

Editorial

By Markus Schmidt and Joacim Melin

Joacim insisted on me writing the introduction to this first (and hopefully not the last) issue of the NeXTeZine and so here we go, before Joacim shares some of his minds. Remembering very well, when I browsed the well known NeXT groups on the usenet and discovered the first post of Joacim including a link to his forum.

Hi all,

just wanted to invite you all to the NeXT Information Archive and it's new discussion board for fellow NeXT:ians and everyone who is just interested.

The URL is :
<http://next.z80.org>
Welcome!

Joacim

THIS is exactly what the NeXT community needs, has been my first thought. A point on the web, where to meet and share their experiences and ideas about NeXT related stuff! Why that?

When I got my first black hardware (a dog slow mono slab with 12 MB of RAM), I knew nothing about NEXSTEP and UNIX in general and finding useful informations on NeXT was a pain. Most of the links found via Google were dead and the - really cool! - Peanuts Archive contained tons of software but the easy How-tos for beginners like me were missing. Of course, the NeXT groups were still around but without much live left.

A year later the forum has 151 members and there are roughly 120000 hits on the page every month.

After the forum started so well, I thought it might be great to publish a online magazine on NeXT and I discussed the issue with Joacim and he encouraged me starting this project.

Soon after I received great articles from members of the forum and one of the most famous NeXT and now OS-X developers - Andrew Stone, who is really one of the nicest guys around - surprisingly agreed on an interview for the eZine!

Hope you enjoy the "eZine"!

Markus Schmidt

Welcome to the NeXTeZine! This is an effort mainly by Markus Schmidt. I'm asked to edit the whole thing and host it online and maybe write something now and then. Anyone can participate - any suggestions are most welcome. Contact us at <http://next.z80.org> through our

forum!

As 2002 comes to an end and 2003 is here, it's always interesting to sit back and ponder what happened the past year and what might be ahead of us. 2002 had some great events and some not so great ones. I'm not gonna go into politics, war or any of that but instead let's focus on the topic at hand - NeXT and their products that still lives on. Even though Apple would very much like to see us all use Mac OS X instead, and I for one would love to if the hardware was priced at a reasonable level, NeXTSTEP and Openstep still delivers. For writing and editing a paper or emaling, NeXTSTEP/Openstep still delivers. And on HP, Intel, Sun and of course NeXT hardware. That's something that only Linux can match, and most of the time, Linux can never look so good and be so much fun to use as NeXTSTEP/Openstep.

Something is also to be said about the users of NeXTSTEP/Openstep. Like the users of BeOS, OS/2, the Amiga and other "arent-they-supposed-to-be-dead" operating systems. The NeXTSTEP/Openstep users are devoted to their platforms of choice not mostly because they have to, but because they want to. We all have made a choice to stick with something that works - and probably will continue to work many years still. We have, of course, made sacrifices such as a modern word processing software, a up-to-date web browser, software to play the latest media formats, games and so forth. But still, when its worth those sacrifices to be able to use the best operating system ever created, then its gotta be good.

Joacim Melin

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News

This cool and until then unknown NeXT device showed up on eBay a couple of months ago.



Luckily the former owner posted on the forum, so let him speak and put some light into this.

"Hello everyone!

I am the "current" owner of the RHD. By this time tomorrow, my eBay auction will have ended and some "lucky" NeXT fanatic will win it.

I have been "collecting" NeXT stuff that was practically thrown into the gutter here [in San Francisco] for a few years. The RHD was purchased from an ex NeXT VP for about the price of a case of beer!

I knew it was rare...but not to the extent that I now know.

I believe that this RHD may be the only one that any one will ever see! I have received email from several NeXT collectors that have never even heard of it's existence!

For those who may "question" it's beauty, I can assure you... that it complements any NeXT system perfectly. It is the ultimate "crowning jewel" on top of a Cube! You cannot see the true detail of this device [the pictures were taken with an Apple Quicktake 200!!]. It is built like a battleship and the form and function is pure NeXT design. It is simply stunning attached to any NeXT system.

I posted a picture of it which shows the unit powered on and you can see the location of the activity light and the LCD display that shows the SCSI number assignment."

The winner of our forum logo contest is Mark Byrne and from the wonderful drafts he did, the following was chosen by the jury as the official NeXT Information Archive logo:



Thanks a lot, Mark!

Time, money and a lot of fun

By Joacim Melin

Markus asked me to write a short piece on why I started the forum. First of all, let me thank each and every one that has visited the forum, sent stuff either through email or through the usual snail mail. Id also like to thank everyone who hasnt hunted me down and poked me with a stick for ripping stuff from their websites and posting it here. Ive tried to give credit where credit is due and if you arent mentioned but should be then please let me know!

The first time I saw NeXTSTEP was at a computer show in Stockholm around 1988-89 - I was 15 or 16 years old at the time. I was really impressed by it but at the same time quite depressed about how expensive the box was. Over the years, Ive tried to get NeXTSTEP but never got hold of it but when I started to work as an IT-manager at IDG Sweden, a large publishing company for computer-related press, I stumbled over a box with NeXTSTEP 3.3 for Intel, the academic bundle. I was really pleased with this and since nobody wanted it, I took it home and tried to make it run on my 486 computer. Back then, it was a quite hefty task to make NeXTSTEP work with IDE-drives so I got a Adaptec 1542CF SCSI controller (still got it, by the way. It still works!) and finally managed to make it work and boot. The old SCSI harddrives that I had at the time of course broke down all the time and I had to shelf the idea of running NeXTSTEP once again. A friend of mine at the time was working as a NeXTSTEP developer (imagine how cool THAT was) and was running it on a 90MHz Pentium computer which of course was way more than you ever could ask for when running NeXTSTEP. Anyway, through all these years, Ive saved everything thats related to NeXTSTEP. Catalogues, leaflets, you name it because I didnt have the heart to throw it away. And now, it was time to use all this information for some good.

In the middle of March 2002, I was in one of my "lets create something really cool!"-modes. This means that I will stay inside for days and days working like a lunatic and totally ignoring the world around me, much to my familys dismay. They know that Ill surface sooner or later, so its no harm done. Anyway, I got this idea that I should start to collect and publish information about NeXT and their products. After some research, I discovered that there wasnt a really big collection of NeXT-related stuff to be found. There where plenty of good web sites out there but I felt they only partially scratched the surface and I wanted it to be bigger. You could say I saw an opening for the "killer app" of websites - a project that I could invest time and money into and make into something useful for others.

So I started to scan stuff. Lots and lots of stuff. And scanned I did. I made the decision to save all the scanned images into the JPEG format. Maybe it wasn't the best decision I ever made but hey, it worked and at least it made it possible for everyone to get a high resolution image to print for themselves. PDF is the way to go for now and one of these days (tm) Ill rescan everything or convert it to PDF.

I went for a very simple design of the site which took about a day to create and test and then,

I went online with it at the end of March 2002. I spread the word in a few newsgroups that was NeXT-related and then I submitted a story to Slashdot and didn't think more about it until I, a couple of days later, noticed that my webserver was working really really hard. I checked the logs and noticed that there was a lot of traffic. I looked up and looked at the switch that handles all my networking in my house and noticed that two ports was dealing with a lot of traffic - the port connected to the firewall and the port connected to my webserver. Suddenly, that same webserver, that also doubled as my mail server at that time, got loads and loads of BIG files to deal with. They were emailed to me and it was various NeXT-related stuff that I immediately posted online. I surfed to Slashdot and saw my story at the top of the page and after that, other websites, a couple of them Mac-related, also linked to my site and things really picked up. During that time I started emailing with Anders Ödlund (Odlund in our forum) and he made the brilliant suggestion that I should install some sort of web based forum software. We looked around and settled for YaBB which has served us well ever since. Anders helped me install it and after a few days things were really picking up there too. I had to expand the RAM in the webserver to deal with the load. Except for April of 2002, which was an exceptional month in terms of traffic to the site (137951 visits), we never have had under 50000 visits per month. Some actual numbers :

September 2002: 53209 visits

October 2002: 76579 visits

November 2002: 77284 visits

December 2002: 93727 visits

Now, either this is a really lasting Slasdot-effect or NeXT and their products are still really interesting. :-)

I was really worried about Apples reaction. I even spoke with Apple in Sweden about this and they said they would look into the matter and get back to me. They never did so I guess this is OK by them.

The website, next.z80.org, has been loads of work for me. The site has been online 24/7 except for two weeks when the Telco had some major problems with their ADSL-equipment and I spent about 16 hours on the phone, mostly on hold, trying to get them to fix the damn thing. Finally, they did and when I was on a business trip to Antwerpen I argued with them over the phone to refund me for this and finally, they did! A harddrive in my server also died in December of 2002 but thanks to a redundant configuration with two software-raided mirrored IDE harddrives we are still in business. Markus has, together with Hanul and PeterH, donated a new harddrive for me that will be arriving through the mail any day now. But as it has been a lot of work for me, it has also been very rewarding and fun and I'm proud of what I've accomplished. But I would never have been able to do it on my own so again, credit where credit is due!

What are the plans for 2003 then ?

The site is currently powered by a 266MHz Pentium II-box (rack mounted), 2xIBM DTLA harddrives (well, one actually, as the other one is broken), 256MB RAM, an Intel Pro 10/100 NIC, Red Hat Linux 7.3 with whatever patches that are released. I use Apache, YaBB, Sendmail, Bind, Majordomo, PHP and Perl. NeXT year (he he) I will be moving the forum to a box that runs Openstep or NeXTSTEP. The only drawback is that I will have to host the forum on a special port number (like : <http://forum.next.z80.org:81> or something like that) which is pretty ugly. The reason for this is that I only have one fixed IP-address. Im pretty hesitant about moving my entire web setup (Im hosting something like 10+ domains with DNS-services and whatever other software they need) to a platform where Apache and the rest of the stuff I need hasnt been updated for the last couple of years.

The rest of the site will either remain on this box for a while longer or move to my Sparcstation 5/170, running either Linux or Solaris. But as my philosophy is "if it aint broken, dont mess with it!" , I rarely can keep my hands from tinkering and changing stuff.

Hopefully, our second child will be born when its planned to and I wont have time to mess up the configuration. :-)

Thanks for reading, thanks for visiting the site and come back soon! :-)

Interview with Andrew Stone of Stone Design

By Markus Schmidt

Q: According to a portrait in the MacWeek one of your workshops is a "NeXT museum". What models do you own and do you still use them from time to time?

Except for the unreleased dual processor "brick" - I think we have them all. I traded a lot of software for machines with NeXT back in the early nineties: 2 030 Cubes with 040 upgrades, 2 black&white NeXT Stations, a NeXT Dimension color cube, a color station, and a turbo color station which we still use as a file server and as a "NeXT application server". We still run legacy NeXT apps on Macs running OS X Server version 1.x (the version which used Display PostScript which allows NXHosting of remote applications - I've written a how-to guide at:

http://www.stone.com/Run_NeXTSTEP_Now/Andrew_s_Guide_to_Running_NeXSTEP_on_MACOSXS.html

Q: You are one of the few if not the only remaining company which still sells software for NEXTSTEP/OPENSTEP. Are there still customers for that products or have most of the longtime customers/users switched over to OS-X?

We sold a DataPhile yesterday - so I think there are still users for the NeXT! These are museum-quality machines, quite akin to a Studebaker or a Pierce-Arrow. They were so well made that they just keep on running! Computer technology is similar to automotive in that the hand-me-downs move south where people with less appreciate them more.

Q: You have been developing software for the NeXT Computer from the very first beginning, back in 1989, where TextArt was the first application released. You have also ported your major applications for OpenStep on all platforms and nowadays for Mac OS X."

Faith pure and simple. Something as good as NeXT had to be the future (even if only copied as a dumb-downed and plagiarized version). I would never work for the company that makes Windows for a simple reason: they "corrupt" and "pollute" open standards to make only their software "compatible", which is unethical and eventually doomed to fail.

Q: Do you think that it was a good strategy by NeXT to present on all major hardware platforms available at that time (Intel, Sparc, HPPA)?

NeXTStep had a big influence on Apple & MicroSoft and many features have been copied. But what sealed the fate of us every seeing OS X on Intel was the deal Apple made with Microsoft - sort of a non-competition agreement when Apple needed cash badly around 1998. As I recall, MSs Apple stock went from an investment of \$120 million to about a billion dollars, so MS effectively shut down the OS X on Intel, got its noisy browser (ever watch net traffic when you are running Explorer?) as the default on OS X, and made 8-fold on their money in one lousy deal.

But an even more important consideration is that fundamentally Apple makes hardware,

Motorola style. Why would they undercut hardware sales by providing software for their competitors hardware? What Apple has is an integrated software/hardware/internet product, and I dont yet see the marketing case for doing OS X for Intel.

Q: You ported Create to OS-X. Has it been a hard task to do so? Are you planning to port DataPhile, too?

Create has been ported to IBM RISC 6000 in 90 and to OpenStep in 93 - so that made the final step to OS X very easy. But since we had a few extra years, I did a total rewrite of the product - and speeded it up by 300% and reduced the amount of code by 50%! DataPhile relies on orphaned technology so porting it would be almost impossible in its current form. I think my love of design and graphics has been the guiding light for OS X - so apps like PStill which do complete PDF distilling have become more important to us.

Q: What things do you miss in OS-X compared to NEXTSTEP/OPENSTEP and what are the advantages in your opinion? What do you miss from the NeXT days?

Im very happy with OS X since its got almost everything we had plus tons of technology from the MacOS 9 group. Most importantly, it has millions of users and is a mainstream OS now - for example, printers and other peripherals are just plug and play. But one thing is missing - good old NXHost! We no longer have the ability to run applications from one machine on another with full GUI. Probably someone will figure out how to do this if its not already been done. Also I miss the smallness of the old NeXT community. Back then, it was possible to know every developer and a good number of the end users. A good percentage of our old customers are now using OS X, and it is very encouraging to make sales to oldtimers! In fact, the current version of Create will successfully open even TextArt files!

Q: "OpenStep developers will be very valuable once the world wakes up.." you said in the MacWorld. Do you think the time has come or is Apple promoting Cocoa not strong enough in your eyes?

And so it has come to pass! Apple is promoting the heck out of Cocoa - they finally are saying "DO NOT DEVELOP IN CARBON" to their developers. That was politically unacceptable a few years back - and one apple exec told me to shut up when I said OS X was the future! Every new Apple app is written in ObjC and Cocoa - iCal, iPhoto, Mail, etc. - so the writing is on the wall, just as it was said in 1997. The difference is so obvious between Carbon apps and Cocoa that once the users figure this out, theyll no longer blindly buy the big vendor with the old legacy goods.

Q: What are your plans for the future? Do you plan to focuse on the layout applications, like Create, for web and print purposes?

My plans are to keep making cool apps, and keep making the ones we have even cooler - and

to create a new model of ethics for software companies with ideas like "Free Upgrades for Life". That is, were building a community of users who like well-engineered alternatives to the slow-moving "standards".

Apples iApps are mostly entry level and dont have the depth that third party developers can achieve, so they dont compete directly. I admit it took a lot of steam out of the PhotoToWeb development when iPhoto got so much attention, but once people realize the limitations of iPhoto, then it starts to make sense to use more tightly focused alternatives. By the way, I showed PhotoToWeb to a group of about 80 Apple engineers several years before iPhoto shipped. They offered to buy it from me at the time, but for me, sovereignty is the only true gold to which all else pales.

-> Stone Design * <http://www.stone.com>



Andrew Stone, Founder and CEO of Stone Design

Stone Design Corp is located in beautiful Albuquerque, New Mexico, and was founded in 1984. Our mission is to develop low cost, easy to use, 100% Macintosh OS X native applications that are a joy to use.

Stone Design develops a variety of productivity applications for Apple Computer, Inc.'s revolutionary operating system, Macintosh OS X. As early adopters of Mac OS X's precursor NeXTStep in March 1989, Stone Design's principals embraced the new object technology of the NeXT computer. Stone Design was the first independent software house to ship a shrinkwrap product for the NeXT Computer with "TextArt" in October, 1989.

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X11 and NEXTSTEP

By Hanul Sieger

1. Introduction

This article should provide a quick and dirty HowTo about setting up X, and related services like XDMCP between a NeXTSTEP box and other UNIX/Linux boxes.

2. Overview

XDMCP stands for "X Display Manager Control Protocol" and is a network protocol. It provides a way of running the X-Terminal to run on your PC, Mac or NeXT and it uses the X Server to provide a client/server interface between display hardware (the mouse, keyboard, and video displays) and the desktop environment while also providing both the windowing infrastructure and a standardized application interface. The X-Terminal can be displayed with an individual window or multiple windows, based on your X window systems software capabilities and setup.

The X server is usually started from the X Display Manager. Almost all the UNIX/Linux flavors include the xdm, kdm and gdm to you as your choices. (This document will use gdm and kdm as an example). The Display Manager provides a nice and consistent interfaces for general users (X-based login, starting up a window manager, clock, etc.). X Display Manager manages a collection of X displays, which may be on the local host or remote servers. It is worth noting that the Xsession file is what runs the desktop environment.

When xdm runs, it offers display management in two different ways. It can manage X Server running on the local machine and specified in "Xservers", and/or it can manage remote X Servers (typically Xterminals) using XDMCP as specified in the "Xaccess" file (refer to the xdm man page).

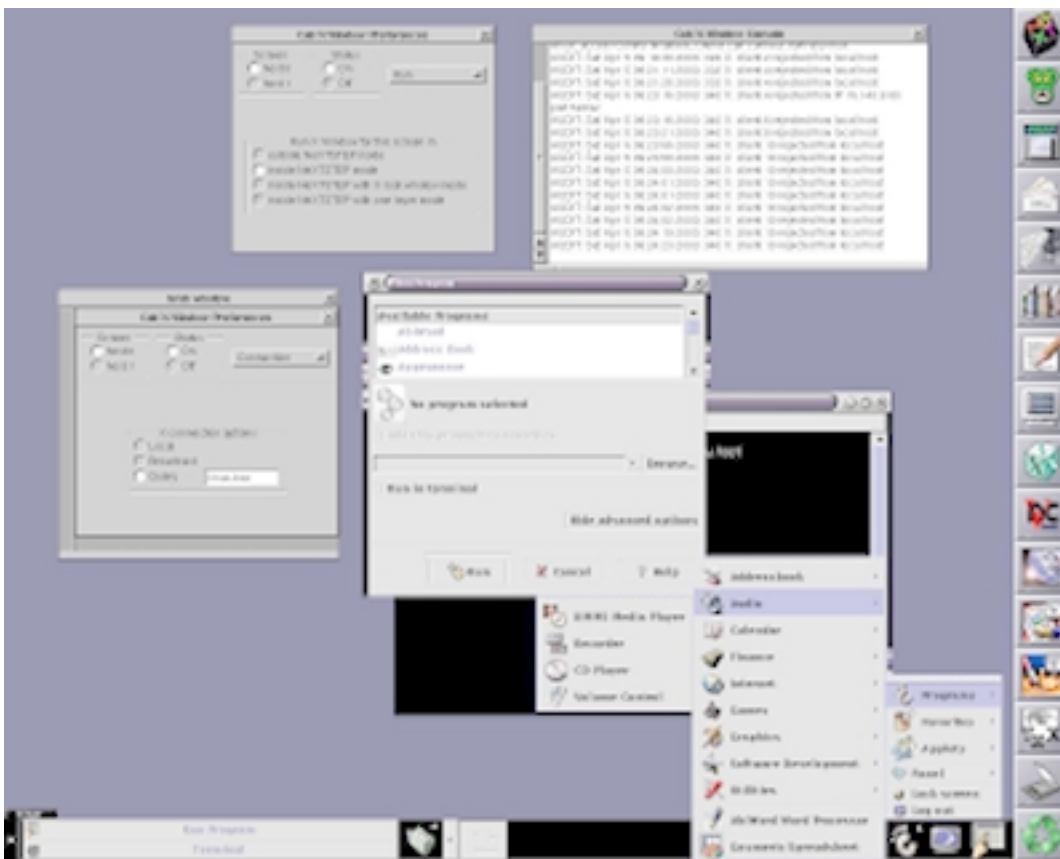
For kdm (which comes with the KDE desktop), it is a replacement of xdm and configures the same way, except its files are in /etc/X11/kdm in Caldera, /etc/kde/kdm in Red Hat and /usr/share/config/kdm in Mandrake.

The gdm (Gnome Display Manager) is a re-implementation of the well known xdm. gdm has similar functions to xdm and kdm, gdm is the Gnome Display Manager, and its configuration files are found in /etc/X11/gdm/gdm.conf. The gdm.conf file contains sets of variables and many options for gdm, and the Sessions directory contains a script for each session option; each script calls /etc/X11/xdm/Xsession with the appropriate option. gdm has similar functions to xdm and kdm, but was written from scratch and does not contain any original XDM/X Consortium code.

2. Setup

Install your UNIX/Linux OS. In my case, I installed Red Hat 8 (Custom Installation). You may encounter problem, if you do not add firewall rules or temporary disable it in setting up XDMCP. I will not cover the firewall rules here in details, since this is not the focus of this document.

Setup your Networking. To test it out, ping, ftp and telnet are good commands to use to determine if your network works. RH 8 and up do not have telnet daemon turn on by default (for security reason). Remember to enable it, if you prefer to use it for your test. You can always turn it off when you are done (Using ntsysv with root privilege). One other thing is to remember firewall rules are there. Add your own rules or temporary disable it (as mentioned above) to make these commands work. This can be done with graphical tools you can find in the "Start Here" folder on the desktop.



Setup X. Do not setup with a resolution higher than what the remote users are able to use for their display. Test the X Server by typing either startx or telinit 5. Make sure X is running

properly.

Creates the necessary user accounts (and associated groups) for user who will access via the Xterminal.

These are steps I used to setup the X Server for accepting XDMCP requests:

In Linux X environment, you need to provide font using either X font server (xfs) or hard coded font path in XF86Config and XF86Config-4 configuration files. If you plan to use xfs font server (check here to see the xfs advantages), modify /etc/rc.d/init.d/xfs and make the following changes.

Change all (this is where the Font Server port):

```
daemon xfs -droppriv -daemon -port -1
```

to:

```
daemon xfs -droppriv -daemon -port 7100
```

In Mandrake 7.2, the port is already set to 7100. Also, in RH 8, it is by default, for security enhancement, not listening to TCP port any longer! If you like to setup X font server, do the following steps:

Change this line in /etc/rc.d/init.d/xfs:

```
daemon xfs -droppriv -daemon
```

to:

```
daemon xfs -droppriv -daemon -port 7100
```

Then, in /etc/X11/fs/config, comment out this line:

```
# dont listen to TCP ports by default for security reasons  
#no-listen = tcp
```

If you change or add the port, use this command to restart your X font server (requires root):
service xfs restart

You do not have to use port 7100. You can set a different port, as long as you carefully plan it first to make sure no conflicts in using the port number and change it accordingly. It is better to consult your Linux admin before doing so, so that he/she knows the port has been taken! Different Linux distribution may put the xfs in different folder under /etc/rc.d. You

may search for it if that's the case.

Modify `/etc/X11/xdm/xdm-config` and make the following change. By default (in most Linux distributions), this line is set, so that it is not listening to XDMCP connection. This is for security reasons. For Caldera using `kdm`, this file is at `/etc/X11/kdm`. Find this line:

```
DisplayManager.request Port: 0
```

and comment it out as:

```
! DisplayManager.request Port: 0
```

Remember, this does not affect `gdm`. For `gdm` setup, it is in the following section.

In `/etc/X11/xdm/Xaccess`, change this. (this allows all hosts to connect). For Caldera using `kdm`, this file is at `/etc/X11/kdm`. Set the security to 644 (`chmod 644`):

```
## # any host can get a login window
```

to:

```
* # any host can get a login window
```

The above setup is in a Broadcast mode, which will list all the X Servers that are listening and willing to manage your X connection. If you only want to allow certain connections, use the `CHOOSE` section in this same file. An example can be found in the Resources.

I use `gdm` as default and use `gdm` login window to switch between KDE and GNOME. For `gdm`, edit `/etc/X11/gdm/gdm.conf`. This activates XDMCP, causing it to listen to the request. For `kdm` (if you pick KDE as your DM in your installation), edit `/usr/share/config/kdm/kdmrc` for Mandrake and `/etc/kde/kdm/kdmrc` for Red Hat or `/opt/kde2/share/config/kdm/kdmrc` for Slackware version (KDE2). Change this line:

```
[xdmcp]
Enable=false (may show as 0 in some distributions)
```

to:

```
Enable=true (or 1 in some distributions)
```

Make sure `"Port=177"` is at the end of this block.

Now edit `/etc/inittab` and change the following line:

id:3:initdefault:

to:

id:5:initdefault:

In Slackware, the X11 mode is number "4", not "5".

This is switching from Text Mode login to Graphical Mode using Display Manager. Before changing this line, you can use the telinit command to test prior to modifying the line. Use either telinit 3 to set to level 3, or telinit 5 to set to level 5, graphics mode (you can issue this command on the second machine that telnets into this server).

Make sure the proper security of the file /etc/X11/xdm/Xservers is set to 444 (chmod 444).

Locate /etc/X11/xdm/Xsetup_0 and chmod 755 this file.

Edit the XF86Config file (if you are using XFree86 4.x, the file is XF86Config-4) at /etc/X11 and change the line:

```
FontPath  "unix/:-1"
```

to:

```
FontPath  "unix/:7100"
```

If you decide to use the port number other than the usual 7100, be sure to change both in "/etc/rc.d/init.d/xfs" file and here!

To save your time and energy, I recommend you to add the FontPath in the XF86Config and XF86Config-4 configuration files. If you are not sure what fonts are available to you, you can use this command to check it out (requires root):

```
chkfontpath --list
```

The following are some of the example fonts for your reference. Make sure you have these fonts before editing these path.

```
FontPath  "/usr/X11R6/lib/X11/fonts/75dpi/"
FontPath  "/usr/X11R6/lib/X11/fonts/misc/"
FontPath  "/usr/X11R6/lib/X11/fonts/CID/"
FontPath  "/usr/X11R6/lib/X11/fonts/Speedo/"
```

```
FontPath "/usr/X11R6/lib/X11/fonts/100dpi/"  
FontPath "/usr/X11R6/lib/X11/fonts/Type1/"
```

(You do not have to make this change. You can keep the default setting, but this is what I prefer. If you are not sure, leave this alone.) Change this line to the end of `/etc/inittab`:

```
x:5:respawn:/usr/bin/gdm
```

If you decided not to change this line, it is fine! This is not a required step, but of a personal preference!

You are now ready to run a test.

One other thing to know (that some users have asked) is how to display with Willing to manage message with load info. As I know this is available in `xdm` by adding the following to the `/etc/X11/xdm/xdm-config.DisplayManager.willing`:

```
su nobody -c /etc/X11/xdm/Xwilling
```

and the `XWilling` script must exist. For `gdm`, add this line to the `/etc/X11/gdm/gdm.conf` in `[security]` section: `Willing=/etc/X11/gdm/Xwilling`

A sample of `Xwilling` script is here for your reference. Adding this script or not is your preference. It is not required step here

3. Testing

To test if your XDMCP with X Server is ready to accept connection(s), do these steps. I find it easier using the X Server and another machine to test it:

(Re-)Start your X (which is in runlevel 5). If you are not sure how to do this, simply reboot your system (but this is really not necessary, if you know how to restart it using command line. That's the beauty of Linux, when comparing it to my Windows).

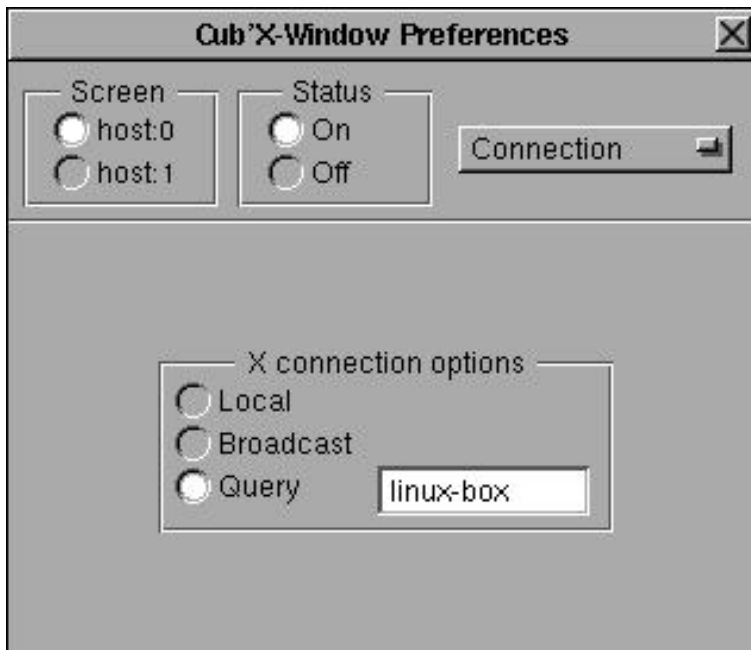
If you have not modify your firewall rules, you need to temporary disable it by using `iptables -F` (or `ipchains -F`).

Make sure the Graphical login page comes up. Make sure the display resolution and mouse work. Log in from the console to see if the local access is OK. If OK, do not log off.

4. On the NeXT side

InstallCubXWindow, dont waste your time trying any other X11 software. This is the best available for NeXTSTEP.

You can do basic choices in the Preferences. I prefer to run X "outside NeXTSTEP" mode, but my advice is to fiddle a bit with the settings just to get a feeling about whats possible. Outside NeXTSTEP gives you another screen or desktop to the right of the NeXTSTEP desktop. If you slide the mouse cursor on the right side it switches to the X desktop. To go back slide the cursor on the left side.



In Preferences (Run, Visuals, Mouse, Sound, Host Access, Connection) set the screen to host:0 and status on, define color depth, mouse, and sound. Allow host access to everyone and set the connection to local or query a specific host ("Broadcast" will broadcast the network for a XDMCP host and the one which answers first shows up). Then choose Run X in the CubXWindow menu.

If you chose outside NeXTSTEP mode, X should come up on another screen, your NeXTSTEP screen disappears. If X is local, then a single xterm window is there. If you query for a XDMCP session, the graphical login screen of your Linux/Unix box comes up.

There are two ways to get an X window or the complete environment via XDMCP: command line and the CubXWindow GUI. Sometimes it may be necessary to get to the command line, because you cannot establish a connection with the GUI. Type

`/LocalApps/CubXWindow.app/X11R6/bin/X -query <host>`

CubXWindow shouldnt be running, otherwise you will get an error message.

So have fun re-directing the newest Mozilla to your NeXTSTEP box and enjoy the net :-).

Network configuration on NEXTSTEP

By Eric A. Drosnock

For those of us using NeXT hardware or software, it is a natural desire to want to network these systems. NeXT designed their computers to be a part of a network so it feels almost unnatural to have one totally isolated. This article will provide information on one way to connect to a non-NeXT network and access the internet via a shared connection.

I wish to state now that this has worked for my NeXT slabs and should work for you, but no guarantees are made. Also, to accomplish this task it is expected that you have a basic working knowledge of UNIX as well as editors within UNIX; namely vi or PICO. A note about the two editors mentioned, both should be part of the BSD substructure of NeXT and should be available to all without additional installations. But of the two vi is the more difficult to use and navigate in than PICO. For those that are not use to vi, I suggest staying with PICO. With that said let the configuring begin.

First, you need to be logged on as #root to make the necessary changes. Start the Terminal.app and follow along. First change the working directory to /etc [cd /etc <RETURN>], then open the file hostconfig in an editor [pico hostconfig <RETURN>]. The file hostconfig contains most of the information needed to have the system up and running on a network with the exception of the DNS server, but that will be addressed later. With the file open you will notice that there are eight assignable variables: HOSTNAME, INETADDR, ROUTER, IPNETMASK, IPBROADCAST, NETMASTER, YPDOMAIN and TIME. These variables are what needs to be changed to establish a network connection. For inputting the data, remember to strictly follow the guidelines listed above, namely that there can be no spaces in any string; e.g. HOSTNAME=this_computer is the only way the system will understand the string. Any spaces that appear in that string will provide the system with inadequate or false information.

Now that is covered, lets move on to some inputting. The first variable that needs to be addressed is HOSTNAME which is the name you wish to assign your computer. Following that is INETADDR, or your IP number. Your system will have a fixed IP unless you opt to use a application that allows the computer to obtain its info via DHCP. Next is ROUTER which, plainly enough, is the IP of the network router. The fourth variable is IPNETMASK, this is the same as the subnet mask and defines the extent of the network. The variable IPBROADCAST is another IP number use to define the extent of the local network. The final three variables, NETMASTER, YPDOMAIN, and TIME are primarily NetInfo related and concern us little and should be set to -NO- unless using these functions. With these variables assigned hostconfig should be saved in the /etc directory. All we need do to complete the configuration is add a file to define the DNS server(s) that will be used.

With all the configurations to the hostconfig file completed the editor needs to be utilized one

final time to create a file named `resolv.conf`. In this file we will define the DNS server(s) that the system will call on when on the internet. At the command prompt, start up your editor again [`pico resolv.conf <RETURN>`] and let's add some text. The only line that needs to be added here is `nameserver 123.123.123.123` [the slue of '123' being where an IP address is entered]. Each entry must be on a separate line and formatted as above. Once those are in, save the file and reboot. Upon logging in, your system should have full access to the network and the shared internet connection. Enjoy!

Here is the text from my `hostconfig` file:

```
#
HOSTNAME=zero_cool
INETADDR=192.168.0.100
ROUTER=192.168.0.1
IPNETMASK=255.255.255.0
IPBROADCAST=192.168.0.255
NETMASTER=-NO-
YPPDOMAIN=-NO-
TIME=-NO-
```

Here is the text from my `resolv.conf` file:

```
nameserver xxx.244.xxx.100
nameserver xxx.149.xxx.130
```

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OPENSTEP and VMWare

By Alejandro Diaz

I'd like to share my experiences running VMWare/OPENSTEP in a relatively new computer, a Dell Dimension 4100 running SuSE Linux 8.1.

I remember that some time ago I read in some web site about the possibility to use NeXT with VMWare, but without devices support and at 640x480 with no color. For me that kind of "possibility" sucked, and I didn't pursue the subject.

Some days ago I casually entered the same web site (http://julliard.homeip.net/~laurent/GNUstep/OS42_Install.html) to learn that Atomic Objects (<http://atomicobject.com>) and others had developed a video driver for VMWare, so although there is a lack of devices support, I spent this week to see what would happen.

These are my results. Let me tell you about the good, the bad and the untested.

The good:

Ability to run OpenStep in a relatively new computer. For me, that meant PIII 1 Ghz performance. I don't know if running OpenStep in VMWare hits badly the performance, but with 384 MB RAM (64 reserved for NeXT), it runs really good (faster than my old Pentium 200 Mhz OpenStep-only computer, anyway)

Ability to run OpenStep in unsupported devices. I tried some time ago to setup OpenStep in a partition in my new computer, but the install program always refuses to read my DVD ROM announcing read/seek errors, so I didn't have the opportunity to check the compatibility of other components in native mode. With VMWare, I can run OpenStep at 1280x1024x32 with my Nvidia GeForce3 Ti500 video card, at the highest refresh frequency my Dell P110 Trinitron monitor is able to give (116.9kHz/109Hz). Due to the virtualization of devices, I can even use my USB connected optical mouse!

The bad:

No print support. That's it. For now, you can forget about all those nice fonts you have collected for your OpenStep system, or the cool paper graphics. You are not going to print anything from your virtual box. Of course, you can still turn on your old black/white computer when you need to print something, or save your file in a compatible format, copy it to a floppy disk and then use some Linux program, but in this case you can't use those fancy fonts.

Spotty sound support. I was able to setup a sound card for my virtual NeXT machine, but, curiously, it only works to play CD Audio in CDPlayer.app. There are no other sounds, hence you are not going to hear the classical bonk or frog or to do multimedia development in HyperSense and Sound.app...

The untested:

SCSI support. I have an advansys scsi card, and as an unknown model in the NeXT world, I didn't bother to try every SCSI model in the supported device database to see if one could work (which would be nice, I have a Scanjet IIC scanner that worked just fine with OpenStep in my old computer) Why I didn't put my old NeXTStep compatible SCSI card into my new computer? simple: my new one has no ISA slots...

NIC support. I don't have and I don't need one here at home...

What I did.

A) follow ALL the instructions contained in "Installation of OpenStep 4.2 in VMware 3.0" (http://julliard.homeip.net/~laurent/GNUstep/OS42_Install.html). I setup my computer using the AtomicObject driver and it worked just fine for me, but check the others if you need them.

B) I setup my external 56K modem (don't ask me the brand, it doesn't have any!) to surf the Internet in OPENSTEP. I did the following:

1. In VMWare I setup COM1 in Serial Ports Section to Type: "Device", Path: "/dev/ttyS0", and checked "Start connected"
2. The IO Device Configuration of the first serial port in VMware BIOS was set to "Auto"
3. In Configure.app, OpenStep automatically added Serial Port v. 4.00 during setup, so I just added TTY Port Server.
4. Then I followed all the instructions contained in "OpenStep&PPP" written by Brian Wotring. Although I downloaded that document from the internet some years ago, I was not able to find it again using alltheweb and google, so I could post here a copy of that document if you don't know it.

C) Setup partial sound support.

I have a SoundBlaster Live! with emu10k1 chip. I tried all the SoundBlaster 16 drivers included in OpenStep (and the PCI one downloaded from the Internet), but no one worked. Just for fun, I tried the SoundBlaster8. Eureka! it got my sound card detected, but as I said above, it plays CD audio but no other sounds...

Well, those were my experiences. Hope you find them useful...

Finally these are the results I got using NXBench 2.5 in a 1280x1024x24 screen:

dhrystones:1716738

VAX Mips:1089.992
NXFactor:6.663

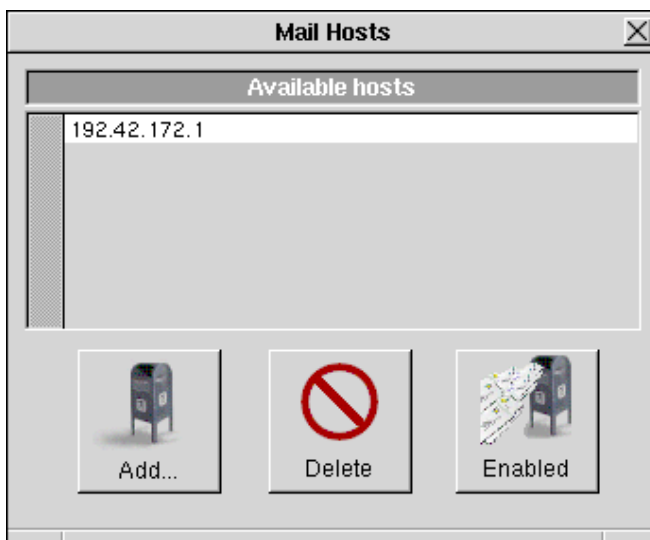
line:5.86902
arc/bezier:5.64677
fill:5.04037
transform:15.1667
composite:4.48419
userpath:5.75246
text:9.55731
window:1.78559

PopOver and Microsoft Exchange

By Markus Schmidt

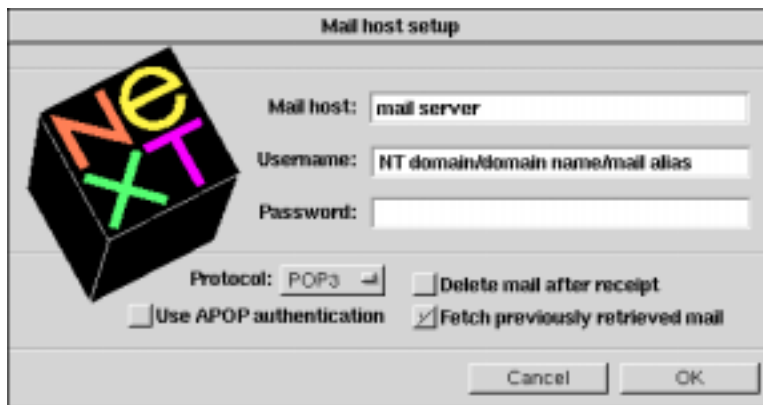
The following paper describes how to configure PopOver on your NEXTSTEP/OPENSTEP machine to retrieve mails from a Microsoft Exchange Server on your local network using pop3.

I assume you already downloaded and installed the latest version of PopOver on your computer, right? Now start PopOver and add your Exchange Server as a new host (Mail hosts..).



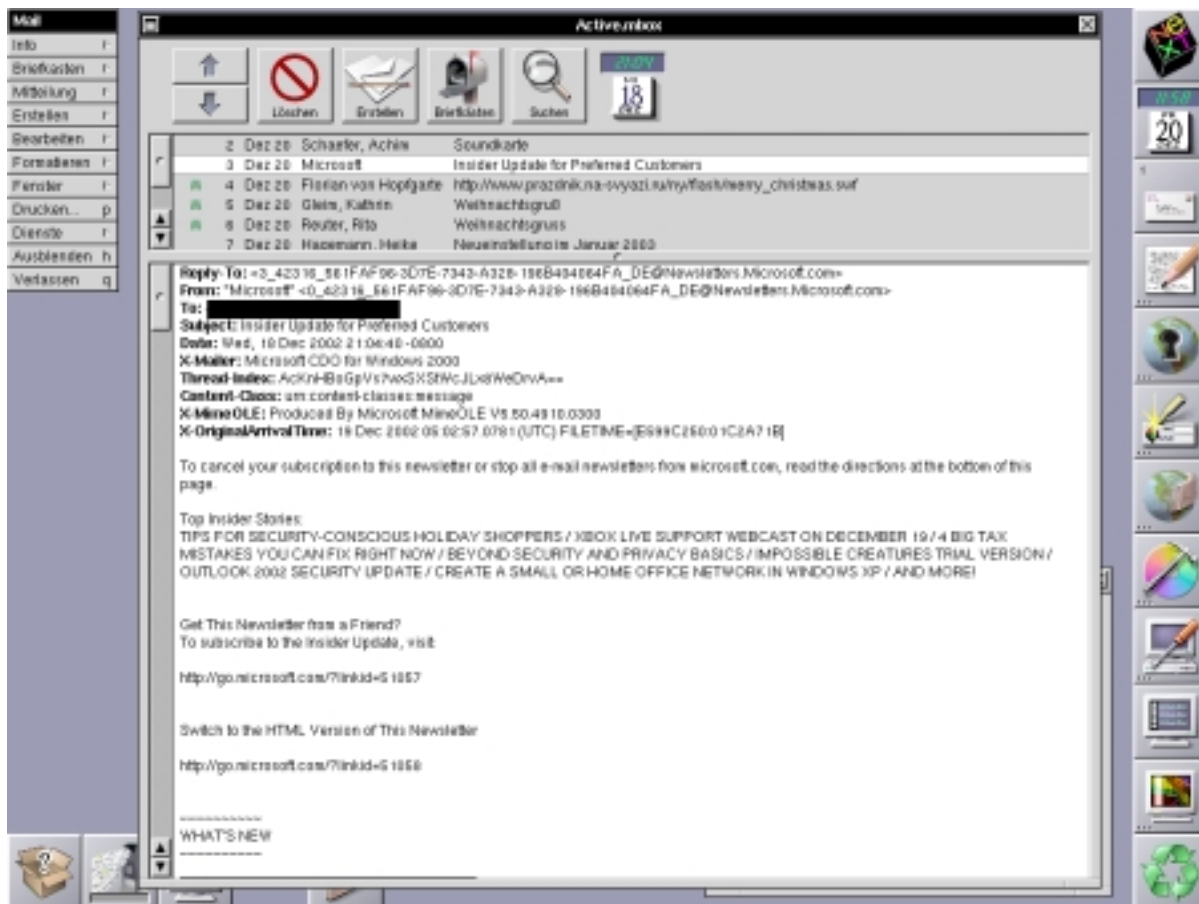
You could either use the IP address of your mail server or the name, which requires an DNS entry using the Host Manager.

Of course, you also have to enter your login name and your password. The login entry is a bit tricky in a NT domain, but after several tries I figured out how it works.



As username enter the following:
NT domain name\NT user name\mail alias
(e.g. NETWORK\Schmidt.M\Markus Schmidt).
The password is your domain password.

After that you should be able to retrieve mails from your Exchange server on your NEXSTEP /OPENSTEP machine.



One restriction is, that PopOver is not able to detect any folders of your exchange account except of your inbox folder.

The Rhapsody FAQ

By David A. Shaw

What is Rhapsody?

There is a big question. Rhapsody is the name given to the fifth version of the OS originally called NeXTstep (similar to how the name changed for the fourth version to OPENSTEP). Beyond that, this was the first implementation done completely by Apple Computer after acquiring NeXT Software.

Most people think of Rhapsody as being only the Developer Releases (1 & 2), but those are actually just the first of many that followed. Rhapsody Developer Release was actually Rhapsody 5.0 and Rhapsody Developer Release 2 was Rhapsody 5.1. Apple had planned a public release as a *workstation* operating system but at the last minute that version, Rhapsody 5.2, was pulled. I don't think that any copies of 5.2 actually made it off of Apple's campus.

Fortunately that is not the end of Rhapsody. Apple started a new project called Mac OS X which would use the technology of Rhapsody to form a new OS (free of the license restrictions that had been following the NEXTSTEP/OPENSTEP/Rhapsody for years). Apple still wanted to use what they already had, so they released Rhapsody with a suite of server apps and renamed it Mac OS X Server 1.0 (which was actually Rhapsody 5.3). Installing this OS without the added server software produces what would have been the *workstation* version. This was actually done by quite a few web developers who wanted to do WebObjects development on a Mac instead of a Windows NT PC.

Apple released two free updates for Mac OS X Server, 1.0.1 and 1.0.2 (Rhapsody 5.4 and 5.5 respectively), and one major non-free upgrade to 1.2 (Rhapsody 5.6) before ending production of the line.

What types of systems can run Rhapsody?

Originally Apple planned on having Rhapsody run on PPC604 based PCI Macs and the same types of PCs that would run OPENSTEP.

The PC version was pulled at the same time as Rhapsody 5.2 (I think it is safe to say that there was most likely a PC version of 5.2).

The Mac version had some additional abilities thanks to the design team. Many team members wanted to be able to run their OS on their PowerBooks, so they added support for PPC603 series processors and PowerBook video drivers.

PowerBook set-ups that I know work...

Rhapsody 5.1- PowerBook 3400, 2400, original PowerBook G3 (requires cache enabler to use the G3 processor correctly)

Rhapsody 5.3, 5.4, 5.5- PowerBook 3400, 2400, original PowerBook G3, PowerBook G3 (Wallstreet, Lombard)

Rhapsody 5.6- PowerBook G3 (Wallstreet, Lombard)

I personally wouldn't want to use Rhapsody on the PowerBook 3400, 2400 or original PowerBook G3 because they only had 800x600 displays. I have Rhapsody 5.1 running on an IBM ThinkPad 760ED because it had a 1024x768 display (at 12.1"), and I ran Rhapsody 5.6 on my PowerBook G3 (Wallstreet) which also displayed 1024x768 (at 14.1").

How do I get a copy?

I, personally, don't recommend getting copies of any software without acquiring the actual media with them (that is, I don't approve of pulling copies of commercial software off *warez* servers for free). Given that, ebay seems to be the best place. Remembering that Rhapsody includes the original versions of Mac OS X Server 1.x.x, I think you'll find copies can be found for as low as \$35. And on the odd occasion the Developer Releases turn up (which included the only PC versions released into the wild).

If you are looking for a historical version, the first Developer Release (5.0) is a good choice as it is very different from anything that came before or after it. If you are looking for a functional OS that you can work in, the second Developer Release (5.1) and later would be the best version to stick with. If you want a good working version and only have a PC to work with, 5.1 is pretty much your only choice (but be ready to see a ton of cool software that only runs on the PowerPC version).

What version do I have?

If you have Rhapsody or Mac OS X Server installed on a system, you can find out what version of Rhapsody it is by opening the terminal and entering `uname -a`. The results should give you the version number (5.x) of your OS.

The versions are:

Rhapsody 5.0: Rhapsody Developer Release
Rhapsody 5.1: Rhapsody Developer Release 2
Rhapsody 5.2: -not released-
Rhapsody 5.3: Mac OS X Server 1.0
Rhapsody 5.4: Mac OS X Server 1.0.1

Rhapsody 5.5: Mac OS X Server 1.0.2

Rhapsody 5.6: Mac OS X Server 1.2

So how stable is it?

I personally haven't had any problems with any of the versions that I have used. To give you an idea, the only time my current desktop installation ever gets restarted is after a power failure...

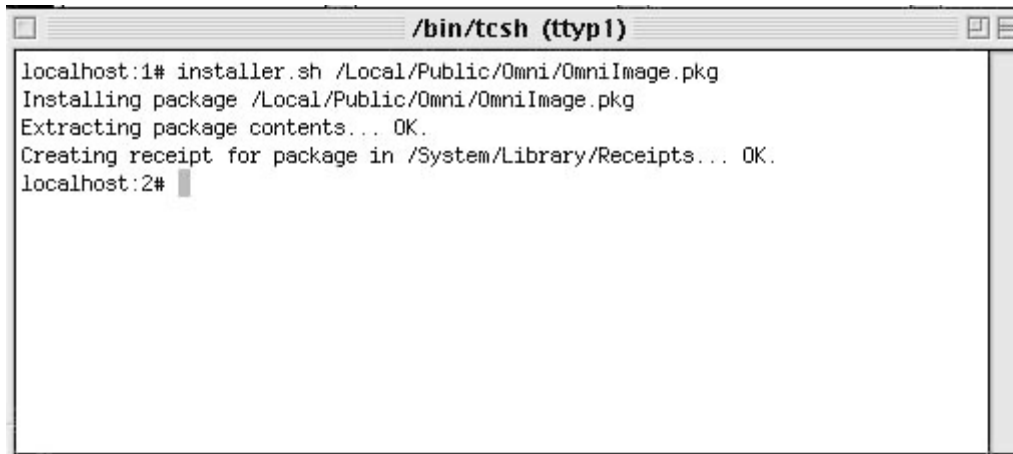
When was my last power outage? Lets see:

```
Riemann> uname -a
Rhapsody Riemann 5.1 Rhapsody Operating System Release 5.1: Fri Apr 17 13:07:52
PDT 1998; root(rcbuilder):Objects/kernel-105.6.obj~2/RELEASE_I386 Copyright (c)
1988-1995,1997 Apple Computer, Inc. All Rights Reserved. i386
Riemann> uptime
9:47AM up 111 days, 17:14, 2 users, load averages: 2.58, 2.70, 2.62
Riemann>
```

To say that it is stable doesn't actually reflect just how stable it is. It is the most stable daily use OS that I have ever worked with (which includes the Mac OS, Mac OS X, SGI Irix, Windows 9x and NT, OPENSTEP and NEXTSTEP).

How do I install packages? Where is the Installer.app? (Rhapsody 5.0/5.1)

Yes, it looks like Apple forgot something when making the early versions of Rhapsody. Actually they were on the road to the much debated transition from tar to pax within their packages. So they held off on making an actual installer app for Rhapsody until the final release to the public.

A terminal window titled "/bin/tcsh (tty1)" showing the execution of the installer script. The output is as follows:

```
localhost:1# installer.sh /Local/Public/Omni/OmniImage.pkg
Installing package /Local/Public/Omni/OmniImage.pkg
Extracting package contents... OK.
Creating receipt for package in /System/Library/Receipts... OK.
localhost:2#
```

To install packages in the in the early versions you need to run the terminal script *installer.sh*. An example of how it should look when installing something (the directory OmniFrameworks.pkg is on the root level of my home directory in this example):

```
installer.sh ~/OmniFrameworks.pkg
```

How do I install fonts? What fonts do I use?

Rhapsody can use most (though not all) NEXTSTEP/OPENSTEP fonts. The installation of them requires them to be in either /Local/Library/Fonts (for all users to have access) or ~/Library/Fonts (for only a single user). These directories may need to be created.

Gather together the fonts you want and put them in the font directory that reflects the access you wish people to have to them. Then open up a terminal and enter the following:

```
builddfmdir ~/Library/Fonts
```

or

```
builddfmdir /Local/Library/Fonts
```

Then log out and log back in again. You should be able to access the fonts now (if they worked, not all are compatible with Rhapsody).

Networking Blue Box.

I always made sure that Blue Box looked like it's own computer on the network (pretty much because that was what it was). My PowerBook is named *Milnor*, Blue Box on my

PowerBook was called *Milnor-Blue Box*. The IP address for my PowerBook would usually be x.x.x.53, the IP address for Blue Box would be x.x.x.54. This was actually helpful as I could reach things on my UFS volume via Fetch (an FTP client) while working in Blue Box (other wise I would have to move items to and from an HFS volume that they could both see, which also worked and was how I usually worked with files in both Yellow Box and Blue Box apps).

Can I upgrade/update the Mac OS in Blue Box?

Yes, to a point. If you are using Rhapsody 5.1, Blue Box must stay at Mac OS 8.1 (as far as I know). If you are running Rhapsody 5.3 - 5.6, you can update 8.5 to either 8.5.1 (recommended if you are currently using 8.5) or 8.6 (recommended for Mac apps that require Carbon libraries). You can not go beyond 8.6 in Blue Box.



The Infamous Desktop DB problem.

Yes, all is not well in paradise. Rhapsody does have it's share of problems and because Apple wasn't planning on using it that long (it lasted longer than they planned by almost two years) they didn't think this one needed a fix.

The problem: Blue Box losses the ability to be shared over a network (via Appleshare/Appleshare IP). Cause: the Desktop DB of any of the HFS volumes on the system have become corrupted. Solution: complete removal of the Desktop DB file from all HFS volumes (including the disk image where Mac OS 8.5/8.5.1/8.6 is installed).

The real HFS volumes aren't really a problem, you just go in and remove them with Blue Box turned off and when Blue Box is started again it'll make new ones.

No, you can not rebuild the desktop in Blue Box to fix this problem, the file itself must be remade from scratch. The best method that I know of (that is the one I used) was to use ResEdit while in Blue Box to make the Desktop DB file visible and moved it to the trash. Restarting Blue Box lets the system create a totally new Desktop DB file.

The default Blue Box image is way, way to small to be useful. How do you fix this?

After Blue Box has been run the first time for any given user, a unique copy of the disk image that Blue Box uses is installed at /Local/Library/MacOS/Users/racerx/StartupDisk.img (where the user in this case is *racerx*). You need to copy this over to a Mac running at least Mac OS 8.5 (though 8.1 may work) and use Disk Copy to *Convert image...* to what ever size you want (up to 2 GB, which was the size I made mine). Copy the new image back to where the original was (making sure that it is named StartupDisk.img) and then fire up Blue Box with your new and improved disk image.

Note: this should really all be done as the user whose disk image is be modified as the permissions are an important factor in this.

Why can't Blue Box see the HFS volumes/partitions on my system?

In order to make sure that both Yellow Box and Blue Box can see all HFS volumes at the same time, you need to run Blue Volume Mount Options.

First start up Blue Box. In the Blue Box disk image under Apple Extras you'll see an app called Blue Volume Mount Options, open it up. You should have a list of the volumes/partitions on your system, click the radio button under *Shared* next to the volumes/partitions you want to have shared between Yellow Box and Blue Box and then quit out of the app. Shutdown Blue Box and then start it up again, and all the shared HFS volumes should appear on your desktop.

Why is my display having problems going from Yellow Box to Blue Box and back again?

Blue Box takes over the system when in use, including the display settings. The best way to make sure that Yellow Box and Blue Box play nicely together is to make sure that the display settings are the same in both. On my PowerBook I made sure that both Yellow Box and Blue Box were displaying in thousands of colors so the display wouldn't need to change when I was switching between apps in the two environments.

Where can I share ideas with other developers about Rhapsody?

Actually the best place was the Omni Group mailing list. They still have archives of the correspondents during that period for those who want to read up on things.

Will any Mac OS technologies be ported to the Yellow Box for Rhapsody? If so, will these be made available on other platforms that OPENSTEP runs on?

To my knowledge the one thing that Apple ported over to Yellow Box from the Mac OS was Quicktime. The display engine in Rhapsody is the same as in OPENSTEP and NEXTSTEP (Adobe's very expensive Display Postscript).

Are the current built-in services in NextStep/OpenStep (spelling checker, graphics conversion library, etc.) going to remain in Rhapsody?

Services are fully functional in Rhapsody.

Will Rhapsody applications run on existing versions of OPENSTEP?

Rhapsody 5.0 for Intel can run some unaltered OPENSTEP for Mach apps, but beyond that the code needs to be modified to reflect the changes in Yellow Box from the original OpenStep APIs.

I have heard that Yellow Box for Windows also has had some luck with OpenStep for Windows apps.

Will existing 68K and PowerPC applications run on Rhapsody?

In Rhapsody 5.0, no. This version didn't come with Blue Box. Rhapsody 5.1 and later versions for PowerPC had Blue Box, but the Intel versions did not.

When will Rhapsody first deliver SMP?

No version of Rhapsody was written to use multiprocessing.

What will be Rhapsody's primary volume format?

Rhapsody (5.3 on) does support a wide variety of volume formats, including HFS, HFS+,

UFS, and popular network and CD-ROM formats. But Rhapsody's primary format (the only type it can be installed on) is a proprietary form of UFS.

How does Rhapsody handle case sensitivity in file names?

Rhapsody *is* as case sensitive as OPENSTEP.

Will resource forks be supported?

Resource forks are not supported (seen) by the OS in Rhapsody. Even though later version of Rhapsody could *see* HFS volumes, it ignored the resource information.

Will hard drive partitioning be supported?

Not for 5.0 and 5.1, yes for later versions.

Will Mac OS applications in the Blue Box be able to recognize that VM is turned on?

Memory management is completely controlled by the Core OS. In Blue Box the system believes that it has as much physical memory as the Core OS has access to. This was a very nice setup for Blue Box apps and made running them seem (in my opinion) far better than running in the standard Mac OS.

Does the Blue Box use the Macintosh ROM?

Actually the ROM file sits next to the Blue Box disk image in the directory `/Local/Library/MacOS/Users/username/`. It is loaded before the image is mounted from what I can tell.

What will be the performance of existing applications in the Blue Box?

They seem as fast as if they were running in the Mac OS on the same system (only with better memory management).

What imaging model will Rhapsody use?

Adobe's Display Postscript. Apple would later make Quartz for Mac OS X that would replace Display Postscript with their own Display PDF so they would no longer have to pay Adobe a license fee with every copy of the OS.

Is the OpenStep Dock going to be available in Rhapsody?

It is actually still there in 5.0 as I recall. In 5.1 and later it has been replaced with the Applications Menu (but you can get it back using Fiend). Also you have the option to use the minimize to tile for windows like in NEXTSTEP/OPENSTEP instead of window shade.

Are my windows and dialogs going to look and act the same under Rhapsody?

The theme in both Rhapsody and Mac OS 8 (and later) came from the design that Apple had been working on for Copland.

File types and creators are an important part of the Mac OS experience. Will these work in Rhapsody, or will we be forced to use filename extensions?

All files require extensions to be recognized by the system.

What will the installer be like in Rhapsody?

Installer? What installer? (re: Rhapsody 5.0/5.1)

Later versions work like the OPENSTEP installer only using pax instead of tar for the items inside the packages.

What will Java applets look like when they run on Rhapsody?

Java is one of the primary languages in Rhapsody/Yellow Box. The version of TextEdit that comes with very version from 5.1 on is actually written in Java. On the down side, it is actually a little slow. Most people who use TextEdit for their work actually use a Objective C version that some people over at StepWise put together (much faster).

Will there be an Apple menu in Rhapsody?

Yes, and in later versions you get the AppleMenuOptions.app to help configure the menu yourself. Apple did release a version that works on both the PowerPC and Intel versions of

Rhapsody 5.1

Will Rhapsody have Setup Assistants?

Yes, and it looks like the Mac OS version.

What about fonts? Are they going to be shared between the Yellow Box and the Mac OS compatibility environment?

No, to each their own.

Can we copy and paste between Rhapsody and the Mac OS compatibility environment?

Yes... limited though.

What are the memory requirements for a computer running Rhapsody?

The suggested minimum of 32 MB of RAM, 48 MB for development or other high-demand applications in 5.0 and 5.1 are actually workable. Pre-5.2 systems seem to be limited to no more than 192 MB of RAM. Systems running 5.3 and later don't seem to max out until 1 GB (I was running with 512 MB in my PowerBook G3 while using Rhapsody 5.6). Those systems really should be run with a minimum of 64 MB of RAM, 128 MB of RAM if you plan on using Blue Box extensively.

Making Programmers out of Users

By Andrew Stone

Welcome to Stone's Throw - an online insight and commentary on Apple's newest OS, currently codenamed "Rhapsody", from a software developer's point of view.

For over a decade, I have been eating and breathing Rhapsody, formerly known as "OpenStep", and before that as "NEXTSTEP" and spelled a bunch of different ways: "NeXTSTEP", "NextStep", etc... Stone Design has produced some of the foremost productivity applications for the NeXT computer, and now has a killer drawing and web design app, Create(tm), ready for Rhapsody.

Today, I'd like to introduce how powerful object oriented operating systems like Rhapsody can turn "regular users" into programmers, thus blurring the line between power user/programmer and producer/consumer. Because this is what happened to me... and it all started with the Macintosh - I bought my first Mac in '86 and realized I enjoyed playing with computers more than the design and building of solar adobes that I had been occupied with for my first decade out of Architecture school.

And it was HyperCard which gave me my first inkling of the awesome power and thrill of user programming in an object-like setting. However, XCMD's and XFCN's were almost impossible for a novice to write, and HyperCard's slow interpretation speeds as well as lack of object design, revealed the limitations in this programming environment. But I owe a debt of gratitude to the HyperTalk masters - I received my first "Object Satori" from this gracious, English-like language.

And indeed, it's those crystalline moments where you understand completely how simple, elegant and powerful the object oriented design model is that can make a decade slip by in a hurry. When I saw my first black cube in March of 1989, I drooled and couldn't rest until I had one in my hands! Here at last was the promise of end user programming in a compiled environment.

In the grand old days of programming, the BYTE heads ruled - those amazing dudes who could cram the most data into the smallest amount of memory, writing in assembly and poking and pushing here and there. With the development of higher and higher level languages and more complete tool kits, the audience for programming greatly increased. OO design has certainly aided this revolution - now you can build applications by "assembling" components right off the "shelf".

So its my belief that Rhapsody will continue this trend of turning professionals from many areas into competent object programmers, thus allowing each expert to apply their domain to the software task at hand. The beautifully designed Foundation Kit and Application Kit allow almost anyone to use the power of Rhapsody without having to know "How" its done. If you

have access to the Rhapsody Developer Release, I recommend you play with the many example applications. A quick and easy exercise is to build your own word processor in just 8 lines of code!

Next week, we'll unravel the codenames and ponder the significance of Yellow Box in a WINTEL dominated world. Please send your comments and cravings!

<http://www.stone.com/dev/DevCorner.html>

Installing Rhapsody DR in Virtual PC

By Patrick Lynch

This is a (basic!) guide to help people install the Rhapsody Developer Releases in Virtual PC. This procedure can also be used to install any of the x86 versions of Nextstep or Openstep.

What you will need:

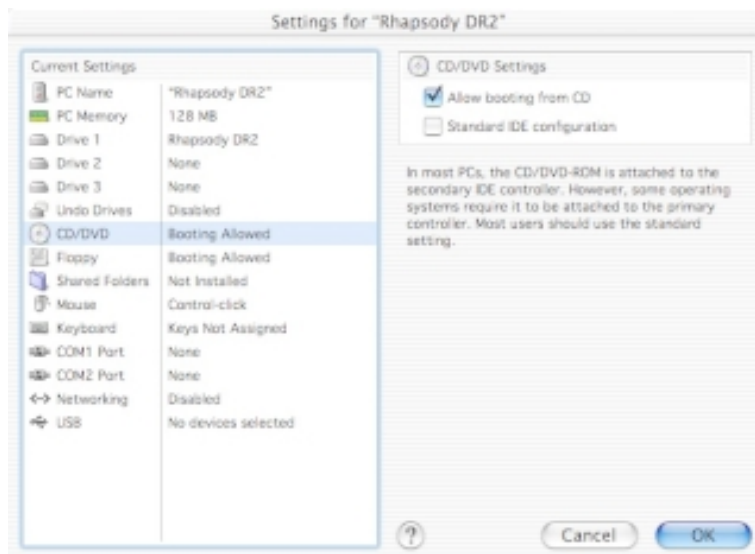
Install media - Rhapsody Install CD and both floppy disks. For speed, I recommend using iso/floppy images rather than the actual media.

Virtual PC (up to 5.0.4 on Mac, up to 4.3.2 on Windows).

Note: NS/OS/Rhapsody is broken in VPC6 (Mac) and VPC5 (Windows).

STEP 1 Setting up VPC

The set-up in VPC is much like any other virtual machine. The one setting to respect, though, is the IDE configuration of the CD. Uncheck the "Standard IDE Configuration" option, as the CD-ROM must be on the Primary IDE channel for installation to work properly. I've left the bootable option checked here, as it makes little difference. You may un-check it if you wish.



I have also disabled Networking. This is because I am no networking guru and in the

interests of getting Rhapsody up and running with the minimum of fuss I have elected to disable it for now. At a later stage I hope to show how to enable networking as it is necessary to get any real "use" out of Rhapsody.

As I have 640MB RAM to play with in my iBook, I have allocated 128MB to the Virtual PC. Rhapsody should run on 32MB or higher. When I installed Openstep natively on my PC a while ago, it was only able to see 512MB of the installed RAM, so this limitation may remain in Rhapsody. For the purposes of running it in VPC, though, 128MB should be ample.

STEP 2 Install Phase 1

Once you have set up your Virtual PC, select it in the Virtual PC List and click "Start Up".

When you get to the "OS not found" screen, drag your Install CD (or ISO) to the CD-ROM drive icon. Then drag the Rhapsody Install/Boot floppy disk image to the floppy drive icon and reset the Virtual PC.

After it has rebooted, you should be presented with this screen:



Choose your preferred language and hit enter to continue.

You will then be prompted to insert the device driver floppy:



Drag the device driver disk image to the floppy drive icon and hit enter.

Now you will be presented with the device driver selection screen. What Rhapsody is looking for is the drivers for your hard disk and cd-rom as it will need these in order to install. Although Virtual PC emulates the Adaptec 154x SCSI card it doesn't always work with Rhapsody. To be safe, we'll use the generic "EIDE and ATAPI Device Controller".

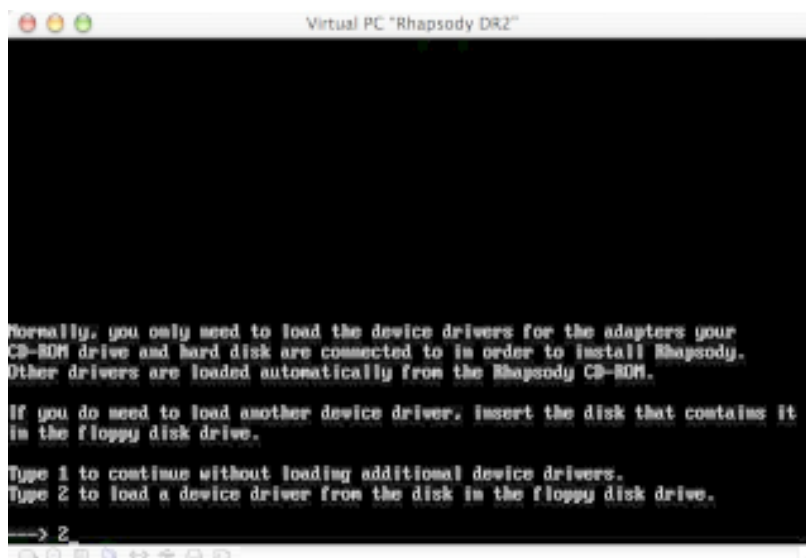


At the driver selection screen, type "7" twice to move through the list of drivers on the disk, until we get to the screen with the driver we want. Then type "3" to select it.

Now we get to the one "bug" in the DR2 install :). Once selected you will then be asked if you want to install additional drivers or continue.

However, we've only installed one driver. In DR1 you were presented with the driver selection screen twice before getting to this stage, but in DR2 they slipped up. So you will need to type "2" to install an additional driver. Repeat the earlier process and install the "EIDE and ATAPI Device Controller" driver again. Now you have installed drivers for both your CD-ROM and your Hard Disk.

When presented with this screen for a second time, type "1" to continue.



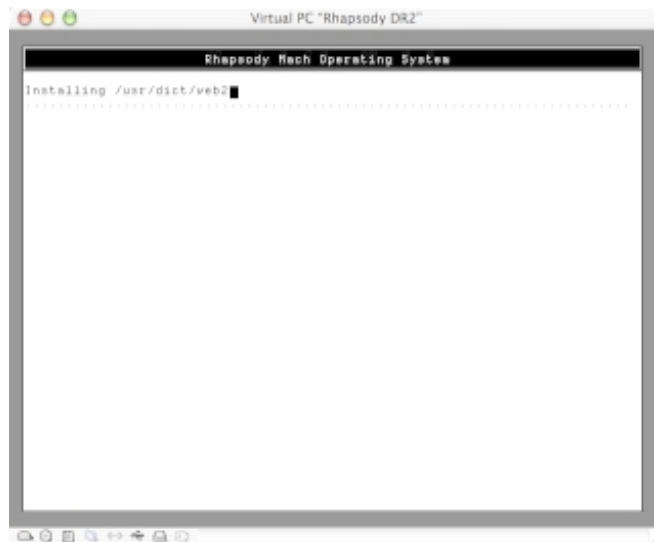
STEP 3 Install Phase 2

Now we are into the next phase of installation.

Rhapsody has loaded the necessary drivers and boots up to the disk initialisation phase. You will receive a number of prompts to advance through to the installation. Unless you want to explore the options available, simply type "1" at each prompt. Eventually it will start to initialise your disk in preparation for copying the base system files:

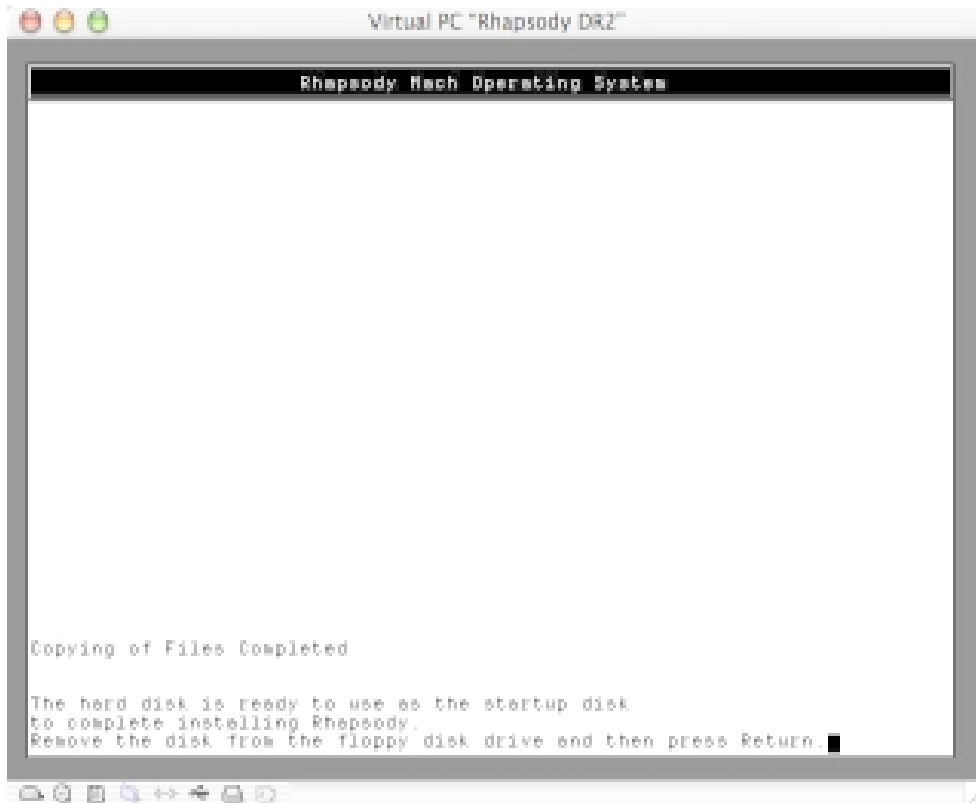


Once Rhapsody has successfully initialised your disk, it will begin to copy the base system files.



Depending on the speed of your system (and hard disk) this can take some time (don't think "cup of tea", think "go shopping"). As a reference, on my iBook 800Mhz it took just under 30 minutes.

Once finished you will be prompted to remove the floppy disk image and reboot:



STEP 3 Setting up devices and choosing installation packages

After the reboot, we get our first splash screen so we know things are starting to come together :)



The next step is to set up the additional devices in our Virtual PC. The most critical one to get right is the display adapter. An incorrect display driver can wreak havoc, particularly in the earlier NS/OS releases.

For DR2 we want the generic S3 driver, so click on the monitor icon on the device configuration panel and choose it from the list of detected devices.

Once loaded, we can then set our preferred screen resolution, colour depth and refresh rate. Clicking on the "Select" button in the Display Mode box gets you to this screen:



This one should do for now. If you plan to run it full screen or have a large display, you may want to go up to 1024x768 for the added real estate. Click on "OK" and then click on the speaker icon to set up your sound card.

Setup will detect the Virtual PC's emulated SB16 and provide you with two driver choices. Either should work (I chose the top one). VPC emulated sound won't set the world on fire, so don't expect much in Rhapsody.

At this stage, I haven't set up the network card as it will only interfere with the install process. Once Rhapsody is completely installed and working you can then install the device driver (using this "Configure.app" which you can find in the "system/administration" folder) and set up your networking.

A guide for this will be created once I have successfully done this :)

So with just the display and sound drivers to set up, you should end up with a screen like this:



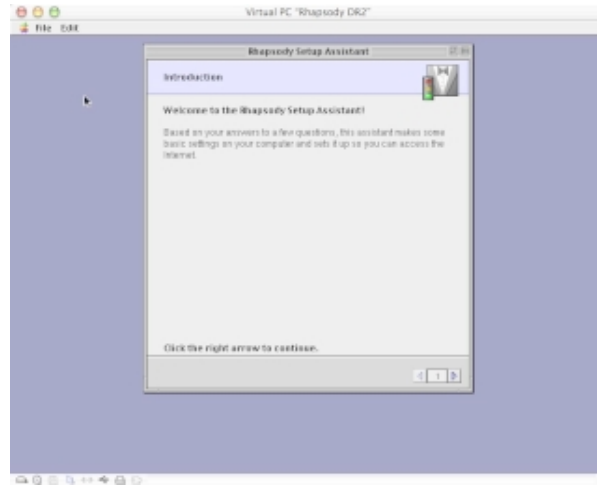
Click "Save" and setup will proceed to the next stage.

The "Rhapsody Essentials" were installed earlier so now we get the option to install the extra packages that come with Rhapsody. Most are really only of interest to dev types, but I've checked the Samba option as this may come in handy later when we try to network this Rhapsody "box".

Again, depending on what packages you pick and your system speed, this may take some time. Once completed, you will be greeted with this screen and now we are almost done!

STEP 4 Setup Assistant

Hit "Restart" and after the reboot we'll get our first taste of colour (yay!) Rhapsody came with a "Setup Assistant", a bit like the Mac OS 8 one, to help you configure such settings as networking, internet connection, time zone, date and time, user accounts and login options. Unlike DR1, DR2 was Y2K compliant as this screenshot testifies



Once you have answered all of the Setup Assistant's questions, you will then boot into Rhapsody. As I declined the option to automatically log-in, the next screen I see is the login one. As you can see, it's very similar to the screen used in OS X Server.



And that's it. You have now successfully installed Rhapsody Developer Release 2 in Virtual PC! Behold your Workspace:



Now comes the fun part.

STEP 5 Network Setup

In order to actually get any apps into Rhapsody we will need some form of network connection. This is because Rhapsody has limited filesystem support. I hope to have a guide on how to set this up in the near future.

If anyone can step me through this that would greatly expedite the process. Feel free to mail any comments or help to me at crayonboy3k@yahoo.com

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