eComStation 2.0RC5 Installation to the ASUS EeePC 701 from a USB connected CD or DVD drive.

Author: Ed Durrant
With acknowledgement to:
Allan Holm, Roderick Klein, Eugene Gorbunoff, Sigurd Fastenrath and OS/2 Team.de
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This document is a follow up in the series of documents on how to install eComStation 2.0 to an ASUS EeePC. The original documents specified an install to a SD-Card that the EeePC could then boot off, hence a "non-destructive" install as the original Xandros image is left on the system, If this is what you wish to do, please refer to the relevant file (stored on Hobbes). This process writes to the internal Solid State Disk "SSD" meaning the original Xandros image cannot be retained.

This is NOT a step by step, how to install eCS. It is assumed you have installed an eCS 2.0 RC previously, I will only highlight the changes specifically needed for the EeePC and installing from a USB connected optical drive.

Included in the zip package with this document are the modified or backlevel drivers that you need to complete this install (these files are also needed by the none-destructive (SD-Card) install) – the modified GenMAC drivers have been produced by a very helpful group at Team OS/2.de and thanks go to them.

It should be noted that using the patched WiFi driver on some systems has had intermittent drop outs after about 30 seconds. I have not found that on my install, so as always YMMV ("your mileage may vary").

The model of Eeepc used in this project is the PC701 4G. This has a 900MHz Celeron running at 600MHz, 512MB RAM, upgraded to 2GB, a 7inch (800x480) widescreen screen, an external monitor socket, an internal 4GB Solid State Disk, three USB ports, a built in SD memory card reader, webcam and 10/100 Ethernet and 802.11G WiFi networking. Some models also come with a V90 modem (but not the ones released in Australia). Not bad in a very portable (900grams) unit about this size of a A5 diary. My model was from the original "A" batch and has an empty mini PCIe socket where a larger Solid State Disk (presently up to 16GB in size) can be installed. .

ASUS also have other models of the EeePC of these the PC900 uses exactly the same chipset as the PC 701. The PC900 comes with an 8.9" screen, 1GB RAM and up to a 12GB SSD. Other models of the EeePC (and indeed other makes of "Netbooks" as these ultra small machines are now being called), come with the Intel Atom 1.6GHz processor and different network and video chipsets. You will need to adjust the process and probably find or create alternative drivers to use the process documented here to install eComStation 2.0 onto them.

Note this latest process uses eCS 2.0 RC5 (release candidate 5) where the earlier process used RC4.

Screen shots in this documentation were taken from a larger LCD monitor to make the graphics more easily readable. If you are able to attach an external monitor while performing the install, it will make it easier to see.

It was thought that eComStation 2.0 could not be installed from a USB attached device (normally a CD/DVD Rom drive) however with some very minor changes to the install set up (which are likely to be implemented directly as default in the RC6 release of eCS 2.0), it is indeed possible to perform a semi-normal install to the systems internal disk.

Pre-requisites:

- Working EeePC 701 (or 900) system
- (optionally) external monitor to improve visibility of text.
- USB connectable CD or DVD drive.
- eComStation 2.0 RC5 install CD and license key on either a floppy disk, SD card or USB memory key.

- Uniaud32.sys file from the Uniaud v 1.13 package (current version in eCS 2.0RC4/5 build is v 1.14 and is not compatible with this chipset).
- Panorama widescreen driver version 0.71 or later.
- Updated Genmac drivers for both the cable (LAN) and wifi (WLAN) chipsets in the EeePC.
  (these last three items are included in the zip file that you should have got this document out of).

Here is the step by step process so that you can do the same (photos are shown at important parts) – otherwise the normal install process should be followed:

1. Boot from the USB connected optical drive with the eComStation 2.0 RC5 install CD in it. If the PC doesn't boot from the CD, go into the BIOS and check the boot sequence. If the internal disk is set as the first boot device, the system will never boot directly from anything else. Alternatively press "esc" when the grey ASUS screen is displayed and select your CD/DVD drive.
   After a few seconds you should see the following screen:
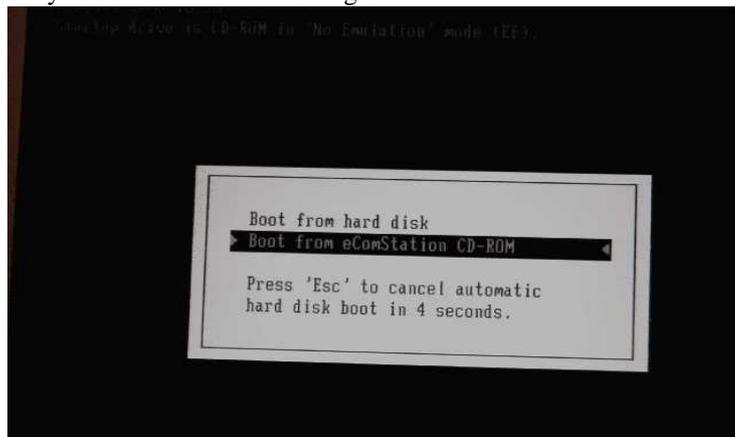
   as shown, select the "Boot from eComStation CD-Rom" option by pressing the down arrow key and enter.
2. The system should now display the following screen:
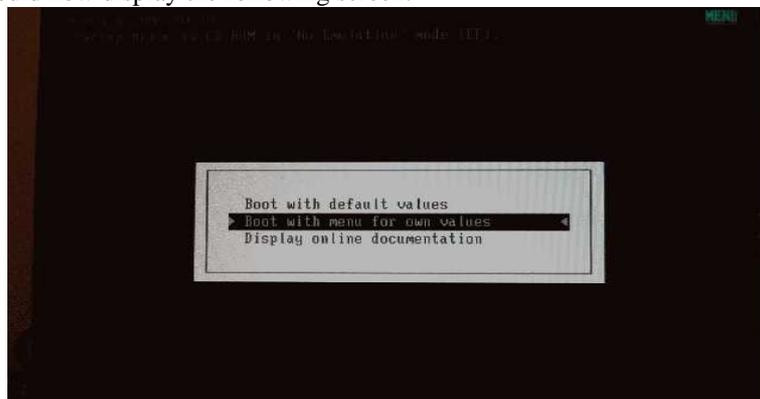
   Again, as shown, move the bar down to the "Boot with menu for own values" option and press enter

3. Several comands will now be displayed scrolling down the screen and you will then be taken into hardware configuration menu, as shown here:
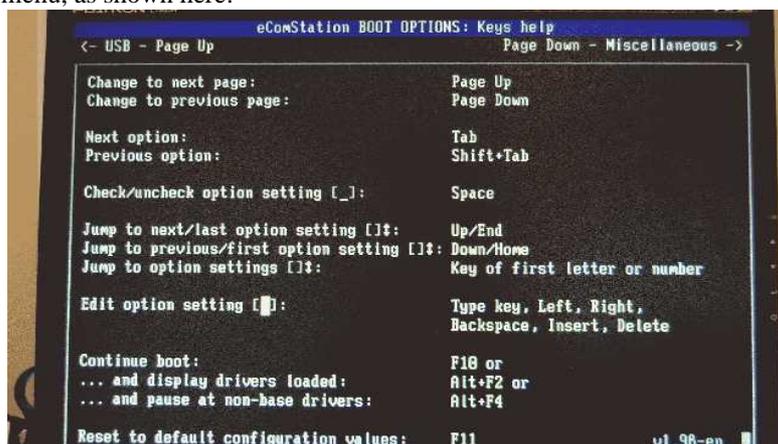
To navigate through these fields, I find it best to use shift+tab to go backwards through the fields to get to the one I want and then depending upon the field type you can type a number in, press the up or down arrow to select an option, or press the space bar to "set" a field on.

This is the first screen of the eCS hardware set up screens – press [page up] to go to the:

4. USB configuration screen:
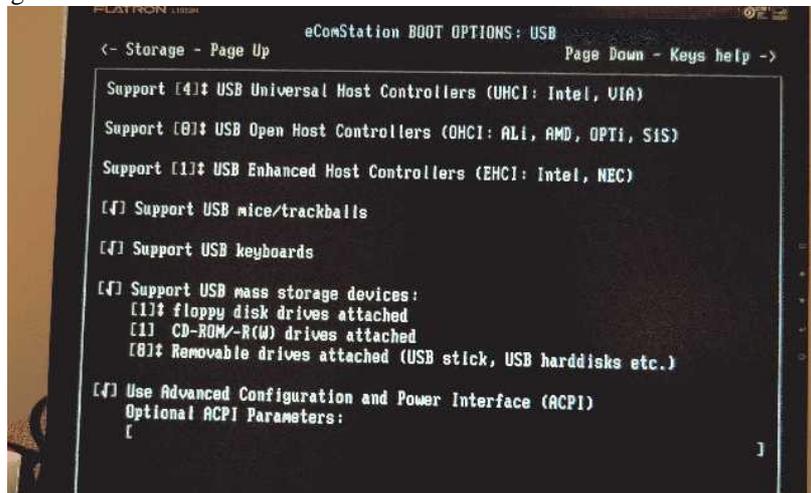
On this screen, make sure that you increase the CD-Rom/-R(W) drives attached value from 0 to 1.
If you wish you can change the number of removable drives from 8 to something more sensible such as 2 or 3 at this point - Press [page up] again to get to:

5. Storage options.
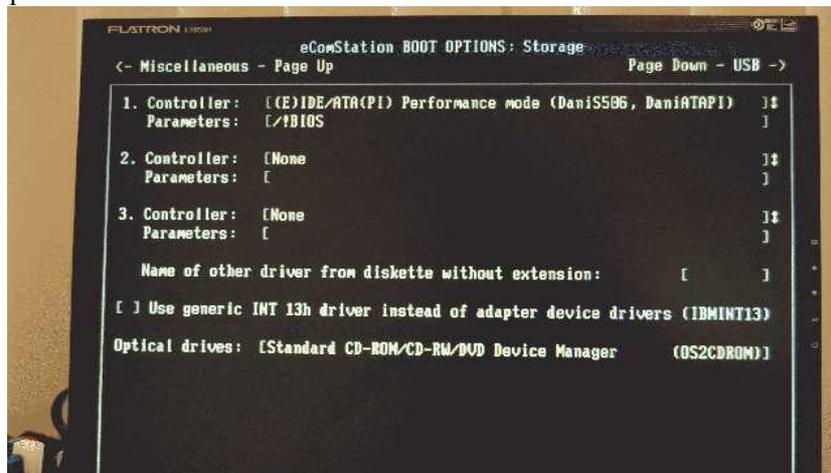
In this screen, simply check that settings are as shown in the picture (these are the default settings). Press [page up] again to go to:

6. Miscellaneous options
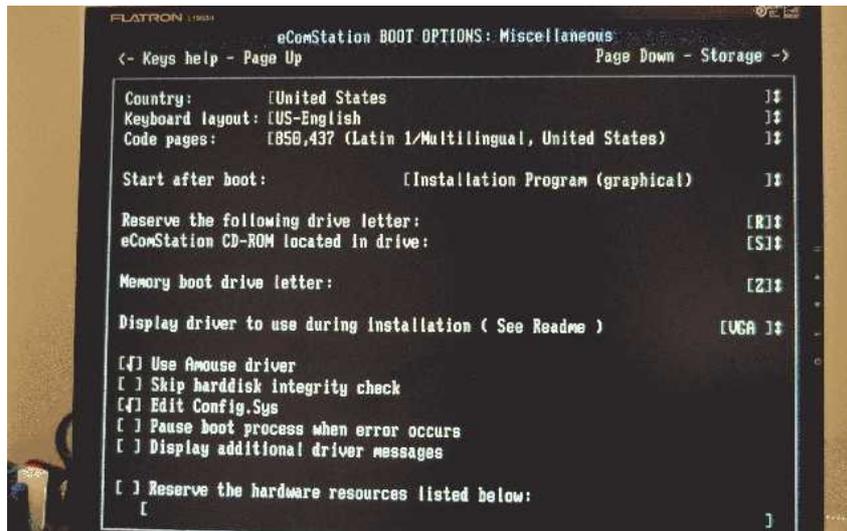
On this screen make sure you set the display driver to VGA (not SNAP) otherwise you will not be able to access or even see many of the options on the install screens as SNAP defaults to 800x600. The other critical change on this screen is that "Edit Config.sys" must be selected by pressing the space bar while the cursor is in the field. Now press [page up] for one more time and you will see:

7. The main eCS hardware configuration screen again:
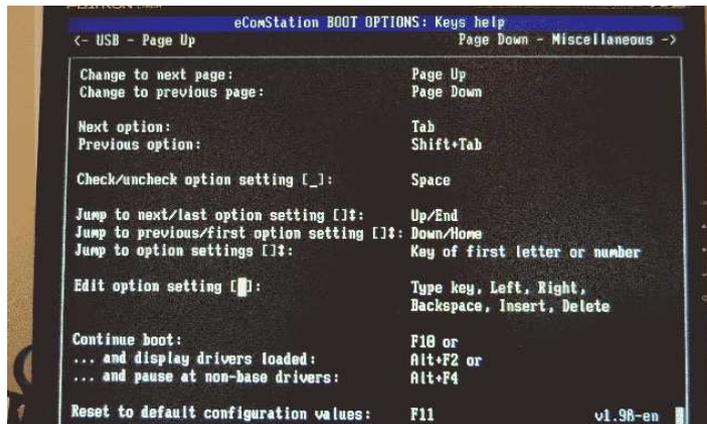
Now press F10 to save and continue and you will be taken to:

8.The edit screen for config.sys:
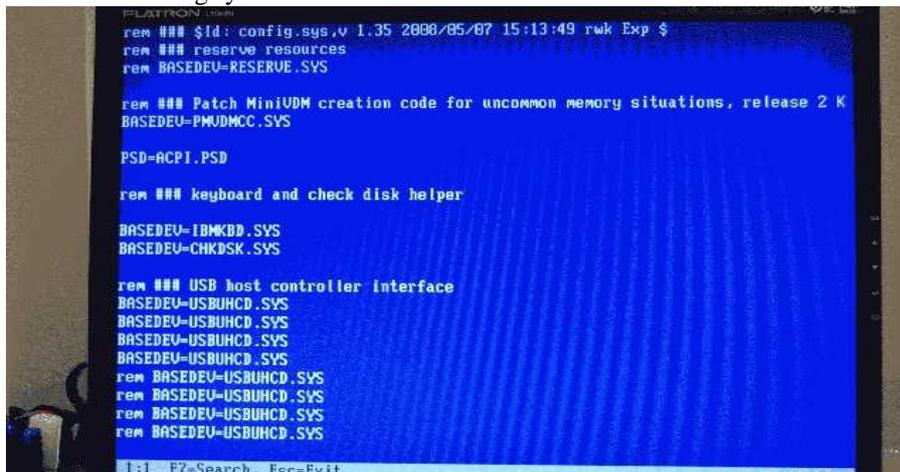
Here we need to add in a Basedev line for USBD.SYS with the parameter /I13. This tells the driver to use the BIOS access method to go to the hardware rather than going via the other USB drivers, which at one point during the install process become inoperative during the switch from real mode.

9. So enter the basedev line as shown here:

Can you see it – just after the keyboard and CHKDSK drivers, but most importantly before all of the other USB drivers.

10. Looking further down the file we find the original USBD.SYS line:

Do you see it here – mid screen ? (also note that we have a line in here supporting one USB CDRom as well). So we need to "REM OUT" the old USBD.SYS line to avoid conflicts – you could also delete it, but I prefer to simply add a REM statement before it – as below:

Press "esc" to end editing and ....

press "Y" to save all of the changes.

All of the special customisation to support installation from a USB connected CD or DVD drive is now completed and you will be taken into the normal eCS configuration screens – here, to be able to later install the correct drivers for the EeePC you do need to make sure you select the options as described below. All other options are left up to you:

Specific Build Options – eCS 2.0RC5 for ASUS EeePC PC701/PC900.
Advanced Install
Create a JFS or HPFS formatted partition (1GB is large enough) – you can decide how you want this on the EeePC's internal SSD, you can install boot manager so that you can (for example) dual boot with Windows XP or some flavour of Linux – the same as installing onto a normal desktop PC.
Hardware & Peripherals configuration,
  defaults except :-
         Display – Panorama enhanced VESA.
         Standard devices – Advanced power management – install.
                  - Disable serial port controller support
                  - USB Support – 1 EHCI controller
                           2 UHCI controllers
                        - Add **USBCDROM** and USBMODEM support. Even if you do not intend to use the external CD/DVD drive with the EeePC later, you must define it here otherwise when the install moves into phase 2 it wont be able to access the CD-Rom !
                  - Multimedia support – Uniaud support (AC97 - not HD Audio version).
      Select Components – Legacy Software support – deselect DOS and WIN16 (unless you need these but they do slow the system down).
       –   system extensions – filesystem drivers - select FAT32 support (memory keys).
   - (optionally add NTFS (RO) support).
                        - deselect "security enablement services (SES)"
       –   Usability extensions – deselect VNCServer.

Network adapters and protocols – no network cards will have been detected, so we will select the "nearest ones" and overwrite these files later – select *Genmac Wrapper Atheros wLAN AR5005g(168:001A)* as the Wifi card and *Genmac Wrapper Attansic Gigabit(1969:1048)* as the cabled ethernet card. Add only the TCP/IP protocol to the WiFi card and add TCP/IP and Netbios over TCP/IP to the cabled ethernet connection definition.

Here are the relevant important screen shots for reference:
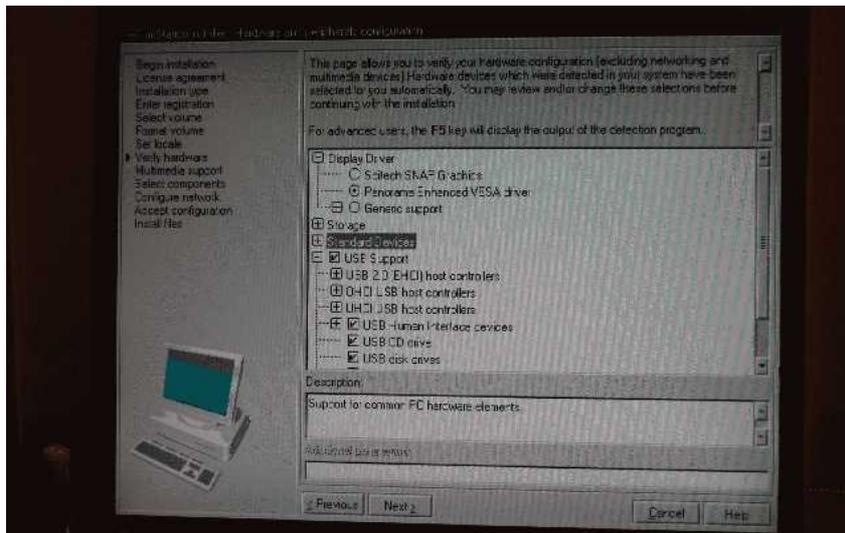
Hardware Configuration - Set Panorama Video and USB CD Rom (and USB Modem if you intend to use your EeePC with a mobile broadband e.g. 3G connection)..
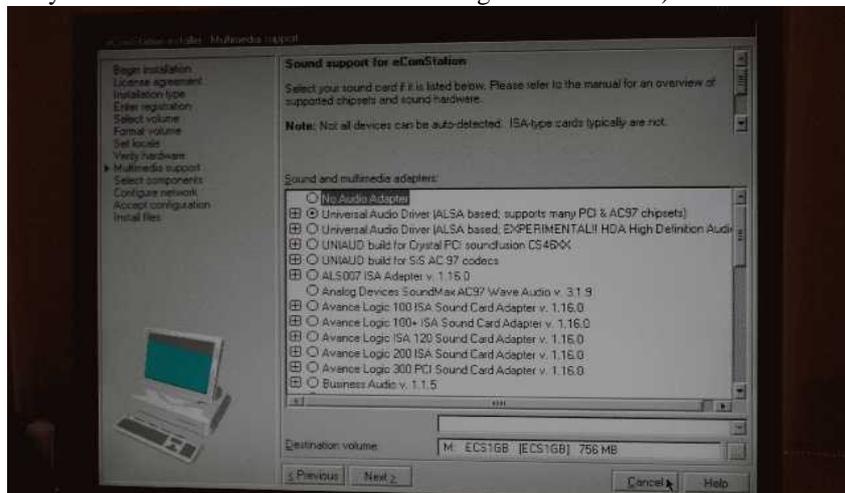

Multimedia Support – Select Uniaid – AC97. (this should be selected by default).

Networking: Not shown here – please see notes above – you will need to configure the networking hardware.
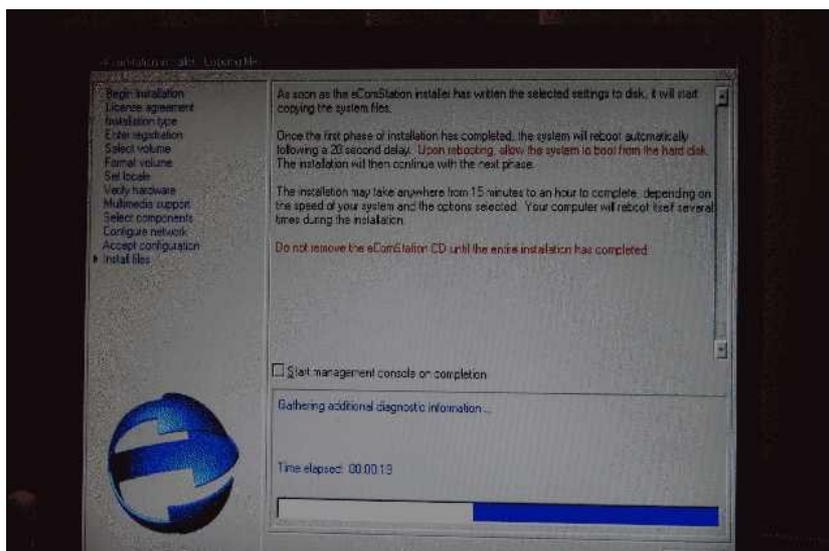
After these items have been selected the system will install the files .....
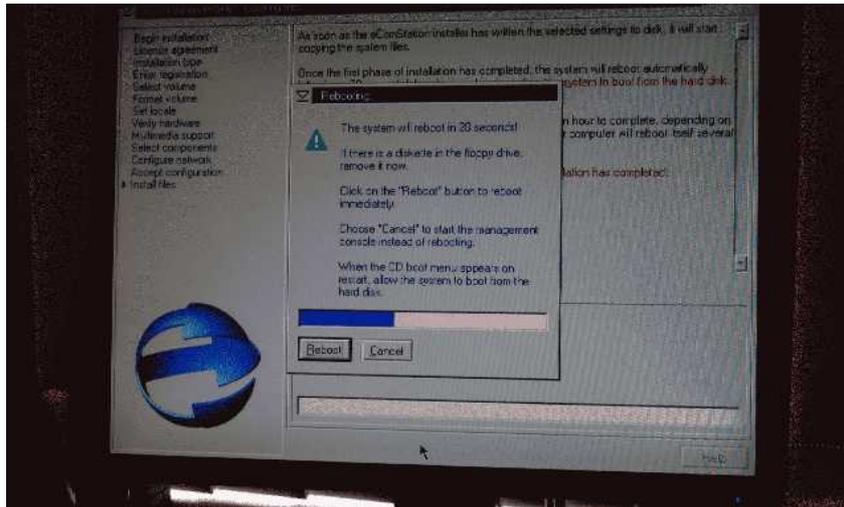
Next comes the system reboot at the end of phase 1, phase 2 will boot off the internal disk.
During this and the next boot errors will be displayed for the not-found network cards – simply press enter to continue if requested.
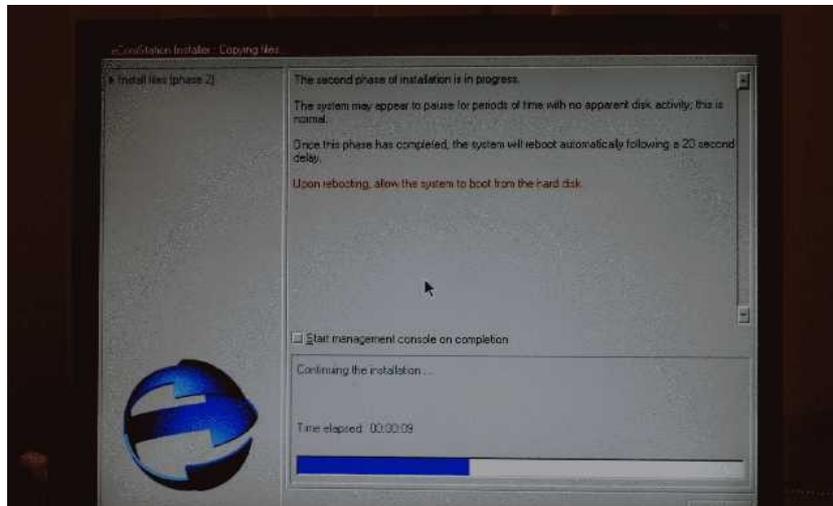
Again Phase 2 loads more files from the CD dependant upon the options chosen.
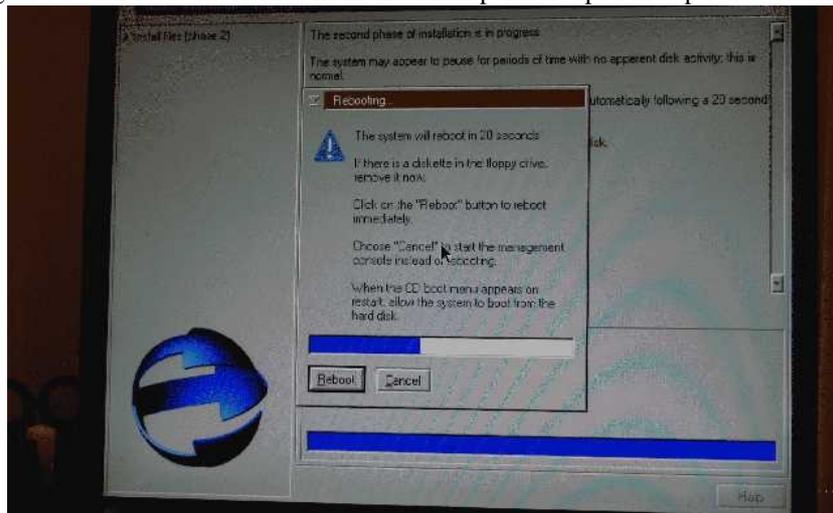
And again a reboot at the end of phase 2 into the final phase (3). Again with network card errors - just press enter.
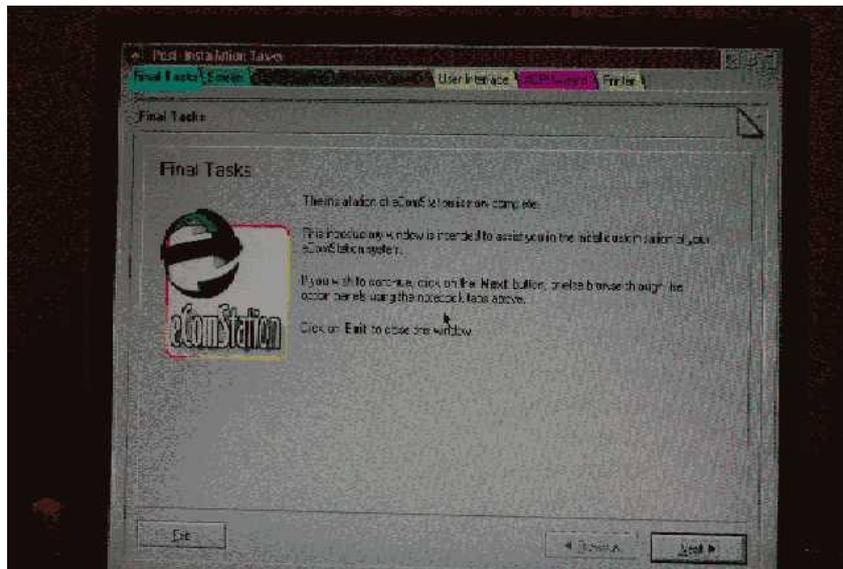
This is the screen we have been waiting to see ! eCS has been installed and you are asked to perform final customisation of the operating system.

In these "Final tasks" panels, in screen settings – Panorama should be shown at 800x600 – the display should show "no monitor is selected".

You need to set username, domain name etc. as will be required on the EeePC. You should select the "allow computer to be seen on network" and "allow sharing..." options in networking.

In summary:

The first Uniaud audio adapter option in the list (we will back-level to the compatible version later)

The nearest GenMAC adapters – namely

Genmac Wrapper Atheros wLAN AR5005g(168:001A)

and *Genmac Wrapper Attansic Gigabit(1969:1048)*

Panorama graphics support (will install itself in it's default 800x600 mode but we will add the widescreen driver later to switch to the 800 x 480 resolution of the EeePC)

JFS or HPFS formatted partition

No legacy (DOS / WIN16) support (deselect this – it's set to install by default).

No Serial Port support (deselect this – it's set to install by default)

Exclude all laptop-PCMCIA support as the EeePC does not have PCMCIA.

Final changes:

You may have already unzipped the file that this document was in, if so you will have directories, ACPI, Video, Audio and network directories. These directories contain the files you need for the final configuration steps. If you only extracted this document, unzip the complete package to a temporary location now.

We now need to revert to the previous version of part of the Uniaud driver

Copy the UNIAUD v 1.13 uniaud32.sys from within the AUDIO directory of the zip file that this document came in, to c:\mmos2\ overwiting the file that is already there.

You also need to add the widescreen driver (in widescreen_v071.zip) for Panorama to config.sys and set it's parameter to /0800 which will force the resolution to the required 800x480 pixels of the EeePC display. Unpack widescreen_v071.zip from the VIDEO directory within the zip file that this document came in and move the intlbios.sys into \os2\boot on your boot drive then add the following line into config.sys after the other BASEDEV statements.

BASEDEV=INTLBIOS.SYS /0800 (note that is zero, eight, zero, zero – do not drop the first zero).

Although eCS 2.0 RC5 comes with ACPI and APM, the RC5 version does not work fully with the EeePC, however the latest version (dated 2nd. October 2008) does. I have included the WPI update file in the zip file that this document is in, under the ACPI directory. Simply click on this wpi file in your temporary area and select yes to all questions presented. In desktop properties set the system shutdown to use APM not ACPI.

The last modification takes a few more steps than those above. It is to implement network support; However this is also not too complex:

Copy the complete "wrapper" directories of the DRIVER directory from the unpacked zipfile to c:\ecs\system\genmac\driver

Copy the file genm32w.os2 from the DRIVER directory to c:\IBMCOM\MACS

Copy the ".nif" files from the NIF directory to c:\IBMCOM\MACS

(substitute your boot drive letter for C: as required).

Open the eCS Lan Adapter configuration program (MPTS) remove the current entries and select both of the new drivers that will now be listed there with GenMAC descriptions ending in (168C:001C) and (1969:2048).

Use the WLAN as Adapter 0 and the LAN as Adapter 1,
Protocols: for WLAN only TCPIP, for cabled LAN TCPIP and NETBIOS over TCPIP
Reboot the system.

You are probably wondering why we installed the other GenMAC drivers earlier ? We needed to do that so that the correct Genmac components (parts of which we have now replaced with patched ones) were installed. Had we not done that no GenMAC support would have been installed, special entries in OS2.INI would not have been written and the WLAN monitor which allows configuration of the WiFi network would not have been installed.

Completion:

If all goes well the system should boot up. I recommend that you go into the WPS properties and turn on "archive at every restart" and increase the number of archives kept to 9 (I prefer to have as many backups as possible) before doing any modifications. The archiving function backs up the system INI files and the desktop, however if you edit the "OS2.KEY" text file you can add any other configuration files that you wish to keep and be able to restore to if needed.

Once you have the desktop the way you like it you can execute "ARCINST" which will override the original install backup with the current desktop and INI settings so that you can always return to a known good point in time.

To configure the WiFi connection please refer to the documentation in wLANmon.

<u>Troubleshooting section:</u>

- What if the install stops at Phase 2 saying it cannot access the CD/DVD Drive ? You most likely forgot to tick the USB CDROM support in the advanced configuration pages (by default USB CDROM support is turned off).
- You get an error at boot up saying PCOM.SYS cannot be loaded – it seems for some reason that despite de-selecting the COM support in the install process sometimes this (modified for ACPI) comms driver still gets put into config.sys. As the EeePC has no COM port you don't need it, so just rem it out (or remove it) in config.sys to get rid of the error message at boot-up.
- "E87" is shown on the eCenter at the right hand side. This is a problem in APM/ACPI, it is unable to display whether you are running from battery or mains and if on battery, what percentage of charge is left. This works sometimes, not others. It does not stop the system from working and hopefully a later version of ACPI/APM will fix this.