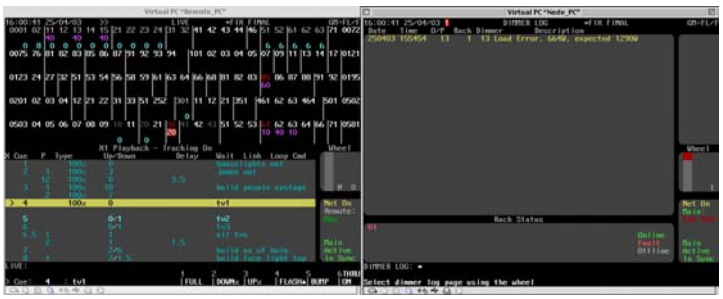
Then press {SAVE FILE}.

The changes will not take effect until the next time you switch your console on. However, once you have done that then the next time you have your Mac connected to the console and have the Remove Console software running on your Macintosh, when you go to the [ARCHIVE] display on the console you will see the VirtualPC hard drive on your Macintosh, which you can select for saving and loading files exactly as you would for

This will, for example, allow you to quickly transfer a showfile from the console onto your Mac for later editing in the off-line editor, then allow you to quickly load that edited file back into the console without having to use floppy disks. See page 34 for information on moving files from the Remove PC to the off-line editor and back.

# Consoles with Reporter Software

Macs connected to consoles running the Reporter ('REP') software, and used with SLD or other suitable fault-reporting dimmers will indicate dimmer faults in the same way that the console does: channel numbers with a fault logged will turn red, and details of the fault will be shown in the Dimmer Log screen, accessible by pressing [REPORT] {DIMMER LOG}, the keyboard equivalents of which are ctrl-F12 then F4.



For further information, see the Reporter user manual.

# Further Information

**Strand Lighting:** www.strandlighting.com

The latest console software and user manuals can be downloaded from the website, which also includes many technical documents covering console operation and ShowNet network design and set-up.

Strand Lighting publish a quarterly newsletter which includes tips on using 300- and 500-series consoles. The newsletter is published in PDF format; to subscribe, send email to newsletter@strandlighting.com

Earlier issues can be downloaded from the support>newsletter section of the website.

**Apple:** www.apple.com

Apple's website contains a comprehensive, fully searchable technical support section.

**Cast Lighting/WYSIWYG:** www.castlighting.com

**WYSIWYG On-Line Forum:** www.lightnetwork.com

**Connectix:** www.connectix.com

**Wireless Networking for older Macs:** www.proxim.com

# Keyboard Equivalents of Console Keys

When using the Macintosh as an off-line editor or remote console, you will have to use the Mac's keyboard instead of the console keys. The keyboard equivalents for the principal console keys are as follows; fuller information can be found in the console's manual. Some utilities, such as QuickKeys, modify the behaviour of some keys. If the keys do not seem to be doing the right thing, turn any such utilities off.

**Channel Keypad**

Channel . . . . . numbers

Cue . . . . . C or c

Cue Part. . . . . P

Group . . . . . G

Submaster . . . . . S

FX . . . . . F

Dimmer . . . . . D

Console Shift Key . . . . s

**Recording Keypad**

Record . . . . . R

Update . . . . . U

Time . . . . . T

Rec Time . . . . . :

Rec Sub. . . . . ;

Rec Mode. . . . . J

Q-Only/Track . . . . . Q

**Channel Control**

Next . . . . . N

Last . . . . . L

Thru . . . . . >

ThruOn . . . . . < or s-> (shift-THRU on a console)

* . . . . . return or enter

+ . . . . . +

- . . . . . -

@ . . . . . @ or *

@ATT/Attrib . . . . . A

@RANGE . . . . . s-@

On . . . . . O

Full . . . . . Ctrl-F or @@ or **

Off . . . . . Ctrl-O

Rem-Dim . . . . . I

Undo . . . . . Z

Clr . . . . . delete

User . . . . . !

Wheel-up . . . . . Home

Wheel-Down . . . . . End

**Effects Playbacks**

Fx Dir . . . . . alt-9

Fx Sel . . . . . alt-8

Fx Type . . . . . alt-7

Fx Time/Fx Rate. . . . . alt-6

Fx Pause . . . . . alt-5

Fx Load . . . . . alt-4

Fx Stop . . . . . alt-3

Fx Go . . . . . alt-2

Fx Step . . . . . alt-1

Fx Go/Stop . . . . . alt-0

**Display Select**

More . . . . . alt-R

Preview . . . . . ctrl-F2

Sub . . . . . ctrl-F3

Live . . . . . ctrl-F4

Group . . . . . ctrl-F5

Patch . . . . . ctrl-F6

FX . . . . . ctrl-F7

Archive . . . . . ctrl-F8

Setup . . . . . ctrl-F9

Macro . . . . . ctrl-F10

Profile . . . . . ctrl-F11

Report . . . . . ctrl-F12

Help . . . . . ctrl-F1 or ?

Page Up. . . . . Page Up

Page Down . . . . . Page Down

Last Screen . . . . . Space

Step through displays. . esc

*(note: if using a PowerBook or iBook laptop, you may need to hold down the 'fn' key to access the function keys so, for example. 'Setup' would become ctrl-fn-F9. This depends on how your Keyboard control panel is configured).*

**Other**

| | |
|---|---|
| Time | T |
| Wait | W |
| Delay | E |
| Profile | p |
| Text | Tab |
| PB | alt-P |
| Goto | Y |
| Hold | H (s-H for Unhold) |
| Update | U |
| Sub Page | K |
| Bump Mode | V |
| Stop/Blackout | B |
| Macro | M |
| Shift | s |

**P Keys**

| | |
|---|---|
| P1-P7 | ctrl-Q/W/E/R/T/Y/U |

**Playback**

| | *PB1* | *PB2* |
|---|---|---|
| Go | g | ctrl-G |
| Load | x | X |
| Stop Back | k | alt-k |
| Cut | u | alt-U |
| Mode | ctrl-A | ctrl-B |
| Rate | r | o |

**Shift Functions**

| | |
|---|---|
| Macro 1-9 | s-1 - s-9 |
| Repeat Last Command | s-return |
| Swap Screens | s-space (if set to more than 1 screen) |
| Update Cue | s-c |
| Update Group | s-G |
| Reload playback | s-x (PB1), s-X (PB2) |

**Misc Other**

| | |
|---|---|
| Console LCD screens | alt-esc (toggles display) |